



## Tabanidae (Insecta: Diptera) fauna of Kırıkkale province

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### Abstract

The article presents the horsefly fauna (Diptera: Tabanidae) of the Kırıkkale province, Turkey. During the active periods in 2019 and 2020 a total of 2908 horseflies representing 40 species and classified in 3 subfamily. 36 species of these 40 samples are firstly recorded from Kırıkkale. The most common subfamily is Tabaninae represented with 34 species, followed by the subfamily Pangoninae-1 and Chrysopsinae-5 species, respectively. Species collected in pastures, highlands, forestlands, rural and urban areas around Kırıkkale province with Malaise and Nzi traps which were baited with 1-octen-3-ol. Worldwide distribution of the collected species is also given. Species except the *Tabanus bromius* Linnaeus, 1758, *Haematopota kemali* SZILADY, 1923, *Tabanus spectabilis* LOEW, 1858 and *Tabanus regularis* JAENNICKE, 1866 are firstly recorded from Kırıkkale.

**Keywords:** Diptera, Tabanidae, fauna, Kırıkkale, Turkey

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## Kırıkkale ili tabanidae (Insecta: Diptera) faunası

### Özet

Yapılan bu çalışmada, 2019-2020 yılları arasında Kırıkkale İli ve çevresinde bulunan Tabanidae üyeleri belirlenmiştir. Ergin birey yoğunluğunun yüksek olduğu bahar ve yaz aylarında, farklı yüksekliklerde bulunan mera ve otlaklara, dağlık ve ormanlık bölgelere, kırsal ve kentsel yerleşim bölgelerinin çevrelerine konuşlandırılan tuzaklar ile toplamda 2908 at sineği toplanmıştır. En yaygın alt familya olan Tabaninae alt familyasından 34, Pangoninae alt familyasından 1, Chrysopsinae alt familyasından 5 olmak üzere Tabanidae familyasına ait toplam 40 tür tespit edilmiştir. Tespit edilen bu 40 türün 36'sı Kırıkkale'den ilk kez bu çalışmayla bildirilmiştir. Bu türlerin toplandıkları noktalarla birlikte dünya üzerindeki dağılımları da verilmiştir. Tespit edilen türlerden *Tabanus bromius* LINNAEUS, 1758, *Haematopota kemali* SZILADY, 1923, *Tabanus spectabilis* LOEW, 1858 and *Tabanus regularis* JAENNICKE, 1866 dışındaki türler Kırıkkale İlinden ilk kez bildirilmiştir.

**Anahtar kelimeler:** Diptera, Tabanidae, Fauna, Kırıkkale, Türkiye

### 1. Introduction

Tabanidae family consist of dangerous species which impact on public health and sustainability of livestock due to transmitting viruses, bacteria, protozoans and helminths, which cause diseases in wild and domestic animals and humans [8, 10, 12, 22, 31]. Systematic researches on vector organisms provide understanding, predicting and controlling insect-borne diseases [6]. Although they are known as vector organisms worldwide, horseflies are also important regulators of ecosystems that have an essential role in pollination [29, 13].

Approximately 4300 species belonging to 137 genera of horse flies have been described worldwide [11]. Tabanidae represented 176 species and 15 subspecies in Turkey. The faunistic researches of Tabanidae in Turkey

studied intensively for the last years which provide distribution and habitat demands of horseflies [1-5, 7, 17, 19- 21, 32].

The purpose of this study is to determine the distribution of Tabanidae family in the Kırıkale province which is located in the Central Anatolia and has extensive rural areas. Tabanidae fauna of Kırıkale was investigated for the first time with present study and 40 species belonging to Tabanidae family was reported.

## 2. Materials and methods

The study was conducted in the Kırıkale province of Turkey placed in Central Anatolia during active periods of horseflies from 2019- 2020. Adult specimens collected with Malaise, Nzi and water traps at 32 different localities in pastures, highlands, forestlands, rural and urban areas around the Kırıkale (Fig.1). Malaise and Nzi traps are baited with 1-octen-3-ol. Collected specimens identified according to the keys [10, 27, 30]. Worldwide and Turkey distribution of each species is summarized according to [9, 10] and recent updates of Fauna Europaea, Global Species and the Catalogue of Life. Systema Diptorum. Identified specimens are preserved in the Zoological Museum of Eskişehir Technical University.

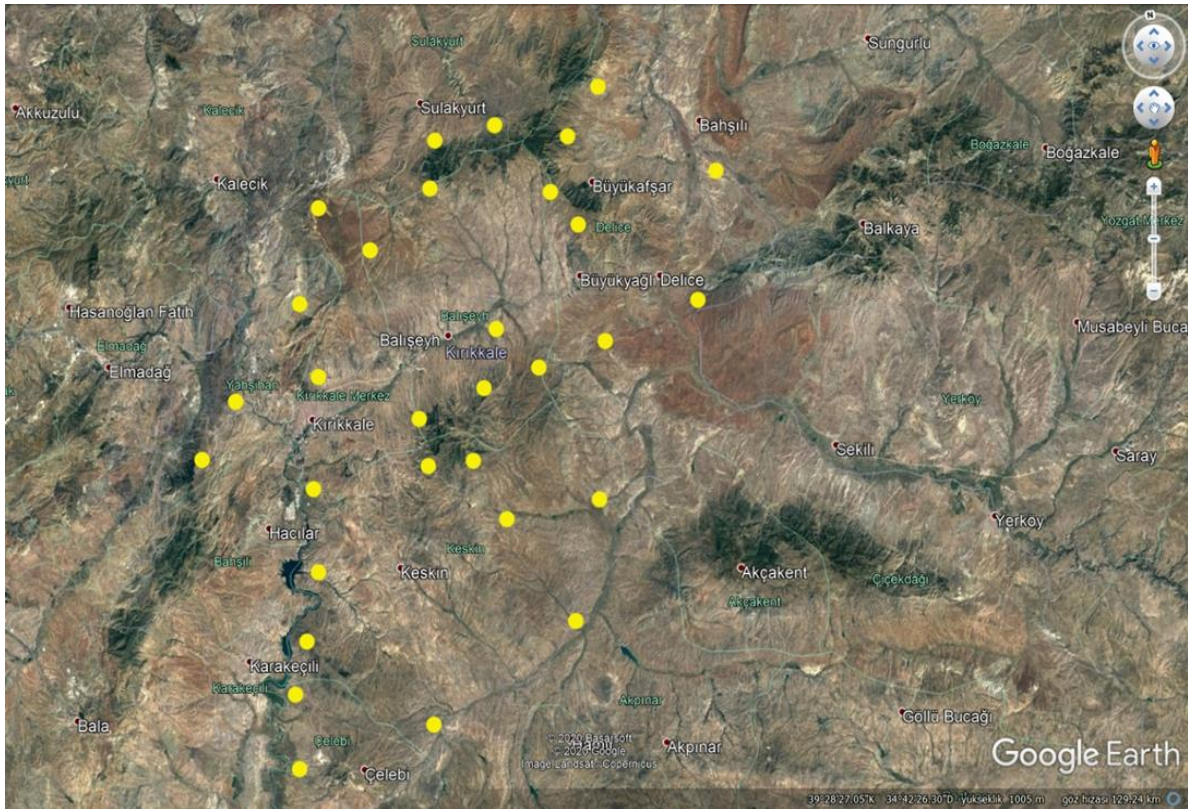


Figure 1: Collection area of horseflies

## 3. Results

Total 2908 horsefly species collected during the study at 32 different localities in Kırıkale. All collected specimens classified into 40 species belonged to 3 subfamily. The most abundant species is *Tabanus bromius* with %34,97 and followed by *Tabanus miki* %14,03; *Tabanus bifarius* %6,74 (Table 1). The list of the determined horsefly species, including localities, dates, numbers, worldwide and Turkey distribution are presented below.

**Alt Familya:** PANGONINAE

**Tribus:** Pangoniini

### 1. *Pangonius* (s. str.) *pyritosus* (Loew, 1859)

**Material examined:** Keskin, 1397 m, 29.07.2019, 3 ♀♀, 1433 m, 31.07.2019, 1 ♀♀; Delice, 1224 m, 09.07.2020, 1 ♀♀.

**Distribution worldwide:** Bulgaria, Greek Mainland, Hungary, Macedonia, Romania, South European Russia, Ukraine, West Russia

**Distribution in Turkey:** Amasya, Bayburt, Bursa, Çanakkale, Edirne, Erzincan, Erzurum, Eskişehir, Hakkâri, İstanbul, Kırklareli, Samsun.

