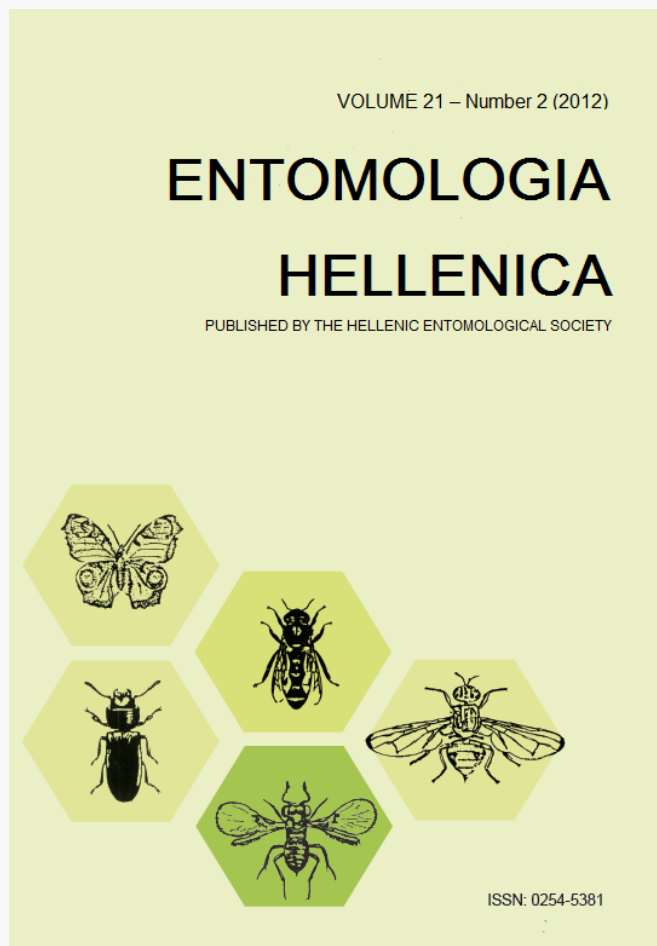


## ENTOMOLOGIA HELLENICA

Vol 21, No 2 (2012)



### The tabanid fauna (Diptera: Tabanidae) of the Chirpan Eminences (Bulgaria)

*Diana Ganeva, Milena Kalmushka*

doi: [10.12681/eh.11517](https://doi.org/10.12681/eh.11517)

Copyright © 2017, Diana Ganeva, Milena Kalmushka



This work is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/).

#### To cite this article:

Ganeva, D., & Kalmushka, M. (2012). The tabanid fauna (Diptera: Tabanidae) of the Chirpan Eminences (Bulgaria). *ENTOMOLOGIA HELLENICA*, 21(2), 45–53. <https://doi.org/10.12681/eh.11517>

## The tabanid fauna (Diptera: Tabanidae) of the Chirpan Eminences (Bulgaria)

DIANA GANEVA\* AND MILENA KALMUSHKA

*Trakia University, Faculty of Agriculture, Department of Biology and Aquaculture,  
Student Campus 6 000 Stara Zagora, Bulgaria*

### ABSTRACT

The study of the Chirpan Eminences tabanid fauna was completed by means of a route collection in 2008 and regular monthly collections from two localities during the active tabanid seasons in years 2010-2011. The research resulted in the capturing of 1202 tabanid specimens, 1124 of them were females and 78 males. Within this collected sample 24 species and subspecies from 8 genera were determined: *Chrysops* (2 species), *Atylotus* (1 species), *Theriopectes* (1 species and 1 subspecies), *Hybomitra* (3 species), *Tabanus* (12 species and 1 subspecies), *Haematopota* (1 species), *Dasyrhamphis* (1 species) and *Philipomyia* (1 species). On the basis of literary data and of the species identified in this research, it may be asserted that the tabanid fauna in the Chirpan Eminences is represented by 28 species. Thirteen of them were identified for the first time for this region. From a zoogeographical point of view, predominant for the tabanid fauna of the Chirpan Eminences are the elements of the Mediterranean subregional fauna (64.29 % of the species).

KEY WORDS: Bulgaria, Chirpan Eminences, dominance structure, species composition, tabanids, zoogeographical aspects.

