

# Time for a protected area network in the UAE

by Simon Aspinall

A preliminary assessment of the status of UAE wildlife has now been made with particular reference to birds, mammals, reptiles and flora as well as to specific habitats. Data on many groups is incomplete, but on the basis of our present knowledge we are now in a position to recommend designation of specific areas of the country for differing 'degrees' of protected status. At present only a handful of sites, which cover a tiny fraction of the country, receive formal protection.

The goal proposed by the present paper is the maintenance of the national biodiversity of the UAE at self-sustaining levels and in perpetuity. A successful conservation strategy relies on the establishment of a national protected area network as described below and changes to, or modification and regulation of, land use practices where large land areas (of land or sea) are involved. Present day land use policy needs to be evaluated for desert and coastal areas in particular. Species-specific management plans will need to be introduced and restoration programmes are to be advocated in certain instances, if conservation is ultimately to be successful. The introduction of new Federal legislation and use of individual Emiri decrees to protect the integrity of sites are recommended.

The term 'protected area' is used here in its broadest sense. Human livelihood need not necessarily be disrupted in such areas. Allaying perceived fears in the human populace is an important component of early stages in the move to establish protected areas. Management categories devised and recommended by the International Union for the Conservation of Nature, IUCN, and outlined below are those adopted or at least proposed for use in the UAE. In protected areas, only damaging human activities need be curtailed or regulated, whereas alternative activities may arise which more than offset any economic disadvantage accruing from any restrictions introduced. Socio-economic factors will always be examined to find politically acceptable solutions to ecological problems (sustainable utilisation of natural resources therein can continue unabated e.g. fisheries). The fundamental purpose is to work with development and ensure maximum benefits with minimum disruption to the environment.

Federal law dealing with hunting is inadequate to protect wildlife sites, although this was not the original purpose of the legislation, which was simply to protect certain fauna. At present there is no federal legislation specifically dealing with the safeguarding of land for wildlife. Emiri decrees effective in individual Emirates have been used to create several 'protected areas.' Abu Dhabi Eastern Lagoon, the UAE's first true sanctuary, is protected by order of President HH Sheikh Zayed bin Sultan al Nahyan; Khor Dubai sanctuary is protected by order of Dubai Crown Prince and UAE Defence Minister General Sheikh Mohammed bin Rashid al Maktoum

لقد تم مؤخراً الانتهاء من اعداد مسح مبدئي حول وضع الحياة البرية في دولة الامارات العربية المتحدة.. ويساعد هذا المسح على اقتراح مناطق معينة ذات أهمية خاصة وتحتاج للحماية.. هذا المقال يحتوي على قائمة تشمل ٤١ منطقة يمكن حمايتها مبدئياً.

with special penalties for 'infringements' and the Ruler of Fujairah HH Sheikh Hamad bin Mohammed al Sharqi has done likewise for three marine areas on the Gulf of Oman coast. One further marine reserve is apparently in the pipeline for Dubai. HH Dr. Sheikh Sultan bin Mohammed al Qassimi, Ruler of Sharjah, has set up the small 'Desert Park' and other sites within that Emirate are pending designation. The use of Emiri Decree, as an absolute measure, is to be commended. Some areas, including a few Abu Dhabi islands, are also protected by virtue of their ownership (Ruling Family, military & oil field security) and more than one is now managed for wildlife, in both terrestrial and marine situations.

New legislation is undoubtedly required. Amendment to existing legislation is a possibility but entirely new laws would probably be appropriate. The Federal Environmental Agency, FEA, would be the appropriate national body to draw up or oversee drafting of such wildlife legislation on a federal level. Inter-emirate standardisation is certainly required. Designation of any area by Emiri decree would be preferable and indeed more powerful than enactment of any new federal legislation and certainly swifter to achieve. The latter would and should provide a supporting and complementary role and be used for other areas deemed worth of safeguarding or as federal recognition adding weight to the former. As a final recommendation, Environmental Impact Assessment, EIA, should become mandatory; at present only ADNOC has an effective, all the more remarkably, this being voluntary and self-imposed.

