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Original Contribution

NEW DATA ON THE TABANIDS FAUNA (DIPTERA, TABANIDAE) OF THE SAKAR MOUNTAIN, BULGARIA

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SUMMARY

A study was carried out on tabanids fauna of the Sakar Mountain, Bulgaria in 2005 and 2008. As a result of the study a total of 550 ♀ and 30 ♂ specimens of the Tabanidae family have been collected and processed. They belong to 19 species of 6 genera as follows: *Chrysops* (2 species), *Hybomitra* (1 species), *Tabanus* (9 species), *Haematopota* (3 species), *Dasyrhamphis* (2 species) and *Philipomyia* (2 species). Twelve of the established species are reported for the first time for the Sakar Mountain fauna. Zoogeographically Mediterranean faunistic elements predominate in the studied region (63.16 %).

Key words*:* tabanids, fauna, new localities, Sakar mountain, Bulgaria.

INTRODUCTION

The Sakar Mountain is one of the lowest Bulgarian mountains. Its main part is in the Tundzha hilly lowland subregion (Middle Bulgarian biogeographical region) and its southern parts – in the Lower Maritsa-Lower Tundzha subregion (South Bulgarian biogeographical region) (1). According to (2), the mountain is detached in the independent Sakar-Dervent biogeographical region (part of the Balkan biogeographical province). Regardless of the differences in biogeographical regionalizations, these authors point out that Sakar Mountain is characterized by predominant Mediterranean elements in its flora and fauna.

The Sakar Mountain is poorly studied as far as the species diversity of blood sucking insects of the Tabanidae (Diptera) family is concerned. First data on the structure of the Tabanids fauna have been reported (3). The author established 7 species in 3 localities on the mountain. Although episodic, these first studies on the tabanid species in Sakar indicate the presence of greater species diversity in the region. That set the main objective of the present paper, namely to continue and extend the studies of tabanids fauna in the Sakar Mountain.

MATERIALS AND METHODS

Tabanids fauna on the Sakar Mountain has been studied by the route method. A total of 18 localities on the mountain were studied in June-July 2005 and June-July 2008. The material was gathered by a standard entomological net with duration of the catch being 30 min. in each locality. A total of 580 specimens have been gathered and processed under laboratory conditions. The species determination is by (4) and (5). The sequence of species arrangement is according to the Catalogue of Palaearctic Diptera (6).
Lists of localities in Sakar and the established species are presented. The arrangement of localities is according to the period of gathering the material. The lists of localities give altitude, dates of collection and total number of gathered specimens from each locality. The serial number of the localities is given in the List of species in brackets [].

For each species, the localities in the Sakar Mountain, date of catch, number and sex of specimens caught are given.

List of localities from the Sakar Mountain

1. Village of Madrets, 190 m, 22 July 2005, 6♀.
2. Village of Vladimirovo, 165 m, 22 July 2005, 26♀.

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3. Village of Sladun, 150 m, 2 June 2008, 22♀.
4. Village of Balgarska polyana, 400 m, 14 June 2008, 39 ♀.
5. Village of Branitsa, 330 m, 14 June 2008, 58♀.
6. Village of Pomoshtnik, 250 m, 18 June 2008, 38 ♀; 11 July 2008, 37♀ + 4♂.
7. At 2 km before Simeonovgrad, along third-class road No. 554 (Harmanli-Simeonovgrad), 130 m, 18 June 2008, 41♀ +2♂.
8. At 6 km after Simeonovgrad, along a third-class road No. 503 (Simeonovgrad-Sredets), 150 m, 18 June 2008, 24♀ + 1♂.
9. Village of Shtit, 283 m, 2 July 2008, 11 ♀+18♂.
10. Village of Planinovo, 350 m, 2 July 2008, 28♀.
11. In the area of "Holy Trinity" monastery, 2 July 2008, 19♀.
12. Village of Sakartsi, 370 m, 2 July 2008, 6♀.
13. Village of Glavan, 420 m, 17 June 2005. 6♀; 2 July 2008, 49♀ + 4♂; 11 July 2008, 38♀.
14. Village of Dervishka mogila, 620 m, 2 July 2008, 22♀.
15. Village of Lisovo, 390 m, 11 July 2008, 9♀.
16. Village of Kostur, 450 m, 11 July 2008, 17♀ +1♂.
17. South of the "Golyama zvezda" branch in the direction of Svilengrad, along a second-class road No. 55, 350 m, 11 July 2008, 28♀.
18. North of the "Golyama zvezda" branch in the direction of the village of Glavan, along a second-class road No. 55, 350 m, 11 July 2008, 26♀.