### Introduction

The Tabanids are an important group of bloodsucking flies having both economic and epizootological importance. Thus studies concerning species composition, abundance, distribution and activity, appear to be a research field of continuous interest.

The latest data suggest that worldwide the tabanid fauna is presented by 4400 species from 144 genera (Evenhuis et al. 2008). Two hundred and thirteen species and six subspecies have been identified for Europe ([www.faunaeur.org](http://www.faunaeur.org)) and 77 species and subspecies for Bulgaria (Ganeva 2008).

The tabanid fauna of Bulgaria has been studied with varying intensity over more than a century now, but quite a few regions of the country are still meagerly studied.

The information on the tabanid fauna of Chirpan Eminences is rather scarce and fragmentary. In the early 20<sup>th</sup> century Nejdalkov (1912) reported 5 species in the region of the city of Chirpan (*Chrysops relictus* Meigen, 1820; *Theriopectes gigas* (Herbst, 1787); *Tabanus bromius* Linnaeus, 1758; *Tabanus lunatus* Fabricius, 1794 and *Dasyrhamphis umbrinus* (Meigen, 1820); some years later Drensky (1929) reported 2 species (*Theriopectes gigas* (Herbst, 1787) and *Theriopectes tricolor* Zeller, 1842).

\*Corresponding author, e-mail: [d\\_ganeva2000@yahoo.com](mailto:d_ganeva2000@yahoo.com)

More recently, 10 species were reported in various localities on the territory of Chirpan Eminences (Ganeva 2002).

The limited information, regarding the tabanid fauna of the Chirpan Eminences and the lack of research on the activity of the species there, has determined the objective of the current study.

## Materials and Methods

### *Study area*

The Chirpan Eminences are located in the Upper Thracian lowland, South Bulgaria. The altitude of the eminences varies between 600-650 m. The relief is hilly, intercepted by the valleys of small rivers. According to Asenov (2006), the Chirpan Eminences fall under the Upper Thracian biogeographical region. The author indicates that the region is characterized by varied terrestrial invertebrate fauna which is still not sufficiently researched.

The study was carried out in two main localities on the territory of the Chirpan Eminences:

a) Stoyan Zaimovo-the ridge (Stoyan Zaimovo-2, 2010-2011, 431m altitude). The locality is situated at the highest point of the road which passes through the eminences towards the village of Stoyan Zaimovo. There is a coniferous forest on the west side of the road and a meadow with single bushes on the east one, where the terrain observations were carried out.

b) Spassovo village (2010-2011, 328 m altitude). The biotope where the terrain observations took place is a large, dry meadow, located approximately 1.3 km north of Spassovo village.

### *Sampling and processing of specimens*

The tabanids were collected during a route passage of the territory under investigation in 2008 and monthly collections from two localities during the active seasons of the tabanids in 2010-2011.

The tabanids were captured by means of a standard entomological net. The processing of the insects was carried out in laboratory conditions. The identification of the specimens followed the keys by Chvala et al. (1972) and Olsufjev (1977).

Lists of the studied localities and of the identified tabanid species are presented. The list of localities indicates the altitude, coordinates, collection dates and total number of collected specimens from each locality. The altitude and geographical coordinates were obtained through measurement with Garmin GPS Navigator Etrex VistaHCx.

Each species was identified in terms of locality, according to published data or new information (if such was available), number and sex of the captured specimens, and the dates of the catches. The sequence of species in the list of identified species was done by the Catalogue of Palaearctic Diptera (Chvála 1988).

### *Analysis of the structure of the tabanid assemblages*

The criteria adopted for analyzing the dominance structure were those based on the relative abundance (RA) used by Skufin (1949): dominant species ( $RA \geq 8\%$ ), subdominant species ( $2\% \leq RA \leq 8\%$ ), scarce species ( $0.5\% \leq RA \leq 2\%$ ) and rare species ( $RA \leq 0.5\%$ ).

### *List of localities*

1. Stoyan Zaimovo after the bridge, at the road fork for Mogilovo village (Stoyan Zaimovo-1), 357 m, 42.33 N, 25.37 E: 31.05.2010, 14 females.
2. Stoyan Zaimovo-the ridge (Stoyan Zaimovo-2), 431 m, 42.32 N, 25.37 E: 31.05.2010, 33 females; 03.06.2010, 59 females; 05.07.2010, 123 females; 06.08.2010, 15 females; 30.05.2011, 33 females, 4 males; 04.06.2011, 359 females; 10.07.2011, 199 females, 56 males; 06.08.2011, 16 females; 10.09.2011, 1 female.