Future priorities for research and survey work are presently being drawn up by the newly established Biodiversity Conservation Committee of the Federal Environmental Agency, while the recently established Environment and Wildlife Research and Development Agency (of Abu Dhabi) is also likely to play a role in this field.

## Flora and fauna of the UAE

The Biodiversity Committee of the FEA recently reviewed the status and threat to the wildlife of the UAE. What follows is an abridged summary of part of the committee's discussions.

**HABITATS/FLORA:** Many UAE habitats are recognisably degraded or mismanaged. Desert areas are almost universally overgrazed. Development or the threat of development is almost omnipresent; coastal lands being

especially vulnerable in this respect. Valuable habitats particularly under threat are intertidal areas, mangroves, coral communities, seagrass beds, Gulf islands, *Acacia* savannah and montane communities. Their respective values may be of one or more of the following – commercially exploitable biological resources, landscape and recreational, prevention of soil erosion, mineral/aggregate production, coastal defence and biological nursery areas. The principal threats differ from site to site and prescriptive management will thus depend on individual circumstances.

**MAMMALS:** Mammals are those typical of Arabia with an Asian element also present. Most mammals found in the UAE are also found over much larger areas of the Arabian peninsula. **Arabian Leopard** *Panthera pardus nimr* and **Dugong** *Dugong dugon* populations are especially significant and 'flagships' for the success or failure of conservation efforts presently underway. Persecution and illegal harvesting, respectively, are major threats to the survival of these two species. The status of many species of mammal is poorly known e.g. bats. Several of the larger species are certainly in danger of becoming extinct in the UAE. e.g. **Arabian Tahr** *Hemionus leucurus*. (See P. 13)

**BIRDS:** The UAE is a relatively small country but supports a rich and varied birdlife, due to its biogeographical situation. Breeding bird species are typically Palearctic but with an Indo-Malayan component in the east. The latter is shared, in Arabia, only with northern Oman. Furthermore, the country sits on the west Asian-African flyway for migrating species, shorebirds and other waterfowl, passerines or birds of prey amongst others. For many populations of both breeding and visiting species, the UAE is internationally important. Over 400 species of bird have been recorded in the UAE, of which about 100 have bred.

**MARINE REPTILES:** Seasnakes and turtles are widespread in the Arabian Gulf. The Gulf waters of the UAE support breeding and feeding concentrations of at least two threatened turtle species. Although collection of data has been largely opportunistic to date, a fuller study is planned. **Green Turtle** *Chelonia mydas* and **Hawksbill Turtle** *Eretmochelys imbricata* are known to breed on several Abu Dhabi islands. There is some illegal harvesting of eggs and full grown animals. Destruction of habitat is an insidious threat to marine communities. (See Page 9)

**TERRESTRIAL REPTILES:** Most are poorly known or mapped within the UAE. Considerable further study is anticipated. Lizards and snakes ought to receive due representation in a fresh review of desert landuse policy. (See Page 9)

**AMPHIBIANS:** Although incompletely studied, the use of surface freshwater is dramatically reducing the amount of available habitat for amphibians nationally. This primarily involves the numerous wadi systems of the Hajar. (See Page 9)

**FISH:** Commercial fish stocks of the Gulf may be being exploited unsustainably. Immediate assessment of stocks is vital. Less is known regarding coral reef communities and about other species, but studies are ongoing e.g. in mountain wadis.

**NON-MARINE INVERTEBRATES:** Few studies have been undertaken of specific groups and although sim-

ple national or single Emirate lists may exist for some, e.g. butterflies (Gillett 1995) and ants (Tigar & Collinwood 1993), there is certainly a paucity of information on status and distribution at the species level, if the lists are complete even. Professional studies are limited to those of dedicated specialists and to the National Avian Research Centre which is conducting extensive studies of desert invertebrates. Nonetheless, many groups e.g. *Odonata* remain neglected and extra survey effort is recommended in mountain areas in particular.

