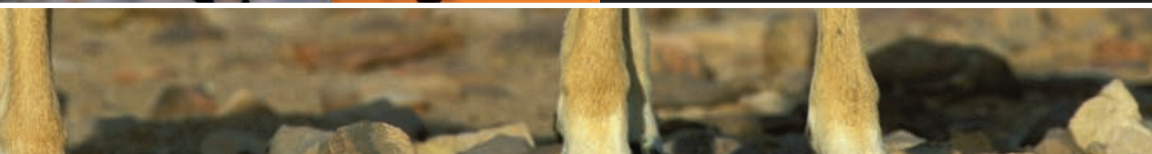




## ENVIRONMENT & WILDLIFE



The UAE places a high priority on environment conservation. Abu Dhabi's Environment Agency is particularly effective in this regard.





433 species of wild birds have been recorded in the UAE. Of these about 100 breed within the country.



## ENVIRONMENT

PROTECTION OF THE UAE'S NATURAL ENVIRONMENT, both on land and offshore, has long been a major focus of government activity, with the first laws to regulate hunting and to protect wildlife having been passed nearly 30 years ago.

### REGULATORY BODIES

#### ENVIRONMENT AGENCY – ABU DHABI

Over the course of the last year, several major new initiatives have been undertaken by the country's leading environmental body, the Environment Agency – Abu Dhabi (EAD). EAD is the authority responsible for all environment and wildlife-related issues in the Emirate of Abu Dhabi. Its tasks include research into and protection of Abu Dhabi's natural habitats and wildlife, the drawing up and implementation of legislation on protecting the environment and wildlife, both onshore and offshore and, through its Environment Protection Division (EPD), the issuing of permits for development projects, both governmental and private.

#### REGULATORY POWERS

This licensing function is of particular importance at a time when Abu Dhabi is engaged in an unprecedented programme of growth. EPD has shown, with some success, that it is not only determined to carry out its mandate but also that it has teeth, in terms of its regulatory powers, that it is ready and willing to use. Somewhat to the surprise of some developers, EPD has laid down strict guidelines on what can, and cannot, be done, requiring plans to be changed, where necessary, and insisting on very detailed baseline studies on the habitat and wildlife of areas destined for development, often also demanding that there is a continuing programme of monitoring and that plans for effective mitigation are drawn up and are put into effect. Only thus, government believes, will it be possible to ensure that the development programme is sustainable in terms of its environmental impact.

EAD's licensing function is of particular importance at a time when Abu Dhabi is engaged in an unprecedented programme of growth.

EAD has led a UAE-wide effort to ensure that the country is properly prepared for the possibility – however unlikely that may be – of the potentially fatal HSN1 strain of bird ‘flu arriving in the country.

Another broad programme with which EAD has been actively involved over the last year has been the UAE-wide effort to ensure that the country is properly prepared for the possibility – however unlikely that may be – of the potentially fatal HSN1 strain of bird ‘flu arriving in the country. From late 2005, EAD coordinated a regular programme of monitoring key sites for the country’s wild bird population, both migrants and residents, working closely with other agencies and with the Emirates Bird Records Committee, a body of researchers in close touch with most of the country’s active birdwatchers.

EAD has also acted as the secretariat for a special national emergency committee set up by the Cabinet to plan for any appearance of bird ‘flu in the country. The committee brought together representatives from all sectors of government, including the health services, the police, the armed forces, the customs and airports authorities and others, and undertook several successful planning exercises. Fortunately, no cases of bird ‘flu were reported, but the UAE now has an effective response system, in place for this, or any similar, environmental emergency.

Part of the process of regulating and protecting the UAE’s environment, of course, involves the putting into place of appropriate legislation. Building on the general framework already laid down over the last few years, EAD, which is responsible for over 80 per cent of the land and marine territory of the UAE, has continued to promote the passing of new laws. Law No. 22 for 2005 regulates the hunting of wild animals, including mammals, reptiles and birds, identifying those species that are fully protected, while a by-law issued by the Agency also places tough new controls on grazing of domestic livestock, a step that was urgently required to prevent further degradation of the fragile desert habitat.

