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REPORT ON AN ORNITHOLOGICAL SURVEY IN LIBYA, JANUARY 2005

1. International Framework

Libya is a Contracting Party to most of the international biodiversity-related conventions, including Ramsar, CITES, Biological Diversity and the Barcelona Convention. Libya has recently become a party to the Bonn Convention on Migratory Species (CMS), and has acceded to AEWA (the Afro-Eurasian Waterbird Agreement of the Convention on Migratory Species) with effect from 1 June 2005.

The present survey was organized under a Memorandum of Understanding between AEWA, RAC/SPA (the Regional Activities Centre on Specially Protected Areas of the UNEP Mediterranean Action Programme, based in Tunis), and the EGA (Environment General Authority of Libya).

The Action Plan for the conservation of bird species listed in Annex II of the Protocol concerning specially protected areas and biological diversity in the Mediterranean

The UNEP Mediterranean Action Plan (MAP) brings together 21 countries round the Mediterranean, operating within the framework of the Barcelona Convention for the Protection of the marine environment and the coastal region of the Mediterranean. They adopted in 1995 a "Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" which includes in its Annex II a "List of Endangered or Threatened Species". This List includes fifteen species of bird, and at the latest Conference of the Parties in Catania, Sicily in November 2003, an Action Plan for the conservation of these species was adopted, following similar plans on monk seal, marine turtles, cetaceans and marine vegetation. The Action Plan for Birds notes initiatives taken by bodies such as BirdLife International partners in Mediterranean countries, WWF, IUCN, Medmaravis and Tour du Valat, which contributed to the development of the text. The fifteen birds include a variety of species of differing status, some globally endangered, some whose breeding area is concentrated on rocky Mediterranean islands, some found mostly in beaches and coastal lagoons, as follows: Cory's Shearwater *Calonectris diomedea*, Mediterranean Shearwater *Puffinus yelkouan*, Storm Petrel *Hydrobates pelagicus,* European Shag *Phalacrocorax aristotelis*, Pygmy Cormorant *Phalacrocorax pygmeus*, White Pelican *Pelecanus onocrotalus*, Dalmatian Pelican *Pelecanus crispus*, Greater Flamingo *Phoenicopterus ruber*, Osprey *Pandion haliaetus*, Eleonora's Falcon *Falco eleonorae*, Slender-billed Curlew *Numenius tenuirostris*, Audouin's Gull *Larus audouinii*, Lesser Crested Tern *Sterna bengalensis*, Sandwich Tern *Sterna sandvicensis* and Little Tern *Sterna albifrons*.

2. Objectives

- To search for Slender-billed Curlew *Numenius tenuirostris*, a critically endangered species, and one of the rarest birds - if not the rarest - of the Western Palearctic region (Europe, North Africa and Western Asia), with a total world population of

less than 100 birds, which breeds in western Siberia and migrates through the Black Sea to winter in the Mediterranean. There have been autumn records in the Black Sea in 2003 and 2004, and wintering records in Morocco and Italy in the last fifteen years. Libya is a likely wintering area, which has not been surveyed in detail in recent years. Slender-billed Curlew is one of the fifteen species in the RAC/SPA Action Plan for Birds, and is the subject of a special agreement under AEWA.

- To investigate the status in Libya of the other 14 bird species in the RAC/SPA Bird Action Plan.
- To carry out the first comprehensive mid-winter waterbird census in Libya, at the time of the midwinter International Waterbird Census, organized by Wetlands International (WI), and to record other wintering birds. There have been few studies or publications on Libyan ornithology since Bundy's "The Birds of Libya" in 1976, and Libya is one of the least known areas in ornithological terms in the Western Palearctic.
- To identify wetlands of major importance for wintering waterbirds.
- To help strengthen ornithological research and recording structures in Libya.
- To test in field conditions the use of the RAC/SPA Standard Data Sheet.

3. Participants

- Al Fateh University, Tripoli: Khaled ETAYEB (KE), Dr Mohamed Feisal ESSGHAIER (MFE).
- EGA (Environment General Authority), Libya: Abdulmaula HAMZA (AH).
- INFS (National Institute for Wildlife), Italy: Nicola BACCETTI (NB).
- ONCFS (National Office for Hunting Control and Wildlife), France: Pierre DEFOS DU RAU (PDD).
- RAC/SPA consultants: Hichem AZAFZAF (HA), Habib DLENSI (HD), Michael SMART (MS).

HA, HD and MS have extensive ornithological experience in neighbouring Tunisia and are co-authors of the new avifauna of Tunisia, published in 2005. Several of the participants (KE, HA, HD, MS) took part in the search for Slender-billed Curlews in Tunisia in January 2003, organized by AEWA and AAO (Association des Amis des Oiseaux, the official BirdLife partner organization in Tunisia). NB studied the Slender-billed Curlews which wintered in Italy some years ago and coordinates the waterbird midwinter counts in Italy. PDD took part in a preliminary survey of some coastal wetlands in Libya, in collaboration with EGA, in April 2001. KE and MFE are among the most experienced ornithologists in Libya, while AH is a specialist in marine biology: MFE is Professor of Wildlife Ecology at Al Fateh University; KE and AH have recently completed postgraduate theses, KE on Farwa Lagoon, AH on Taourgha Springs. Some of the participants received support from Wetlands International. A similar survey for Slender-billed Curlew was carried out under the auspices of RAC/SPA, AEWA and the Albanian authorities in Albania in late January 2005.

4. Programme

Sixty-five sites were visited between 3 and 17 January 2005. Of these, fifty-five classed as wetlands were surveyed, (though coverage was often far from complete in the large coastal complexes where access was difficult); they include most wetlands along the coast from Ras Ajdir on the Tunisian border to Tobruk harbour, just west of the Egyptian border. In all a distance of some 6,500 kms was covered. Some inland dam sites in the Jefara Plain between

Tripoli and Jebel Nafusa were surveyed. The only oasis covered was Jaghbub, 300 kms south of Tobruk; because of the time and distances involved, other oases in southern Libya (e.g. Kufra, Ghadames, Ghat, Wau Annamus), were not covered; it would be valuable in future to investigate these sites. See Appendix 1 for descriptions of the 55 wetlands surveyed and notes about the ten non-wetland sites.

On 17 January 2005 a meeting was held at EGA Headquarters in Tripoli to discuss the results of the survey and to review the draft recommendations. A farewell dinner was hosted by EGA on the evening of 17 January.

5. Results

Flooding conditions: In a predominantly dry country like Libya, numbers of waterbirds and condition of wetlands are highly dependent on weather. The first part of winter 2004/05 had been relatively dry. During the period of the survey, the weather was characterized by a series of depressions passing through the country from the northwest, and bringing fairly heavy rain to the Tripoli area in the first few days of the visit, and quite heavy rain to Benghazi (with heavy thunderstorms on 13 January), and the Jebel Akhdar and Gulf of Sirt in the second half of the period. In comparison to the April 2001 survey, flooding appeared incomplete or minimal for midwinter in the salt-brackish depressions behind the coastal dunes ("sebkhets"); in particular the series of salt lakes a little way inland from the southernmost point of the Gulf of Sirt (e.g. Sebkhet Al Kabira, Sebkhet Al Gnayen) were almost completely dry when visited; but such lakes became more and more extensive towards the end of the fieldwork, following successive precipitation. It thus seems likely that the present survey did not take place under optimal (or even normal) flooding conditions, which may explain the occasionally observed discrepancies between the high ecological quality of the wetlands and the relatively low bird counts.

Slender-billed Curlew: Sadly, no Slender-billed Curlews were found. Nevertheless, many sites with suitable habitat were identified, in general coastal sites with shallow temporary brackish water, and surrounding *Arthrocnemum* vegetation, which could support Slender-billed Curlews and are worth further study in future. Among these, the following were considered to be particularly suitable: Farwa Lagoon; the vast complex of coastal sebkhets south of Misrata (called in the present report the Taourgha complex and including Sebkhet Qasr Ahmed, Sebkhet Om Al Adham, Sebkhet Taourgha and Sebkhet Al Hisha); Sebkhet Sultan; Sebkhet Al Kouz; and, further to the east, Sebkhet Temimi and Ain al Ghazala. Eurasian Curlews *Numenius arquata* were recorded at most of these sites (see map on page 6), generally in roosting flocks of several dozen birds; it seems likely that any wintering Slender-billed Curlews might associate with Eurasian Curlews.

Other RAC/SPA Bird Action Plan species:
Wintering of five of the other 14 RAC/SPA species was recorded:

- A few small shearwaters were seen at sea off the Tripoli area; the RAC/SPA Bird Action Plan speaks of "Mediterranean Shearwater", but explains that Levantine Shearwater *Puffinus yelkouan* and Balearic Shearwater *Puffinus mauretanicus* have recently been separated; the birds seen were presumed to have been Levantine Shearwaters *Puffinus yelkouan*.
- Small numbers of Greater Flamingo *Phoenicopterus (ruber) roseus* were seen in the Tripoli area (less than a hundred in all), at the Taourgha complex, and in other coastal sebkhets of the Gulf of Sirt, but much larger numbers (over 500) were found

in the traditional site of Sebkhet Al Kouz, just north of Benghazi. At Sebkhet Ras Lanouf southwest of Benghazi, the colour rings of two Flamingos were read: one was from the Camargue (France), ringed in 2003 and never previously observed anywhere, the other ring from Andalucia (Spain), ringed in 1996 and never previously seen; there have been very few readings of Flamingo rings in Libya; (see Appendix 4 for details of colour rings read).

- Three Ospreys *Pandion haliaetus* were seen at wadi mouths east of Tripoli and near Sirt.
- Audouin's Gull *Larus audouinii* was recorded at several coastal sites from Farwa to Derna, and especially along the Gulf of Sirt. This wintering population of several hundred birds represents a new and important finding, of global relevance for this species whose world distribution is largely restricted to the Mediterranean in the breeding season. The winter range, on the contrary, falls mainly outside the Mediterranean.
- Sandwich Tern *Sterna sandvicensis* was recorded in reasonable numbers (a total of over 150 birds) at many sites from Farwa to Tobruk. In many cases they seemed to be feeding offshore over the sea, and then coming to resting places on the coast.

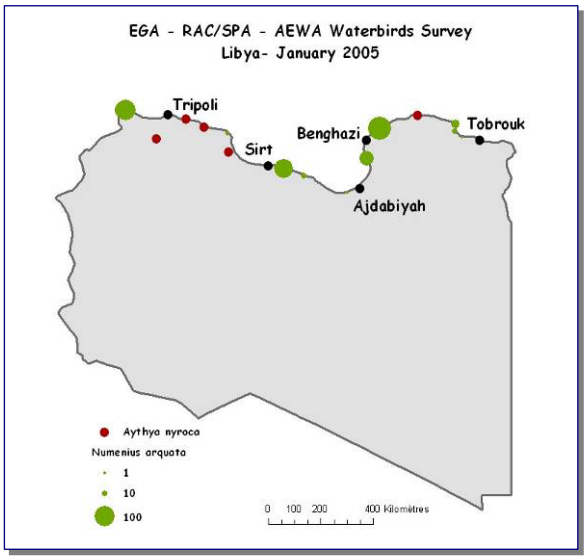
It should be noted that some other species included on the RAC/SPA Bird Action Plan are summer visitors (so were not seen in this January survey) and are known to nest in Libya. Among these are Little Tern *S. albifrons* and more particularly Lesser Crested Tern *S. bengalensis*. Almost the entire Mediterranean population of Lesser Crested Tern (probably just under 2,000 pairs) breeds in Libya; two nesting colonies are known on the offshore islands of Gaziret Al Garah and Gaziret Elba, and they may also nest on Gaziret Al Barda'a. The importance of these Libyan nesting sites for the little known Mediterranean population of Lesser Crested Tern can hardly be over-estimated; the wintering grounds are poorly known but believed to be off the West African coasts of Senegal and Gambia.

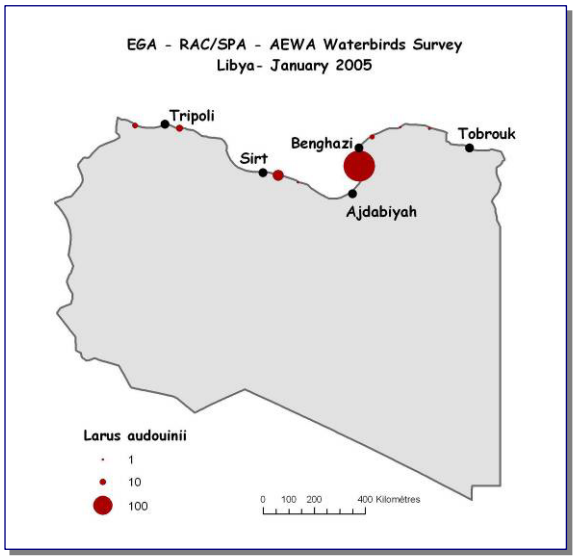
Sandwich Tern *Sterna sandvicensis* at Ain Azziana, 9.1.2005

Surveys and censuses of other wintering waterbirds:

All species of waterbirds were counted at each site (see Appendix 2 for full details). Numbers were in general not large, and lower than those usual in Tunisia; the reasons for these lower numbers are not yet clear, but may include: low (or very recent) rainfall; lower trophic levels in the coastal wetlands; disturbance from illegal hunting activities; disturbance by stray dogs; overgrazing. A total of just over 30,000 waterbirds, of a wide range of species, was recorded including: nearly 1,200 cormorants, over 400 herons, just over 1,100 ducks (mostly on reservoirs inland of Tripoli), nearly 400 coots, over 5,500 waders, almost 20,000 gulls (much the largest numbers on a salt lake close to a rubbish tip near Benghazi) and almost 300 terns. However vast favourable areas remained difficult of access and thus unsurveyed, especially in the southern and western part of the Gulf of Sirt and around the Gulf of Bumba: large flooded sebkhets surrounding the course of the Wadi Kbir (45 km west of Sirt) were not monitored and coverage of the 2500 sq km of the Taourgha complex was lower than 10%.

Among world endangered species, Ferruginous Duck *Aythya nyroca* was recorded in small numbers (ones and twos) at five sites (see map below). None of the endangered Marbled Duck *Anas angustirostris* were found; good numbers of this species winter and breed around the oases of southern Tunisia, and it would be of great interest to investigate whether the species occurs in oases of western Libya. Nor were any of the endangered White-headed Duck *Oxyura leucocephala* found. Audouin's Gull is also classified as threatened, and over 300 were found, particularly in the Gulf of Sirt (see map below).





Among unexpected wintering waterbirds were Squacco Heron *Ardeola ralloides* and Purple Heron *Ardea purpurea* at Taourgha Spring (both normally winter south of the Sahara), while the number of Cranes *Grus grus* at Taourgha and Al Hisha (about 100 at each) and at Karkoura was much larger than the literature suggests. Complete coverage of the Taourgha complex in future might prove the area to be particularly important for the latter species. Special mention should also be made of storks. Two recent nests of White Stork *Ciconia ciconia* were seen in the Jefara plain, while at Taourgha Spring, birds were already present

and appeared to be preparing to nest; breeding has not previously been proved in Libya. A dead Black Stork *Ciconia nigra* (only two previous records in Libya) was found at Sebkhet Temimi between Derna and Tobruk. Three colour-ringed Spoonbills *Platalea leucorodia* were recorded at Benghazi Lake, one from Italy (ringed in 2003), one from Serbia and one from Hungary (both ringed in 2004); interestingly, the Italian and Serbian ringed birds had both been seen in the second half of 2004 in Tunisia, suggesting the route they took to reach Libya. A colour-ringed Slender-billed Gull *Larus genei* was read at Farwa; it had been ringed in the Camargue, France in 1999, seen practically every year since in the breeding colony in Camargue, but never previously recorded in winter (see Appendix 4 for full details of colour ringed birds). Four Great Black-headed Gulls *Larus ichthyaetus* (new to Libya), several Greater Sandplover *Charadrius leschenaultii* and a probable Lesser Sandplover *Ch. mongolus*, (both species rarely recorded in the Mediterranean), were seen. Several hundred of the recently separated Caspian Gull *Larus cachinnans* were noted, especially from Benghazi eastwards, in addition to Yellow-legged Gull *Larus michahellis*. Some Marsh Sandpipers *Tringa stagnatilis* and good numbers (about 75) of wintering Whiskered Tern *Chlidonias hybridus*, neither previously recorded in winter in Libya, were found, together with some wintering Black-winged Stilt *Himantopus himantopus*, Avocet *Recurvirostra avosetta*, Little Ringed Plover *Charadrius dubius* and Wood Sandpiper *Tringa glareola*, none of them recorded frequently in winter. Dotterel *Charadrius morinellus* winters widely in Tunisia and Algeria and has been recorded previously in Libya, so it was not a surprise to find flocks of 12 and 40 in the Jebel Akhdar area.

Grey Plover at Ain Azziana, 9.1.2005

Marsh Sandpiper at Ain Taourgha, 6.1.2005

Among non-waterbirds (see Appendix 3 for full details), wintering was confirmed for a number of species: the most surprising was Reed Warbler *Acrocephalus scirpaceus*, not normally considered to winter north of the Sahara but found in relatively good numbers (and even singing!) at Jaghbub and Benghazi; other wintering species not previously recorded or only rarely recorded in winter included: Short-toed Eagle *Circaetus gallicus*, Barbary Falcon *Falco pelegrinoides*, Quail *Coturnix coturnix*, Long-eared Owl *Asio otus* (probably the first Libyan record), Short-toed Owl *Asio flammeus*, Crag Martin *Ptyonoprogne rupestris*, Bluethroat *Luscinia svecica* and Fieldfare *Turdus pilaris*.

Identification of wetlands of major importance for waterbirds:

It is noteworthy that many of the coastal wetlands visited in Libya remain in a near-natural condition, with their hydrological functions largely intact. In most other Mediterranean countries, wetlands have undergone severe modifications and transformations. Libyan wetlands, in the Mediterranean context and therefore at a global level, are unusually

unaffected by change of ecological character; Libya thus probably holds an important proportion of the remaining naturally-functioning Mediterranean lagoons, once abundant all around Mediterranean. This is very striking in coastal sites, many of which retain pristine beaches, already demonstrated by previous studies supported by RAC/SPA to be very important for marine turtles (Laurent et al, 1998 and 1999), Mediterranean monk seals (Hamza et al, 2003) and marine vegetation (Pergent and Pergent-Martini, 2000).

The only area with major tidal movement (such areas being rare in the Mediterranean) is Farwa Lagoon, in the far west near the border with Tunisia. In the Tripoli area, the coastline is mainly sandy; around the Gulf of Sirt from Misrata to Benghazi, there is a series of salt depressions behind the dunes ("sebkhets"), while east of Benghazi in the Jebel Akhdar, the coastal formations are mostly limestone, falling directly into the sea. It is possible that the coastal road under construction north of the Jebel Akhdar constitutes a strong indirect threat to the impressive, apparently almost untouched Mediterranean ecosystems of *Juniperus* hillsides and rocky shores (currently believed still to be holding Monk Seal).

Site descriptions of all major wetlands visited are given in Appendix 1. However, the following wetlands stood out, either for the numbers of birds seen, for their representative or unique character, or for their near-natural conditions:

- Farwa Lagoon: a near-natural lagoon with tidal conditions, with a broad range of typical wintering waterbirds.
- The Taourgha, Al-Hisha, Sebkhet Qasr Ahmed, Sebkhet Om al Adham complex (including Sebkhet Qasr Ahmed, Sebkhet Taourgha, Sebkhet Om al Adham, Sebkhet Al Hisha and the Taourgha and Al Hisha fresh/brackish springs), a large - 2500 km^2 - and near-natural area of coastal salt-lakes, typical of this type of wetland common in North Africa, and definitely one of the largest wetlands of the Mediterranean.
- Sebkhet Sultan: a large coastal sebkha in the Gulf of Sirt.
- Sebkhet Karkoura, a fairly large area south of Benghazi in near-natural condition and incorporating artisanal salt-works, with a wide range of waders and Audouin's Gulls.
- Benghazi Lake: a lagoon in central Benghazi with the largest and most varied waterbird communities seen anywhere; probably polluted by sewage and under severe threat from infilling, but with enormous potential for public awareness raising and for visits from schools and universities.
- Sebkhet Al Kouz: a long lagoon behind the dunes between Deriana and Al-Aghouria, with good numbers of flamingos and waders.
- Sebkhet Temimi and Ain Al-Ghazala: a vast area of coastal marsh on limestone or sandy coasts, with some freshwater springs creating high productivity; just offshore is Gaziret Elba, where Lesser Crested Tern has been found breeding in the past, and also Gaziret Al Barda'a, where nesting of this species has been suspected.

Strengthening of ornithological research and recording structures in Libya.

As yet there are few experienced ornithologists in Libya; the survey made it possible to transmit some identification and census techniques to Libyan colleagues. Much discussion took place of future activities required, both between participants and at the meeting in EGA on 17 January.

Use of the RAC/SPA Standard Data Sheet

Completion of this extremely comprehensive Data Sheet would require input from a multi-disciplinary team and a great deal of time; the expertise of participants in this survey was mainly ornithological, and their time was limited, given the huge area covered. The site

descriptions in Appendix 1 are presented on the basis of Section 4 of the Data sheet, and Appendix 2 could be used for accounts of bird species.

Hunting pressure in Libya

We understand that hunting has officially been forbidden in Libya for nearly 10 years. Nevertheless, particularly from Benghazi to Tobruk and even on Melfa Lake near Jaghbub Oasis, we found extensive evidence of substantial hunting pressure: large numbers of spent cartridges, hunting butts at the edge of wetlands, collections of wings of dead birds clearly left by hunters; and some people we met indicated that they were active hunters. We suspect that in this area, hunting may be having some impact, possibly heavy, on waterbirds. This had probably occurred during the previous autumn migration and at the beginning of the wintering season, as we did not meet a single hunter during our survey and all bird remains seemed to have been dead for at least one month.

In addition, we met, near Derna, a hunter with a recently captured adult Peregrine Falcon *Falco peregrinus*, intended for sale at a very high price, while at Karkoura south of Benghazi, we encountered a falconer with five falcons; two were locally captured Barbary Falcons, and we did not see the others; they were likely to be intended for sale. These cases might contravene CITES regulations. However, we were informed that EGA is preparing a national programme for CITES implementation, including issuing national legal tools for controlling trade in endangered species, training of custom officers to build an information network and public awareness activities.

Hunter with a recently captured adult Barbary Falcon *Falco pelegrinoides* **at Karkoura**

6. Suggested follow up activities

6.1 Ramsar Listing of additional Libyan wetlands: Libya has designated two sites (Sebkhet Ain Ashigiga and Sebkhet Ain Azzarga) for the Ramsar List of wetlands of international importance.

Recommendation: The Libyan authorities should consider designating, as soon as possible, the seven wetlands mentioned above (Farwa; the Taourgha complex; Sebkhet Sultan; Sebkhet Karkoura; Benghazi Lake; Sebkhet Al Kouz; and Sebkhet Temimi/Ain Al-Ghazala) as wetlands of international importance under the Ramsar Convention.

Furthermore, given the Ramsar Convention's current focus on cultural values of wetlands, special attention might be paid to certain sites with historic cultural interest, such as Taourgha and Al Hisha springs, where traditional architecture using palm trees is very characteristic, or the Karkoura salt pans south of Benghazi, one of the very few remaining Mediterranean saltpans where salt production is still carried out in artisanal rather than industrial style.

6.2 National protection measures for other sites: A number of sites are worthy of protection at national level. Among these are the river mouths of Wadi Kaam east of Tripoli and those east of Benghazi, where rivers create scenically impressive gorges through the limestone formations (not only Wadi El Kouf, already protected as Libya's oldest national park, but also the highly impressive mouths of Wadi Al Khalij and Wadi Al Hamsa). Three of the river mouths east of Tripoli (Wadi Ramal, Wadi Maseed and Wadi Turghat), which provide permanent wetland habitat at their mouths where they break through the coastal sand-dunes, are already protected in the Garabulli National Park; we would suggest that more intensive management and conservation measures are necessary here.

Similarly, Ain Azziana does not yet have nature reserve status, despite what is said in Meininger et al (1994), and is worthy of more intensive protection and management measures, and has great potential for public awareness activities.

In addition, thanks to the kind support of the authorities of the Zuwaitina Terminal, we were able to view from afar the island of Gaziret Al Garah, one of the very few, and by far the biggest, known nesting areas of Lesser Crested Tern in the Mediterranean (1,700 pairs in 1993). Since the island is difficult to reach and access is largely controlled by the oil company, the site appears to be secure. Personnel of the Zuwaitina Terminal expressed willingness to co-operate in protection measures and in organizing visits in the breeding season. Given the importance of this site for the Lesser Crested Tern at Mediterranean level, it merits special protection.

