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Regional Activity Centre for Specially Protected Areas**

Report on an Ornithological Survey in Libya from 3 to 15 February 2007

By Khaled Etayeb, Mohamed Feisal Essghaier, Abdulmaula Hamza,
Michael Smart, Hichem Azafzaf, Pierre Defos du Rau and Habib Dlensi



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1. Background

A third survey of Libyan wetlands and their wintering waterbirds was carried out in February 2007, as a follow-up to surveys in January 2005 and 2006. As in the two previous years, the survey was under the aegis of the Environment General Authority of Libya (EGA) and of the Regional Activity Centre / Specially Protected Areas (RAC/SPA) of the UNEP Mediterranean Action Plan, Tunis. The members of the survey were essentially the same as in the previous two winters, with additional Libyan participants from EGA; the absence of Nicola Baccetti of INFS, Italy, who remained a team member and took part in planning and discussion, was much regretted. The timing of the visit was slightly later than during the earlier visits, which had taken place in January; as a result there was a subtle difference in the birds observed, with a higher proportion of passage migrants, already moving north towards breeding grounds in Eurasia. Full details of all waterbirds counted are given in Appendix 1, and of non-waterbirds in Appendix 2.

2. Objectives and areas covered

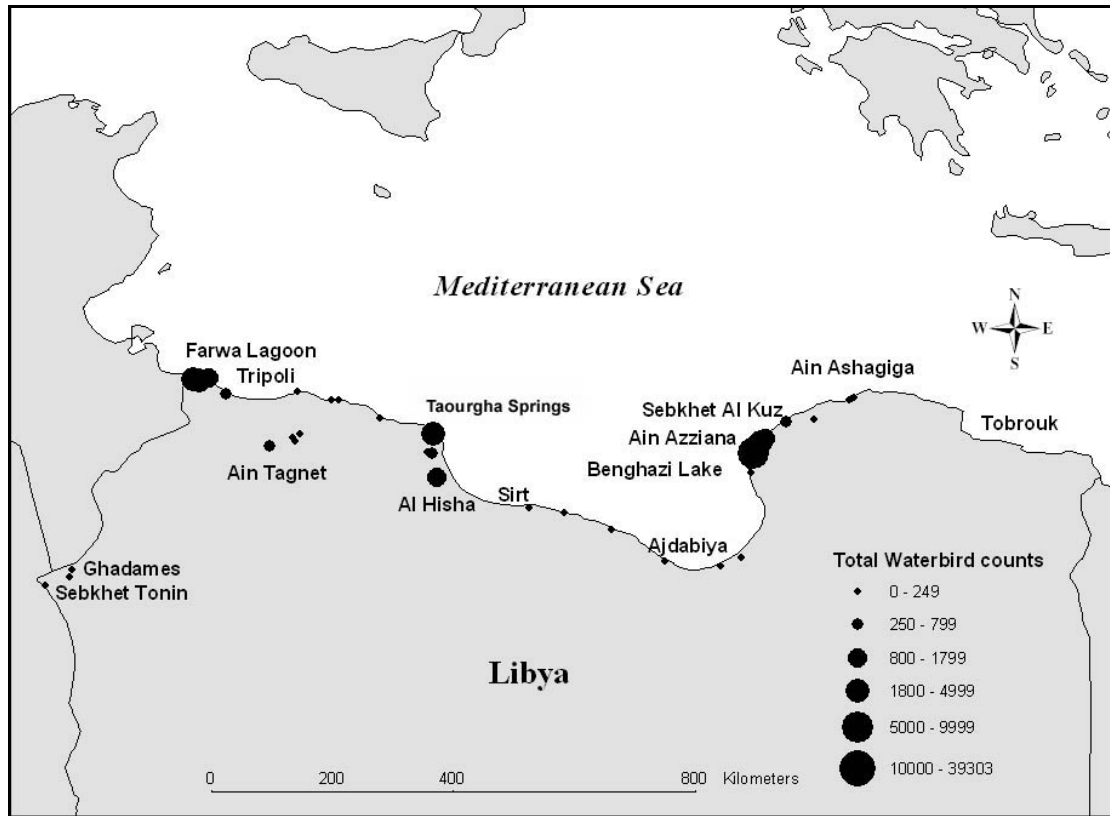
(a) The 2007 survey concentrated on major wetland sites identified during the 2005 and 2006 surveys, attempting to cover the sites more thoroughly and to collect more detailed data on the waterbirds present. Particular attention was paid to: Farwa Lagoon and neighbouring wetlands; the Taourgha complex (including Taourgha Spring, Sebkhet Qasr Ahmed and Al Hisha Spring); Sebkhet Garyounes and Sebkhet Ganfouda; the Benghazi complex including Benghazi Lake, Sebkhet Al Thama, Sebkhet Essalawi and Ain Azziana; and Sebkhet Al Kuz.

(b) A major new area visited was the region of Ghadames, some 500 kilometres into the desert near the point where Libya, Algeria and Tunisia meet. It had been thought that Ghadames might be surrounded, like oases in Algeria and Tunisia, by important wetlands generated by regular overflow of excess water from the oasis; unfortunately this did not prove to be the case.

(c) Wetlands in the Gulf of Bumba towards the border with Egypt (eg. Ain Ghazala and Sebkhet Temimi) had been covered in both previous visits, but were not covered in 2007. Nor were the desert areas round Houn, south of Sirt (covered in 2006), nor

those of Jaghbug near the Egyptian border (covered in 2005). Some of the coastal salt-marshes in the Gulf of Sirt between Misrata and Benghazi were not covered this year, because of lack of time.

Map of the principal areas visited and waterbirds counted in February 2007.



3. New ornithological findings

Among the new findings of the 2007 survey, compared with the previous two years, the following may be mentioned:

- The first observation of Marbled Duck *Marmaronetta angustirostris* was made on 12 February at Taourgha Spring; the habitat there appears to be the most suitable anywhere in Libya for nesting. The species winters in Tunisia and Algeria in small desert wetlands around oases, and one of the reasons for the visit to Ghadames in 2007 was to search for this species, but none were found, perhaps because much of the site was dry. It remains possible, indeed likely, that Marbled Duck winters in Libya at sites not yet surveyed, particularly around the more southerly oases, such as the Sebha complex. The species may possibly have been overlooked at Taourgha in previous years, but it seems more likely (given that the 2007 visit was later than those in 2005 and 2006) that the single bird seen there was an early migrant, which had wintered further south, returning to nest at Taourgha or somewhere in the vicinity.
- Wintering in small numbers by Lesser Crested Tern *Sterna bengalensis* (two in a gull and tern resting area at Sebkhet al Mangoub near Zuwara on 4 February 2007). This species, 99% of whose Mediterranean population breeds on offshore islands in Libya, is generally believed to winter off West Africa. A preliminary mission, organized by EGA and RAC/SPA, was made to the

nesting islands in August 2006 and a second mission is planned in summer 2007, with the aim of colour ringing young birds (Azafzaf et al. (2006b). In the same roost a wintering Gull-billed Tern *Sterna nilotica*, only the second in three years, was also found.

- Two individuals of Common Gull *Larus canus* were observed, the first in three years; both were immatures, one at Mangoub on 4 February in the same roost as the Lesser Crested and Gull-billed Terns, and one on 9 February at Sebkheth Esselawi in Benghazi.
- Even more attention was given to reading of colour rings in 2007 than in previous years. As a result, a larger number of colour rings was read: 14 rings of Greater Flamingo *Phoenicopterus roseus* (six from Camargue, France; four from Sardinia, Italy; two from Andalusia and two from the Ebro Delta, Spain); nearly all of them were first winter birds; three rings of Slender-billed Gull *Larus genei* (two from Spain, one from Italy); three rings of Lesser Black-backed Gull *Larus fuscus* (one from Finland and two from southern Norway). However, no rings of Eurasian Spoonbill *Platalea leucorodia* were read in 2007. Totals for previous years had been: two Flamingo rings (one French, one Spanish) in 2005 and eleven (six French, two Italian, two Spanish and one Turkish) in 2006; three Spoonbill rings (one Hungarian, one Italian and one Serbian) in 2005 and two (the same Italian and a new Serbian) in 2006; one Slender-billed Gull ring (from France) in 2005; and three Lesser Black-backed Gull rings (two from Finland and one from the extreme north of Norway) in 2006. Finally, a dead Cormorant *Phalacrocorax carbo* found at Farwa had been ringed at a Russian colony in the Baltic. Full details of 2007 recoveries are given in Appendix 3.
- The later timing of the visit meant that, in addition to wintering birds, there was a greater possibility of seeing migrants which had wintered further to the south and were now on their way to breeding grounds further north: a single Garganey *Anas querquedula* (a species not recorded in either 2005 or 2006) was noted at Wadi Zaret Dam on 7 February; larger numbers of Little Ringed Plover *Charadrius dubius*, Ruff *Philomachus pugnax* and Wood Sandpiper *Tringa glareola* (all migrant waders) were noted, significantly larger in the case of Ruff, a group of which was observed departing to the north late in the evening in the manner of visual migrants; a Black Tern *Chlidonias niger* in winter plumage was seen at Benghazi Lake on 9 February; finally small numbers of several species of hirundine *Hirundo* spp. were seen at several sites. All these observations demonstrate how early spring migration begins in Libya.

4. New evidence for previous ornithological findings

The 2007 survey provided considerable additional data to support the findings of previous years:

- Slender-billed Curlew *Numenius tenuirostris*: As in previous surveys, one of the objectives was to search for the critically endangered Slender-billed Curlew, one of the rarest birds in the world, whose main wintering area appears to be the Mediterranean. Once again, searches for the bird were unsuccessful, but the participants remain convinced that there is much habitat suitable for the species and that more intensive searches in these areas would be worthwhile in future. Fair numbers of Eurasian Curlew *N. arquata* were

seen (264 in 2007, as against 534 in 2005 and 419 in 2006); it seems possible that any wintering Slender-billed Curlews might associate with their larger congener.

- Ferruginous Duck *Aythya nyroca*: The near-threatened Ferruginous Duck, previously regarded as mainly a passage visitor, had been recorded as a wintering species in 2005 (total of 10 individuals at five sites) and 2006 (total of 13 individuals at three sites). In 2007, 31 were found at four sites (including a flock of 18 at Wadi Zaret Dam), perhaps reflecting the early onset of northward passage.
- Herons and Egrets *Ardea* spp: One of the features of the previous surveys was the observation of several members of this family, which normally winter south of the Sahara. Once again, five Purple Herons *Ardea purpurea* were observed at three sites, compared with two at one site in 2005 and eight at four sites in 2006. A single Squacco Heron *Ardeola ralloides* was observed near Benghazi in 2007 (two at Taourgha in both 2005 and 2006), but no Little Bitterns *Ixobrychus minutus* were noted this year.
- White Stork *Ciconia ciconia*: In previous years nesting White Storks had been recorded in western Libya (notably at Taourgha Spring). This year a visit was made, for the first time, to the area of El Labadia (near Benghazi) and nine occupied nests were found on trees; this would appear to be the same area (“old Al Marj, Cyrenaica”) where Gaskell (2005) recorded about 20 pairs of nesting White Storks.



Nesting White Storks *Ciconia ciconia*, the El Labadia area on 10 February 2007
© H.Azafzaf



Sebkhet Mjasem (Ain Edheban) on 5 February 2007, an isolated spring (its name mean “Spring of the Flies”) rising from a dried out salt lake in the desert north of Ghadames.
© H.Azafzaf

- Greater Flamingo *Phoenicopterus roseus*: The main sites where this species occurs are Sebkhet Al Kuz, north of Benghazi and at coastal salt-lakes around the Gulf of Sirt. A total of 775 had been recorded in 2005, with over 500 at Kuz; in 2006 the total of 2,920 was swollen by a count of 1,767 at Sebkhet Boukamesh (near the Tunisian border) which was dry in 2005 and 2007, but once again over 500 were at Kuz; in 2007 there was a total of 724, with only 94 at Kuz. As in previous years, the majority were very young birds, many of them in their first winter, though flocks at Al Kuz included displaying adults. Ring readings (see below) confirmed that birds were present from four of the six European colonies where young Flamingos are colour-ringed (Camargue, France; Sardinia, Italy; Fuente de Piedra and Ebro Delta, Spain); Turkish ringed birds had been seen in previous years, while there are 13 recoveries in Libya of metal-ringed flamingos from the Iranian colony at Lake Uromiyeh (Behrouzi-Rad, 1992).
- Shelducks *Tadorna* spp: Common Shelduck *Tadorna tadorna* clearly winters in fair numbers in Libya, even though previous observers regarded it as scarce (Bundy 1976); after a total of 107 in 2005 and 382 in 2006, a total of 403 was observed in 2007. On the other hand Ruddy Shelduck *T. ferruginea* remains very uncommon in northern Libya: after a single in 2006, none were seen in 2007; perhaps they are more numerous round the oases in the south?
- Wintering surface-feeding ducks *Anas* spp: Once again relatively small numbers of surface-feeding ducks were found, the major concentrations being on freshwater sites like the Wadi Zaret Dam, the springs at Taourgha and Al Hisha, and above all the Benghazi Lake complex; the principal species were Teal *A. crecca* (total of 666), Pintail *A. acuta* (total of 255) and Shoveler *A. clypeata* (total of 938), with again relatively low numbers of Wigeon *A. penelope* (total of 89). The total number of surface-feeding ducks in 2007 was 2,393, compared to 967 in 2005 and 2,088 in 2006.
- Only the second observation in three years of Common Buzzard *Buteo buteo*, at Sebkhet Gharyounes on 9 February, following two last year north of Cyrene.
- Eurasian Crane *Grus grus*: Appreciable numbers of Cranes winter in Libya: after totals of 246 in 2005 and 595 in 2006 (including 113 at Houn, not visited in 2005 or 2007), 486 were counted in 2007; once again major evening roosts were seen both near Taourgha Spring (over 100) and Al Hisha Spring (327).
- Moorhen *Gallinula chloropus*: The participants were rather surprised to find as many as 160 Moorhens at El Labadia, and to note how tame they were.