RESULTS

As a result of the study of tabanids fauna of the Sakar Mountain a total of 550♀ and 30♂ specimens have been collected from 18 localities. In the course of their determination 19 species of 6 genera have been found: *Chrysops* (2 species), *Hybomitra* (1 species), *Tabanus* (9 species), *Haematopota* (3 species), *Dasyrhamphis* (2 species) and *Philipomyia* (2 species).

List of established tabanid species from the Sakar Mountain:

Family *Tabanidae*
Subfamily *Chrysopsinae*
Genus *Chrysops Meigen*, 1803

Chrysops (Chrysops) caecutiens (Linnaeus, 1758)
New data: [2], 22.07.05., 6♀; [11], 2.07.08., 2 ♀.
Chrysops (Chrysops) ludens Loew, 1858
New data: [14], 2.07.08., 1♀.
Subfamily *Tabaninae*
Genus *Hybomitra* Enderlein, 1922
Hybomitra ciureai (Séguy, 1937)
New data: [8], 18.06.08., 1♀; [9], 2.07.08., 1♀; [14], 2.07.08., 1♀.
Genus *Tabanus* Linnaeus, 1758
Tabanus autumnalis Linnaeus, 1761
New data: [2], 22.07.05., 1♀.
Tabanus bifarius Loew, 1858
Published data: village of Dripchevo, 17.06.05., 8♀.
New data: [3], 2.06.08., 17♀; [4], 14.06.08., 30♀; [5], 14.06.08., 49♀; [6], 18.06.08., 32 ♀; 11.07.08., 1 ♂; [7], 18.06.08., 30♀ + 1♂; [8], 18.06.08., 2♀. [9], 2.07.08., 4♀ + 13♂; [10], 2.07.08., 2♀; [11] 2.07.08., 1♀; [13] 17.06.05., 1♀; 11.07.08., 3♀ + 1♂; [14] 2.07.08., 2♀.
Tabanus bromius Linnaeus, 1758
Published data: village of Orlov dol, 22.07.05., 10♀; village of Glavan, 22.07.05., 14♀.
New data: [1], 22.07.05., 3♀; [2], 22.07.05., 2♀; [6], 18.06.08., 2♀; 11.07.08., 21♀ +2♂; [9], 2.07.08., 2♀ + 5♂; [10], 2.07.08., 1♀; [11], 2.07.08., 2♀; [12], 2.07.08., 1♀; [13], 2.07.08., 7♀+1♂; 11.07.08., 10♀; [14], 2.07.08., 2♀; [15], 11.07.08., 1♀; [16], 11.07.08., 2♀; [17], 11.07.08., 6♀; [18], 11.07.08., 2♀.
Tabanus exclusus Pandellé, 1883
Published data: village of Glavan, 22.07.05., 1♀.
New data: [2], 22.07.05., 1♀; [6], 11.07.08., 4♀; [9], 2.07.08., 1♀; [13], 2.07.08., 1♀; 11.07.08., 3♀; [15], 11.07.08., 1♀; [17], 11.07.08., 6♀; [18], 11.07.08., 6♀.
Tabanus quatuornotatus Meigen, 1820
Published data: village of Dripchevo, 17.06.05., 2♀.
New data: [3], 2.06.08., 1♀; [8], 18.06.08., 1♀; [13] 17.06.05., 1♀.
Tabanus spodopterus ponticus Olsufjev, Moucha & Chvála, 1967
Published data: village of Orlov dol, 22.07.05., 10♀; village of Glavan, 22.07.05., 14♀.
New data: [1], 22.07.05., 1♀; [2], 22.07.05., 6♀; [6], 11.07.08., 4♀; [10], 2.07.08., 8♀; [11], 2.07.08., 8♀; [12], 2.07.08., 2♀; [13], 2.07.08., 7♀ + 1♂; 11.07.08., 5♀; [14], 2.07.08., 7♀; [15], 11.07.08., 2♀; [16],

11.07.08., 9♀; [17], 11.07.08., 4♀; [18], 11.07.08., 7♀.

Tabanus tergestinus Egger, 1859

Published data: village of Dripchevo, 17.06.05., 5♀; village of Orlov dol, 22.07.05., 13♀; village of Glavan, 22.07.05., 2♀.

