THE RING 34 (2012) DOI 10.2478/v10050-012-0005-0

THE EURASIAN REED WARBLER (*Acrocephalus scirpaceus*) BREEDING IN EGYPT – A NEW EVIDENCE?

ABSTRACT

Stępniewska K., Ożarowska A. 2012. *The Eurasian Reed Warbler (Acrocephalus scirpaceus) breeding in Egypt – a new evidence?* Ring 34: 45-50.

To date, the documented breeding range of the Eurasian Reed Warbler in Egypt is limited to the Nile Delta. In March and September 2001 two females with brood patches were caught in the Wadi El Rayan Protected Area (30°19'E, 29°12'N) in the Western Desert of Egypt. These records, if accepted, might shift the southern border of the breeding range of Reed Warblers in Egypt west of the Nile Delta. The two individuals were the only records of breeding Reed Warblers in Wadi El Rayan, suggesting that the breeding population is small. It is possible that the population has been established recently because artificial lakes were created in Wadi El Rayan in 1973. The studies during the breeding season are essential to determine if such probable breeders demonstrate a new, but permanent breeding population or only ephemeral incidents, as well as to collect the data on the number, breeding biology and biometrical characteristics of such local populations at the southern limit of the world breeding range of the Reed Warbler.

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Publication appointed to the SE European Bird Migration Network papers

Key words: Reed Warbler, *Acrocephalus scirpaceus*, breeding range, Egypt

INTRODUCTION

The Eurasian Reed Warbler is a typical habitat specialist breeding in lowlands with wet vegetation (mainly reedbeds). The species is divided into three subspecies: *A. s. scirpaceus*, *A. s. fuscus* and *A. s. avicenniae* (Kennerley and Pearson 2010). The western nominate subspecies breeds throughout most of Europe: from the Volga, through Ukraine, west Asia Minor to the Iberian Atlantic coast; northern limit of its range extends to Fennoscandia and the southern to coastal NW Africa. The eastern subspecies *A. s. fuscus* breeds in eastern Europe, south-western Siberia, Caucasus and northern Caspian area, Kazakhstan, Levant, central and eastern Asia Minor and

northern Middle East (Cramp 1992, Svensson 1992, Shirihai 1996, Hagemeijer and Blair 1997). Representatives of these subspecies are the long-distance migrants wintering in sub-Saharan Africa. The Mangrove Reed Warbler (*A. s. avicenniae*) was described in 1989 as a grey reed warbler breeding in the Red Sea mangroves of Eritrea, Saudi Arabia, northern Somalia, Sudan and Yemen; it is a partial migrant, but its whereabouts outside the breeding season are unknown (Jiguet *et al.* 2010, Kennerley and Pearson 2010).

The Eurasian Reed Warbler is a common migrant and a sporadic winter visitor in Egypt. The fertile Nile Delta offers extensive reedbeds – the most favourable habitat for this species. The Wadi El Rayan Protected Area and other similar protectorates in the north-eastern part of Africa are important for migrating reed warblers (Ożarowska *et al.* 2011, Zaniewicz and Chruściel 2011). Artificial water bodies, like the lake in Wadi El Rayan, which usually are surrounded by vast areas of desert, probably play a role for migrants as stopover sites.