**Alt Familya:** CHRYSOPSINAE

**Tribus:** Chrysopsini

**2. *Chrysops (s. str.) caecutiens* (Linnaeus, 1761)**

**Material examined:** Keskin, 1556 m, 29.07.2019, 5 ♀♀; 1410 m, 30.07.2019, 4 ♀♀; Delice, 1251 m, 03.08.2019, 1 ♀♀; 1251 m, 04.09.2019, 2 ♀♀; Sulakyurt, 1153 m, 13.07.2020, 1 ♀♀; 1292 m 14.07.2020, 3 ♀♀; Bahşili, 1407 m, 17.07.2019, 5 ♀♀; Çelebi, 1246 m, 27.08.2019, 1 ♀♀; 1427 m, 22.07.2020 4 ♀♀.

**Distribution worldwide:** Albania, Austria, Balearic Is., Belarus, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Central European Russia, Croatia, Czech Republic, Danish mainland, Dodekánisos (Dodecanese Is.), East Palaearctic, Estonia, European Turkey, Finland, French mainland, Germany, Greek mainland, Hungary, Ireland, Italian mainland, Kiklâdes (Cyclades Is.), Kriti (Crete), Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Near East, North European Russia, Northwest European Russia, Norwegian mainland, Poland, Portuguese mainland, Romania, Sardinia, Sicily, Slovakia, Slovenia, South European Russia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Vóreion Aiyáion (North Aegean Is.), Former Yugoslavia.

**Distribution in Turkey:** Adiyaman, Afyon, Amasya, Ankara, Antalya, Artvin, Balıkesir, Bartın, Bayburt, Bingöl, Bolu, Burdur, Bursa, Çanakkale, Edirne, Erzurum, Eskişehir, Giresun, Gümüşhane, Hakkari, İçel, İstanbul, Karabük, Kars, Kastamonu, Kırklareli, Konya, Kütahya, Muğla, Muş, Nevşehir, Ordu, Rize, Samsun, Sinop, Sivas, Tekirdağ, Tokat, Trabzon, Uşak, Yalova, Zonguldak.

**3. *Chrysops (s. str.) flavipes* MEIGEN, 1804**

**Material examined:** Yahşihan, 1202 m, 14.08.2019, 3 ♀♀; Keskin, 1431 m, 18.09.2019, 5 ♀♀; 1563 m, 5 ♀♀; Sulakyurt, 14.07.2020, 1322 m, 3 ♀♀.

**Distribution worldwide:** Albania, Austria, Bulgaria, Croatia, Cyprus, Czech Republic, East Palaearctic, European Turkey, French mainland, Greek mainland, Hungary, Italian mainland, Macedonia, Near East, North Africa, Oriental region, Portuguese mainland, Romania, Sicily, Slovakia, South European Russia, Spanish mainland, Former Yugoslavia

**Distribution in Turkey:** Adana, Adapazarı, Adiyaman, Ağrı, Afyon, Ankara, Antalya, Artvin, Balıkesir, Bayburt, Bilecik, Bolu, Bursa, Çanakkale, Çorum, Diyarbakır, Edirne, Elâzığ, Erzincan, Erzurum, Eskişehir, Hakkâri, Hatay, Iğdır, İçel, İstanbul, İzmir, Kastamonu, Karabük, Kars, Kırklareli, Konya, Kütahya, Manisa, Malatya, Muğla, Nevşehir, Niğde, Sinop, Sivas, Tekirdağ, Tokat, Trabzon, Uşak, Yozgat, Zonguldak.

**4. *Chrysops (s. str.) italicus* MEIGEN, 1804**

**Material examined:** Bahşili, 1271 m, 19.08.2019, 2 ♀♀; Delice, 1131 m, 04.09.2019, 1 ♀♀; 1209 m, 2 ♀♀; Çelebi, 21.07.2020, 1276 m, 4 ♀♀; 22.07.2020, 1443 m, 5 ♀♀.

**Distribution worldwide:** Albania, Bosnia and Herzegovina, Bulgaria, Corsica, Croatia, Cyprus, European Turkey, French mainland, Greek mainland, Hungary, Italian mainland, Macedonia, Near East, North Africa, Romania, Sardinia, Sicily, Slovenia, South European Russia, Spanish mainland, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Ankara, Antalya, Çanakkale, İzmir.

**5. *Chrysops (Petersenchrysops) buxtoni* AUSTEN, 1922**

**Material examined:** Keskin, 1254 m, 31.07.2019, 2 ♀♀; 1624 m, 01.08.2019, 4 ♀♀; 1556 m, 08.07.2020, 4 ♀♀; Karakeçili, 931 m, 23.08.2019, 1 ♀♀; Delice, 1052 m, 04.09.2019, 1 ♀♀; Sulakyurt, 14.07.2020, 1165 m, 2 ♀♀; Balışeyh, 15.07.2020, 1298 m, 4 ♀♀; Keskin, 958 m, 25.08.2020, 1 ♀♀; 1625 m, 3 ♀♀.

**Distribution worldwide:** Israel, Iraq, Turkey

**Distribution in Turkey:** Ankara, Elazığ, Eskişehir, İçel, Kırşehir, Konya.

**6. *Chrysops (Petersenchrysops) hamatus* LOEW, 1858**

**Material examined:** Sulakyurt, 1050 m, 06.08.2019, 2 ♀♀; 1136 m, 21.09.2019, 3 ♀♀; Karakeçili, 910 m, 26.08.2019, 3 ♀♀; 31.08.2020, 925 m, 2 ♀♀; Yahşihan, 1050 m, 16.08.2019, 2 ♀♀; 980 m, 16.07.2020, 4 ♀♀; Bahşili, 1254 m, 21.08.2019, 3 ♀♀; 1260 m, 19.07.2020, 5 ♀♀.

**Distribution worldwide:** Bulgaria, Dodekánisos (Dodecanese Is.), Near East, Turkey

**Distribution in Turkey:** Afyon, Ankara, Antalya, Çankırı, Denizli, Elazığ, Eskişehir, İzmir, Muğla, Hatay.

**Alt Familya:** TABANINAE

**Tribus:** Tabanini

**7. *Atylotus flavoguttatus* (SZILADY, 1915)**

**Material examined:** Keskin, 1130 m, 31.08.2019, 3 ♀♀; 1460 m, 2 ♀♀; 1342 m, 09.07.2020, 5 ♀♀; 1338 m, 25.08.2020, 2 ♀♀; Delice, 1100 m, 04.08.2019, 4 ♀♀; 1278 m, 05.08.2019, 2 ♀♀; 980 m, 04.09.2019, 2 ♀♀; 900 m, 20.09.2019, 1 ♀♀; 1180 m, 11.07.2020, 5 ♀♀; 1046 m, 26.08.2020, 1 ♀♀; Balışeyh, 975 m, 12.08.2019, 2 ♀♀; 1315 m, 13.08.2019, 1 ♀♀; 1285 m, 15.07.2020, 4 ♀♀; 1295 m, 28.08.2020, 1 ♀♀; Çelebi, 1426 m, 21.07.2020, 3 ♀♀; 1449 m, 22.07.2020, 2 ♀♀.

**Distribution worldwide:** Austria, Croatia, European Turkey, French mainland, Hungary, Moldova, Near East, North Africa, Portuguese mainland, Romania, South European Russia, Spanish mainland, Ukraine

**Distribution in Turkey:** Afyon, Ankara, Balıkesir, Çanakkale, Edirne, Eskişehir, İstanbul, Kırklareli, Kırşehir, Konya, Nevşehir, Tekirdağ, Yozgat.

**8. *Atylotus hendrixi* LECLERCQ, 1967**

**Material examined:** Keskin, 1682 m, 30.07.2019, 8 ♀♀; 1710 m, 01.08.2019, 6 ♀♀; 1486 m, 18.09.2019, 3 ♀♀; 1547 m, 08.07.2020, 11 ♀♀; 1710 m, 09.07.2020, 7 ♀♀; Balışeyh, 1325 m, 12.08.2019, 5 ♀♀; 1449 m, 15.07.2020, 8 ♀♀; 1690 m, 28.08.2020, 3 ♀♀; Sulakyurt, 1207 m, 07.08.2019, 6 ♀♀; 1318 m, 09.08.2019, 3 ♀♀; 1320 m, 14.07.2020, 8 ♀♀.

**Distribution worldwide:** Turkey, Iran.

**Distribution in Turkey:** Adana, Afyon, Ankara, Artvin, Burdur, Erzurum, Eskişehir, Hakkari, Kayseri, Konya, Trabzon, Van, Yozgat.