3. Spasovo village, 328 m, 42.28 N, 25.32 E: 31.05.2010, 17 females; 03.06.2010, 7 females; 05.07.2010, 44 females; 06.08.2010, 3 females; 03.06.2011, 5 females; 11.07.2011, 29 females, 5 males; 08.08.2011, 25 females, 1 male.
4. Route passage – localities:
  - 4.1. Vinarovo village, 306 m, 42.18 N, 25.24 E: 22.06.2008, 26 females, 5 males.
  - 4.2. Stoyan Zaimovo-1, 357m, 42.33 N, 25.37 E: 22.06.2008, 29 females, 2 males.
  - 4.3. Izvorovo village, 346 m, 42.18 N, 25.19 E: 22.06.2008, 41 females, 2 males.
  - 4.4. Bratya Daskalovi village, 219 m, 42.19 N, 25.13 E: 22.06.2008, 9 females.
  - 4.5. Golyam dol village, 228 m, 42.20 N, 25.13 E: 22.06.2008, 37 females, 3 males.

## Results and Discussion

### *Species composition*

In total 1202 specimens (1124 females and 78 males) were collected and identified during the period of the study on the territory of Chirpan Eminences. 1113 females and 74 males specimens were determined in terms of species and 11 females and 4 males specimens – in terms of genera only.

A total of 24 species and subspecies from 8 genera were identified: *Chrysops* (2 species), *Atylotus* (1 species), *Theriopectes* (1 species and 1 subspecies), *Hybomitra* (3 species), *Tabanus* (12 species and 1 subspecies), *Haematopota* (1 species), *Dasyrhamphus* (1 species) and *Philipomyia* (1 species) (Table 1).

Out of this 24 species, 13 are reported for the first time to exist on the territory of the Chirpan Eminences: *Chrysops caecutiens* (Linnaeus, 1758); *Chrysops ludens* Loew, 1858; *Atylotus loewianus* (Villeneuve, 1920); *Theriopectes tricolor pallidicauda* (Olsufjev, 1937); *Hybomitra caucasi*

(Szilady, 1923); *Hybomitra distinguenda* (Verrall, 1909); *Tabanus autumnalis* Linnaeus, 1761; *Tabanus glaucopsis* Meigen, 1820; *Tabanus maculicornis* Zetterstedt, 1842; *Tabanus spodopterus ponticus* Olsufjev, Moucha & Chvála, 1967; *Tabanus sudeticus* Zeller, 1842; *Haematopota pluviialis* (Linnaeus, 1758) and *Dasyrhamphus ater* (Rossi, 1790).

As a result of the study new localities for 11 species are reported for the first time for the region of Chirpan Eminences. The recorded 24 species-group taxa (22 species and 2 subspecies) represent 31.17% of the fauna of the family Tabanidae in Bulgaria (77 species, Ganeva 2008).

Nedyalkov (1912) and Drensky (1929) reported 6 species for the Chirpan region, two of which (*Theriopectes gigas* (Herbst, 1787) and *Tabanus bromius* Linnaeus, 1758) were registered during the current study as well. New localities were reported for these species on the territory of Chirpan Eminences. Ten of the identified 24 species were reported by Ganeva (2002) for the regions of the village of Vinarovo and the village of Saedinenie. Thus, the current study confirmed their presence in the tabanid fauna of Chirpan Eminences. The list of identified species also includes those reported by Nedyalkov (1912) and Drensky (1929) for the Chirpan region, even though they have not been confirmed by our research so far. Thus, the current study advises of 28 tabanid species existing in the territory of the Chirpan Eminences.

