



## Fruit fly (Diptera: Tephritidae) fauna in Tokat province (Türkiye)

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## ABSTRACT

This study reports the findings of fieldwork based on adult fruit fly samples collected from the province of Tokat in the spring and summer months of 2016–2018. Adult fruit fly samples were caught by using insect nets from possible host plants, taken into killing bottles, and then transferred to storage jars. As a result of the diagnostic procedures, a total of 28 fruit fly species belonging to 11 genera of the Tephritidae family were identified. The findings of this study offered significant contributions to the body of knowledge regarding the determination of the fruit fly fauna of Türkiye and the dispersion of fruit flies in our country.

**Keywords:** Fauna, fruit-fly, Tephritidae, Tokat, Türkiye.

This research was produced from the first author's MSc thesis.

## 1. INTRODUCTION

The fruit flies (Diptera: Tephritidae) is an economically important Diptera family in terms of cultivated fruits, which has a wide distribution area all over the world. The existence of 4716 species and 492 genera has been reported in the world.<sup>1</sup> However, it is thought that the number of species is increasing by means of described new species in worldwide. In Türkiye, many important faunistic research carried out in the last 20 years and up to date more than 177 species has been reported so far.<sup>2-10</sup> Main purpose of this study, is to identify the fruit fly species found in the Tokat province of Türkiye. As a result of the study, a total of 28 species of fruit flies were identified, and all of the species were reported for the first time from the Tokat province in this study.

## Tokat ili (Türkiye) meyve sinekleri (Diptera: Tephritidae) faunası

## ÖZ

Bu çalışma, 2016–2018 ilkbahar ve yaz aylarında Tokat ilinden toplanan ergin meyve sineği örneklerine dayalı saha çalışmasının bulgularını rapor etmektedir. Yetişkin meyve sineği örnekleri muhtemel konukçu bitkilerden atraplar aracılığıyla yakalanmış, öldürme şişelerine alınmış ve daha sonra saklama kavanozlarına aktarılmıştır. Yapılan teşhis işlemleri sonucunda Tephritidae familyasına ait 11 cinse ait toplam 28 meyve sineği türü tespit edilmiştir. Bu çalışmanın bulguları, Türkiye meyve sineği faunasının belirlenmesi ve ülkemizdeki meyve sineği dağılımına ilişkin bilgi birikimine önemli katkılar sunmaktadır.

**Anahtar Kelimeler:** Fauna, meyve sineği, Tephritidae, Tokat, Türkiye.

## 2. MATERIALS AND METHODS

Field studies were carried out in 30 different localities in Tokat province (Figure 1) and 728 adult fruit fly samples were collected. The samples were caught by using insect nets over possible host plants, put into killing bottles and brought to Gaziantep University, Department of Biology, Entomology Museum and taken under protection. Dry fruit fly samples were relaxed and prepared for needling, similar to the study.<sup>11</sup> Identification of the samples was made by using the identification keys and species descriptions in previous literature sources.<sup>12-24</sup>

## 3. RESULTS AND DISCUSSION

## 3.1. Results

A total of 28 species belonging to 11 genera of Tephritidae were identified. The following list includes examined materials from the identified species. The species are listed alphabetical order.



Figure 1. The map of the research region.

***Acanthophilus helianthi*** (Rossi, 1794)

Examined material: **Tokat**, Center, Kat Town, 40°18' N, 36°04' E, 555 m, 01.05.2016, 1♀, 2♂♂; Center, Çerçi, 40°19' N, 36°25' E, 560 m, 29.05.2016, 2♂♂; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 02.06.2016, 1♀; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.06.2016, 2♀♀, 1♂; Almus, Bakımlı, 40°37' N, 36°80' E, 826 m, 17.05.2017, 1♂; Niksar, Gökçeoluk, 40°44' N, 37°03' E, 1239 m, 17.05.2017, 2♀♀; Niksar, Mutluca, 40°25' N, 37°07' E, 436 m, 18.05.2017, 3♀♀, 2♂♂; Niksar, Özdemir, 40°39' N, 36°59' E, 1300 m, 18.06.2017, 4♀♀, 2♂♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 29.06.2017, 1♀; Turhal, Küçükbağlar, 40°17' N, 36°19' E, 830 m, 29.06.2017, 1♂; Niksar, Derindere, 40°30' N, 36°55' E, 355 m, 29.06.2017, 1♂; Niksar, 40°34' N, 36°57' E, 856 m, 30.06.2017, 1♀, 2♂♂; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♀, 1♂; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 13.06.2018, 2♂♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 14.06.2018, 1♀; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 14.06.2018, 2♀♀; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 02.08.2018, 2♀♀, 3♂♂; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 1♀, 2♂♂.