Recommendation: The Libyan authorities should consider taking measures at national level (e.g. establishment of Protected Areas) at those sites not yet given protected status, and carry out more intensive conservation and management measures at sites already designated. It is appreciated that several measures of this kind are planned under the Libyan contribution to the "Strategic Action Plan for Conservation of Marine and Coastal Biological Diversity in the Mediterranean" (SAP-BIO), which has been drawn up at Mediterranean scale under the leadership of RAC/SPA.

6.3 Special Protected Areas of Mediterranean Importance (SPAMIs) under the Barcelona Convention: The 1995 Protocol to the Barcelona Convention establishes SPAMIs. In order to develop a spirit of marine and coastal environmental protection in the Mediterranean region, the SPA/Biodiversity protocol defined a new concept, that of "Specially Protected Area of Mediterranean Importance" (SPAMI) and has provided for drawing up a "SPAMI List" since 2001. The general characteristics of sites to be included on the SPAMI List are defined in Article 8. They are sites which "are of importance for conserving the components of biological diversity in the Mediterranean" or "contain ecosystems specific to the Mediterranean area or habitats of endangered species" or "are of special interest at the scientific, aesthetic, cultural or educational level".

Recommendation: The Libyan authorities should give consideration to designation of the above sites as SPAMIs in the framework of the Barcelona Convention.

6.4. Symposium on Species in Annex II, November 2005, Spain: The first Mediterranean Symposium on the ecology and conservation of species in Annex II of the RAC/SPA Action Plan on Birds will be held from 17-19 November 2005 on Vilanova I la Geltru, Barcelona, Spain.

Recommendation: It is strongly recommended that one or more Libyan representatives should take part in this symposium, in order to participate in the discussion of further activities under the Action Plan, and to report on Libya's plans for implementation of the plan.

6.5 Hunting in Libya: Participants in the survey believe that hunting (formally said to be illegal) is having a considerable impact on waterbird populations, especially to the east of Benghazi and in the Gulf of Sirt. It also appears that large falcons are being illegally captured for commercial purposes.

Recommendation: The Libyan authorities should investigate the impact of hunting, and should take the necessary measures (such as stricter application of hunting legislation, establishment and control of non-hunting areas, control of poachers and control of trade in falcons) to reduce this impact if it is found to be excessive. ONCFS could offer training in anti-poaching techniques.

6.6 Publication of the results of the present survey: The current survey has produced a wealth of new information on the avifauna of Libya, which will be of great interest to the international ornithological community. Given the paucity of recent data on Libya, this should be given the widest publicity in appropriate ornithological journals. An account of Cormorant observations has already been published in the Wetlands International Cormorant Research Group Bulletin and can be downloaded from the following website: http://web.tiscali.it/cormorants/pdf/CormorantResearchGroupBulletin6.pdf .

Recommendation: The participants in the survey should make the results of the present survey available not only to RAC/SPA and AEWA, but should communicate their waterbird counts to Wetlands International, so that the data can be incorporated into estimates of waterbird population numbers, and to BirdLife International, and MedWet/Ramsar databases so that the results can be used in any future updating of the list of Important Bird Areas and wetland sites in Libya. In addition, two scientific publications should be produced within about a year: one with details of the waterbird census (possibly for publication in the international journal "Wildfowl"), and another (also incorporating data from other recent

publications) constituting an updating of information on the current status of Libyan avifauna (possibly for publication in the Bulletin of the African Bird Club or the Bulletin of the British Ornithological Club).

6.7 Further ornithological surveys: The current survey has of course raised more questions than it has answered. A number of additional ornithological surveys would be desirable in the future (and might be carried out in association with broader wetland surveys or inventories carried out by such bodies as MedWet).

Cormorant at Farwa Lagoon, 3.1.2005

Ornithological survey, Sebkhet Qasr Ahmed 7.1.2005

Recommendation: Additional ornithological surveys should be carried out in Libya, with special attention being paid to the following subjects:

- Further winter searches for Slender-billed Curlew are essential, with far more concentrated attention on certain key sites, notably Farwa Lagoon, the large Taourgha complex, Sebkhets Sultan, Al Kouz and Temimi and Ain Al Ghazala. Efficient large-scale survey methods/tools such as aerial survey or prospecting by camel might be worth a feasibility study/discussion for the most favourable and largest places, like Taourgha, where an exhaustive search seems necessary.
- Surveys of wintering birds (notably Marbled Duck) in the oases of the south, including Wau Annamus, which is believed to hold waterbirds at times.
- Breeding of Lesser Crested Tern at Gaziret Al Garah, Gaziret Elba and Gaziret Al Barda'a in July/August (Libya hosts 100% of the Mediterranean breeding population of this species and the last survey of Al Garah was as long ago as 1993). The feasibility of a colour-ringing operation on a sample of locally hatched chicks should be evaluated, as this would make it possible to clarify the migratory route of the birds.
- Continuing regular contributions each January to the International Waterbird Census organized by Wetlands International, with input from external experts as required, at least in the short-term, and at the most important sites; this would be particularly important in view of the survey's findings on important concentrations of species such as Eurasian Curlews (because of the possibility of the presence of Slender-billed Curlews), and Audouin's Gull. Efforts should be made to standardize counting techniques at each site, so that results can be compared from one year to another.
- Monitoring of hunting activity and bags, especially in the eastern half of the coast in autumn, should be carried out to provide important information, firstly on the impact of hunting on migrating or wintering waterbird populations, and secondly on the

demographic and biogeographical status of these populations through genetic, isotopic or ringing studies. Many questions remained unresolved on several waterbird species in Europe and the Mediterranean, including, for instance, Pintail *Anas acuta* and Teal *Anas crecca*.

- Further investigations should be made of the status of several rare or little known Western Palearctic species or subspecies likely to occur in Libya such as the Western Palearctic subspecies of Small Button-Quail *Turnix sylvatica*.

6.8 Training courses: Libya still has only a small number of competent field ornithologists. Members of the survey team emphasize that competence in field ornithology requires long practice and experience in the field; however they understand that a good number of the staff of EGA and other organizations, as well as university students, might be interested in receiving further training in ornithology. An ONCFS CD-ROM on training in waterbird census techniques, based on extensive training experience by ONCFS in Sahel Africa, was handed to EGA staff on 17 January.

Recommendation: The Libyan authorities should officially ask for and organize practical training courses in field ornithology, with the support of bodies like RAC/SPA, INFS, ONCFS or Tour du Valat, which have considerable experience in this field.

6.9. Ornithological structures: One of the essentials for successful policy making is the availability of reliable data. If the Libyan authorities wish to conserve the undoubtedly rich bird life of the country, they will need to have access to sound, easily accessible datasets, going back over a long period. The need for such data was acknowledged at the meeting on 17 January.

Recommendation: The Libyan authorities should consider establishing a national biodiversity database, with an important ornithological component, to collect, validate, store and analyse data on Libya's birds and their habitats. The ornithological section of this data base should be managed by competent ornithologists. In the current situation it would appear most appropriate to entrust this task to a university or to an ornithological or conservation NGO (non-governmental organization), possibly setting up a body which could become a Libyan partner for BirdLife and/or IUCN.

6.10 Potential for eco-tourism: The members of the survey team were greatly impressed by the wealth and variety of the birdlife of Libya, and by the spectacular scenery of the Jebel Nafusa, Jebel Akhdar, the oasis of Jaghbub, the Graeco-Roman archaeological sites and many of the coastal wetlands; they of course only visited a small part of the very large landmass of Libya, which undoubtedly includes many more equally impressive vistas and panoramas.

Recommendation: It is suggested that, if the Libyan authorities wish to follow this form of development, there might be potential in the long term for cultural and eco-tourism in the country; careful arrangements will have to be made for well planned circuits that do not disturb the species to be observed, facilities for visitors will need to be improved, and care must be taken not to affect the ecological character of the many near-natural wetlands, particularly the beaches. Some partially degraded wetlands around Benghazi provide potential for public awareness and student training in biology and ecology, as they illustrate relatively high migrant bird diversity, as well as good illustrations of wetland uses, conservation and management issues.

7. Thanks

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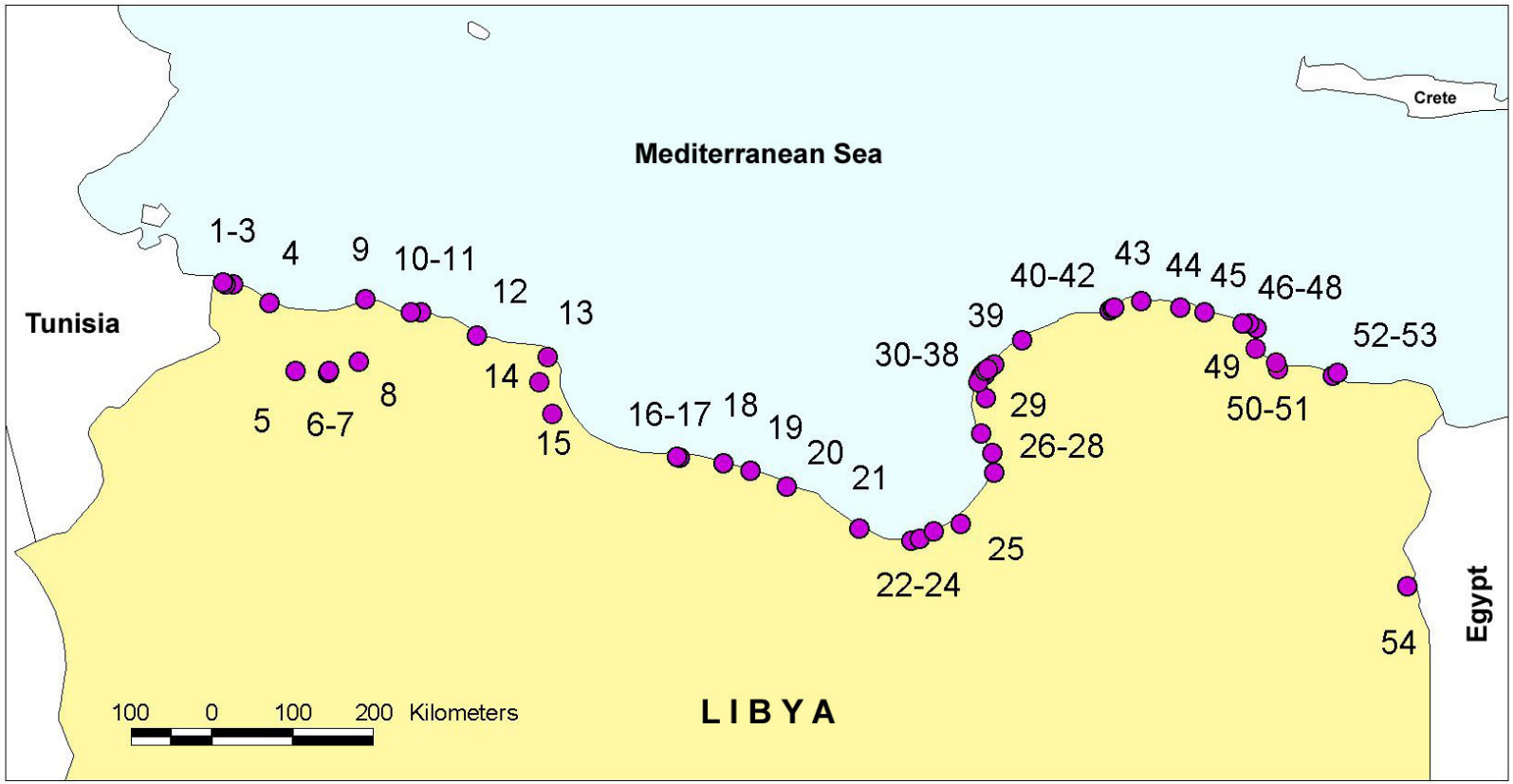
Map of principal sites visited in January 2005



1 Gataya Island, **2** Coast between Farwa and Ras Ajdir, **3** Farwa Lagoon, **4** Sebkhet Al Mangoub, **5** Wadi Attot Dam, **6** Wadi Zaret Dam, **7** Ain Tagnet **8** Wadi Ghan Dam, **9** Tripoli harbour, **10** Wadi Maseed, **11** Wadi Turghat, **12** Wadi Kaam, **13** Sebkhet Qasr Ahmed, **14** Ain Taourgha, Sebkhet Taourgha **15** Ain Al Hisha , Sebkhet Al Hisha, **16** Sirt's Mahary Hotel, **17** Al-Gordabia Great Man-made Reservoir (Sirt), **1 8** Sebkhet Sultan, **19** Wadi Lahmer **20** Sebkhet Ben Jawad, **21** Sebkhet Ras Lanouf, **22** Sebkhet Al Agaylah, **23** Sebkhet Bishr, **24** Sebkhet Hafiroun and Sebkhet Brega, **25** Sebkhet Shuwayrib **26** Sebkhet Zuwaitina, **27** Sebkhet Chott El Bedin , **28** Sebkhet Karkoura, **29** Ghemines, **30** Sebkhet Garyounes, **31** Sebkhet Ganfouda, **32** Sebkhet Fairouz **33** Benghazi Lake, **34** Benghazi Harbours , **35** Essabre Beach, **36** Sebkhet El Thama and Sebhket Esselawi, **37** Bou Dzira Park, **38 S**ebkhet Azziana **39** Sebkhet Al Kouz, **40** Sebkhet Ain Azzarga, **41** Sebkhet Ain Ashagiga, **42** Sebkhet Gfanta, **43** Birka Nout (Noute Lakes), **44** Ras Hilal, **45** Derna Town **46** Wadi Al Khalij, **47** Wadi Al Hamsa, **48** Sebkhet Temimi, **49** Ras Al Tin, **50** Gaziret Elba, **51** Ain Al Ghazala, **52** Tobruk harbour, **53** Tobruk abattoir (Mghira) **54** Bouhayret Al Melfa

Appendix 1

Descriptions of wetlands visited in Libya in January 2005

The following site descriptions follow Section 4 of the RAC/SPA Standard Data Form (SDF). In the absence of further guidance on the precise information required under each heading, it has been assumed that the first heading "Quality and importance" requires description of the site and an evaluation of its importance at international, national and local level; under the second heading "Conservation status" a note is given of the current condition of the values for which it is of importance, under the third heading "Vulnerability" information is given on potential risks of change in ecological character; while under the fourth heading, "Designation", information is provided on any official or scientific recognition of the site.

The entry under "Quality and importance" corresponds to the general description under point 10 of the Ramsar Information Sheet ("Brief paragraph summarizing the main ecological character and importance of the wetland") and could, if required, be used in completion of Ramsar Information Sheets for sites considered worthy of designation for the Ramsar List of wetlands of international importance. In addition, the site's category is given according to the Ramsar classification of wetland types, which is rather more detailed than the coastal wetland types given under the RAC/SPA SDF. The main Ramsar category (from the Ramsar Classification System for Wetland Type) is given first in bold, with other less important types listed afterwards.

The Map on the previous page shows the position of 54 of the 65 sites visited; some sites are omitted, either because they were not wetlands or because they held few or no waterbirds. Descriptions are given for all the major wetlands visited, but not for the non wetland sites (e.g. Azizia town, Kekla) or for very small wet areas of little or no significance. The order follows the numbering on the Map, and gives references to the listing in Appendices 2 and 3 (e.g. (C) for Sebkhet Al Mangoub, (AU) for Wadi Al Hamsa). It must be emphasized that the ornithological data are the main basis for the descriptions. The date of the visit is given, together with the amount of the area covered (sometimes relatively limited in the case of very large coastal salt lake complexes).

References are made, where appropriate to the classification by BirdLife International of sites in Libya as Important Bird Areas (IBAs). The African IBA volume lists eight IBAs in Libya, six of them coastal.

An indication of the suitability of the site for Slender-billed Curlew is given (following the system adopted in the Tunisian Slender-billed Curlew survey in 2003), with separate entries for feeding and roosting areas, based on the assumptions that the species' feeding habitat preference is for coastal areas with *Arthrocnemum,* and inland ephemeral wetlands and wet depressions, also with *Arthrocnemum*. Habitat suitability is given for feeding and roosting, on a scale of 0 to 2, 0 meaning poor, 1 meaning moderate, 2 meaning high.

The SDF categories are as follows:

Coastal areas:
- Coastal wetlands (lagoons, estuaries, deltas, saltpans)
- Saltmarshes
- Dunes, sandy beaches, rocky beaches
- Marine cliffs, rocky coasts

- Mudflats and sandbanks
- Bush, maquis and garrigue
- Woodland
- Agricultural land
- Other sites (including urbanized and industrial areas, roads, rubbish tips, factories)

Marine areas:
- Hard bottoms
- Rocks
- Muds
- Sands
- Gravel bottoms
- Pebbles
- Marine vegetation beds
- Caves
- Other marine bottoms

The Ramsar categories visited in Libya are as follows:

Marine/Coastal Wetlands

A -- **Permanent shallow marine waters** in most cases less than six metres deep at low tide; includes sea bays and straits: e.g. Ain Al Ghazala; Sebkhet Temimi.

B -- **Marine subtidal aquatic beds**; includes kelp beds, sea-grass beds, tropical marine meadows: e.g. Coast from Farwa to Ras Ajdir.

D -- **Rocky marine shores**; includes rocky offshore islands, sea cliffs: e.g. Gataya Island, Gaziret Elba.

E -- **Sand, shingle or pebble shores**; includes sand bars, spits and sandy islets; includes dune systems and humid dune slacks: e.g. Essabre Beach.

J -- **Coastal brackish/saline lagoons**; brackish to saline lagoons with at least one relatively narrow connection to the sea: e.g. Farwa Lagoon.

Inland Wetlands

M -- **Permanent rivers/streams/creeks**; includes waterfalls: e.g. Wadi Turghat, Wadi Maseed, Wadi Kaam, Wadi Al Khalij, Wadi Al Hamsa.

N – **Seasonal/intermittent/irregular rivers/streams/creeks**: e.g. Wadi Lahmer.

Q -- **Permanent saline/brackish/alkaline lakes**: e.g. Bouhayret Al Melfa.

R -- **Seasonal/intermittent saline/brackish/alkaline lakes and flats**: e.g. Sebkhet Taourgha; Sebkhet Qasr Ahmed; Sebkhet Al Hissa; Sebkhet Sultan; Sebkhet Ras Lanouf; Sebkhet Garyounes; Sebkhet Al Kouz: Sebkhet Ain Azzarga; Sebkhet Ain Ashagiga.

Sp **-- Permanent saline/brackish/alkaline marshes/pools**: e.g. Benghazi Lake

Ss -- **Seasonal/intermittent saline/brackish/alkaline marshes/pools**: e.g. Sebkhet Al Mangoub; Sebkhet Boukamesh; Sebkhet Zolton; Sebkhet Gfanta.

Y -- **Freshwater springs; oases**: e.g. Ain Tagnet; Ain Taourgha; Jaghbub Oasis.

Zk(b) – **Karst and other subterranean hydrological systems**, inland: e.g. Birka Nout.

Human-made wetlands

5 -- **Salt exploitation sites**; salt pans, salines, etc: e.g. Sebkhet Al Mangoub, Sebkhet Karkoura.

6 -- **Water storage areas**; reservoirs/barrages/dams/impoundments (generally over 8 ha): e.g. Wadi Attot Dam; Wadi Zaret Dam; Wadi Ghan Dam.

7 -- **Excavations**; gravel/brick/clay pits; borrow pits, mining pools: e.g. Bou Dzira Park.

8 -- **Wastewater treatment areas**; sewage farms, settling ponds, oxidation basins, etc: e.g. Sebkhet Qasr Ahmed (industrial ponds).

9 -- **Canals and drainage channels, ditches**: e.g. Ain Taourgha.

Most of the wetland sites visited in Libya were salt depressions (usually called "sebkha" or sebkhet" in North African Arabic, though the term is used to cover a multitude of different wetland types), which dry out in summer and may remain dry in winter unless there is some precipitation. It is often difficult to assign them to a Ramsar category: some of them are immediately behind the coastline (dunes or limestone formations) with occasional links to the sea and so Coastal/Marine J might fit, even though the link to the sea is occasional and tenuous; others are a little further inland and Inland R seems more appropriate. It seems most appropriate to keep J for a site like Farwa Lagoon, which, as its name implies, really is a lagoon in permanent contact with the sea, and to classify most sebkhets as R, whether they are some way inland like Sebkhet Al Kabira, or behind the dunes like Sebkhet Taourgha or Sebkhet Sultan. (Inland Ss is simply a smaller version of Inland R).

Little Stint at Ain Taourgha, 6.1.2005.

Three gull species on a rocky islet off Derna, 13.1.2005: from the left, Audouin's Gull, Mediterranean Gull, Black-headed Gull.

Sebkhet Boukamesh

33° 05,538 N 11°39,476 E. Visited on 3 January, coverage 10%, from main road. Not shown on Map, site G in Appendices 2 and 3.

4.1 Quality and importance depression near coast between Boukamesh and Tunisian border, holding some water in winter; vegetation *Salicornia / Arthrocnemum.* Probably dries out in summer. No waterbirds recorded, a few passerines round edges.

Of minor significance, perhaps could be important in very wet winters

4.2 Conservation Status
Apparently near-natural.

4.3 Vulnerability
No threats known.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
Unknown.

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons)

Ramsar Classification: **Inland Ss** (Seasonal/intermittent saline/brackish/alkaline marshes/pools)

Suitability for Slender-billed Curlew:
Might be important in very wet years, given presence of *Arthrocnemum.*

Feeding: 0/1
Roosting: 0/1

Sebkhet Zolton

33° 00,585N 11°38,746E. Visited on 3 January, coverage 40%. Not shown on Map, site H in Appendices 2 and 3.

4.1 Quality and importance
Depression near coast by Boukamesh, holding some water in winter; vegetation *Arthrocnemum.* Probably dries out in summer. No waterbirds recorded.

Of minor significance, perhaps could be important in very wet winters.

4.2 Conservation Status
Apparently near-natural, but much affected by lack of rainfall.

4.3 Vulnerability
No threats known.

4.4. Designation of site (remarks on the quantitative data below)
1,000 hectares classified as a park in 1998.

4.5 Ownership
State ownership.

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons)

Ramsar Classification: **Inland Ss** (Seasonal/intermittent saline/brackish/alkaline marshes/pools)

Suitability for Slender-billed Curlew:

Feeding: 0/1
Roosting: 0/1

Gataya Island

33° 06,731 N 11°37,631 E. Visited on 3 January, coverage 100%. Site 1 on Map, site F in Appendices 2 and 3.

4.1 Quality and importance
Small low, rocky island near the shore, about 100m from coast, close to Ras Ajdir. Resting place for a few cormorants, waders, gulls and terns, total of only 24 recorded. Nesting site for Yellow-legged Gulls during summer (AH observations, 1998).

Of minor importance, probably too low to serve as nesting place for many species in summer.

4.2 Conservation Status
Apparently near-natural

4.3 Vulnerability
No threats known.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
State property, since it is located in the sea.

4.6 References
None known.

RAC/SPA SDF site classification: Marine areas: Rocks

Ramsar Classification: **Marine/Coastal D** (Rocky marine shores)

Suitability for Slender-billed Curlew:

Feeding: 0
Roosting: 0

Coast between Farwa and Ras Ajdir

33° 05,538N 11° 39,476 E. Visited on 3 January, coverage 50%. Site 2 on Map, site E in Appendices 2 and 3.

4.1 Quality and importance
Area of tidal coastline between Farwa Lagoon and border with Tunisia at Ras Ajdir, with some sand and mudflats. Mixed mud-sandy beach, very shallow, so suitable for small waders. A total of 261 waterbirds recorded, over half of them gulls and terns, but including a flock of 73 Eurasian Curlews.

Of interest as one of the few tidal areas in Libya.

4.2 Conservation Status
Apparently near-natural

4.3 Vulnerability
No threats known.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
State ownership.

4.6 References
None known.

RAC/SPA SDF site classification: Coastal areas: Mudflats and sandbanks

Ramsar Classification: **Marine/Coastal B** (Marine subtidal aquatic beds)

Suitability for Slender-billed Curlew:
Would certainly be worth further visits, given presence of a fairly large flock of Eurasian Curlews, and the likelihood that Slender-billed Curlews might associate with the Eurasian species; conditions appeared suitable for both feeding and roosting.

Feeding: 1
Roosting: 1/2

Farwa Lagoon

33° 04,848N 11°44,200 E. Visited on 3 January, coverage 70%, partly from southern shore, partly by boat with visits to sandspit. Site 3 on Map, site D in Appendices 2 and 3.

