

**United Nations Environment Programme  
The Mediterranean Action Plan  
Regional Activity Centre for Specially Protected Areas**



**REPORT ON THE CENSUS OF LESSER CRESTED TERN  
*Sterna bengalensis* ON THE COAST OF LIBYA  
1 - 7 AUGUST 2006**



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# Report on the census of Lesser Crested Tern *Sterna bengalensis* in the Eastern coast of Libya. (1-7 August 2006)

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- 1. International Framework**
- 2. Background**
- 3. Objectives**
- 4. Participants**
- 5. Itinerary and Programme**
- 6. Lesser Crested Terns breeding in Libya from 1930 to 2005**
- 7. Description of sites and results of the 2006 survey**
- 8. Summary table of Lesser Crested Tern records during the mission from the 1<sup>st</sup> to the 7<sup>th</sup> of August 2006**
- 9. Discussion and recommendations**
- 10. Proposal for 2007**
  - 10.1 Visit of potential breeding sites in the Gulf of Bumba
  - 10.2 Ringing campaign at the breeding colony
- 11. Thanks**
- 12. Bibliography**
  - Appendix 1: Sites to visit in mid July 2007
  - Appendix 2: Summary table of *Sterna bengalensis* ringing on the 2<sup>nd</sup> and the 4<sup>th</sup> of August
  - Appendix 3: Photos of visited sites and *Sterna bengalensis*
  - Appendix 4: Details of colour rings read.

## Report on the census of Lesser Crested Tern *Sterna bengalensis* in the Eastern coast of Libya. (1-7 August 2006)

### **1. International Framework**

Libya is a Contracting Party to most of the international biodiversity-related conventions, including Ramsar, CITES, Biological Diversity (CBD) and 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.

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

### **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 around the Mediterranean, operating within the framework of the Barcelona Convention for the Protection of the marine environment and the Mediterranean coastal region. In 1995 they adopted 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 birds, and during the last 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 fifteen birds include a variety of species of different status, some globally endangered, some whose breeding area is concentrated on rocky Mediterranean islands, while others are 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 eleonora*, 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. Background

Lesser Crested Tern is one of the fifteen species in the RAC/SPA Action Plan for Birds. A small localised population of the endemic subspecies *Sterna bengalensis emigrata* breeds in the Mediterranean. Libya holds more than 99% of the Mediterranean breeding population, localised on 2 offshore islands: Geziret Garah and Geziret Al Elba.

The most recent survey and estimates of Lesser Crested Tern breeding population in Libya (in the Gulf of Sirte) was carried out 13 year ago, in July 1993. Meininger has estimated the population at Geziret Garah about 1700 breeding pairs and 40 breeding pairs were recoded at Geziret Al Elba (Meininger et al. 1993).

Due to the lack of recent data about the two breeding colonies and especially the movements of Lesser Crested Tern in the Mediterranean, EGA and the RAC/SPA decided to organise a survey for the mentioned breeding colonies and other suitable sites for the species in Libya. This survey took place from the 1<sup>st</sup> to the 7<sup>th</sup> of August 2006 and covered 5 sites (Map 1).

## 3. Objectives

The main objectives of the mission were:

- To visit the breeding colonies at Geziret Garah and Geziret Al Elba,
- To search for a new Lesser Crested Tern *Sterna bengalensis* nesting colonies,
- To identify the sites of major importance for Lesser Crested Tern nesting colonies,
- To prepare the census and ringing of the Libyan Lesser Crested Tern colonies in 2007,
- To investigate the status of the other 14 bird species in the RAC/SPA Bird Action Plan in Libya.

The mission also aimed to further strengthen of the collaboration between different stakeholders of the Action Plan for conservation of bird species listed in Annex II of the Protocol concerning specially protected areas and biological diversity in the Mediterranean in Libya.

## 4. Participants

The mission team was composed of representatives from EGA, RAC/SPA and Al Fateh University in Tripoli.

Name	Initials	Institution
Abdulmaula HAMZA	AH	Environment General Authority
Khaled ETAYEB	KE	Al Fateh University
Hichem AZAFZAF	HA	RAC/SPA consultant
Mohamed EL ZAIENI (Driver)		Environment General Authority

**KE, AH and HA** took part in the search for Slender-billed Curlews and the mid-winter waterbird census in Libya, organized by RAC/SPA, EGA, AEWA, ONCFS, INFS and WI, in January 2005 and 2006.

## **5. Itinerary and Programme**

### **August 1, 2006:**

- Flight from Tunis to Tripoli, arrival at 13:30 local time.
- Check in Bab Al Bahr Hotel -Tripoli.

Coordination meeting with Dr. Abdul-Hakim ELWAER (Secretary of the people's committee of EGA), Mr Ali R. AIKEKLI (Head of Nature Conservation Department-EGA), Mr Abdulmaula HAMZA (Head, Marine Conservation Section, Nature conservation Dept-EGA ) and Mr Khaled ETTAYEB (University staff member ) at EGA headquarters.

- Overnight at the Hotel Bab Elbahar-Tripoli

### **August 2, 2006:**

- Departure from Tripoli at 07:00 am towards Sirte.
- Observations along the Gulf of Sirte and visit to Libyan seaturtle program field station (Point 31). Some *Sterna albifrons* were observed on the coast, the majority of the wetlands visited in January 2005 and 2006 were dry.
- Arrival at the Zueitina Oil Company harbor at 18:30.
- Briefing about the mission with Mr Salah EL WAFI and Mr Noman ALGHTEAT (officers, Zueitina Co. Safety and Environment Department).
- Ornithological observations in the Zueitina Oil Company site and search of turtle tracks on the coast.

### **August 3, 2006:**

- Departure from Zueitina Oil Company harbor at 07:30 am on board of the Tug 'Salahaddin' lead by Captain Alexander Fuifiet and Mr. Khaled Jebri, Mr Juma'a ALGHADAR and Mr Abdul-karim Al-ZURGANI joined us
- Arrival on the island at 08:40.
- During one hour and fifty minutes counting, observing and ringing of Lesser Crested Terns (61 birds were ringed).
- Return back to Zueitina Oil Company.
- Departure from at Zueitina Oil Company 15:00.
- Arrival at Benghazi Lake at 16:50.
- Important observation at the lagoon: more than 800 Lesser Crested Terns, adults and 1 month old young, were recorded. Other observations at Benghazi Lake: Greater Flamingo *Phoenicopterus roseus*, Ringed Plover *Charadrius hiaticula*, Kentish Plover *Charadrius alexandrinus*, Greenshank *Tringa nebularia*.
- Overnight in the Gharyounis touristic village in Benghazi.

