

The numbers of breeding and migrant birds at the Royal Society for the Conservation of Nature (RSCN) Azraq Wetland Reserve 2004 to 2011

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ABSTRACT

The Azraq Oasis and Qa al Azraq Ramsar site were one of the most important and impressive wetlands in the Middle East, providing an invaluable resource to local people and wildlife. However, in 1993, the abstraction of water from the Azraq aquifer resulted in the oasis completely dying up. In 1994, the Royal Society for the Conservation of Nature (RSCN) secured a supply of water to establish the Azraq Wetland Reserve. RSCN has successfully restored part of the Azraq Oasis. This paper presents the results of a study to monitor the numbers of breeding and migrant birds using the Azraq Wetland reserve between 1999 and 2011. With a few exceptions, most species of breeding and migrant birds appear to have declined in numbers since 2004, probably as a result of the very dry conditions.

Key words: Azraq; wetland; RSCN; migrant; breeding;

INTRODUCTION

The Azraq Oasis and Qa al Azraq Ramsar site were one of the most important and impressive wetlands in the Middle East, providing an invaluable resource to local people and wildlife. However, in 1993, the abstraction of water from the Azraq aquifer for use both in cities and at local farms resulted in the world famous oasis completely dying up. In 1994, the Royal Society for the Conservation of Nature (RSCN) secured a supply of water from the Jordanian Water Authority to establish the Azraq Wetland Reserve. RSCN has successfully

undertaken a programme of management aimed at restoring at least a small part of the Azraq Oasis.

By obtaining a small supply of water (insignificant in national terms), RSCN has been able to restore about 2% of the original oasis. Although the Wetland Reserve is now probably only a shadow of its former glory as an oasis, it is still invaluable for wildlife. The Reserve also draws tourists to Azraq, provides employment in the area and is an extremely valuable educational facility with a programme of school-visits. The wetland provides an important habitat for a variety of wildlife, but it is the migrant birds that use the reserve as an "island refuge" during their long spring and autumn movements over inhospitable desert terrain and provide an impressive spectacle within the area.

Between 1999 and 2011 the Azraq wetland reserve and Qa al Azraq were censused on six occasions during April, by RSCN staff working with volunteer staff from the Royal Society for the Protection of Birds (RSPB) based in the United Kingdom. These studies were intended to record migrant and breeding birds at Azraq and allow comparisons between the results of other years in an attempt to evaluate the success of the programme of habitat management work.

Surveys of birds were carried out across a number of habitats within the reserve during the spring period, between 1999 and 2011 (Melling 1999), 2000 (Strudwick 2000), 2004 (Ellis 2004) and 2006 (Ellis 2006), 2009 (Ellis 2009) and 2011 (Ellis 2011).

MATERIALS AND METHODS

During April in each of the survey years, censuses of birds were carried out on the Azraq Wetland Reserve. In years when Qa al Azraq was flooded, censuses were also carried out of the mud flat habitat. Methods were broadly similar each year. In the dry habitats on the reserve, two fixed transects were walked and all birds seen within 100 metres either side of the transect line were recorded. For some species, singing males were recorded separately in order to estimate breeding populations. Each of the two (3.5km) transects.

were walked on two to four (depending on the year) different days approximately nine days apart, and each census was carried out between 06.26 hrs and 09.46 hrs. This allowed an estimate to be made of the breeding and migrant birds using the dry habitats on the reserve. Using similar methods, bird censuses were also carried out in the wetland habitats on the reserve, referred to as the Boardwalk and Circular transects. Two new transects were introduced in 2006, the New Pools transect which ran around the perimeter of the pools and the New Marsh transect which ran along the length of the new ditch and flooded area, which runs east from the New Pools (Fig. 1).