### *List of species*

#### Family Tabanidae

#### Subfamily Chrysopsinae

#### Genus *Chrysops* Meigen, 1803

*Chrysops (Chrysops) caecutiens* (Linnaeus, 1758)

**New records:** Bratya Daskalovi, 22.6.2008, 1 female; Stoyan Zaimovo-2, 5.7.2010, 1 female.

*Chrysops (Chrysops) ludens* Loew, 1858

**New records:** Stoyan Zaimovo-2, 10.7.2011, 1 female.

***Chrysops (Chrysops) relictus* Meigen, 1820**

**Literature data:** Chirpan, VI-VII (Nedyalkov 1912).

#### Subfamily Tabaninae

**Genus *Atylotus* Osten-Sacken, 1876**

***Atylotus loewianus* (Villeneuve, 1920)**

**New records:** Stoyan Zaimovo-2, 6.8.2010, 9 females.

**Genus *Theriopectes* Zeller, 1842**

***Theriopectes gigas* (Herbst, 1787)**

**New records:** Stoyan Zaimovo-2, 4.6.2011, 1 female.

**Literature data:** Chirpan, V-VIII (Nedyalkov 1912; Drensky 1929).

***Theriopectes tricolor* Zeller, 1842**

**Literature data:** Chirpan, (Drensky 1929).

***Theriopectes tricolor pallidicauda* (Olsufjev, 1937)**

**New records:** Stoyan Zaimovo-2, 3.6.2010, 1 female; 30.5.2011, 1 female.

**Genus *Hybomitra* Enderlein, 1922**

***Hybomitra caucasi* (Szilady, 1923)**

**New records:** Stoyan Zaimovo-1, 31.05.2010, 1 female; Stoyan Zaimovo-2, 4.6.2011, 1 female.

***Hybomitra ciureai* (Séguy, 1937)**

**New records:** Stoyan Zaimovo-2, 3.6.2010, 2 females; 30.5.2011, 1 female; 4.6.2011, 6 females; 10.7.2011, 3 females.

**Literature data:** Vinarovo, 8.06.2000, 1 male (Ganeva 2002).

***Hybomitra distinguenda* (Verrall, 1909)**

**New records:** Stoyan Zaimovo-2, 3.6.2010, 3 females; 5.7.2010, 4 females; 30.5.2011, 2 females; 4.6.2011, 16 females; 10.7.2011, 3 females; 6.8.2011, 1 female; Spasovo, 31.5.2010, 1 female; 3.6.2010, 1 female.

**Genus *Tabanus* Linnaeus, 1758**

***Tabanus autumnalis* Linnaeus, 1761**

**New records:** Stoyan Zaimovo-2, 30.5.2011, 1 female; 4.6.2011, 3 females.

***Tabanus bifarius* Loew, 1858**

**New records:** Izvorovo, 22.6.2008, 1 female, 1 male; Golyam dol, 22.6.2008, 1

female; Stoyan Zaimovo-2, 31.5.2010, 2 females.

**Literature data:** Vinarovo, 8.06.2000, 1 female, 1 male (Ganeva 2002).

***Tabanus bromius* Linnaeus, 1758**

**New records:** Stoyan Zaimovo-1,

22.6.2008, 1 female, 1 male; Izvorovo, 22.6.2008, 1 female; Golyam dol, 3 females; Stoyan Zaimovo-2, 5.7.2010, 2 females; 4.6.2011, 1 female; 10.7.2011, 12 females, 6 males; Spasovo, 3.6.2010, 1 female; 5.7.2010, 9 females; 11.7.2011, 1 female, 1 male; 8.8.2011, 6 females.

**Literature data:** Chirpan, IV-VIII (Nedyalkov 1912); Saedinenie, 8.08.1999, 2 females (Ganeva 2002).

***Tabanus exclusus* Pandellé, 1883**

**New records:** Stoyan Zaimovo-2, 6.8.2010, 2 females; 10.9.2011, 1 female; Spasovo, 6.8.2010, 10 females.

**Literature data:** Saedinenie, 8.08.1999, 8 females (Ganeva 2002).

***Tabanus glaucopsis* Meigen, 1820**

**New records:** Stoyan Zaimovo-2, 6.8.2011, 1 female.

***Tabanus lunatus* Fabricius, 1794**

**Literature data:** Chirpan, VI-VIII (Nedyalkov 1912).

***Tabanus maculicornis* Zetterstedt, 1842**

**New records:** Vinarovo, 22.6.2008, 1 female; Stoyan Zaimovo-1, 22.6.2008, 5 females; Izvorovo, 22.6.2008, 3 females; Golyam dol, 22.6.2008, 3 females; Stoyan Zaimovo-2, 5.7.2010, 11 females; 4.6.2011, 5 females; 10.7.2011, 27 females; Spasovo, 11.7.2011, 5 females.