### **August 4, 2006:**

- Departure from the Gharyounis at 08:00
- Visiting Sebket El Thama and Ain Azziana lagoon were adult and 1 month old young were observed,
- Traveling on the coastal road in direction of Soussa 3 Short-toed Eagle *Circaetus gallicus* and a 5 Kestrel *Falco tinnunculus*, 50 Goldfinch *Carduelis carduelis*, 35 Serin *Serinus serinus* were recorded,
- Before arriving in Soussa some small rocky islets were checked, but no Lesser Crested Terns were sighted,
- Arrival at Ain Al Ghazala at 17:00 where we had a prearranged appointment with fisherman Said Hassan El Rayes who brought us to Geziret Al Elba on board of his 4 m long boat with a Dihatsu 18 horses engine,

- The crossing to the island took 30 minutes and at our arrival on the island we found 20 pairs of Lesser Crested Tern with 18 young of two different ages,
- Departure from the island few time before the sunset,
- Overnight at the Hotel Almasira in Tobrouk.

### August 5, 2006

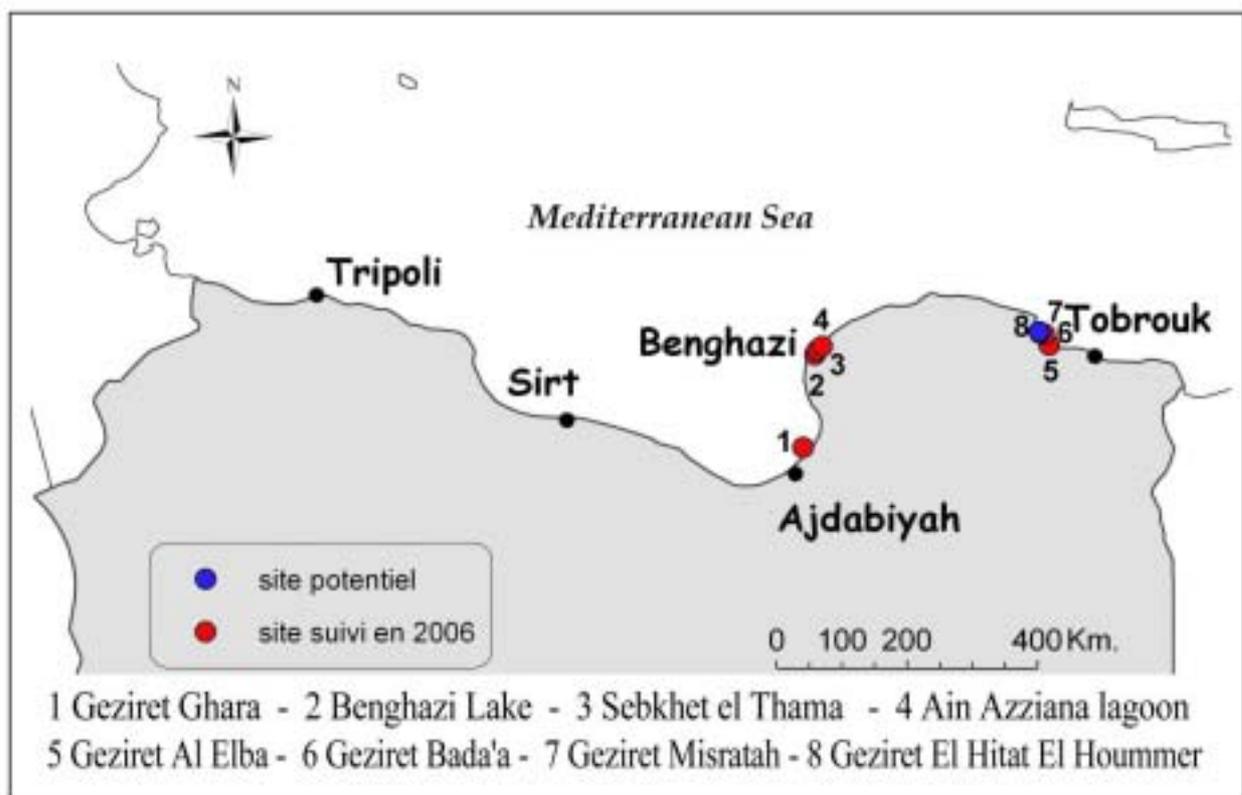
- 04:00 departure from Tobrouk in direction of Aïn Al Ghazalah (40 km W Tobrouk)
- 06:25 departure to Geziret Barda'a, one of the islands which P.L. Meininger could not visit in 1993. The crossing, again with Mr. Said Hassen El Rayes on board of a 6 m long boat with two 18 horses' engines, tooks 2 hours for the 21 km. During the crossing several dolphins and marine turtles were observed, but only few birds were found on the island.
- 18:30 arrival in Benghazi and visit of the Ganfouda wetland

### August 6, 2006

- Travel by car from Benghazi to Tripoli and briefing with Dr. Abdul-Hakim ELWAER by phone.
- Overnight at the Bab Al Bahr Hotel.

### August 7, 2006

- Travel back to Tunis by airplane.



Map 1: Red: sites surveyed in August 2006. Blue: potential sites for breeding of Lesser Crested Tern.

## **6. Lesser Crested Terns breeding in Libya from 1930 to 2005**

The Mediterranean subspecies *emigrata* (Neumann, 1934) of the Lesser Crested Tern is distinctly larger and slightly paler on the upperparts than nominate *bengalensis* from eastern and southern India, Ceylon, and westward to East Africa.

In the early 1930s, the Italian hydrobiologist Giorgio Bini and his team made four visits in two successive years to an island in the Gulf of Sirte along the coast of Libya. In July, they found eggs and in August, chicks of a tern, originally identified as Caspian Tern *Sterna caspia* (Bini 1938). Two years later Edgardo Moltoni, an Italian ornithologist, managed to visit this island again, on August 21<sup>st</sup> 1937, and found a large colony of Lesser Crested Terns (Moltoni 1938). He estimated more than 2000 birds (including adults and nestlings).

In 1993 Peter L. Meininger, Pim A. Wolf from Foundation Working Group International Wader and Waterfowl Research (WIWO) and Dau A. Hadoud and Mohamed F.A. Essghaier from Marine Biology Research Centre - Tajura, Libya, visited two islands where colonies of Lesser Crested Tern were found and estimated a total of 1700 pairs on Geziret Garah and 40 pairs on Geziret Al Elba.

