

Hemianax ephippiger: a new dragonfly for The Netherlands (Odonata: Aeshnidae)

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Abstract: In the late afternoon of July 15 1995 two individuals of *Hemianax ephippiger* were observed at Budel-Dorplein in The Netherlands. They were seen flying near and above a shallow, acidic pool without vegetation surrounded by *Molinia coerulea*. One of them, a male, was caught, identified, photographed and subsequently released. This record represents the first of this species for The Netherlands.

Hemianax ephippiger inhabits desert-like areas in tropical Africa and southwestern Asia, and is reputedly a very powerful vagrant. It has been recorded up to northern Europe (British Isles, Germany, and even Iceland). Successful reproduction has been established as far north as the south of France and Switzerland. The date of observation, the adult coloration and the abrasion of the wings indicate a foreign origin, not locally emerged individuals.

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Introduction

On the 15th of July 1995 we visited the surroundings of Budel-Dorplein (province of Noord-Brabant), between Weert and the Belgian border. The area consists of extensive mixed *Calluna/Molinia*-heathlands with *Phragmites/Typha*- and *Cladium*-marshes and a variety of well-vegetated lakes, ponds, canals, streams and ditches. Budel-Dorplein is known as one of the richest sites for dragonflies in The Netherlands.

Late in the afternoon we visited a small pool without vegetation, surrounded by an extensive *Molinia*-vegetation, in the north-west of the area (UTM co-ordinates: FS-8180, 51°15'N-5°36'E). While walking around the pool, two pale brown aeshnids were seen flying out of the vegetation, that were believed to be *Aeshna isosceles* (Müller), commonly encountered that day. At approximately 16.45 h two large, pale brown dragonflies were seen flying above the pool. With binoculars a bright blue mark at the base of the abdomen was clearly visible, and it was almost instantly realized that these were no *Aeshna isosceles*, but either *Anax parthenope* (Sélys), which is extremely rare in The Netherlands (Wasscher et

al., 1995) or *Hemianax ephippiger* (Burmeister), which had never been seen in The Netherlands before. After some aerial fighting had taken place, one of the two swooped down into the vegetation and could easily be caught. This individual was identified as a male *H. ephippiger*. The other individual was observed probing the water's surface with the tip of the abdomen. Because of this behaviour, it was first erroneously thought to be a female (Dijkstra et al., 1995). However, the observed bright blue mark at the base of the abdomen is typical for adult males (Askew, 1988; Wendler & Nüß, 1991; Michiels & van Mierlo, 1991). Between two and four individuals of *H. ephippiger* were seen at the same location the next day by many other observers. During later visits to the area no more specimens were observed, and a few weeks after the discovery the pool had dried out completely.

The observations represent the first records of *H. ephippiger* for The Netherlands. Given the observations of *H. ephippiger* from neighbouring countries, the species was expected to appear in The Netherlands sooner or later (Wasscher et al., 1995; Dumont, 1994).

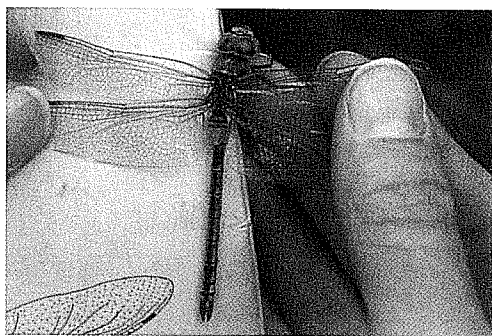


Fig. 1. Male *Hemianax ephippiger*, 15.vii.1995, Budel-Dorplein, The Netherlands (photo K. D. Dijkstra).

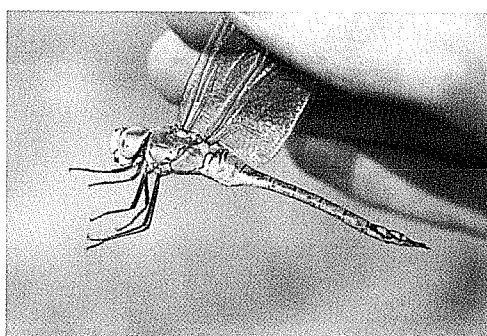


Fig. 2. Male *Hemianax ephippiger*, 15.vii.1995, Budel-Dorplein, The Netherlands (photo P. Edelaar).