New data: [1], 22.07.05., 1♀; [2], 22.07.05., 7♀; [4], 14.06.08., 6♀; [5], 14.06.08., 6♀; [6], 18.06.08., 3♀; 11.07.08., 8♀; [7], 18.06.08., 8♀ + 1♂; [8], 18.06.08., 19♀ + 1♂; [9], 2.07.08., 3♀; [10], 2.07.08., 8♀; [11], 2.07.08., 6♀; [12], 2.07.08., 3♀; [13], 17.06.05., 3♀; 2.07.08., 30♀ + 1♂; 11.07.08., 20♀; [14], 2.07.08., 8♀; [15], 11.07.08., 5♀; [16], 11.07.08., 6♀ + 1♂; [17], 11.07.08., 11♀; [18], 11.07.08., 11♀.

Tabanus tinctus Walker, 1850

New data: [13], 2.07.08., 1♀.

Tabanus unifasciatus Loew, 1858

New data: [2], 22.07.05., 1♀; [10], 2.07.08., 1♀; [17], 11.07.08., 1♀.

Genus *Haematopota* Meigen, 1803

Haematopota italica Meigen, 1804

New data: [2], 22.07.05., 1♀.

Haematopota pluvialis (Linnaeus, 1758)

New data: [5], 14.06.08., 1♀; [6], 11.07.08., 1♂.

Haematopota scutellata (Olsufjev, Moucha & Chvála, 1964)

New data: [2], 22.07.05., 1♀.

Genus *Dasyrhamphis* Enderlein, 1922

Dasyrhamphis anthracinus (Meigen, 1820)

New data: [3], 2.06.08., 1♀.

Dasyrhamphis umbrinus (Meigen, 1820)

New data: [3], 2.06.08., 3♀; [4], 14.06.08., 1♀; [5], 14.06.08., 1♀; [6], 18.06.08., 1♀; [7], 18.06.08., 3♀.

Genus *Philipomyia* Olsufjev, 1964

Philipomyia aprica (Meigen, 1820)

New data: [1], 22.07.05., 1♀.

Philipomyia graeca (Fabricius, 1794)

Published data: village of Dripchevo, 17.06.05., 2♀.

New data: [4], 14.06.08., 2♀; [5], 14.06.08., 1♀; [8], 18.06.08., 1♀; [10], 2.07.08., 8♀; [13] 17.06.05., 1♀; [14], 2.07.08., 1♀.

DISCUSSION

The total of 19 species of blood sucking flies of the *Tabanidae* family found in the area of Sakar Mountain, comprise 24.67 % of the tabanid species known so far for Bulgarian fauna. They belong to 6 genera, or that is 50 % of the genera from that family found in Bulgaria. The genus *Tabanus* has the biggest species diversity (table 1.). The determined 9 species in the genus comprise 31.03 % of the *Tabanus* species reported for Bulgaria. The registered dominant species for the Sakar Mountain also belong to that genus: *Tabanus bifarius* (32.58 %), *Tabanus tergestinus* (30.34 %), *Tabanus bromius* (12.41 %) and *Tabanus spodopterus ponticus* (12.24 %) (table 1).

With the present study 7 of the already reported species for the region have been confirmed (3), and 12 of the species (*Chrysops caecutiens, C. ludens, Hybomitra ciureai, Tabanus autumnalis, T. tinctus, T. unifasciatus, Haematopota italica, H. pluvialis, H. scutellata, Dasyrhamphis anthracinus, D. umbrinus* and *Philipomyia aprica*) are reported for the first time for the fauna in Sakar mountain.

Of the studied 18 localities, 17 are new for the tabanids fauna of Bulgaria. The altitude of studied localities varies from 130m to 620 m. The greatest is the species diversity of the regions of the villages of Vladimirovo (9 species), Glavan (8 species), Pomoshtnik (7 species) and Dervishka mogila (7 species). The smallest number of species at this stage has been registered on the pastures of the villages of Kostur and Sakartsi and at the locality before Simeonovgrad.

The analysis about the qualitative composition of the collected material shows that 9 (47.37 %), of the established 19 species had been active in the two years of study, 4 of the species (21 %) – only in 2005, while the remaining 6 species (31.58 %) – only in 2008 (table 1). Quantitatively, the number of discovered blood sucking flies in 2008 (512♀ and 30 ♂) was considerably higher. That fact can be accounted for by the different number of terrain reports and studied localities in the two years: 2 reports in 3 localities in 2005 and 5 reports, but in 18 localities in 2008.

The greatest activity of tabanids during the study has been reported in the areas of the villages of Branitsa (14 June 2008, 15-15,30h, 58♀) and Glavan (2 July 2008, 16,30-17h, 49♀ + 4♂).

