Satellite tracking of Greater Flamingos *Phoenicopterus roseus* from the United Arab Emirates

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Fig 1: A greater flamingo with satellite transmitter at Al Wathba Lake. Picture: Sàlim Javed

In one of the first-ever instances of the capture and satellite tracking of greater flamingos *Phoenicopterus roseus* in the Arabian Peninsula, several birds were captured in late 2005 and fitted with satellite transmitters at Al Wathba Wetland Reserve in Abu Dhabi, a protected area managed by the Environment Agency - Abu Dhabi, EAD. The capture and tagging of the flamingos was done as part of the Seabird Satellite Tracking Project, implemented by EAD's Terrestrial Environment Research Centre, TERC. One of the key objectives of the study is to understand the movement of flamingos between different coastal and inland wetlands within the Emirates and also to document their migration. The bulk of the UAE's flamingo population is believed to originate from breeding colonies further north, possibly in Iran, Turkey and Central Asian countries. Birds are present at favoured sites, including Al Wathba, throughout the year, although numbers increase between autumn and spring because of migrants and winter visitors.

Flamingo of different age classes are observed throughout the year at Al Wathba and in other wetlands in the Emirates. Regular monitoring of birds at Al Wathba has shown that the flamingo numbers fluctuate according to the season (Javed and Khan 2003). Evidence of movement of greater flamingos between northern Iran and the southern Caspian Sea and the United Arab Emirates has previously been obtained from ringing recoveries of birds ringed at Lake Uromiyeh, in Iran, at Dubai's Ra's al-Khor wildlife sanctuary in 1974 (2), 1981, 1989 and 1992, and on the Abu Dhabi island of Dayyinah in 1999 (Platt 1992, Aspinall *pers. comm.*) with another bird ringed in the southern part of the former USSR being recovered in Abu Dhabi in 1986. Further recoveries of birds ringed at Lake Uromiyeh have been made in Bahrain, Qatar and Oman (Platt 1992). It is possible that the UAE flamingo population is a mixture of adult and juvenile migrants and/or birds resident within the Arabian Gulf which engage in local movements.

Between 26-28th November 2005, five greater flamingos were captured at Al Wathba Wetland Reserve in Abu Dhabi. Of the five captured birds, four were fitted with satellite transmitter. S.A backpack harness method, successfully used on many large birds such as flamingos in Africa and Spain (Childress *et al.* 2004; Amat *et al.* 2005) and on geese and cranes in India (Javed *et al*. 2000, Javed *et al.* 2003) was used to place the satellite transmitters on the captured flamingos. The captured flamingos were also marked with "DARVIC" plastic rings, provided by the Station Biologique Tour du Valat, France, as part of the international flamingo ringing scheme of the IUCN-SSC Flamingo Specialist Group.

Initial results obtained from the satellite-tagged greater flamingos have already, by mid-June 2006, provided valuable information on the movement patterns of flamingos between coastal and inland wetlands in the Emirates. Within a few days of being tagged and released, the birds began to move away from Al Wathba and by 5th December 2005, three of the four satellite-tagged birds had moved to Dabb'iya and Al Aryam on the coast, west of Musaffah and about 25 km from Al Wathba. This confirmed that, as suspected, flamingos from Al Wathba make extensive use of the coastal wetlands between Musaffah and Dabb'iya. The flamingo movements between Al Wathba and the Abu Dhabi coastal wetlands highlight the dependence of flamingos, both for feeding and successful breeding, on the protection of multiple sites within their daily movement ranges, not just one or two isolated sites. Greater flamingos successfully bred at Al Wathba in 1999 while a 1993 flamingo breeding attempt at Al Wathba, foiled by human interference after a first chick had hatched, was the first known breeding in the Arabian Peninsula since 1922 in Kuwait (Aspinall & Hellyer, 1999).

By 19th December 2005, one of the birds had moved to the Ra's al-Khor wildlife sanctuary, Khor Dubai, then to Khor al-Beida in Umm al-Qaiwain, before returning to Ra's al-Khor. The movements of flamingos tracked from Al Wathba to Abu Dhabi coastline, and then to wetlands in Dubai and Umm al-Qaiwain, also reaching as far north as the coast of Ra's al-Khaimah, indicates a regular interchange of birds between these sites. Although both Al Wathba and Khor Dubai support flamingos throughout the year, this is the first occasion on which such interchange of populations between the UAE's Arabian Gulf wetlands and coastal areas has been clearly proven. This emphasises the necessity for greater co-operation between the UAE's member emirates to protect greater flamingos, as a 'flagship species', and, more importantly, to conserve key wetland sites.