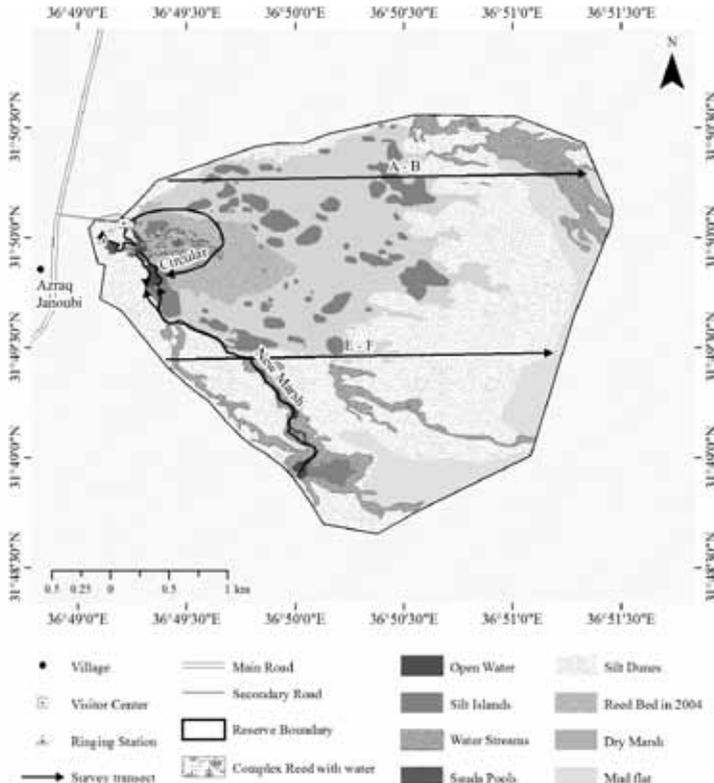


Fig. 1: Survey transects in the Azraq Wetland Reserve.

On these transects, birds within 10m either side of the water were recorded. The mapping of breeding birds began in 2006 and was continued in 2009 and 2011. Geographical positioning system (GPS) and satellite images were used to map several wetland breeding species along the Circular, Boardwalk, New Pools and New Marsh transects.

In addition, counts of birds were also made during the evening period from the roof of the Visitors' Centre in order to gauge the importance of the reserve for roosting birds. Counts were also made from the Hide in the evening in order to assess the importance of the Hide Pools and the areas of wet reedbed at the south end of the pools. However, in 2011, because a fire in 2009 had removed all the intervening tall, dry reed, counts from the hide, included the entire area visible from the hide, including the newly enlarged Sharq Soda Pool. Qa al Azraq was censused between 1999 and 2006, but did not flood in 2009 or 2011.

RESULTS

Many of the breeding species in the drier habitats on the reserve have declined. However, the populations of Crested Lark, Rufous Bush Robin and White-cheeked Bulbul in the drier habitats and Graceful Warbler and Reed Warbler in the wetland habitats have increased (Figures 1, 2, 3 and 4). Numbers of migrant birds feeding in the wetland areas of the reserve have mostly declined, with the exception of Chiffchaff and apparently migrant Reed Warblers, which have increased (Figure 2).

Those migrants that largely feed off the reserve, but roost in the reedbed have also declined. The most common migrant species that roosted in the reed bed, Sand Martin, Swallow and Yellow Wagtail, have declined considerably since 2004. However, their numbers have remained broadly stable, but much lower since then (Figure 5). The unauthorised burning of the reed bed in the vicinity of the board walk in 2009 and subsequent grazing by water buffalo, reduced the amount of available tall reed habitat for reed warblers in the area. Although reed warbler numbers declined substantially in this area, the numbers of singing males and apparent migrants on the reserve as a whole have increased (figures 1 and 2).

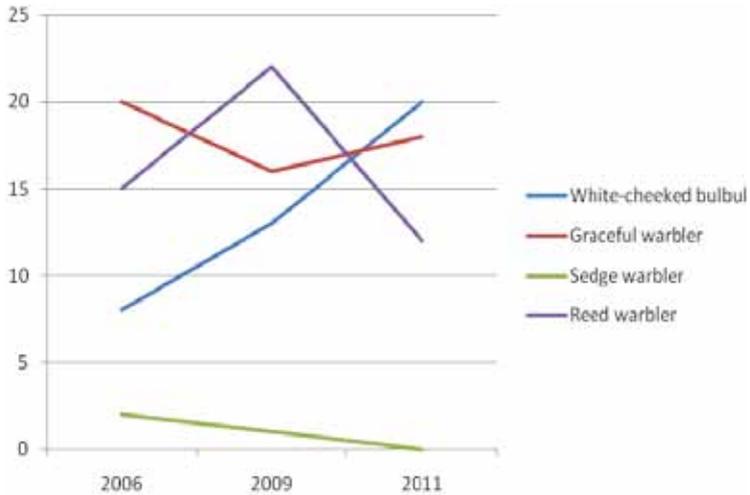


Fig. 1: Total numbers of singing male White-cheeked Bulbul, Graceful Warbler, Sedge Warbler and Reed Warbler recorded from the Boardwalk, Circular, New Pools and New Marsh Transects 2006 to 2011