Moorhen *Gallinula chloropus* , El Labadia
on 10 February 2007 © H.Azafzaf



Benghazi Lake on 9 February 2007
© H.Azafzaf

- Waders: A wide variety of wader species was again observed, generally in relatively small numbers, though there were bigger totals at the tidal Farwa Lagoon and at Benghazi Lakes; the most numerous species (with over 200 individuals) were Black-winged Stilt *Himantopus himantopus* (not previously considered a wintering species), Golden Plover *Pluvialis apricaria*, Little Stint *Calidris minuta*, Dunlin *C. alpina*, Eurasian Curlew and Redshank *Tringa totanus*. The total number of waders observed was 8,465 (compared with 4,439 in 2005 and 6,279 in 2006). The one species which occurred in numbers approaching the Ramsar criterion for 1% of the flyway population (410 at a single site in the Eastern Mediterranean) was Kentish Plover *Charadrius alexandrinus*: a total of 1,797 in 2007 after 1,110 in 2005 and 1,057 in 2006.
- Audouin's Gull *Larus audouinii*: Once again, good numbers of this near-threatened Mediterranean endemic were found. The totals in previous years had been 344 in 2005 and 670 in 2006, mainly in the Gulf of Sirt; in 2007, 272 were recorded. It seems plausible to surmise that these birds must come from easterly breeding populations in Greece or Turkey, given that wintering numbers in Tunisia are very low in comparison (Isenmann et al, 2005).



**Audouin's Gull *Larus audouinii* and Lesser Black-backed Gull *Larus fuscus*
in Sebket Al Kuz on 10 February 2007 © H.Azafzaf**

- Other gulls *Larus* spp: Once again, the numbers and variety of gulls were one of the features of the survey. Large numbers of wintering Black-headed Gull *Larus ridibundus* (14,137 in 2005, 21,491 in 2006 and 12,159 in 2007) and of Slender-billed Gull *L. genei* (893 in 2005, but 7,626 in 2006 and 4,973 in 2007) were again recorded. Among the larger gulls, good numbers of Lesser Black-backed Gull *L. fuscus* were again observed in 2007 (2,779, against 1,425 in 2005 and 1,438 in 2006), in particular at the Sebket Ganfouda waste disposal site near Benghazi. Once again considerable numbers of Caspian Gull *L. cacchinans* were found in the east, but numbers of Yellow-legged Gull *L. michahellis* were much lower, and it is felt that these were perhaps over-

estimated in previous surveys. Great Black-headed Gull *Larus ichthyaetus*, not recorded in Libya until 2005 (Gaskell 2005), was again recorded; a group of six adults in breeding plumage was found with Audouin's Gulls at a day roost in the Gulf of Sirt; this compares with four at two sites in 2005 and six at another Gulf of Sirt roost in 2006.

- Reed Warbler *Acrocephalus scirpaceus*: One of the biggest surprises of previous surveys had been the presence in several areas with suitable reed-bed habitat - from Wadi Kaam near Khoms in the west to Jaghub in the east, and as far south as Houn - of considerable numbers of singing Reed Warblers. This species had previously been thought to winter exclusively south of the Sahara, so this represented a major extension of the species' known wintering range. Once again in 2007, the species was recorded in full song in a number of areas with reed-beds. The question arises of which population or sub-species is involved, and it would be interesting to catch some in future for biometric and plumage analysis and ringing.

5. Importance of Libyan wetlands

The participants in the survey remain convinced of the importance (at national and indeed regional and international level) of Libyan wetlands, the more so as many of them are in a near-natural condition, and represent some of the largest and most untouched wetlands in the Mediterranean region.

- As noted in previous reports, the participants stress that a number of Libyan wetlands undoubtedly meet the criteria for designation as wetlands of international importance under the Ramsar Convention on Wetlands, and as Special Protected Areas of Mediterranean Importance under The Barcelona Convention
- The participants strongly recommend that some of these sites should be designated under these Conventions, and consider that the following sites are specially worthy of designation: Farwa Lagoon; the whole of the Taourgha complex (but in particular the Taourgha Spring); Al Hisha Spring; the Kerkoura complex; the Benghazi complex; Sebkhet Al Kuz.
- The participants welcome the importance given in Libya in 2007 to the celebration of World Wetlands Day on 2 February (the anniversary of the adoption of the text of the Ramsar Convention), through a major seminar in Benghazi, and through interviews on national radio during their visit.
- The participants draw particular attention to the need for urgent conservation action at some Libyan wetlands, particularly those around Benghazi such as Ain Azziana, which have enormous potential for conservation of biological diversity and increasing public awareness of wetland values, but are currently subjected to heavy urbanization/reclamation and dumping of waste.
- The participants suggest that a publication on Libyan wetlands (perhaps in the form of the national wetland atlases recently published in Algeria and in preparation in Tunisia), would be of great value. They recall that the basic information for such a publication already exists in the Appendix to their 2005 report; with a little judicious updating this could form the basis of an illustrated publication of interest to conservation planning authorities and to the wider public.

6. Publications

Since the two previous surveys, a major development has been the publication, as recommended in previous reports (Azafzaf et al. 2005 and 2006a), in the 56th issue of the annual international refereed scientific journal “Wildfowl”, of an article summarizing the observations of waterbirds and wetlands made during the 2005 and 2006 surveys (Smart et al. 2006). The complete text of this article is included as Appendix 5 to the present report. A second article is due to appear in the African Bird Club “Bulletin”; this article will present notes on waterbirds observed in February 2007, and will focus on observations of terrestrial species in all three years.

7. Data centre and training

The participants were pleased to be accompanied once again by a number of EGA staff (from the Tripoli, Misrata, Benghazi and Beida offices of EGA), who underwent training in field ornithology. Once again, the participants stress the importance of effective management of ornithological data and of training ornithologists.

- As the volume of data on Libyan birds increases, the need for a national Libyan biodiversity and ornithological data centre, noted in the recommendations of previous reports, grows. Such a centre would collect, check, store, and analyse data on Libyan birds, and would provide vital background data for decision makers and land use planners concerned with conservation of Libya’s biological diversity. The subject was discussed with the Director General of EGA, who recognised the value of such a centre.
- For a data centre to function adequately, more Libyan ornithologists will need to be trained. There is a need to train ornithologists in field techniques (through courses, but also through constant field experience), but also to train the staff of a future data centre (through attachments to similar centres in other countries). Again, this issue was discussed with the Director General of EGA.



**Tristram’s Warbler *Sylvia deserticola*, Sebket Tonin (Ghadames)
on 6 February 2007 © H.Azafzaf**

8. Suggestions for future surveys

Thanks to the excellent arrangements made in the surveys of 2005, 2006 and 2007, a general picture of wintering waterbirds and their distribution and number in Libya (at least in coastal sites) is now beginning to emerge. It is understood that the Libyan authorities and RAC/SPA wish to maintain the momentum gathered by these surveys, and the following orientations for future work are suggested:

- After visits to the wetlands around the oases of Jaghub, Houn and Ghadames in the first three years, it would be important to survey the oases further to the south, and notably those in the general area of Sebha, as detailed in Bundy (1976). The participants appreciate that this is a major operation that requires considerable planning in advance.
- In future surveys of the coastal sites, it is suggested that greater attention be paid to certain specific sites: Farwa (because the tidal conditions mean that the birds move around a great deal during the course of the day) and neighbouring sebkhet and lagoons, notably the Mangoub salt pans and others as yet unexplored; the Taourgha complex (because it is so large and the whole of the area, especially the south, has still not been surveyed); areas round Benghazi especially Kerkoura to the south and Al Kuz to the north (because the habitat looks particularly suitable for Slender-billed Curlew in both areas). Future surveys should spend greater lengths of time in these sites
- While appreciating the difficulty of organizing such a survey, it is proposed that consideration should be given to aerial coverage, using light aeroplanes at low level, particularly for large sites like the Taourgha complex or for areas not yet visited between Al Hisha and Ajdabiya.
- Given the great interest of the observations of Reed Warblers, it is suggested that future surveyors of reed bed areas should be equipped with mist nets in order to catch, examine and ring this species, and indeed any other found in the reeds.
- Finally, the interest of the preliminary survey of nesting sites of Lesser Crested Tern carried out in 2006 is emphasized; it is hoped that the larger scale survey planned in July/August 2007 can go ahead.

9. Thanks

Once again it is a pleasure to express thanks to the many people without whom this year's survey could not have taken place.

- The authors express their deepest gratitude to the principal sponsors, the Environment General Authority of Libya (EGA) and the Regional Activity Centre / Specially Protected Areas (RAC/SPA) in Tunis.
- At EGA, they particularly thank the Secretary of the People's Committee and Director General of EGA, Dr Abdulhakim EL WAER, who once again spent a considerable time discussing the results of the survey and possible future activities. They are also grateful to the Director of the Nature Conservation Department of EGA, Dr Ali ALKIKLI, to the Head of the Misrata branch of EGA, Mr Basher Mustafa ASSOUWAYEB, who provided extensive logistical help and transport, and to Mr Salah BEKI of Misrata, who gave much information about the splendid Taourgha site.

- At RAC/SPA the authors are especially grateful to the Director, Mr Abderrahmen GANNOUN, who maintained the organization's support for the work, and to Ms Lobna BENNAKHLA who is in charge of the Action Plan for Birds, and waved her magic wand to solve problems.
- The participants thank bodies who provided financial support, notably the Office National de la Chasse et de la Faune Sauvage and Tour du Valat (both in France), and Vogelbescherming and Wetlands International (in Netherlands).
- At Al Hisha Protected Area the participants are most grateful to the Conservator of Al Hisha Protected Area, Mr Khalifa MAATOUG, for allowing access to this very special area; and to Mr Ibrahim BOU SAIDA, the EGA local representative, for conducting the team around the area and making them very welcome.
- The participants greatly enjoyed the company of the Libyan EGA staff who accompanied them, and to whom they tried to impart their enthusiasm for the country's birds and wetlands: Mr Ismail Basher ALKONTI from Benghazi; Mr Alhassan KHAIRALLAH from Beida; Mr Hatem SALEM from Tripoli; and Mr Ali Abdallah SWALIM from Misrata.
- The participants are very grateful to the three drivers for their unflinching cheerfulness and practical support (not least in cooking lunches in the field): Mr. Omran ALSHAREF; Mr. Mohamed BREKA; and Mr. Ali BOUSETTA.
- Finally, as always, the non-Libyan participants wish to express their enormous debt of gratitude to their three Libyan counterparts, Mohamed Feisal ESSGHAIER, Khaled ETAYEB and Abdulmaula HAMZA, who over the last three years have become firm friends and joint trustees of a long-term undertaking - to learn more about Libya's birds and to disseminate this knowledge.