From mid-June 2004 to March 2005 Jeremy Gaskell made an observations in two areas of the Libyan coast; Tripolitania and Cyrenaica. He mentioned for the first time a breeding colony of over 50 pairs on an island in one of Benghazi's lagoons (Gaskell 2005).

These were the only available information on the Lesser Crested Tern in Libya until our mission.



**Photo 1: Lesser Crested Tern breeding colony in Geziret Garah - Photo: A. HAMZA**

## 7. Lesser Crested Terns breeding in Libya – Description of sites and results of the 2006 survey

The breeding of the species was recorded for Geziret Garah and Geziret Al Elba, whose importance was confirmed by the results collected during this mission. Geziret Barda'a was identified by Meininger et al. (1993), as a potential breeding site but no breeding colony was found during our visit in 2006. Other observations during this trip, and especially those made at Benghazi Lake, are leading to the assumption that there is another breeding site, which was not yet discovered.

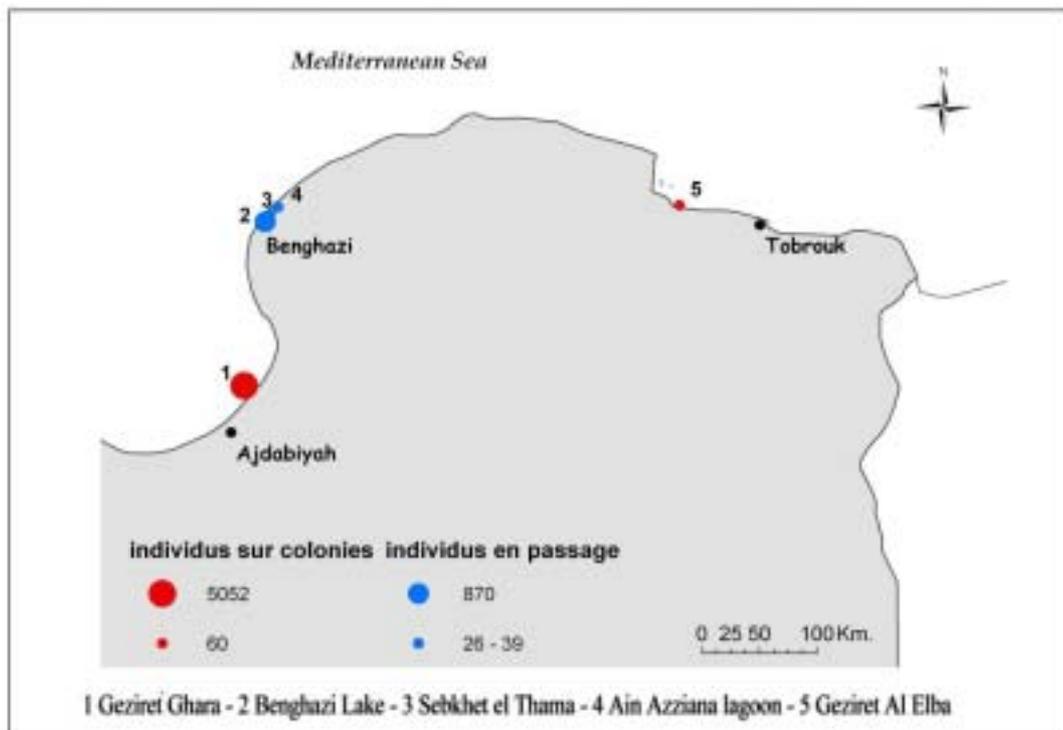


Photo 2: Zueitina Oil Company harbor - survey team after the visit at Geziret Ghara - Photo: A. HAMZA



### **Geziret Ghara (Gulf of Sirte):**

**Coordinates :** 30°48 N 19°54 E

**IBA code :** LY006

**Visited:** August 3, 2006, departure from Zueitina Oil Company Harbor.

**Coverage :** 90%

**Site N° (on the map 1) :** 1.

### **Quality and importance**

This site is the famous Bird island (isola degli uccelli) visited by Moltoni on 21 August 1937 and

found a large colony of Lesser Crested Terns (Moltoni 1938). Situated in the Gulf of Sirte, approximately 20 Km north west of the town of Zuwaytinah, about 12 km from the coast. It measures some 150 x 300 m (about 5 Ha), sandstone island which rises 8 m. On the Northern, Western and Eastern sides there are low cliffs resulting from wave erosion. The southern side is more sheltered and slopes gradually to the sea, with some small sandy beaches. The island is sparsely vegetated with low, scattered bushes.

This island hosts the most important colony of Lesser Crested Tern *Sterna bengalensis* in Libya and the Mediterranean region. During a visit on June 15, 2006 within the framework of the field mission on national project on marine protected areas (Ghara is a candidate site to be MPA), KE observed 15 *Sterna bengalensis* in the Zueitina Oil Company harbor. He also notes the presence of 160 adults on the island as well as 1,000 Yellow-legged Gulls *Larus michahellis* (700 adults and 300 young), 8 European Shags *Phalacrocorax aristotelis* and 120 Rock Doves *Columba livia*. Until now this is the earliest observation of Lesser Crested Tern on this breeding site.

During our visit on August 3<sup>th</sup> 2006, which started at 8:00 in the morning, the colony and the activities of the birds were well visible from the Tug. The colony was situated in the North-eastern part of the island in a flat and sandy area.

We (AH, KE, HA and two members of the crew) left the boat on board of a zodiac to join the North-eastern part of the island where a small accessible and sheltered bay enabled us to land.

The colony was very active. The adults moved away to the sea to seek for food and turned over to nourish. The chicks formed a nursery of approximately 1,950 individuals. The average age varied between 7 and 10 days. Our presence in the surrounding of the colony did not seem to disturb the adults which were continued their activities only few meters from us. We ringed 52 chicks with rings from the INFS (see appendix 2) and collected a couple of feathers for genetic research on this population.

The nests, some kind of small, empty and not very deep depressions, of the colony were set up very close one to another. 221 apparently occupied nests were counted: 177 with one egg, 11 with two eggs, and 34 with nestlings.

Furthermore, the majority of the eggs had hatched and that the chicks formed already a nursery, it was impossible to count the nests. Therefore, we carried out the estimate of the adults: a total of 3,102 flying and alarm calling birds were recorded which means that at least 1,551 pairs were breeding on the island.

Considering that our method to estimate breeding pairs was not the same one as that used by Meininger in 1993, it is not possible to make a detailed comparison, between these two observations. However, it seems that the colony is stable and no marked change in the size of the population is noted.