**MARINE INVERTEBRATES:** These are mainly tackled at a community or habitat level *cf.* reefs.

#### PROTECTED AREA MANAGEMENT CATEGORIES DEVISED & RECOMMENDED BY IUCN AND PROPOSED FOR USE WITHIN THE UNITED ARAB EMIRATES.

1. **Strict Nature Reserve**
  - a. **Strict Nature Reserve: Protected area managed mainly for science.**
  - b. **Wilderness Area: Protected area managed mainly for Wilderness protection.**
2. **National Park: Protected area managed mainly for ecosystem conservation and reaction.**
3. **National Monument: Protected area managed mainly for conservation of specific natural features.**
4. **Habitat/Species Management Area: Protected area managed mainly for conservation through management intervention.**
5. **Protected Landscape: Protected area managed mainly for landscape conservation and recreation.**
6. **Managed Resource Protected Area: Protected area managed mainly for the sustainable use of natural ecosystems.**

#### PROPOSED PROTECTED AREA NETWORK FOR THE UAE

Included here, apart from the site name, is an abridged listing of important wildlife contained in each site/area and recommended conservation management category or categories (*sensu* IUCN, as above). Full accounts of the wildlife known in most of these sites are to be found in Richardson *et al.* 1994 (in Evans 1994) and/or Scott 1995. The proposed protected area network is based on all available wildlife data, although it should be borne in mind that data on many groups is often completely lacking. However, in almost every instance these sites individually reach or exceed the qualifying criteria for international importance for birds alone. Collection of additional information on the wildlife in these sites is continuing and the lack of mention of, for example, coral communities in any of the marine areas named below, should not be taken to imply that it is unimportant — more probably it has simply yet to be surveyed for even a first time.

The following list should not be taken as the final word in site selection. New sites may emerge in due course, following census and survey work. As noted earlier, very few sites presently receive formal protection; any site already officially designated is annotated as such below. Zoning, whereby there is a core area surrounded by two layers, the outermost being a buffer, is standard management practice which permits differing human activi-

ties in each zone concomitant with the prevailing ecological limitations and needs of the wildlife existing there.