**9. *Atylotus rusticus* (LINNAEUS, 1761)**

**Material examined:** Delice, 1290 m, 04.08.2019, 2 ♀♀; Keskin, 1687 m, 09.07.2020, 3 ♀♀; 1701 m, 25.08.2020, 1 ♀♀.

**Distribution worldwide:** Austria, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Central European Russia, Croatia, Czech Republic, Danish mainland, East Palaearctic, Estonia, European Turkey, Finland, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Lithuania, Luxembourg, North Africa, Northwest European Russia, Norwegian mainland, Poland, Romania, Sicily, Slovakia, Slovenia, South European Russia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Ankara, Eskişehir, Trakya Bölgesi.

**10. *Theriopectes tricolor* ZELLER, 1842**

**Material examined:** Bahşili, 1529 m, 20.08.2019, 1 ♀♀; Keskin, 1695 m, 18.09.2019, 2 ♀♀; Balışeyh, 1458 m, 15.07.2020, 4 ♀♀; 1650 m, 28.07.2020, 3 ♀♀.

**Distribution worldwide:** Bulgaria, European Turkey, Greek mainland, Italian mainland, Near East, Romania, Sicily, South European Russia, Vóreion Aiyáion (North Aegean Is.)

**Distribution in Turkey:** Aksaray, Amasya, Ankara, Artvin, Bayburt, Bilecik, Bursa, Erzurum, Eskişehir, Gümüşhane, İzmir, Kayseri, Kütahya, Muğla, Muğla, Nevşehir, Niğde, Tekirdağ, Uşak, Yozgat.

**11. *Hybomitra caucasi* (SZILADY, 1923)**

**Material examined:** Yahşihan, 1116 m, 14.08.2019, 2 ♀♀; Karakeçili, 911 m, 20.07.2020, 3 ♀♀.

**Distribution worldwide:** European Turkey, Near East, Romania, Russia

**Distribution in Turkey:** Ankara, Çanakkale, Erzurum, Hakkari, İstanbul, Kırklareli, Kuzey Anadolu Dağları, Tekirdağ.

**12. *Tabanus autumnalis* LINNEAUS, 1761**

**Material examined:** Delice, 1148 m, 04.08.2019, 4 ♀♀; 1346 m, 05.09.2019, 3 ♀♀; 1266 m, 11.07.2020, 6 ♀♀; Balışeyh, 1535 m, 15.07.2010, 1 ♀♀; Sulakyurt, 1264 m, 08.08.2019, 3 ♀♀; 1324 m, 02.09.2019, 5 ♀♀; 1333 m, 13.07.2020, 9 ♀♀; 1225 m, 14.07.2020, 5 ♀♀; 1243 m, 27.08.2020, 2 ♀♀; Keskin, 1085 m, 31.07.2019, 7 ♀♀; 1312 m, 01.08.2019, 2 ♀♀; 1655 m, 08.07.2020, 8 ♀♀; Çelebi, 1348 m, 29.08.2019, 2 ♀♀; 1450 m, 22.07.2020, 4 ♀♀; 1236 m, 01.09.2020, 1 ♀♀.

**Distribution worldwide:** Albania, Austria, Balearic Is., Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Central European Russia, Corsica, Croatia, Cyprus, Czech Republic, Danish mainland, East European Russia, East Palaearctic, Estonia, European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Lithuania, Luxembourg, Macedonia, Malta, Near East, North Africa, Northwest European Russia, Norwegian mainland, Poland, Portuguese mainland, Romania, Sardinia, Sicily, Slovakia, Slovenia, South European Russia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Adana, Afyon, Aksaray, Amasya, Ankara, Artvin, Balıkesir, Bayburt, Bilecik, Bolu, Burdur, Bursa, Çanakkale, Çankırı, Çorum, Denizli, Diyarbakır, Edirne, Elazığ, Erzincan, Erzurum, Eskişehir, Giresun, Hatay, Iğdır, İstanbul, İzmir, Kars, Kastamonu, Kırklareli, Konya, Kütahya, Malatya, Muğla, Nevşehir, Niğde, Ordu, Sinop, Tekirdağ, Trabzon, Tunceli, Uşak, Van, Yozgat, Zonguldak.

**13. *Tabanus bifarius* LOEW, 1858**

**Material examined:** Keskin, 1512 m, 29.07.2019, 14 ♀♀, 3 ♂♂; 1682 m, 31.07.2019, 20 ♀♀; 1713 m, 19.09.2019, 1 ♀♀; 1426 m, 08.07.2020, 11 ♀♀, 3 ♂♂; 1566 m, 25.08.2020, 4 ♀♀; Delice, 1035 m, 04.08.2019, 1 ♀♀; 1311 m, 12.07.2020, 4 ♀♀; Sulakyurt, 1064 m, 07.08.2019, 2 ♀♀; 1249 m, 08.08.2019, 6 ♀♀; 1257 m, 13.07.2020, 4 ♀♀; 1322 m, 14.07.2020, 4 ♀♀; 1305 m, 27.08.2020, 2 ♀♀; Balışeyh, 1215 m, 10.08.2019, 1 ♀♀; 1385 m, 11.08.2019, 7 ♀♀, 3 ♂♂; 1428 m, 15.07.2020, 11 ♀♀; 1719 m, 28.08.2020, 7 ♀♀; Yahşihan, 1107 m, 15.08.2019, 9 ♀♀; 1250 m, 18.08.2019, 16 ♀♀; 1246 m, 24.09.2019, 1 ♀♀; 1199 m, 16.07.2020, 6 ♀♀; 1253 m, 29.07.2020, 4 ♀♀; Çelebi, 1229 m, 28.08.2019, 9 ♀♀; 1442 m, 30.08.2019, 4 ♀♀; 1356 m, 28.09.2019, 1 ♀♀; Bahşili, 1255 m, 20.08.2019, 8 ♀♀;

1539 m, 26.08.2019, 2 ♀♀; 1322 m, 17.07.2020, 5 ♀♀, 1 ♂♂; 1487 m, 19.07.2020, 6 ♀♀; 1520 m, 30.08.2020, 13 ♀♀, 3 ♂♂.

**Distribution worldwide:** Albania, Austria, Bulgaria, Croatia, European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Macedonia, Moldova, Near East, North Africa, Romania, Slovakia, Slovenia, South European Russia, Spanish mainland, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Adana, Afyon, Balıkesir, Bartın, Bayburt, Bilecik, Bolu, Bursa, Çanakkale, Çorum, Edirne, Erzurum, Eskişehir, Gümüşhane, İçel, İstanbul, İzmir, İzmit, Kahramanmaraş, Kars, Kastamonu, Kayseri, Kırklareli, Kırşehir, Konya, Mardin, Muğla, Nevşehir, Niğde, Samsun, Sinop, Sivas, Tekirdağ, Yalova, Yozgat.

#### 14. *Tabanus briani* LECLERCQ, 1962

**Material examined:** Çelebi, 1339 m, 28.08.2019, 1 ♀♀; Karakeçili, 918 m, 20.07.2020, 2 ♀♀; Bahşili, 1122 m, 21.08.2019, 1 ♀♀, 1518 m, 19.07.2020, 4 ♀♀.

**Distribution worldwide:** Bosnia and Herzegovina, Bulgaria, Croatia, European Turkey, French mainland, Italian mainland, Sicily, Slovakia, Slovenia, Spanish mainland

**Distribution in Turkey:** Ankara, Balıkesir, Bartın, Bolu, Bursa, Çanakkale, Düzce, , Karabük, Kastamonu, Kırklareli, Kütahya, Sinop, Tekirdağ, Zonguldak.