There were only a few other birds on the island. 19 European Shags, 4 Yellow-legged Gulls, 23 Rock Dove *Columbia livia*

#### **Vulnerability**

There is no evidence of direct human disturbance.

#### **Ownership**

The island is located at the vicinity of Zeutina oil co. harbor, however islands and islets are state-owned.

**IBA criteria** : A4i

**RAC/SPA SDF site classification**: Marine areas: Rocks

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

#### **Suitability for Lesser Crested Tern:**

Nesting: 2/2  
Feeding: 1/2  
Roosting: 1/2



### **Geziret Al Elba:**

**Coordinates:** 32°13 N 23°18 E

**IBA code:** LY004

**Visited:** August 4, 2006, departure from Ain Al Ghazalah Bay harbor.

**Coverage :** 80%

**Site N° (on map 1):** 5

### **Quality and importance**

Geziret Al Elba is a small low island (2,5 km x 1km) situated in the Gulf of Bumba, approximately 2 km in North west of Ain Al

Ghazalah lagoon. Vegetation is dominated by thinly distributed *Salicornia fruticosa*, *Halimimone portulacoides* and *Artrocnemum sp.*

Past visits to this island took place during June and July 1993 and 40 breeding pairs were recorded (Meigninger *et al.*, 1993). KE and AH have visited the site on May 10, 2006 and did not find any Lesser Crested Terns, but 250 Yellow-legged Gulls *Larus michahellis*, 32 European Shags *Phalacrocorax aristotelis* and 9 Great Cormorant *Phalacrocorax carbo*. Our visit to the island took place on August 4, 2006 when we arrived at 17:30 on the island. In the North-western part of the island we found some empty nests (almost not visible) of *Sterna bengalensis* in a small depression surrounded by *Salicornia* vegetation. 42 adult birds and 18 three week old chicks (of which we ringed 9 with rings of the INFS (see appendix 2) were counted. During our visit on the island we counted: 35 European Shags, 7 Little Terns *Sterna albifrons*, 2 Yellow-legged Gulls, 30 Rock Doves with nestlings ready to fledge.

The data available before our mission (Meininger *et a.*, 1993) and the information collected during this visit suggest that the breeding in the Eastern part of the Libyan coast starts earlier than in the West. Thus in Geziret Al Elba the breeding period begins in mid June and the fledging of the young Terns (at the age of about 4 weeks) starts at the end of the first week of August. More in the West at Geziret Garah the breeding is later and in the first week of August the chicks have an average age between 7 and 10 days.

### **Vulnerability**

No threats known, except potential disturbance by local passing fishermen and very few summer weekenders

### **Ownership**

State-owned.

**IBA criteria :** A4i

**RAC/SPA SDF site classification:** Marine areas: Rocks

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

### **Suitability for Lesser Crested Tern:**

Nesting: 2/2

Feeding: 1/2

Roosting: 1/2



### **Geziret Barda'a:**

**Coordinates:** 32°22 N 23°14 E

**Visited:** on August 5, 2006, from Ain Al Ghazalah Bay harbour.

**Coverage:** 80%

**Site N° (on map 1):** 6

### **Quality and importance**

Large rocky island (270 x 480 m) situated in the Gulf of Bumba., approximately 21 km NW of Ain Al Ghazalah lagoon. Which rises to about 15 m on the SSE part. Sparsely vegetated with low

scattered bushes and *Salicornia*, impressive numbers of *Acanthodactylus boskianus* lizards on this island.

The island remained a question mark since the mission in 1993, fortunately the weather conditions and the logistic facilities allowed us to visit the island in 2006. The crossing of the 21 km distance from Ain Al Ghazalah to the island took about 2 hours by the 6 m long boat with 2 motors. We arrived at 8:30 am on the Southern shore of Barda'a and could access without difficulties in a short sheltered bay. We spent 2 hours on the island. On the first view no *Sterna* colony was visible on the site and we split into 2 groups in order to search for any signs for the breeding of *Sterna bengalensis*. Only 3 adult Lesser Crested Terns were recorded on the shore of the island. 5 other species were observed: 2 Eurasian Curlew *Numenius arquata*, 1 Kingfisher *Alcedo atthis*, 45 Rock Doves *Columba livia*, 4 Pallid Swift *Apus pallidus* and a colony of Shag *Phalacrocorax aristotelis desmarestii* (One of the 15 species of the Mediterranean action plan) on the South-East coast of the island with 148 individuals (adults and young). At a distance of about 500 m, 13 and 12 nests on the South and the South-East coast of the island, which are well protected against the cold and strong Northern wind (see photo N° 20). Even though we didn't find any signs for the breeding of Lesser Crested Tern it is recommended to plan a second visit, preferably in mid July, in order to confirm that there is really no breeding of the species on this island.

A total of 6 bird species were recorded in the island, only three flying adult of *Sterna bengalensis* were observed.

### **Vulnerability**

The island is only occasionally used by fishermen as a shelter during rough weather and to collect the young of Shag, which reputedly are excellent eating (Meininger et al., 1993).

### **Ownership**

State-owned.

**RAC/SPA SDF site classification:** Marine areas: Rocks

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

### **Suitability for Lesser Crested Tern:**

Nesting: ?/2

Feeding: ?/2

Roosting: ?/2



### Benghazi Lake

**Coordinates :** 32°05 N 20°03 E.

**Visited :** on August 2, 2006 ,

**Coverage :** 60%.

**Site N° (on map 1):** 2

### Quality and importance

Smallish shallow lagoon (less than 200 hectares) in the centre of Benghazi, just south of inner harbor 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 salt pans, 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 does not dry out in summer because of artificial inflow. Quite thick fringe of reeds *Phragmites australis*, indicating high trophic levels. Extraordinary variety of species: 03 Black-necked Grebes *Podiceps nigricollis*, 01 Squacco Herons *Ardeola ralloides*, 03 Grey Herons *Ardea cinerea*, 06 Spoonbills *Platalea leucorodia*, 70 Greater Flamingos *Phoenicopterus roseus* from which 7 color ringed (3 in Bouches-du-Rhone in France, 3 in Macchiareddu in Sardinia and 1 in Gediz Deltasi-Turkey - see Appendix 4), 05 Mallard ducks *Anas platyrhynchos*, 01 Common Kestrels *Falco tinnunculus*, 09 Moorhens *Gallinula chloropus*, 240 Black-winged Stilts *Himantopus himantopus*, 02 breeding Ringed Plovers *Charadrius hiaticula*, 48 Kentish Plovers *Charadrius alexandrinus* breeding species, 06 Grey Plovers *Pluvialis squatarola*, 123 Dunlins *Calidris alpina*, 12 Curlew Sandpipers *Calidris ferruginea*, 03 Common Sandpipers *Actitis hypoleucos*, 32 Redshanks *Tringa totanus*, 03 Spotted Redshanks *Tringa erythropus*, 06 Greenshanks *Tringa nebularia*, 82 Black-headed Gulls *Larus ridibundus*, 10 Slender-billed Gulls *Larus genei*, 23 Lesser Black-backed Gulls *Larus fuscus*, 07 Yellow-legged Gulls *Larus michahellis*, 73 Little Terns *Sterna albifrons* , 01 Whiskered Terns *Chlidonias hybridus* and more than 53 Barn Swallows *Hirundo rustica*.

