

ORTHETRUM JULIA FALSUM LONGFIELD 1955, NEW TO THE DRAGONFLY FAUNA OF YEMEN AND THE ARABIAN PENINSULA (ANISOPTERA: LIBELLULIDAE)

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Abstract

Orthetrum julia (Kirby 1900), subspecies *falsum* Longfield 1955, is reported for the first time from Yemen and the Arabian Peninsula (1 male, Wadi al-Ahjar, 15°27'53"N 43°52'32"E). The specimen is described and compared with specimens from Africa; taxonomically relevant structures are figured. The total number of species known from Yemen is raised to 37, from the Arabian Peninsula to 61.

Introduction

With 36 species, the Republic of Yemen, situated in the south of the Arabian land mass, has the highest number of odonate species of that subcontinent (Schneider & Krupp 1993). Nearly every collecting effort increases the number of species (Waterston 1980, 1984, 1985; Al-Safadi 1990; Dumont & Al-Safadi 1991; 1993). In Yemen, the two southwest Arabian endemics, *Pseudagrion arabicum* Waterston 1980 and *Aeshna yemenensis* Waterston 1985, occur. Zoogeographically, the odonate fauna of Yemen has a predominantly afrotropical facies; many species are mainly African in distribution or have their sister taxon in Africa.

So far five species of the genus *Orthetrum* Newman 1833 have been reported from Yemen. The distribution of three of them is clearly African with extensions into the Iberian Peninsula (*O. chryso stigma*), the eastern Mediterranean (*O. chryso stigma*, *O. abbotti*), and Arabia (*O. chryso stigma*, *O. abbotti*, *O. caffrum*). *Orthetrum sabina* has a very broad range from Africa north of the Sahara through SE-Asia to Japan, New Guinea and Australia (Pinhey 1970). *Orthetrum taeniolatum* reaches from northern Africa (S to Nigeria), the eastern Mediterranean, and the Middle East to northern India (Askew 1988; Pinhey 1970). Yemeni records for *O. brunneum* and *O. cancellatum* (Bradshaw 1996) are based on field observations by naturalists not familiar with dragonflies, and are almost certainly misidentifications and cannot be verified.

During a short field trip in March 1995, Henri J. Dumont (University of Ghent, Belgium) and the senior author had the opportunity to collect some Odonata in Wadi al-Ahjar (Wadi Al-Ahgor in Dumont & Al-Safadi 1991) near Samiq al-Ahjar, a small village about 30 km N of Sana'a. The waters of the formerly permanent wadi are now collected in cisterns and tapped for irrigation of terraced crop fields. Dragonflies were collected along almost stagnant sections of irrigation ditches. The following species were collected: *Ischnura evansi* Morton 1919, *Pseudagrion arabicum* Waterston 1980, *Pseudagrion kersteni* (Gerstacker 1869), *Anax speratus* Hagen 1867, *Crocothemis sanguinolenta* (Burmeister 1839), and *Trithemis furva* Karsch 1899. In the field we believed that *Orthetrum caffrum* (Burmeister 1839) was the only member of that genus present. However, close examination of the captured *Orthetrum* specimens revealed that one male belonged to an unrecognised species. As neither Longfield's (1955) nor Pinhey's (1970) key worked, we were not able to put a name to it.

Abbreviations: BMNH, The Natural History Museum, London; HLMD, Hessisches Landesmuseum, Darmstadt. - PN, postnodal crossveins; AN, antenodal crossveins.

Material: 1 mature male (HLMD), Yemen, Wadi al-Ahjar in Samiq al-Ahjar, 15°27'53"N 43°52'32"E, 2280 m above sea level, 22 Mar 1996, leg. W. Schneider & H.J. Dumont. - Comparative material: male holotype of *O. capense falsum* Longfield 1955 (BMNH), Kenya, Thoura Forest, Meru, 6000 ft., 30 Jan 1934, leg. C.E. Longfield. - male lectotype of *O. julia* Kirby 1900 (BMNH), Sierra Leone, leg. Austen (vide Kimmins 1968). - Under *O. capense falsum* (BMNH): 1 male, Ethiopia, Irgalen, 5 Apr 1948, leg. K.M. Guichard (BM. 1948-248); 1 male, Natal, Botanical Gardens, 19 Sep 1959, leg. I. Coetser. - 1 male, Uganda, Nyenga, forest stream, 10 Oct 1954, leg. P.S. Corbet. - *O. j. falsum* ex coll. M.J. Parr: 1 male, Malawi, Zomba Mt., 15°16'S 34°18'E, 28 Mar 1976, leg. M.J. Parr. - 2 males, Republic of South Africa, Eastern Transvaal, Mac Mac River System, 26 Jun 1983, leg. M.J. Parr. - 3 males, Bophuthatswana (now RSA), Pilanesberg National Park, Mankwe Stream, 25°29'S 27°17'E, 10 Sep 1983, 5 and 29 Mar 1984, leg. M.J. Parr. - 1 male, Bophuthatswana (now RSA), Dinokana Eye, Motswedi, approx. 25°40'S 26°00'E, 24 Oct 1984, leg. M.J. Parr.