Two of the Al Wathba birds have successfully migrated into Iran. One of these birds, named Sindbad by EAD, was the first bird to cross the Arabian Gulf. The bird started its return migration from the Al Aryam coast, west of Abu Dhabi, on 27th February and en route stopped over at Khor al-Beida in Umm al-Qaiwain for a few days before crossing over the Gulf. The first satellite data of its locations in Iran were obtained from Nariz Lake in south-west Iran on 4th March 2006, where it stayed for nearly two months. It resumed its northward migration on 7th May and was recorded in south-west Turkmenistan, a few kilometres from south-eastern shore of the Caspian Sea in early June, by which time the bird had covered 2100 kilometres and had used 11 different wetlands as stopover sites to rest and feed during its spring migration. A last location, obtained on 25th June 2006, just before this issue of ***Tribulus*** went to press, indicated that Sindbad had moved further north along the east coast of the Caspian.

Although an interchange of flamingos between the UAE and Lake Uromiyeh, in northern Iran and south-west of the Caspian Sea, was already known from previous ring recoveries, the movement of another Al Wathba bird to the same location suggests that this population interchange

and use of this migration route is regular. Lake Uromiyeh is estimated to hold about 25,000 breeding pairs (Sadegh Zadegan, *in litt.*).

This study of the Al Wathba birds has, for the first time, documented the route taken during the spring migration and stopover sites used both in the UAE and in Iran. Such data are vital for the long-term conservation of flamingos along their breeding and wintering distribution range and effective protection of such sites will also help protect many other waterbirds which share similar habitats along the migratory flyway.

Given the scale and frequency of the use of several wetlands by the tagged flamingos, preliminary results from this study provide strong support for the view that maintaining wetland connectivity, both during breeding and non-breeding period, is essential for the conservation and management of greater flamingos and other waterbirds. The satellite tracking data also show additional evidence of the importance of long-term protection and availability of key wetland sites such as Khor al-Beida in Umm al-Qaiwain, which has been designated as an Important Bird Area for the Middle East by BirdLife International. Besides being an important wintering site, Khor al-Beida is also a migration springboard for many species crossing the Gulf during spring and autumn migration. Unfortunately, Khor al-Beida and its extensive inter-tidal mud flats are under threat from a massive urban development project. It is imperative that such sites are given high priority and immediate protection from development, to ensure the future of flagship species such as the greater flamingos and crab plovers to be found there, as well as many other bird species.

Besides receiving location data from the Argos satellite of the satellite-tagged greater flamingos, EAD is also ground monitoring the birds which are still on the Abu Dhabi coast, by using higher accuracy Argos and/or GPS locations and searching for ringed birds in flamingo flocks. On 20th June 2006, locations recorded the previous day were used to track three tagged flamingos between Musaffah and Al Aryam, two with satellite transmitters and one with only a plastic ring. One of the birds was in a group of 171 flamingos and the other two in another group of 202 flamingos. All three showed a normal level of activity and were part of larger groups of adult, immature and a few juvenile birds. Additional data to be collected in future are likely to be of great value in learning more about the movement of the UAE's greater flamingos and their use of wetland habitats. EAD will continue to use the data from this study and promote conservation of important wetlands in the UAE by seeking cooperation from relevant bodies in other emirates.

Note:

Greater Flamingo has now been split by the Taxonomic Advisory Committee of the Association of European Records and Rarities Committees (TAX-AERC), into three separate, monotypic species, Greater Flamingo (*P. roseus*), Caribbean Flamingo (*P. ruber*) and Chilean Flamingo (*P. chilensis*) based on plumage colouration and pattern, bill colour and leg colour, their different vocalisation and display and the fact that they are hosts to different species of head lice (Mallophaga) (Collinson, 2006).

Their breeding ranges are also well separated and there is no reason to believe that they will ever merge. *Phoenicopterus ruber* has formerly been applied to Greater Flamingos in the Gulf, but the name *Phoenicopterus roseus* should now apply. The Emirates Bird Records Committee will review and adopt, where appropriate, these and other taxonomic changes in due course.

The new name has also been adopted by the IUCN's Flamingo Specialist Group which has also proposed a revision of the Western Palearctic population of the greater flamingo from 430,000 to 585,000 (Childress et al. 2005). Based on previous ring recoveries, the entire Western Palearctic greater flamingo metapopulation is considered as one large population (Bechet, 2005) and our tracking data lend further support to this view.

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