#### 15. *Tabanus bromius* LINNAEUS, 1758

**Material examined:** Keskin, 1212 m, 29.07.2019, 26 ♀♀, 3 ♂♂; 1343 m, 30.07.2019, 8 ♀♀; 1609 m, 31.07.2019, 38 ♀♀; 1716 m, 01.08.2019, 18 ♀♀, 1 ♂♂; 1626 m, 19.08.2019, 13 ♀♀; 08.07.2020, 1348 m, 16 ♀♀, 1 ♂♂; 1710 m, 26 ♀♀, 3 ♂♂; 1695 m, 25.08.2020, 27 ♀♀, 3 ♂♂; Delice, 1235 m, 03.08.2019, 14 ♀♀; 1344 m, 05.08.2019, 25 ♀♀, 4 ♂♂; 1304 m, 05.09.2019, 17 ♀♀, 2 ♂♂; 1240 m, 20.09.2019, 8 ♀♀, 1264 m, 11.07.2020, 36 ♀♀, 3 ♂♂; 1343 m, 26.08.2020, 21 ♀♀; Sulakyurt, 1064 m, 06.08.2019, 20 ♀♀; 1294 m, 09.08.2019, 17 ♀♀; 1143 m, 01.09.2019, 9 ♀♀; 1257 m, 13.07.2020, 46 ♀♀, 4 ♂♂; 1304 m, 14.07.2019, 23 ♀♀, 2 ♂♂; 1324 m, 27.08.2020, 14 ♀♀; Bahşeyh, 1215 m, 11.08.2019, 11 ♀♀, 1 ♂♂; 1340 m, 23.09.2019, 7 ♀♀; 1476 m, 15.07.2020, 43 ♀♀, 6 ♂♂; Yahşihan, 1226 m, 14.08.2019, 31 ♀♀; 1253 m, 16.08.2019, 22 ♀♀; 1200 m, 16.07.2020, 29 ♀♀, 3 ♂♂; Bahşili, 1442 m, 19.08.2019, 23 ♀♀; 1539 m, 21.08.2019, 26 ♀♀, 2 ♂♂; 1520 m, 17.07.2020, 36 ♀♀, 2 ♂♂; 1504 m, 30.08.2020, 31 ♀♀, 2 ♂♂; Karakeçili, 890 m, 23.08.2019, 33 ♀♀, 3 ♂♂; 930 m, 26.08.2019, 19 ♀♀; 846 m, 27.09.2019, 8 ♀♀; 900 m, 20.07.2020, 29 ♀♀, 1 ♂♂; 796 m, 31.08.2020, 16 ♀♀; Çelebi, 1205 m, 27.08.2019, 34 ♀♀, 2 ♂♂; 1347 m, 29.08.2019, 28 ♀♀; 1449 m, 31.08.2019, 17 ♀♀, 3 ♂♂; 1050 m, 28.09.2019, 4 ♀♀, 1148 m, 21.07.2020, 37 ♀♀, 4 ♂♂; 1429 m, 22.07.2020, 41 ♀♀, 3 ♂♂; 1417 m, 01.09.2020, 12 ♀♀.

**Distribution worldwide:** Albania, Austria, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Central European Russia, Croatia, Czech Republic, Danish mainland, East European, Russia, East Palaearctic, Estonia, European Turkey, Finland, French mainland, Germany, Greek mainland, Hungary, Ireland, Italian mainland, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Near East, North Africa, North European Russia, Northwest European Russia, Norwegian mainland, Poland, Portuguese mainland, Romania, Sardinia, Sicily, Slovakia, Slovenia, South European Russia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Adana, Adıyaman, Afyon, Ağrı, Aksaray, Amasya, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bartın, Bayburt, Bilecik, Bitlis, Bolu, Bursa, Çankırı, Çorum, Denizli, Diyarbakır, Edirne, Elazığ, Erzurum, Eskişehir, Giresun, Gümüşhane, Hakkari, Hatay, Isparta, İçel, İzmir, Kahramanmaraş, Kars, Kayseri, Kırıkkale, Kırklareli, Kırşehir, Konya, Kütahya, Malatya, Muğla, Muş, Nevşehir, Niğde, Ordu, Rize, Sakarya, Sakarya, Samsun, Siirt, Sinop, Sivas, Tekirdağ, Tokat, Trabzon, Tunceli, Uşak, Van, Yalova.

#### 16. *Tabanus cordiger* MEIGEN, 1820

**Material examined:** Keskin, 1650 m, 29.07.2019, 2 ♀♀; 1478 m, 18.08.2019, 4 ♀♀; 1390 m, 25.08.2020, 5 ♀♀; Çelebi, 1312 m, 28.08.2019, 2 ♀♀; 1287 m, 21.07.2020, 1 ♀♀; 1400 m, 01.09.2020, 1 ♀♀; Bahşili, 1150 m, 20.08.2019, 4 ♀♀; 1532 m, 22.08.2019, 2 ♀♀; 1148 m, 18.07.2020, 1 ♀♀; Bahşeyh, 1714 m, 28.08.2020, 3 ♀♀.

**Distribution worldwide:** Albania, Austria, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Canary Is., Central European Russia, Croatia, Czech Republic, East European Russia, European Turkey, Finland, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Lithuania, Macedonia, Near East, North Africa, Northwest European Russia, Poland, Portuguese mainland, Romania, Slovakia, Slovenia, South European Russia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Adana, Afyon, Ankara, Balıkesir, Bilecik, Bolu, Bursa, Elazığ, Erzurum, Eskişehir, İçel, Kırklareli, Kütahya, Yozgat.

#### 17. *Tabanus eggeri* SCHİNERİ, 1868

**Material examined:** Sulakyurt, 1235 m, 13.07.2020, 3 ♀♀; Yahşihan, 1252 m, 16.08.2019, 2 ♀♀; 1080 m, 16.07.2020, 4 ♀♀; 1236 m, 29.08.2020, 1 ♀♀; Karakeçili, 930 m, 20.07.2020, 2 ♀♀.

**Distribution worldwide:** Albania, Bulgaria, Croatia, European Turkey, French mainland, Italian mainland, Near East, North Africa, Portuguese mainland, Spanish mainland, Former Yugoslavia.

**Distribution in Turkey:** Adana, Adapazarı, Afyon, Ankara, Antalya, Balıkesir, Bartın, Bilecik, Bolu, Bursa, Çanakkale, Edirne, Eskişehir, Hakkari, İçel, İstanbul, İzmit, Kırklareli, Konya, Kütahya, Nevşehir, Niğde, Sinop, Tekirdağ, Yalova, Yozgat.

**18. *Tabanus exlusus* PANDELLE, 1883**

**Material examined:** Keskin, 1249 m, 01.08.2019, 4 ♀♀; 1387 m, 18.09.2019, 1 ♀♀; 1310 m, 08.07.2020, 5 ♀♀; Delice, 1105 m, 04.09.2019, 1 ♀♀; 1250 m, 26.08.2020, 4 ♀♀; Balışeyh, 1264 m, 15.07.2020, 3 ♀♀; 1685 m, 28.08.2020, 1 ♀♀.

**Distribution worldwide:** Albania, Bosnia and Herzegovina, Bulgaria, Croatia, European Turkey, French mainland, Greek mainland, Hungary, Italian mainland, Macedonia, Moldova, Near East, Portuguese mainland, Romania, Slovakia, Spanish mainland, Former Yugoslavia.

**Distribution in Turkey:** Ankara, Antalya, Aydın, Balıkesir, Bilecik, Bolu, Bursa, Çanakkale, Denizli, Edirne, Erzurum, Eskişehir, Hakkari, İçel, İzmir, Kayseri, Kırklareli, Konya, Konya, Kütahya, Muğla, Nevşehir, Samsun, Sinop, Tekirdağ, Uşak, Yalova.

**19. *Tabanus fraseri* AUSTEN, 1925**

**Material examined:** Sulakyurt, 1253 m, 02.09.2019, 1 ♀♀; 1319 m, 21.09.2019, 1 ♀♀; Karakeçili, 896 m, 23.08.2019, 2 ♀♀; Çelebi, 1269 m, 30.08.2019, 2 ♀♀; 1204 m, 01.09.2020, 1 ♀♀.

**Distribution worldwide:** Albania, Bulgaria, Croatia, European Turkey, Greek mainland, Near East

**Distribution in Turkey:** Ankara, Aydın, Balıkesir, Bilecik, Bursa, Düzce, Edirne, Eskişehir, İstanbul, İzmir, Karabük, Kastamonu, Kırklareli, Kütahya, Muğla, Tekirdağ Uşak.

**20. *Tabanus glaucopis* MEIGEN, 1820**

**Material examined:** Keskin, 1689 m, 31.08.2019, 2 ♀♀; 928 m, 18.09.2019, 1 ♀♀; 1700 m, 09.07.2020, 8 ♀♀; Delice, 1110 m, 04.09.2019, 1 ♀♀; 1315 m, 26.08.2020, 4 ♀♀; Yahşihan, 1096 m, 15.08.2019, 4 ♀♀; 1248 m, 16.08.2019, 5 ♀♀; Karakeçili, 860 m, 31.08.2020, 2 ♀♀.

**Distribution worldwide:** Albania, Austria, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Central European Russia, Croatia, Czech Republic, East Palaearctic, European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Lithuania, Macedonia, Near East, Northwest European Russia, Norwegian mainland, Poland, Portuguese mainland, Romania, Sardinia, Sicily, Slovakia, Slovenia, South European Russia, Spanish mainland, Sweden, Switzerland, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Adapazarı, Afyon, Ankara, Artvin, Aydın, Balıkesir, Bilecik, Bolu, Bursa, Çanakkale, Çorum, Denizli, Düzce, Edirne, Erzurum, Eskişehir, Hakkari, İçel, İstanbul, İzmir, Karabük, Kastamonu, Kırklareli, Konya, Kütahya, Muş, Niğde, Rize, Samsun, Sinop, Tekirdağ, Tokat, Trabzon, Uşak, Van.