Groups of Lesser Crested Terns on the Lake of Benghazi have been recorded in the past. In 1978, Baker (1984) made regular counts of a roost of Lesser Crested Terns on a salt marsh at Benghazi. He observed the species on 31 days between 26 May and 5 November, with display and mating seen regularly in June, and a maximum of 328 terns on 1 July. He did not mention any observation between 7 July and 29 August (it is not clear if the lack of records is due to the absence of the observation). In late May and early July 2005 adult birds were observed returning with small fish to a breeding colony of over 50 pairs on an island in one of Benghazi's Lagoon's (Gaskell 2005). In early August 2006 we noted the presence of an important number of Lesser Crested Terns on the site. We counted a total of 610 adults in three groups with 196, 206 and 208 individuals respectively. There were 260 flying young, in four groups with 62, 58, 72 and 68 individuals, on the West and South-West shore of the lake, but the group of 68 individuals was found on a small islet in the middle of the lake (see photo N° 15). During our visit we observed the adult birds coming back from the seaside with small fishes.

The age of the young birds found on at Benghazi Lake didn't allow us to confirm, without reasonable doubt, the existence of a breeding colony of Lesser Crested Tern in Benghazi Lake. It is possible that the recorded birds used Benghazi Lake as a roosting site during the post-breeding period. This means that Gaskell's observation in July 2005 remains the only record suggesting that there is a breeding colony at Benghazi Lake.

**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.

**Vulnerability**

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

**Ownership**

State-owned

**RAC/SPA SDF site classification:** Coastal wetlands (lagoons) or Salt marshes.

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

**Suitability for Lesser Crested Tern:**

Nesting:     ?/2  
Feeding:     0/2  
Roosting:    2/2



### **Sebkhet El Thama**

**Coordinates :**

**IBA code:** LY004

**Visited :** on August 2, 2006

**Coverage :** 70%

**Site N° (on map 1) :** 3

### **Quality and importance**

Coastal sebkha just north-east 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. Shallow waters very suitable for waders.

Total of 202 birds seen, 05 Night Herons *Nycticorax nycticorax*, 13 Grey Herons *Ardea cinerea*, 02 Squacco Herons *Ardeola ralloides*, 36 Little Egrets *Egretta garzetta*, 05 Spoonbills *Platalea leucorodia*, 01 Shoveler *Anas clypeata*, 05 Moorhens *Gallinula chloropus*, 15 Coots *Fulica atra*, 34 Black-winged Stilts *Himantopus himantopus*, 12 Redshanks *Tringa totanus*, 03 Yellow-legged Gulls *Larus michahellis*, 38 Little Terns *Sterna albifrons*, 24 adult and 2 young Lesser Crested Terns *Sterna bengalensis*, 07 Whiskered Terns *Chlidonias hybridus*.

### **Conservation Status**

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

### **Vulnerability**

Main problem is urban sprawl and depositing of rubbish. (Abdelmaula confirmed that this site is actually filled and that it will probably disappear)

### **Ownership**

Presumably state-owned.

**RAC/SPA SDF site classification:** Coastal wetlands (lagoons) or Salt marshes

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

### **Suitability for Lesser Crested Tern:**

Nesting: 0/2

Feeding: 1/2

Roosting: 1/2



### **Ain Azziana lagoon**

**Coordinates :** 32°12 N 20°09 E.

**IBA code:** LY003

**Visited :** on August 2, 2006

**Coverage :** 70%

**Site N° (on map 1) :** 4

### **Quality and importance**

A typical coastal sebkha, 15 km north-east of the city 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 local tourists, and there are signs of apparently abandoned tourist facilities.

Total of 88 birds noted, including 05 Grey Herons *Ardea cinerea*, 04 Black-winged Stilts *Himantopus himantopus*, 08 Kentish Plovers *Charadrius alexandrinus*, 07 Redshanks *Tringa totanus*, 02 Curlews *Numenius arquata*, 03 Yellow-legged Gulls *Larus michahellis*, 03 Little Terns *Sterna albifrons*, 39 Lesser Crested Terns *Sterna bengalensis* (RAC/SPA Bird Action Plan species), 02 Southern Grey Shrikes *Lanius meridionalis*, 15 Spanish Sparrows *Passer hispanoliensis*.

### **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. In need of urgent application of conservation measures.

### **4.3 Vulnerability**

Main problem seems to be urban development (the site is targeted for building a tourist village) and depositing of rubbish.

### **4.5 Ownership**

Presumably state-owned.

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

**IBA criteria :** A4i

### **Suitability for Lesser Crested Tern:**

Nesting: 0/2

Feeding: 0/2

Roosting: 1/2

### **8. Summary table of Lesser Crested Tern *Sterna bengalensis* records during the mission from the 1<sup>st</sup> to the 7<sup>th</sup> of August 2006 :**

N°	Sites	Breeding		Passage	
		Adults	Nestlings /Juveniles	Adults	Nestlings /Juveniles
1	Geziret Ghara	3102	1950		
2	Benghazi Lake			610	260
3	Sebkhet el Thama			24	2
4	Ain Azziana			39	
5	Geziret Al Elba	42	18		
6	Geziret Barda'a				
SUB-TOTAL :		3144	1968	673	262
<b>TOTAL</b>		<b>6047</b>			

### **9. Discussion and recommendations:**

This mission confirmed, once again, the importance of Geziret Ghara and Geziret Al Elba for breeding *Sterna bengalensis*. 1551 and 21 breeding couples were recorded respectively and the populations seem to be stable at the moment but remain vulnerable because the breeding of the species seems to be restricted to those two sites.

Considering that the breeding population of Geziret Ghara was still confined to the site on August 2, that the maximum number of breeding pairs recorded at Geziret Al Elba never exceeded the 40 pairs counted in 1993 (probably the same number has been breeding there in 2006) and that the number of breeding pairs reported for Benghazi Lake by Gaskell was 50 pairs, it is not excluded that there is another breeding site of Lesser Crested Tern in Libya which we still didn't discover. Given the age of the young found at Benghazi Lake on August 2, 2006 it was much likely that this colony was situated on the Eastern part of the Libyan coast.