Expedition team in front of Hotel Mehari in Sirt, early morning of 12 February 2007

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Appendix 2: Full details of Non-Waterbird species counted

Site	Date of visit	03/02/2007		04/02/2007		05/02/2007		06/02/2007		07/02/2007		08/02/2007		09/02/2007		10/02/2007		11/02/2007		12/02/2007		14/02/2007		Total by species																					
		Coverage in %	10	100	70	50	100	50	30	40	100	50	80	100	90	80	80	70	50	40	70	80	40		80																				
English name	Scientific name																																												
Non-waterbird species																																													
Hen Harrier	<i>Circus cyaneus</i>																								2																				
Marsh Harrier	<i>Circus aeruginosus</i>			2																					24																				
Pallid Harrier	<i>Circus macrorosus</i>																								0																				
Black Kite	<i>Milvus migrans</i>																								0																				
Common Buzzard	<i>Buteo buteo</i>																								1																				
Long-legged Buzzard	<i>Buteo rufinus</i>																								1																				
Peregrine Falcon	<i>Falco peregrinus</i>			1																					3																				
Lanner Falcon	<i>Falco biarmicus</i>																								0																				
Kestrel	<i>Falco tinnunculus</i>																								7																				
Common quail	<i>Coturnix coturnix</i>																								2																				
Barbary Partridge	<i>Alectoris barbara</i>																								8																				
Rock Dove	<i>Columba livia</i>			3																					119																				
Collared Dove	<i>Streptopelia decaocto</i>																								26																				
Laughing Dove	<i>Streptopelia senegalensis</i>																								62																				
Little Owl	<i>Athene noctua</i>																								8																				
Hoopoe	<i>Upupa epops</i>																								11																				
Desert Lark	<i>Ammomanes deserti</i>																								2																				
Bar-tailed Lark	<i>Ammomanes cinctrans</i>																								4																				
Crested Lark	<i>Galerida cristata</i>			2																					52																				
Calandra Lark	<i>Melospiza calandra</i>																								0																				
Skylark	<i>Alauda arvensis</i>																								63																				
Short-toed Lark	<i>Calandrella brachydactyla</i>																								2																				
Lesser Short-toed Lark	<i>Calandrella rufescens</i>																								0																				
Hoopoe Lark	<i>Alcedo alaudipes</i>																								3																				
Swallow	<i>Hirundo rustica</i>																								20																				
Rock Martin	<i>Psittopsitta fuligata</i>																								13																				
Crag Martin	<i>Psittopsitta rapistris</i>																								0																				
House Martin	<i>Delichon urbica</i>																								17																				
Red-throated Pipit	<i>Arenaria interpres</i>																								20																				
Meadow Pipit	<i>Arenaria interpres</i>			4																					51																				
Water Pipit	<i>Arenaria interpres</i>																								3																				
Grey Wagtail	<i>Motacilla cinerea</i>																								0																				
White Wagtail	<i>Motacilla alba</i>			3																					77																				
Robin	<i>Erithacus rubecula</i>																								15																				
Moussier's Redstart	<i>Phoenicurus moussieri</i>																								1																				
Black Redstart	<i>Phoenicurus ochruros</i>																								2																				
Bluetit	<i>Luscinia svecica</i>																								2																				
Red-rumped Wheatear	<i>Oenanthe isabellina</i>																								1																				
Desert Wheatear	<i>Oenanthe deserti</i>																								2																				
Mourning Wheatear	<i>Oenanthe lugens</i>																								0																				
Black Wheatear	<i>Oenanthe leucura</i>																								8																				
White-crowned Wheatear	<i>Oenanthe leucopygia</i>																								31																				
Stonechat	<i>Saxicola torquata</i>			1																					32																				
Blue Rock Thrush	<i>Monticola solitarius</i>																								1																				
Song Thrush	<i>Turdus philomelos</i>																								15																				
Fan-tailed Warbler	<i>Cisticola juncidis</i>																								26																				
Reed Warbler	<i>Acrocephalus scirpaceus</i>																								16																				
Sardinian Warbler	<i>Sylvia melanocephala</i>																								40																				
Spectacled Warbler	<i>Sylvia conspicillata</i>																								0																				
Tristram's Warbler	<i>Sylvia deserticola</i>																								15																				
Blackcap	<i>Sylvia atricapilla</i>																								4																				
Scrub Warbler	<i>Scotocerca inquieta</i>																								0																				
Chiffchaff	<i>Phylloscopus collybita</i>																								91																				
Fulvous Babbler	<i>Turdoides fulvus</i>																								5																				
Hoopoe Lark	<i>Alcedo alaudipes</i>																								0																				
Southern Grey Shrike	<i>Lanius meridionalis</i>																								25																				
Raven	<i>Corvus corax</i>																								4																				
Brown-necked Raven	<i>Corvus ruficollis</i>																								10																				
Starling	<i>Sturnus vulgaris</i>																								37630																				
Trumpeter Finch	<i>Bucconetes githaguensis</i>																								22																				
House Sparrow	<i>Passer domesticus</i>																								30																				
Spanish Sparrow	<i>Passer hispaniolensis</i>			15																					427																				
Linnet	<i>Acanthis cannabina</i>																								43																				
Chaffinch	<i>Fringilla coelebs</i>																								1																				
Serín	<i>Serinus serinus</i>																								12																				
Goldfinch	<i>Carduelis carduelis</i>																								5																				
Reed Bunting	<i>Emberiza schoeniclus</i>																								7																				
House Bunting	<i>Emberiza striolata</i>																								3																				
Corn Bunting	<i>Miliaria calandra</i>																								3																				
Total by site		23	2	17	6	4	14	9	90	233	33	10014	3	77	178	1	932	62	13	7	26042	9	292	12	31	25	6	15	64	13	26	1	2	27	100	17	1	502	111	18	47	9	6	36	39130

Appendix 3. Rings recovered in 2007

1. Greater Flamingo *Phoenicopterus roseus* colour rings read

(a) French rings from the Camargue

F JDC		LIFE HISTORY					
Ring reading order from bottom to top		Greater Flamingo ringed the 22.07.2004 (pullus unable to fly) , Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40", E04°37'44")					
		Plastic ring : FJDC in Black on White background. Metal ring : X2998					
		Unknown sex					
Date	Ring	Sex	Observation Site	Behaviour	Comments	Observer(s)	Kms
27.01.2007	FJDC		Ain Al Hishah - Baladiyat Misratah - LIBYA (N31°38'55", E15°16'11")	Dead	Found dead, reported on 10/02/2007	Ibrahim BOU SAIDA	1605

F THJ		LIFE HISTORY					
Ring reading order from top to bottom		Greater Flamingo ringed the 27.07.2005 (pullus unable to fly) , Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40", E04°37'44")					
		Plastic ring : FTHJ in Black on White background. Metal ring : X4140					
		Unknown sex					
Date	Ring	Sex	Observation Site	Behaviour	Comments	Observer(s)	Kms
02.08.2006	FTHJ ↓		Benghazi Lagoon, Sebket Jellana - Baladiyat Benghazi - LIBYA (N32°05'34", E20°03'47")		A total of 70 flamingos was recorded. Read with Hichem AZFZAF	Khaled S. ETAYEB & Abdulmaula A. HAMZA	1843
09.02.2007	FTHJ ↓		Benghazi Lagoon, Sebket Jellana - Baladiyat Benghazi - LIBYA (N32°05'34", E20°03'47")		Group of 156 birds	Abdulmaula A. HAMZA & Hichem AZAFZAF	1843

F TXL		LIFE HISTORY					
Ring reading order from bottom to top		Greater Flamingo ringed the 26.07.2006 (pullus unable to fly) , Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40", E04°37'44")					
		Plastic ring : FTXL in Black on White background. Metal ring : X4251					
		Unknown sex					
Date	Ring	Sex	Observation Site	Behaviour	Comments	Observer(s)	Kms
05.10.2006	FTXL ↑		Valle Sagreda - Rovigo - ITALY (N45°03'17", E12°19'05")		1cy	Menotti PASSARELLA	637
09.02.2007	FTXL ↑		Sebket Qasr Ahmed - Baladiyat Misratah - LIBYA (N32°19'13", E15°13'49")		In group of 63 birds, about 30 of them first winter	Khaled S. ETAYEB & Habib DLENSI	2073

NB: The Flamingo ringed FTXL in France in 2006 (see above), was later recorded on 13.04.07 at Thyna salt pans in Tunisia.

FVPC		LIFE HISTORY					
Ring reading order from bottom to top		Greater Flamingo ringed the 26.07.2006 (pullus unable to fly) , Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40", E04°37'44")					
		Plastic ring : FVPC in Black on White background. Metal ring : X4430					
		Unknown sex					
Date	Ring	Sex	Observation Site	Behaviour	Comments	Observer(s)	Kms
09.02.2007	FVPC ↑		Sebkhel Qasr Ahmed - Baladiyat Misratah - LIBYA (N32°19'13", E15°13'49")		In group of 63 birds, about 30 of them first winter	Khaled S. ETAYEB & Habib DLENSI	1541
FXDP		LIFE HISTORY					
Ring reading order from bottom to top		Greater Flamingo ringed the 26.07.2006 (pullus unable to fly) , Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40", E04°37'44")					
		Plastic ring : FXDP in Black on White background. Metal ring : X4572					
		Unknown sex					
Date	Ring	Sex	Observation Site	Behaviour	Comments	Observer(s)	Kms
09.02.2007	FXDP ↑		Sebkhel Al Thama - Baladiyat Benghazi - LIBYA (N30°09'00", E20°06'00")			Ali Abdallah SWALIM & Pierre DEFOS du RAU	2009
FXXT		LIFE HISTORY					
Ring reading order from bottom to top		Greater Flamingo ringed the 26.07.2006 (pullus unable to fly) , Etg. du Fangassier - Bouches-du-Rhone - FRANCE (N43°25'40", E04°37'44")					
		Plastic ring : FXXT in Black on White background. Metal ring : X4724					
		Unknown sex					
Date	Ring	Sex	Observation Site	Behaviour	Comments	Observer(s)	Kms
10.02.2007	FXXT ↑		Aln Al Hishah - Baladiyat Misratah - LIBYA (N31°38'55", E15°16'11")		Group of 97 birds, 65 adults (none of adults ringed)	Habib DLENSI	1605

(b) Italian rings from Sardinia

MSPT		HISTORIQUE DE VIE - observations envoyées par Mike SMART (observations faites par Habib DLENSI et Mike SMART)					
Sens de lecture de bas en haut		Flamant rose bagué le 29.07.2006 (poussin) , Saline di Macchiaeaddu - Cagliari (Sardegna) - ITALIE (N39°13', E09°02')					
		Bague plastique : MSPT en Noir sur fond Blanc. Bague Métal : E0008988					
		Sexe non identifié					
		 Istituto Nazionale per la Fauna Selvatica					
Date	Bague	Sexe	Lieu d'observation	Comportement	Commentaires	Observateur(s)	Kms
08.08.2006	MSPT↑		Saline di Macchiaeaddu - Cagliari (Sardegna) - ITALIE (N39°13', E09°02')	A la colonie		Sergio NISSARDI	0
09.02.2007	MSPT↑		Sebkhet Gasr Ahmed - Baladiyah Misratah - LIBYE (N32°06'27", E15°20'01")		First winter, sleeping, 56 birds (45 first winter)	Habib DLENSI et Mike SMART	972

MSCT		HISTORIQUE DE VIE - observations envoyées par Mike SMART (observations faites par Khaled S. ETAYEB et Habib DLENSI)					
Sens de lecture de bas en haut		Flamant rose bagué le 29.07.2006 (poussin) , Saline di Macchiaeaddu - Cagliari (Sardegna) - ITALIE (N39°13', E09°02')					
		Bague plastique : MSCT en Noir sur fond Blanc. Bague Métal : E0008867					
		Sexe non identifié					
		 Istituto Nazionale per la Fauna Selvatica					
Date	Bague	Sexe	Lieu d'observation	Comportement	Commentaires	Observateur(s)	Kms
12.08.2006	MSCT↑		Lac Ichkeul - Bizerte - TUNISIE (N37°10', E09°40')		juvenile	Mike SMART	234
09.02.2007	MSCT↑		Gasr Ahmed steelworks - Baladiyah Misratah - LIBYE (N32°19'13", E15°16'49")		First winter, sleeping, 63 birds (30 first winter)	Khaled S. ETAYEB et Habib DLENSI	977

MSFF		HISTORIQUE DE VIE - observations envoyées par Mike SMART (observations faites par Khaled S. ETAYEB et Habib DLENSI)					
Sens de lecture de haut en bas		Flamant rose bagué le 29.07.2006 (poussin) , Saline di Macchiaeaddu - Cagliari (Sardegna) - ITALIE (N39°13', E09°02')					
		Bague plastique : MSFF en Noir sur fond Blanc. Bague Métal : E0008890					
		Sexe non identifié					
		 Istituto Nazionale per la Fauna Selvatica					
Date	Bague	Sexe	Lieu d'observation	Comportement	Commentaires	Observateur(s)	Kms
09.02.2007	MSFF↓		Gasr Ahmed steelworks - Baladiyah Misratah - LIBYE (N32°19'13", E15°16'49")		First winter, sleeping, 63 birds (30 first winter)	Khaled S. ETAYEB et Habib DLENSI	949