**21. *Tabanus latetinctus* AUSTEN, 1920**

**Material examined:** Delice, 1348 m, 03.08.2019, 2 ♀♀; 1028 m, 11.07.2020, 4 ♀♀; Balışeyh, 1448 m, 11.08.2019, 1 ♀♀; 1710 m, 15.07.2020, 5 ♀♀; Bahşili, 1322 m, 18.07.2020, 3 ♀♀.

**Distribution worldwide:** Turkey, Iran, Afghanistan, Central Asia, Caucasia

**Distribution in Turkey:** Adana, Ankara, Artvin, Bayburt, Bilecik, Çanakkale, Çankırı, Çorum, Elazığ, Erzurum, Eskişehir, Gaziantep, Gümüşhane, Hakkari, İzmir, Kayseri, Konya, Kütahya, Nevşehir, Niğde, Siirt, Sivas, Tekirdağ, Yozgat.

**22. *Tabanus lunatus* FABRICIUS, 1794**

**Material examined:** Keskin, 1560 m, 29.07.2019, 14 ♀♀; 1710 m, 30.07.2019, 8 ♀♀, 2 ♂♂; 1145 m, 18.09.2019, 1 ♀♀; 1632 m, 09.07.2020, 12 ♀♀, 2 ♂♂; 1452 m, 25.08.2020, 19 ♀♀; Delice, 1386 m, 04.08.2019, 10 ♀♀; 1214 m, 04.09.2019, 2 ♀♀; 1300 m, 11.07.2020, 22 ♀♀, 1 ♂♂; Balışeyh, 1175 m, 23.09.2019, 1 ♀♀; 1326 m, 15.07.2020, 15 ♀♀, 3 ♂♂; Yahşihan, 980 m, 14.08.2019, 8 ♀♀; 1190 m, 16.07.2020, 21 ♀♀, 3 ♂♂; Karakeçili, 795 m, 31.08.2020, 5 ♀♀; Çelebi, 1046 m, 27.08.2019, 7 ♀♀; 1345 m, 21.07.2020, 14 ♀♀, 1 ♂♂; 1322 m, 01.09.2020, 8 ♀♀.

**Distribution worldwide:** Albania, Bosnia and Herzegovina, Bulgaria, Croatia, East Palaearctic, European Turkey, French mainland, Greek mainland, Italian mainland, Near East, North Africa, Portuguese mainland, Romania, Slovenia, Spanish mainland, Former Yugoslavia.

**Distribution in Turkey:** Afyon, Amasya, Ankara, Antalya, Aydın, Balıkesir, Bilecik, Bolu, Bursa, Çanakkale, Edirne, Erzurum, Eskişehir, Gümüşhane, Hakkari, Hatay, İçel, İstanbul, İzmir, İzmit, Karabük, Kars, Kastamonu, Kayseri, Kırklareli, Konya, Kütahya, Manisa, Mardin, Muğla, Samsun, Sinop, Tekirdağ, Tokat, Uşak, Yalova.

**23. *Tabanus martinii* KRÖBER, 1928**

**Material examined:** Delice, 1178 m, 04.09.2019, 4 ♀♀; 1315 m, 26.08.2020, 3 ♀♀; Yahşihan, 1235 m, 16.08.2019, 2 ♀♀; 1049 m, 24.09.2019, 3 ♀♀; 1251 m, 29.08.2020, 1 ♀♀; Bahşili, 1352 m, 19.08.2019, 2 ♀♀; 1145 m, 26.09.2019, 3 ♀♀; Çelebi, 1426 m, 31.08.2019, 2 ♀♀; 1445 m, 22.07.2020, 1 ♀♀.

**Distribution worldwide:** European Turkey, Near East, Romania, Spanish mainland

**Distribution in Turkey:** Afyon, Ankara, Aydın, Edirne, Eskişehir, Hakkari, Kırklareli Konya, Kütahya, Tekirdağ.

#### 24. *Tabanus miki* BRAUER, 1880

**Material examined:** Keskin, 1314 m, 30.07.2019, 7 ♀♀; 1694 m, 01.08.2019, 11 ♀♀; 1544 m, 08.07.2020, 19 ♀♀; 1478 m, 25.08.2020, 17 ♀♀; Delice, 1158 m, 03.08.2019, 6 ♀♀; 1338 m, 05.08.2019, 5 ♀♀; 1087 m, 04.09.2019, 3 ♀♀; 1344 m, 10.07.2020, 17 ♀♀; 1088 m, 11.07.2020, 29 ♀♀; 1255 m, 26.08.2020, 3 ♀♀; Sulakyurt, 974 m, 06.08.2019, 4 ♀♀; 1312 m, 09.08.2019, 16 ♀♀; 1233 m, 03.09.2019, 1 ♀♀; 1024 m, 13.07.2020, 23 ♀♀; 1237 m, 27.08.2020, 7 ♀♀; Balışeyh, 1075 m, 11.08.2019, 11 ♀♀; 1319 m, 13.08.2019, 18 ♀♀; 1581 m, 15.07.2020, 27 ♀♀; 1711 m, 28.07.2020, 3 ♀♀; Yahşihan, 1215 m, 15.08.2019, 14 ♀♀; 1252 m, 18.08.2019, 22 ♀♀; 900 m, 24.09.2019, 1 ♀♀; 1246 m, 16.07.2020, 24 ♀♀; Bahşili, 1322 m, 20.08.2019, 9 ♀♀; 1539 m, 22.08.2019, 17 ♀♀; 1447 m, 18.07.2020, 29 ♀♀; 1429 m, 30.08.2020, 3 ♀♀; Karakeçili, 790 m, 23.08.2019, 2 ♀♀; 931 m, 20.07.2020, 9 ♀♀; Çelebi, 1096 m, 28.08.2019, 6 ♀♀; 1416 m, 31.08.2019, 9 ♀♀; 1210 m, 21.07.2020, 15 ♀♀; 1422 m, 22.07.2020, 21 ♀♀.

**Distribution worldwide:** Albania, Austria, Belgium, Britain I., Bulgaria, Central European Russia, Croatia, Czech Republic, Danish mainland, East European Russia, East Palaearctic, European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Lithuania, Macedonia, Near East, North European Russia, Northwest European Russia, Poland, Portuguese mainland, Romania, Slovakia, Slovenia, South European Russia, Spanish mainland, Sweden, Ukraine

**Distribution in Turkey:** Ankara, Artvin, Balıkesir, Bartın, Bayburt, Bilecik, Bolu, Bursa, Çanakkale, Denizli, Düzce, Elazığ, Erzurum, Eskişehir, Giresun, Hakkari, İçel, İstanbul, İstanbul, İzmir, Kars, Kastamonu, Kayseri, Kırklareli, Konya, Kütahya, Manisa, Muğla, Muğla, Nevşehir, Ordu, Samsun, Tokat, Trabzon, Uşak, Yozgat, Zonguldak.

#### 25. *Tabanus oppugnator* AUSTEN, 1925

**Material examined:** Keskin, 1710 m, 29.07.2019, 1 ♀♀; 1680 m, 08.07.2020, 3 ♀♀; Balışeyh, 1710 m, 15.07.2020, 2 ♀♀; Bahşili, 1325 m, 20.08.2019, 1 ♀♀; 1539 m, 18.07.2020, 2 ♀♀.

**Distribution worldwide:** Turkey, Iran

**Distribution in Turkey:** Balıkesir, Bolu, Çanakkale, Çankırı, Elazığ, Kastamonu, Kütahya, Sinop.

#### 26. *Tabanus quatuornatatus* MEIGEN, 1820

**Material examined:** Keskin, 1335 m, 29.07.2019, 2 ♀♀; 1513 m, 08.07.2020, 6 ♀♀; 1700 m, 25.08.2020, 1 ♀♀; Delice, 1000 m, 03.08.2019, 2 ♀♀; 1317 m, 05.08.2019, 1 ♀♀; 1340 m, 11.07.2020, 5 ♀♀; Çelebi, 1196 m, 27.08.2019, 1 ♀♀; 1426 m, 30.08.2019, 2 ♀♀; 1397 m, 21.07.2020, 4 ♀♀; 1215 m, 22.07.2020, 4 ♀♀.

**Distribution worldwide:** Albania, Austria, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Croatia, Czech Republic, Danish Mainland, East Palaearctic, European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Macedonia, Moldova, Near East, North Africa, Poland, Portuguese mainland, Romania, Slovakia, Slovenia, South European Russia, Spanish mainland, Switzerland, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Adana, Amasya, Ankara, Artvin, Aydın, Balıkesir, Bayburt, Bilecik, Bolu, Bursa, Çanakkale, Çorum, Denizli, Erzurum, Eskişehir, Giresun, Gümüşhane, Hakkari, Hatay, İçel, İzmir, Kastamonu, Kırklareli, Konya, Kütahya, Muğla, Niğde, Sinop, Tekirdağ, Trabzon, Uşak, Yozgat.