***Tabanus quatuornotatus* Meigen, 1820**

**New records:** Vinarovo, 22.6.2008, 2 females, 1 male; Stoyan Zaimovo-1, 22.6.2008, 1 female, 1 male; 31.5.2010, 10 females; Golyam dol, 22.6.2008, 1 female; Stoyan Zaimovo-2, 31.5.2010, 17 females; 3.6.2010, 17 females; 30.5.2011, 25 females, 3 males; 4.6.2011, 284 females; 10.7.2011, 1 female; Spasovo, 31.5.2010, 10 females; 3.6.2010, 3 females; 3.6.2011, 5 females.

**Literature data:** Vinarovo, 8.06.00, 1 female (Ganeva 2002).

***Tabanus spectabilis* Loew, 1858**

**New records:** Izvorovo, 22.6.2008, 1 female.

**Literature data:** Saedinenie, 8.08.1999, 1 female, (Ganeva 2002).

***Tabanus spodopterus ponticus***

**Olsufjev, Moucha & Chvála, 1967**

**New records:** Stoyan Zaimovo-2, 5.7.2010, 1 female; 10.7.2011, 14 females, 11 males; 6.8.2011, 1 female; Spasovo, 11.7.2011, 3 females.

***Tabanus sudeticus* Zeller, 1842**

**New records:** Stoyan Zaimovo-2, 5.7.2010, 1 female; 10.7.2011, 3 females; Spasovo, 11.7.2011, 1 female.

***Tabanus tergestinus* Egger, 1859**

**New records:** Vinarovo, 22.6.2008, 20 females, 2 males; Stoyan Zaimovo-1, 22.6.2008, 17 females; Izvorovo, 22.6.2008, 20 females, 1 male; Bratya Daskalovi, 22.6.2008, 7 females; Golyam dol, 22.6.2008, 23 females, 3 males; Stoyan Zaimovo-2, 31.5.2010, 1 female; 3.6.2010, 1 female; 5.7.2010, 91 females; 6.8.2010, 2 females; 10.7.2011, 102 females, 38 males; 6.8.2011, 3 females; Spasovo, 5.7.2010, 32 females; 6.8.2010, 2 females; 11.7.2011, 14 females, 4 males.

**Literature data:** Vinarovo, 8.06.2000, 10 males; Saedinenie, 8.08.1999, 1 female (Ganeva 2002).

***Tabanus tinctus* Walker, 1850**

**New records:** Izvorovo, 22.6.2008, 1 female; Stoyan Zaimovo-2, 10.7.2011, 24 females; 6.8.2011, 8 females; Spasovo, 11.7.2011, 4 females; 8.8.2011, 7 females.

**Literature data:** Saedinenie, 8.08.1999, 2 females (Ganeva 2002).

***Tabanus unifasciatus* Loew, 1858**

**New records:** Stoyan Zaimovo-2, 6.8.2010, 1 female; 6.8.2011, 2 females; Spasovo, 5.7.2010, 1 female; 11.7.2011, 1 female; 8.8.2011, 2 females.

**Literature data:** Saedinenie, 8.08.99, 6 females (Ganeva 2002).

**Genus *Haematopota* Meigen, 1803*****Haematopota pluvialis* (Linnaeus, 1758)**

**New records:** Izvorovo, 22.6.2008, 3 females; Golyam dol, 22.6.2008, 2 females; Stoyan Zaimovo-1, 31.5.2010, 1 female; Stoyan Zaimovo-2, 3.6.2010, 1 female;

30.5.2011, 1 female; Spasovo, 31.5.2010, 2 females; 5.7.2010, 2 females.

**Genus *Dasyrhamphis* Enderlein, 1922*****Dasyrhamphis ater* (Rossi, 1790)**

**New records:** Stoyan Zaimovo-2, 31.5.2010, 1 female.

***Dasyrhamphis umbrinus* (Meigen, 1820)**

**Literature data:** Chirpan (Nedyalkov 1912).

**Genus *Philipomyia* Olsufjev, 1964*****Philipomyia graeca* (Fabricius, 1794)**

**New records:** Vinarovo, 22.6.2008, 1 female; Stoyan Zaimovo-1, 22.6.2008, 5 females; 31.5.2010, 2 females; Izvorovo, 22.6.2008, 8 females; Golyam dol, 22.6.2008, 2 females; Stoyan Zaimovo-2, 31.5.2010, 12 females; 3.6.2010, 34 females; 5.7.2010, 11 females; 30.5.2011, 1 male; 4.6.2011, 40 females; 10.7.2011, 9 females; Spasovo, 31.5.2010, 4 females; 3.6.2010, 2 females.