4.1 Quality and importance

A large lagoon behind a long sand-spit (often called "Farwa Island"), still in near natural condition and exploited for its fisheries, just east of the Tunisian border. The sand-spit has extensive beaches in near-natural condition. Slight tidal effect in lagoon, range probably not more than about half a metre; one of the very few sites in Libya with any appreciable tide and as such of considerable significance (extension of the tidal systems of south east Tunisia). The lagoon covers some 3,000 hectares, while the sand-spit is some 13 kms long, and also covers some 3,000 kms. Two cuts through the sandspit have recently been closed, but one remains operational. Opening to the sea probably 3 kms wide at Ras Attalgha ("talgha" = Posidonia in Berber); fishing channel leads through this opening back to quay at Boukamesh village and is widely used by fishermen, mainly of Egyptian origin. Water mainly shallow, greatest depth outside channel not more than one and a half metres. The December 2000 RAC/SPA SDF (which was used for the first time in Farwa) refers to "a vast *Cymodocea nodosa* bed covering 65% of the site" and to beds of the phanerogram *Posidonia oceanica* noteworthy in terms of vitality. Vegetation round edges includes *Arthrocnemum* (Pergent and Pergent-Martini, 2000).

A total of nearly 2,500 waterbirds was observed (one of the few sites where bird numbers reached four figures) of 31 species, hence a good diversity of families and species (i.e. not all gulls). Species observed included 200 Black-necked Grebes, nearly 500 Cormorants, 60 Spoonbills, a variety of waders (including over 100 Eurasian Curlews) and many gulls and terns; among the gulls were 190 Mediterranean Gulls, the only considerable grouping of this species seen in Libya apart from a few round Benghazi. RAC/SPA Bird Action Plan species seen included Flamingo and Sandwich Tern; in summer is nesting site of Little Tern (Etayeb, 2002). Other breeding species include Redshank and Caspian Tern, the latter rarely recorded as a breeding species in Mediterranean (Etayeb, 2002).

Undoubtedly one of the most important wetland sites in Libya, because of the unusual tidal conditions, rich submerged vegetation, varied avifauna and near-natural state.

4.2 Conservation Status

The site still seems to be in excellent, near-natural condition.

4.3 Vulnerability

There is a petrochemical complex at the eastern end of the lagoon near Boukamesh; at present it does not appear that any pollutants reach the wetland, but this needs to be carefully

monitored. Possible encroachment of Boukamesh village on inland side should also be reviewed. Any proposed beach developments should be very carefully assessed. The December 2000 RAC/SPA SDF refers to the importance of water circulation promoted by excavation of the man-made channel (which, it thinks, is however silting up), and warns of the danger of anoxia through decomposition of the vegetation.

4.4. Designation of site (remarks on the quantitative data below)
Currently unprotected, but local authorities in Zuwara are reported to favour establishment of some kind of protected status. EGA have included this site in the Strategic Action Plan for the Conservation of Marine and Coastal Biological Diversity in the Mediterranean (SAP-BIO)

Undoubtedly a high priority candidate Ramsar site, on the grounds of representativeness (representative of large Mediterranean lagoons); uniqueness (in a sea where sites with tidal movement are rare); naturalness; wise use by local people; and fauna and flora present.

4.5 Ownership
State ownership.

4.6 References
- Etayeb, Kh (2002): *A study of migratory and resident marine birds in Ras-Attalgha and the western part of Farwa Island.* M.Sc. thesis (Arabic with English summary).
- Defos du Rau P, Essghaier M F A and Etayeb Kh (2001): *Preliminary survey of coastal wetlands in Libya.* Cyclostyled report, ONCFS/EGA, 20pp.
- Pergent G., Pergent-Martini C., 2000. - *Field Study in Libya - Study of the vegetation in the lagoon of Farwà.* Regional Activities Centre for Specially Protected Areas and University of Corsica / Contract N°38/99: 1-47 + Annexes.

- Some references in ornithological literature, often using the old name of "Pisida".

RAC/SPA SDF site classification: Coastal wetland (lagoon); Dunes.

Ramsar Classification: Mainly **Marine/Coastal J** (Coastal brackish/saline lagoons); partly Marine/Coastal E (Sand, shingle or pebble shores)

Suitability for Slender-billed Curlew:
Would certainly be worth further visits, given presence of one of the largest flocks of Eurasian Curlews seen, and the likelihood that Slender-billed Curlews might associate with the Eurasian species; conditions appeared suitable for both feeding and roosting.

Feeding: 1/2
Roosting: 2, very high.

Sebkhet Al Mangoub

32° 53,732 N 12°08,513 E. Visited on 3 January; coverage 50 % (principally covered from main road). Site 4 on Map, site C in Appendices 2 and 3

4.1 Quality and importance
Just east of Zuwara, mainly north of main road to Tripoli, and including several depressions collecting water in winter but probably drying out in summer. Part of site is a commercial salt production area, salt being sold at roadside market south of main road.

A total of 338 waterbirds was seen, mainly loafing gulls and terns, including Audouin's Gull and Sandwich Tern (RAC/SPA Bird Action Plan Species), with a few waders. The saltpans probably serve as regular resting area for gulls and terns, and also small numbers of waders throughout the year. Sebkhet used in winter only. Potential for reading of colour rings of gulls and terns high.

Of interest as one of the few commercial salt production sites in Libya; otherwise of local importance.

4.2 Conservation Status
Condition of site affected by proximity to road and nearby city.

4.3 Vulnerability
Saltpans not especially vulnerable, sebkhet likely to be reclaimed given proximity to large city

4.4. Designation of site (remarks on the quantitative data below)
No protection measures known; status as commercial salt production unit appears to guarantee maintenance of wetland conditions in saltpans.

4.5 Ownership
Not known; saltpans presumably owned by salt company.

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons, saltpans)

Ramsar Classification:
Partly **Human-made 5** (Salt exploitation sites), partly **Inland Ss** (Seasonal/intermittent saline/brackish/alkaline marshes/pools).

Suitability for Slender-billed Curlew:

Feeding: 0/1
Roosting: 1

Wadi Attot Dam

32° 07,160 N 12°25,258 E. Visited on 4 January, coverage 100%. Site 5 on Map, site J in Appendices 2 and 3

4.1 Quality and importance
Very small shallow freshwater dam with shelving sides across Wadi Attot (= Mulberry River), originally intended as irrigation source for agricultural project. Subsequently included in Bir Ayed Protected Area, in the Jefara Plain north of Jebel Nefusa. Water covering perhaps 25-30 hectares, very shallow, with trees (mulberry, carob and tamarisk) and some bushes growing in water.

Few waterbirds (only Common and Green Sandpipers, typical of such artificial sites with some flowing water), but would provide ideal stopover for passerine migrants in spring; important watering area for steppe/desert species (e.g. sandgrouse and babbler); some Fulvous Babbler and Trumpeter Finches seen.

Of local interest.

4.2 Conservation Status
Artificial site, greatly affected by local rainfall conditions.

4.3 Vulnerability
No threats apparent

4.4. Designation of site (remarks on the quantitative data below)
Nature reserve in Bir Ayed Protected Area (total area 12,000 hectares), established in 1992.

4.5 Ownership
State-owned.

4.6 References
None known.

RAC/SPA SDF site classification: Inland site, not applicable

Ramsar Classification: **Human-made wetlands 6** (Water storage areas)

Suitability for Slender-billed Curlew:
Seems unlikely that the species would use an artificial inland freshwater site, except perhaps as a stopover on migration.

Feeding: 0
Roosting: 0

Wadi Zaret Dam

32° 06,349 N 12°47,614 E. Visited on 4 January, coverage 80%. Site 6 on Map, site K in Appendices 2 and 3.

4.1 Quality and importance
Larger shallow freshwater dam with shelving shores, covering a few hundred hectares in broad valley in the foothills of the Jebel Nefusa, north of Jefren, with shallow water at inflow end and some surrounding vegetation, but no reeds or *Typha*. Total of 369 waterbirds recorded, with wide variety of ducks (including endangered Ferruginous Duck) and waders, a few hundred in all; biggest numbers of ducks found in Tripoli area.

Freshwater refuge for waterbirds, notably ducks, some of which might nest (Coot?). Must be important stopover for trans-Saharan migrant passerines in spring, and act as watering area for steppe/desert species (e.g. sandgrouse and babbler)

Of local interest

4.2 Conservation Status
Artificial site, greatly affected by local rainfall conditions.

4.3 Vulnerability
No threats apparent

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
State-owned.

4.6 References
None known.

RAC/SPA SDF site classification: Inland site, not applicable
Ramsar Classification: **Human-made wetlands 6** (Water storage areas)

Suitability for Slender-billed Curlew:
Seems unlikely that the species would use an artificial inland freshwater site, except perhaps as a stopover on migration.

Feeding: 0
Roosting: 0

Ain Tagnet

32° 07,561 N 12°48,372 E. Visited on 4 January, coverage 50%. Site 7 on Map, site L in Appendices 2 and 3.

4.1 Quality and importance
A small river course in a valley in the Jefara Plain, fed by freshwater springs alongside a palm plantation, full of thick reedy vegetation, with little or no open water. Few water birds (only six, all waders, Jack Snipe and Green Sandpiper), but ideal for wintering and migrant passerines, and perhaps rails.

Of local interest, though such freshwater springs may be few and far between even in the Jefara plain. Undoubtedly valuable as a stopover point for trans-Saharan passerine and other migrants in spring.

4.2 Conservation Status
Still near natural, though depending on precipitation, and much used as a picnic spot, hence evidence of human presence.

4.3 Vulnerability
Clearly a major picnic spot, much rubbish left indiscriminately; no major threats known.

4.4. Designation of site (remarks on the quantitative data below)
No protective status known

4.5 Ownership
Public ownership.

4.6 References
None known.

RAC/SPA SDF site classification: Inland site, not applicable

Ramsar Classification: **Inland wetlands Y** (Freshwater springs)
Suitability for Slender-billed Curlew:

Not at all suitable for this species, highly overgrown, no open water areas.

Feeding: 0
Roosting: 0

Wadi Ghan Dam

32° 14,637 N 13°08,039 E. Visited on 4 January, coverage 60%. Site 8 on Map, site M in Appendices 2 and 3.

4.1 Quality and importance
Long (maximum length 12.5 kms), narrow dam reservoir in deep valley in mountains of Jebel Nefusa, covering many hundred hectares, very deep, but levels fluctuating with rainfall; no sandy or muddy shores, rocky sides dropping steeply into deep water. Only two waterbirds seen (one heron and one wader), of little interest for waterbirds. Of greater interest for birds of prey and passerines characteristic of rock faces. Black Wheatear *Oenanthe leucura* and Bar-tailed Lark *Ammomanes cincturus* were both recorded.

Of little interest for water birds, too deep.

4.2 Conservation Status
Artificial site.

4.3 Vulnerability
No threats known.

4.4. Designation of site (remarks on the quantitative data below)
The site is in the Al-Heera nature reserve. The status as a water supply area guarantees some supervision and wardening. The reservoir, according to the BirdLife volume on Important Bird Areas in Africa, is included in the "Nefusa Protected Area". The IBA is listed on the basis of the presence (in the park as a whole) of biome-restricted species, six from the Mediterranean North Africa biome (Barbary Partridge, Moussier's Redstart, Black Wheatear, Red-rumped Wheatear, Black-eared Wheatear, Sardinian Warbler) and three from the Sahara-Sindian biome (Desert Lark, Fulvous Babbler and Trumpeter Finch).

4.5 Ownership
State-owned

4.6 References
None known.

RAC/SPA SDF site classification: Inland site, not applicable.

Ramsar Classification: **Human-made wetlands 6** (Water storage areas)

Suitability for Slender-billed Curlew:
Seems unlikely that the species would use an artificial inland freshwater site, except perhaps as a stopover on migration, and this one is very steep-sided, with few sites where Curlews might alight.

Feeding: 0
Roosting: 0

Azizia Town
No description given, not a wetland; town in the Jefara plain south of Tripoli where a large roost of White Wagtails was noted. Not shown on map, site N in Appendices 2 and 3.

Al Rabta
No description given, not a wetland; area of the Jefara plain in the foothills of the Jebel Nefusa, where two old nests of White Stork and a large gathering of Starlings were seen. Not shown on Map, site O in Appendices 2 and 3.

Kekla
No description given, not a wetland; area in the Jebel Nefusa, where the only record of Marmora's Warbler of the whole visit was made during a brief roadside stop. Not shown on Map, site P in Appendices 2 and 3.

Bab Al Gebs, Tripoli
No description given, not a wetland; south western suburb of Tripoli from which Cattle Egrets were observed in flight. Not shown in Map, site I in Appendices 2 and 3.

Tripoli harbour

32° 06,087 N 20°03,218 E. Surveyed on 6 January (from car on the main road) and 17 January (from hotel room overlooking harbour); coverage 40%. Site 9 on Map, site BO in Appendices 2 and 3.

4.1 Quality and importance
A completely artificial site, like Benghazi Harbours, with quays, jetties, cranes, shipping facilities etc. Included because of the presence of a number of cormorants and gulls (total of 362 waterbirds recorded), species which habitually adapt to human-influenced conditions. However, two Greater Flamingos (RAC/SPA Bird Action Plan species) were also seen in flight as we passed on 6 January.

4.2 Conservation Status
Not a natural site, so conditions will depend on economic and commercial priorities.

4.3 Vulnerability
Not applicable

4.4. Designation of site (remarks on the quantitative data below)
None known or likely

4.5 Ownership
State-owned

4.6 References
None known

RAC/SPA SDF site classification: Coastal areas: Other sites (including urbanized and industrial areas, roads, rubbish tips, factories).

Ramsar Classification:
Harbours are not included in the Ramsar classification.

Suitability for Slender-billed Curlew:
Not at all suitable; built up area of quays and deep water.

Feeding: 0
Roosting: 0

Tajura
No description given, not a wetland; eastern suburb of Tripoli, where a Marsh Harrier was noted flying over during a brief stop. Not shown on Map, site Q in Appendices 2 and 3.

Wadi Maseed

32° 47,426 N 13°42,242 E. Visited on 5 January, coverage 80%. Site 10 on Map, site R in Appendices 2 and 3.

4.1 Quality and importance
Wadi Maseed (Mashid) is the mouth of a slow-flowing small river near Garabulli (between Tripoli and Misrata), spring fed in origin. It flows through continental sand dunes (with reafforestation using *Acacia*, *Eucalyptus* and other alien species) towards the sea, but generally only flows into the sea after heavy rain, because it is cut off by a sandbar, except in times of very high flow. River water is fresh, quite deep in places, with reedy vegetation (*Typha*, *Juncus*, *Phragmites*). There is a relatively small area of open water and fringing vegetation of about 100 hectares at mouth of river; the sandbar, beach and rocky outcrop offshore are included in this description. There are reported to be extensive beds of *Posidonia oceania* offshore.

Ornithological interest centres mainly in sea birds resting on beach, and small numbers of waterbirds on river course. Moderate numbers (95 waterbirds) and fair variety of bird species noted in wetland itself and surrounding dunes. RAC/SPA Bird Action Plan species observed included a single Osprey, about 13 Audouin's Gulls resting on beach, 25 Sandwich Terns feeding offshore and resting on beach. Also two of the endangered Ferruginous Duck.

A number of raptors observed, including 30 Kestrels. Two Fieldfares, a scarce winter visitor to Libya, in the reforested dunes inland, where Sardinian Warbler *Sylvia melanocephala*, Fulvous Babbler *Turdoides fulvus* were also noted.

Must be a very important stopover for trans-Saharan migrants, especially passerines, particularly on northward passage in spring.

4.2 Conservation Status

Some poorly sited and unfinished tourist housing at the head of beach spoil the scenic and landscape values; appalling quantities of rubbish dumped indiscriminately inland in dune area. It is clearly a popular destination for family excursions and picnics. Could become an excellent centre for providing facilities (visitor centre, information panels) for raising public awareness and for guided student visits. The introduced alien plants should be removed as native species take over on the dunes.

4.3 Vulnerability

Subject to fairly heavy pressure by human visitors, which needs to be regulated.

4.4. Designation of site (remarks on the quantitative data below)

Wadi Maseed flows through the Garabulli (Algharabolli) National Park, established in 1992, covering an area of some 15,000 hectares and extending seven kilometres inland from the coast. (Wadi Ramal, a similar site forming the western boundary, was not visited for lack of time; Wadi Turghat, the next site, forms the eastern boundary of the park). Garabulli as a whole is listed as an IBA by BirdLife International because it meets criterion A3 for three biome-restricted species of the Mediterranean North Africa biome (*Alectoris barbara*, *Sylvia melanocephala*, and *Syvlia conspicillata*), and one species of the Sahara-Sindian biome (*Turdoides fulvus*), none of them wetland birds.

4.5 Ownership

Presumed to be state owned.

4.6 References

No specific references found, but Wadi Maseed, Wadi Turghat and Wadi Kaam have been popular observation points with ornithologists in the past and are frequently mentioned in ornithological literature.

RAC/SPA SDF site classification: Mainly Coastal wetlands (estuaries); also Dunes, sandy beaches, rocky beaches.

Ramsar Classification: Mainly **Inland M** (Permanent rivers/streams/creeks), also Marine/Coastal E ("beaches of fine or coarse sand").

Suitability for Slender-billed Curlew:

Sandy shores seem unlikely to attract the species, unless it was to make a brief stopover on migration.

Feeding: 0
Roosting: 1

Wadi Turghat

32° 047,356 N 13°49,405 E. Visited on 5 January, coverage 80%. Site 11 on Map, site S in Appendices 2 and 3.

4.1 Quality and importance

Wadi Turghat is a little further east than Wadi Maseed, with a similar range of habitats and species; the area is slightly larger in size and range and numbers of waterbirds slightly larger. River mouth in dunes with fairly abundant fringing freshwater vegetation, not generally reaching the sea because of a sandbar at the mouth. 135 waterbirds seen, including fair numbers of ducks, Coot and Moorhen; RAC/SPA Bird Action Plan species included Flamingo (three individuals) and Sandwich Tern (offshore). A fair variety of bird species noted in wetland itself and surrounding dunes, including Barbary Partridge *Alectoris barbara* and Sardinian Warbler *Sylvia melanocephala*.

Must be a very important stopover for trans-Saharan migrants, especially passerines, particularly on northward passage in spring.

4.2 Conservation Status

Situation similar to Wadi Maseed; action required to control alien vegetation and to regulate human use. The site could be an excellent centre for providing facilities (visitor centre, information panels) for raising public awareness and for guided student visits.

4.3 Vulnerability

No specific threats apparent, but there was a vast amount of garbage deposited in water and round the edges, and this certainly needs controlling.

4.4. Designation of site (remarks on the quantitative data below)

Wadi Turghat forms the eastern boundary of the Garabulli (Algharabolli) National Park, established in 1992, covering an area of some 15,000 hectares and extending seven kilometres inland from the coast. (Wadi Ramal, a similar site forming the western boundary, was not visited for lack of time; Wadi Maseed, the previous site, flows through the park). Garabulli as a whole is listed as an IBA by BirdLife International because it meets criterion A3 for three biome-restricted species of the Mediterranean North Africa biome (*Alectoris barbara*, *Sylvia melanocephala*, and *Syvlia conspicillata*), and one species of the Sahara-Sindian biome (*Turdoides fulvus*), none of them wetland birds.

4.5 Ownership

Presumed to be state owned.

4.6 References
No specific references found, but Wadi Maseed, Wadi Turghat and Wadi Kaam have been popular observation points with ornithologists in the past and are frequently mentioned in ornithological literature.

RAC/SPA SDF site classification: Mainly Coastal wetlands (estuaries); also Dunes, sandy beaches, rocky beaches.

Ramsar Classification: Mainly **Inland M (**Permanent rivers/streams/creeks), partly Marine/Coastal E (Sand, shingle or pebble shores).
Suitability for Slender-billed Curlew:
Sandy shores seem unlikely to attract the species, unless it was to make a brief stopover on migration.

Feeding: 0
Roosting: 1

Wadi Kaam

32° 31,189 N 14°26,733 E. Visited on 5 January, coverage 50%. Site 12 on Map, site T in Appendices 2 and 3.

4.1 Quality and importance
Wadi Kaam is a river mouth east of Tripoli, between Khoms and Zliten. Ecologically it resembles Wadi Maseed and Wadi Tughat, but is larger and broader, with much the greatest extent of open water and fringing reed beds. There are quite extensive reed beds at the water's edge, some of which had been recently cut and burnt at the seaward end by the agricultural authorities, to prevent the river channel from becoming clogged. The water control structure about a kilometre from mouth appears still to be operational. An aquaculture station is situated on the banks at the mouth of the river, raising fish in basins, and not appearing to affect the site.

A famous site in the annals of Libyan ornithology, with several unusual species recorded in the literature. We noted 17 waterbird species, among them two RAC/SPA Bird Action Plan species Osprey and Sandwich Tern (feeding offshore), one endangered species, Ferruginous Duck, and several interesting non-waterbirds including Water Pipit and Bluethroat.

The most important of the three river mouths visited in the Tripoli region; the site clearly holds a good variety of wintering waterbirds and passerines (though numbers are not enormous); it must be a very important stopover and refuelling site for northward bound

trans-Saharan migrants in spring, and to a lesser extent in autumn. It would undoubtedly repay regular surveying.

Certainly of national interest, and worthy of protection as a national protected area.

4.2 Conservation Status

Considerable human activity, but conservation status still favourable. All three of the river mouths visited east of Tripoli (Maseed, Turghat, Kaam) would make attractive areas for public visits (picnic sites, public awareness) and school visits (natural history lessons). As the largest and most important, Wadi Kaam is particularly suitable for such an approach.

4.3 Vulnerability

No specific threats known, but the site is obviously affected by operation of the water control structure. It is not known what authority is responsible for operation, nor whether consideration is given to questions of nature conservation and biological diversity. Like the other river sites, it is clearly a favourite site for family excursions; like them, there is a large amount of abandoned rubbish, creating an eyesore and needing to be removed and managed in future.

4.4. Designation of site (remarks on the quantitative data below)

None known, not included in Garabulli National Park like Wadi Maseed and Wadi Turghat.
A candidate site for a new Protected Area under the SAP-BIO.

4.5 Ownership

Presumably state owned

4.6 References

No specific references, but Wadi Maseed, Wadi Turghat and Wadi Kaam have been popular observation points with ornithologists in the past and are frequently mentioned in ornithological literature, Wadi Kaam in particular.

RAC/SPA SDF site classification: Mainly Coastal wetlands (estuaries); also Dunes, sandy beaches, rocky beaches.

Ramsar Classification: Mainly **Inland M** (Permanent rivers/streams/creeks), partly Marine/Coastal E (Sand, shingle or pebble shores).

Suitability for Slender-billed Curlew:

Sandy shores seem unlikely to attract the species, unless it was to make a brief stopover on migration.

Feeding: 0
Roosting: 1

Taourgha complex: Sebkhet Qasr Ahmed

32° 00,105 N 15°08,408 E. Visited on 7 January and again on 16 January, coverage 20%. Site 13 on Map, site V in Appendices 2 and 3.

4.1 Quality and importance

The northern sector of an enormous complex of salt lakes ("sebkhet" in North African Arabic), which extends southwards along the western shore of the Gulf of Sirt from the town of Qasr Ahmed, via Sebkhet Taourgha, Sebkhet Om Al Adham to the protected area of Sebkhet Al Hisha in the south, in all an area of at least 100 kms by 25 kms.

Only a small part of vast area of Sebkhet Qasr Ahmed was covered (and Sebkhet Om Al Adham was not covered at all). The area around the steel works at Qasr Ahmed (including some artificial ponds and waste areas to the north of the steelworks) was fully covered, together with parts of the sebkhet viewed from the road between the wetland and the sea, for a distance of about 25 kms south of Qasr Ahmed. The coast here is low sandstone rock, not sand dunes; just inland is some sandy agricultural land, holding some Eurasian Curlews. Inland of this is a vast area of saline marsh, with some surface water, apparently very saline, with *Arthrocnemum/Salicornia* vegetation; it was relatively dry during our visit, probably because of the limited winter rainfall hitherto, and probably dries out completely in summer. A total of just under 1,000 waterbirds was noted, many of them on the artificial ponds round the steelworks, including Greater Flamingo and Shelduck; rather low numbers of small waders (Kentish Plover, Dunlin) on the sebkhet proper. RAC/SPA Bird Action Plan species in the ponds round the steel works included about 25 Greater Flamingos, and some waders and gulls were also seen there. A number of passerines in the vegetation of the agricultural land, including (surprisingly) Tristam's Warbler *Sylvia deserticola*, a North African endemic more often found in winter in inland steppe or desert habitats.