***Chaetorellia jaceae*** (Robineau-Desvoidy, 1830)

Examined material: **Tokat**, Zile, Akkılıç, 40°14' N, 35°63' E, 749 m, 01.07.2016, 1♀, 2♂♂; Niksar, Gökçeoluk, 40°44' N, 37°03' E, 1239 m, 17.05.2017, 3♀♀, 2♂♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 29.06.2017, 1♀, 3♂♂; Reşadiye, Center, 40°22' N, 37°21' E, 690 m, 29.06.2017, 1♀; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 14.06.2018, 1♂; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 1♀.

***Chaetorellia loricata*** (Rondani, 1830)

Examined material: **Tokat**, Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♀, 1♂.

***Euaresta bullans*** Wiedemann, 1830

Examined material: **Tokat**, Center, Kat Town, 40°18' N, 36°04' E, 555 m, 01.05.2016, 15♀♀, 21♂♂; Center, Çerçi, 40°19' N, 36°25' E, 560 m, 29.05.2016, 3♀♀, 5♂♂; Zile, Akkılıç, 40°14' N, 35°63' E, 749 m, 01.07.2016, 7♀♀, 6♂♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 18.05.2017, 2♀♀, 4♂♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 29.06.2017, 3♀♀, 1♂; Center, Kılıçlı, 40°21' N, 36°38' E, 775 m, 29.06.2017, 3♀♀, 7♂♂; Niksar, Gündüklü, 40°33' N, 36°52' E, 300 m, 01.07.2017, 5♀♀, 2♂♂; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♀, 1♂; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 13.06.2018, 6♀♀, 8♂♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 05.07.2018, 1♀, 2♂♂; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 3♀♀, 5♂♂.

***Myopites cypricus*** (Hering, 1938)

Examined material: **Tokat**, Niksar, Gündüklü, 40°33' N, 36°52' E, 300 m, 01.07.2017, 1♀, 1♂.

***Orellia stictica*** (Gmelin, 1790)

Examined material: **Tokat**, Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♀, 2♂♂.

***Sphenella marginata*** (Fallen, 1814)

Examined material: **Tokat**, Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 01.05.2016, 2♀♀; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.06.2016, 2♂♂; Almus, Bakımlı, 40°37' N, 36°80' E, 826 m, 17.05.2017, 1♀; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 18.05.2017, 1♂; Niksar, Mutluca, 40°25' N, 37°07' E, 436 m, 18.05.2017, 1♂; Turhal, Küçükbağlar, 40°17' N, 36°19' E, 830 m, 29.06.2017, 1♀, 2♂♂; Reşadiye, Center, 40°22' N, 37°21' E, 690 m, 29.06.2017, 1♀, 2♂♂; Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 13.06.2018, 1♀, 1♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 14.06.2018, 1♀, 1♂; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 02.08.2018, 2♀♀; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 1♂.

***Tephritis bardanae*** (Schrank, 1803)

Examined material: **Tokat**, Niksar, Gökçeoluk, 40°44' N, 37°03' E, 1239 m, 17.05.2017, 1♀, 3♂♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 29.06.2017, 1♀; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 14.06.2018, 1♀; Almus, Oğulbey, 40°39' K, 37°00' E, 927 m, 02.08.2018, 1♂.

***Tephritis divisa*** Rondani, 1871

Examined material: **Tokat**, Center, Kat Town, 40°18' N, 36°04' E, 555 m, 01.05.2016, 2♂♂; Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 01.05.2016, 1♀; Artova, Madas, 40°10' N, 36°26' E, 1138 m, 02.06.2016, 3♀♀, 2♂♂; Almus, Bakımlı, 40°37' N, 36°80' E, 826 m, 17.05.2017, 2♀♀, 1♂; Niksar, Mutluca, 40°25' N, 37°07'

E, 436 m, 18.05.2017, 2♀♀; Niksar, Özdemir, 40°39' N, 36°59' E, 1300 m, 18.06.2017, 1♂; Turhal, Küçükbağlar, 40°17' N, 36°19' E, 830 m, 29.06.2017, 1♂; Niksar, 40°34' N, 36°57' E, 856 m, 30.06.2017, 1♀; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 14.06.2018, 2♂♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 05.07.2018, 1♀; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 1♀.