### **It is recommended:**

1. To regularly monitor the two known breeding colonies at Geziret Ghara and Geziret Al Elba;
2. To ring all young at the colonies in order to get a better idea of the movements of these individuals in Libya and the Mediterranean;
3. To monitor the breeding avifauna of Benghazi Lake and to clarify its importance and role for *Sterna bengalensis*;
4. To visit again Geziret Barda'a and Geziret Al Elba in mid July, the period of which the Lesser Crested Tern nests shall still be occupied;
5. To plan a survey of the two potential breeding sites Geziret Misratah and Geziret El Hitat El Hoummer in the Gulf of Bumba (see appendix I) in mid July.

**10. Proposal for 2007:**

The 2006 mission was a first step to implement the action plan for the Lesser Crested Tern in the Mediterranean and the general agreement between the RAC/SPA and the EGA to further studies the Libyan breeding population of the Lesser Crested Tern. It followed up on the recommendations made by the group of Ornithologists (national and international) involved in the IWC in Libya in 2005 and 2006 to prepare a ringing campaign.

The mission allowed to collect important data on the side conditions and to prepare the ringing campaign, which will probably be carried out in August 2007. The ringing campaign will cover the most important breeding site in Libya and will provide a better understanding of the movements of the species in Libya and the Mediterranean. It is also thought that the ringing will deliver information on the wintering sites of the Libyan breeding population. The gain of all this knowledge will considerably contribute to the action planning and the process of long term conservation of the Lesser Crested Tern in the Mediterranean.

**To further go into this direction it is recommended to organize two missions in July and August, preferably in the same year:**

**10.1 Visit of potential breeding sites in the Gulf of Bumba (Appendix 1)**

<b>Duration:</b>	7 days
<b>Period:</b>	Mid July
<b>Organizing at International level:</b>	RAC/SPA
<b>Organizing at National level:</b>	EGA
<b>Sites to visit:</b>	Geziret Barda'a Geziret Misratah Geziret El Hitat El Hoummer Geziret Al Elba

**Participants:**

- ❖ Representative of the EGA (Abdulmaula HAMZA )
- ❖ Representatives from Al-fateh University (Dr Mohamed ESSGHAIER, Dr Khaled ETAYEB)
- ❖ Representatives of the RAC/SPA (Mike SMART, Habib DLENSI & Hichem AZAFZAF)

**10.2 Ringing campaign at the breeding colony :**

<b>Duration:</b>	5 days
<b>Period:</b>	Beginning of August
<b>Organising at International level:</b>	RAC/SPA
<b>Organising at National level:</b>	EGA and Zueitina Oil Company
<b>Site to cover:</b>	Geziret Ghara

**Participants:**

- ❖ Representative of the EGA (Abdulmaula HAMZA )
- ❖ Representatives from Al-fateh University (Dr Mohamed ESSGHAIER, Dr Khaled ETAYEB)
- ❖ Representatives of the RAC/SPA (Mike SMART, Habib DLENSI & Hichem AZAFZAF)
- ❖ Representative of the INFS (Dr Nicola BACETTI)
- ❖ Representative of the ONCFS (Pierre DEFOS DU RAU)
- ❖ Representative of BirdLife Malta (Joe SULTANA)

## **11. Thanks**

Warmest thanks are due to the sponsoring bodies, EGA and the RAC/SPA, for their institutional support, and to Dr Nicola BACCETTI for the ringing equipment he provided for this mission. Furthermore, we would like to thank Dr Eric STIENEN for his help in the aging of the Lesser Crested Terns photographed during this mission and Mr. Pierre RAU DEFOS for the mapping of the visited sites. Particular thanks to Miss. Lobna BEN NAKHLA for excellent arrangements. Also our thanking to Mrs. Claudia FELTRUP-AZAFZAF for reviewing and translating large parts of this report. Finally, we will take this opportunity to thank the administration of Zueitina oil company and Mr. Abdussalam NAJEM (director of Ain Al Ghazalah site).

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## Appendix 1 Sites to visit in mid July 2007



**Google Image 1:  
Geziret Barda'a (Gulf of Bumba)**

32°22 N 23°14 E  
Large rocky island (270 x 480 m)



**Google Image 2:  
Geziret Misratah (Gulf of Bumba)**

32°23 N 23°09 E  
(204 x 398 m)

**This island was never surveyed before**



**Google Image 3:  
Geziret El Hitat El Hoummer  
(Gulf of Bumba)**

32°24 N 23°09 E  
(156 x 227 m)

**This island was never surveyed before**

## Appendix 2

Summary table of *Sterna bengalensis* ringing on the 2<sup>nd</sup> and the 4<sup>th</sup> of August 2006

N°	CODEURING	CODINTER	CODALPHA	NOM_FRAN	NOM_ANGL	NOM_SCIEN	Day	Month	Time at capture	Ringing Scheme	Ring Number	Age (Days)	Site Name	Site Coordinate
1	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67107	7 to 10	Geziret Ghara	30°48' N 19°54'E
2	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67108	7 to 10	Geziret Ghara	30°48' N 19°54'E
3	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67109	7 to 10	Geziret Ghara	30°48' N 19°54'E
4	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67110	7 to 10	Geziret Ghara	30°48' N 19°54'E
5	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67111	7 to 10	Geziret Ghara	30°48' N 19°54'E
6	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67112	7 to 10	Geziret Ghara	30°48' N 19°54'E
7	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67113	7 to 10	Geziret Ghara	30°48' N 19°54'E
8	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67114	7 to 10	Geziret Ghara	30°48' N 19°54'E
9	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67115	7 to 10	Geziret Ghara	30°48' N 19°54'E
10	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67116	7 to 10	Geziret Ghara	30°48' N 19°54'E
11	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67117	7 to 10	Geziret Ghara	30°48' N 19°54'E
12	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67118	7 to 10	Geziret Ghara	30°48' N 19°54'E