Clearly one of the major wetland complexes in Libya, as yet little exploited, and of undoubted importance for wintering waterbirds and as an example of a large and near natural type of wetland typical of North Africa

4.2 Conservation Status

Apart from the area round the steelworks, still in near natural condition.

4.3 Vulnerability

No threats apparent, apart from possible overgrazing and waste dumping.

4.4. Designation of site (remarks on the quantitative data below)

Area is not included in the Al Hisha nature reserve, situated to the south. Huge area, only partially covered, nevertheless undoubtedly worthy of consideration as a Ramsar site, as a (very large) representative example of a type of wetland widespread in this biogeographical

region. Consideration should be given to Ramsar nomination of the whole coastal plain with all four sebkhets (Qasr Ahmed, Taourgha, Om Al Adham, Al Hisha) as a single unit.

4.5 Ownership
Not known.

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes.

Ramsar Classification: Mainly **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats), also partly Human-made 8 (Wastewater treatment areas)**.**

Suitability for Slender-billed Curlew:
As at Sebkhet Taourgha, the salt-lake complex, with its extensive stands of *Arthrocnemum* is highly suitable for the species, both as a feeding and roosting site, and merits further investigation, the more so as numbers of Eurasian Curlews were found during our survey.

Feeding: 2
Roosting: 2

Taourgha complex: Ain Taourgha

32° 00,129 N 15°08,419 E. Visited on 6 January, coverage 80%. Site 14 on Map, site U in Appendices 2 and 3.

NB: Though Ain Taourgha and Sebkhet Taourgha are treated as a single site in Appendices 2 and 3, the summary tables of bird counts, they are treated separately here, partly because they are so different in character, partly because coverage of Ain Taourgha was almost complete, while coverage of the very large Sebkhet Taourgha was minimal, only the edges being seen. Similar treatment has been given to the comparable spring and sebkhet at Al Hissa.

4.1 Quality and importance
Ain Taourgha (Taourgha means "green" in the Berber language) is a natural freshwater spring, with the highest discharge of 2.4 cubic m/s in Libya (Hamza, 2004), at the western edge of the coastal plain, southeast of Misrata. The natural spring has traditionally supported an oasis for date production, and had a local culture all its own with complicated and intricate systems of water management and distribution; a characteristic local building style has evolved, though many people moved out of the old city about thirty years ago, mainly because of problems of malaria and intestinal schistosomiasis. The latter disease is still

affecting the local community to a certain extent, though no recent malaria cases have been reported (AH, Personal communication). The water which is very slightly salty is led away from the oasis after use through a system of channels into the vast adjoining Sebkhet Taourgha, in the coastal plain between the spring and the sea. Much more detailed ecological information is available in the recent M.Sc. thesis of A. Hamza.

A wide variety of waterbirds was seen at the springs, including several species of heron (notably and surprisingly Purple and Squacco Herons which would both normally be south of the Sahara in January), Glossy Ibis, Spoonbill and some ducks, plus many waders, and a female of the poorly recorded Reed Bunting; the spring and sebkha together produced the high figure of 29 species. White Storks, presumably just returned from winter quarters in sub-Saharan Africa, were already present and appeared to be preparing to nest (old nest seen); there are very few references in the literature to nesting by this species. The site would be worth careful prospecting for Marbled Duck, which winters in similar sites around Tunisian oases. One particularly surprising observation was of three Ringed Plovers (normally Arctic breeders in June) carrying out courtship flights in pre-desert Libya in January.

The site is of major interest for its long cultural and historical traditions, and for its good variety of waterbirds and habitats. One of the most unusual and remarkable sites seen in Libya, both culturally and in terms of biological diversity;

4.2 Conservation Status

The traditional management of the spring and oasis are still functional, but have been somewhat neglected since the movement of the main part of the human population thirty years ago, though some inhabitants remain. The traditional buildings are in a poor state of repair. Some kind of restoration of traditional modes of life and associated water management could be contemplated.

4.3 Vulnerability

No threats known; the traditional water control and distribution mechanisms appear to be still functional, though restoration would be desirable.

4.4. Designation of site (remarks on the quantitative data below)

No protective measures known; the site is not included in the Al Hisha Nature Reserve, immediately to the south. The site would undoubtedly merit designation as a Ramsar site, either on its own, or in conjunction with the neighbouring sebkhet. Furthermore the site was nominated as a new protected area under the SAPBIO-RAC/SPA project, steps for declaring it a Protected Area are in progress (AH, personal communication).

4.5 Ownership

Mostly private farming and properties, though man-made reservoirs and channels are state owned.

4.6 References

- Hamza, A. (2004): *Ecology of freshwater gastropods of Taourgha Spring and its channels*. M.Sc. Thesis. Faculty of Sciences, University of Al-Fateh, pp 128.
- Defos du Rau P, Essghaier M F A and Etayeb Kh (2001): *Preliminary survey of coastal wetlands in Libya.* Cyclostyled report, ONCFS/EGA, 20pp.

Frequent references in the ornithological literature (e.g. Bundy's "Birds of Libya")

RAC/SPA SDF site classification: Inland wetland, not applicable.

Ramsar Classification: The springs are mainly **Inland Y** (Freshwater springs), with a smaller part made up of Human-made 9 (Canals and drainage ditches).

Suitability for Slender-billed Curlew:
Freshwater springs seem unlikely to attract the species, but it could well occur in the neighbouring sebkhet, and perhaps join other waders roosting or drinking at the spring; in any case it would be easier to observe at the spring than the vast sebkhet.

Feeding: 0
Roosting: 1

Taourgha complex: Sebkhet Taourgha

32° 00,129 N 15°08,419 E. Visited on 6 January, coverage 10%. Site 14 in Map, site U in Appendices 2 and 3.

NB: Though Ain Taourgha and Sebkhet Taourgha are treated as a single site in Appendices 2 and 3, the summary tables of bird counts, they are treated separately here, partly because they are so different in character, partly because coverage of Ain Taourgha was almost complete, while coverage of the very large Sebkhet Taourgha was minimal, only the edges being seen. Similar treatment has been given to the comparable spring and sebkhet at Al Hisha.

4.1 Quality and importance
Sebkhet Taourgha immediately adjoins Ain Taourgha, and receives runoff water from the spring. It is part of the vast coastal plain stretching over a large area south of Misrata, and blends into the neighbouring sebkhets of Qasr Ahmed to the north, and Om Al-Adham and Al Hisha to the south. This whole vast area covers something in excess of 200,000 hectares. The whole area has a very varied vegetation of *Salicornia / Arthrocnemum* between depressions which collect water in winter and probably largely dry out in summer. Sebkhet Taourgha, at least in the vicinity of the spring, probably has a rather less halophytic vegetation than the other areas, with stands of *Juncus* and other freshwater plants; of special interest is the species *Phyla nodiflora*, which was considered extinct from Libya a long time ago, and rediscovered in 2001 covering good proportions of the banks of some channels (Hamza, 2004).

Only a small part of this vast area could be covered; among the birds observed were a probable female of the endangered Pallid Harrier; and over 100 wintering Cranes (rarely recorded at all, and certainly not in such numbers, in Libya).

Huge area, only partially covered, nevertheless of undoubted importance for wintering waterbirds and as an example of a large and near-natural wetland typical of North Africa.

4.2 Conservation Status
Still apparently in near-natural condition.

4.3 Vulnerability
No threats apparent, except possibly overgrazing. No signs of hunting observed, unlike similar sites in the Benghazi area.

4.4. Designation of site (remarks on the quantitative data below)
The Taourgha spring and sebkhet do not appear to be encompassed within the Al Hisha Nature Reserve. The Taourgha complex (either the spring alone or the vast salt-lake complex) would be a strong candidate for Ramsar nomination, on the basis of its biodiversity values, its representativeness of coastal sebkhets (a particular type of North African wetland) and its undisturbed nature. Consideration should be given to Ramsar nomination of the whole coastal plain with all four sebkhets (Qasr Ahmed, Taourgha, Om Al Adham, Al Hisha) as a single unit.

4.5 Ownership
Not known

4.6 References
- Hamza, A. (2004): *Ecology of freshwater gastropods of Taourgha Spring and its channels.* M.Sc. Thesis. Faculty of Sciences, University of Al-Fateh, pp 128.
- Defos du Rau P, Essghaier M F A and Etayeb Kh (2001): *Preliminary survey of coastal wetlands in Libya.* Cyclostyled report, ONCFS/EGA, 20pp.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes.

Ramsar Classification: **Inland R** (Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
The salt-lake complex, with its extensive stands of *Arthrocnemum* is highly suitable for the species, both as a feeding and roosting site, and merits further investigation, the more so as numbers of Eurasian Curlews were found during our survey.

Feeding: 2
Roosting: 2

Taourgha complex: Ain Al Hisha

31°38,915 N 15°16,189 E. Visited on 16 January, coverage 80%. Site 15 on Map, site BN in Appendices 2 and 3.

NB: Though Ain Al Hisha and Sebkhet Al Hisha are treated as a single site in Appendices 2 and 3, the summary tables of bird counts, they are treated separately here, partly because they are so different in character, partly because coverage of Ain Al Hisha was almost complete, while coverage of the very large Sebkhet Al Hisha was minimal, only the edges being seen. Similar treatment has been given to the comparable spring and sebkhet at Taourgha.

4.1 Quality and importance

Like Ain Taourgha (q.v.) situated some way to the north in the same complex, Ain Hisha is a group of freshwater springs, where fresh water comes to the surface at the edge of a higher, limestone coastal plain. Like Taourgha, it has a long history of settlement and cultivation. The original village seems largely to have been abandoned now, and the remaining buildings, made of wood from the palm trees that surround the springs, have a distinctive character of their own.

At the edge of the site, a series of pools have been converted into an area for raising tame ducks, while alongside an area for wild birds has been developed, with observation facilities. The tame ducks obviously attract wild birds, and a good variety of wild ducks was observed alongside the tame animals, including Shelduck (92 out of the total of 107 observed in the whole of Libya), Mallard, Gadwall, Teal, Wigeon, Pintail, Shoveler (63), Pochard and three of the endangered Ferruginous Duck. In all 28 species of waterbirds were observed between spring and sebkhet, one of the highest species totals of all wetlands visited; these included over 100 Greater Flamingos (a RAC/SPA Bird Action Plan species) and nearly 160 Cranes, which appeared to be feeding in the more open ground away from the springs proper; Cranes have been recorded only rarely in Libya in the past and it seems that Al Hisha and Taourgha hold numbers of considerable importance. Furthermore a good variety of waders was noted, including another Greater Sand Plover. Among non-waterbirds, Marsh Harrier, a male Hen Harrier and a number of Crag Martins are of note.

The site is great importance as one of the few surviving springs on the edge of the desert, and for its long cultural history. It is one of the nuclei of the larger Al Hisha site, and even larger Taourgha complex.

4.2 Conservation Status

Most of the natural features appear to be untouched, though some of the historical buildings are somewhat dilapidated and in a poor state of repair. Some kind of restoration programme seems highly needed. Some restoration is already under way with the construction of

observation facilities. The area is well guarded, and access is only allowed with official permission.

4.3 Vulnerability
No obvious threats apparent.

4.4. Designation of site (remarks on the quantitative data below)
An area of 160,000 hectares was designated as a nature reserve in 1984. The site, preferably with Sebkhet Al Hisha and other parts of the Taourgha complex, undoubtedly meets the Ramsar criteria for wetlands of international importance, as a good example of a wetland typical of North Africa, and on the grounds of its waterbird populations and its cultural properties.

4.5 Ownership
State-owned

RAC/SPA SDF site classification: Inland wetland, not applicable.

Ramsar Classification: The springs are mainly **Inland Y** (Freshwater springs), with a smaller part made up of Human-made 9 (Canals and drainage ditches).

Suitability for Slender-billed Curlew:
Freshwater springs seem unlikely to attract the species, but it could well occur in the neighbouring sebkhet, and perhaps join other waders roosting or drinking at the spring; in any case it would be easier to observe at the springs than the vast sebkhet.

Feeding: 0
Roosting: 1

Taourgha complex: Sebkhet Al Hisha

31°38,915 N 15°16,189 E. Visited on 16 January, coverage 10%. Site 15 on Map, site BN in Appendices 2 and 3.

NB: Though Ain Al Hisha and Sebkhet Al Hisha are treated as a single site in Appendices 2 and 3, the summary tables of bird counts, they are treated separately here, partly because they are so different in character, partly because coverage of Ain Al Hisha was almost complete, while coverage of the very large Sebkhet Al Hisha was minimal, only the edges being seen. Similar treatment has been given to the comparable springs and sebkhet at Taourgha.

4.1 Quality and importance
Sebkhet Al Hisha is a vast salt lake between the springs and the sea, separated from the sea by a tongue of higher land. With Sebkhet Qasr Ahmed, Sebkhet Taourgha, and Sebkhet Om Al Adham, it is part of the vast Taourgha complex, one of the biggest and most natural wetlands in North Africa. We were able to cover only a tiny fraction of the area (full coverage would require much more time and appropriate means of transport in an area very difficult to enter). The area is characterized by the typical salt-loving vegetation of North African sebkhets, essentially stands of *Arthrocnemum*. Water levels depend on local precipitation – during our visit, the site was relatively dry.

With Ain Al Hisha (q.v.), some 28 species of waterbird were seen.

The site is undoubtedly of international importance as an extremely natural, well preserved example of a North African sebkhet.

4.2 Conservation Status
Appears to be in near natural condition.

4.3 Vulnerability
No obvious conservation problems.

4.4. Designation of site (remarks on the quantitative data below)
A very large area of 160,000 hectares was designated as the Al Hisha Nature Reserve in 1984. The site, either on its own, or preferably as part of a much larger Taourgha Complex, including the four sebkhets and Al Hisha and Ain Taourgha springs, would undoubtedly merit designation as a wetland of international importance under the Ramsar Convention.

4.5 Ownership
Presumably state-owned

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes.

Ramsar Classification: **Inland R** (Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
The salt-lake complex, with its extensive stands of *Arthrocnemum* is highly suitable for the species, both as a feeding and roosting site, and merits further investigation.

Feeding: 2
Roosting: 2

Sirt's Mahary Hotel

Not a wetland, so no site description prepared; included simply because an Osprey and two Sandwich Terns (both RAC/SPA Bird Action Plan species) were seen flying over the beach on the seaward side of the hotel. Site 16 on Map, site BK in Appendices 2 and 3.

Al-Gordabia Great Man-made Reservoir (Sirt)

31°10,373 N 16°41,227 E. Visited on 15 January 2005, coverage 5%. Site 17 on Map, site BJ in Appendices 2 and 3

4.1 Quality and importance
One of the huge reservoirs of the Great Man-made River, freshwater collected at this central point to be fed to a national network of pipelines under construction. We were offered a detailed presentation of this project by two engineers working at the site. Coots and grebes were seen at the margins of the reservoir.

4.2 Conservation Status
Near natural though it is man-made.

4.3 Vulnerability
Not applicable

4.4. Designation of site (remarks on the quantitative data below)
The site may be nominated as a man-made wetland under Ramsar.

4.5 Ownership
State ownership.

4.6 References
N/A

RAC/SPA SDF site classification:
Inland site, not applicable.

Ramsar Classification:
Human-made wetlands 6 (Water storage areas)

Suitability for Slender-billed Curlew:

Feeding: 0
Roosting: 0

Sebkhet Sultan

31° 06,256 N 17°10,667 E. Visited on 7 January and at greater length on 15 January, on both occasions in the evening, so that roosting birds were well seen; coverage 80%. Site 18 on Map, site W in Appendices 2 and 3

4.1 Quality and importance
An extensive salt lake covering some 2,000 ha behind the coastal dunes east of Sirt, towards the base of the Gulf of Sirt. Extensive fringing *Arthrocnemum* vegetation. Water present during our visit rather deeper than at Taourgha sebkhets, so conditions for water birds were good. Probably dries out in most summers. Total of 418 waterbirds noted, including a gull roost (with 34 Audouin's Gulls, a RAC/SPA Bird Action Plan species), and a good variety of waders, in particular almost 100 Eurasian Curlews.

A typical coastal sebkhet, one of the many along the Gulf of Sirt.

4.2 Conservation Status
Near-natural condition

4.3 Vulnerability
Main Tripoli-Benghazi road runs just by the wetland, which may cause some disturbance and potential for change of status because of greater accessibility, but no major problems apparent apart from use as a refuse dump.

4.4. Designation of site (remarks on the quantitative data below)
No designations known. Would merit Ramsar designation.

4.5 Ownership
Presumed to be state-owned

4.6 References
- Defos du Rau P, Essghaier M F A and Etayeb Kh (2001): *Preliminary survey of coastal wetlands in Libya.* Cyclostyled report, ONCFS/EGA, 20pp.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Seems particularly suitable for the species, given the presence of shallow water surrounded by *Arthrocnemum*, and also of roosting Eurasian Curlews

Feeding: 2
Roosting: 2

Wadi Lahmer

31°01,336 N 17°28,536 E. Visited 15 January 2005, coverage 60%. Site 19 on Map, site BM in Appendices 2 and 3.

4.1 Quality and importance
The mouth of a relatively small wadi between the main coastal road and the sea, just to the east of Sebkhet Sultan, including the beach. The course of the stream was practically dry when we visited it, and no doubt only flows after heavy local rain. Only nine waterbirds found, all waders on the beach (Turnstone and Kentish Plover).

Of local interest.

4.2 Conservation Status
In near-natural condition.

4.3 Vulnerability
No threats apparent, though proximity of coast road means that access is relatively easy and change in ecological character therefore more likely.

4.4. Designation of site (remarks on the quantitative data below)
No designations known, and none proposed

4.5 Ownership
Presumably state-owned

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (estuaries)

Ramsar Classification: Partly **Marine/Coastal E** (Sand, shingle or pebble shores), partly **Inland N** (Seasonal/intermittent/irregular rivers/streams/creeks).

Suitability for Slender-billed Curlew:
Could be a stopover point for passing migrants, given the proximity of suitable sites like Sebkhet Sultan nearby.

Feeding: 1
Roosting: 1

Sebkhet Ben Jawad

30° 51,359 N 17°52,362 E. Visited on 15 January 2005, coverage 50%. Site 20 on Map, site BI in Appendices 2 and 3.

4.1 Quality and importance
A coastal sebkha, 17 kms long, between Sirt and Ras Lanouf, towards the southernmost part of the Gulf of Sirt. A typical sebkhet, with *Arthrocnemum* vegetation, drying out in summer. A total of 32 waterbirds seen, including two RAC/SPA Bird Action Plan species, Greater Flamingo (five birds) and Audouin's Gull (one bird), with some waders including 6 Eurasian Curlews.

Of local interest.

4.2 Conservation Status
In near natural condition

4.3 Vulnerability
No threats obvious, though near the main coast road.

4.4. Designation of site (remarks on the quantitative data below)
No designations known.

4.5 Ownership
Presumably state-owned

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Could well hold Slender-billed Curlews, given the habitat and presence of Eurasian Curlews.

Feeding: 1
Roosting: 1

Sebkhet Ras Lanouf

30° 23,418 N 18°39,794 E. Visited Saturday 8 January 2005, coverage 80%. Site 21 on Map, site X in Appendices 2 and 3.

4.1 Quality and importance
A coastal sebkhet just to the east of Ras Lanouf, similar in character to Sebkhet Sultan, but smaller. Presumably dries out in summer. Salt lake behind the coastal dunes, surrounded by *Arthrocnemum* type vegetation, quite close to the main coastal road and the sea. Total of 100 waterbirds noted, mainly small waders, but including 26 Greater Flamingos (a RAC/SPA Bird Action Plan species), which were close enough for two plastic rings to be read. One had been ringed in the Camargue, France, the other in Andalucia, Spain.

A typical coastal sebkhet, one of the many along the Gulf of Sirt.

4.2 Conservation Status
Appeared to be in good, near-natural condition.

4.3 Vulnerability
No obvious problems, though the proximity of the coast road means that access is easy and that transformations of ecological character might thereby be made easier.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
Presumed to be in public ownership.

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Seems suitable for the species, given the presence of shallow water surrounded by *Arthrocnemum*.

Feeding: 1/2
Roosting: 1/2

Sebkhet Al Agaylah

30° 15,108 N 19°15,505 E. Visited Saturday 8 January 2005, coverage 60%. Site 22 on Map, site Y in Appendices 2 and 3.

4.1 Quality and importance
A small coastal sebkhet at the base of the Gulf of Sirt, easily visible from the main road, to the east of Al Agaylah village. A total of four waterbirds, all waders. Water levels low. No doubt dries out in summer.

4.2 Conservation Status
In near natural condition, though close to main roads.

4.3 Vulnerability
No major threats known; could be affected by expansion of the city of Brega.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
Believed to be in state ownership.

4.6 References
None known

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Some potential, since salty coastal lakes with *Arthrocnemum* vegetation are considered to be the preferred habitat of the species on migration and in winter.

Feeding: 1
Roosting: 1

Sebkhet Bishr

30° 16,276 N 19°21,536 E. Visited Saturday 8 January 2005, coverage 60%. Site 23 on Map, site Z in Appendices 2 and 3.

4.1 Quality and importance
A small coastal sebkhet at the base of the Gulf of Sirt, two kms to the west of Bishr village, not far from Brega. A total of 30 waterbirds, all waders, including 27 Avocets, the largest concentration seen in Libya during the survey. Water levels low. No doubt dries out in summer.

4.2 Conservation Status
In near natural condition, though close to main roads and the city of Brega.

4.3 Vulnerability
No major problems known; could be threatened by expansion of the city of Brega.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
Presumably state-owned

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Some potential, since salty coastal lakes with *Arthrocnemum* vegetation are considered to be the preferred habitat of the species on migration and in winter.

Feeding: 1
Roosting: 1

Sebkhet Hafiroun and Sebkhet Brega

30° 21,732 N 19°30,557 E. Visited on 8 and 14 January 2005, coverage 30%. Site 24 on Map, site AA in Appendices 2 and 3.

4.1 Quality and importance
Small coastal sebkhets at the base of the Gulf of Sirt, on either side of the town of Brega, holding some water during our visit. No doubt dries out in summer. A total of 114 waterbirds recorded, nearly all small waders.
Typical small coastal lagoons.

4.2 Conservation Status
In near natural condition, though close to main roads and the city of Brega.

4.3 Vulnerability
No major threats known; could be threatened by expansion of the city of Brega.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
Presumed to be state-owned

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Some potential, since salty coastal lakes with *Arthrocnemum* vegetation are considered to be the preferred habitat of the species on migration and in winter.

Feeding: 1
Roosting: 1

Sebkhet Al Kabira

29° 44,119 N 19°52,485 E. Visited Saturday 8 January 2005. Not included in Map. Site AB in Appendices 2 and 3.

4.1 Quality and importance
A vast depression, south of the southernmost part of the Gulf of Sirt, apparently unconnected with the sea, and extending many kilometres inland. Fringing vegetation basically *Arthrocnemum*. The area was almost entirely dry during our visit, and presence of water and waterbirds must be heavily dependent on winter rainfall; must dry out completely most summers. A small group of 20 Little Stints were the only waterbirds seen.

Could be important in (rare) years of heavy rainfall.

4.2 Conservation Status
Apparently in natural condition, though condition dependent on vagaries of rainfall.

4.3 Vulnerability
No threats apparent.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
Presumably state-owned.

4.6 References
- Defos du Rau P, Essghaier M F A and Etayeb Kh (2001): *Preliminary survey of coastal wetlands in Libya.* Cyclostyled report, ONCFS/EGA, 20pp.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Some potential in wet winters, since salty coastal lakes with *Arthrocnemum* vegetation are considered to be the preferred habitat of the species on migration and in winter; but this is some way from the coast, and other coastal sites are more likely.

Feeding: 0/1
Roosting: 0/1

Sebkhet Al Gnayen

30° 03, 1612 N 30°03, 4979 E. Visited Saturday 8 January 2005, only small area covered, but whole of sebkhet was dry. Not included in Map, site AD in Appendices 2 and 3.

4.1 Quality and importance
A huge sebkhet, 95 km inland from the city of Ajedabia. The site was observed only from the main road. At the time of our visit, the area was entirely dry and sandy, lacking any vegetation indicating recent presence of water; not surprisingly, we found no waterbirds present. In (rare!) wet years it could be of importance for water birds.