Identification

Hemianax ephippiger can be confused with *Anax parthenope* with which it shares the largely brownish coloration with a blue abdominal base (the saddle-mark after which *H. ephippiger* is named). *Hemianax ephippiger* is distinguished by the pale brown, not bluish, face and eyes, the presence of one, not two, ridges along the side of the more slender abdomen, the pointed, not square, inner and outer appendages of the male and details of the wing venation and abdominal pattern (figs 1-2). The female of *H. ephippiger* resembles *Aeshna isosceles* but this species usually has greenish eyes and yellow markings on the side of the thorax, and lacks the pale blue on the abdomen of *H. ephippiger* females. *Aeshna grandis* (Linnaeus) is brown and has blue markings at the base of the abdomen, but is much larger and darker, has bluish-brown eyes and completely brownish-yellow wings. Sometimes the female of *Anax imperator* Leach shows blue only at the base of the abdomen (most likely because of dirt partly covering the markings on the abdomen due to oviposition in dirty water). *Anax imperator* usually has a greenish thorax and greenish eyes, but brown individuals are known (personal observation). Apart from the larger size of *A. imperator*, especially of the abdomen, it also has a bi-coloured membranula and more or less identical pale markings on segment 7 and 8. In contrast *H. ephippiger* has a whitish membranula and only has markings on segment 8 and only caudally.

After identification the male was photographed and released. We believed it was unnecessary to collect the specimen as photographic evidence would suffice and reproduction was thought to be possible as several individuals were observed. Photographic evidence of this record is deposited at the Nationaal Natuurhistorisch Museum, Leiden.

Distribution and occurrence in Europe

Hemianax ephippiger is a species of arid parts of Africa, the Middle East and south-west Asia to Pakistan. The species is highly migratory and has turned up at various places in Europe, mostly in the Mediterranean but also north up to Ireland, England, Germany and Czechia, and even Iceland (where it is the only species of dragonfly ever recorded!). Incidental reproduction has been reported from Spain, southern France, Switzerland and Italy (Askew, 1988).

The timing of occurrence of *H. ephippiger* in Europe (fig. 3) is related to the life-cycle at the breeding grounds in Africa (Dumont, 1994). After the wet season has started in May, eggs are deposited in temporary pools and lakes. The larvae develop rapidly and after approximately a hundred days mass emergence occurs in September to November. They then locally disperse and spend the winter as adults. Records in late autumn and winter from Iceland, Great-Britain and Ireland are attributed to individuals from western Africa which have been picked up by strong souther-

ly winds and subsequently transported across the Atlantic, apparently bypassing southern Europe (fig. 3).

In April and May, just before the wet season begins, adults start to disperse in search of sites for reproduction, often in a northerly direction. These individuals can aggregate into huge flocks of thousands of individuals, sometimes darkening the sky (Williams, 1958). European records from April to June will be of those dispersing individuals. If a reproductive attempt is successful (occurring only in southern Europe), newly emerged adults can be observed from August until October, sometimes in huge numbers (Maibach et al., 1989). Most likely the observations of *H. ephippiger* in northern Europe in this period, are of individuals emerged in southern Europe. *Hemianax ephippiger* has a 'maiden flight' often ranging over hundreds of kilometres. Unlike in other species, this maiden flight appears to

be independent of its own density and of endoparasite densities (Dumont, 1977).

Discussion

As can be observed in figure 3, July observations are quite rare (about 7 % of all observations). It is most likely that the observed individuals at Budel-Dorplein are late spring dispersers. July seems too early for newly emerged individuals, and the full adult coloration and much abraded wings are indicative for older individuals.

It may not be coincidental that this first record of *H. ephippiger* for the Netherlands occurred in the summer of 1995. Many other rare dragonflies were encountered at unusual sites due to long spells of warm weather with predominately eastern winds. These included *Lestes barbara* (Fabricius), *Lestes virens* (Charpentier), *Ophiogomphus cecilia* (Four-