MNP D		HISTORIQUE DE VIE - observations envoyées par Mike SMART (observations faites par Pierre DEFOS du RAU et Hichem AZAFZAF)					
Sens de lecture de bas en haut		Flamant rose bagué le 06.08.2005 (poussin) , Saline di Macchiareddu - Cagliari (Sardegna) - ITALIE (N39°13', E09°02')					
		Bague plastique : MNP D en Noir sur fond Blanc. Bague Métal : E0007029					
		Sexe inconnu					
Date	Bague	Sexe	Lieu d'observation	Comportement	Commentaires	Observateur(s)	Kms
26.01.2006	MNP D†		Benghazi Lagoon, Sebket Jeliana - LIBYE (N32°05'00", E20°03'00")		read also by Mokhtar MOUSSA AMR; 10 ind. all juv.	Mike SMART et Khaled S. ETAYEB	1269
02.08.2006	MNP D†		Benghazi Lagoon, Sebket Jeliana - LIBYE (N32°05'00", E20°03'00")		read also by Hichem Azafzaf; 70 ind.	Khaled S. ETAYEB et Abdulmaula A. HAMZA	1269
09.02.2007	MNP D†		Benghazi Lagoon, Sebket Jeliana - LIBYE (N32°05'00", E20°03'00")		First winter, sleeping, 156 birds	Pierre DEFOS du RAU et Hichem AZAFZAF	1269



(c) Spanish rings from Ebro Delta

X 605		HISTORIQUE DE VIE - observations envoyées par Mike SMART					
Sens de lecture de haut en bas		Flamant rose bagué le 02.07.2006 (poussin) , Punta de la Banya, PNDE - Tarragona - ESPAGNE (N40°34'44", E00°40'47")					
		Bague plastique : X 605 en noir sur fond blanc. Bague Métal : 1015085					
		Sexe estimé a partir des observations : Femelle					
Date	Bague	Sexe	Lieu d'observation	Comportement / Statut	Commentaires	Observateur(s)	Kms
09.02.2007	X 605 ↓	F	Sebket Qasr Ahmed - Baladiyah Miratah - LIBYE (N32°19'13", E15°13'49")		First winter in group of 56 (45 first winter) at 32.06,446N 15.20,021 E	Mike SMART	1587



Parc Natural del Delta de l'Ebre

 <p>Sens de lecture de haut en bas</p>		<p><i>HISTORIQUE DE VIE - observations envoyées par Pierre DEFOS du RAU (observations faites par Pierre DEFOS du RAU et Hichem AZAFZAF)</i></p> <p>Flamant rose bagué le 02.07.2006 (poussin) , Punta de la Banya, PNDE - Tarragona - ESPAGNE (N40°34'44", E00°40'47")</p> <p>Bague plastique : X 476 en noir sur fond blanc. Bague Métal : 1016206 Sexe inconnu</p>					 <p>Parc Natural del Delta de l'Ebre</p>	
Date	Bague	Sexe	Lieu d'observation	Comportement / Statut	Commentaires	Observateur(s)	Kms	
09.02.2007	X 476 ↓	-	Benghazi Lagoon, Sebket Jeliana - LIBYE (N32°06'00", E20°03'00")		First winter, sleeping, in group of 156 birds AI 32.05,667 N 20.03,777 E	Pierre DEFOS du RAU et Hichem AZAFZAF	1966	

(d) Spanish rings from Fuente de Piedra, Andalucia

 <p>Sens de lecture de haut en bas</p>		<p><i>HISTORIQUE DE VIE</i></p> <p>Flamant rose bagué le 07.08.2004 (poussin) , Laguna de Fuente de Piedra - Malaga - ESPAGNE (N37°06'31", W04°46'20")</p> <p>Bague plastique : 1 JFH en Noir sur fond Blanc. Bague Métal : 10-16484 Sexe inconnu</p>						
Date	Bague	Sexe	Lieu d'observation	Comportement	Commentaires	Observateur(s)	Kms	
02.09.2006	1 JFH ↓		Saline di Trapani - Trapani (Sicilia) - ITALIE (N39°00', E12°31')			Renzo IENTILE et Giovanni CUMBO	1522	
10.02.2007	1 JFH ↓		Ain Al Hishah - Baladiyat Misratah - LIBYE (N31°38'55", E15°18'11")		Immature aged three years in group of 97 (85 adults, none of them ringed)	Habib DLENSI	2271	

 <p>Sens de lecture de haut en bas</p>		<p><i>HISTORIQUE DE VIE</i></p> <p>Flamant rose bagué le 15.07.2006 (poussin) , Laguna de Fuente de Piedra - Malaga - ESPAGNE (N37°06'31", W04°46'20")</p> <p>Bague plastique : 1 PBS en Noir sur fond Blanc. Bague Métal : 10-17686 Sexe inconnu</p>						
Date	Bague	Sexe	Lieu d'observation	Comportement	Commentaires	Observateur(s)	Kms	
09.02.2007	1 PBS ↓		Sebket Qasr Ahmed - Baladiyat Misratah - LIBYE (N32°19'13", E15°13'49")		First winter bird in group of 50 (45 first winter)	Khaled S. ETAYEB et Habib DLENSI	1997	

(e) Turkish rings from Izmir

T AZA		HISTORIQUE DE VIE - observations envoyées par Mike SMART					
Sens de lecture de haut en bas		<p>Flamant rose bagué le 01.08.2004 (poussin) , Çamaltı Tuzlası, Gediz Deltası - Izmir - TURQUIE (N38°30'34", E26°54'32")</p> <p>Bague plastique : T AZA en Noir sur fond Blanc. Bague Métal : F124</p> <p>Sexe inconnu</p>					
Date	Bague	Sexe	Lieu d'observation	Comportement / Statut	Commentaires	Observateur(s)	Kms
25.01.2006	T AZA	↓	Sebkhet Brega - Baladiyat Ajdabiya - LIBYE (N30°19'29", E19°30'32")		Read with Habib DLENSI and Mohamed Faisal Ashor ESSGHAIER. PVC on right tibia.	Hichem AZAFZAF et Mokhtar MOUSSA AMOUR	1132
29.01.2006	T AZA		Sebkhet Brega - Baladiyat Ajdabiya - LIBYE (N30°19'29", E19°30'32")		Read with Mokhtar Moussa AMOUR	Mike SMART et Hichem AZAFZAF	1132
17.02.2007	T AZA	↓	Salines de Thyna - Sfax - TUNISIE (N34°38'00", E10°43'00")		PVC sur tibia droit	Habib DLENSI et Claudia FELTRUP-AZAFZAF	2084
13.04.2007	T AZA	↓	Salines de Thyna - Sfax - TUNISIE (N34°38'00", E10°43'00")		In evening grp. of 730, mainly older immatures, on one of the larger basins, nearly all checked for rings, 42 read	Mike SMART	2084

NB: No Turkish rings were read in 2007, but the Flamingo ringed T|AZA in Turkey in 2004, which had been recorded at Sebkhet Brega in the Gulf of Sirt on 25.01.06 and 29.01.06, was recorded at Thyna salt pans in Tunisia on 17.02.07 and 13.04.07.

2. Slender-billed Gull *Larus genei* colour rings read

(a) Italian rings read

Gabbiano roseo

Larus genei

Nero

IVJJ

TE003550

Pullus ringed on 20-07-04 at Valli di Comacchio - Saline di Comacchio 4440N1212E
(Comacchio, Ferrara) Italia by A. Magnani

OBSERVATIONS:

<i>Date</i>	<i>Locality</i>	<i>Province details</i>	<i>Country</i>	<i>Coordinates</i>	<i>Remarks</i>	<i>Observer</i>
11-08-04	Valli di Comacchio - Saline di Comacchio	Comacchio, Ferrara	Italia	4440N1212E		G. Arveda
07-06-05	Saline di Cervia	Ravenna	Italia	4415N1220E	vasca 33	A. Magnani
11-07-05	Saline di Cervia	Ravenna	Italia	4415N1220E	vasca 37	A. Magnani
18-07-05	Saline di Cervia	Ravenna	Italia	4415N1220E	vasca 37	A. Galimberti, A. Magnani
04-02-07	Sebkhet Al Mangoub	Zuwaarah	Libia	3253N1208E	group of 275	Azafzaf, Etayeb

(b) Spanish rings read

5UU (Black letters on white ring) : ringing information not yet received

5VJ (Black letters on white ring) : ringing information not yet received

3. Lesser Black-backed Gull *Larus fuscus* colour rings read

Resightings of a Colour ringed Gull

Thank you for your report of a CR-ringed Gull. Under you will find the details. In the event the bird is dead and you still posses the ring(s), we kindly urge you to send (them) to us. Resightings of our CR-ringed Gulls could be reported to Lista Ringing Group, Box 171, 4558 Vanse, Norway or on E-mail: clifu@c2i.net

CR-Code *Blue with white code* *J8NT* **Ringing Centre** *Stavanger* **Ringnumber** *4251388* **Ringer** *Thomas Bentsen*

Species *Lesser Black-backed Gull (*Larus fuscus intermedius*)* **Sex** *X* **Age** *Pull* **Date** *15.07.2006*

Place *Rauna, Farsund, Vest-Agder, NORWAY* **Co-ordinates** *58.03.33 N - 06.40.10 E*

Date	Locality	Co-ordinates	Finder	Nr. of days	Remarks
14.09.2006	Blaringhem, Nord, FRANCE	50.41 N - 02.24 E	Harry Vercrujisse	61	
10.02.2007	Sebkhet Al Thama, Bengazi, LIBYA	32.09.00 N - 20.06.00 E	Khaled Etayeb, Habib Dlensi	210	

Resightings of a Colour ringed Gull

Thank you for your report of a CR-ringed Gull. Under you will find the details. In the event the bird is dead and you still posses the ring(s), we kindly urge you to send (them) to us. Resightings of our CR-ringed Gulls could be reported to Lista Ringing Group, Box 171, 4558 Vanse, Norway or on E-mail: clifu@c2i.net


CR-Code *Blue with black code* *JH65* **Ringing Centre** *Stavanger* **Ringnumber** *4209565* **Ringer** *Runar Jåbekk*

Species *Lesser Black-backed Gull (*Larus fuscus intermedius*)* **Sex** *X* **Age** *Pull* **Date** *12.07.1997*

Place *Store Kraaga, Lindesnes, Vest-Agder, NORWAY* **Co-ordinates** *58.01.01 N - 07.19.00 E*

Date	Locality	Co-ordinates	Finder	Nr. of days	Remarks
27.05.2006	Hummerholmen, Lindesnes, Vest-Agder, NORWAY	58.01.04 N - 07.16.14 E	Thomas Bentsen, Martin L. Pedersen	3241	Hekkende
04.02.2007	Sebkhet Al Mangouh, Bengazi, LIBYA	32.53.44 N - 12.08.31 E	Khaled Etayeb, Habib Dlensi	3494	

NB: The two 2007 *L. fuscus* recoveries come from the extreme south of Norway, whereas the single 2006 recovery was from the far north (at 70N, well beyond the Arctic Circle) and was ringed as *L. fuscus graelsii*. The two 2007 Finnish recoveries came from the same general area as the single 2006 Finnish recovery.

Ringing Centre P. O. Box 26 FI-00014 UNIVERSITY OF HELSINKI, FINLAND Tel. +358-9-191 28847 Fax +358-9-191 28843		Ref. number : 973940 26.03.2007	1
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MIKE SMART

**143 CHELTENHAM ROAD
GLOUCESTER GL2 0JH**

UNITED KINGDOM

RING RECOVERY REPORT

Thank you very much for your information on a Finnish bird ring. Ringing and finding details are given below. If you find any errors in this report, please let us know about them referring both to the ring number and to the reference number in the upper right corner of this letter.

RINGING DATA

Ring number	HT252334	Larus fuscus
Species	Lesser Black-backed Gull	Wing 237.0 mm
Age	Young, out of the nest	Weight 779.0 g
Ringing date	03.07.2005	
Ringing place	PIETARSAARI, VAASA, FINLAND	
Coordinates	63°40'N 22°36'E	
Status	Healthy, wild bird	
Ringer	RALF WISTBACKA, SÖDRA LARSMOVÄGEN 139, 68570 LARSMO	

RECOVERY DATA

Verification of the ring	Number not verified	Larus fuscus
Species	Lesser Black-backed Gull	
Recovery date	04.02.2007	
Recovery place	SEBKHET AL MANGOUB TUNISIA	
Coordinates	32°54'N 12° 8'E	
Status	Alive	
Recovery code	Bird identified from coloured or numbered legging(s)	
Additional comments	RED CPE6 READ	
Finder	MIKE SMART, 143 CHELTENHAM ROAD, GLOUCESTER GL2 0JH, UNITED KINGDOM	

Elapsed time 1 years, 7 months and 1 days.
Distance 3508 km; direction SSW from ringing place.

Mailing address Ringing Centre Finnish Museum of Natural History P.O.BOX 26 00014 UNIVERSITY OF HELSINKI	Visiting address Ringing Centre Natural History Museum Teollisuuskatu 23 00510 HELSINKI	Telephone +358-9-191 28847 Telefax +358-9-191 28843	Email elmu_ren@cc.helsinki.fi	941
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NB. Error in above recovery report: Mangoub is of course in Libya, not Tunisia.