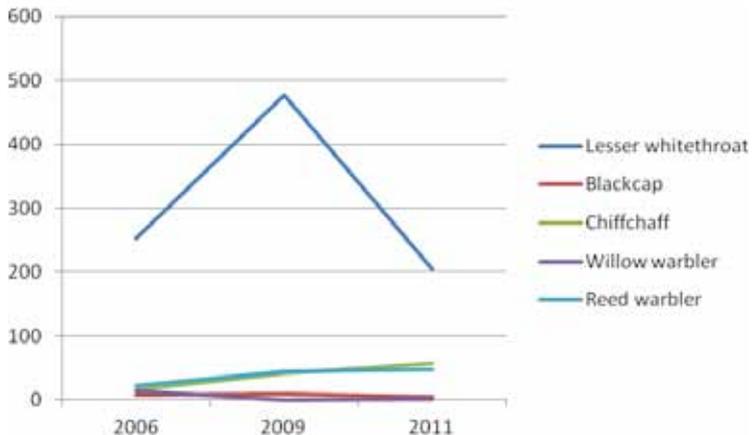


Fig. 2: Mean numbers of migrant warblers recorded on the Circular, Boardwalk, New Pools and New Marsh transects between 2006 and 2011

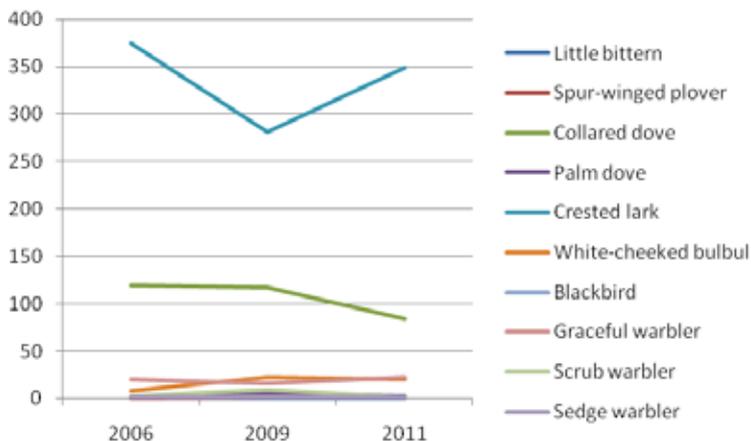


Fig. 3: Estimates of the numbers of singing/displaying males of those species thought to breed on the reserve in 2006, 2009 and 2011

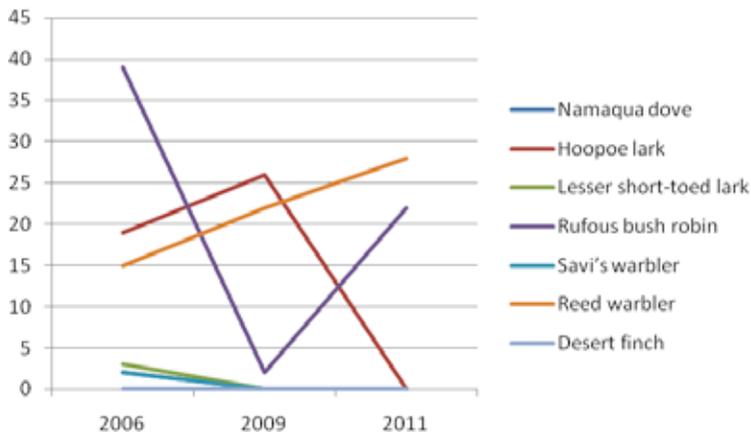


Fig. 4: Estimates of the numbers of singing/displaying males of those species thought to breed on the reserve in 2006, 2009 and 2011

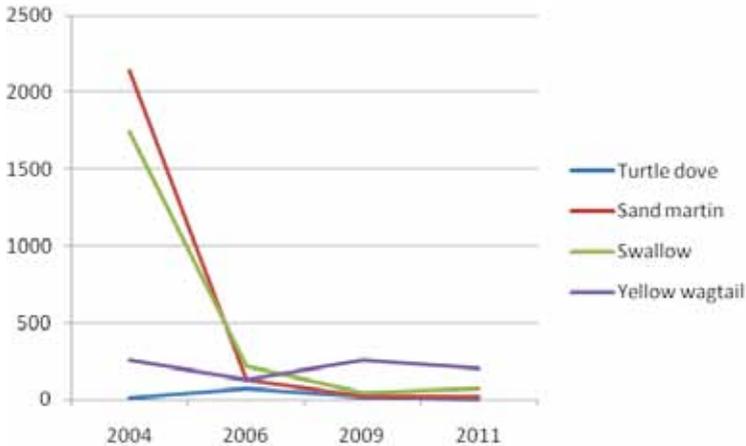


Fig. 5: Trends in the numbers (mean counts) of selected migrant species roosting in the reed beds between 2004 and 2011