#### 27. *Tabanus regularis* JAENNICKE, 1866

**Material examined:** Keskin, 1710 m, 29.07.2019, 2 ♀♀; 1680 m, 08.07.2020, 1 ♀♀; 1713 m, 25.08.2020, 2 ♀♀; Balışeyh, 1581 m, 12.08.2019, 3 ♀♀; 1315 m, 13.08.2019, 2 ♀♀; 1710 m, 15.07.2020, 1 ♀♀.

**Distribution worldwide:** Bosnia and Herzegovina, Bulgaria, Corsica, Croatia, Cyprus, European Turkey, French mainland, Greek mainland, Hungary, Italian mainland, Macedonia, Malta, Near East, North Africa, Portuguese mainland, Romania, Sicily, Slovakia, South European Russia, Spanish mainland

**Distribution in Turkey:** Afyon, Ankara, Antalya, Aydın, Balıkesir, Bilecik, Bursa, Çanakkale, Denizli, Edirne, Elazığ, Erzurum, Eskişehir, Hakkari, İçel, İstanbul, İzmir, Kırklareli, Konya, Kütahya, Muğla, Tekirdağ, Yozgat.

#### 28. *Tabanus spectabilis* LOEW, 1858

**Material examined:** Sulakyurt, 1090 m, 06.08.2019, 1 ♀♀; Karakeçili, 931 m, 20.07.2020, 1 ♀.

**Distribution worldwide:** Albania, Bulgaria, Croatia, European Turkey, French mainland, Greek mainland, Hungary, Italian mainland, Macedonia, Moldova, Near East, North Africa, Romania, Sicily, Slovenia, South European Russia, Spanish mainland, Former Yugoslavia.

**Distribution in Turkey:** Ankara, Bilecik, Bolu, Çanakkale, Çankırı, Çorum, Edirne, Elazığ, Erzincan, Erzurum, Eskişehir, Giresun, İçel, Kayseri, Kırklareli, Konya, Niğde, Tekirdağ, Yozgat.

**29. *Tabanus spodopterus* MEIGEN, 1820**

**Material examined:** Keskin, 1235 m, 30.07.2019, 4 ♀♀; 1437 m, 01.08.2019, 1 ♀♀; 1355 m, 08.07.2020, 7 ♀♀; Delice, 1278 m, 04.08.2019, 2 ♀♀; 1349 m, 11.07.2020, 5 ♀♀; Sulakyurt, 1214 m, 07.08.2019, 3 ♀♀; 1324 m, 14.07.2020, 4 ♀♀; 1255 m, 27.08.2020, 1 ♀♀; Yahşihan, 1015 m, 14.08.2019, 1 ♀♀; 1252 m, 16.07.2020, 4 ♀♀; Karakeçili, 931 m, 20.07.2020, 2 ♀♀.

**Distribution worldwide:** Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Macedonia, Moldova, Near East, Poland, Portuguese mainland, Romania, Slovakia, South European Russia, Spanish mainland, Switzerland

**Distribution in Turkey:** Adapazarı, Afyon, Amasya, Ankara, Antalya, Artvin, Balıkesir, Bolu, Bursa, Çanakkale, Çorum, Denizli, Edirne, Erzurum, Eskişehir, İçel, İstanbul, Karabük, Kars, Kastamonu, Kırklareli, Konya, Kütahya, Muğla, Tekirdağ, Trabzon, Uşak, Yalova, Zonguldak.

**30. *Tabanus tergestinus* EGGER, 1859**

**Material examined:** Keskin, 1266 m, 30.07.2019, 11 ♀♀; 1655 m, 01.08.2019, 13 ♀♀; 1530 m, 09.07.2020, 14 ♀♀; Delice, 1349 m, 03.08.2019, 9 ♀♀; 1066 m, 04.09.2019, 1 ♀♀; 1340 m, 12.07.2020, 7 ♀♀; 1278 m, 26.08.2020, 6 ♀♀; Sulakyurt, 1050 m, 06.08.2019, 8 ♀♀; 1244 m, 07.08.2019, 10 ♀♀; 1024 m, 02.09.2019, 2 ♀♀; 1388 m, 13.07.2020, 14 ♀♀; Yahşihan, 1215 m, 15.08.2019, 11 ♀♀; 1252 m, 18.08.2019, 7 ♀♀; 1250 m, 16.07.2020, 19 ♀♀; Bahşili, 1326 m, 20.08.2019, 9 ♀♀; 1539 m, 22.08.2019, 5 ♀♀; 1400 m, 17.07.2020, 4 ♀♀; 1258 m, 30.08.2020, 3 ♀♀; Çelebi, 1396 m, 27.08.2019, 3 ♀♀; 1449 m, 22.07.2020, 11 ♀♀; 1226 m, 01.09.2020, 1 ♀♀.

**Distribution worldwide:** Albania, Austria, Bosnia and Herzegovina, Bulgaria, Central European Russia, Croatia, Czech Republic, European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Iran, Macedonia, Moldova, Near East, Poland, Romania, Slovakia, Slovenia, South European Russia, Spanish mainland, Switzerland, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Adapazarı, Afyon, Ankara, Antalya, Artvin, Artvin, Aydın, Balıkesir, Bartın, Bolu, Bursa, Edirne, Elazığ, Erzurum, Gümüşhane, Hatay, İçel, İstanbul, Kastamonu, Kırklareli, Muğla, Ordu, Samsun, Sinop, Tekirdağ, Yalova, Zonguldak.

**31. *Tabanus unifasciatus* LOEW, 1858**

**Material examined:** Keskin, 1680 m, 29.07.2019, 5 ♀♀; 1700 m, 08.07.2020, 9 ♀♀; 1550 m, 09.07.2020, 4 ♀♀; Bahşili, 1522 m, 19.08.2019, 1 ♀♀; 1510 m, 17.07.2020, 9 ♀♀; 1490 m, 18.07.2020, 7 ♀♀; Çelebi, 1449 m, 21.07.2020, 3 ♀♀; 1350 m, 22.07.2020, 2 ♀♀.

**Distribution worldwide:** Albania, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, European Turkey, French mainland, Greek mainland, Hungary, Italian mainland, Macedonia, Moldova, Near East, North Africa, Portuguese mainland, Romania, Slovakia, Slovenia, South European Russia, Spanish mainland, Switzerland, Ukraine

**Distribution in Turkey:** Afyon, Ağrı, Amasya, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bayburt, Bilecik, Bolu, Bursa, Çanakkale, Çorum, Edirne, Erzurum, Eskişehir, Gümüşhane, Hakkari, Hatay, İçel, Kahramanmaraş, Karabük, Kastamonu, Kırklareli, Kırşehir, Kütahya, Muğla, Nevşehir, Niğde, Ordu, Rize, Samsun, Sinop, Sivas, Tekirdağ, Tokat, Uşak, Van.

**32. *Haematopota bigoti* GOBERT, 1880**

**Material examined:** Keskin, 1150 m, 30.07.2019, 1 ♀♀; 1364 m, 08.07.2020, 2 ♀♀; 1700 m, 09.07.2020, 1 ♀♀; Yahşihan, 1230 m, 16.07.2020, 1 ♀♀; Karakeçili, 931 m, 20.07.2020, 1 ♀♀.

**Distribution worldwide:** Austria, Britain I., Croatia, Danish mainland, European Turkey, French mainland, Germany, Hungary, Italian mainland, Near East, North Africa, Poland, Portuguese mainland, Romania, Slovakia, Spanish mainland, Sweden, The Netherlands, Former Yugoslavia.

**Distribution in Turkey:** Afyon, Ankara, Balıkesir, Çanakkale, Edirne, Elazığ, Kars, Kırklareli, Konya, Kütahya, Tekirdağ, Yozgat.

**33. *Haematopota hennauxi* LECLERCQ, 1967**

**Material examined:** Keskin, 1150 m, 31.07.2019, 1 ♀♀; 1450 m, 08.07.2020, 2 ♀♀; Sulakyurt, 1217 m, 06.08.2019, 1 ♀♀; 1300 m, 13.07.2020, 2 ♀♀; Balışeyh, 1275 m, 10.08.2019, 1 ♀♀; 1385 m, 15.07.2020, 3 ♀♀; Yahşihan, 1252 m, 16.07.2020, 1 ♀♀; Karakeçili, 931 m, 20.07.2020, 3 ♀♀.