1. WESTERN ABU DHABI BORDER ISLANDS (ABU DHABI). 455,000 ha. (including sea area).  
Includes N. & S. Yasat\*, Ghagha\*, Muhaiymat, Umm al Hatab, Jazirat Na'ltah, Kafai and Makhasib. Internationally important seabird colonies, Ospreys and Sooty Falcons, cetacea and coral communities.  
Management category: Combination of 1, 4, 5 & 6. Possibly transfrontier.
2. DALMA\* (ABU DHABI). 3500 ha.  
Breeding Sooty Falcons. Coral communities?  
Management category: 3 & 4
3. ABU DHABI'S OFFSHORE ISLANDS (ABU DHABI). 380,000 ha (including sea area).  
Includes Dayyinah, Qamein\*, Arzanah, Zirku and Das. Nationally and internationally important seabird colonies, turtles and coral communities.  
Management category: 1, 3 & 4. Qamein is already fully protected by order of Sheikh Hamdan bin Zayed al Nahyan.
4. SIR BANI YAS SATELLITES\*/MERAWAH/KHOR AL BAZM SABKHA, COAST AND ISLANDS (ABU DHABI). 478,000 ha. (including sea area). Includes Juneina, Selaha, 'Ushsh, Umm Amin\* and Bu Tinah. Internationally important seabird colonies and other breeding and visiting migrant and wintering waterfowl populations, dugong, turtles and marine communities (e.g. seagrass beds & corals).  
Management category: 1 & 6. Bu Tinah is already fully protected by Sheikh Hamdan bin Zayed al Nahyan. Umm Amin is already effectively warded.
5. RUWAIS REEDBEDS (ABU DHABI). 15 ha.  
Nationally important freshwater wetland (artificial).  
Management category: 4  
ADNOC has agreed to manage this area sympathetically for wildlife.
6. BAYNUNAH\* (ABU DHABI). 180,000 ha.  
Nationally important wintering migrant bird populations (desert species).  
Management category: 1b & 6 (zoned).
7. ABU AL ABYADH\*/DHABBIYAH/ABU DHABI COASTAL WETLANDS (ABU DHABI). 263,000 ha. Includes Futaisi, Bahrain/Bu Khushaishah island and area. Internationally important breeding and visiting migrant and wintering waterfowl populations including Crab Plover colony. Also extensive mangrove stands.  
Management category: 1, 5 & 6. The Crab Plover colony on Abu al Abyadh is protected by order of Sheikh Khalifa bin Zayed al Nahyan.  
Futaisi is managed as a private reserve by Sheikh Hamad bin Hamdan al Nahyan.
8. EASTERN ABU DHABI/RAS GHANADA COASTAL WETLANDS (ABU DHABI). 99,500 ha.  
Includes the "Eastern Lagoon" and islands of Sadiyat, Bal Ghelam, Ras Ghurab, Hayl and Ras Ghana-dah. Nationally important breeding and visiting migrant and wintering waterfowl populations. Also mangroves.  
Management category: 5 & 6. Note that the Eastern Lagoon is already protected by order of President HH Sheikh Zayed bin Sultan a Nahyan, while Bal Ghelam is managed as a private reserve by Sheikh Surour bin Mohammed al Nahyan.
9. SIR ABU NU'AIR (SHARJAH). 1500 ha.  
Internationally important seabird colonies and? marine ecosystem.  
Management category : 4 possibly to become 1 later.
10. AL GHAR LAKES (ABU DHABI). 3000+ha.  
Breeding Greater Flamingo and breeding and visiting migrant and wintering shorebird populations.  
Management category: 4
11. KHOR DUBAI\* INCLUDING ZABEEL PONDS\* (DUBAI). 2000+ha.  
Internationally important visiting migrant and wintering waterfowl and raptor populations.  
Management category: 1. The most important part of Khor Dubai is already protected by order of Sheikh Mohammed bin Rashid al Maktoum.
12. MUSHRIF NATIONAL PARK\* (DUBAI). 600 ha.  
*Prosopis* woodland flora and fauna reserve with breeding restricted range bird species.  
Management category: 2. Note that the site is already protected as a recreational 'National Park.'
13. RAMTHA LAGOONS\* (SHARJAH). c. 250 ha.  
Internationally important breeding and visiting migrant and wintering waterfowl and raptor populations.  
Management category: 4.
14. KHOR AJMAN/KHOR ZAWRA (AJMAN). c 3000 ha.  
Nationally important visiting and wintering waterfowl populations.  
Management category: 5.
15. KHOR AL BEIDAH\*/SINAIYA ISLAND\* (UMM AL QAIWAIN). c. 7500 & 1500 ha. respectively.  
Internationally important seabird colonies and visiting migrant and wintering waterfowl populations. Also saltmarsh and mangrove communities.  
Management category: 6 (zoned).
16. AL JAZEERA KHOR\* (RAS AL KHAIMAH). 4600 ha.  
Internationally important visiting migrant and wintering waterfowl populations.  
Management category: 6 (zoned)
17. DHAYAH/RAMS/GHALILAH/HULAYLA ISLAND (Ras al Khaimah). 19,550 ha.  
Nationally important visiting migrant and wintering waterfowl populations. Unique coastal vegetation community.  
Management category: 6 (zoned)
18. DIGDAGA-HAMRANIYYAH\* (RAS AL KHAIMAH). c. 2000 ha.  
Nationally important breeding bird populations and migratory stopover site for endangered and restricted range species. Flora.  
Management category: 5
19. DIBBA BAY INCLUDING DIBBA AL HISN (FUJAI-RAH/OMAN). 27,780 ha.

