

# DISTRIBUTION OF THE SPECIES *HEPTATOMA PELLUCENS* (FABRICIUS, 1776) (DIPTERA: TABANIDAE) IN CROATIAN PART OF BARANJA

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## 1 Introduction

Horseflies (Tabanidae) belong to true flies (Diptera) and emerge in various terrestrial habitats. Female horseflies mostly seek blood of warm-blooded animals and take part in transmission of different pathogens such as viruses, bacteria and protozoa (Foil 1989). Due to that, faunistic and ecological research of some horsefly species is important from the point of view of medical and veterinarian entomology. First systematical studies of entomofauna in the Croatian part of Baranja began with the study of entomofauna of Kopački Rit during 1943 as part of the biological station Albertina which was acting as part of the Hungarian National Museum from Budapest, with the center in the castle of Eugene of Savoy in Bilje. During that time the fauna of Lepidoptera, Hymenoptera, Odonata, and Orthoptera were studied. First sporadic samplings of horseflies on the study area were carried out during the eighties of the 20<sup>th</sup> century by the staff of the Department of Ecology, University of Osijek. Continuous samplings of horsefly fauna began at the beginning of the 21<sup>st</sup> century with the study of the efficiency of different types of traps and attractants in samplings of horse flies. Altogether, in the Croatian part of Baranja, 34 species of horseflies were recorded, and classified in seven genera. The genus *Heptatoma* contains only the species *Heptatoma pellucens*, widely distributed throughout the Palaearctic region. The aim of this study was to contribute to the knowledge of the distribution of this species in the Croatian part of Baranja since it does not appear anywhere in large numbers.

## 2 Material and methods

The Croatian part of Baranja is well separated geographical entirety of Eastern Croatian plains. Baranja is triangular in shape and extends from the Drava and Danube Rivers to the border with Hungary. Surface of Croatian part of Baranja is 1147 km<sup>2</sup> and is predominantly lowland where the absolute altitude does not exceed 250 m (Feletar and Vuk 2014). The horseflies were sampled from May to September during 2022 on five localities in the study area (Bansko Hill), using liquid oil traps and canopy traps (Figure 1a, 1b and 2). During these studies liquid oil traps were baited with vegetable oil, while canopy traps were baited with 1-octen-3-ol as attractant. Identification and nomenclature followed that of Chvála et al. (1972) and Krčmar et al. (2011).



Figure 1a. Liquid oil trap.



Figure 1b. Liquid oil trap.



Figure 3. *Heptatoma pellucens* ♀.

## 3 Results

During this year, a total of 66 specimens were collected, of which 43♂ and 22♀ were collected with liquid oil traps in the localities of Branjina, Karanac, Kotlina and Popovac, while only 1♀ was collected with a canopy trap baited with the attractant 1-octen-3-ol. Although it inhabits different types of habitats, it does not appear anywhere in large numbers. In the Croatian part of Baranja, the species *Heptatoma pellucens* (Figure 3 and 4) was collected in localities close to water surfaces. The findings of this species in the localities of Branjina, Karanac and Kotlina on Bansko Hill during this year represent new locality records, and the total number of recorded localities where the species *Heptatoma pellucens* appears in Croatia is 34. In Croatian part of Baranja *Heptatoma pellucens* was recorded in six localities: Branjina, Karanac, Kotlina, Popovac, Sakadaš (Kopački rit Nature Park) and Zmajevac.

## 4 Adult morphology

Medium sized, 10-13,5 mm in length resembling a honey-bee (Figure 3). Females and males are blackish colour, head, thorax and anterior two tergites densely golden-yellow to yellowish-brown haired (Figure 4). Antennae black, basal two segments light grey dusted, antennae more than twice as long as head is deep. Frons in females polished black, densely clothed by adpressed yellowish hairs. Eyes with hardly visible minute hairs and with four bands only visible in the living specimens (Baranov 1944, Chvála et al. 1972). Wings clear with brown veins, no appendix to vein R4. Halteres dark brown, knob paler towards tip. In males the eyes are normally touching (unlike females were separated by a frontal stripe) and clothed with short very fine brownish hairs, facets on the upper two thirds of eyes slightly enlarged and only indistinctly separated from the lower third with smaller facets. Antennae as in the females, but basal two segments with fine, long black hairs above. Palpi blackish, very short and stout, almost globular. Thorax, abdomen, wings and legs as in the females (Baranov 1944, Chvála et al. 1972).