**Distribution worldwide:** Turkey.

**Distribution in Turkey:** Afyon, Ankara, Bolu, Çorum, Elazığ, Eskişehir, Konya, Yozgat.

**34. *Haematopota italica* MEIGEN, 1804**

**Material examined:** Keskin, 1240 m, 29.07.2019, 1 ♀♀; 08.07.2020, 3 ♀♀; 1688 m, 09.07.2020, 1 ♀♀; Delice, 1060 m, 03.08.2019, 1 ♀♀; 1278 m, 11.07.2020, 2 ♀♀; 1349 m, 12.07.2020, 1 ♀♀; Sulakyurt, 1324 m, 13.07.2020, 2 ♀♀; Balışeyh, 1581 m, 15.07.2020, 1 ♀♀; Bahşili, 1122 m, 19.08.2019, 1 ♀♀; 1530 m, 18.07.2020, 2 ♀♀; Karakeçili, 931 m, 20.07.2020, 1 ♀♀; Çelebi, 1426 m, 21.07.2020, 2 ♀♀.



**Distribution worldwide:** Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Central European Russia, Croatia, Czech Republic, Danish mainland, East European Russia, Estonia, European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Liechtenstein, Lithuania, Luxembourg, Macedonia, Near East, Northwest European Russia, Poland, Portuguese mainland, Romania, Slovakia, South European Russia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Adapazarı, Ankara, Balıkesir, Bartın, Bilecik, Bolu, Bursa, Çanakkale, Çankırı, Çorum, Diyarbakır, Düzce, Edirne, Elazığ, Erzincan, Erzurum, Eskişehir, Gümüşhane, İçel, Karabük, Kastamonu, Kırklareli, Kütahya, Malatya, Muğla, Samsun, Sinop, Tokat, Trabzon, Zonguldak.

### 35. *Haematopota kemali* SZILADY, 1923

**Material examined:** Keskin, 1040 m, 29.07.2019, 1 ♀♀; 1280 m, 08.07.2020, 3 ♀♀; Delice, 1278 m, 11.07.2020, 2 ♀♀; 1147 m, 26.08.2020, 1 ♀♀; Sulakyurt, 970 m, 06.08.2019, 2 ♀♀; 1224 m, 08.08.2019, 1 ♀♀; 1100 m, 13.07.2020, 3 ♀♀; Yahşihan, 862 m, 15.08.2019, 3 ♀♀; 1132 m, 18.08.2019, 1 ♀♀; 978 m, 16.07.2020, 4 ♀♀; Karakeçili, 791 m, 23.08.2019, 1 ♀♀; 931 m, 20.07.2020, 4 ♀♀.

**Distribution worldwide:** Turkey, Near East

**Distribution in Turkey:** Afyon, Ankara, Çankırı, Denizli, Elazığ, Erzurum, Eskişehir, İstanbul, Konya, Nevşehir, Niğde, Tekirdağ, Yozgat.

### 36. *Haematopota pallens* LOEW, 1871

**Material examined:** Delice, 1349 m, 02.08.2019, 1 ♀♀; 1250 m, 11.07.2020, 2 ♀♀; Balışeyh, 1275 m, 11.08.2019, 1 ♀♀; 1710 m, 15.07.2020, 3 ♀♀; 1315 m, 28.08.2020, 1 ♀♀; Bahşili, 1022 m, 20.08.2019, 1 ♀♀; 1522 m, 17.07.2020, 2 ♀♀; Çelebi, 1426 m, 21.07.2020, 2 ♀♀; 1449 m, 22.07.2020, 1 ♀♀.

**Distribution worldwide:** Afghanistan, China, East Palaearctic, Moldova, Near East, Romania, South European Russia, Ukraine, Turkey

**Distribution in Turkey:** Afyon, Ankara, Balıkesir, Bilecik, Bursa, Diyarbakır, Elazığ, Eskişehir, İçel, İzmir, Kayseri, Konya, Kütahya, Malatya, Muğla.

### 37. *Haematopota pluvialis* (LINNEAUS, 1758)

**Material examined:** Keskin, 1455 m, 01.08.2019, 2 ♀♀; 1620 m, 08.07.2020, 3 ♀♀; Yahşihan, 1016 m, 15.08.2019, 2 ♀♀; 1215 m, 17.08.2019, 1 ♀♀; 1252 m, 16.07.2020, 3 ♀♀; Bahşili, 1139 m, 20.08.2019, 1 ♀♀; 1544 m, 17.07.2020, 2 ♀♀; Çelebi, 1336 m, 21.07.2020, 1 ♀♀; Karakeçili, 931 m, 01.09.2020, 1 ♀♀.

**Distribution worldwide:** Albania, Austria, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Central European Russia, Croatia, Czech Republic, Danish mainland, East European Russia, East Palaearctic, Estonia, European Turkey, Finland, French mainland, Germany, Greek mainland, Hungary, Ireland, Italian mainland, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Near East, North European Russia, Northwest European Russia, Norwegian mainland, Poland, Portuguese mainland, Romania, Sardinia, Sicily, Slovakia, Slovenia, South European Russia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Former Yugoslavia.

**Distribution in Turkey:** Afyon, Ankara, Bilecik, Çanakkale, Edirne, Elazığ, Eskişehir, İstanbul, Kayseri, Kırklareli, Konya, Niğde, Sivas, Tekirdağ, Yozgat.

### 38. *Haematopota sewelli* AUSTEN, 1920

**Material examined:** Keskin, 1046 m, 29.07.2019, 1 ♀♀; 1157 m, 31.07.2019, 1 ♀♀; 1240 m, 08.07.2020, 3 ♀♀; 1168 m, 25.08.2020, 2 ♀♀; Delice, 987 m, 02.08.2019, 4 ♀♀; 1201 m, 11.07.2020, 2 ♀♀; Sulakyurt, 1241 m, 07.08.2019, 3 ♀♀; 966 m, 13.07.2020, 5 ♀♀; 1324 m, 27.08.2020, 1 ♀♀; Yahşihan, 900 m, 17.08.2019, 2 ♀♀; 1215 m, 16.07.2020, 3 ♀♀; 1066 m, 29.08.2020, 1 ♀♀; Karakeçili, 690 m, 23.08.2019, 1 ♀♀; 931 m, 20.07.2020, 5 ♀♀; Çelebi, 996 m, 21.07.2020, 2 ♀♀; 1126 m, 01.09.2020, 1 ♀♀.

**Distribution worldwide:** Israel, Iran, Turkey

**Distribution in Turkey:** Ankara, Çankırı, Elazığ, İzmir, Konya, Niğde, Trabzon, Yozgat.

### 39. *Dasyramphis umbrinus* (MEIGEN, 1820)

**Material examined:** Keskin, 1150 m, 31.07.2019, 8 ♀♀; 1546 m, 01.08.2019, 2 ♀♀; 1367 m, 08.07.2020, 18 ♀♀; 1580 m, 09.07.2020, 14 ♀♀; Delice, 986 m, 05.08.2019, 1 ♀♀; 1150 m, 10.07.2020, 13 ♀♀; 1349 m, 12.07.2020, 10 ♀♀; Sulakyurt, 1324 m, 13.07.2020, 8 ♀♀; Yahşihan, 1217 m, 15.08.2019, 1 ♀♀; 1350 m, 16.07.2020, 9 ♀♀; Karakeçili, 931 m, 20.07.2020, 4 ♀♀; Çelebi, 996 m, 21.07.2020, 4 ♀♀; 1434 m, 22.07.2020, 11 ♀♀.

**Distribution worldwide:** Albania, Bosnia and Herzegovina, Bulgaria, Croatia, European Turkey, Greek mainland, Italian mainland, Macedonia, Near East, Romania, Slovenia, Former Yugoslavia,

**Distribution in Turkey:** Adana, Ankara, Antalya, Artvin, Balıkesir, Bolu, Bursa, Çanakkale, Çankırı, Çorum, Denizli, Edirne, Erzincan, Erzurum, Eskişehir, Gümüşhane, Hakkari, İçel, İstanbul, İzmir, Kars, Kayseri, Kırklareli, Kırşehir, Konya, Kütahya, Manisa, Muğla, Muş, Nevşehir, Niğde, Osmaniye, Samsun, Sinop, Sivas, Uşak, Yalova, Yozgat.