4. Great Cormorant *Phalacrocorax carbo* metal ring found

RING NUMBER Moskwa B-292 189
SPECIES *Phalacrocorax carbo*
SEX, AGE pull
RINGING DATE 18.06.2006
PROVINCE Russia, Leningrad O.
RINGING PLACE Finskiy bay, arhipelag Bolshoy Fiskar
COORDINATES 60.25 N 27.58 E

FINDING DATE 05.02.2007
PROVINCE Libya
FINDING PLACE Farva Lagoon
COORDINATES 33.04 N 11.44 E
FINDING *Phalacrocorax carbo*, 2 y
DETAILS found dead

ref. 94/07 Great Britain

DISTANCE 3244 km DIRECTION 202 degrees ELAPSED TIME 232 days

This is the first ever recovery in Libya of a Cormorant ringed in Russia. Note that it originates from the Baltic, not the Black Sea or Caspian.

5. Spoonbill *Platalea leucorodia*



Spoonbill *Platalea leucorodia* Valli di Comacchio - Italia, on 13.05 © Roberto Sauli

Although no Spoonbill rings were read in February 2007, one of the 2003 Italian birds seen at Benghazi Lakes in both January 2005 and January 2006 was recorded in Italy, near its birthplace in three summers, 2005, 2006 and 2007. This is a clear indication of regular movement back and forth between the Italian birthplace and the Libyan wintering area.

Spatola
Platalea leucorodia

Nero
IAZX

P0010157

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

OBSERVATIONS:

<i>Date</i>	<i>Locality</i>	<i>Province details</i>	<i>Country</i>	<i>Coordinates</i>	<i>Remarks</i>	<i>Observer</i>
27-06-03	Valle Santa	Argenta, Ferrara	Italia			De Faveri, Scaf, Fari, Camp
23-07-04	Bahiret el Bibane		Tunisia	3300N1115E	group of 7 ad. And 2 juv.	H. Azafzaf
09-01-05	Benghazi Lagoon	Benghazi	Libia	3205N2003E		Etayeb, Azafzaf, Dlensi, Smart
09-08-05	ex-risaie Bentivoglio (Mezzacasa)	Bentivoglio, Bologna	Italia	4439N1125E	gruppo di 54 a riposo - ore 14	L.Golinucci
26-01-06	Benghazi Lagoon	Benghazi	Libia	3205N2003E	flock of 10	K. Etayeb, M. Moussa, M. Smart
28-01-06	Sebkhet El Thama	Benghazi	Libia	3209N2006E	roost of 25	M. Smart
16-06-06	Valli di Comacchio - ex Valle Mezzano	Comacchio, Ferrara	Italia	4437N1208E	coop Bellini	M. Bonora, C. Zini
13-05-07	Valli di Comacchio - Valle Umana	Argenta, Ferrara	Italia		foto	R. Sauli

Appendix 4. Bibliography

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Wetlands and wintering waterbirds in Libya, January 2005 and 2006

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Abstract

Systematic surveys of mainly coastal wetlands in Libya were carried out for the first time in January 2005 and 2006, to identify sites of major importance for waterbirds in winter. In 2005, nearly 30,000 waterbirds were found, and in 2006 over 52,000, with large numbers of gulls recorded in both years. The surveys showed that Libyan wetlands are used by a range of species, notably the near-threatened Mediterranean endemic Audouin's Gull *Larus audouinii*, several other gull species, wildfowl and waders. Eurasian Cranes *Grus grus* were found well into the desert. Overall, Libyan wetlands are internationally important for waterbirds of Mediterranean lagoon ecosystems, including Greater Flamingo *Phoenicopterus roseus*, Kentish Plover *Charadrius alexandrinus* and Slender-billed Gull *Larus genei*. They also provide different types of typical Mediterranean wetland habitat. A number of species rarely recorded were observed, including birds new to Libya, but the Critically Endangered Slender-billed Curlew *Numenius tenuirostris* was not found. Waterbirds previously considered to winter exclusively south of the Sahara, such as Purple Heron *Ardea purpurea*, Squacco Heron *Ardeola ralloides* and Little Bittern *Ixobrychus minutus* were also observed. Sightings of colour-ringed birds indicated that waterbirds wintering in Libya had migrated there from eastern, northern and western Eurasia.

Key words: Libya, wetlands, waterbirds, winter, Mediterranean lagoons.

In contrast to Morocco, Algeria and Tunisia to the west, and Egypt's Nile Delta and Valley to the east, Libya, with its relatively dry climate, is perceived as having comparatively few wetlands and waterbirds. It is also, ornithologically, the least known country of Mediterranean Africa. In a preliminary description of the birds of Libya, Bundy (1976) presents little information from the region east of the Gulf of Sirt. More recently, Wetlands International (2002a) notes that Libya has never contributed to the International Waterbird Census (IWC), and that the only data available are from a small number of expeditions. There are few recent papers on Libyan ornithology in general, or on waterbirds in particular. Of these, Meininger *et al.* (1994) deal mainly with the important nesting colonies of Lesser Crested Tern *Sterna bengalensis* (almost 100% of the Mediterranean population breeds in Libya), Massa (1999) reports some new species for Libya, and Brehme *et al.* (2002a,b,c) refer mainly to older observations. Defos du Rau *et al.* (2003) describe the birds recorded during a short survey of some coastal areas in April 2001. A recent paper by Gaskell (2005) provides valuable new information on the status and distribution of some Libyan birds in 2004 and 2005.

There has been increasing interest in Libyan wetlands over the last 10 years. In 1995 the UNEP Mediterranean Action Plan (MAP), which brings together 21 countries round the Mediterranean, including Libya, within the framework of the Barcelona Convention ("Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean"), adopted a 'Protocol concerning Specially Protected

Areas (SPA) and Biological Diversity in the Mediterranean'. Annex II of the Protocol includes a 'List of Endangered or Threatened Species', including 15 waterbirds, for which a Bird Action Plan has been developed (UNEP MAP RAC/SPA 2003). Moreover, in 2000 Libya became a Contracting Party to the Ramsar Convention, designating two wetlands in the Jebel Akhdar area northeast of Benghazi. In 2005 Libya joined the African-Eurasian Waterbird Agreement (AEWA), an agreement under the Convention on Migratory Species (CMS). In January 2005, the Environment General Authority (EGA), the official Libyan body responsible for the implementation of international agreements relating to biodiversity, co-sponsored the first ornithological survey of wetlands in Libya, under a Memorandum of Agreement with the RAC/SPA and AEWA, and with support from Wetlands International, the Istituto Nazionale per la Fauna Selvatica (INFS) (Italy) and the Office National de la Chasse et de la Faune Sauvage (ONCFS) (France).

The survey was carried out by the authors of the present paper. The general aim was to fill some of the gaps in knowledge of wintering waterbirds in Libya, and more specifically: 1) to search for Slender-billed Curlew, a Critically Endangered species that winters on shallow brackish coastal pools, marshes and ponds in the region (Ledant & Lafontaine 1994; Wetlands International 2002b), 2) to investigate the status in Libya of the other 14 species in the RAC/SPA Bird Action Plan, 3) to carry out the first comprehensive midwinter waterbird census in Libya, and 4) to identify wetlands of major importance for wintering waterbirds.

Wetlands of international importance were defined in accordance with the numerical criteria of the Ramsar Convention (i.e. those regularly supporting 20,000 or more waterbirds, or those regularly supporting at least 1% of the individuals in a population of one species or subspecies of waterbird, the current 1% thresholds being listed in Wetlands International 2002b). Additionally, the more qualitative criterion for determining sites of international importance under the Ramsar Convention, that “a wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region” was taken into account.

A repeat survey was carried out in January 2006. The present paper provides a summary of the findings of the two surveys, concentrating on the third and fourth aims of the project. A much more detailed account of the 2005 survey is available on the EGA and RAC/SPA websites (Azafzaf *et al.* 2005a); a similar detailed account for 2006 is in preparation. A report on cormorants *Phalacrocorax* spp. has already been published (Azafzaf *et al.* 2005b).

Methods

From 3 to 17 January 2005, as many wetlands as possible were surveyed along the Libyan coastline, from the border with Tunisia in the west to the border with Egypt, a distance of some 1,500 km (Fig. 1). The survey was performed by eight ornithologists. In view of the vast area to be covered, the group often

split into smaller teams, covering different wetlands or different sectors of some large wetlands; counts were made at all times of the day, using binoculars and telescopes, and care was taken to eliminate possibilities of double counting. In all, 65 sites were covered. Water levels in the coastal wetlands generally were lower than average, although there was heavy rainfall during the survey in both the Tripoli and Benghazi areas. From 20 to 30 January 2006, a second survey of coastal wetlands was organised by EGA, with the same participants, joined by three additional Libyan ornithological trainees. The 2006 survey covered 57 sites (including all of the most important sites covered in 2005), with a further four inland dams near Tripoli covered by Libyan members of the team on 5 January. In winter 2005/06, rainfall was much heavier in areas near the border with Tunisia and some sites, notably Sebkheth Boukamesh, which had been dry in January 2005, were flooded and holding waterbirds in January 2006. In other areas round the Gulf of Sirt and east of Benghazi the rainfall (and hence water levels in the wetlands) was not appreciably different from that in January 2005, except that the important site of Temimi was much drier in 2006. Some inland sites were covered, among them four dams including the Wadi Zaret Dam inland of Tripoli (Fig. 1). The oasis of Jaghbub, 250 km south of Tobruk was covered in 2005 but not 2006. Sebkheth el Hammam, near Houn, 300 km inland from the Gulf of Sirt, was covered in 2006 only. The major inland oases of the south, such as Kufa, Sebha and Ghadames, were not visited.

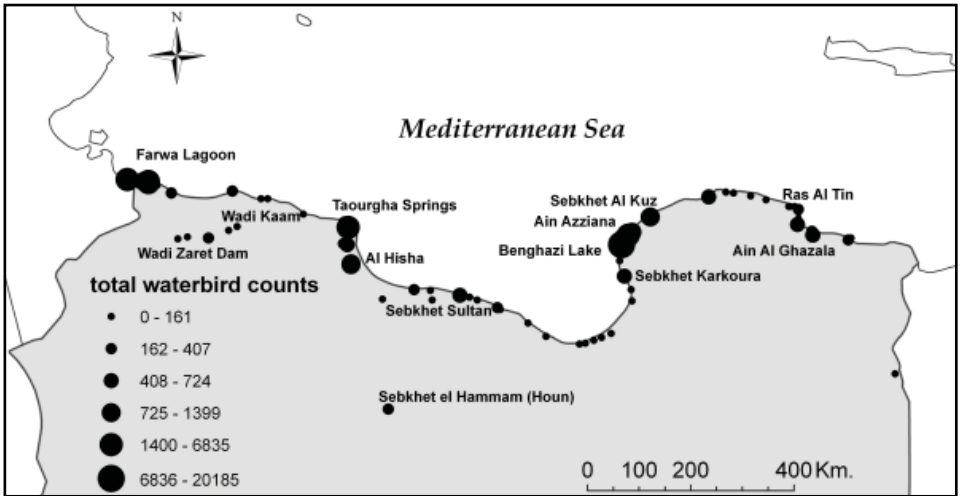


Figure 1. Location of wetlands surveyed in Libya in 2005 and 2006.

Results

Wetlands of major importance in Libya

The Mediterranean is largely a sea without tides; in only two areas, the northern Adriatic around Venice and the Gulf of Gabes in southern Tunisia, is there any appreciable tidal movement. In southern Tunisia the 2-m tidal range provides extensive mudflats used by large numbers of waders and fish-eating birds (Isenmann *et al.* 2005), and these extend a short way into western Libya, notably at Farwa Lagoon, the most important tidal wetland in Libya. Farwa Lagoon (called 'Pisida' by Bundy (1976); Fig. 2a), is a shallow bay sheltered from the open sea by a sandspit nearly 13 km long, but with a 3-km wide opening to the sea. The whole bay holds rich beds of the seagrasses *Posidonia oceanica* and *Cymodocea nodosa* and other marine plants; the lagoon

is a major fishing area, largely devoid of buildings. In summer it is a nesting site for Redshank *Tringa totanus*, Little Tern *Sterna albifrons* and Caspian Tern *S. caspia*, the latter rarely recorded as a breeding species in the Mediterranean (Etayeb 2002). A total of nearly 2,500 waterbirds, comprising 31 species, was observed at the site in January 2005. In January 2006 the total was just over 2,500 birds of 27 species. Species observed included Black-necked Grebe *Podiceps nigricollis*, Great Cormorant *Phalacrocorax carbo*, Spoonbill *Platalea leucorodia*, a variety of waders (including over 100 Eurasian Curlews *Numenius arquata*) and many gulls and terns.

Inland from Tripoli, in the foothills of the Jebel Nafusa, are a number of recently constructed, generally small, freshwater dams, which held small numbers of surface-feeding ducks (c. 200 in both years). The largest numbers and range of species occurred at Wadi Zaret Dam.

