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## Contribution to the Study of Diffusion of the Species *Hemianax ephippiger* (BURMEISTER) in Europe

(Odonata: Aeschnidae)

The habitats of *Hemianax ephippiger* (BURMEISTER) in Europe present a very interesting problem from the point of view of faunal and ecological studies (BUCHHOLZ 1967). Therefore the appeal of HEYMER (1964) for data on the habitats of this insect species to be made available to professionals as soon as possible.

The first data on finds of imagoes *H. ephippiger* on the territory of Yugoslavia were published by ADAMOVIĆ (1948, 1949) who mentions two habitats — Stolac (SR Bosnia and Hercegovina) where 2 ♀♀ were found and Vojilovo near Golubac (SR Serbia) where 1 ♂ was found (7 July 1905). Somewhat later KARAMAN (1969) published data on finds on the territory of SR Macedonia — Rženičani (12 April 1955 — 1 ♂) and Vodno (22 August 1960 — 1 ♂).

Within the study of the fauna of Odonata, carried out under the supervision of Dr. M. LEKIĆ, the author observed in 1970 in the habitat Topčider (Belgrade area) the flight of imagoes *Hemianax ephippiger*<sup>1</sup>. In this, from the ecological point of view very specific habitat, there flew ten to twenty imagoes from 23 September to 6 October and then, quite unexpectedly, not a single one appeared the following day (7 October) — they simply disappeared after a mass flight, although meteorological conditions of that and the following days were identical to the conditions of the whole summer. After that the author searched several times, within an area of 20—30 km in order to find whether they had migrated to some other habitat. However, not a single specimen of this species could be observed in this period nor in the whole of the following year (1971)<sup>2</sup>.

The habitat, of about 1/2 ha is mainly a clearing, limited on three sides (north, east and west) by a forest, and on one side (south) by apartment houses. It is in fact a neglected mixed orchard, with a very lush grass and weed vegetation. The sloping of the terrain is about 20°, exposed to the south. Meteorological factors in the period of the flight of imagoes were as follows:

- air temperature from 1° to 22 °C (mean temperature 12 °C);
- relative air humidity 28—98% (average 67%);
- precipitation 31 mm (for the whole summer period);
- sunshine — mainly sunny, except for two moderately cloudy days;
- air circulation 1 to 3 m/sec (on the average).

As regards temperature, it should be emphasized that, during this period, the nights were relatively cold (about 1 °C), and the days even very warm (up to 22 °C). Precipitation occurred during the nights, so that during the whole period of the imagoes flight it was mainly sunny, quiet and without precipitation.

In view of the very fast flight and caution of the imagoes, which are the characteristics of the species of the family Aeschnidae, the author managed to catch only 5 specimens, viz.:

- 24 September 1970 1 ♂;                      — 4 October 1970 1 ♀;
- 27 September 1970 2 ♂♂;                    — 6 October 1970 1 ♀.

<sup>1</sup> Our determination of the species, carried out according to CIRDEI and BULIMAR (1965) was confirmed by ADAMOVIĆ (Museum of Natural Sciences of Serbia in Belgrade), for which the author is sincerely grateful to him.

<sup>2</sup> Data on finds of imagoes *H. ephippiger* in other parts of Europe were published by HEYMER (1962).

The imagoes were mainly young and with whole (not chipped) wings. Two to three abdominal segments of the males were not yet quite pigmented, as in adult imagoes these are of a characteristic blue colour. In the ovaria of the females there were no mature eggs.

It is significant to observe, in connection with the ethology of *H. ephippiger* that the flight of the imagoes began every day about 11 a. m. and finished at about 3 p. m. After every fifteen minutes of flight the imagoes descended to rest onto the ground vegetation, usually at about ten centimeters above the ground. It is also interesting that in this period, in the same inhabitat, imagoes were observed of the species *Aeschna mixta* LATREILLE considerably more numerous and sexually mature — the ovaria of the females were full of mature eggs.

### Conclusion

By following the flight of imagoes of *Hemianax ephippiger* in 1970 in the locality Topčider (Belgrade area) several facts from the life of this insect species were observed, viz.:

- like in the whole of Europe, this species appears only periodically in the Yugoslav area;
- only young imagoes flew in the mentioned habitat, and this relatively late (23 Sept. — 6 Oct. 1970);
- the place of its rearing is not yet known (has not been explained) in this area (or it may migrate somewhere else).

### Zusammenfassung

Der Autor nimmt den Fund einiger Exemplare von *Hemianax ephippiger* (BURMEISTER) in der Umgebung von Belgrad zum Anlaß, um nähere Angaben über den Fundort, die Fundzeit und die Lebensweise der Tiere zu machen.

### Summary

Some specimens of *Hemianax ephippiger* (BURMEISTER) were found in the vicinity of Belgrade, and the author reports details of the sites and dates of these finds and the mode of life of these insects.

### Резюме

По поводу нахождения нескольких экземпляров *Hemianax ephippiger* (BURMEISTER) в окрестности Белграда автор даёт указания о местонахождении, времени находки и об образе жизни этого вида.

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