The Eurasian Reed Warbler also breeds in Egypt. Breeding was first recorded in 1983 at Lake Manzala in the Nile Delta. A few pairs carrying nest material and food were seen near El Matariya, by Lake Manzala. There are several spring records of singing males at other lakes in the Nile Delta (Meininger *et al.* 1986, Goodman and Meininger 1989, Busse pers. comm.). In the autumns of 2005-2006 juvenile Reed Warblers were captured at Burullus near Baltim (Ożarowska *et al.* 2011), the SEEN ringing station located in the Nile Delta, between the Mediterranean Sea coast and Lake Burullus (Fig. 1). There are no data as to whether the breeding population in Egypt is migratory or sedentary; moreover, no estimates of the population are available. However, the nearest, well-known breeding populations of the species are located in neighbouring Israel and Jordan (Cramp 1992, Shirihai 1996), where these populations are migratory. Recent studies by Amezian *et al.* (2010), Hering *et al.* (2010, 2011a, b), Jiguet *et al.* (2010) showed the complex model of the bio-geographic relationships of the Reed Warblers in Northern Africa. Hering *et al.* (*op. cit.*) proposed two separate refugial areas, where both resident and migrant birds occurred. They documented breeding of the African Reed Warbler (*Acrocephalus baeticatus*) in the central North Africa region and of reed warblers closely related to *A. scirpaceus avicenniae* in eastern North Africa. The Mangrove Reed Warbler, which in the past was considered a subspecies of the African Reed Warbler, currently is regarded as a subspecies of the Eurasian Reed Warbler (*cf.* Dickinson 2003, Jiguet *et al.* 2010), but still there are doubts and discussions. *A. s. fuscus* is the form presumably breeding in the Nile Delta (Goodman and Meininger 1989, Cramp 1992, Svensson 1992, Hagemeijer and Blair 1997), but this remains unclear because they are described as distinctly smaller than those of central Asia (Kennerley and Pearson 2010).

A. s. scirpaceus and *A. s. fuscus* can be observed in Egypt during migration. Both are very similar in morphology (Svensson 1996) and plumage colouration is not always a reliable feature, hence they are often difficult to distinguish during migration at some areas (Morgan and Shirihai 1997, Merom *et al.* 1999, Yosef and Chernetsov 2005). *A. s. avicenniae* is similar in colour to typical *A. s. fuscus*, but it is smaller than both Palearctic subspecies (wing length – 56-62 mm), with a more rounded wing (Kennerley and Pearson *op. cit.*).

STUDY AREA AND METHODS

The SEEN ringing station (29°12'N, 30°19'E) is located in the Wadi El Rayan Protected Area, 270 km to SSW of the Ashtoum and Burullus SEEN ringing stations (Fig 1). It is located in a depression in the Western Desert of Egypt, about 45 km southwest of El-Fayoum and 60 km west of the Nile. There are two reservoirs (northern and southern) which were created in 1973, when the desert depression was inundated with excess agricultural run-off from the Fayoum region. Water-level in the first lake has been stable over the years and a very dense growth of *Phragmites* and *Tamarix spp.* has developed along the shores. In contrast, the second lake has scant cover along its shores because of constant changes and slowly rising water level (Fishpool and Evans 2001). These two reservoirs are located in the desert without any connection with surface water and habitats associated with the Nile.

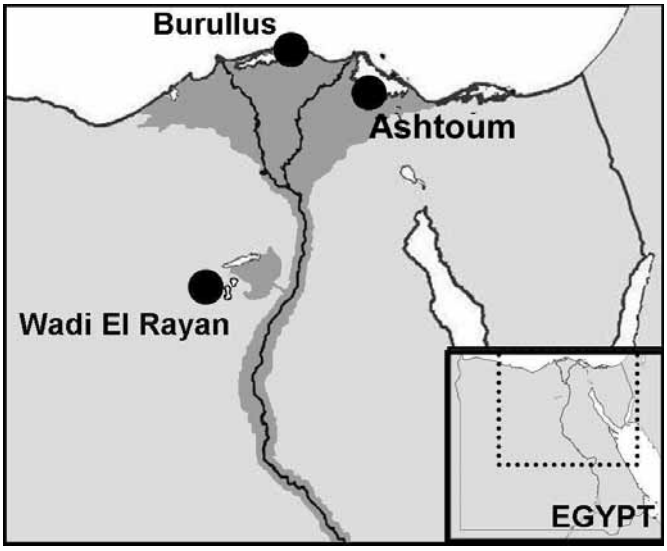

Fig 1. Location of SEEN ringing stations: Burullus, Ashtoum and Wadi El Rayan

The studies were conducted at Wadi El Rayan in both migration seasons: spring (March-April) in 2001-2002; autumn (September-October) in 2001-2003. Migrants were mainly captured in extensive reedbeds along the shoreline of the southern lake. We applied standard SEEN methodology, which includes constant mist-netting, a standard set of biometric measurements, *i.e.* for full-grown individuals: wing and tail length, wing formula (to the nearest 1 mm), weight (with accuracy of 0.1 g), fat score, as well as orientation tests on directional preferences of migrants (Busse 1995, 2000). In the case of difficult-to-identify species several additional measurements were taken, *e.g.* for the Reed and Marsh Warbler (*Acrocephalus palustris*) – the length of notch on the 2nd primary, and location of this notch in relation to primaries on a folded wing (Svensson 1992). During spring migration in 2001-2002, 1371 individuals of the

Eurasian Reed Warbler were captured, while during autumn migration in 2001-2003 – 448 birds.