In the Tripoli coastal belt, the principal wetlands are the wadi mouths between Tripoli and Misratah. Three of these wetlands, Wadi Ramal, Wadi Maseed (or Mashid) and Wadi Turghat, are included in the Garabulli National Park, established in 1992, but the largest, Wadi Kaam, further to the east, is not included. Most of these wetlands are spring-fed, and break through sand dunes stabilised with exotic plant species such as *Eucalyptus* and *Acacia* before reaching the sea. Near the sea, the water is often shallow and fresh, with reeds along the edges. About 100 waterbirds were recorded at each of these sites; species present included several Ferruginous Ducks *Aythya nyroca*, in 2005 and 2006, and Audouin's Gull *Larus audouinii*, both classed as Near Threatened at global level (IUCN 2006), while Audouin's Gull is one of the 15 species in the RAC/SPA Bird Action Plan.

From Misratah to Sirt, and on past Ajdabiyah, the Gulf of Sirt forms a deep inlet in the North African coast, with low coastal dunes and, behind them, vast salt lakes, where water levels vary enormously according to annual rainfall. Just south of Misratah is an enormous complex of such lakes, about 100 km long and extending up to 20 km inland. The area covers some 250,000 ha, making the 'Taourgha complex' one of the largest wetlands in the Mediterranean. The Taourgha complex is divided into several different sectors: Sebkheth Qasr Ahmed, Sebkheth Taourgha, Sebkheth Om al Adham and Sebkheth Al Hisha, and counts were recorded for each of these sectors. At Taourgha and Al Hisha which both have long histories of human habitation, there are ancient springs and the fresh water collects

in small marshes (Hamza 2004). At Taourgha Spring, 284 waterbirds of 29 species were noted in 2005 and some 407 waterbirds of 33 species in 2006. At Al Hisha springs (part of the Al Hisha Nature Reserve, established in 1992), 856 individuals of 28 species were seen in 2005 and 1,009 birds of 24 species in 2006. Both sites had unexpectedly large groups of wintering Eurasian Crane *Grus grus* (over 100 at each site in 2005, and roosts at both sites in 2006 when 308 were seen at Al Hisha), nesting White Stork *Ciconia ciconia*, wintering Squacco Heron *Ardeola ralloides* and Purple Heron *Ardea purpurea* in both years, and a variety of ducks and waders. The figures for Taourgha and Al Hisha include birds on the salt lakes themselves, but they are a considerable underestimate because of the huge size of the wetlands and the difficulty in accessing them. Conditions on and around the salt lakes looked suitable for Slender-billed Curlew *Numenius tenuirostris*, but none was found in either year. In 2006 many gulls were found sheltering from a storm at sea on Sebkheth Qasr Ahmed, including 500 Audouin's Gulls and 5,000 Slender-billed Gulls *L. genei*, much the largest concentrations recorded for both species in 2006.

The Taourgha complex is not the only area of salt lakes in the Gulf of Sirt; such lakes are found all along the coast (notably Sebkheth Sultan), with untouched beaches to the seaward side. The marine area is reported to have extensive beds of seagrass. Just south of Benghazi is Sebkheth Karkoura, a salt pan still used for salt extraction, where 675 waterbirds were noted in 2005. These included 18 Eurasian Cranes, just over 300 waders and 270 Audouin's Gulls, the largest

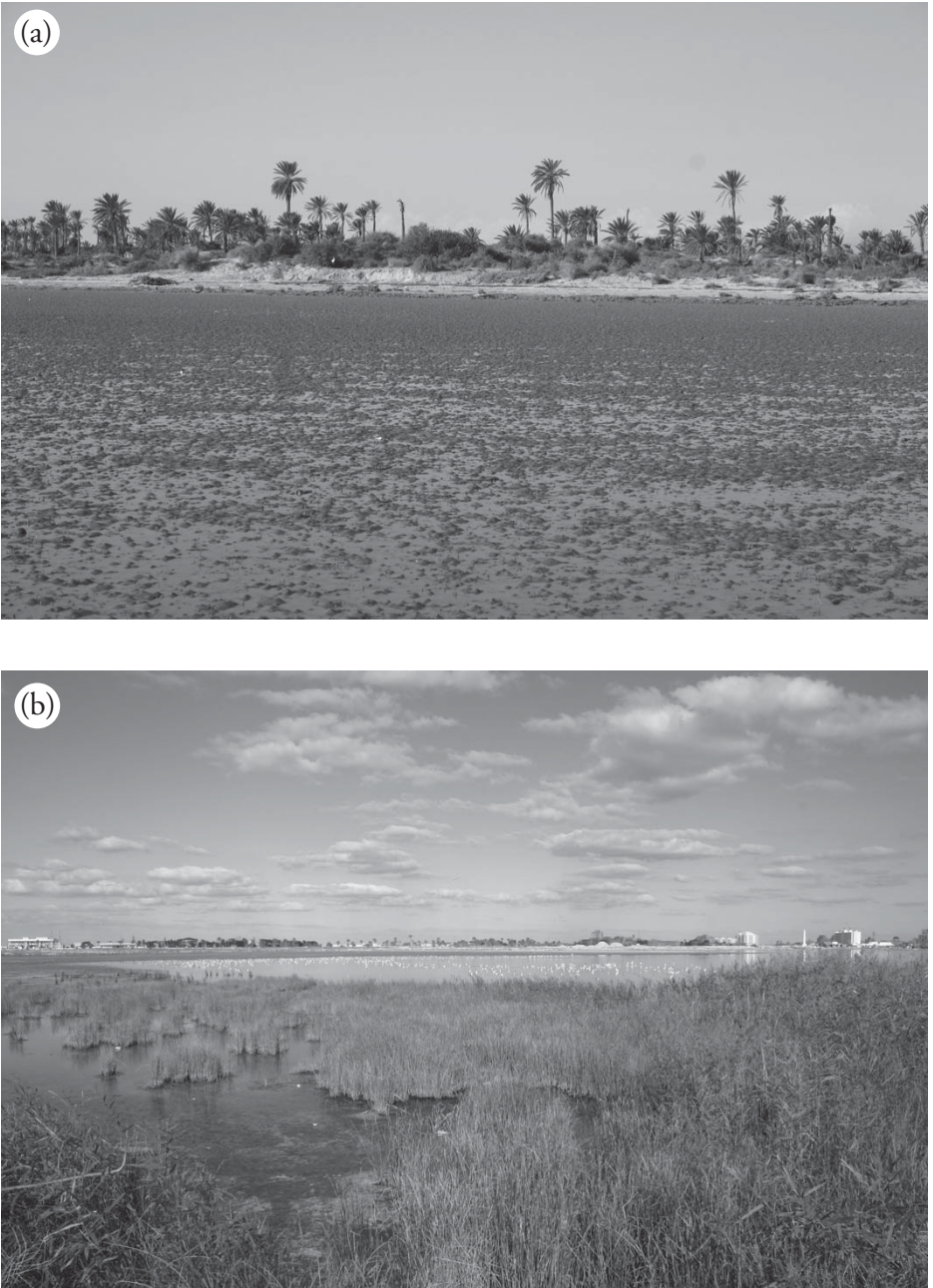


Figure 2. Wetland habitat at: (a) Farwa Lagoon and (b) Benghazi Lake.

group seen in Libya in 2005. Numbers of all species were lower here in 2006. North of Karkoura, coastal areas are composed mainly of agricultural areas and stony, partially and temporarily flooded pastures interspersed with occasional small lagoons and dunes. This vast area seemed highly favourable for Slender-billed Curlew, but none was found. Further north is Sebkhet Ganfouda, once a salt lake and now used as the main waste disposal area for Benghazi, which held over 12,000 gulls in 2005 and 20,000 gulls in 2006.

The original site of the city of Benghazi was chosen for its commercial and strategic position: a coastal harbour, with a ring of salt lakes linked to the sea surrounding and protecting it on the landward side (Fig. 2b). Today this ring of *sebkhets* (Sebkhet Al Thama, Sebkhet Esselawi and Benghazi Lake and Harbours) is under heavy pressure from urbanisation. It also appears to receive some waste water and is hence highly eutrophic, with extensive reedbeds. However, the complex as a whole holds some of the highest concentrations and variety of waterbirds recorded anywhere in Libya to date. A total of nearly 5,000 waterbirds of 41 species (including 500 gulls) was seen in 2005, and nearly 7,000 waterbirds of 47 species (including nearly 4,000 gulls) in 2006, including grebes, herons, spoonbills, ducks, waders, gulls and terns.

Just north of Benghazi are two more major *sebkhets*, Ain Azziana (which also includes a lagoon fed by a freshwater spring) and Al Kuz, both of which attract Greater Flamingo *Phoenicopterus roseus* and waders. A total of 450 waterbirds was recorded at the former in 2005 and 960 in 2006, with 1,155

at the latter in 2005 and 1,399 in 2006.

Further northeast of Benghazi, the two current Libyan Ramsar sites of Sebkhet Ain Azzarga and Sebkhet Ain Ashagiga are situated in the Kouf National Park. Both are coastal salt lakes in the limestone country of the Jebel Akhdar. Much of the coastline between Benghazi and Derna is rocky, but between Derna and Tobruk there is another inlet, the Gulf of Bumba, where the coastal salt lakes of Sebkhet Temimi and Ain al Ghazala are close to one another and support intensive fisheries. A total of over 500 birds, including cormorants, waders and gulls, was observed at Temimi in both years, while numbers at Ghazala were over 300 in 2005 and 600 in 2006, mainly grebes and cormorants, plus some waders, gulls and terns.

The only oasis visited in 2005 was Jaghub and its nearby salt lakes, where the waterbirds recorded were 13 Great Cormorants, one Grey Heron, one Redshank and two Moorhens *Gallinula chloropus*. In 2006, a visit was also made to the Houn area, 300 km south of Sirt, where a series of agricultural projects, fed by artesian water, create streams and depressions providing suitable conditions for waterbirds. A total of 352 waterbirds was observed, with 10 herons (including two more Purple Herons), over 200 ducks (mainly Teal and Shoveler with five more Ferruginous Ducks), and, surprisingly in the desert, a further 113 Eurasian Cranes.

Numbers of wintering waterbirds

Details of the waterbirds counted in Libya in January 2005 and 2006 are provided

in Appendix 1, with emphasis on new information obtained since the surveys by Bundy (1976) and Gaskell (2005). Overall, a total of 29,996 waterbirds was recorded at all sites in 2005, nearly 20,000 of them gulls, including 14,000 Black-headed Gulls. In 2006, the waterbird total was 52,012 including nearly 35,000 gulls, over 21,500 of which were Black-headed Gulls. The comments below summarise observations of particular interest within taxonomic groups.

Ardeidae – Herons

Small numbers of Ardeidae that normally winter south of the Sahara were found: Little Bittern *Ixobrychus minutus* (probably overlooked in 2005) at three sites in 2006; Squacco Heron at Taourgha Spring in both 2005 and 2006; and Purple Heron at Taourgha in 2005 and 2006 and at four other sites in 2006. Cattle Egret *Bubulcus ibis*, previously regarded as a scarce and irregular passage visitor, is clearly now wintering in larger numbers (Appendix 1). Numbers of Great Egret *Egretta alba* have also increased in recent years; one bird seen in Benghazi in 2006, which had been colour-ringed as a nestling at Lac de Grand-Lieu, northwest France, in May 2005, was the first African recovery from this ringing site.

Ciconiidae and Threskiornithidae – Storks, Spoonbills and Ibises

For White Stork, Bundy (1976) notes the species only as a possible casual breeder, but Gaskell (2005) records 20 nesting pairs at Al Marj in February 2005. In the Jeffara

plain west of Tripoli, White Stork nests were seen in 2005, probably built the previous year, while at Taourgha birds were already occupying nests in palm trees on 6 January 2005. Birds were again present at Taourgha, although no occupied nests were seen, in January 2006. Four colour-ringed Spoonbills were recorded, one ringed in 2003 and three ringed in 2004, from the Danube Basin (one from Hungary and two from Serbia) and Italian breeding sites. A flock of 70 Glossy Ibis *Plegadis falcinellus* was recorded at Taourgha Spring in 2006.

Phoenicopteridae – Flamingos

The main concentrations of Greater Flamingo were at coastal salt lakes in the Gulf of Sirt and Kuz, with the largest numbers (about 500 each year) at Kuz, although in 2006 there were 1,800 (well above the Ramsar 1% figure of 700) near the Tunisian border at Sebkheth Boukamesh, which had been completely dry in 2005. Two colour rings were read in 2005 and 11 in 2006, mainly in the Gulf of Sirt. All birds had been ringed as pulli and most were still immature: three from Andalucia, Spain, seven from the Camargue, France, two from Sardinia and one from Turkey. There have been very few previous recoveries of colour-ringed flamingos in Libya – only one of a live bird and nine of birds found dead, probably killed by hunters. Of the latter, two were from the Gulf of Sirt, six from Benghazi and one from Tobruk.

