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Orthethrum nitidinerve new to the Maltese Islands (Odonata: Libellulidae)

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Abstract

In July 2008 *Orthetrum nitidinerve* was observed and collected on the Maltese Islands. Records were taken in several localities. *Orthetrum nitidinerve* is new to the fauna of the Maltese Islands, which now includes 16 species of Odonata.

Zusammenfassung

Erstnachweis von *Orthetrum nitidinerve* auf den Maltesischen Inseln (Odonata: Libellulidae) — Im Juli 2008 konnte *O. nitidinerve* auf Malta erstmals mehrfach beobachtet und auch gefangen werden. Die Faunenliste der Libellen Maltas umfasst damit 16 Arten.

Introduction

Orthetrum nitidinerve is a western Mediterranean endemic mainly confined to the Maghreb, where it is generally common. Compared to other congeners occurring in the Palaearctic like *O. chrysostigma*, which is widespread and common throughout the Mediterranean (Boudot et al. 2009), *O. nitidinerve* has a very restricted range. In southwestern Europe it occurs more or less rarely in Portugal, Spain, Sardinia, Sicily, and in a small area around Naples in continental Italy (Boudot et al. 2009).

The Maltese odonate fauna has been recently reviewed by Ebejer et al. (2008) who listed 15 species. Here we give detailed information on the first sightings of *O. nitidinerve* in the Maltese Islands.

Observations

Records of *Orthetrum nitidinerve*

L-Ghajn tal-Mellieha water reservoir
1m (observed): 18-vii-2008; 1m (collected; Fig. 1), 1m, 2f (observed): 19-vii-2008.

Ghadira Nature Reserve
1m (observed): 22-vii-2008

Santa Maria Estate
1m (observed): 22-vii-2008

Mellieha Heights
1m (observed): 18-vii-2008

Behaviour

Although no reproductive behaviour of *O. nitidinerve* was observed, the males were extremely aggressive against other *Orthetrum* males. On 19-vii-2008, AS sampled from the L-Ghajn tal-Mellieha water reservoir 35 *Orthetrum* larvae. They emerged in early spring 2009 and all were *O. coerulescens anceps*. Hence, it is doubtful whether *O. nitidinerve* hitherto has successfully reproduced in the Maltese Islands.

Prey

Orthetrum nitidinerve was observed feeding on several species of Diptera, including *Calliphora vicina* (Robineau-Desvoidy, 1830), *C. vomitoria* (Linnaeus, 1758), *Musca domestica* (Linnaeus, 1758), *Pollenia rudis* (Fabricius, 1794), and *Sphaerophoria scripta* (Linnaeus, 1758). The flies were gleaned occasionally from sprouts and flowers of fennel plants (*Foeniculum vulgare*), and were identified by AS before they were devoured.

Identification

In the field, *O. nitidinerve* was easily identified by its yellow radius, the yellow costa between nodus and pterostigma, and the large yellow pterostigmata. It was a bit larger than the common *O. coerulescens anceps*, which is also all pruinouse. The collected male (Fig. 1a) has an overall body length of 48 mm, a wingspan of 76 mm, a hindwing length of 34 mm and a pterostigma of 4x1 mm. The living individual weighed 0.25 g. Secondary genitalia are shown in Figure 1b.