- Nationally important marine area and *Acacia* savannah community.  
Management category: 5 & 6.
20. WADI SHIH RESERVOIR (SHARJAH). c. 500 ha.  
Nationally important freshwater site.  
Management category: 5
21. WADI SAFAD (FUJAIRAH). c. 1500 + ha.  
Nationally important freshwater site.  
Management category: 5. Part of this site is earmarked for designation as a reserve by Emiri decree.
22. WADI HAYL (FUJAIRAH). c. 500 ha  
Nationally important freshwater site.
23. WADI GHAYL (FUJAIRAH). 200 + ha.  
Nationally important freshwater site.  
Management category: 5
24. MASAFI-TAYYIBAH\* (RAS AL KHAIMAH). c. 2000 ha.  
Nationally important site for migrant, wintering and breeding bird species.  
Management category: 5 & 6
25. KHOR KALBA\* (SHARJAH) INCLUDING FUJAIRAH BEACH (FUJAIRAH). 7750 ha. plus Kalba plain extension. Mangrove bird community including endemic subspecies of **White-collared Kingfisher**.  
Management category: 1 & 6 (zoned). Possibly transfrontier.
26. HATTA LAKES (DUBAI). 800 + ha.  
Nationally important freshwater site.  
Management category: 2 & 4.
27. AL MADAM-DHAID PLAIN (SHARJAH/AJMAN/RAS AL KHAIMAH). Biodiversity site. 100,000 + ha.  
Nationally important *Acacia* savannah bird community, including restricted range species.  
Management category: 5 & 6.
28. QARN NAZWA\* (Sharjah). c. 250 ha.  
Nationally important breeding and wintering bird communities.  
Management category: 1 b & 5.
29. JEBEL HAFIT\* (ABU DHABI/OMAN). c. 1600ha. within UAE  
Regionally important montane bird community including threatened species.  
Management category: 2
30. AYN AL FAYDAH (ABU DHABI). c. 1400 ha.  
Nationally important freshwater site.  
Management category: 4. Note that part of the neighbouring area is already recognised as a recreational 'National Park.'
- 31-33. GULF OF OMAN MARINE RESERVES OFF DHADNAH, AL AQQAH AND FAKEET (FUJAIRAH). (Not mapped).  
Marine life including coral communities. Whale/cetacean sanctuary proposed.  
Management category: 1 & 2. Note that these three sites have already been established, by Emiri Decree in June 1995.
- 34-39. ABU DHABI DESERT REFUGE/HUNTING AREAS. Site 34 incorporates 'JEBEL ALI SANDS' (DUBAI). Total area undecided. (Not mapped).

- Nationally important biodiversity sites (predominantly sand desert).  
Management category: 1b & 6. Possibly transfrontier.
40. HAJAR-SHUMAYLIYAH MOUNTAINS 'NATIONAL PARK' (FUJAIRAH/OMAN) INCORPORATING SITES 20, 21 & 22. 660,000 ha. (Not mapped).  
Endangered Arabian montane wildlife including **Arabian Leopard** and **Arabian Tahr**.  
Management category: 1b & 2.
41. THE WESTERN RUS AL JIBAL (MUSANDAM), RAS AL KHAIMAH/OMAN. 600,000 ha. (Note mapped).  
Endangered Arabian montane wildlife including **Arabian Leopard**.  
Management category: 2. Transfrontier reserve.

**Sites with an emboldened number appear in the 'Directory of Wetlands in the Middle East' (Scott 1995). An asterisk denotes an Important Bird Area (see Evans 1994), although several of these sites also appear in the former publication. Not that much of sites 1, 2, 3, 4, 7 & 8 is part of a proposed World Heritage Site.**

Of the sites and areas identified above, over 50 per cent (21 out of 41 recently visited) are currently being adversely affected in part or in their entirety, whilst others survive under imminent threat of damage from human activities. It is time for these places to receive formal recognition and thus some degree of protection from human depredation. The unique marshland at Dhayah, for example, is being used as a tipping ground for the local marble quarries.