Meanwhile the work of the Environmental Agency – Abu Dhabi, in terms of researching and protecting the UAE’s wildlife, has continued to yield good results. One major step forward during the year was the declaration of the Yasat Marine Protected Area, a 482-square-kilometre zone in western Abu Dhabi, encompassing four islands and ecologically-significant coral reefs.



#### Avian Research

As part of a programme of research into the country’s bird populations, EAD launched in late 2005 a programme to ring and to equip with satellite transmitters some of the greater flamingos found at the EAD-managed Al Wathba Reserve, some 40 kilometres east of Abu Dhabi City. Results from the satellite tracking proved, for the first time, that there is a regular interchange between the flamingo populations found all the way along the UAE’s Arabian Gulf coastline, emphasising the necessity for planning for their protection and conservation to adopt a broad approach covering many individual habitats, rather than a site-by-site approach. Two of the flamingos also migrated northwards to breeding sites in north-western Iran and the eastern shores of the Caspian Sea, showing that wildlife protection needs to adopt a regional as well as a national approach.

Two other bird research programmes have also yielded good results. Significant declines in the population of houbara bustards, the favoured quarry of the UAE’s falconers, have been recorded in recent years in their main breeding territories in Central Asia. During 2006 EAD’s National Avian Research Centre successfully bred nearly 500 houbara in a captive-breeding programme, and

Male houbara bustard  
in display plumage

Results from the satellite tracking proved, for the first time, that there is a regular interchange between the flamingo populations found all the way along the UAE’s Arabian Gulf coastline.



Dugong feeding on  
seagrass bed

a release programme is being planned, with the eventual hope that houbara may breed once again in the Emirates. Studies of wild-caught houbara equipped with radio and satellite transmitters have also permitted the movements of the birds to be plotted, both on their wintering grounds in the western deserts of the UAE and also on their migration to and from Central Asia.

And, for the twelfth year, the annual Sheikh Zayed Falcon Release Programme saw saker and peregrine falcons being released back into the wild. The 2006 release programme, in the Chitral district of Pakistan, brought the number of birds released to over 1000, and satellite tracking of some of the birds has provided useful data on their movements and survival rates.

The bird research programmes have implications that stretch far beyond the United Arab Emirates and this was the case, too, with a major international conference organised and hosted by EAD on conservation of populations of dugongs, an endangered marine mammal, throughout the Indian Ocean, the Arabian Gulf and the Red Sea. The UAE has the second largest populations of dugongs in the world, and EAD will now be working with all other countries throughout the range of the species to prepare, and to implement, monitoring and protection programmes.

### *Coral Reefs*

Another major research programme has also involved cross-border collaboration – a joint project undertaken with Qatar's Supreme Council for the Environment and Natural Resources to map and to study the health of the coral reefs in the waters of the UAE and Qatar. Undertaken with support from Abu Dhabi-based Dolphin Energy, which is building a Qatar–UAE gas pipeline, and with involvement both by the WorldWide Fund for Nature and top scientists from around the world, as well as the Emirates Wildlife Society, the programme is of importance because the coral reefs in the Arabian Gulf have suffered from die-backs in recent years that were thought to have been caused by peaks in water temperature, perhaps an effect of global warming. The research has shown, though, that most reefs are in good condition, and are recovering.

### *SOE Report*

By the end of 2006, EAD expected to have completed and launched the first State of the Environment (SOE) report for the Emirate of Abu Dhabi. Prepared in collaboration with a number of other government and non-governmental bodies, the SOE has been drawn up as part of the Abu Dhabi Global Environmental Data Initiative (AGEDI), which was launched by the UAE Government in 2002 at the World Summit for Sustainable Development in Johannesburg, South Africa.