Description of the *Orthetrum*-male from Yemen

A mature male with wings worn and abdomen pruinosed (with copulation marks left by the female legs). Total length (incl. anal appendages) 47 mm; length of abdomen (incl. anal appendages) 32.5 mm; length of right forewing 35 mm, of right hindwing 34 mm. **Head:** labium, labrum, and clypeus pale ochreous; shield of frons pale grey, probably bluish in life; vertex and occipital triangle brown. **Thorax:** prothorax brown with yellow hairs on hindlobe; synthorax light brown, darker on mesepisternum and mesinfraepisternum; faint dark brown antehumeral stripes and only an indication of humeral stripes; legs brown, becoming darker towards the tarsi. Wings hyaline, with a brownish tinge towards the wing tips; subcostal cross-veins dark to almost black; membranule dark brown, almost black; pterostigma 3 mm long, pale yellow between black veins; only the indication of an amber basal patch in the submedian cell of the forewing, this amber patch larger in the hindwings and extending into the anal field; radial supplement with only one row of cells, one doubled cell in both forewings; nodal index: left forewing: 13 AN, 11 PN, right forewing: 14 AN, 10 PN, left hindwing: 12 AN, 11 PN, right hindwing: 11 AN, 11 PN. **Abdomen:** dorsal surface of segments (except the first one) and anal appendages pruinose blue; accessory genitalia (Fig. 1): anterior lamina dark brown, not bifid at apex; genital lobe massive and rounded with long brown spiny hairs; base of hamule with prominent

tubercle; inner hamule with broad 'hooded' tip which faces outwards and slightly downwards (almost as in *O. saegeri*; figure 28a in Pinhey 1970); outer hamule massive and swollen, lower than inner hamule; inner and outer hamule separated by a wide gap; alae of prothorax (Fig. 1) divided, flagellum very long.

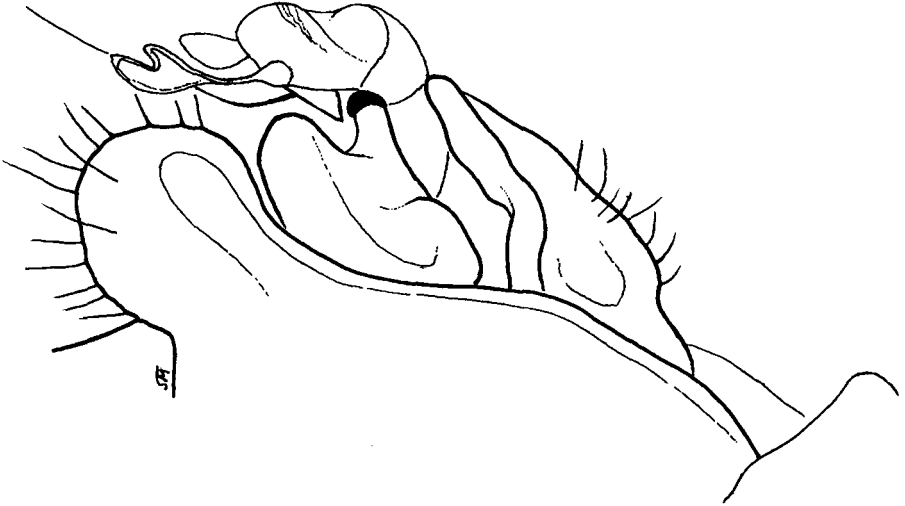


Figure 1. Male accessory genitalia of *Orthetrum julia falsum* (Yemen) in lateral view; the prothorax is exposed.

Discussion

Structurally (accessory genitalia), the *Orthetrum* specimen in question agrees perfectly with the male holotype of *capense falsum* Longfield 1955 and other specimens under this name in the BMNH. As this holds also true for the male lectotype of *julia* Kirby (1900), we follow Pinhey (1970) in regarding *falsum* (ex *capense* sensu Longfield 1955) as a synonym (or subspecies) of *julia*. The broad 'hooded' tip of the inner hamulus (something similar is only found in *O. saegeri* Pinhey 1966) and the structure of the prothorax are very distinctive and highly diagnostic.

Problems with identification arise because many keys overestimate colouration as a reliable specific character, and this has also caused confusion of nomenclature. As pointed out by Pinhey (l.c.), one of the major features of the genus *Orthetrum* is its tendency to melanism. Nominotypical *Orthetrum julia* from equatorial forests in West Africa are often extremely black, while the subspecies *capicola* (Cape Province) and *falsum* (SE to NE Africa) are much paler insects. As the specimen from Yemen is even paler than 'typical' *falsum* (e.g. head, thorax, and pterostigma), we believe that it represents the pale extreme eastern edge of the *julia* range - an extreme *julia falsum* in fact. But this has to be verified with more material at hand. This conclusion corresponds well with Pinhey's distribution concept of the *O. julia* subspecies. From the zoogeographic point of view this is another example illustrating the close relationship between the odonate faunas of southeast Arabia and East Africa.

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