All the above sites are not equal, nor subject to the same level of threat, but important priorities are emerging.

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**What sites have been missed or overlooked? Part of the Jiri plain is one candidate which will receive consideration. Can readers suggest additional areas?**

## RED LIST OF BIRDS BREEDING OR VISITING THE UAE

Selection of species based on criteria drawn up and followed by IUCN and BirdLife International.

### SPECIES BREEDING IN THE UAE

#### Globally threatened species

None

#### Regionally threatened species or subspecies

Red-billed Tropicbird	<i>Phaethon aethereus indicus</i>
Socotra Cormorant	<i>Phalacrocorax nigrogularis</i>
Egyptian Vulture	<i>Neophron percnopterus</i>
Lappet-faced Vulture	<i>Torgus tracheliotus</i>
Sooty Falcon	<i>Falco concolor</i>
Houbara	<i>Chlamydotis undulata macqueenii</i>
White-collared Kingfisher	<i>Halcyon (Todirhamphus) chloris kaibaensis</i>

**Species occurring in UAE at greater than 1% level of breeding population of the Middle East and considered at risk (populations known to be declining, population small or restricted to few sites).**

Osprey	<i>Pandion haliaetus</i>
Crab Plover	<i>Dromas ardeola</i>
Sooty Gull	<i>Larus hemprichii</i>
Swift Tern	<i>Sterna bergii</i>
Lesser Crested Tern	<i>Sterna bengalensis</i>
Saunders' Little Tern	<i>Sterna saundersi</i>
Booted Warbler (Arabia)	<i>Hippolais (caligata) rama</i>

### SPECIES VISITING THE UAE

#### Globally threatened species

Lesser Kestrel	<i>Falco naumanni</i>
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#### Threatened or declining species

Greater Spotted Eagle	<i>Aquila clanga</i>
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**Species occurring in numbers greater than 10% of the biogeographical population**

Broad-billed Sandpiper	<i>Limicola falcinellus</i>
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(For status of mammals, amphibians and reptiles, see separate papers by Dr. Richard Hornby in this issue, Pages 9-14)

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# A Checklist of Amphibians and Reptiles of the UAE

by Richard Hornby

There are no popular identification guides to amphibians and reptiles of the UAE and no checklist is available. This makes it relatively difficult for the amateur to develop expertise in the subject and to record species in a reliable and useful manner. Further difficulties are caused by changes in nomenclature and inconsistencies in the use of English names. This paper is offered in the hope that it will assist standardisation in the use of names and encourage the study of herpetology in UAE.

The most authoritative and comprehensive accounts of reptiles of Arabia are by E.N. Arnold (1986), which deals only with lizards, and Levison *et al.* (1992), which deals with all groups. These works both provide identification keys and systematic lists, and indicate whether species have been recorded in the United Arab Emirates (or, earlier, in the Trucial States). Neither of these works are readily available to the amateur, and neither are up to date.

The most active herpetologist in UAE was the late JNB 'Bish' Brown, who collected a lot of information about

هذه الورقة تقدم أول قائمة علمية للبرمائيات والزواحف يتم رصدها في دولة الامارات الى جانب الأوضاع الحالية لهذه الأنواع، وتم اعداد هذه القائمة بناء على عمليات مسح اجريت مؤخراً بالإضافة الى عمليات الرصد التي تمت خلال السنوات القليلة الماضية.

the status and distribution of species. Sadly, his only publications on this subject, before his untimely death in 1995, were a few brief items under the title Recorders' Reports, in *Tribulus* (Brown, 1991 and 1992). Fortunately, however many of his notes are held in the Library of the Emirates Natural History Group, and have proved very useful in the production of this checklist.

Information on the status of desert reptiles was greatly improved by the survey carried out for the National Avian Research Centre in Abu Dhabi Emirate, over the