13	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67119	7 to 10	Geziret Ghara	30°48' N 19°54'E
14	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67120	7 to 10	Geziret Ghara	30°48' N 19°54'E
15	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67121	7 to 10	Geziret Ghara	30°48' N 19°54'E
16	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67122	7 to 10	Geziret Ghara	30°48' N 19°54'E
17	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67123	7 to 10	Geziret Ghara	30°48' N 19°54'E
18	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67124	7 to 10	Geziret Ghara	30°48' N 19°54'E
19	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67125	7 to 10	Geziret Ghara	30°48' N 19°54'E
20	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67126	7 to 10	Geziret Ghara	30°48' N 19°54'E
21	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67127	7 to 10	Geziret Ghara	30°48' N 19°54'E
22	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	9	IAB	U 67128	7 to 10	Geziret Ghara	30°48' N 19°54'E
23	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67129	7 to 10	Geziret Ghara	30°48' N 19°54'E
24	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67130	7 to 10	Geziret Ghara	30°48' N 19°54'E
25	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67131	7 to 10	Geziret Ghara	30°48' N 19°54'E
26	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67132	7 to 10	Geziret Ghara	30°48' N 19°54'E
27	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67133	7 to 10	Geziret Ghara	30°48' N 19°54'E
28	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67134	7 to 10	Geziret Ghara	30°48' N 19°54'E
29	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67135	7 to 10	Geziret Ghara	30°48' N 19°54'E
30	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67136	7 to 10	Geziret Ghara	30°48' N 19°54'E
31	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67137	7 to 10	Geziret Ghara	30°48' N 19°54'E

32	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67138	7 to 10	Geziret Ghara	30°48' N 19°54'E
33	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67139	7 to 10	Geziret Ghara	30°48' N 19°54'E
34	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67140	7 to 10	Geziret Ghara	30°48' N 19°54'E
35	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67141	7 to 10	Geziret Ghara	30°48' N 19°54'E
36	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67142	7 to 10	Geziret Ghara	30°48' N 19°54'E
37	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67143	7 to 10	Geziret Ghara	30°48' N 19°54'E
38	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67144	7 to 10	Geziret Ghara	30°48' N 19°54'E
39	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67145	7 to 10	Geziret Ghara	30°48' N 19°54'E
40	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67146	7 to 10	Geziret Ghara	30°48' N 19°54'E
41	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67147	7 to 10	Geziret Ghara	30°48' N 19°54'E
42	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67148	7 to 10	Geziret Ghara	30°48' N 19°54'E
43	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67149	7 to 10	Geziret Ghara	30°48' N 19°54'E
44	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67150	7 to 10	Geziret Ghara	30°48' N 19°54'E
45	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67151	7 to 10	Geziret Ghara	30°48' N 19°54'E
46	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67152	7 to 10	Geziret Ghara	30°48' N 19°54'E
47	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67153	7 to 10	Geziret Ghara	30°48' N 19°54'E
48	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67154	7 to 10	Geziret Ghara	30°48' N 19°54'E
49	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67155	7 to 10	Geziret Ghara	30°48' N 19°54'E
50	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67156	7 to 10	Geziret Ghara	30°48' N 19°54'E

51	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67157	7 to 10	Geziret Ghara	30°48' N 19°54'E
52	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	10	IAB	U 67158	7 to 10	Geziret Ghara	30°48' N 19°54'E
53	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	17	IAB	U 67159	15 to 21	Geziret Al Elba	32°13' N 23°18'E
54	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	17	IAB	U 67160	15 to 21	Geziret Al Elba	32°13' N 23°18'E
55	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	17	IAB	U 67161	15 to 21	Geziret Al Elba	32°13' N 23°18'E
56	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	17	IAB	U 67162	15 to 21	Geziret Al Elba	32°13' N 23°18'E
57	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	17	IAB	U 67163	15 to 21	Geziret Al Elba	32°13' N 23°18'E
58	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	17	IAB	U 67164	15 to 21	Geziret Al Elba	32°13' N 23°18'E
59	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	17	IAB	U 67165	15 to 21	Geziret Al Elba	32°13' N 23°18'E
60	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	17	IAB	U 67166	15 to 21	Geziret Al Elba	32°13' N 23°18'E
61	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	17	IAB	U 67167	15 to 21	Geziret Al Elba	32°13' N 23°18'E
62	06090	1702	STEBEN	Sterne voyageuse	Lesser Crested Tern	<i>Sterna bengalensis</i>	2	8	17	IAB	U 67168	15 to 21	Geziret Al Elba	32°13' N 23°18'E