**Literature data:** Vinarovo, 8.06.2000, 1 female (Ganeva 2002).

***Dominance structure***

Genus *Tabanus* was the richest in species (12 species and one subspecies) among the identified 8 genera. The collected material from the 13 *Tabanus* species (910 females, 73 males) represents 81.77 % of all specimens identified during this study. According to the relative abundance (RA) of the recorded species from genus *Tabanus*, 2 of them are dominant (*T. quatuornotatus*, 378 females, 5 males, 31.86% and *T. tergestinus*, 335 females, 48 males, 31.86%); 4 are subdominant (*T. maculicornis*, 56 females, 5 males, 5.07%, *T. bromius*, 37 females, 8 males, 3.74%, *T. tinctus*, 44 females, 3.66% and *T. sp. ponticus*, 19 females, 11 males, 2.5%); 2 are scarce species (*T. exclusus*, 14 females, 1.16% and *T. unifasciatus*, 7 females, 0.58%) and 5 are rare species (*T. bifarius*, 4 females, 1 male, 0.42%, *T. sudeticus*, 5 females, 0.42%, *T. autumnalis*, 4 females, 0.34%, *T. spectabilis*, 1 female, 0.08% and *T. glaucopsis*, 1 female, 0.08%) (Table 1).

Genus *Hybomitra* (3 species) ranks second after genus *Tabanus* in terms of diversity of species. The specimens (45 females)

from genus *Hybomitra* represent only 3.75 % of the Chirpan Eminences' tabanid assemblage. According to the relative abundance one of the *Hybomitra* species is subdominant (*H. distinguenda*, 31 females, 2.58 %), one – scarce (*H. ciureai*, 12 females, 1.00 %), and one - rare (*H. caucasi*, 2 females, 0.17 %) (Table 1).

The *Chrysops* and *Theriopectes* genera are represented by 2 rare species each, which are as follows: *C. caecutiens* (2 females, 0.17 %), *C. ludens* (1 female, 0.08 %), *Th. tr. pallidicauda* (2 females, 0.17 %) and *Th. gigas* (1 female, 0.08 %) (Table 1). The collected from each of these genera material represents 0.25 % of the total number of registered during the study tabanid specimens (Table 1).

The *Atylotus*, *Haematopota*, *Dasyrhamphis* and *Philipomyia* genera are all represented by 1 species (Table 1). The identified *Atylotus* and *Haematopota* species are scarce and the *Dasyrhamphis* one is rare (Table 1). *Dasyrhamphis* (*D. ater*, 0.08 %), species is one of the rarest species in the region with only one captured specimen during the whole study period. On the other hand, the only species from genus *Philipomyia* (*P. graeca*) appeared high in numbers on the territory of the Chirpan Eminences, and consequently emerged as the third dominant species for the region (10.90 %, Table 1).

The three dominant and five subdominant species give 92.17 % of the total number of specimens captured during the whole study period, while five species proved scarce. The captured specimens of the scarce species represent 4.49 % of the total activity of the Chirpan Eminences tabanid complex. The remaining 11 species were rare (Table 1).

#### **Zoogeographical aspects of the Chirpan Eminences' tabanid fauna**

According to the zoogeographical division of the tabanid fauna, developed by Olsufjev (1977, 1980), the species identified for the territory of Chirpan Eminences belong to the 5 fauna complexes from 2 subre-

gional types of fauna: Boreurasian type with Euro-Siberian forest and Forest-Steppe fauna complex and Mediterranean type of fauna with 3 fauna complexes: South-European, Mediterranean-Middle Asian and Pontic-Hyrcanian.