DISCUSSION

The over abstraction of water from the Azraq Oasis and its resultant drying out has had a profound effect on the numbers of migrant and breeding birds that use it. The numbers of migrants that pass through the oasis and the number of species that breed there both appear to have declined substantially from those found by studies carried out before the oasis dried out in 1993 (Nelson 1973, Wallace 1982, Wallace 1983).

RSCN reflooded a small part of the oasis and created the Azraq Wetland reserve in 1994, this supported smaller but still significant numbers of migrant and breeding birds (Melling, 1999) and Strudwick (2000). However, since 2005, the winters have been considerably drier (Fig. 6). These dry conditions have had a substantial effect on the dry ground habitats on the reserve. Since 2006, there has been so little rain in the winter that Qa al Azraq has not flooded to any significant extent and no surface water has been observed in the qa during this study since then. These drier conditions have almost certainly resulted in a decline in the numbers of many of the

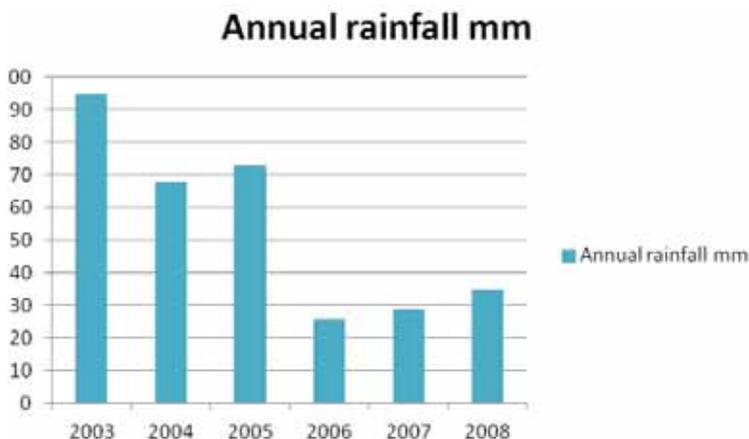


Fig. 6: Annual rainfall in mm recorded at the Azraq meteorological station

recorded and probable breeding species on the reserve, with a few exceptions.

In wetland habitats, the continued pumping of water, though proving politically difficult to continue, has been very successful and has largely maintained the quality of these habitats, which have been further enhanced by a pool creation programme. The increase in numbers of both breeding and apparently migrant reed warblers, despite the reduction in the area of tall reed in the area of the Boardwalk Transect by an unauthorised fire and subsequent grazing by water buffalo, may have been due to displaced birds moving into the New Pools area. This indicates that the recent programme of pool creation has made the reserve better able to adapt to unforeseen changes. The areas of green, short, grazed reed between the Visitors' Centre and the Hide did however prove attractive to Wagtails and a variety of other migrant species.

The numbers of migrant species that use the reserve as a staging post in their spring movements northwards will fluctuate annually depending on several factors, including changes in the size of the biogeographic population of each species, prevailing weather con-

ditions and in the timing of the spring migration. However, one of the most important influences on the numbers passing through the reserve each year is the condition of the habitats within the reserve, and how they relate to the condition of the surrounding habitats. The habitats used by most migrant species have been adversely affected by the continuing dry conditions and with few exceptions, the numbers of migrants feeding on the reserve and roosting in the reedbed have declined since 2004.

CONCLUSION

This study has confirmed the importance of the Azraq Wetland Reserve for several species of breeding birds and many species of migrants. Low winter rainfall and the failure of the Qa al Azraq to flood in recent years have undoubtedly reduced the numbers of migrant birds using the entire Azraq area including the reserve. However, the continuing enhancement of the wetland habitat on the reserve and the continuing pumping of water to different parts of the reserve have been very successful in maintaining and increasing the attractiveness of the wetland to a large variety of bird species, especially migrants. For migrant birds, the Azraq wetland reserve acts as an "island" of wetland habitat in the otherwise dry Eastern Desert. Consequently, it is essential that if breeding and migrant birds are to continue to find suitable habitat in the area, the quality of the wetland habitat must be maintained and preferably further enhanced.

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