## 5 Discussion

The genus *Heptatoma* Meigen, 1803 is monotypic. The single known species is *Heptatoma pellucens* (Fabricius, 1776) which is known widely throughout the Palaearctic region including the extreme north (Chvála et al. 1972). Inhabits various types of biotopes. It never occurs in large numbers (Chvála et al. 1972). The flight period is very long: from May until the beginning of September, or even until the end of September. In Croatia, the earliest date of collection of this species was recorded on May 8, and the latest on September 25. By reviewing the literature data and the results of earlier research, the species *Heptatoma pellucens* in Croatia was recorded in following 31 localities: Babina Greda (CQ 09), Borovik (BR 72), Bokšić Lug (YI 35), Donja Bistra (WL 68), Duzluk (YL 24), Ferdinandovac (XM 70), Josipovac (CR 15), Koška (BR 84), Kutjevo (YL 23), Krapina (WM 61) Lacići (BR 85), Livade (VL 02), Legrad (XM 42), Lokve (VL 82), Musić (BR 72), Normanci (BR 94), Orehovica (VL 51), Osijek (CR 24), Petrijevići (CR 05), Popovac (CR 17), Pušine (YL 14), Sakadaš -Kopački rit (CR 25), Spačva (CQ 39), Sunger (VL 81), Šenkovec (XM 04), Trnovec (WM 61), Vinica (WM 93), Vrpolje (BR 90), Zagreb (WL 77), Zmajevac (CR 37), and Zoljan (BR 63) (Baranov 1944, Krčmar 1998). The findings of this species in the localities of Branjina, Karanac and Kotlina on Bansko Hill during this year represent new locality records, and the total number of recorded localities where the species *Heptatoma pellucens* appears in Croatia is 34. In the Croatian part of Baranja *Heptatoma pellucens* was recorded in six localities. Recently, based on the difference in the larval stages between the species of the genus *Haematopota* and the species *Heptatoma pellucens*, the genus *Heptatoma* was separated from the tribe Haematopotini into a separate tribe Heptatomini.

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Figure 4. *Heptatoma pellucens* ♀.



Figure 2. Canopy trap.

## 6 Summary

The family Tabanidae contains 220 species distributed in Europe, of which 78 species are classified into 10 genera, five tribes and two subfamilies present in the fauna of Croatia. In the Croatian part of Baranja, 34 species of horseflies were recorded. The genus *Heptatoma* contains only the species *Heptatoma pellucens*, distributed almost throughout the Palaearctic region. Recently, based on the difference in the larval stages between the species of the genus *Haematopota* and the species *Heptatoma pellucens*, the genus *Heptatoma* was separated from the tribe Haematopotini into a separate tribe Heptatomini. By reviewing the literature data and the results of earlier research, the species *Heptatoma pellucens* was recorded in 31 localities in Croatia. The findings of this species in the localities of Branjina, Karanac and Kotlina on Bansko Hill during this year represent new locality records, and the total number of recorded localities where the species *Heptatoma pellucens* appears in Croatia is 34. In the Croatian part of Baranja, the species *Heptatoma pellucens* was recorded in six localities: Branjina, Karanac, Kotlina, Popovac, Sakadaš (Kopački rit Nature Park) and Zmajevac. During this year, 66 specimens were collected, of which 43♂ and 22♀ were collected with liquid oil traps in the localities of Branjina, Karanac, Kotlina and Popovac, while only 1♀ was collected with a canopy trap baited with the attractant 1-octen-3-ol. Although it inhabits different types of habitats, it does not appear anywhere in large numbers. In the Croatian part of Baranja, the species *Heptatoma pellucens* was collected in localities close to water surfaces. The reasons for the rather small number of records of this species in the Croatian part of Baranja and in Croatia in general are most likely in its morphological similarities to honeybees. Due to those similarities, there's a possibility it remains unnoticed in various entomological studies that do not include the use of traps and attractants for sampling of the horseflies.

Keywords: Horseflies, Tabanidae, Diptera, *Heptatoma pellucens*, Croatia

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