### Appendix 3

#### Photos of visited sites and *Sterna bengalensis*



**Photo 3: Geziret Ghara**  
Photo: © H.Azafzaf



**Photo 4: North-East part of Geziret Ghara**  
Photo: © H.Azafzaf



**Photo 5: Breeding colony, Geziret Ghara**  
Photo: © H.Azafzaf



**Photo 6: *Sterna bengalensis* egg, Geziret Ghara**  
Photo: © A.Hamza



**Photo 7: Nestling of *Sterna bengalensis*, Geziret Ghara**  
Photo: Photo: © A.Hamza



**Photo 8: Adult *Sterna bengalensis*, Geziret Ghara**  
Photo: © H.Azafzaf



**Photo 9: Geziret Al Elba**  
Photo: © H.Azafzaf



**Photo 10: Geziret Al Elba**  
Photo: © H.Azafzaf



**Photo 11: Nestling of *Sterna bengalensis*, Geziret Al Elba**  
Photo: © K Etayeb



**Photo 12: Benghazi Lake, August 3, 2006**  
Photo: © H.Azafzaf



**Photo 13: Adult and juvenile *Sterna bengalensis*,  
Benghazi Lake**  
Photo: © H.Azafzaf



**Photo 14: Adult and juvenile *Sterna bengalensis*,  
Benghazi Lake**  
Photo: © H.Azafzaf



**Photo 15: Island with *Sterna bengalensis*,  
Benghazi Lake**  
Photo: © H.Azafzaf



**Photo 16: Adult *Sterna bengalensis*, Benghazi Lake**  
Photo: © A.Hamza



**Photo 17: Flying group of *Sterna bengalensis*,  
Benghazi Lake**  
Photo: © A.Hamza



**Photo 18: Geziret Barda'a, August 5, 2006**  
Photo: © H.Azafzaf



**Photo 19: East coast, Geziret Barda'a**  
Photo: © H.Azafzaf



**Photo 20: Nest of Shag *P. aristotelis desmarestii*  
Geziret Barda'a**  
Photo: © H.Azafzaf

## Appendix 4

Details of colour rings controlled

 <p>Sens de lecture de haut en bas</p>		<p><i>HISTORIQUE DE VIE - observations envoyées par Hichem AZAFZAF (observations faites par Khaled S. ETAYEB et Abdulmaula A. HAMZA)</i></p> <p>Flamant rose bagué le 27.07.2005 (poussin) , Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40" , E04°37'44")</p> <p>Bague plastique : FSJA en Noir sur fond Blanc. Bague Métal : X3959</p> <p>Sexe déterminé à partir de tests génétiques : Femelle</p>						
Date	Bague	Sexe	Lieu d'observation	Comportement / Statut	Commentaires	Observateur(s)	Kms	
02.08.2006	FSJA ↓		Berghazi Lagoon - LIBYE (N32°05'00" , E20°03'08")		A total of 70 flamingos was recorded. Read with Hichem AZFZAF	Khaled S. ETAYEB et Abdulmaula A. HAMZA	1843	
 <p>Sens de lecture de haut en bas</p>		<p><i>HISTORIQUE DE VIE - observations envoyées par Hichem AZAFZAF (observations faites par Khaled S. ETAYEB et Abdulmaula A. HAMZA)</i></p> <p>Flamant rose bagué le 27.07.2005 (poussin) , Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40" , E04°37'44")</p> <p>Bague plastique : FTHC en Noir sur fond Blanc. Bague Métal : X4136</p> <p>Sexe déterminé à partir de tests génétiques : Mâle</p>						
Date	Bague	Sexe	Lieu d'observation	Comportement / Statut	Commentaires	Observateur(s)	Kms	
25.08.2005	FTHC ↓		Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40" , E04°37'44")	A la colonie		Antoine ARNAUD	0	
02.08.2006	FTHC ↓		Berghazi Lagoon - LIBYE (N32°05'00" , E20°03'08")		A total of 70 flamingos was recorded. Read with Hichem AZFZAF	Khaled S. ETAYEB et Abdulmaula A. HAMZA	1843	
 <p>Sens de lecture de haut en bas</p>		<p><i>HISTORIQUE DE VIE - observations envoyées par Hichem AZAFZAF (observations faites par Khaled S. ETAYEB et Abdulmaula A. HAMZA)</i></p> <p>Flamant rose bagué le 27.07.2005 (poussin) , Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40" , E04°37'44")</p> <p>Bague plastique : FTHJ en Noir sur fond Blanc. Bague Métal : X4140</p> <p>Sexe inconnu</p>						
Date	Bague	Sexe	Lieu d'observation	Comportement / Statut	Commentaires	Observateur(s)	Kms	
02.08.2006	FTHJ ↓		Berghazi Lagoon - LIBYE (N32°05'00" , E20°03'08")		A total of 70 flamingos was recorded. Read with Hichem AZFZAF	Khaled S. ETAYEB et Abdulmaula A. HAMZA	1843	

MNP A		LIFE HISTORY - sightings sent by Khaled S. ETAYEB (observer(s) Khaled S. ETAYEB & Abdulmaula HAMZA)						
Ring reading order from bottom to top		Greater Flamingo ringed the 06.08.2005 (pullus unable to fly) , Saline di Macchiarreddu - Cagliari (Sardegna) - ITALY (N39°13', E09°02')						
		Plastic ring : MNP A in Black on White background. Metal ring : E0007026						
		Unknown sex						
Date	Ring	Sex	Observation Site	Behaviour	Comments	Observer(s)	Kms	
08.06.2005	MNP A †		Saline di Macchiarreddu - Cagliari (Sardegna) - ITALY (N39°13', E09°02')			Carla ZUCCA & Sergio NISSARDI	0	
09.06.2005	MNP A †		Saline di Macchiarreddu - Cagliari (Sardegna) - ITALY (N39°13', E09°02')			Carla ZUCCA & Sergio NISSARDI	0	
02.08.2006	MNP A †		Benghazi Lagoon - LIBYA (N32°05'00", E20°03'00")		read also by Hichem Azafzaf, 70 ind.	Khaled S. ETAYEB & Abdulmaula HAMZA	1260	
MNP D		LIFE HISTORY - sightings sent by Khaled S. ETAYEB (observer(s) Khaled S. ETAYEB & Abdulmaula HAMZA)						
Ring reading order from bottom to top		Greater Flamingo ringed the 06.08.2005 (pullus unable to fly) , Saline di Macchiarreddu - Cagliari (Sardegna) - ITALY (N39°13', E09°02')						
		Plastic ring : MNP D in Black on White background. Metal ring : E0007029						
		Unknown sex						
Date	Ring	Sex	Observation Site	Behaviour	Comments	Observer(s)	Kms	
26.01.2006	MNP D †		Benghazi Lagoon - LIBYA (N32°05'00", E20°03'00")		read also by Mokhtar MOUSSA AMR, 10 ind. all juv.	Mike SMART & Khaled S. ETAYEB	1260	
02.08.2006	MNP D †		Benghazi Lagoon - LIBYA (N32°05'00", E20°03'00")		read also by Hichem Azafzaf, 70 ind.	Khaled S. ETAYEB & Abdulmaula HAMZA	1260	
MNP J		LIFE HISTORY - sightings sent by Khaled S. ETAYEB (observer(s) Khaled S. ETAYEB & Abdulmaula HAMZA)						
Ring reading order from bottom to top		Greater Flamingo ringed the 06.08.2005 (pullus unable to fly) , Saline di Macchiarreddu - Cagliari (Sardegna) - ITALY (N39°13', E09°02')						
		Plastic ring : MNP J in Black on White background. Metal ring : E0007032						
		Unknown sex						
Date	Ring	Sex	Observation Site	Behaviour	Comments	Observer(s)	Kms	
02.08.2006	MNP J †		Benghazi Lagoon - LIBYA (N32°05'00", E20°03'00")		read also by Hichem Azafzaf, 70 ind.	Khaled S. ETAYEB & Abdulmaula HAMZA	1260	

Date	Bague	Sexe	Lieu d'observation	Comportement / Statut	Commentaires	Observateur(s)	Kms
02.08.2006	TJCKH		Berghazi Lagoon - LIBYE (N32°05'00", E20°03'00")		A total of 70 flamingos was recorded. Read with Hichem AZFZAF	Khaled S. ETAYEB et Abdulmaula A. HAMZA	945



Sens de lecture  
de bas en haut

*HISTORIQUE DE VIE - observations envoyées par Hichem AZAFZAF (observations faites par Khaled S. ETAYEB et Abdulmaula A. HAMZA)*

Flamant rose bagué le 31.07.2005 (poussin) , Çamaltı Tuzlası, Gediz Deltası - Izmir - TURQUIE (N38°30'34", E26°54'32")

Bague plastique : TJCKH en Noir sur fond Blanc. Bague Métal : F461

Sexe inconnu



**Doğa**  
Derneği



**The present survey was organized and sponsored by:**



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