***Tephritis formosa*** (Loew, 1844)

Examined material: **Tokat**, Center, Kat Town, 40°18' N, 36°04' E, 555 m, 01.05.2016, 2♀♀; Center, Çerçi, 40°19' N, 36°25' E, 560 m, 29.05.2016, 1♀, 2♂♂; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.06.2016, 1♂; Almus, Bakımlı, 40°37' N, 36°80' E, 826 m, 17.05.2017, 2♂♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 18.05.2017, 1♂; Niksar, Özdemir, 40°39' N, 36°59' E, 1300 m, 18.06.2017, 1♀; Turhal, Küçükbağlar, 40°17' N, 36°19' E, 830 m, 29.06.2017, 1♂; Reşadiye, Center, 40°22' N, 37°21' E, 690 m, 29.06.2017, 1♀, 1♂.

***Tephritis nigricauda*** (Loew, 1856)

Examined material: **Tokat**, Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♀, 1♂.

***Tephritis postica*** (Loew, 1844)

Examined material: **Tokat**, Center, Kat Town, 40°18' N, 36°04' E, 555 m, 01.05.2016, 3♀♀; Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 01.05.2016, 2♂♂; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 02.06.2016, 1♀, 3♂♂; Artova, Madas, 40°10' N, 36°26' E, 1138 m, 02.06.2016, 2♂♂; Zile, Akkılıç, 40°14' N, 35°63' E, 749 m, 01.07.2016, 2♀♀, 4♂♂; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 17.05.2017, 2♀♀; Niksar, Gökçeoluk, 40°44' N, 37°03' E, 1239 m, 17.05.2017, 3♀♀, 2♂♂; Niksar, Özdemir, 40°39' N, 36°59' E, 1300 m, 18.06.2017, 2♀♀, 2♂♂; Turhal, Küçükbağlar, 40°17' N, 36°19' E, 830 m, 29.06.2017, 4♀♀, 2♂♂; Niksar, Derindere, 40°30' N, 36°55' E, 355 m, 29.06.2017, 1♀, 2♂♂; Niksar, Gündüklü, 40°33' N, 36°52' E, 300 m, 01.07.2017, 2♂♂; Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 13.06.2018, 2♀♀; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 14.06.2018, 1♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 05.07.2018, 1♀, 3♂♂; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 3♀♀, 2♂♂.

***Tephritis simplex*** (Loew, 1844)

Examined material: **Tokat**, Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♀, 1♂.

***Tephritomyia lauta*** (Loew, 1869)

Examined material: **Tokat**, Center, Kat Town, 40°18' N, 36°04' E, 555 m, 01.05.2016, 2♀♀, 3♂♂; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 02.06.2016, 2♀♀, 5♂♂; Zile, Akkılıç, 40°14' N, 35°63' E, 749 m, 01.07.2016, 3♀♀, 1♂; Niksar, Gökçeoluk, 40°44' N,

37°03' E, 1239 m, 17.05.2017, 1♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 18.05.2017, 2♀♀; Pazar, Center, 40°17' N, 36°19' E, 552 m, 18.05.2017, 3♀♀, 4♂♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 29.06.2017, 1♀, 4♂♂; Niksar, Derindere, 40°30' N, 36°55' E, 355 m, 29.06.2017, 2♀♀, 2♂♂; Niksar, Gündüklü, 40°33' N, 36°52' E, 300 m, 01.07.2017, 2♂♂; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♂; Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 13.06.2018, 2♀♀, 3♂♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 14.06.2018, 1♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 05.07.2018, 2♀♀; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 02.08.2018, 3♂♂; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 1♀, 1♂.

***Trupanea amoena*** (Frauenfeld, 1857)

Examined material: **Tokat**, Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 01.05.2016, 1♂; Artova, Madas, 40°10' N, 36°26' E, 1138 m, 02.06.2016, 1♀; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 17.05.2017, 1♀; Niksar, Mutluca, 40°25' N, 37°07' E, 436 m, 18.05.2017, 1♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 29.06.2017, 1♂; Center, Kılıçlı, 40°21' N, 36°38' E, 775 m, 29.06.2017, 1♀; Niksar, 40°34' N, 36°57' E, 856 m, 30.06.2017, 1♀; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 14.06.2018, 1♀, 1♂; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 1♂.

***Trupanea stellata*** (Fuesslin, 1775)

Examined material: **Tokat**, Artova, Madas, 40°10' N, 36°26' E, 1138 m, 02.06.2016, 1♂; Pazar, Center, 40°17' N, 36°19' E, 552 m, 18.05.2017, 1♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 29.06.2017, 1♀; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♂.