RESULTS AND DISCUSSION

On 28 March 2001 one female with a well-developed, fully vascularised brood patch was captured. In autumn of the same year another female with a regressing brood patch was captured (21 September 2001). Brood patch is developed at the breeding grounds, shortly before incubation, by all birds active in it (Bailey 1952, Tazawa and Whittow 2000). Consequently, we assume that these two Reed Warblers with brood patches captured at Wadi El Rayan area might represent a local breeding population. However, due to the lack of studies during breeding season at both lakes, this remains a hypothesis. We assume that these birds were females, because in the Reed Warbler although males can also incubate, it is rare (Glutz von Blotzheim 1991). This is further substantiated by information from other field researchers that only females have a well-defined brood patch (Goc, Jakubas, Wojczulanis-Jakubas, Nitecki pers. comm.).

The dates of catching birds with brood patches are well outside the breeding season – late April to early June in NW Africa, May in Egypt (Urban *et al*. 1997). However, in Israel, at the closest well-known breeding area, the main arrival of local breeders is during the first few days of April, but some appear from mid-March onwards (Shirihai 1996, Morgan and Shirihai 1997) and breeding lasts until the end of August (Shirihai 1996). Hatching dates there are 24 April to 5 August, mainly from the end of May to mid-July (Shirihai 1996). Our record of the individual with brood patch at the end of March, though early, is consistent with the dates given above.

In autumn, a bird with a regressing brood patch was observed in late September, when Reed Warblers in Israel have already finished breeding (Cramp 1992, Shrihai 1996). We suspect that if breeding conditions at Wadi El Rayan area are particularly favourable for the species, then breeding period there can last longer when compared to the northern, temperate latitudes. On the other hand, individuals with regressing brood patch may not necessarily be local breeding birds, but may have left a breeding area recently.

The Eurasian Reed Warbler is a widespread species and particular populations differ in biometrical and phenotypic traits (Kennerley and Pearson 2010). According to Cramp (1992) and Shirihai (1996), breeding Reed Warblers from the southern parts of the species range have shorter wings than the northern populations, for example 60-65 mm in nearby Israel (Morgan 1998). Consequently if there is a local breeding population at Wadi El Rayan, we may suspect that these individuals have shorter wings. The range of the wing length of Reed Warblers captured at Wadi El Rayan in spring was 60-74 mm (mean = 67.1, *SD* = 1.94), while in autumn: 61-70 mm (mean = 65.9, *SD* = 1.73). Wing length of the individual with the brood patch caught in spring was 64 mm (tail length: 54 mm), what could indicate its local origin. Nevertheless, to make any reliable conclusions about biometrical characteristics of local population, much more data are essential.

In conclusion, more detailed studies during the breeding season are required to ascertain if there is an established local population of the Reed Warbler at the lakes of the Wadi El Rayan Protected Area. Moreover, DNA analyses are necessary to assess the taxonomic identity of breeding individuals. Another possible study is that of stable-isotope analyses of the birds to establish the regions in which they have grown the feathers.

ACKNOWLEGMENTS

We are grateful to all ringers and volunteers who helped in the fieldwork at Wadi El Rayan and at Burullus ringing stations of the SEEN (SE European Bird Migration Network is an international network of ornithological ringing stations located on south-eastern migration flyway in Europe, Middle-East and Africa). Since the very beginning (2001, Wadi El Rayan) the Egyptian ringing stations were member-stations of this network. Our special 'thank you' is to our Egyptians colleagues, particularly to Dr Wed Abdel Latif Ibrahim, the head of the Egyptian ringing team at Wadi El Rayan ringing station.

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