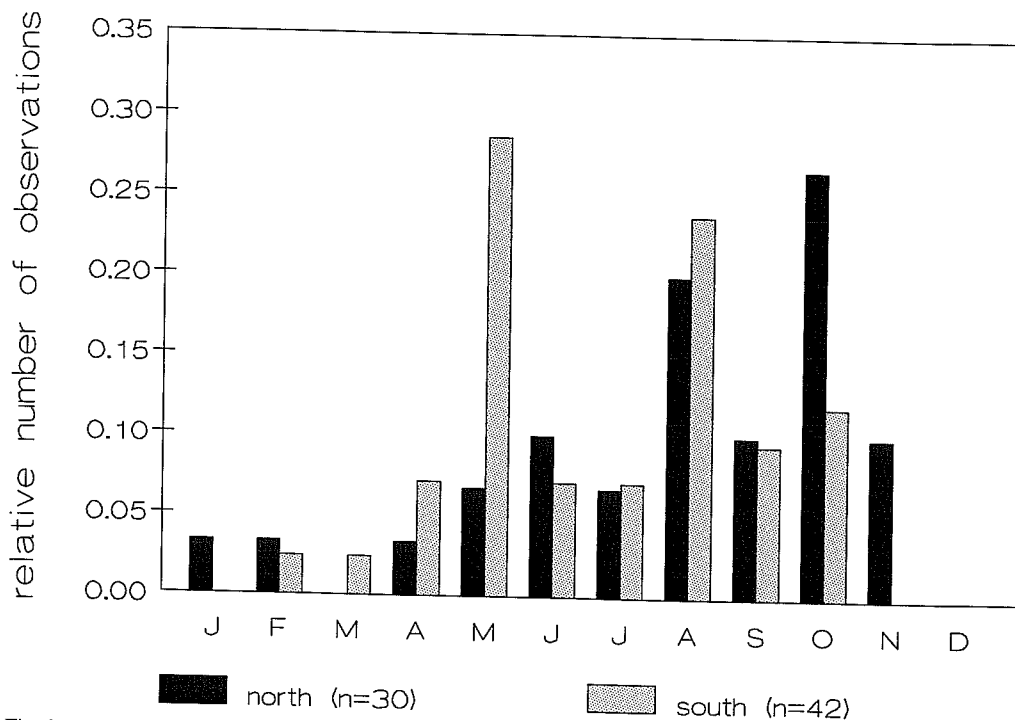


Fig. 3. The timing of the occurrence of *Hemianax ephippiger* in Europe this century. Y-axis: relative abundance per month (fraction of total number of observations), given separately for northern (i.e. north of southern France, Italy, former Yugoslavia and Rumania) and southern part of Europe. Observations are counted regardless of the number of observed individuals. Data from Heymer (1967), Askew (1988), Maibach et al. (1989), Dumont & Desmet (1990) and Silsby (1993).

croy), *Aeshna affinis* Van der Linden, *Orthetrum brunneum* (Fonscolombe), *Crocothemis erythrea* (Brullé) and *Sympetrum pedemontanum* (Allioni) (Wasscher, 1996). However, past influxes of *H. ephippiger* were not always related to weather conditions.

Interestingly, there were many additional observations of *H. ephippiger* from Germany (Burbach, 1995), Poland (Wasscher, 1995) and even from up to Sweden (Öland) and Norway. Like our observations, most of these were also from July. It seems likely that a large wave of migrating *H. ephippiger* has swept across central and northern Europe, unprecedented in magnitude and timing.

Samenvatting

In de namiddag van 15 juli 1995 werden te Budel-Dorplein (Amersfoort-coördinaten 169.4-361.7) twee zadellibellen (*Hemianax ephippiger*) waargenomen. De libellen vlogen bij en boven een ondiep, onbegroeid ven in een uitgestrekte vegetatie van pijpestrootje. Eén van de mannetjes werd gevangen, gedetermineerd, gefotografeerd en weer vrijgelaten. De soort is nieuw voor de Nederlandse fauna, hoewel reeds lang verwacht.

De zadellibel is een soort van woestijnachtige gebieden uit tropisch Afrika en zuidwestelijk Azië, die bekend staat als een zwerver die grote afstanden kan afleggen, en sporadisch in noordelijk Europa (tot op IJsland) is waar te nemen. De noordelijkste waarneming voor continentaal Europa vóór 1995 is in Sleeswijk-Holstein. In 1995 werd de soort tot in Scandinavië gezien. Succesvolle voortplanting van de soort is tot in Zuid-Frankrijk en Zwitserland vastgesteld. De datum van de waarneming, het volledig uitgekleurde uiterlijk en de sterke sleet van de vleugels van het gevangen exemplaar lijken te wijzen op een zwerver, en niet op een lokaal uitgeslopen exemplaar.

Acknowledgements

Michiel van de Weide and Marcel Wasscher provided extra information on (lack of) additional observations at Budel-Dorplein. Marcel also provided us with literature and more information about records elsewhere in Europe. Dick Askew gave dates of the Icelandic records.

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