4.2 Conservation Status
Apparently in natural condition, though condition dependent on vagaries of rainfall

4.3 Vulnerability
No problems known

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
State-owned

4.6 References
None known.

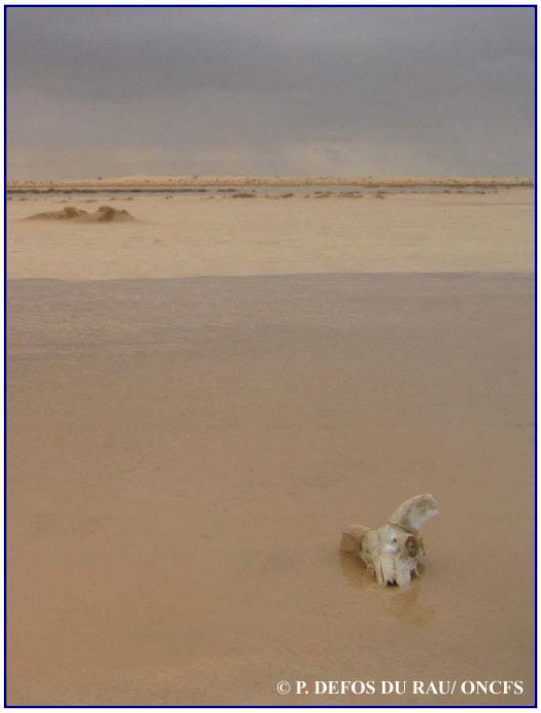
RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Some potential in wet winters, since salty coastal lakes with *Arthrocnemum* vegetation are considered to be the preferred habitat of the species on migration and in winter; but this is some way from the coast, and other coastal sites are more likely.

Feeding: 0/1
Roosting: 0/1

Sebkhet Shuwayrib



30° 26,700 N 19°48,150 E. Visited Saturday 8 January 2005, coverage 30%. Site 25 on Map, site AC in Appendices 2 and 3

4.1 Quality and importance
A coastal sebkhet at the base of the Gulf of Sirt. A total of 52 waterbirds seen, mostly small waders, but including 15 Eurasian Curlews and an Audouin's Gull (a RAC/SPA Bird Action Plan species).

4.2 Conservation Status
Apparently in natural condition, though condition dependent on vagaries of rainfall.

4.3 Vulnerability
No problems known

4.4. Designation of site (remarks on the quantitative data below)
None known

4.5 Ownership
Presumably state-owned

4.6 References
None known

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Like all the sebkhets in the Gulf of Sirt, could hold the species, the more so as a group of Eurasian Curlews was seen.

Feeding: 1
Roosting: 1

Sebkhet Zuwaitina

31°00,000 N 20°10,000 E. Visited 15 January 2005, 60% coverage. Site 26 on Map, site BL in Appendices 2 and 3.

4.1 Quality and importance
An extensive area of depressions, holding water in winter, inland of the Zuwaitina oil terminal, on the coast of the Gulf of Sirt, to the south of Benghazi. A limited number of waterbirds was seen, 142 in all, including seven Greater Flamingos, a RAC/SPA Bird Action Plan species.

Of limited interest, given that other sebkhets in the Gulf of Sirt hold many more birds. On the other hand, Gaziret Al Garah, some kilometres offshore, is of major interest as the most important breeding place by far for the RAC/SPA Bird Action Plan species Lesser Crested Tern (1,700 breeding pairs at the time of the last detailed survey in July 1993); another survey is urgently needed to check whether there has been any change since then. The presence of extensive seagrass beds in the Gulf of Sirt, apparently the second most important in the Mediterranean, may be one of the reasons for the presence of the terns.

4.2 Conservation Status
The sebkhet seems to be in near-natural condition, apart from the inevitable impact of industrial activities around the oil terminal. It would appear, from information given by oil terminal staff, that there is no disturbance at all of the tern colony on Gaziret Al Garah.

4.3 Vulnerability
The only possible threat might be of an oil spill, against which precautions are obviously in force by the oil terminal authorities.

4.4. Designation of site (remarks on the quantitative data below)
No designation known for Sebkhet Zuwaitina, but Gaziret Al Garah, just offshore from Zuwaitina, is designated as an Important Bird Area because of the colony of breeding Lesser Crested Terns (1,700 pairs in 1993), representing practically 100% of the Mediterranean breeding population.

It would be highly desirable for some kind of national protection measures to be extended to Gaziret Al Garah.

4.5 Ownership
Presumably state-owned

4.6 References
Meininger et al (1994).

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
The sebkhet might possibly provide feeding or roosting habitat for Slender-billed Curlews, but many of the other sebkhets round the Gulf of Sirt seem more likely to hold the species.

Feeding: 0/1
Roosting: 0/1

Sebkhet Chott El Bedin

31°12,963N 20°09,753 E. Visited 14 January 2005, coverage 95%. Site 27 in Map, site BH in Appendices 2 and 3

4.1 Quality and importance

A small salt/brackish sebkhet, covering 20 or 30 hectares, behind the coastal dunes, south of Benghazi on the eastern coast of the Gulf of Sirt, with a beach and plantations of palms. A small number of waterbird species, 32 in all, including two RAC/SPA Bird Action Plan species, Audouin's Gull and Sandwich Tern. Some light agricultural activities round the site, including herding of sheep and goats. The beaches might be important for turtles.

Idyllic spot, extremely attractive. Wetland is of local interest, beach may be the more significant area in terms of biological diversity

4.2 Conservation Status

Appeared to be in near-natural condition, with extensive untouched beaches.

4.3 Vulnerability

The beaches are probably used for recreational purposes in summer, but for the moment remain in a very natural state.

4.4. Designation of site (remarks on the quantitative data below)

No designations known, none proposed here.

4.5 Ownership

Presumably state-owned

4.6 References

None known

RAC/SPA SDF site classification: Partly Coastal wetlands (lagoons), partly sandy beaches.

Ramsar Classification: Partly **Coastal E** (Sand, shingle or pebble shores), partly **Inland** Ss (Seasonal/intermittent saline/brackish/alkaline marshes/pools).

Suitability for Slender-billed Curlew:

Not a natural area for the species, but passing migrants might easily alight using the site as a stopover

Feeding: 0/1
Roosting: 0/1

Sebkhet Karkoura

31° 26,116 N 20°02,145 E. Visited 14 January 2005, coverage 80%. Site 28 on Map, site BG in Appendices 2 and 3.

4.1 Quality and importance

A large coastal sebkhet, 15 kilometres long and 2.5 broad, 16 km from the town of Al Maqrun and south of Benghazi. A typical sebkhet, but with the added interest of salt production facilities. The salt is not produced in artificial pans, but is directly collected from the bottom of the northern part of the lagoon when it dries out. *Salicornia, Arthrocnemum* and *Juncus* stands are present only along some parts of the shore, while the sebkhet is bordered on the seaward side by very high sand dunes and palms. Seems to flood regularly in winter, probably dries out most summers (the site had just flooded, a few weeks before our visit). A total of 675 waterbirds counted, including 270 Audouin's Gulls, a RAC/SPA Bird Action Plan species, much the largest concentration of this species found in Libya (these gulls were distributed in three large day-roosts, on the south-eastern shore of the wetland). The presence of 18 Cranes is also worthy of note. Most of the other waterbirds present were waders including a flock of 58 Eurasian Curlews. Local bird-catchers had trapped two Barbary Falcons locally, and a dead Desert Eagle Owl was found.

The variety of species recorded, and the presence of large numbers of Audouin's Gull made this one of the most important sites visited, with the additional feature of artisanal salt extraction facilities; in most of the Mediterranean, these traditional methods of salt production have been replaced by industrial production.

4.2 Conservation Status

Still appears to be in near-natural condition, though proximity to Benghazi means that it may be affected by industrial or urban expansion.

4.3 Vulnerability

Some encroachment of land reclamation and use for waste disposal.

4.4. Designation of site (remarks on the quantitative data below)

None known, but would undoubted meet Ramsar criteria for a wetland of international importance.

4.5 Ownership

Presumably state-owned.

4.6 References

- Defos du Rau P, Essghaier M F A and Etayeb Kh (2001): *Preliminary survey of coastal wetlands in Libya.* Cyclostyled report, ONCFS/EGA, 20pp.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats)**.**

Suitability for Slender-billed Curlew:
Like all coastal sebkhets with stands of *Arthrocnemum*, quite likely to provide suitable habitat for the species.

Feeding: 1
Roosting: 1

Ghemines

31° 50,465 N 20°05,100 E. Visited 14 January 2005, coverage 90%. Site 29 on Map, site BF in Appendices 2 and 3 (called "Qaminis" in some documents).

4.1 Quality and importance
Another coastal sebkhet just south of Benghazi, a northward extension of Karkoura. Typical *Arthrocnemum* vegetation. Only ten waterbirds recorded, all Redshank.

Of mainly local interest, as a buffer zone to Karkoura.

4.2 Conservation Status
Much more affected than Karkoura by development of industrial buildings and housing.

4.3 Vulnerability
Much more affected than Karkoura by the proximity of the large city of Benghazi.

4.4. Designation of site (remarks on the quantitative data below)
None known, and none recommended, except as a buffer zone to Karkoura.

4.5 Ownership
Presumably state-owned.

4.6 References
- Defos du Rau P,. Essghaier M F A and Etayeb Kh (2001): *Preliminary survey of coastal wetlands in Libya.* Cyclostyled report, ONCFS/EGA, 20pp.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Like all coastal sebkhets with stands of *Arthrocnemum*, quite likely to provide suitable habitat for the species.

Feeding: 1
Roosting: 1

Sebkhet Garyounes

32° 03,972 N 20°02,328 E. Visited on 9 January, coverage 80%. Site 30 on Map, site AE in Appendices 2 and 3.

4.1 Quality and importance
A small coastal sebkhet and associated beach, in the southern suburbs of Benghazi, just behind the coastal dunes, and close to hotel where the group was accommodated. Much affected by human activity: dumping of rubbish all around, and there appeared to be some runoff of waste water, creating artificially high trophic conditions. Fair numbers of birds, 1093 waterbirds (among them over 900 gulls).

A site of local importance, with some potential for raising public awareness given its position close to a large city.

4.2 Conservation Status
Much affected by human activities in the near neighbourhood: building, dumping of rubbish; little sign of original vegetation.

4.3 Vulnerability
Highly vulnerable to further encroachment, building

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
Presumably state-owned.

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R** (Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
The site is greatly affected by human activities and suffers considerable disturbance, so does not seem very suitable for the species. Passing birds could conceivably alight briefly.

Feeding: 0/1
Roosting: 0/1

Sebkhet Ganfouda

32° 06,087 N 20°03,218 E. Visited on 14 January 2005, coverage 80%. Site 31 on Map, site BE in Appendices 2 and 3.

4.1 Quality and importance
Another coastal sebkhet, close to Benghazi, adjacent to a large refuse tip and partly being filled up and built over. The site in the past was an industrial salt-works, whose embankments and pans are still partly visible. The proximity of the rubbish tips attracts very large numbers of gulls, mainly Black-headed Gulls with some of the other commoner gulls, which easily adapt to human presence, and also some Cattle Egrets, which also adapt to humans. The very large total of 12,390 waterbirds was mainly made up of gulls. The few remaining waterbirds were mainly waders.

A site which has been greatly transformed by human use.

4.2 Conservation Status
Much affected by human activities and the presence of the waste disposal unit.

4.3 Vulnerability
Already heavily modified.

4.4. Designation of site (remarks on the quantitative data below)
None proposed

4.5 Ownership
Presumably state-owned

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Given the disturbance caused by the waste disposal activities and by the development of coastal resorts, unlikely to attract the species.

Feeding: 0/1
Roosting: 0/1

Sebkhet Fairouz

32° 02,789 N 20°01,533 E. Visited 14 January 2005, coverage 80%. Site 32 on Map, site BD in Appendices 2 and 3.

4.1 Quality and importance

Another sebkha by the coast in the Benghazi urban area, also known as Garioun. It probably included salt-pans in former times, but these are no longer recognizable. Little sign of vegetation on the shores (*Salicornia*, *Arthrocnemum*). Total number of waterbirds seen was 439, mainly Black-headed Gulls, but including 11 Sandwich Terns (a RAC/SPA Bird Action Plan species), and a small number of waders (including three Black-winged Stilts).

4.2 Conservation Status

Not in good condition, mainly because of urban developments.

4.3 Vulnerability

Dumped solid waste and other urban garbage.

4.4. Designation of site (remarks on the quantitative data below)

None known, none proposed.

4.5 Ownership

Presumably state-owned

4.6 References

None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:

Like all coastal sebkhets with stands of *Arthrocnemum*, quite likely to provide suitable habitat for the species.

Feeding: 1
Roosting: 1

Benghazi Lake

32° 05,567 N 20°03,777 E. Visited on 9 and 14 January, coverage 75%. Site 33 on Map, site AF in Appendices 2 and 3.

4.1 Quality and importance

Smallish shallow lagoon (less than 200 hectares) in the centre of Benghazi, just south of inner harbour and surrounded by roads. Once no doubt larger, but being encroached upon by urban sprawl and infilling; the wetland includes the remains of the Juliana saltpans, almost totally filled by solid waste. Probably receives some waste water and sewage effluent, which no doubt increases productivity, and may be moving towards eutrophication; appears to be permanent, and probably does not dry out in summer because of artificial inflow. Quite thick fringe of reeds *Phragmites australis*, indicating high trophic levels. Extraordinary variety and numbers of waterbirds; a total of 3,264 waterbirds of 40 species, much the greatest diversity of any wetland visited in Libya (only Farwa, with 31 species, and Taourgha and Al Hisha with 29 species came close): grebes, herons, spoonbills (three rings read: a second winter bird from Italy already recorded in southern Tunisia in July 2004, a first winter bird from Hungary, and a first winter bird from Serbia, also recorded in Tunisia in October 2004), ducks, waders, and in the reeds a number of passerines, including Reed Warbler and Bluethroat.

Despite its small size and the intensive human activities all round, holds excellent and important bird populations and presents tremendous opportunities for raising public awareness.

4.2 Conservation Status

Being in the centre of Benghazi, the site has been much affected by human activities in the past and this is undoubtedly continuing; the site is surrounded by major roads, and there are a number of building sites within the limits of the site; if encroachment could be controlled there is an opportunity to provide, in the middle of one of the country's major cities, a wild bird spectacle of huge recreational and educational value.

4.3 Vulnerability

The site is under extreme threat from urban development. Urban planners will have to move rapidly to prevent further encroachment.

4.4. Designation of site (remarks on the quantitative data below)

No designation known; would undoubtedly meet criteria for Ramsar designation, and would be a high priority for designation.

4.5 Ownership

Unknown, presumably state-owned

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland Sp** (Permanent saline/brackish/alkaline marshes/pools).

Suitability for Slender-billed Curlew:
Is not a classical Slender-billed Curlew site, but the presence of so many other waterbirds might well attract passing or wintering Slenderbills. On the other hand, no Eurasian Curlews were recorded.

Feeding: 1
Roosting: 1/2

Benghazi Harbours

32° 06,087N 20°03,218 E. Visited on 9 January, coverage 80%. Site 34 on Map, site AG in Appendices 2 and 3.

4.1 Quality and importance
A completely artificial habitat, like that of Tripoli harbour, with quays, jetties, cranes, shipping facilities etc. This harbour, however, was built on an existing inlet and is connected with Benghazi Lake. Included because of the presence of a number of cormorants and gulls (total of 54 waterbirds recorded), species which habitually adapt to human-influenced conditions.

4.2 Conservation Status
Not a natural site, so conditions will depend on economic and commercial priorities.

4.3 Vulnerability
Not applicable

4.4. Designation of site (remarks on the quantitative data below)
None known or likely

4.5 Ownership
State-owned

4.6 References
None known

RAC/SPA SDF site classification: Coastal areas: Other sites (including urbanized and industrial areas, roads, rubbish tips, factories)

Ramsar Classification:
Harbours are not included in the Ramsar classification.

Suitability for Slender-billed Curlew:
Not at all suitable

Feeding: 0
Roosting: 0

Essabre Beach

Visited on 9 January, coverage 80%. Site 35 on Map, site AH on Appendices 2 and 3.

4.1 Quality and importance
The beach immediately north of Benghazi harbour, between the town and the sea. Typical beach species observed, Sanderling and Turnstone, plus a variety of gulls, a total of 259 birds.

4.2 Conservation Status
Near natural, but proximity to Benghazi makes it potentially susceptible to urban pollution.

4.3 Vulnerability
No threats known.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
Presumably publicly-owned

4.6 References
None known.

RAC/SPA SDF site classification: Coastal areas: sandy beaches.

Ramsar Classification: **Marine/Coastal E (**Sand, shingle or pebble shores).

Suitability for Slender-billed Curlew:
Not very suitable, though passing migrants might stop here.

Feeding: 0/1
Roosting: 0

Sebkhet El Thama and Sebhket Esselawi

Visited on 9 January, coverage 70%. Site 36 on Map, site AI in Appendices 2 and 3.

4.1 Quality and importance
Coastal sebkhets just north-east of the outskirts of Benghazi, connected with each other and crossed by a main road. Very large and continuous *Arthrocnemum* stands, especially in the parts closer to the town and the wharf. On the eastern side, industrial buildings are present on the lagoon edge and some tens of hectares of wetland were being filled up at the time of our visit. Shallow waters very suitable for waders. Total of 1,240 waterbirds seen, including a variety of waders and gulls, with some ducks (82 Shoveler).

4.2 Conservation Status
Near-natural condition, despite heavy disturbance, but its location near Benghazi made it highly susceptible to urban pollution.

4.3 Vulnerability
Main problem is urban sprawl and depositing of rubbish.

4.4. Designation of site (remarks on the quantitative data below)
None known or recommended.

4.5 Ownership
Presumably state-owned.

4.6 References
None known.

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Potentially of quite high suitability.

Feeding: 1/2
Roosting: 1/2

Bou Dzira Park

32° 10,241N 20°07,786 E. Visited 9 January, coverage 80%. Site 37 on Map, site AJ in Appendices 2 and 3.

4.1 Quality and importance
One of a group of small, natural freshwater lakes, turned into a recreation pool inside a fenced urban public park, near the main road leading northwards along coast out of Benghazi, with lakes and facilities for public recreation. Included because it maintains some of the natural features (*Phragmites* belt on the edges) and proved to be a resting place for Great Cormorant (168 individuals present, the largest concentration away from Farwa), which clearly found an undisturbed resting place here and no doubt feed in marine areas nearby. Total of 186 waterbirds seen. The rest of this group of small lakes might also repay further investigation.

4.2 Conservation Status
Nearly artificial site

4.3 Vulnerability
Not applicable

4.4. Designation of site (remarks on the quantitative data below)
None known, none appropriate

4.5 Ownership
Not known

4.6 References
None known.

RAC/SPA SDF site classification: Coastal areas: Other sites (including urbanized and industrial areas, roads, rubbish tips, factories)

Ramsar Classification: Perhaps **Human-made 7** (Excavations), but may be of karstic origin, now heavily modified.

Suitability for Slender-billed Curlew:
Altogether unsuitable

Feeding: 0
Roosting: 0

Sebkhet Azziana

32° 12,616 N 20°09,766 E. Visited on 9 January, coverage 70%. Site 38 on Map, site AK in Appendices 2 and 3.

4.1 Quality and importance

A typical coastal sebkhet, just north of Benghazi, similar to Sebkhet Al Kouz, but smaller (about 500 hectares). About half of it has a man-modified direct connection to the sea and shows the features of a lagoon. Vegetation as usual dominated by *Arthrocnemum*, with some macrophytes (*Ruppia*); a palm stand grows east of the lagoon mouth. May retain water in the summer. The adjacent sea coast popular for summer tourism, and there are signs of apparently abandoned tourist facilities.

Total of 452 waterbirds noted, including cormorants, herons, waders and some gulls and terns, notably six Sandwich Terns (RAC/SPA Bird Action Plan species) and two Whiskered Terns (not previously recorded in Libya in winter, though good numbers were seen by our group at Benghazi Lake).

The site is ideally located, near the city of Benghazi, for developing wetland interpretation facilities and raising public awareness of wetland and natural values. It should be possible to develop such activities in collaboration with the University of Benghazi.

4.2 Conservation Status

Habitat in near-natural condition, but proximity to Benghazi means that there is some urban sprawl and much depositing of rubbish. Close proximity of heavy industry.

4.3 Vulnerability

Main problem seems to be urban sprawl and depositing of rubbish.

4.4. Designation of site (remarks on the quantitative data below)

"Ayn Zayanah Lagoon" is mentioned by BirdLife International as a nature reserve, and is designated as the "Benghazi Important Bird Area", fifteen kilometres north east of Benghazi, and 1.5 kilometres long, by up to 3-4 kilometres wide. The site qualifies by virtue of the presence in 1993 (presumably from the Meininger et al 1994 report) of 1,000 to 1,500 Greater Flamingo and 700 – 1,000 Kentish Plover in the non-breeding season.

The site is not already designated a nature reserve under national legislation, so conservation measures would be highly desirable. It is one of the sites proposed as a Marine Nature Reserve under the RAC/SPA SAP-BIO plan.

4.5 Ownership

Presumably state-owned.

4.6 References
Defos du Rau et al (2001); Fishpool et al (2001); Meininger et al (1994).

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
A promising site, with *Arthrocnemum* vegetation.

Feeding: 1/2
Roosting: 1/2

Sebkhet Al Kouz

32° 28,700 N 20°29,544 E. Visited on 9 January, coverage 50%. Site 39 on Map, site AL in Appendices 2 and 3.

4.1 Quality and importance
A typical large North African retro-dunal coastal lagoon ("sebkhet"), extending over a long depression behind dunes north of Benghazi, between Deriana and Al Aghouria (or Tokra), and probably covering about 3,000 hectares. Water comes partly from sea (through occasional incursions through dunes, but also no doubt infiltration under dunes), but also from freshwater runoff from limestone areas inland. Hence vegetation not entirely halophytic: stands of *Arthrocnemum*, with *Tamarix* round edges, but also *Juncus* and other freshwater plants. Surrounding salt pastures are used for cattle grazing, apparently with unusually low grazing pressure. In summer, water levels will no doubt drop, but some water from springs may remain.

In a total of 1,155 birds recorded, notable species included the biggest numbers of Flamingo (a RAC/SPA Bird Action Plan species) seen in Libya (over 500, and recorded in the ornithological literature as a regular wintering site), six Audouin's Gulls (another RAC/SPA Bird Action Plan species), some ducks, over 300 Golden Plover (largest group in Libya) and nearly 150 Eurasian Curlews.

Certainly one of the most important coastal sebkhets in Libya, as attested in the ornithological literature, which in general contains little information on species east and north of Benghazi. Undoubtedly worth further study, notably of wintering flamingos, with a view to reading of rings and discovery of the origins of the individuals wintering here, and for further searches for Slender-billed Curlew.

4.2 Conservation Status
Appears to be in near-natural condition. Some agriculture around the edges.

4.3 Vulnerability
No indications of habitat degradation noted. Some signs of hunting activity (spent cartridges and hunters' blinds). Local people reported that Flamingos are hunted.

4.4. Designation of site (remarks on the quantitative data below)
None known. The site would certainly merit Ramsar listing.

4.5 Ownership
Presumably state-owned.

4.6 References
None specific (see Bundy's "Birds of Libya").

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
One of the most promising sites seen, with extensive water and *Arthrocnemum* vegetation, plus presence of good numbers of Eurasian Curlews.

Feeding: 2
Roosting: 2

Sebkhet Ain Azzarga

32° 47,955 N 21°27,411 E. Visited on 10 January, coverage 60%. Site 40 on Map, site AP in Appendices 2 and 3. (Called "Ain Elzarga" in Ramsar List, which gives latitude as 22°21E, which appears to be a mistake for 21°21).

4.1 Quality and importance
Coastal lagoon, covering a few hundred hectares (Ramsar Information Sheet - RIS - says 50 hectares, which seems too small), fed partly by incursions of sea water through channels connecting the site to the sea, but also by springs probably of karstic origin. Situated in the coastal plain below the limestone plateau of the Jebel Akhdar, and unusual in being surrounded not by sand dunes but by limestone formations. Retains humidity all the year round, but salinity increases in summer. Vegetation on the inland side included extensive fringe of *Tamarix*,

with more freshwater-loving plants such as *Juncus*. The RIS also mentions *Phragmites* and *Ruppia*, and notes presence of amphibians *Rana saharica* and *Bufo viridis,* together with endemic fish and the following molluscs: *Hydrobia acuta, Ventrosia ventrosa, Cernuella jonica, Spondyllus spectrum* and *Cerastoderma glaucum*.