Anatidae – Ducks

Numbers of Common Shelduck *Tadorna tadorna* were higher than might have been expected from the literature. Bundy (1976) considered Ruddy Shelduck *T. ferruginea* as an accidental; the survey recorded only one at Sebkheth Boubesla near the Tunisian border in 2006 (which was likely to have been dry in 2005). The literature indicates that, among surface-feeding ducks, only Northern Pintail *Anas acuta*, Northern Shoveler *A. clypeata* and Teal *A. crecca* are regularly seen in Libya, in small numbers; there are few records of Gadwall *A. strepera*. Low numbers of all four species were recorded during the survey, mostly on the few freshwater sites, including the irrigated agricultural area round Houn, 300 km into the desert. In neither year did the surveys locate Marbled Duck *Anas angustirostris*, which winters in significant numbers in the oases of southern Tunisia (Azafzaf & Hamrouni 2002). Future winter surveys of Libyan oases would be of particular interest for this species. Only low numbers of diving ducks were seen, probably reflecting the lack of deeper waters: 233 Pochard, all at the Benghazi complex in 2006, were the most numerous. The Near Threatened Ferruginous Duck is regarded mainly as a passage visitor to Libya, but 10 were found in January 2005 and 12 in 2006. The White-headed Duck *Oxyura leucocephala*, a species classified as Endangered by IUCN (2006) and which occurs regularly in Tunisia, was not seen; again, at least partly due to the lack of deeper water.

Gruidae – Cranes

Perhaps one of the most unusual findings of the surveys was that several hundred Eurasian Cranes winter at sites in the Gulf of Sirt, although Wetlands International (2002a) notes that the wintering area of the Northeast European breeding population covers Algeria, Tunisia and Libya. A total of 246 Eurasian Cranes was found in 2005 and 592 in 2006, the major concentrations in both years being at Taourgha and Al Hisha, where the birds seemed to be feeding on dry grassland around the springs, then flying to coastal salt lakes at dusk to roost. A group of 18 was also noted at Karkoura near Benghazi in 2005 and 13 further south at Brega in 2006. At Houn, some 300 km inland from Sirt, a group of over 100 Cranes was found, and local people confirmed that they were well known in this desert area.

Recurvirostridae, Burhinidae, Charadriidae, Scolopacidae – Waders:

In general, wader numbers were not exceptional, although these surveys found more Black-winged Stilts *Himantopus himantopus* and Avocets *Recurvirostra avosetta* than did previous observers. A single Little Ringed Plover *Charadrius dubius* was seen in 2005, which suggests that they winter in small numbers, as in southern Tunisia, though none was seen in 2006. Small numbers of Ringed Plover were found, 72 in 2005 and 38 in 2006. Over 1,100 Kentish Plover *Charadrius alexandrinus* were recorded in 2005 and 1,036 in 2006; it is likely that many more were overlooked on the large salt lakes where the species is numerous

but ranges over large areas. The 1% of the total population size that would classify a site as being of international importance for Kentish Plover is 660 for the western Mediterranean population and 410 for the eastern Mediterranean population (Wetlands International 2002b). Thus, irrespective of whether the Libyan birds are considered to be eastern or western, this threshold is likely to be reached or exceeded at several lagoons in Libya, which emphasises the importance of the country for the species.

Four Greater Sand Plovers *Charadrius leschenaultii* and a single possible Lesser Sand Plover *Ch. mongolus* were seen in 2005, and a single Greater Sand Plover was seen in 2006, all east of Misrata; Libya is probably at the extreme west of their winter range. According to local hunters, Golden Plover *Pluvialis apricaria* (just over 400 birds recorded in 2005 and nearly 650 in 2006, mainly north of Benghazi) is a favourite quarry species. The survey found only two flocks of Dotterel *Eudromias morinellus*, which might have been expected to be common on the extensive dry plains of Libya. Observations of Temminck's Stint *Calidris temminckii* at three different sites confirm its status as a winter visitor (not surprising given its wide presence in Tunisia in winter). Knot *C. canutus* is more unusual, since there are few previous records, but there is an established wintering population in the tidal area of southern Tunisia. In 2006 the survey found a single Bar-tailed Godwit *Limosa lapponica*, also known to winter in tidal parts of Tunisia.

One of the objectives of the surveys was to search for Slender-billed Curlew. It is thought that the species – one of the rarest birds in the Western Palearctic with a world population put at fewer than 50 birds (Wetlands International 2002b) and classified in the highest category of Critically Endangered (IUCN 2006) – nests in Western Siberia and migrates through the Black Sea to winter in the Mediterranean. The preferred wintering habitat is believed to be shallow brackish coastal pools/marshes/ponds, with surrounding vegetation of glassworts *Salicornia* spp. and *Arthrocnemum* spp. (Ledant & Lafontaine 1994). Although no Slender-billed Curlews were found, large areas of this type of habitat occur in Libya, and it would be easy to overlook even appreciable numbers. Eurasian Curlews were found in the same habitat: 534 in 2005 and 397 in 2006. A single Whimbrel *Numenius phaeopus* (not previously recorded in Libya in winter) was seen in 2006. Numbers of the six *Tringa* species recorded were in line with previous observations.

Laridae – Gulls

The 10 species of gull recorded accounted for two thirds of the waterbirds observed, and provide some of the most interesting observations.

Four Great Black-headed Gulls *Larus ichthyaetus* were recorded in 2005 and six in 2006, all at coastal sites. Mediterranean Gulls *L. melanocephalus* numbered 228 in 2005 and 239 in 2006. Mediterranean Gulls tend to feed offshore, so some birds may have been overlooked; very large roosts (several thousand) occur in the tidal areas

of Tunisia (Isenmann *et al.* 2005). Large numbers of Black-headed Gull *L. ridibundus* were observed: 14,000 in 2005 and 21,500 in 2006. All but a couple of hundred were in the Benghazi area, particularly around waste disposal areas. Numbers of Little Gull *L. minutus* were small.

Slender-billed Gull *Larus genei* has increased greatly as a breeding species in Tunisia and other Mediterranean countries in recent years (Wetlands International 2002b; Isenmann *et al.* 2005); nearly 900 were recorded in Libya in 2005, mostly near the Tunisian border. Numbers were much higher in 2006, with a total of over 7,500, including over 1,000 in the general area of Farwa in the west, 5,000 at Sebkheth Qasr Ahmed in the Taourgha complex (apparently sheltering from a storm at sea with Audouin's Gulls), 500 or more in the Benghazi complex and others all along the coast to the east. Given the latest estimate of 123,000–237,000 for the Black Sea and Mediterranean population of this species (Wetlands International 2002b), the total count represents at least 3% of the individuals in this population. One Slender-billed Gull colour ring was read at Farwa in 2005. This bird had been ringed in the Camargue, France in 1999, and was seen breeding there every summer from 2001 to 2004 inclusive.

A total of 344 Audouin's Gulls was recorded in 2005 and 670 in 2006; in 2005 the majority were around Benghazi (270 at Karkoura, 34 at Sebkheth Sultan, with a couple as far east as Derna), but in 2006 there were concentrations of 500 by day, sheltering from a storm at Qasr Ahmed, and 110 at El Ghbeba (at an evening roost).

A total of 1,425 Lesser Black-backed

Gulls *Larus fuscus* was recorded in 2005 and 1,438 in 2006; close attention was not paid to the race(s) concerned. Most of the birds seen did not have a very dark mantle and would appear to have been *L. f. intermedius*. Bundy (1976) notes several recoveries in Libya of Lesser Black-backed Gull, presumably *L. f. intermedius*, ringed as pulli in Bornholm (Baltic Denmark) and one from Finland. Colour rings of three marked birds were read at Benghazi waste disposal area in 2006: one had been ringed north of the Arctic Circle in Norway (near Tromsø) as *L. f. graellsii*, the other two had been ringed on the west coast of Finland as *L. f. fuscus*, which winters in the eastern Mediterranean and East Africa. Recoveries of *L. f. graellsii* are most unusual in the Mediterranean, since most winter on the Atlantic coasts of Spain and Morocco. It is possible that all three subspecies winter in Libya, together with Armenian Gull *L. armenicus*, recorded by Gaskell (2005), and Heuglin's Gull *L. (fuscus) heuglini*.

Just over 500 Yellow-legged Gulls *L. michabellis* were noted in both years, with just over 1,500 Caspian (Pontic) Gulls *L. cachinnans* in 2005 and just over 2,600 in 2006. The former were noted throughout the country, with groups of over 100 at Benghazi waste disposal area and Essabre beach near Benghazi, but relatively few around Tripoli; at several coastal sites they were already taking up territories on nesting islands in January 2006. Caspian Gulls were found exclusively in the east, with the vast majority each year on Benghazi waste disposal area; the data appear to represent a major extension in knowledge of the wintering range of Caspian Gull. It should be noted that, in many cases, it was not

possible to identify large gulls at the species level, and it was necessary to extrapolate the identity of large flocks from scans of sample groups.

Sternidae – Terns

A single Gull-billed Tern *Gelochelidon nilotica* in 2005 was a surprise. For Caspian Tern, most previous records are from the passage period, but the species clearly winters in Libya. A total of 101 Sandwich Terns *S. sandvicensis* was counted in 2005 and 122 in 2006, dotted along the coast from the Tunisian border to beyond Benghazi, but with occasional resting groups of 10–40 birds; these numbers are probably a considerable underestimate, as many of the birds seemed to be feeding at sea in the morning and not landing on the shore until around midday. There were no records of Lesser Crested Tern *S. bengalensis*, which is a summer visitor to Libya and is believed to winter in west Africa. The known Libyan Lesser Crested Tern colonies represent practically the whole of the Mediterranean breeding population. For the same reasons no Little Terns were observed, but they must breed very widely, given the large amount of suitable habitat and the numbers that breed in Tunisia. The observations confirm that Whiskered Tern *Chlidonias hybrida* winters in modest numbers, mainly at the Benghazi complex, with some in the Gulf of Bumba, already in summer plumage.

Discussion

Census of wintering waterbirds

The total number of waterbirds recorded in the surveys, of 29,996 in 2005 and 52,012 in 2006, was relatively low when compared to total numbers in neighbouring North African countries (e.g. over 220,000 waterbirds were counted at 116 sites in Tunisia in January 2003 (Azafzaf & Feltrup-Azafzaf 2003). It should be emphasised, however, that, particularly at the very large coastal salt lakes, coverage was far from complete. Because of the limited time available, the large size of many lagoons and difficulty of access, the number of waterbirds recorded is undoubtedly lower than the number of birds actually present.

The observation that significant numbers of Audouin's Gulls winter on either side of the Gulf of Sirt is a significant new discovery for the species. The species breeds almost entirely within the Mediterranean, and was previously believed to winter mainly in the western Mediterranean and West Africa with only limited numbers in Libya (Cramp & Simmons 1983; Wetlands International 2002b). Moreover, since the Audouin's Gull is of global conservation concern, classified as Near-Threatened (IUCN 2006), monitoring its use of Libyan wintering sites should continue to be a priority in future surveys.

Several species rarely recorded in winter in the Mediterranean were observed during the surveys (among them Little Bittern, Squacco Heron and Purple Heron), together with several species not previously noted or

only rarely noted in Libya in winter (Slavonian Grebe *Podiceps auritus*, Great Egret, Glossy Ibis *Plegadis falcinellus*, Shelduck, Eurasian Crane, Black-winged Stilt, Avocet, Little Ringed Plover, Greater Sand Plover, Black-tailed Godwit *L. limosa*, Bar-tailed Godwit, Whimbrel, Wood Sandpiper *Tringa glareola*, Marsh Sandpiper *T. stagnatilis*, Caspian Gull, Great Black-headed Gull, Whiskered Tern and Pied Kingfisher *Ceryle rudis*). Furthermore, evidence was obtained of nesting by White Stork, for which there is only one definite previous record in Libya.

Importance of Libyan wetlands

Although few sites met the numerical criteria, in terms of bird numbers, for designation as a wetland of international importance under the Ramsar Convention, many met the qualitative criterion. Four sites had already been identified as Important Bird Areas by BirdLife International (Robertson & Essghaier 2001): three visited during the survey (Garabulli, Ain Azziana, Ain al Ghazala) plus Gara'a Island, not visited during the survey, the site of the largest Lesser Crested Tern colony. The authors suggest that the following sites are worthy of designation as wetlands of international importance under the Ramsar Convention and as Special Protected Areas of Mediterranean Importance (SPAMIs) under the Barcelona Convention:

1. Farwa Lagoon is an excellent example of a tidal bay (a rare wetland type in the Mediterranean), and as such is a high priority for protection measures. Designation would be welcomed by local people, who wish to maintain the current character of the site.