### OTHER ORGANISATIONS

Elsewhere in the country, other work continues to record, identify and protect the UAE's environment and wildlife, both now under pressure, particularly in coastal regions, because of the extensive development programme.

At a federal level, the announcement of the new Cabinet in February 2006 saw the former Ministry of Agriculture and Fisheries being replaced by a new Ministry of Environment and Water, (MEW), bringing management of the UAE's rapidly depleting water resources into the portfolio. MEW has also taken over responsibility for the Federal Environment Agency, previously chaired by the



Coral grouper with  
cleaner shrimps



Sand gazelle on Sir Bani Yas island

Sharjah's Environment and Protected Areas Authority (EPAA) undertakes a wide-ranging programme of education on environmental issues with local schools, and is also responsible for the Sharjah Desert Park and the adjacent Breeding Centre for Endangered Arabian Wildlife.

Minister of Health. The new Ministry is responsible for representing the country internationally in terms of environmental conventions and agreements and for implementing environmental protection legislation at home.

This latter is done in close coordination with local environment departments or agencies in each emirate, these including both autonomous agencies and departments attached to Municipalities, as is, for example, the case in Dubai.

Second only to EAD in terms of the range of its activities, Sharjah's Environment and Protected Areas Authority (EPAA) undertakes a comprehensive and wide-ranging educational programme on environmental issues with local schools, and is also responsible for the Sharjah Desert Park and the adjacent Breeding Centre for Endangered Arabian Wildlife. This Centre houses a unique collection of Arabian mammals and reptiles and is widely recognised internationally as playing a significant role in ensuring the survival of the region's fauna. EPAA also works with other Sharjah government departments to protect key habitats within the emirate.

Another emirate to make significant steps recently to enhance the protection of its environment is Ra's al-Khaimah, whose Environmental Protection and Industrial Development Commission (EPIDC) has established a Wildlife and Protected Areas Division. Originally established to monitor the environmental impact of industrial development, EPIDC's new division, headed by a specialist in Arabian mammals who formerly worked on a conservation programme for the endangered Arabian leopard, has been charged with identifying areas of the emirate whose habitat, flora and fauna is suitable for long-term protection.



Dhub lizard in the UAE desert

## NATURAL HISTORY

Study of the natural history of the UAE is pursued not only by both resident and visiting professional scientists but, increasingly, by a number of ardent and skilled amateurs, many of whom make important discoveries or observations and proceed to publish their findings. One refereed journal, that of the Emirates Natural History Group, *Tribulus*, published twice yearly, is now in its sixteenth successive year of publication and includes many accounts of this type. Some of the more interesting and surprising finds made over the past year are described here.

## PLANTS

In February 2006 a group of birdwatchers looking for migrant birds at the newly-laid golf course at Al Maqam, near Al Ain, suspended their search temporarily when an orchid was found on one of the fairways. The UAE only has one native species of orchid, the helleborine *Epipactis veratrifolia*, but this was clearly different. Nor was it any of the other species known to be present in the rest of Arabia. A stroll around the course soon found there to be many hundreds, if not thousands, of specimens, all most delightfully fragrant. Identification was finally confirmed as being the field zeuxine or soldier's orchid *Zeuxine strateumatica*, a species which originates from Asia and which, over the past 70 years, has colonised various far-flung corners of the globe. While botanists in the UAE are used to finding accidentally introduced species, so-called 'aliens', at least on this occasion it was deemed to be an innocuous one, presumably having come in with imported grass seed.

Desert hyacinth



In contrast, and doubtless a natural occurrence, was a new record of a particular species of showy lichen, *Xanthoria parietina*, found growing in the desert near Jebel Ali on dwarf but mature ghaf trees *Prosopis cineraria*. The latter were no more than 1 metre high when over 10 metres is typical and were themselves of special interest.