On the territory of the Chirpan Eminences, the Euro-Siberian forest complex is represented by 6 species (*Chrysops caecutiens*, *Hybomitra distinguenda*, *Tabanus glaucopis*, *T. maculicornis*, *T. sudeticus* and *Haematopota pluvialis*) whereas the Forest-Steppe fauna complex – by 4 (*Chrysops relictus*, *Hybomitra ciureai*, *Tabanus autumnalis*, *T. bromius*). The reported for the territory of the Chirpan Eminences 10 species from the Boreurasian subregional fauna represent 35.71 % of the tabanid fauna composition there.

The Mediterranean subregional tabanid fauna is represented on the studied territory by 13 South-European species (*Chrysops ludens*, *Atylotus loewianus*, *Theriopectes gigas*, *Tabanus bifarius*, *T. exclusus*, *T. lunatus*, *T. quatuornotatus*, *T. tergestinus*, *T. tinctus*, *T. unifasciatus*, *Dasyrhamphis ater*, *D. umbrinus*, *Philipomyia graeca*), 1 - Mediterranean-Middle Asian (*Tabanus spectabilis*) and 4 - Pontic-Hyrcanian (*Theriopectes tricolor*, *Th. tricolor pallidicauda*, *Hybomitra caucasi* and *Tabanus spodopterus ponticus*). In publications by Olsufjev (1977, 1980) there are no available data regarding the zoogeographical affiliation of *Tabanus exclusus*, but according to Chvála et al. (1972), this species is spread in Southern Europe. This enables us to relate it to the Mediterranean subregional fauna in the framework of Olsufjev's (1977, 1980) typization of tabanid fauna. It appears that the Mediterranean fauna on the territory of the Chirpan Eminences represent 64.29 % of the tabanid fauna in the region.

Based on the comments above, it can be concluded that the tabanid fauna of the Chirpan Eminences is predominated by the elements of the Mediterranean subregional fauna (64.29 %).

TABLE 1. Species composition and number of captured specimens from the Tabanidae family (Diptera) in the region of the Chirpan Eminences (2008; 2010-2011), (\*after the sign “+” the number of captured male specimens is given).

Species	Vinarovo	Izvorovo	Bratya Daskalovi	Golyam dol	Stoyan Zaimovo-1	Stoyan Zaimovo-2	Spasovo	Total specimens	% of total specimens
	2008	2008	2008	2008	2008; 2010	2010-2011	2010-2011		
<i>Chrysops caecutiens</i>			1			1		2	0.17
<i>C.ludens</i>						1		1	0.08
<i>Aylotus loewianus</i>						9		9	0.75
<i>Theroptectes gigas</i>						1		1	0.08
<i>Th. tricolor pallidicauda</i>						2		2	0.17
<i>Hybomitra caucasi</i>			1		1	1		2	0.17
<i>H.ciureai</i>						12		12	1.00
<i>H.distinguenta</i>						29	2	31	2.58
<i>Tabanus autumnalis</i>						4		4	0.34
<i>T. bifarius</i>		1+1*		1		2		4+1	0.42
<i>T.bromius</i>		1		3	1+1	15+6	17+1	37+8	3.74
<i>T.exclusus</i>						3	11	14	1.16
<i>T.glaucopsis</i>						1		1	0.08
<i>T.maculicornis</i>	1	3		3	5	44	5	61	5.07
<i>Tabanus quatuornotatus</i>	2+1	2		1	11+1	344+3	18	378+5	<b>31.86</b>
<i>T.spectabilis</i>		1						1	0.08
<i>T.spodopterus ponticus</i>						16+11	3	19+11	2.50
<i>T.sudeticus</i>						4	1	5	0.42
<i>T.tergestinus</i>	20+2	20+1	7	23+3	17	200+38	48+4	335+48	<b>31.86</b>
<i>T.tinctus</i>		1				32	11	44	3.66
<i>T.unifasciatus</i>						3	4	7	0.58
<i>H.pluvialis</i>		3		2	1	2	4	12	1.00
<i>Dasyrhamphus ater</i>						1		1	0.08
<i>Philipomyia graeca</i>	1	8		2	7	106+1	6	130+1	<b>10.90</b>
Identified to species	24+4	40+2	8	35+3	43+2	833+59	130+4	1113+74	98.75
Identified to genus	2+2	1	1	2		5+1	+	11+4	1.25
Total species	4	9	2	7	7	23	12	24	
Total specimens	<b>26+5</b>	<b>41+2</b>	<b>9</b>	<b>37+3</b>	<b>43+2</b>	<b>838+60</b>	<b>130+5</b>	<b>1124+78</b>	<b>100%</b>