**40. *Philipomyia aprica* (MEIGEN, 1820)**

**Material examined:** Keskin, 1264 m, 29.07.2019, 6 ♀♀; 1574 m, 01.08.2019, 4 ♀♀; 1610 m, 08.07.2020, 16 ♀♀; 1255 m, 25.08.2020, 1 ♀♀; Delice, 1036 m, 03.08.2019, 2 ♀♀; 1278 m, 11.07.2020, 12 ♀♀; 1349 m, 12.07.2020, 15 ♀♀; Sulakyurt, 1130 m, 06.08.2019, 1 ♀♀; 1063 m, 13.07.2020, 6 ♀♀; 1324 m, 14.07.2020, 19 ♀♀; Balışeyh, 1581 m, 15.07.2020, 17 ♀♀; Yahşihan, 950 m, 14.08.2019, 4 ♀♀; 1250 m, 16.07.2020, 13 ♀♀; Bahşili, 1488 m, 17.07.2020, 9 ♀♀; 1510 m, 19.07.2020, 16 ♀♀; Çelebi, 1426 m, 21.07.2020, 5 ♀♀.

**Distribution worldwide:** Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Central European Russia, Croatia, Czech Republic, European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Liechtenstein, Macedonia, Near East, Poland, Portuguese mainland, Romania, Slovakia, Slovenia, Spanish mainland, Switzerland, Former Yugoslavia.

**Distribution in Turkey:** Afyon, Ankara, Antalya, Artvin, Balıkesir, Bayburt, Bingöl, Bolu, Bursa, Çanakkale, Erzurum, Eskişehir, Hakkari, İçel, İstanbul, Kars, Kastamonu, Kırklareli, Konya, Kütahya, Muş, Tekirdağ, Yalova.

Table 1. Species and numbers of horse flies collected in Kırkkale during 2019 and 2020

| No           | Species name                  | Number      | %          |
|--------------|-------------------------------|-------------|------------|
| 1            | <i>Pangonius pyritosus</i>    | 5           | 0,17       |
| 2            | <i>Chrysops caecutiens</i>    | 26          | 0,89       |
| 3            | <i>Chrysops flavipes</i>      | 16          | 0,55       |
| 4            | <i>Chrysops italicus</i>      | 14          | 0,48       |
| 5            | <i>Chrysops buxtoni</i>       | 22          | 0,75       |
| 6            | <i>Chrysops hamatus</i>       | 24          | 0,82       |
| 7            | <i>Atylotus flavoguttatus</i> | 40          | 1,37       |
| 8            | <i>Atylotus hendrxi</i>       | 68          | 2,33       |
| 9            | <i>Atylotus rusticus</i>      | 6           | 0,20       |
| 10           | <i>Theriopectes tricolor</i>  | 10          | 0,34       |
| 11           | <i>Hybomitra caucasi</i>      | 5           | 0,17       |
| 12           | <i>Tabanus autumnalis</i>     | 62          | 2,13       |
| 13           | <i>Tabanus bifarius</i>       | 196         | 6,74       |
| 14           | <i>Tabanus briani</i>         | 8           | 0,27       |
| 15           | <i>Tabanus bromius</i>        | 1017        | 34,97      |
| 16           | <i>Tabanus cordiger</i>       | 25          | 0,85       |
| 17           | <i>Tabanus eggeri</i>         | 12          | 0,41       |
| 18           | <i>Tabanus exlusus</i>        | 19          | 0,65       |
| 19           | <i>Tabanus fraseri</i>        | 7           | 0,24       |
| 20           | <i>Tabanus glaucopis</i>      | 27          | 0,92       |
| 21           | <i>Tabanus latetinctus</i>    | 15          | 0,51       |
| 22           | <i>Tabanus lunatus</i>        | 179         | 6,15       |
| 23           | <i>Tabanus martinii</i>       | 21          | 0,72       |
| 24           | <i>Tabanus miki</i>           | 408         | 14,03      |
| 25           | <i>Tabanus oppugnator</i>     | 9           | 0,30       |
| 26           | <i>Tabanus quatuornatatus</i> | 28          | 0,96       |
| 27           | <i>Tabanus regularis</i>      | 11          | 0,37       |
| 28           | <i>Tabanus spectabilis</i>    | 2           | 0,06       |
| 29           | <i>Tabanus spodopterus</i>    | 34          | 1,16       |
| 30           | <i>Tabanus tergestinus</i>    | 168         | 5,77       |
| 31           | <i>Tabanus unifasciatus</i>   | 40          | 1,37       |
| 32           | <i>Haematopota bigoti</i>     | 6           | 0,20       |
| 33           | <i>Haematopota hennauxi</i>   | 14          | 0,48       |
| 34           | <i>Haematopota italica</i>    | 18          | 0,61       |
| 35           | <i>Haematopota kemali</i>     | 26          | 0,89       |
| 36           | <i>Haematopota pallens</i>    | 14          | 0,48       |
| 37           | <i>Haematopota pluvialis</i>  | 16          | 0,55       |
| 38           | <i>Haematopota sewelli</i>    | 37          | 1,27       |
| 39           | <i>Dasyramphis umbrinus</i>   | 103         | 3,54       |
| 40           | <i>Philipomyia aprica</i>     | 146         | 5,02       |
| <b>Total</b> |                               | <b>2908</b> | <b>100</b> |

#### 4. Conclusions and discussion

During the study total 40 horsefly species sampled and 36 species except *Tabanus bromius* Linnaeus 1758; *Tabanus regularis* JAENNICKE, 1866; *Tabanus spectabilis* LOEW, 1858; *Haematopota kemali* SZILADY, 1923 first record for Kırıkale. *Pangonius* (s. str.) *pyritosus* (Loew, 1859); *Chrysops* (s. str.) *caecutiens* (Linnaeus, 1758); *Chrysops* (s. str.) *flavipes* MEIGEN, 1804; *Chrysops* (s. str.) *italicus* MEIGEN, 1804; *Chrysops* (Petersenchrysops) *buxtoni* AUSTEN, 1922; *Chrysops* (Petersenchrysops) *hamatus* LOEW, 1858; *Atylotus flavoguttatus* (SZILADY, 1975); *Atylotus hendrxi* LECLERCQ, 1967; *Atylotus rusticus* (LINNAEUS, 1767); *Theriopectes tricolor* ZELLER, 1842; *Hybomitra caucasi* (SZILADY, 1923); *Tabanus autumnalis* LINNAEUS, 1761; *Tabanus bifarius* LOEW, 1858; *Tabanus briani* LECLERCQ, 1962; *Tabanus cordiger* MEIGEN, 1820; *Tabanus eggeri* SCHINERİ, 1868; *Tabanus exlusus* PANDELLE, 1883; *Tabanus fraseri* AUSTEN, 1925; *Tabanus glaucopis* MEIGEN, 1936; *Tabanus latetinctus* AUSTEN, 1920; *Tabanus lunatus* FABRICIUS, 1794; *Tabanus martinii* KRÖBER, 1928; *Tabanus miki* BRAUER, 1880; *Tabanus oppugnator* AUSTEN, 1925; *Tabanus quatuornatus* MEIGEN, 1820; *Tabanus spodopterus* MEIGEN, 1820; *Tabanus tergestinus* EGGER, 1859; *Tabanus unifasciatus* LOEW, 1858; *Haematopota bigoti* GOBERT, 1881; *Haematopota hennauxi* LECLERCQ, 1967; *Haematopota italica* MEIGEN, 1804; *Haematopota pallens* LOEW, 1870; *Haematopota pluvialis* (LINNAEUS, 1761); *Haematopota sewelli* AUSTEN, 1920; *Dasyramphis umbrinus* (MEIGEN, 1820) and *Philipomyia aprica* (MEIGEN, 1820) are reported for the first time from study area.

%34,97 adult specimens belong to *Tabanus bromius* is the most abundant and the most common species like similar studies [4, 18]. Geographical conditions, temperature and seasonal factors provide dense distribution of the *T. bromius* in Kırıkale. *Tabanus miki* %14,03; *Tabanus bifarius* %6,74; *Tabanus lunatus* %6,15 and *Tabanus tergestinus* %5,77 followed the *Tabanus bromius* with species richness (Table 1).

Total collected specimen distribution as percentage; %56,39 in July, %38,78 in August and %4,84 in September. This is similar to the present studies about seasonal activities of horseflies. In Turkey horsefly activities begin in the middle of May and continue to the middle of September [15, 19, 23- 26, 28]. Unfortunately in May and June field studies could not be carried out because of the Covid-19 pandemic which caused the travel limitation. However specimens collected at the maximum activity periods of horseflies.

The collection localities are especially selected at the rural areas where livestock and animal husbandry are dense. Due to female tabanids are known as mechanical vectors of viruses, bacteria, protozoans and helminths that cause various diseases in wild and domestic animals [8, 12, 31], present study is also important for avoiding the spread of these diseases via Tabanids. The results of this study involve the whole tabanids distribution in the Kırıkale. These faunistic results contribute information of the Tabanidae in Turkey and also provide prediction of probability of losses in livestock production.

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