### REPTILES

A large skink, *Mabuya aurata*, new to the UAE, was found, not on the mainland as might have been expected, but on two neighbouring offshore islands, both over 60 kilometres out into the Arabian Gulf, namely Qarnein, better known for its internationally important seabird colonies, and nearby Arzanah. How these individuals colonised is unknown (although *Mabuya* is known to be a competent swimmer), but they are clearly recent arrivals, herpetological surveys having been conducted on Qarnein previously, with no sign of this conspicuous and readily identifiable diurnal species.

Another new discovery, albeit of a species that had most probably evaded detection all along, was of Blanford's fringe-toed lizard *Acanthodactylus blanfordii*, the sixth species of this genus known from the UAE. This species has a range across much of south-west Asia, but in Arabia had hitherto only been noted in northern Oman. In December 2005, however, it was recorded and photographed in a small area of sparsely vegetated beach dune at Khor Kalba, Sharjah, on the UAE's East Coast. Measures are to be introduced to conserve this outlying population, so far in its only known locality.

Sharp-eyed observers will notice in future natural history publications that one species has apparently disappeared, with another one appearing in its place. Following critical examination of the scales under the chin of what had been locally recognised as specimens of the highly venomous and typically aggressive species Burton's saw-scaled viper *Echis coloratus* (clearly not an occupation for the novice), the UAE form has been categorised as a separate species, *Echis omanensis*. The type locality for the newly described species is Wadi Siji, near Masafi in the UAE on the west side of the Hajar Mountains and the species is described as a

regional endemic. Burton's saw-scaled viper and the new species are geographically isolated, the former being found in southern Arabia south of the Empty Quarter.

### MAMMALS

A similar fate has befallen one species of mammal found in the UAE, this being the Libyan jird *Meriones lybicus*. Local specimens are now recognised as being a separate species, Arabian jird *Meriones arimalius*, the former taxon having been perpetuated in the literature as that present in the UAE until the trouble was taken to re-assess thoroughly the morphology and dentition of the animals present in Arabia.

The second item of mammalian interest, a truly noteworthy event in 2005, concerned the discovery of tracks, followed shortly afterwards by the sighting and trapping of a honey badger or ratel *Mellivora capensis* in the extreme west of Abu Dhabi, near Ruwais. At least three individuals were subsequently found to be living in one small area and the UAE's President, HH Sheikh Khalifa bin Zayed Al Nahyan, ordered these animals to receive strict protection. They had long been suspected of occurring, at least intermittently, but the Ruwais discovery constitutes the first confirmed presence of this fearless honey-eating carnivore in the UAE (interestingly, individuals also turned up recently in Qatar). The explorer, Sir Wilfred Thesiger, had reported seeing what he considered to be the species' tracks some 60 years earlier. It was a long wait, but finally worth it.

Turning to marine mammals, ADNOC geologists out on a weekend foray in early 2006 found the skeleton of a whale embedded in sediments some 4000 to 5000 years old, 10 kilometres inland of Abu Dhabi Island, the sediments being marine deposits from when the level of the Gulf was much higher than it is today. Preliminary excavation of the relatively well-preserved bones proved that they belonged to a blue whale *Balaenoptera musculus*. Detailed analysis, including comparison of the DNA with modern-day blue whales and pygmy blue whales (the form known off southern Arabia today), as well as radiocarbon-dating, is to be undertaken by EAD.



Arabian leopard and cub, born in the UAE

ADNOC geologists out on a weekend foray in early 2006 found the skeleton of a whale embedded in sediments some 4000 to 5000 years old 10 kilometres inland of Abu Dhabi Island.



At least 54 species of terrestrial reptiles are found in the UAE. Research is continually adding new records to the list.



Flamingos are winter visitors to the UAE that have been encouraged to breed as a result of environmental planning and conservation efforts.