## References

- Asenov, A. 2006. Biogeography of Bulgaria. AN-DI, Sofia, 543 pp. [in Bulgarian].
- Chvála M. 1988. Family Tabanidae. In: Catalogue of Palaearctic Diptera, Ed. by Soos A. and L. Papp, Vol. 5: 97-191, Akadémiai kiadó, Budapest.
- Chvála, M., L. Lyneborg and J. Moucha. 1972. The Horse Flies of Europe (Diptera, Tabanidae). Entomological Society of Copenhagen. Copenhagen, 500 pp.
- Drensky, P. 1929. Blood-sucking flies of fam. Tabanidae (obody) in Bulgaria. Bulletin of the Royal Institutes of Natural Sciences, Sofia, 2: 55-128. [in Bulgarian, German summary].
- Evenhuis, N.L., T. Pape, A.C. Pont and F.C. Thompson. 2008. BioSystematic Database of World Diptera. <http://www.diptera.org/biosys.htm>. Last accessed: 3 June 2008.
- Ganeva, D. 2002. New localities of tabanids (Tabanidae, Diptera) in Bulgaria. In: Reports of the Scientific conference with an international participation "Stara Zagora 2002", June 6-7, 2002, 3: 41-44. Trakia University Publ., Stara Zagora [in Bulgarian, English summary].
- Ganeva, D. 2008. A contribution to the study of the Bulgarian tabanid fauna (Diptera, Tabanidae). In: Proceedings of the Anniversary Scientific Conference of Ecology. Ed. by Velcheva I. and A. Tsekov, Plovdiv (Bulgaria), November 1st 2008, pp. 96-100.
- Nedjalkov, N. 1912. Sixth contribution to entomological fauna of Bulgaria. J. Bulg. Acad. Sci. 2: 177-218. [in Bulgarian].
- Olsufjev, N. 1977. Tabanidae. In: Fauna USSR, Nauka Publ., Leningrad, 7: 1-434. [in Russian].
- Olsufjev, N. 1980. Typification of tabanid fauna and zoogeographical regions in the territory of the USSR. Contemporary problems of zoogeography: 81-115. [in Russian].
- Skufin K. 1949. Ecology of tabanids in the Voronezh Region. Zool. J. 28: 145-156. [in Russian]. <http://www.faunaeur.org/statistics.php>. Last update 23 July 2012.

## Είδη της οικογένειας Tabanidae που συναντώνται στην περιοχή Chipran Eminences της Βουλγαρίας

DIANA GANEVA\* AND MILENA KALMUSHKA

*Trakia University, Faculty of Agriculture, Department of Biology and Aquaculture,  
Student Campus 6 000 Stara Zagora, Bulgaria*

### ΠΕΡΙΛΗΨΗ

Η μελέτη της πανίδας των ειδών της οικογένειας Tabanidae στην περιοχή Chipran Eminences της Βουλγαρίας μελετήθηκε με μη τακτικές δειγματοληψίες το 2008 και με τακτικές μηνιαίες δειγματοληψίες το 2010 – 2011 από δύο περιοχές, κατά την εποχή δραστηριότητάς τους. Συλλέχθηκαν 1202 άτομα, 1124 θηλυκά και 78 αρσενικά. Μεταξύ αυτών αναγνωρίστηκαν 24 είδη και υποείδη από 8 γένη: *Chrysops* (2 είδη), *Atylotus* (1 είδος), *Theriopectes* (1 είδος and 1 υποείδος), *Hybomitra* (3 είδη), *Tabanus* (12 είδη and 1 υποείδος), *Haematopota* (1 είδος), *Dasyrhamphis* (1 είδος) and *Philipomyia* (1 είδος). Με βάση τα δεδομένα της μελέτης και από τα αναφερόμενα στη σχετική βιβλιογραφία μπορεί να εκτιμηθεί ότι στην περιοχή αυτή υπάρχουν 28 είδη. Δεκατρία από τα οποία αναφέρονται για πρώτη φορά. Περαιτέρω ανάλυση έδειξε ότι το 64,29% των ειδών της περιοχής ανήκουν σε είδη που συναντώνται στη Μεσογειακή ζώνη.