***Terellia gynaecochochroma*** (Hering, 1937)

Examined material: **Tokat**, Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 01.05.2016, 1♀; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.06.2016, 1♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 18.05.2017, 1♀; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 29.06.2017, 1♂; Center, Kılıçlı, 40°21' N, 36°38' E, 775 m, 29.06.2017, 1♀, 1♂; Reşadiye, Center, 40°22' N, 37°21' E, 690 m, 29.06.2017, 1♂; Niksar, 40°34' N, 36°57' E, 856 m, 30.06.2017, 2♀♀; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 13.06.2018, 1♀, 2♂♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 14.06.2018, 2♀♀; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 05.07.2018, 1♂.

***Terellia luteola*** (Wiedemann, 1830)

Examined material: **Tokat**, Niksar, Gökçeoluk, 40°44' N, 37°03' E, 1239 m, 17.05.2017, 1♀, 1♂; Niksar, Derindere, 40°30' N, 36°55' E, 355 m, 29.06.2017, 1♀; Niksar, Gündüklü, 40°33' N, 36°52' E, 300 m, 01.07.2017, 1♀; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♀, 1♂.



***Terellia quadratula*** (Loew, 1869)

Examined material: **Tokat**, Reşadiye, Center, 40°22' N, 37°21' E, 690 m, 29.06.2017, 2♀♀, 5♂♂.

***Terellia serratulae*** (Linnaeus, 1758)

Examined material: **Tokat**, Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 01.05.2016, 1♂; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 02.06.2016, 1♀; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.06.2016, 6♀♀, 4♂♂; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 17.05.2017, 1♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 18.05.2017, 8♀♀, 4♂♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 29.06.2017, 9♀♀, 11♂♂; Center, Kılıçlı, 40°21' N, 36°38' E, 775 m, 29.06.2017, 1♀, 2♂♂; Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 13.06.2018, 12♀♀, 15♂♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 05.07.2018, 2♀♀, 6♂♂; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 3♀♀, 2♂♂.

***Terellia virens*** (Loew, 1846)

Examined material: **Tokat**, Center, Kat Town, 40°18' N, 36°04' E, 555 m, 01.05.2016, 2♀♀, 2♂♂; Center, Çerçi, 40°19' N, 36°25' E, 560 m, 29.05.2016, 1♀; Artova, Madas, 40°10' N, 36°26' E, 1138 m, 02.06.2016, 2♀♀, 3♂♂; Zile, Akkılıç, 40°14' N, 35°63' E, 749 m, 01.07.2016, 1♀, 4♂♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 18.05.2017, 1♀, 1♂; Pazar, Center, 40°17' N, 36°19' E, 552 m, 18.05.2017, 2♀♀; Niksar, Özdemir, 40°39' N, 36°59' E, 1300 m, 18.06.2017, 1♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 29.06.2017, 6♀♀; Turhal, Küçükbağlar, 40°17' N, 36°19' E, 830 m, 29.06.2017, 2♀♀, 2♂♂; Center, Kılıçlı, 40°21' N, 36°38' E, 775 m, 29.06.2017, 1♀, 2♂♂; Niksar, Güdüklü, 40°33' N, 36°52' E, 300 m, 01.07.2017, 2♀♀, 1♂; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 02.08.2018, 2♀♀, 3♂♂.

***Urophora affinis*** (Frauenfeld, 1857)

Examined material: **Tokat**, Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 01.05.2016, 8♀♀, 5♂♂; Center, Çerçi, 40°19' N, 36°25' E, 560 m, 29.05.2016, 7♀♀, 6♂♂; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 02.06.2016, 3♀♀, 1♂; Zile, Akkılıç, 40°14' N, 35°63' E, 749 m, 01.07.2016, 1♀, 5♂♂; Niksar, Gökçeoluk, 40°44' N, 37°03' E, 1239 m, 17.05.2017, 2♀♀, 6♂♂; Pazar, Center, 40°17' N, 36°19' E, 552 m, 18.05.2017, 4♀♀, 4♂♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 29.06.2017, 2♀♀, 1♂; Turhal, Küçükbağlar, 40°17' N, 36°19' E, 830 m, 29.06.2017, 3♀♀, 5♂♂; Center, Kılıçlı, 40°21' N, 36°38' E, 775 m, 29.06.2017, 2♀♀, 5♂♂; Reşadiye, Center, 40°22' N, 37°21' E, 690 m, 29.06.2017, 1♀; Niksar, Güdüklü, 40°33' N, 36°52' E, 300 m, 01.07.2017, 5♀♀, 7♂♂; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 13.06.2018, 4♀♀, 3♂♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 14.06.2018, 1♀, 3♂♂; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 02.08.2018, 5♀♀, 4♂♂.