Seasonally, the maximum in the activity of tabanids was recorded during the first half of July (11 July 2008). Dominant species during that period are *Tabanus tergestinus* (119♀ +2♂, 38.17 %), *Tabanus bromius* (57♀ +8♂, 20.50 %) and *Tabanus spodopterus ponticus* (63♀ + 1♂, 20.19 %).

The terrain collections in June 2008 reveal that the dominant species for that period are *Tabanus bifarius* (160♀ + 1♂, 71.55 %) and *T. tergestinus* (42♀ + 2♂, 19.55 %). The recorded high activity of *T. bifarius* in June, and of *T. tergestinus*, *T. bromius* and *T. sp. ponticus* in July corresponds completely to the phenological characteristics of those

species. The great number during the same period of the tabanids active season has also been established on the territory of the Saint Iliya heights for the species *T. bifarius* and *T. tergestinus* (7). The recorded maximum in the activity of *T. tergestinus* and *T. bromius* during the first half of July (11 July 2008) confirms the peaks established by us in the seasonal activity of the same species in Stara Zagora region (8).

Climatic conditions in August – high daily temperatures above 37 ºC almost during the whole month and very low humidity had unfavourable effect on the tabanid activity, although they are warm-loving insects. Rapid decrease of their number was recorded to almost no flight. That made it impossible to study the composition of late summer species in the tabanid fauna of the Sakar Mountain.

Zoogeographically, the established 19 species of tabanids in the Sakar Mountain are elements of three faunistic complexes (Eurosiberian forest, forest steppe and South European), referred to two subregional fauna types – Boreurasian and Mediterranean. The Boreurasian subregional fauna is represented by 7 species from 2 faunistic complexes: Eurosiberian forest (4 species) and forest steppe (3 species), and the Mediterranean – by 12 species of the South European faunistic complex. It is evident from the submitted data that among the tabanid species established on the territory of the Sakar Mountain Mediterranean elements prevail (63.16 %).

On the basis of the conducted study of tabanid fauna of the Sakar Mountain the following conclusions can be made:

1. Tabanid fauna of the Sakar Mountain comprises 19 species belonging to 6 genera: *Chrysop*s (2 species), *Hybomitra* (1 species), *Tabanus* (9 species), *Haematopota* (3 species), *Dasyrhamphis* (2 species) and *Philipomyia* (2 species).
2. Twelve of the established species are reported for the first time for the region.
3. Dominant species for the study period are *Tabanus bifarius* (32.58 %), *Tabanus tergestinus* (30.34 %), *Tabanus bromius* (12.41 %) and *Tabanus spodopterus ponticus* (12.24 %).
4. Zoogeographically, elements from the Mediterranean subregional tabanid fauna prevail (63.16 % of the established species).

Table 1: *Species composition of tabanids fauna (Diptera, Tabanidae) of the Sakar Mountain*

Species	Number of specimens - 2005	Number of specimens - 2008	Total number of specimens	% of total number of specimens
Chrysops caecutiens	6 ♀	2 ♀	8 ♀	1.38
Chrysops ludens		1 ♀	1 ♀	0.17
Hybomitra ciureai		3 ♀	3 ♀	0.52
Tabanus autumnalis	1 ♀		1 ♀	0.17
Tabanus bifarius	1 ♀	172 ♀ + 16 ♂	173 ♀ + 16 ♂	32.58
Tabanus bromius	5 ♀	59 ♀ +8 ♂	64 ♀ + 8 ♂	12.41
Tabanus exclusus	1 ♀	22 ♀	23 ♀	3.96
Tabanus quatuornotatus	1 ♀	2 ♀	3 ♀	0.52
Tabanus spodopterus ponticus	7 ♀	63 ♀+ 1 ♂	70 ♀ + 1 ♂	12.24
Tabanus tergestinus	11 ♀	161 ♀ + 4 ♂	172 ♀ + 4 ♂	30.34
Tabanus tinctus		1 ♀	1 ♀	0.17
Tabanus unifasciatus	1 ♀	2 ♀	3 ♀	0.52
Haematopota italica	1 ♀		1 ♀	0.17
Haematopota pluvialis		1 ♀ + 1 ♂	1 ♀ + 1 ♂	0.34
Haematopota scutellata	1 ♀		1 ♀	0.17
Dasyrhamphis anthracinus		1 ♀	1 ♀	0.17
Dasyrhamphis umbrinus		9 ♀	9 ♀	1.55
Philipomyia aprica	1 ♀		1 ♀	0.17
Philipomyia graeca	1 ♀	13 ♀	14 ♀	2.41
Number of specimens	38 ♀	512 ♀+ 30 ♂	550 ♀ + 30 ♂	99.96 %
Number of species	10	15	19	

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