Waterbirds included some ducks (mainly Shoveler), small numbers of waders (Kentish Plover, Dunlin and Little Stint). Non-waterbirds included a male Hen Harrier, a Short-eared Owl (most unusual) and 40 Crag Martins.

Somewhat different from most of the other coastal sebkhets visited, in that it is surrounded by limestone formations, typical of the Jebel Akhdar.

4.2 Conservation Status
In entirely natural condition. Tourism impact is still limited according to the RIS, though the site is used by the local community for recreation during spring and summer.

4.3 Vulnerability
Habitat appears intact. Some signs of hunting activities (spent cartridges and hunters' butts) were seen, and the RIS notes that unsustainable hunting poses a serious threat. The coastal road, currently being constructed, may perhaps increase the number of visitors and the potential disturbance; on the other hand it will also increase the potential for visitors and for raising public awareness of wetlands. Also according to the RIS, closure of connections to the sea by sand bars during the summer months leads to hypersalinity.

4.4. Designation of site (remarks on the quantitative data below)
Situated in the north-eastern part of the Wadi Kouf National Park, the site was designated in 2000 (with Sebkhet Ain Ashigiga) as one of Libya's first two Ramsar sites.

4.5 Ownership
State-owned.

4.6 References
- Ramsar Information Sheet.
- Defos du Rau et al (2001).

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: The RIS indicates that six wetlands types are found there (Coastal F Estuarine Waters, Coastal H Intertidal Marshes and Coastal K Freshwater Lagoons; Inland N Seasonal intermittent rivers, Inland Q Permanent saline brackish alkaline lakes, and Inland O Permanent freshwater lakes). While small areas of N, Q and O may well exist, it seems better as an overall classification to list the whole site as **Inland R (**Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Probably less suitable than coastal sand dunes with *Arthrocnemum*, but could hold birds of this species.

Feeding: 1
Roosting: 1

Sebkhet Ain Ashagiga

32° 49 N 21°29 E. Visited on 10 January, coverage 60%. Site 41 on Map, site AO in Appendices 2 and 3. (Called "Ain Elshakika" in the Ramsar Information Sheet - RIS).

4.1 Quality and importance

Coastal lagoon, covering a few hundred hectares (RIS says 33 hectares, which seems far too small), very close to Sebkhet Ain Azzarga. Fed partly by incursions of sea water through channels connecting the site to the sea, but also by springs from Jebel Akhdar, probably of karstic origin. Situated in the coastal plain, below the limestone plateau of the Jebel Akhdar, and unusual in being surrounded not only by sand dunes but also by limestone formations, covered by well-preserved typical vegetation. Retains humidity in the summer, but salinity increases. Vegetation on the inland side included an extensive *Tamarix* wood growing on flooded soil, and relatively large *Juncus* stands. RIS indicates similar vegetation, amphibians and molluscs as for Ain Azzarga.

Total waterbirds numbered 141, including some ducks (mainly Shoveler), small numbers of waders (Kentish Plover, Dunlin and Little Stint) with good numbers of Redshank (62) and Snipe (19). RAC/SPA Bird Action Plan species present were single individuals of Greater Flamingo and Audouin's Gull. The remains of what was probably a Crane, not far from a hunter's butt, were found.

Somewhat different from most of the other coastal sebkhets visited, in that it is surrounded by limestone formations, typical of the Jebel Akhdar.

4.2 Conservation Status

In entirely natural condition. Tourism impact is still limited according to the RIS, though the site is used by the local community for recreation during spring and summer.

4.3 Vulnerability

Habitat appears intact. Some signs of hunting activities (spent cartridges and hunters' butts) were seen, and the RIS notes that unsustainable hunting poses a serious threat. Poaching could possibly be a problem. The coastal road, currently being constructed, may perhaps increase the number of visitors and the potential disturbance; on the other hand it will also increase the potential for visitors and for raising public awareness of wetlands. Also according to the RIS, closure of connections to the sea by sand bars during the summer months leads to hypersalinity.

4.4. Designation of site (remarks on the quantitative data below)

Included in the Wadi Kouf National Park, the site was designated in 2000 (with Sebkhet Ain Azzarga) as one of Libya's first two Ramsar sites.

4.5 Ownership
State-owned

4.6 References
- Ramsar Information Sheet.
- Defos du Rau et al (2001).

RAC/SPA SDF site classification: Coastal wetlands (lagoons) or Saltmarshes

Ramsar Classification: The RIS indicates that six wetlands types are found there (Coastal F Estuarine Waters, Coastal H Intertidal Marshes and Coastal K Freshwater Lagoons; Inland N Seasonal intermittent rivers, Inland Q Permanent saline brackish alkaline lakes, and Inland O Permanent freshwater lakes). While small areas of N, Q and O may well exist, it seems better as an overall classification to list the whole site as **Inland R** (Seasonal/intermittent saline/brackish/alkaline lakes and flats).

Suitability for Slender-billed Curlew:
Probably less suitable than coastal sand dunes with *Arthrocnemum*, but could hold birds of this species.

Feeding: 1
Roosting: 1

Sebkhet Gfanta

32° 49,806 N 21°30,285 E. Visited on 10 January, coverage 80%. Site 42 on Map, site AN in Appendices 2 and 3.

4.1 Quality and importance
Small depression in agricultural land, a little way inland of Sebkhet Ain Ashagiga and Ain Azzarga, very close to the town of Al Hanya, with some surface water, no doubt dries out in summer. A total of 209 waterbirds observed, mainly waders, including over 100 Golden Plover, some Kentish Plover and Dunlin, one Little Ringed Plover (which only winters in small numbers north of the Sahara). No RAC/SPA Bird Action Plan species.

Of local interest.

4.2 Conservation Status
Appeared to be in natural condition.

4.3 Vulnerability
No problems apparent.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
Presumably state-owned.

4.6 References

None known.

RAC/SPA SDF site classification: Site slightly inland, probably best classified as Coastal areas: Agricultural land

Ramsar Classification: **Inland Ss** (Seasonal/intermittent saline/brackish/alkaline marshes/pools).

Suitability for Slender-billed Curlew:
Not ideal habitat, but the species might conceivably associate with other waders.

Feeding: 0/1
Roosting: 0/1

Birka Nout (Noute Lakes)

32° 54,577 N 21°48,638 E. Visited on 10 January, coverage 90%. Site 43 on Map, site AM in Appendices 2 and 3.

4.1 Quality and importance
Two deep ponds at the bottom of a limestone rock face cliff a few hundred metres from the sea, probably fed from underground karstic sources, surrounded by steep rock faces. Total water area probably only 5 hectares. Water apparently slightly saline, but surrounded by narrow belt of reeds. Main interest probably geomorphological and for landscape value in juniper-clad screes of Jebel Akhdar. Relatively few waterbirds, but one female of the endangered Ferruginous Duck, which might conceivably breed; two Sandwich Terns (a RAC/SPA Bird Action Plan species) recorded offshore. Typical birds of rock faces, including the local endemic subspecies of Wren.

4.2 Conservation Status
Still in near-natural condition; rather isolated and inaccessible, though construction of the coast road (now under way) may lead to greater numbers of visitors and disturbance.

4.3 Vulnerability
None apparent, though the effect of the coast road should be carefully monitored.

4.4. Designation of site (remarks on the quantitative data below)
Part of, or close to, the Wadi al Kouf national park, an area of 100,000 hectares established as Libya's first national park in 1978. The park itself extends well inland and covers limestone mountains with juniper clad hillsides in the Jebal Akhdar region. An area of 100,000 hectares of the Jebal Akhdar is classified by BirdLife International as an Important Bird Area because of the presence of Lesser Kestrel *Falco naumanni* (a summer visitor

which would not have been present at the time of the survey) and of two biome-restricted species of the Mediterranean North Africa biome, Barbary Partridge *Alectoris barbara* and Sardinian Warbler *Sylvia melanocephala*. Both of the latter (relatively common and widespread species) were recorded during our visit, the partridge being of the well-differentiated *barbata* subspecies.

4.5 Ownership
Presumably state-owned

4.6 References
Defos du Rau et al (2001).

RAC/SPA SDF site classification: Coastal areas: Marine cliffs, rocky coasts; and Bush, maquis and garrigue.

Ramsar Classification: **Inland ZK (b) (**Karst and other subterranean hydrological systems).

Suitability for Slender-billed Curlew:
Quite unsuitable.

Feeding: 0
Roosting: 0

Ras Hilal

Not strictly a wetland, but an open sea-bay with mainly rocky coasts; holiday camp accommodation, where some cormorants and terns were seen offshore on 11 January. Site 44 on Map, site AR in Appendices 2 and 3.

Shahat
Not a wetland; at the ruins of Cyrene, a number of passerines were recorded on 10 January. One Lapwing recorded en route to this site. Not included in Map, site AQ in Appendices 2 and 3.

Derna Town

Not strictly a wetland; included because of the cormorants, gulls and waders noted on 11 and 13 January on the coast, at the harbour and especially on an offshore rocky islet easily visible from the city road along the sea-front. Site 45 on Map, site AS in Appendices 2 and 3.

Wadi Al Khalij

32° 39,422 N 22°54,941 E. Visited on 11 January 2005, coverage 70%. Site 46 on Map, site AT in Appendices 2 and 3.

4.1 Quality and importance

The site, like neighbouring Wadi Al Hamsa, is in the eastern sector of Jebel Akhdar, east of Derna, where a major river breaks through the limestone rock to reach the sea, creating a deep, scenically most impressive gorge. The sides of the gorge are clothed in maquis vegetation, typical of the Jebel Akhdar. The water in the stream is fresh and appears to be permanent, and there are thick belts of reeds along the watercourse, which is rich in fish. A total of 25 waterbirds were seen, among them 18 Coot and four Moorhens, which might perhaps breed in the reeds. Where the river reaches the sea, there is a rocky bay with a sandy beach and some seabirds including a Gannet were seen out to sea. Among RAC/SPA Bird Action Plan species, a single Osprey was noted. Two Bonelli's Eagles were noted, the only ones of the survey; it is quite possible that they nest in the rocky outcrops inland. Two Bluethroats were noted in the reeds, rarely recorded in Libya in the past, but hardly surprising in view of the number seen in other sites. Other non-waterbirds were typical of the Jebel Akhdar area. The reed-beds may well be an important stopover site for northward bound migrants, especially passerines, in spring. Spent cartridges and hunters' butts were noted among the reeds.

The most impressive thing about this site and the next are its breath-taking scenic qualities. For these alone, some kind of conservation status would be justified.

4.2 Conservation Status

Appeared to be in near-natural condition, practically untransformed, except for a little sand quarrying on the beach. The beach and valley are no doubt used for recreational purposes (e.g. picnics) in summer.

4.3 Vulnerability

No threats obvious, quarrying is on a very small scale.

4.4. Designation of site (remarks on the quantitative data below)

None known; national protection measures recommended.

4.5 Ownership

Believed to be state-owned.

4.6 References
None known.

RAC/SPA SDF site classification: Mainly Coastal wetlands (estuaries); also Dunes, sandy beaches, rocky beaches.

Ramsar Classification: Mainly **Inland M** (Permanent rivers/streams /creeks), partly Marine/Coastal F (Sand, shingle or pebble shores).

Suitability for Slender-billed Curlew:
The long deep river gorge is not really very suitable for the species, though migrants might stop briefly near the sea.

Feeding: 0/1
Roosting: 0/1

Wadi Al Hamsa

32° 38,863 N 23°00,065 E. Visited on 11 January 2005, coverage 90%. Site 47 on Map, site AU in Appendices 2 and 3.

4.1 Quality and importance
Another gorge through the Jebel Akhdar limestone massif, before it meets the sea, with a beach at the seaward end, with impressive scenic properties; similar to Wadi Al Khalij and only a few kilometres to the east, though with *Arthrocnemum*, instead of reed-beds, along the shores of the river shores. The river mouth was completely closed by sand at the time of our visit. Waterbirds present similar to those at Wadi Al Khalij, though numbers rather smaller; the non-waterbirds were typical of Jebel Akhdar, but did include a small number of Crag Martins. Many spent cartridges and the remains of a shot Redshank were seen.

4.2 Conservation Status
Appeared to be in near-natural condition. Some traditional fishing, with coil-shaped net systems, takes place in the river (presumably targeted at mullets *Liza* sp). The beach and valley are no doubt used for recreational purposes (e.g. picnics) in summer.

4.3 Vulnerability
No threats obvious

4.4. Designation of site (remarks on the quantitative data below)
None known; national protection measures recommended.

4.5 Ownership

Presumably state-owned

4.6 References
None known.

RAC/SPA SDF site classification: Mainly Coastal wetlands (estuaries); also Dunes, sandy beaches, rocky beaches.

Ramsar Classification: Mainly **Inland M** (Permanent rivers/streams /creeks), partly Marine/Coastal F (Sand, shingle or pebble shores).

Suitability for Slender-billed Curlew:
The long deep river gorge is not really very suitable for the species, though migrants might stop briefly near the sea.

Feeding: 0/1
Roosting: 0/1

Sebkhet Temimi

32° 31,950 N 23°03,630 E. Visited on 11 and 13 January 2005, coverage 40%. Site 48 on Map, site AW in Appendices 2 and 3

4.1 Quality and importance
Similar to Ain Ghazala, near which it is sited, and just east of the Wadi Al Khalij and Wadi Al Hamsa. An extensive saltmarsh (several thousand hectares) with shallow coastal waters offshore, in the south of the Gulf of Bumba; inflow through one or two large wadis and fresh water from springs through limestone plain, with *Suaeda* vegetation, fairly heavily grazed by sheep and goats. Quite extensive reed-beds on the eastern side, demonstrating input of fresh water, along edges of the inlet. High fish productivity. The island of Gaziret Al Barda'a (not visited) was easily visible some way offshore; it may be of importance for breeding seabirds. The northern sector of the Gulf of Bumba was not visited since it is a military area.

A total of 506 waterbirds was recorded, with good numbers of grebes on the sea, herons, some ducks and waders (including a Jack Snipe and eight Eurasian Curlews). RAC/SPA Bird Action Plan species included a single Greater Flamingo and four Sandwich Terns. Gaziret Al Barda'a is believed to be a possible breeding site for a small number of Lesser Crested Terns (another MAP species); if so, it would, with Gaziret Elba (site 50) and Gaziret Al Garah (the main breeding island, see site 26) hold practically all the Lesser Crested Terns nesting in the Mediterranean.

A site with a wide variety of species and habitats, in near-natural condition, of high conservation and biodiversity value.

4.2 Conservation Status
The habitat appeared to be in near-natural condition.

4.3 Vulnerability
There were no obvious threats to the habitat, but hunting pressure did seem to be heavy, judging from the number of cartridges and remains of dead birds (probably from the previous autumn); remains (wings and legs) of several birds included a number of Teal and the remains of a Black Stork, the latter only previously recorded twice in Libya.

4.4. Designation of site (remarks on the quantitative data below)
None known, but would meet Ramsar criteria of international importance (either with Ain Al Ghazala, or as two separate sites).

4.5 Ownership
Presumably state-owned

4.6 References
Meininger et al (1994).

RAC/SPA SDF site classification: Coastal wetlands (lagoons, estuaries)

Ramsar Classification: **Marine/Coastal A (**Permanent shallow marine waters).

Suitability for Slender-billed Curlew:
Coastal sites are always potential areas for the species, especially in time of migration, though is seems more likely to occur in sandy areas with *Arthrocnemum*. Some Eurasian Curlews present.

Feeding: 1/2
Roosting: 1/2

Ras Al Tin

32° 36,154 N 23°04,800 E. Visited on 11 January 2005, coverage 20%, only partial because of nearby military installations. Site 49 on Map, site AV in Appendices 2 and 3.

4.1 Quality and importance
An area of dry higher ground, inland of Wadi Al Khalij and Wadi Al Hamsa, with some lower depressions where water collected and reed beds, with outcrops of limestone rock. Partly used for agriculture, which provided feeding habitat for some waders preferring drier conditions, among them the only Stone Curlew seen during the whole survey, much the largest flock of Dotterel (40 birds) and a small flock of Eurasian Curlew. The non-waterbirds also reflected these drier conditions, with Marsh and Hen Harriers, one of only two Quails noted in the survey, various larks and wheatears

One of the few areas of arable agriculture surveyed, clearly of value to a number of species able to adapt to drier conditions.

4.2 Conservation Status
Arable land, used for agriculture.

4.3 Vulnerability
No threats apparent.

4.4. Designation of site (remarks on the quantitative data below)
None known, none recommended

4.5 Ownership
Presumably state-owned

4.6 References
None known

RAC/SPA SDF site classification: Not applicable

Ramsar Classification: Not applicable

Suitability for Slender-billed Curlew:
Does not seem very suitable, but might associate with feeding Eurasian Curlews.
Feeding: 0/1
Roosting: 0

Gaziret Elba

Visited on 13 January, coverage 10% (viewed from the shore at Ain Al Ghazala). Site 50 on Map, site BC in Appendices 2 and 3.

4.1 Quality and importance
A small flat island (probably covering about 20 hectares), less than a kilometre offshore of Ain Al Ghazala. Viewed from the land only, hence limited coverage. A total of 94 large waterbirds (all cormorants and gulls) were recorded; because of the distance, smaller birds may have been overlooked. The site is one of two known breeding places in Libya, and the whole of the Mediterranean, for Lesser Crested Tern (a RAC/SPA Bird Action Plan species), and the only one outside the Gulf of Sirt (though nesting has been suspected at nearby Gaziret Al Barda'a, see above under Sebkhet Temimi). This species is a summer visitor, so none were recorded during our visit.

The island is of importance as a breeding site for Lesser Crested Tern, and probably as a safe haven for other species in Ain Al Ghezala. It holds a night roost of Cormorants that forage on the nearby wetlands.

4.2 Conservation Status
Appears to be in near-natural condition.

4.3 Vulnerability
No apparent threats to the habitat. It is possible that fishing activities carried out in Ain Al Ghazala, might disturb nesting birds, particularly if fishermen landed on the island during the breeding season. Hunting pressure seems considerable in the Ain Al Ghazala / Sebkhet Temimi area, but presumably not on the island itself.

4.4. Designation of site (remarks on the quantitative data below)
Undoubtedly merits Ramsar listing, preferably as part of a larger Ain Al Ghazala site.

4.5 Ownership
Presumably state-owned

4.6 References
Meininger et al (1994).

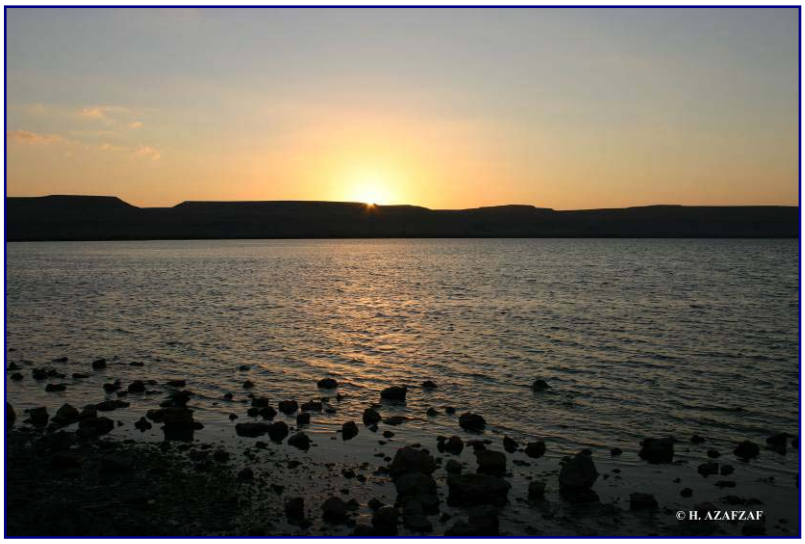
RAC/SPA SDF site classification: Coastal wetlands (estuaries, deltas)

Ramsar Classification: **Marine/Coastal D (**Rocky marine shores).

Suitability for Slender-billed Curlew:
Not very suitable for feeding Curlews, but could provide a roosting site, or a resting place for passing migrants.

Feeding: 0/1
Roosting: 0/1

Ain Al Ghazala



32° 09,171 N 23°19,744 E. Visited on 11 and 13 January 2005, coverage 70%. Site 51 on Map, site AX in Appendices 2 and 3.

4.1 Quality and importance
A narrow inlet of the sea in a limestone coastal plain (probably a drowned river mouth) adjoining Ain Al Ghazala town, with inflow of fresh water from springs. Shores with sparse *Suaeda* vegetation. At the southern end, a narrow belt of reeds is present and behind it huge, but overgrazed, salt pastures extend to the main road. Mixture of fresh and saline water encourages productivity, and fish populations rich. Local fishing and aquaculture (cages in water) activities. Just offshore is Gaziret Elba (site 50 on Map, see above).

A total of 366 waterbirds was seen, including a number of grebes on the sea (an indication of presence of fish), cormorants, some waders (including a probable Lesser Sand Plover, very rarely recorded in Libya). One RAC/SPA Bird Action Plan species (Sandwich Tern in small numbers).

Gaziret Elba, just offshore, was viewed from the shore. It is known as a breeding site of Lesser Crested Tern, another RAC/SPA Bird Action Plan species, which is a summer visitor and hence not present during our winter visit).

An area of considerable variety and interest in near natural state, on a limestone rather than a sandy coast.

4.2 Conservation Status
Appeared to be in near natural condition. Some ongoing fisheries activities.

4.3 Vulnerability
No apparent threats to the habitat. Appeared to be considerable hunting activity.

4.4. Designation of site (remarks on the quantitative data below)
An area of 1,000 hectares of Gaziret Elba and Ain Al Ghazala are listed as Important Bird Areas by BirdLife International on the basis of the 40 pairs of breeding Lesser Crested Terns on Gaziret Elba in 1993 and the presence of three biome-restricted species from the Mediterranean North Africa biome (Barbary Partridge, Red-rumped Wheatear and Spectacled Warbler).

The site (including Gaziret Elba) undoubtedly merits Ramsar listing, either with Sebkhet Temimi or as a separate site.

4.5 Ownership
Presumed to be state-owned.

4.6 References
Meininger et al (1994).

RAC/SPA SDF site classification: Coastal wetlands (lagoons, estuaries)

Ramsar Classification: **Marine/Coastal A (**Permanent shallow marine waters).

Suitability for Slender-billed Curlew:
The species would probably find sandy sebkhets with *Arthrocnemum* more congenial, but there is always a possibility, in any coastal site, that passing migrants might alight.

Feeding: 1/2
Roosting: 1/2

Tobruk harbour

32° 04,114 N 23°56,111 E. Visited on 13 January 2005, coverage 75%. Site 52 on Map, site BA in Appendices 2 and 3.

4.1 Quality and importance
Rather different from Tripoli and Benghazi harbours. The area considered is a large natural inlet of the sea, forming a natural harbour, presumably quite deep. The shores are not entirely built over: a small sebkhet once existing near the bottom of the gulf is no longer present. A total of 306 waterbirds recorded, including grebes on the water and a number of cormorants and gulls.

4.2 Conservation Status
Includes urban area of the city of Tobruk, hence much affected by economic and commercial priorities.

4.3 Vulnerability
Liable to be affected by industrial, harbour and urban development.

4.4. Designation of site (remarks on the quantitative data below)
None known.

4.5 Ownership
Presumably state-owned

4.6 References
None known.

RAC/SPA SDF site classification: Coastal areas: Other sites (including urbanized and industrial areas, roads, rubbish tips, factories).

Ramsar Classification:
A deep coastal water, not a wetland, hence not covered by the Ramsar classification.

Suitability for Slender-billed Curlew:
Deep sea inlet, not at all suitable.

Feeding: 0
Roosting: 0

Tobruk abattoir (Mghira)

Not a wetland; a coastal rubbish tip and abattoir on the western outskirts of Tobruk, attracting some gulls. Visited on 13 January 2005. Site 53 on Map, site BB in appendices 2 and 3.

Bouhayret Al Melfa

29° 44,149 N 24°45,130 E. Visited on 12 January 2005, coverage 90%. Site 54 on Map, site AY in Appendices 2 and 3.

4.1 Quality and importance

An extraordinary site, composed of two lakes (one nearly dry) covering about 200 hectares in a depression 10 kms from the oasis of Jaghbub, 280 kilometres from the coast, and in the midst of the most arid desert. Saline waters derived from underground springs, does not dry out in summer. Surrounding vegetation includes *Juncus*, *Tamarix*, and extensive tall reed beds, also more saline *Salicornia* and *Arthrocnemum*. The aquatic fauna of the lake is also of outstanding interest mainly for its marine origin, as attested by cockles, mussels, killifish and sandsmelts; large tilapias (apparently introduced) are present too.