2. Libya's large salt lakes, notably the Taourgha complex, Sebkhet Sultan, Sebkhet Karkoura, Sebkhet Al Kuz and Sebkhet Temimi/Ain Al Ghazala, which are all good representative examples of coastal salt lakes (a characteristic Mediterranean habitat), are of special value because of their pristine and largely natural state. These sites have special importance for several waterbird species: Audouin's Gull at Taourgha and Karkoura, and Greater Flamingo and Kentish Plover at Kuz and Ain al Ghazala.

3. The Benghazi complex of salt-lakes, which carries significant numbers of several bird species and has huge potential as an urban site for raising public awareness of wetlands and their fauna and flora. Its proximity to Benghazi, however, puts it at risk of urban development.

Overall, this study indicates that, while total numbers of waterbirds using Libyan coastal wetlands are modest, species of Mediterranean lagoon systems such as Greater Flamingo, Kentish Plover and Slender-billed Gull, as well as Audouin's Gull, occur in significant numbers. Furthermore, the size and condition of the wetlands make them an important component of this habitat type at regional (Mediterranean) level. The results of the surveys have shown that a number of Libyan wetlands are worthy of international recognition and of increased monitoring and national conservation measures.

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Appendix 1. Numbers of waterbirds counted in Libya in January 2005 and 2006. ^a = Bundy (1976), ^b = Gaskell (2005)

Species	Sites	Numbers Counted		Existing information
		2005	2006	
Little Grebe	Tripoli dams, Taourgha, Houn, Benghazi area, Tobruk	36	23	Resident breeder and winter visitor ^a
Great Crested Grebe	Mainly at Farwa; tens at Temimi, Ghazala, Tobruk	248	259	Regular east to Misratah, max. 20 ^a
Black-necked Grebe	Mainly at Farwa, Benghazi complex, Ghazala	305	627	Up to 50 Tripoli harbour, probably regular Benghazi ^a
Slavonian Grebe	Farwa 2006	0	1	No previous records
Great Cormorant	Mainly at Farwa, Benghazi, Temimi, Ghazala. 13 at oasis of Jaghbub 2005	1,150	994	Regular winter visitor to Tripoli ^a
Eurasian Shag	Sea islet of Jebel Akhdar, Mediterranean subspecies	0	5	Resident breeder (?) ^a
Little Bittern	Taourgha and four sites in Benghazi complex.	Probably overlooked	11	Passage visitor only ^a
Squacco Heron	Taourgha Spring	2	2	No previous winter records
Cattle Egret	Wadi Attot dam, Taourgha, Benghazi complex esp. waste disposal area	169	326	Previously scarce and irregular, recent expansion ^b
Little Egret	Widespread, flocks not exceeding 20	80	122	Passage migrant and winter visitor ^a
Great Egret	Widespread: Farwa (35 in 2006), Garabulli, Taourgha, Benghazi	16	54	Mainly singles ^a ; small number Benghazi ^b
Purple Heron	Taourgha (both years), Al Hisha, Houn, Ain Ghezala	2	8	Passage migrant only ^a
Night Heron	Taougha and Temimi	0	2	Mainly passage, individuals may winter ^a
Grey Heron	Widespread, largest groups Benghazi	133	92	Mainly passage, not scarce in winter ^a
White Stork	Nesting Jeffara and Taourgha	6	6	Nests recently found for first time east of Benghazi ^b
Glossy Ibis	Only Taourgha	1	70	Passage migrant only ^a
Spoonbill	Mainly Farwa and Benghazi	86	99	Scarce passage and winter visitor ^a ; up to 24 Benghazi ^b
Greater Flamingo	Nearly 2000 Boukamesh in 2006; Gulf of Sirt and Kuz	775	2,920	Regular winter visitor Kuz ^a
Greylag Goose	Wadi Attot dam near Tripoli	0	8	Accidental ^b

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Common Shelduck	Boukamesh, Taourgha, Al Hisha (120), Benghazi	107	303	Accidental ^a
Ruddy Shelduck	Boubesla (near frontier with Tunisia)	0	1	Accidental ^a
Wigeon	Dams near Tripoli, Taourgha, Benghazi, Kuz	27	53	Scarce but regular ^a
Gadwall	W. Turghat, Al Hisha, Benghazi, Temimi	14	13	Winter visitor ^a ; rare ^b
Teal	Dams near Tripoli, Taourgha, Al Hisha, Houn (120), Benghazi (300 in 2006)	231	606	Common in winter ^{a,b}
Mallard	Tripoli dams, Taourgha, Gulf of Sirt, Benghazi	40	41	Scarce winter visitor in west ^c
Northern Pintail	Tripoli dams, Taourgha (300 in 2006), Benghazi	154	452	Locally common ^a , common ^b
Northern Shoveler	Tripoli dams, Taourgha, Al Hisha, Houn (90 in 2006), Benghazi (700 in 2006), Kuz	501	1,138	Regular in Tripoli area ^a , common round Benghazi ^b
Pochard	Tripoli dams, Benghazi (200 in 2006)	42	233	Scarce ^a ; up to 100 Benghazi ^b
Ferruginous Duck	Tripoli dams, W. Kaam, Al Hisha, Houn, Benghazi	10	12	Common Tripoli in autumn ^a , up to 6 Benghazi ^b
Tufted Duck	Tripoli dams, Benghazi	20	24	Scarce Tripoli ^a , peak 35 in Jan ^b
Red-breasted Merganser	Ain Azziana near Benghazi	0	1	Scarce but regular Tripoli ^a , once at Benghazi ^b
Moorhen	Tripoli wadi mouths, Taourgha, Benghazi and east of Benghazi	38	44	Resident, scarce in winter Tripoli and Benghazi ^a
Water Rail	Taourgha, Benghazi Lake, east of Benghazi	4	12	Present in winter in low numbers Benghazi ^b
Coot	Tripoli dams, W. Turghat, Taourgha, Al Hisha, Benghazi (300), Ain Ghazala	391	417	Common winter visitor in flocks up to 500 near Tripoli ^a , common Benghazi ^b
Eurasian Crane	Taourgha (100), Al Hisha (300), Houn (100), Karkoura	246	595	Scarce and irregular ^a
Oystercatcher	Only Farwa area near Tunisian border	20	6	Scarce ^a
Black-winged Stilt	Taourgha (150), Al Hisha, Benghazi (90)	245	205	Passage visitor commonest in west ^a , modest numbers wintering Benghazi ^b
Avocet	Boukamesh (120 in 2006), Farwa, Bishr, Benghazi	35	193	Accidental ^a

Stone Curlew	Gulf of Sirt, Temimi	1	6	Resident breeder ^a
Little Ringed Plover	Taourgha, near Benghazi	2	0	Passage migrant ^a
Ringed Plover	Farwa, Taourgha, Al Hisha, Benghazi, Temimi, Ain Ghazala	72	72 39	Passage and winter visitor ^a ; very small numbers ^b
Kentish Plover	Widespread, e.g. Farwa (470), Qasr Ahmed, Al Hisha (95), Sultan (150), Benghazi (450)	1,110	1,058	Resident breeder, less numerous in winter ^a . Over 700 late summer, Ain Azziana (Meininger 1994) (meets Ramsar 1% criterion)
Greater Sand Plover	Al Hisha, Karkoura, Temimi	4	1	Perhaps passage migrant ^a
Lesser Sand Plover	Ain Al Ghazala	1	0	One previous record
Golden Plover	Boukamesh, Qasr Ahmed, but mainly Benghazi: Kuz (320), Gfanta (110)	433	645	In Tripoli, locally common in winter, flocks up to 150 ^a
Grey Plover	Widespread in small numbers: Farwa (130 in 2006)	67	195	Winter visitor, locally common ^{a,b}
Dotterel	Karkoura, Temimi	52	3	Locally common winter visitor ^a
Northern Lapwing	Tripoli dams, Taourgha, Ghemines, Shahat, Bumba	2	5	Scarce winter visitor ^a
Sanderling	Boukamesh, Farwa, W. Masaad, Ras Lanouf, Ganfouda, Benghazi	140	57	Local and seldom, commoner on passage ^{a,b}
Knot	Sultan	1	0	Accidental ^a
Little Stint	Widespread: Farwa (130), Boukamesh (200), Qasr Ahmed (230), Benghazi (350).	924	773	Winter visitor, commoner on passage ^{a,b}
Temminck's Stint	Tripoli dams, Taourgha, Ain Azziana	7	2	Mainly passage, some winter ^{a,b}
Dunlin	Farwa (200), Qasr Ahmed (150), Al Hisha (150), Benghazi (500), Kuz (400), Temimi (180)	1,399	1,947	Common Farwa, scarce elsewhere ^a
Ruff	Qasr Ahmed, Al Hisha (25), Karkoura (32)	60	27	Mainly on passage, also winters ^a
Jack Snipe	Tripoli dams, Taourgha, Temimi	9	3	Scarce winter visitor ^a , 1, Benghazi ^b
Snipe	Taourgha, Benghazi, Ashagiga, Temimi	58	22	Common in winter ^a
Black-tailed Godwit	Farwa, Benghazi	10	10	Passage migrant ^a ; 7, Benghazi ^b
Bar-tailed Godwit	Temimi	0	1	Accidental on passage ^a

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Eurasian Curlew	Farwa (200), Sultan (100), Karkoura (60), Kuz (140)	534	419	Regular near Tunisian border, scarce elsewhere ^a
Slender-billed Curlew	None found, despite extensive search in good habitat	0	0	Accidental, one old record
Whimbrel	Tripoli harbour	0	1	Scarce passage migrant ^a
Spotted Redshank	Benghazi, Kuz	3	1	Passage migrant scarce in winter ^a
Redshank	Largest numbers east of Benghazi: Farwa (120), Benghazi (50), Kuz (130) Ashagiga (60), Temimi (50)	343	765	Locally common Tripoli ^a , present in winter Benghazi ^b
Greenshank	Farwa (20), otherwise in small numbers	8	31	Scarce in winter ^a
Green Sandpiper	Tripoli dams, Benghazi	7	2	Passage migrant, but scarce in winter ^{a,b}
Wood Sandpiper	Tripoli dams, Taourgha, Benghazi	5	9	Passage migrant, scarce in winter, but 20 at Benghazi ^{a,b}
Common Sandpiper	Farwa, W. Kaam, Taourgha. Only one near Benghazi	6	8	Not scarce along coast in winter in Tripoli area ^a
Marsh Sandpiper	Tripoli dams, Taourgha, Al Hisha, Benghazi, Ain Azziana	9	4	Scarce on passage ^{a,b}
Turnstone	Farwa (35), Ras Lanouf, Karkoura (38), Benghazi, Kuz (17).	102	47	Scarce along coasts ^{a,b}
Mediterranean Gull	Majority round Farwa (190) in 2005, Tripoli harbour (50) Benghazi (175) in 2006	228	289	Common but local along coasts in winter ^a ; about 500 winter Benghazi ^b
Little Gull	Only around Benghazi	55	2	Regular in winter in rough weather ^a
Black-headed Gull	All but 200 from Benghazi eastward, mainly at rubbish tips	14,137	21,491	Common Tripoli, scarce elsewhere ^a , several thousand round Benghazi ^b
Slender-billed Gull	Mainly Farwa (700) in 2005; Farwa, sheltering from storm at Qasr Ahmed (5000) and round Benghazi in 2006	893	7616	Regular round Benghazi, scarce Tripoli ^a , sparingly round Benghazi in winter ^b
Audouin's Gull	Majority 2005 in Benghazi area (Karkoura 270, Sultan 34); in 2006, 500 sheltering from storm at Qasr Ahmed	344	670	Winter visitor Tripoli, max. 72 ^a , all the year round in west ^b
Lesser Black-backed Gull	50% near Farwa, Qasr Ahmed (380), 600 Benghazi waste disposal area	1,425	1,438	Winter visitor, up to 800 Tripoli ^a

Caspian Gull	Found exclusively in east, vast majority at Benghazi waste disposal area	1,582	2,629	Small numbers Benghazi Jan-Mar ^b
Yellow-legged Gull	Thinly spread west to east, 100 Benghazi waste disposal area	535	506	Winter visitor
Great Black-headed Gull	Farwa, Sultan, El Ghebaba	4	6	First Libyan record two near Benghazi ^b
Gull-billed Tern	Farwa	1	0	Only on passage ^a , Benghazi Oct/Nov ^b
Caspian Tern	Farwa (30), some east of Benghazi	38	42	Mainly on passage, some winter ^a , at Benghazi to 19 Oct ^b
Sandwich Tern	Thinly spread along coast west to east	101	122	Winter visitor Tripoli ^a , and Benghazi ^b
Whiskered Tern	Mainly Benghazi both years, a few in Gulf of Bumba	77	53	Passage migrant ^a , passage and also winter visitor to Benghazi ^b

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