***Urophora congrua*** Loew, 1862

Examined material: **Tokat**, Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 1♀, 1♂.

***Urophora cuspidata*** (Meigen, 1826)

Examined material: **Tokat**, Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 3♀♀, 2♂♂.

***Urophora jaceana*** (Hering, 1935)

Examined material: **Tokat**, Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 01.05.2016, 4♀♀, 5♂♂; Artova, Madas, 40°10' N, 36°26' E, 1138 m, 02.06.2016, 2♀♀; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.06.2016, 1♂; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 17.05.2017, 2♂♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 18.05.2017, 1♀; Niksar, Özdemir, 40°39' N, 36°59' E, 1300 m, 18.06.2017, 2♀♀; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 29.06.2017, 2♂♂; Center, Kılıçlı, 40°21' N, 36°38' E, 775 m, 29.06.2017, 1♀; Reşadiye, Center, 40°22' N, 37°21' E, 690 m, 29.06.2017, 1♂; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 2♀♀, 3♂♂; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 13.06.2018, 1♀; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 14.06.2018, 1♀, 1♂; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 02.08.2018, 1♂; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 2♀♀, 1♂.

***Urophora mauritanica*** (Macquart, 1851)

Examined material: **Tokat**, Center, Kılıçlı, 40°21' N, 36°38' E, 775 m, 29.06.2017, 1♀; Niksar, Derindere, 40°30' N, 36°55' E, 355 m, 29.06.2017, 7♀♀, 5♂♂; Erbaa, Değirmenli, 40°41' N, 36°31' E, 271 m, 01.07.2017, 4♂♂.

***Urophora quadrifasciata*** (Meigen, 1826)

Examined material: **Tokat**, Center, Çerçi, 40°19' N, 36°25' E, 560 m, 29.05.2016, 1♀; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.06.2016, 1♀, 2♂♂; Reşadiye, Çayırpınar, 40°24' N, 37°16' E, 478 m, 18.05.2017, 2♀♀, 2♂♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 29.06.2017, 1♂.

***Urophora stylata*** (Fabricius, 1775)

Examined material: **Tokat**, Center, Kat Town, 40°18' N, 36°04' E, 555 m, 01.05.2016, 2♀♀, 3♂♂; Center, Çerçi, 40°19' N, 36°25' E, 560 m, 29.05.2016, 1♀; Turhal, Güzeldere, 40°17' N, 36°22' E, 598 m, 02.06.2016, 2♂♂; Artova, Madas, 40°10' N, 36°26' E, 1138 m, 02.06.2016, 1♀; Zile, Akkılıç, 40°14' N, 35°63' E, 749 m, 01.07.2016, 2♀♀; Almus, Oğulbey, 40°39' N, 37°00' E, 927 m, 17.05.2017, 2♀♀, 2♂♂; Pazar, Center, 40°17' N, 36°19' E, 552 m, 18.05.2017, 1♀, 3♂♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 29.06.2017, 1♀, 2♂♂; Center, Kılıçlı, 40°21' N, 36°38' E, 775 m, 29.06.2017, 1♂; Reşadiye, Center, 40°22' N, 37°21' E, 690 m, 29.06.2017, 1♀, 1♂; Niksar, Güdüklü, 40°33' N, 36°52' E, 300 m, 01.07.2017, 1♀, 1♂; Erbaa, Değirmenli, 40°41' N, 36°31' E,

E, 271 m, 01.07.2017, 1♂; Niksar, Gülçeşme, 40°35' N, 36°49' E, 260 m, 13.06.2018, 2♀♀, 1♂; Zile, Emirören, 40°18' N, 35°58' E, 810 m, 14.06.2018, 3♀♀, 2♂♂; Turhal, Arzupınar, 40°19' N, 36°10' E, 900 m, 05.07.2018, 2♀♀, 1♂; Center, Çamlıbel Pass, 39°57' N, 36°31' E, 1650 m, 02.08.2018, 1♀, 1♂.

#### 4. DISCUSSION

Fruit flies are an important family of flies that have been the subject of many studies. With the faunistic studies carried out in Türkiye, the fauna of many regions has been determined and important contributions have been made to the literature with the data obtained. These contributions also laid the groundwork for molecular and morphological studies. It is likely that future studies will make significant contributions both to the of fruit fly fauna of Türkiye and in other fields.<sup>25-29</sup>

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#### Conflict of interests

I declares that there is no a conflict of interest with any person, institute, company, etc.

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