A total of 18 waterbirds found, mainly cormorants and herons which must have flown in from the coast, but also Moorhens, which may be resident and perhaps breed. Among non-waterbirds were White-crowned Wheatears (usually an indication of extreme desert conditions) and, most unexpectedly, singing Reed Warblers, a species which is not supposed to winter north of the Sahara. The site must be important for northbound passage migrants, especially passerines, in spring. Many other typical species of the Sindian–Saharan biome must occur here too.

The pools are used for fish production.

Of considerable interest, despite the small numbers of water birds present.

4.2 Conservation Status

The site appeared to be in near-natural state, except for a series of small tourist lodges recently built along the shores. Spent cartridges and remains of shot birds (Redshank, Moorhen) were seen.

4.3 Vulnerability

No problems apparent, if the recently built tourist facilities are properly managed.

4.4. Designation of site (remarks on the quantitative data below)

None known. It would be worth Ramsar designation mainly in consideration of the aquatic fauna.

4.5 Ownership

Presumably state-owned.

4.6 References
None known.

RAC/SPA SDF site classification: An inland site, not covered by the RAC/SPA definitions.

Ramsar Classification: **Inland Q** (Permanent saline/brackish/alkaline lakes).

Suitability for Slender-billed Curlew:
The species is most unlikely to appear so far from the coast in a site cut off by miles of desert.

Feeding: 0
Roosting: 0

Jaghbub Oasis

29° 44,864 N 24°31,231 E. Visited on 12 January 2005, coverage 20%. Not included in Map, site AZ in Appendices 2 and 3.

4.1 Quality and importance
A small oasis some 300 kilometres inland from the sea and close to the border with Egypt, not too far from Siwa oasis in Egypt. No areas of open water, simply drainage channels and streams running between palm groves and bordered by tamarisks. Of interest as an indication of the birds that winter in an oasis. No waterbirds at all seen, but non-waterbirds included a considerable number of insect-eating species such as White Wagtail, a large number (20) of Chiffchaffs, obviously wintering, and several singing Reed Warblers, in much larger number than those found at Bouhayret Al Melfa and Benghazi Lake. The oasis must be a major stopover site for northward migrants in spring.

4.2 Conservation Status
Obviously influenced by man, but no major transformations visible.

4.3 Vulnerability
No apparent problems.

4.4. Designation of site (remarks on the quantitative data below)
None known

4.5 Ownership
Believed to be state-owned

4.6 References
None known.

RAC/SPA SDF site classification: Not applicable.

Ramsar Classification: **Inland Y** (Freshwater springs and oases).

Suitability for Slender-billed Curlew:
It seems very unlikely that a Slender-billed Curlew would venture so far inland.

Feeding: 0
Roosting: 0

Appendix 2: Full details of all species of waterbirds counted

Site		Sebkhet Al Mangoub 32° 53,732 N 12°08,513 E	Farwa Lagoon 33° 04,848 N 11°44,200 E	Coast Farwa to Ras Ajdir 33° 05,538 N 11°39,476 E	Gataya Island 33° 06,731 N 11°37,631 E	Sebkhet Boukamech 33° 07,543N 11°22,331 E	Sebkhet Zolton 33° 00,585N 11°48,746E	Bab El GebsTripoli	Wadi Attot Dam 32° 07,160 N 12°25,258 E	Wadi Zaret Dam 32° 06,349 N 12°47,614 E	Ain Tagnet 32° 07,561N 12°48,372 E	Wadi Ghan Dam 32° 14,637 N 13°08,039 E	Azizia Town	El Rabta	Kekla	Tajura 32° 52,366N 13°18,624 E	Wadi Maseed 32° 47,426 N 13°42,242 E	Wadi Turghat 32° 047,356 N 13°49,405 E	Wadi Kaam 32° 31,189 N 14°26,733 E	Taourgha 32° 00,129 N 15°08,419 E	Sebkhet Qasr Ahmed 32° 00,105 N 15°08,408 E	Sebkhet Sultan 31° 06,256 N 17°10,667 E	Sebkhet Ras Lanouf 30° 23,418 N 18°39,794 E	Sebkhet Al Agaylah 30° 15,108 N 19°15,505 E	Sebkhet Bishr 30° 16,276N 19°21,536 E	Sebkhet Hafiroun 30° 21,638 N 19°33,731 and Sebkhet Brega 30° 21,732N 19°30,557 E	Sebkhet Al Kabira 29° 44,119 N 19°52,485E	Sebkhet Shuwayrib 30° 26,700 N 19°48,150 E	Sebkhet Al Gnayen	Sebkhet Garyounes 32° 03,972 N 20°02,328 E	Benghazi Lake 32° 05,567 N 20°03,777 E	Benghazi Harbours 32° 06,087N 20°03,218 E	Beach Essabre	Sebkhet Al Thama and Sebkhet Esselawi 32°09,000 N 20°06,000	Bou Dzira Park 32° 10,241N 20°07,786 E	Ain Azziana 32° 12,616 N 20°09,766 E	Sebkhet Al Kouz 32° 28,700 N 20°29,544 E	Birka Nout 32° 54,577 N 21°48,638 E	Sebkhet Gfanta 32° 49,806 N 21°30,285 E	Sebkhet Ain Ashagiga 32° 49 N 21°29 E	Sebkhet Ain Azzarga 32° 47,955 N 21°27,411 E	Shahat (Cyrene) 32° 49,N 21°50 E	Ras Hilal 32° 54,114N 22°10,169 E	Derna Town 32° 46,380 N 22°30,209 E	Wadi Al Khalij 32° 39,422 N 22°54,941 E	Wadi Al Hamsa 32° 38,863 N 23°00,065 E	Ras Al Tin 32° 36,154 N 23°04,800 E	Sebkhet Temimi 32° 31,950 N 23°03,630 E	Ain Al Ghazala 32° 09,171 N 23°19,744 E	Bouhayrat El Melfa 29° 44,149 N 24°45,130 E	Jaghbub Oasis 29° 44,864 N 24°31,231 E	Tobrouk Harbour 32° 04,114 N 23°58,111 E	Tobruk abattoir (Mghira) 32° 06,054 N 23°58,841 E	Gaziret Elba 32°13,000 N 23°18,000	Sebkhet Fairouz (Benghazi) 32° 02,789 N 20°01,533 E	Sebkhet Ganfouda (Ben Ghazi) 32° 01,371N 20°00,600 E	Ghemines 31° 50,465 N 20°05,100 E	Sebkhet Karkoura 31° 26,116 N 20°02,145 E	Sebkhet Chott Al Bedin 31° 12,963 N 20°09,753 E	Sebkhet Ben Jawad 30° 51,359 N 17°52,362 E	Al-Gordabia Great Man-made Reservoir (Sirt) 31°10 ,373 N 16°41,227 E	Sirt's Mahary Hotel 31°12,405 N 16° 31,390 E	Sebkhet Zouitina 31°00,000 N 20°10,000	Wadi Lahmer 31°01,336 N 17°28,536 E	Al Hisha 31°38,915 N 15°16,189 E	Tripoli harbour 32° 06,087 N 20°03,218 E	*Total by species*
Date of visit		**03/01/2005**						**04/01/2005**								**05/01/2005**				**06/01/2005**	**07/01/2005**		**08/01/2005**							**09/01/2005**								**10/01/2005**					**11/01/2005**							**12/01/2005**		**13/01/2005**			**14/01/2005**					**15/01/2005**					**16/01/2005**	**17/01/2005**	
Coverage in %		**50**	**70**	**50**	**100**	**10**	**40**		**100**	**80**	**50**	**60**					**80**	**80**	**50**	**10**	**20**	**80**	**80**	**60**	**60**	**30**	**10**	**30**	**10**	**80**	**75**	**80**	**80**	**70**	**80**	**70**	**50**	**90**	**80**	**60**	**60**		**80**		**70**	**90**	**20**	**40**	**70**	**90**	**20**	**75**	**50**	**10**	**80**	**80**	**90**	**80**	**95**	**50**	**5**	**95**	**60**	**60**	**10**	**40**	
English name	**Scientific name**																																																																		
Waterbird species																																																																			
Little Grebe	*Tachybaptus ruficollis*									10							1			9											4				1			1														10															**36**
Great Crested Grebe	*Podiceps cristatus*		200																2																													12	24			10															**248**
Black-necked Grebe	*Podiceps nigricollis*		75															2													70					3	20				1								124												10						**305**
Mediterranean (Levantine) Shearwater	*Puffinus yelkouan/mauritanicus**																	2																																																	**2**
Gannet	*Morus bassanus*																2	1																																																	**3**
Great Cormorant	*Phalacrocorax carbo*		484		10					3							1	10	2		4									40	20	10			168	43		1					12	6	1	2		89	140	13		62		20				3					3		2	1	**1150**
Squacco Heron	*Ardeola ralloïdes*																			2																																															**2**
Cattle Egret	*Bubulcus ibis*							30												5											6			3	1																					120							4				**169**
Little Egret	*Egretta garzetta*		9							1							1	1	2	15											14		1		5	6	1											19										2							3		**80**
Great Egret	*Egretta alba*		2															1	1	5											1					3																													3		**16**
Purple Heron	*Ardea purpurea*																			2																																															**2**
Grey Heron	*Ardea cinerea*	1	13		1					9		1					1		6	5	1					1					38			26		9										1		14	3	1															2		**133**
Black Stork	*Ciconia nigra*																																															1																			**1**
White Stork	*Ciconia ciconia*													2						4																																															**6**
Glossy Ibis	*Plegadis falcinellus*																			1																																															**1**
Spoonbill	*Platalea leucorodia*		60							1								1		9											22																																		6		**99**
Greater Flamingo	*Phoenicopterus ruber*		25															3			24	47	26								6						527			1								1												5			7		101	2	**775**
Common Shelduck	*Tadorna tadorna*									1								1			3		3								3						1											3																	92		**107**
Wigeon	*Anas penelope*																			9	1																15																												2		**27**
Gadwall	*Anas strepera*																	3													5																	3																	3		**14**
Teal	*Anas crecca*									90							1		1	13										5	26						9											40	15																31		**231**
Mallard	*Anas platyrhynchos*									6										4											21								1		4																								4		**40**
Pintail	*Anas acuta*		1							70								7												8	50					1	1			4																									12		**154**
Shoveler	*Anas clypeata*									50								2	1	29											130			82			55			4	85																								63		**501**
Pochard	*Aythya ferina*									5									1												32										1																								3		**42**
Ferruginous Duck	*Aythya nyroca*									3								2	1																			1																											3		**10**
Tufted Duck	*Aythya fuligula*									12																					8																																				**20**
Duck spp	*Anas* spp																																																																		**0**
Moorhen	*Gallinula chloropus*																5	9	12	2											1							2							4	1				2																	**38**
Water Rail	*Rallus aquaticus*																				1										1															1			1																		**4**
Coot	*Fulica atra*									25							2	68	10												198							1			30				18	2		1													11				25		**391**
Crane	*Grus grus*																			107	11																			1																		18							109		**246**
Oystercatcher	*Haematopus ostralegus*		20																																																																**20**
Black-winged Stilt	*Himantopus himantopus*									11										15	136			3						5	25			22			2																		3										23		**245**
Avocet	*Recurvirostra avosetta*		5																						27															1																							2				**35**
Stone Curlew	*Burhinus oedicnemus*																																														1																				**1**
Little Ringed Plover	*Charadrius dubius*																			1																			1																												**2**
Ringed Plover	*Charadrius hiaticula*		4																	3										2	30					19			2	2									4									1							5		**72**
Kentish Plover	*Charadrius alexandrinus*	16	26							10							7	20	13	2	85	150	15	1	1	20		13		51	200			256		19	7		15	6	5				1			2	4						10	7		41					5	8	94		**1110**
Greater Sand Plover	*Charadrius leschenaultii*																																																									3							1		**4**
Lesser Sand Plover	*Charadrius mongolus*																																																1																		**1**
Golden Plover	*Pluvialis apricaria*																																				323		110																												**433**
Grey Plover	*Pluvialis squatarola*	1	31		1												1													2	7					9	1			2								1	4						2			5									**67**
Dotterel	*Charadrius morinellus*																																														40											12									**52**
Northern Lapwing	*Vanellus vanellus*									1																																1																									**2**
Sanderling	*Calidris alba*		22														20													20	30		5	10																						27									6		**140**
Knot	*Calidris canutus*																					1																																													**1**
Little Stint	*Calidris minuta*			10						1										15	230	1	1			20	20	15		15	48			320		54	1		40	8	20								20						8	10		23					5		39		**924**
Temminck's Stint	*Calidis temminckii*									2										4																1																															**7**
Dunlin	*Calidris alpina*		32	50																2	160	25	50			70		7		35	180			170		144			22	9	9							146	6						11	23		79		15					154		**1399**
Ruff	*Philomachus pugnax*																				6																																					32							22		**60**
Jack Snipe	*Lymnocryptes minimus*									3	5																																					1																			**9**
Snipe	*Gallinago gallinago*																		5	3											17									19	3							11																			**58**
Black-tailed Godwit	*Limosa limosa*			3																											7																																				**10**
Eurasian Curlew	*Numenius arquata*		112	73																	5	93			1			15									144										17	8	1							1		58		6							**534**
Spotted Redshank	*Tringa erythropus*																														1						2																														**3**
Redshank	*Tringa totanus*		34	4						3										10	5		5							4	15			36		7		2	15	62	1					2		54	6	1					24	2	10	16	9				2		14		**343**
Greenshank	*Tringa nebularia*		6														1																								1																										**8**
Green Sandpiper	*Tringa ochropus*								2		1	1																		1						1																			1												**7**
Wood Sandpiper	*Tringa glareola*									1										2											1																								1												**5**
Common Sandpiper	*Actitis hypoleucos*		1														1	1	1	2																																															**6**
Marsh Sandpiper	*Tringa stagnatilis*								3											1																2																													3		**9**
Turnstone	*Arenaria interpres*		10	1																	2	10											15			17								2														38					6	1			**102**
Skua spp.	*Stercorarius spp.*																1	1																																																	**2**
Mediterranean Gull	*Larus melanocephalus*		190																2			2								2	3			1										20					1						7												**228**
Little Gull	*Larus minutus*																													1	20	3				1				1				2				11				16															**55**
Black-headed Gull	*Larus ridibundus*	50																			110									900	1922	40	100	310	10	78								17								165			354	10000							81				**14137**
Slender-billed Gull	*Larus genei*	80	540	100	10																24	3				3					10					25	40			20					1			31	1											4			1				**893**
Audouin's Gull	*Larus audouinii*	8															13					34						1									6			1				2														270	7	1	1						**344**
Lesser Black-backed Gull	*Larus fuscus*	158	500	16													5				50	14								1	14		8	2									1									3	25		5	600		7		1	1		14				**1425**
Caspian Gull	*Larus cachinnans*		1																																									9											1	1500		61					10				**1582**
Yellow-legged Gull	*Larus michahellis*	2	26	1													7					8									1	1	130	2					3		1			8				45	3			40	80	74	1	100							2				**535**
Pontic/Yellow-legged Gull	*Larus cachinnans/michahellis*																					27																																				6									**33**
Great Black-headed Gull	*Larus ichthyaetus*		1																			3																																													**4**
Gull-billed Tern	*Gelochelidon nilotica*		1																																																																**1**
Caspian Tern	*Sterna caspia*	?	26	3	2																																											5	2																		**38**
Sandwich Tern	*Sterna sandvicensis*	22	5														25		10											1	2					6		2					2					4	5						11				4			2					**101**
Whiskered Tern	*Chlidonia hybridus*																														75					2																															**77**
Kingfisher	*Alcedo atthis*		2																2	3															1	2										2		4	1	1															1		**19**
Total by site		**338**	**2464**	**261**	**24**	**0**	**0**	**30**	**5**	**318**	**6**	**2**	**0**	**2**	**0**	**0**	**95**	**135**	**72**	**284**	**858**	**418**	**100**	**4**	**29**	**114**	**20**	**51**	**0**	**1093**	**3264**	**54**	**259**	**1240**	**186**	**452**	**1155**	**10**	**209**	**141**	**161**	**1**	**15**	**66**	**25**	**11**	**58**	**506**	**366**	**18**	**0**	**306**	**105**	**94**	**439**	**12390**	**10**	**675**	**20**	**32**	**23**	**2**	**142**	**9**	**826**	**3**	**29996**

Appendix 3: Full details of non-waterbird species counted

Site		Sebkhet Al Mangoub 32° 53,732 N 12°08,513 E	Farwa Lagoon 33° 04,848 N 11°44,200 E	Coast Farwa to Ras Ajdir 33° 05,538 N 11°39,476 E	Gataya Island 33° 06,731 N 11°37,631 E	Sebkhet Boukamech 33° 07,543N 11°22,331 E	Sebkhet Zolton 33° 00,585N 11°48,746E	Bab El Gebs Tripoli	Wadi Attot Dam 32° 07,160 N 12°25,258 E	Wadi Zaret Dam 32° 06,349 N 12°47,614 E	Ain Tagnet 32° 07,561N 12°48,372 E	Wadi Ghan Dam 32° 14,637 N 13°08,039 E	Azizia Town	El Rabta	Kekla	Tajura 32° 52,366N 13°18,624 E	Wadi Maseed 32° 47,426 N 13°42,242 E	Wadi Turghat 32° 047,356 N 13°49,405 E	Wadi Kaam 32° 31,189 N 14°26,733 E	Taourgha 32° 00,129 N 15°08,419 E	Sebkhet Qasr Ahmed 32° 00,105 N 15°08,408 E	Sebkhet Sultan 31° 06,256 N 17°10,667 E	Sebkhet Ras Lanouf 30° 23,418 N 18°39,794 E
Date of visit		03/01/2005						04/01/2005								05/01/2005				06/01/2005	07/01/2005		08/01/2005
Coverage in %		50	70	50	100	10	40		100	80	50	60					80	80	50	10	20	80	80
English name	Scientific name																						
Non-waterbird species																							
Hen Harrier	*Circus cyaneus*																						
Marsh Harrier	*Circus aeruginosus*			1												1				9	1		
Pallid Harrier	*Circus macrourus*																			1			
Long-legged Buzzard	*Buteo rufinus*						1			2		1											
Short-toed Eagle	*Circaetus gallicus*																1						
Osprey	*Pandion haliaetus*																1		1				
Peregrine Falcon	*Falco peregrinus*																				1		
Lanner Falcon	*Falco biarmicus*											1											
Barbary Falcon	*Falco pelegrinoides*																						
Kestrel	*Falco tinnunculus*	1						1									30			15	1		
Bonelli's Eagle	*Hieraaetus fasciatus*																						
Quail	*Cotornix cotornix*																						
Barbary Partridge	*Alectoris barbara*																3	8			25		
Rock Dove	*Columba livia*																						
Laughing Dove	*Streptopelia senegalensis*		15								1					1		1		5	4		
Desert Eagle Owl	*Bubo ascalaphus*																						
Long-eared Owl	*Asio otus*								1														
Short-eared Owl	*Asio flammeus*																						
Little Owl	*Athene noctua*		3																	1	6		
Black-bellied Sandgrouse	*Pterocles orientalis*								7														
Hoopoe	*Upupa epops*		1					1									2		1	1	2	1	
Bar-tailed Lark	*Ammomanes cincturus*											1											
Crested Lark	*Galerida cristata*	1	5			1			15	5		3					2			6	25		
Thekla Lark	*Galerida theklae*																						
Calandra Lark	*Melanocorypha calandra*		60																		1		
Skylark	*Alauda arvensis*																				31	1	
Lesser Short-toed Lark	*Calandrella rufescens*																						
Swallow	*Hirundo rustica*																				1		
Crag Martin	*Ptyonoprogne rupestris*									6		2							1				
House Martin	*Delichon urbica*																		3				
Red-throated Pipit	*Anthus cervinus*																			1	2		
Meadow Pipit	*Anthus pratensis*		11							1	1	1								20	10	1	
Water Pipit	*Anthus spinoletta*																		1				
Grey Wagtail	*Motacilla cinerea*																		1		60		
White Wagtail	*Motacilla alba*		4						20				500					2	2	10			5
Wren	*Troglodytes troglodytes*																						
Robin	*Erithacus rubecula*								1								1			2		1	
Moussier's Redstart	*Phoenicurus moussieri*		2			2			2								1				1		
Black Redstart	*Phoenicurus ochruros*		1																	1	10	1	
Bluethroat	*Luscinia svecica*																		1				
Red-rumped Wheatear	*Oenanthe moesta*																						
Desert Wheatear	*Oenanthe deserti*																				1		
Black Wheatear	*Oenanthe leucura*											6											
White-crowned Wheatear	*Oenanthe leucopyga*																						
Stonechat	*Saxicola torquata*	1	4		2				4	2							5		5	10	4		1
Blue Rock Thrush	*Monticola solitarius*											1											
Blackbird	*Turdus merula*																1						
Song Thrush	*Turdus philomelos*																				1	1	
Fieldfare	*Turdus pilaris*																2						
Fan-tailed Warbler	*Cisticola juncidis*										2						2	1		2			
Reed Warbler	*Acrocephalus scirpaceus*																						
Tristram's Warbler	*Sylvia deserticola*																				2		
Marmora's Warbler	*Sylvia sarda*														1								
Sardinian Warbler	*Sylvia melanocephala*		4						2								3	1	1	3	1		
Spectacled Warbler	*Sylvia conspicillata*		1																	1			
Blackcap	*Sylvia atricapilla*																1						
Scrub Warbler	*Scotocerca inquieta*					3															4		
Chiffchaff	*Phylloscopus collybita*		1						1	6							10	7	10	10	1	2	
Fulvous Babbler	*Turdoides fulvus*								11			4					11				4		
Cream-coloured Courser	*Cursorius cursor*																						
Hoopoe Lark	*Alaemon alaudipes*																						
Southern Grey Shrike	*Lanius meridionalis*	1	1			1			4	1							3	2		4	3	1	
Raven	*Corvus corax*								2	1													
Brown-necked Raven	*Corvus ruficollus*																						
Starling	*Sturnus vulgaris*		1						50			10		15000						10000	1		
House Sparrow	*Passer domesticus*																						
Spanish Sparrow	*Passer hispaniensis*		17						30							15				100	50		
Linnet	*Acanthis cannabina*								31														
Chaffinch	*Fringilla coelebs*																						
Trumpeter Finch	*Bucanetes githaginea*								10														
Serin	*Serinus serinus*																20				2		
Goldfinch	*Carduelis carduelis*																		2				
Reed Bunting	*Emberiza schoeniclus*																			1			
Corn Bunting	*Milaria calandra*																						
Total by site		**4**	**131**	**1**	**2**	**7**	**1**	**2**	**191**	**24**	**4**	**30**	**500**	**15000**	**1**	**17**	**99**	**22**	**29**	**10203**	**255**	**9**	**6**