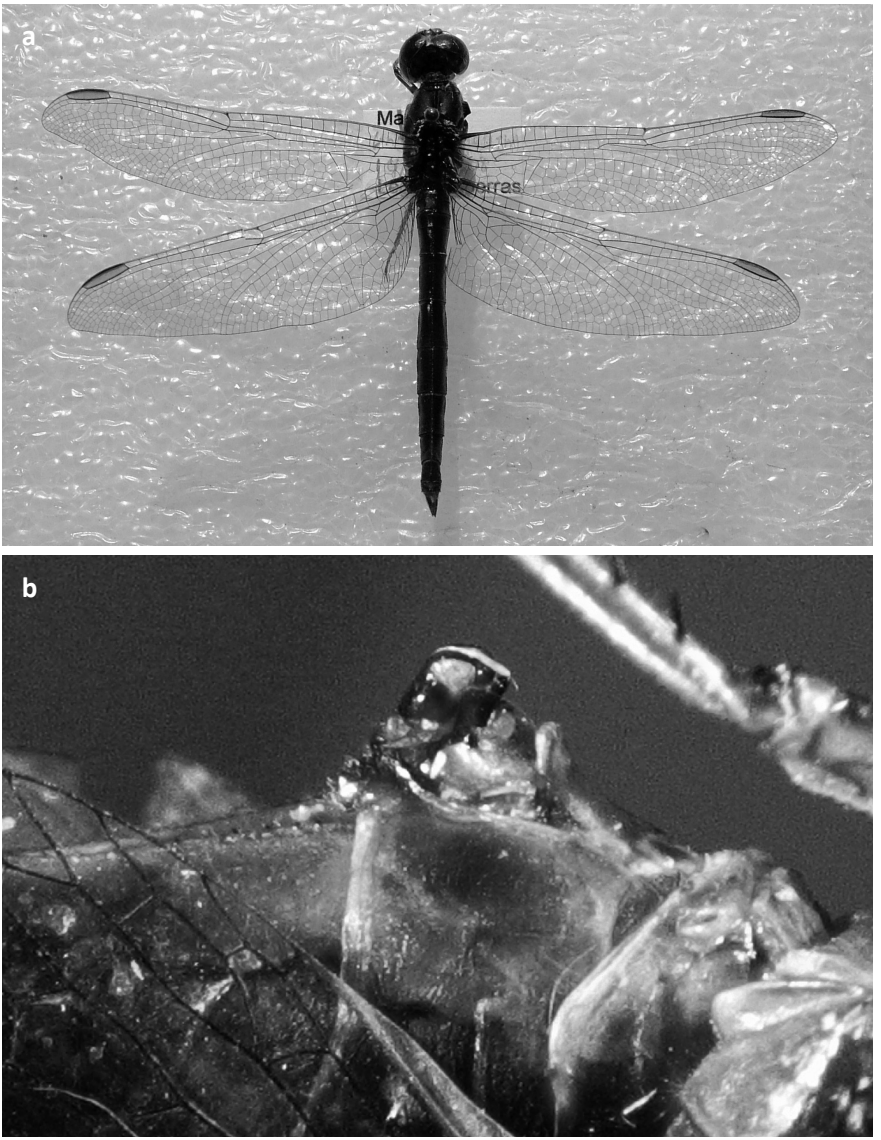

Figure 1: General appearance of *Orthetrum nitidinerve*, collected on 19-vii-2008 at L-Ghajn tal-Melliha water reservoir, Malta. (a) dorsal view, (b) secondary genitalia, lateral view. — Abbildung 1: Ansichten eines Exemplares von *Orthetrum nitidinerve*, das am 19.07.2008 am Wasserreservoir von L-Ghajn tal-Melliha auf Malta gesammelt wurde. (a) Aufsicht, (b) Genitalien des zweiten Segments, Seitenansicht.

Discussion

Not much is known about the prey of the *Orthetrum* species (Corbet 1999: 339 ff.). Occasionally, some species (*Orthetrum abbotti, O. brachiale*, *O. cancellatum*, *O. sabina* and *O. trinacria*) have been reported to devour big prey items like grasshoppers (Saltatoria) or butterflies (Lepidoptera) (Morton 1920; Stortenbeker 1967; Sternberg 1999). At Lake Rukwa, Tansania, *O. brachiale* and *O. trinacria* were observed «flying slowly through tall grass as if looking for prey» (Stortenbeker 1967: table 22). In contrast to this, Parr (1983) observed perching *O. coerulescens* catching their prey in midair by very short (1-2 s) foraging flights. The males of *O. nitidinerve* observed in Malta gleaned their prey from the stouts or blossoms of fennel plants occasionally, when returning from aggressive flights. The observed prey items were comparatively big: *Musca domestica* (7-8 mm), *Pollenia rudis* (5-12 mm), *Calliphora vicina* (9-11 mm) *Sphaerophoria scripta* (9-12 mm) and *C. vomitoria* (10-14 mm - measurements taken from Haupt & Haupt 1998).

Orthetrum nitidinerve is widespread and common throughout the Maghreb, but rare in the northern parts of its European area (Boudot et al. 2009). Until recently, it had only been found on two islands, Sardinia and Sicily. The latter is type locality of the species (Selys 1841), and the first record from Sardinia was taken in August 1883 (Costa 1884). Since then, no further records from other islands had been published, although the species was recorded from these two islands consecutively. The restrictive distribution of *O. nitidinerve* could be interpreted as a relict of the last Ice Age, when the Mediterranean Sea was dried up and the big 'islands' Sardinia and Sicily were more humid than today. An important part of this hypothesis is the presumption that *O. nitidinerve* is not able to reach islands today. The observations of *O. nitidinerve* in the Maltese Islands introduce the third island record and raise some more questions about the ancestry of these individuals. We observed males and females only during a short period (18 to 22-vii-2008), no reproductive behaviour was recorded and no larvae or exuviae were seen. We therefore regard these individuals as migrants. This is underlined by the fact that the species was not recorded again during 2009 or until June 2010. However, a possible future colonization of the Maltese Islands by *O. nitidinerve* should not be ruled out a priori. Before 2007, *Orthetrum trinacria*, *Trithemis annulata*, and *Selysiothemis nigra* were also regarded to have a migrant status in the Maltese Islands, and only after 2007 were their exuviae found there.

The Maghreb north of the Sahara is broadly colonised by *O. nitidinerve*, but its distance to the Maltese Islands is more than 300 km. Sicily is poorly colonised by this species, but 90 km closer to the Maltese Islands. If the 'Ice Age Hypothesis' is true for the colonization of Sardinia and Sicily, the observation of *O. nitidinerve* on Malta clearly demonstrates that the species is able to migrate across the open sea. Both potential origins – the Maghreb or Sicily – are possible, even if the Mediterranean Sea may be crossed only by the aid of strong wind.

The recent records of *O. nitidinerve* from Malta subsequently have led to the creation of a Maltese name for this species, which is 'Kahlan tal-Vina Safra', literally meaning 'Yellow-Veined Blue-Bodied Dragonfly' (Sciberras 2008a).

The odonate fauna of the Maltese Islands was recently reviewed by Ebejer et al (2008), who compiled 15 species for the islands. One of these – an old female specimen of *Trithemis arteriosa* from the collection of AS – was based on a confusion with *T. annulata* and was deleted from the list (Sciberras 2008b, Boudot et al. 2009). Nevertheless, Sciberras & Sammut (2008) could demonstrate the likely existence of a second zygopteran species by three remaining wings of a migrant *Calopteryx virgo meridionalis*. Compared to the 50 species that are already known from Sicily (Boudot et al. 2009), with *O. nitidinerve* the fact that only 16 species are yet known from the Maltese Islands still hold great possibilities for future discoveries.

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