Site		Sebkhet Al Agaylah 30° 15,108 N 19°15,505 E	Sebkhet Bishr 30° 16,276N 19°21,536 E	Sebkhet Hafiroun 30° 21,638 N 19°33,731 and Sebkhet Brega 30° 21,732N 19°30,557 E	Sebkhet Al Kabira 29° 44,119 N 19°52,485E	Sebkhet Shuwayrib 30° 26,700 N 19°48,150 E	Sebkhet Al Gnayen	Sebkhet Garyounes 32° 03,972 N 20°02,328 E	Benghazi Lake 32° 05,567 N 20°03,777 E	Benghazi Harbours 32° 06,087N 20°03,218 E	Beach Essabre 32°08,000 N 20°04,000	Sebkhet Al Thama and Sebkhet Esselawi 32°09,000 N 20°06,000	Bou Dzira Park 32° 10,241N 20°07,786 E	Ain Azziana 32° 12,616 N 20°09,766 E	Sebkhet Al Kouz 32° 28,700 N 20°29,544 E	Birka Nout 32° 54,577 N 21°48,638 E	Sebkhet Gfanta 32° 49,806 N 21°30,285 E	Sebkhet Ain Ashagiga 32° 49 N 21°29 E	Sebkhet Ain Azzarga 32° 47,955 N 21°27,411 E	Shahat (Cyrene) 32° 49,N 21°50 E	Ras Hilal 32°54,114N 22°10,169 E	Derna Town 32°46,380 N 22°30,209 E	Wadi Al Khalij 32° 39,422 N 22°54,941 E
Date of visit								09/01/2005								10/01/2005					11/01/2005		
Coverage in %		60	60	30	10	30	10	80	75	80	80	70	80	70	50	90	80	60	60		80		70
English name	Scientific name																						
Non-waterbird species																							
Hen Harrier	*Circus cyaneus*																		1				
Marsh Harrier	*Circus aeruginosus*								2			1		2									
Pallid Harrier	*Circus macrourus*								1														
Long-legged Buzzard	*Buteo rufinus*					1														1			
Short-toed Eagle	*Circaetus gallicus*																						
Osprey	*Pandion haliaetus*																						1
Peregrine Falcon	*Falco peregrinus*																						
Lanner Falcon	*Falco biarmicus*																						
Barbary Falcon	*Falco pelegrinoides*																						
Kestrel	*Falco tinnunculus*																			2			
Bonelli's Eagle	*Hieraaetus fasciatus*																						2
Quail	*Cotornix cotornix*																						
Barbary Partridge	*Alectoris barbara*															1							
Rock Dove	*Columba livia*															5							
Laughing Dove	*Streptopelia senegalensis*							10							4				1				
Desert Eagle Owl	*Bubo ascalaphus*																						
Long-eared Owl	*Asio otus*																						
Short-eared Owl	*Asio flammeus*																		1				
Little Owl	*Athene noctua*							1								1							
Black-bellied Sandgrouse	*Pterocles orientalis*																						
Hoopoe	*Upupa epops*					1																	
Bar-tailed Lark	*Ammomanes cincturus*																						
Crested Lark	*Galerida cristata*					15		3							15								
Thekla Lark	*Galerida theklae*																	20			4		8
Calandra Lark	*Melanocorypha calandra*																						
Skylark	*Alauda arvensis*														15	1			3				
Lesser Short-toed Lark	*Calandrella rufescens*														7								
Swallow	*Hirundo rustica*																						
Crag Martin	*Ptyonoprogne rupestris*															1			40				
House Martin	*Delichon urbica*																						
Red-throated Pipit	*Anthus cervinus*								2					5	40								
Meadow Pipit	*Anthus pratensis*								4					5	5	30	3	2					
Water Pipit	*Anthus spinoletta*													1									
Grey Wagtail	*Motacilla cinerea*																			1			
White Wagtail	*Motacilla alba*						2	1	3			5			5	5	3	2		5			5
Wren	*Troglodytes troglodytes*															1				2			
Robin	*Erithacus rubecula*																	1			1		2
Moussier's Redstart	*Phoenicurus moussieri*																						
Black Redstart	*Phoenicurus ochruros*							3	2						3	1							1
Bluethroat	*Luscinia svecica*								3														2
Red-rumped Wheatear	*Oenanthe moesta*																						
Desert Wheatear	*Oenanthe deserti*					2																	
Black Wheatear	*Oenanthe leucura*																						
White-crowned Wheatear	*Oenanthe leucopyga*																						
Stonechat	*Saxicola torquata*								3			2	1		16	2	1		3	2			
Blue Rock Thrush	*Monticola solitarius*															1							
Blackbird	*Turdus merula*																						
Song Thrush	*Turdus philomelos*																	2	1				
Fieldfare	*Turdus pilaris*																						
Fan-tailed Warbler	*Cisticola juncidis*																						
Reed Warbler	*Acrocephalus scirpaceus*								2														
Tristram's Warbler	*Sylvia deserticola*																						
Marmora's Warbler	*Sylvia sarda*																						
Sardinian Warbler	*Sylvia melanocephala*														2	8		3	5	2	2		5
Spectacled Warbler	*Sylvia conspicillata*														1								
Blackcap	*Sylvia atricapilla*																						
Scrub Warbler	*Scotocerca inquieta*																						
Chiffchaff	*Phylloscopus collybita*							10	10						30	3		3	3	1			2
Fulvous Babbler	*Turdoides fulvus*																						
Cream-coloured Courser	*Cursorius cursor*		1			1																	
Hoopoe Lark	*Alaemon alaudipes*					15																	
Southern Grey Shrike	*Lanius meridionalis*							1	2						5			1	2		1		
Raven	*Corvus corax*																		2	2			2
Brown-necked Raven	*Corvus ruficollus*				6		6																
Starling	*Sturnus vulgaris*			100				80							50								100
House Sparrow	*Passer domesticus*																				30		
Spanish Sparrow	*Passer hispaniensis*							40							30								10
Linnet	*Acanthis cannabina*															17			10	10			
Chaffinch	*Fringilla coelebs*															2	2			5	2		
Trumpeter Finch	*Bucanetes githaginea*																						
Serin	*Serinus serinus*															2							
Goldfinch	*Carduelis carduelis*															10		45	42	2			
Reed Bunting	*Emberiza schoeniclus*																						
Corn Bunting	*Milaria calandra*														5			1					
Total by site		**0**	**1**	**100**	**6**	**35**	**8**	**149**	**34**	**0**	**0**	**8**	**1**	**13**	**233**	**91**	**9**	**80**	**114**	**35**	**40**	**0**	**140**

Site		Wadi Al Hamsa 32° 38,863 N 23°00,065 E	Ras Al Tin 32° 36,154 N 23°04,800 E	Sebkhet Temimi 32° 31,950 N 23°03,630 E	Ain Al Ghazala 32° 09,171 N 23°19,744 E	Bouhayrat El Melfa 29° 44,149 N 24°45,130 E	Jaghbub Oasis 29° 44,864 N 24°31,231 E	Tobrouk Harbour 32° 04,114 N 23°58,111 E	Tobruk abattoir (Mghira) 32° 06,054 N 23°58,841 E	Gaziret Elba 32°13,000 N 23°18,000	Sebkhet Fairouz (Benghazi) 32° 02,789 N 20°01,533 E	Sebkhet Ganfouda (Ben Ghazi) 32° 01,371N 20°00,600 E	Ghemines 31° 50,465 N 20°05,100 E	Sebkhet Karkoura 31° 26,116 N 20°02,145 E	Sebkhet Chott Al Bedin 31° 12,963 N 20°09,753 E	Sebkhet Ben Jawad 30° 51,359 N 17°52,362 E	Al-Gordabia Great Man-made Reservoir (Sirt) 31°10,373 N 16°41,227 E	Sirt's Mahary Hotel 31°12,405 N 16° 31,390 E	Sebkhet Zouitina 31°00,000 N 20°10,000	Wadi Lahmer 31°01,336 N 17°28,536 E	Al Hisha 31°38,915 N 15°16,189 E	Tripoli harbour 32° 06,087 N 20°03,218 E	Total by species
Date of visit						12/01/2005		13/01/2005			14/01/2005					15/01/2005					16/01/2005	17/01/2005	
Coverage in %		90	20	40	70	90	20	75	50	10	80	80	90	80	95	50	5	95	60	60	10	40	
English name	Scientific name																						
Non-waterbird species																							
Hen Harrier	*Circus cyaneus*		1																		1		**3**
Marsh Harrier	*Circus aeruginosus*		1	1															1		1		**21**
Pallid Harrier	*Circus macrourus*																						**2**
Long-legged Buzzard	*Buteo rufinus*	1																					**7**
Short-toed Eagle	*Circaetus gallicus*																						**1**
Osprey	*Pandion haliaetus*																	1					**4**
Peregrine Falcon	*Falco peregrinus*																						**1**
Lanner Falcon	*Falco biarmicus*																						**1**
Barbary Falcon	*Falco pelegrinoides*													2									**2**
Kestrel	*Falco tinnunculus*													1							1		**52**
Bonelli's Eagle	*Hieraaetus fasciatus*																						**2**
Quail	*Cotornix cotornix*		1												1								**2**
Barbary Partridge	*Alectoris barbara*																						**37**
Rock Dove	*Columba livia*																						**5**
Laughing Dove	*Streptopelia senegalensis*						5					5			3				3		5		**63**
Desert Eagle Owl	*Bubo ascalaphus*													1									**1**
Long-eared Owl	*Asio otus*																						**1**
Short-eared Owl	*Asio flammeus*																						**1**
Little Owl	*Athene noctua*																						**12**
Black-bellied Sandgrouse	*Pterocles orientalis*																						**7**
Hoopoe	*Upupa epops*										1	1			2	1			2				**17**
Bar-tailed Lark	*Ammomanes cincturus*																						**1**
Crested Lark	*Galerida cristata*		5	3				1			1	54		1					1		5		**167**
Thekla Lark	*Galerida theklae*	10																					**42**
Calandra Lark	*Melanocorypha calandra*																						**61**
Skylark	*Alauda arvensis*		15												3	30					30		**129**
Lesser Short-toed Lark	*Calandrella rufescens*																						**7**
Swallow	*Hirundo rustica*																						**1**
Crag Martin	*Ptyonoprogne rupestris*	5																			6		**61**
House Martin	*Delichon urbica*																						**3**
Red-throated Pipit	*Anthus cervinus*																						**50**
Meadow Pipit	*Anthus pratensis*			53							1								7		1		**156**
Water Pipit	*Anthus spinoletta*																						**2**
Grey Wagtail	*Motacilla cinerea*																						**62**
White Wagtail	*Motacilla alba*		50	41	5	3	10	5	15			200					5		1		2		**916**
Wren	*Troglodytes troglodytes*																						**3**
Robin	*Erithacus rubecula*																				4		**13**
Moussier's Redstart	*Phoenicurus moussieri*																						**8**
Black Redstart	*Phoenicurus ochruros*	2																	1				**26**
Bluethroat	*Luscinia svecica*																						**6**
Red-rumped Wheatear	*Oenanthe moesta*		1																3				**4**
Desert Wheatear	*Oenanthe deserti*		2		1									2									**8**
Black Wheatear	*Oenanthe leucura*																						**6**
White-crowned Wheatear	*Oenanthe leucopyga*					4	2																**6**
Stonechat	*Saxicola torquata*	10	4	4	1	1	3	1			1	1		1					2				**97**
Blue Rock Thrush	*Monticola solitarius*																						**2**
Blackbird	*Turdus merula*																						**1**
Song Thrush	*Turdus philomelos*						4											10					**19**
Fieldfare	*Turdus pilaris*																						**2**
Fan-tailed Warbler	*Cisticola juncidis*																						**7**
Reed Warbler	*Acrocephalus scirpaceus*					1	6																**9**
Tristram's Warbler	*Sylvia deserticola*																						**2**
Marmora's Warbler	*Sylvia sarda*																						**1**
Sardinian Warbler	*Sylvia melanocephala*	1					2	1							1								**47**
Spectacled Warbler	*Sylvia conspicillata*											1											**4**
Blackcap	*Sylvia atricapilla*																						**1**
Scrub Warbler	*Scotocerca inquieta*																						**7**
Chiffchaff	*Phylloscopus collybita*	2		3			20	1							1						3		**140**
Fulvous Babbler	*Turdoides fulvus*																						**30**
Cream-coloured Courser	*Cursorius cursor*																						**2**
Hoopoe Lark	*Alaemon alaudipes*																				1		**16**
Southern Grey Shrike	*Lanius meridionalis*											10		2					1		2		**48**
Raven	*Corvus corax*	1				2																	**12**
Brown-necked Raven	*Corvus ruficollus*																						**12**
Starling	*Sturnus vulgaris*		10						500		10	260							400		200		**26772**
House Sparrow	*Passer domesticus*																						**30**
Spanish Sparrow	*Passer hispaniensis*								25			300									50		**667**
Linnet	*Acanthis cannabina*		30																				**98**
Chaffinch	*Fringilla coelebs*						1																**12**
Trumpeter Finch	*Bucanetes githaginea*																						**10**
Serin	*Serinus serinus*																						**24**
Goldfinch	*Carduelis carduelis*																						**101**
Reed Bunting	*Emberiza schoeniclus*																						**1**
Corn Bunting	*Milaria calandra*																						**6**
Total by site		**32**	**120**	**105**	**7**	**11**	**53**	**9**	**540**	**0**	**14**	**832**	**0**	**10**	**11**	**31**	**5**	**11**	**422**	**0**	**312**	**0**	**30160**

Appendix 4

Details of colour rings read.

Spoonbill *Platalea leucorodia*

Three darvic (plastic) Spoonbill rings were read at Benghazi Lake. The first was 7J, ringed in Serbia and Montenegro (white with black letters, darvic rings on both legs, with the metal ring below the ring on the right leg). The second was AO, ringed in Hungary (black ring with white letters on the right leg, red ring with white letters on the left leg, the metal ring below the black ring). The third was IAZX, ringed in Italy, a black ring with white letters on the right leg, the metal ring only on the left leg. Details of ringing and other sightings are given in the table below. The reading of ring 7J in Israel on 2 October 2004 is considered to be erroneous: it seems highly unlikely that a first year Spoonbill, with no previous migratory experience, would begin its migration along the Nile flyway, then "correct" its direction to revert to the Central Europe/ North Africa flyway. We believe that it flew from Hungary to southern Tunisia, and then continued along the coast to Benghazi. Interestingly, IAZX was recorded back in Italy, near the nesting colony, in summer 2005.

Workinggroup Spoonbills International

species :Eurasian Spoonbill (Platalea leucorodia leucorodia) 20643
colourrings :W[7J]/W[7J]a ringingplace:S&M Vojvodina, Becej fishpond 4533N-2002E
metalringnr :YUB .602627 ringing age :nestling
Ringing date:30-05-04 sexe :unknown

date	country and site or reserve		observer	days	dist	sexe
02-10-04	IL Israel	Maoz Haim fishponds	Wim v.d.Bossche	125	1972 km.	
31-10-04	Tun Sfax	Thyna saltpans	Habib Dlensi	154	1446 km.	
10-01-05	Lib Banghazi	Banghazi lagoon	Khaled Etayeb	225	1504 km.	

Workinggroup Spoonbills International

species :Eurasian Spoonbill (Platalea leucorodia leucorodia) 20553
colourrings :B[A0]a/R[A0] ringingplace:HG Fejer, Dinnyes 4711N-1834E
metalringnr :HGB .1834770 ringing age :nestling
ringing date:22-06-04 sexe :unknown

date	country and site or reserve		observer	days	dist	sexe
10-01-05	Lib Banghazi	Banghazi lagoon	Khaled Etayeb	202	1683 km.	

Spatola Nero **IAB (Ozzano)**
Platalea leucorodia **IAZX** **P10157**

Pullus ringed on 13-04-03 at Valli di Comacchio (Comacchio, Ferrara) Italia 4440N1210E by S. Volponi and M Fasola.

OBSERVATIONS:

Date	*Locality*	*Province details*	*Country*	*Coordinates*	*Observer*
27-06-03	Valle Santa	Argenta, Ferrara	Italy		**De Faveri, Scaf, Fari, Camp**
23-07-04	Bahiret el Bibane		Tunisia	3300N1115E	**H. Azafzaf**
09-01-05	Benghazi Lagoon	Benghazi	Libya	3205N2003E	**Etayeb, Azafzaf, Dlensi, Smart**

Greater Flamingo *Phoenicopterus (ruber) roseus*

Two darvic (plastic) rings with letter/number codes were read on Greater Flamingos at Ras Lanouf. As indicated in replies from the two ringing stations below, one had been ringed in the Camargue, France, in July 2003 and had not been seen since; the other had been ringed in Andalucia, Spain, in August 1996 and had not been seen since; it is tempting to think that the latter had remained unnoticed in Libya throughout this period. Few of the 775 flamingos observed were close enough for ring reading, but with more time and effort, more could undoubtedly have been read.

To put these ring readings into context, it is interesting to review the other existing recoveries of darvic-ringed Greater Flamingos in Libya. They are very few in number: there is only one other reading of a live bird; intriguingly, it was a bird ringed in Sardinia, Italy, in August 2000 and read by members of the present group in Benghazi in April 2001, then read again in Tunisia, by another member of the present group, in southern Tunisia in November 2002. The other nine recoveries are of birds found dead, probably killed by hunters. Most (seven) are from the Camargue, which is not surprising since the ringing programme has been active for the longest time in France; the other two are from Andalucia. Interestingly, and in accordance with our observation that the majority of flamingos are found in the east, two of the nine are from the Gulf of Sirt, six from Benghazi and one from Tobruk. Of the nine found dead, five were in their first autumn, two were one year old and two were two years old. Of the three rings read on living birds, one was in its first year (and survived to be read at the age of two), one was two years old and one was nine years old. One of the French birds had been seen in Sardinia; Italy, on its way from the Camargue to Benghazi. Flamingos generally begin to return to the breeding colonies from the age of three; there were no records of any of these birds returning to the colonies, though the bird seen first in Benghazi then in Tunisia was perhaps beginning its return journey.

FFCD

Sens de lecture de bas en haut

HISTORIQUE DE VIE - observations envoyées par Mike SMART (observations faites par Hichem AZAFZAF et Habib DLENSI)

Flamant rose bagué le 29.07.2003 (poussin) , Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40", E04°37'44")

Bague plastique : FFCD en Noir sur fond Jaune. Bague Métal : X2504
Sexe inconnu

TOUR DU VALAT

Date	Bague	Sexe	Lieu d'observation	Comportement / Statut	Commentaires	Observateur(s)	Kms
08.01.2005	FFCD	↑	Sebkhet Ras Lanouf - Ajdabiya - LIBYE (N30°23'25", E18°39'48")		Grp de 26 dont 3 juv. Egalement lue par Mike SMART	Hichem AZAFZAF et Habib DLENSI	1904

6WR

Sens de lecture non renseigné

HISTORIQUE DE VIE - observations envoyées par Hichem AZAFZAF (observations faites par Hichem AZAFZAF et Habib DLENSI)

Flamant rose bagué le 10.08.1996 (poussin) , Laguna de Fuente de Piedra - Malaga - ESPAGNE (N37°06', W04°45')

Bague plastique : 6WR en Noir sur fond Orange. Bague Métal : 9-024812
Sexe inconnu

CSIC

JUNTA DE ANDALUCIA
Consejeria de Medio Ambiente

Date	Bague	Sexe	Lieu d'observation	Comportement	Commentaires	Observateur(s)	Kms
08.01.2005	6WR	↑	Sebkhet Ras Lanouf - Ajdabiya - LIBYE (N30°23'25", E18°39'48")			Hichem AZAFZAF et Habib DLENSI	2279

Slender-billed Gull *Larus genei*

HISTORIQUE DE VIE - Goéland railleur - Larus genei

Bague Darvic : 'HSL' en blanc sur fond vert, sens de lecture: de haut en bas
Bague Métal : 'FX-7972'
-> posées le 30.06.1999, Etang du Perrier, digue 6 - Gard - FRANCE (N43°32', E04°10')
Sexe: Mâle

Date	Bague	Sexe	Site d'observation	Activité / Statut		Observateur	Commentaires
20.07.1999	HSL		Etang du Perrier, digue 6 - Gard - FRANCE (N43°32', E04°10')			Nicolas Vincent-Martin	
11.05.2001	HSL		Etang de Pèbre, îlot 2 - Bouches-du-Rhone - FRANCE (N43°25', E04°38')			Damien Cohez	
19.06.2001	HSL		Etang de Pèbre, îlot 2 - Bouches-du-Rhone - FRANCE (N43°25', E04°38')			Olivier Scher	
23.06.2001	HSL		Etang de Pèbre, îlot 2 - Bouches-du-Rhone - FRANCE (N43°25', E04°38')			Damien Cohez	
24.06.2001	HSL		Etang de Pèbre, îlot 2 - Bouches-du-Rhone - FRANCE (N43°25', E04°38')			Olivier Scher	
27.09.2001	HSL		Cabanes du Sablon - Bouches-du-Rhone - FRANCE (N43°36', E04°24')			Damien Cohez	+ 71 individus
12.06.2002	HSL		Jeux du Coquillier, îlot 7 - Bouches-du-Rhone - FRANCE (N43°23', E04°43')	Incube		Stéphane Hélouin	
14.06.2002	HSL	M	Jeux du Coquillier, îlot 7 - Bouches-du-Rhone - FRANCE (N43°23', E04°43')	Parade	- Partenaire: KHL, femelle	Stéphane Hélouin	
16.06.2002	HSL	F	Etang de Faraman, digue 3 - Bouches-du-Rhone - FRANCE (N43°23', E04°42')			Stéphane Hélouin	
18.06.2002	HSL	M	Etang de Faraman, digue 3 - Bouches-du-Rhone - FRANCE (N43°23', E04°42')	Quémandé par	- Partenaire: non bagué, femelle	Stéphane Hélouin	
18.06.2002	HSL	M	Etang de Faraman, digue 3 - Bouches-du-Rhone - FRANCE (N43°23', E04°42')	Parade	- Partenaire: KPK, femelle	Stéphane Hélouin	
20.06.2002	HSL	M	Etang de Faraman, digue 3 - Bouches-du-Rhone - FRANCE (N43°23', E04°42')	Parade	- Partenaire: non bagué, femelle	Stéphane Hélouin	
23.06.2002	HSL	M	Etang de Faraman, digue 3 - Bouches-du-Rhone - FRANCE (N43°23', E04°42')	Parade	- Partenaire: KHL, femelle	Stéphane Hélouin	
23.06.2002	HSL	M	Etang de Faraman, digue 3 - Bouches-du-Rhone - FRANCE (N43°23', E04°42')	Parade	- Partenaire: non bagué, femelle	Stéphane Hélouin	
24.06.2002	HSL	M	Etang de Faraman, digue 3 - Bouches-du-Rhone - FRANCE (N43°23', E04°42')	Quémandé par	- Partenaire: non bagué, femelle	Stéphane Hélouin	
27.06.2002	HSL	M	Etang de Faraman, digue 3 - Bouches-du-Rhone - FRANCE (N43°23', E04°42')			Stéphane Hélouin	
17.07.2002	HSL		Marais de Faraman I, digue I-II - Bouches-du-Rhone - FRANCE			Arnaud Dorgère	
20.07.2002	HSL		Les Salanquettes, îlot 4 - Bouches-du-Rhone - FRANCE (N43°27', E04°28')			Christophe Pin	
25.07.2002	HSL		Marais de Faraman I, digue - Bouches-du-Rhone - FRANCE			Arnaud Dorgère	
05.06.2003	HSL		Ilot de Monro - Bouches-du-Rhone - FRANCE (N43°30', E04°31')	Repos		Christophe Pin	BGD cassée sur la longueur
07.06.2003	HSL		Ilot de Monro - Bouches-du-Rhone - FRANCE (N43°30', E04°31')	Repos		Christophe Pin	BGD cassée sur la longueur
24.06.2003	HSL		Ilot de Monro - Bouches-du-Rhone - FRANCE (N43°30', E04°31')	Repos		Christophe Pin	
19.07.2003	HSL		Ilot de Monro - Bouches-du-Rhone - FRANCE (N43°30', E04°31')			Christophe Pin	BGD cassée
17.07.2004	HSL		Pourtour du Rascaillan 2 - Bouches-du-Rhone - FRANCE (N43°24', E04°36')			Christophe Pin	BGD cassée d'un côté - Crèche de 74 poussins (environ 20 non volants)
03.01.2005	HSL		Lagune de Farwa - Bu Kammash - LIBYE (N33°05', E11°44')			Habib Dlensi et Mike Smart	

Appendix 5

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The present survey was organized and sponsored by:

Regional Activity Centre for Specially Protected Areas
Boulevard du Leader Yasser Arafat B.P.337 - 1080 Tunis CEDEX
Tel: (+216) 71 206 649, Fax: (+216) 71 206 490
E-mail: car-asp@rac-spa.org
Website: www.rac-spa.org

The Environment General Authority
P.O.Box 83618, AlGheran-Tripoli
Great Socialist Peoples Libyan Arab Jamahiriya
Tel: (+218) 21 4871590, 4870266, Fax: (+218) 21 4870266, 4872160
E-mail: egainfo@environment.org.ly
Website: www.environment.org.ly

African-Eurasian Migratory Waterbird Agreement
UN-Premises, Martin-Luther-King Str. 8, 53175 Bonn, Germany
Tel: (+49) 228 815 2414, Fax: (+49) 228 815 2450
E-mail: aewa@unep.de
Website: www.unep-wcmc.org/aewa

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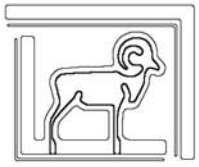

Istituto Nazionale per la Fauna Selvatica "A. Ghigi"
via ca' Fornacetta, 9, I-40064 Ozzano Emilia BO
Italy
Tel: (+39) 051 6512219, Fax: (+39) 051 796628

Office national de la chasse et de la Faune Sauvage
85 bis avenue de Wagram, BP 236
75822 Paris Cedex 17
Tel : (+33) 01 44 15 17 17, Fax : (+33) 01 47 63 79 13
E-Mail: mai@oncfs.gouv.fr
Website:www.oncfs.gouv.fr

Wetlands International
PO Box 471, 6700 AL Wageningen
the Netherlands
Tel: (+31) 317 478854, Fax: (+31) 317 478850
E-Mail: Post@wetlands.org
Website: www.wetlands.org