## BIRDS

Birds are arguably the best known of all the animal groups and birdwatching is one of the top attractions for many UAE visitors. Surprises still come along and the UAE's checklist of birds keeps on increasing. Two recent additions, neither predicted nor predictable, were Northern raven *Corvus corax* and fan-tailed raven *Corvus rhipidurus*, taking the national total to 433 species by early 2006. The latter species was recorded by ecologists deep in the Abu Dhabi desert, remarkably some 1500 kilometres from its nearest breeding site in southern Oman; whereas the former, which toured Abu Dhabi City and island for two days, harried by the resident but non-native house crows and parakeets, had only to hop across the Gulf.

The Emirates Bird Records Committee, which maintains the UAE list and adjudicates on all submissions, was also pleased to assist the Environment Agency – Abu Dhabi, (EAD) in the all-important monitoring of waterbirds throughout the country through the year, as part of the national plan to detect rapidly any incidence of bird flu. In the event the UAE remained thankfully clear of any cases.

## INSECTS

A detailed scientific study of the Wasit wetland in the city of Sharjah in both 2005 and 2006 also produced interesting results, with the biggest surprise being amongst the insects. Among many new finds were at least four species of soldierfly, representing a family of dipteran fly, Stratiomyidae, that was previously unrecorded in the Emirates.

Serendipity is, of course, always possible, with one find leading to another. Thus one local naturalist, informed of the presence of the new orchid at Al Maqam went there in search of them only to find a new species of damselfly for the UAE, *Ischnura senegalensis*. This delightful little damselfly was predicted as a likely colonist, if indeed not already present somewhere in the country undetected, and many thousand of individuals were estimated as being present around the water hazards on the self-same new golf course. Remarkably, the aquatic holly-leaved naiad, *Najas marina* was also present in abundance in the pond. This freshwater macrophyte appears, at best, to be highly localised in the UAE.



There are probably more than 5000 different species of insects in the UAE.



### ECLECTIC MIX

The journal *Tribulus* carries contributions on an eclectic mix of natural history subjects that show the range of expertise amongst both resident and visiting scientists and amateur naturalists. A selection of subjects include description of the first breeding records of purple gallinule *Porphyrio porphyrio*; the occurrence of albino tadpoles of the Arabian toad *Bufo arabicus*; identification of landslide dams in the Hajar Mountains; description of aberrant butterflies; tail-signalling in semaphore geckos; pain-inhibiting pathways in the brain of the camel, and, since being first noticed in 1996, notes on the ecology of the somewhat bizarre Echiuran, or spoonworm, the common name for a little-known phylum of animals.

Even though much scientific research has now been undertaken in the UAE, both amateurs and professionals alike still regularly make valuable discoveries, as the summary above indicates. With phylogenetic analysis, the latest line of biological inquiry, now being applied, it seems probable that a number of new species, of marine gastropods, for example, will shortly be announced to add to the UAE's increasingly recognised and remarkable biodiversity.

### INTERNET LINKS

Abu Dhabi Global Environment Initiative: .....	<a href="http://www.uaeinteract.com/agedi">www.uaeinteract.com/agedi</a>
Biological research: .....	<a href="http://www.uaeinteract.com/biology">www.uaeinteract.com/biology</a>
Camel research: .....	<a href="http://www.uaeinteract.com/camel">www.uaeinteract.com/camel</a>
CITES: .....	<a href="http://www.uaeinteract.com/cites">www.uaeinteract.com/cites</a>
Conservation: .....	<a href="http://www.uaeinteract.com/conservation">www.uaeinteract.com/conservation</a>
Environment: .....	<a href="http://www.uaeinteract.com/environment">www.uaeinteract.com/environment</a>
Geology: .....	<a href="http://www.uaeinteract.com/geology">www.uaeinteract.com/geology</a>
Islands: .....	<a href="http://www.uaeinteract.com/islands">www.uaeinteract.com/islands</a>
Marine and coastal: .....	<a href="http://www.uaeinteract.com/marine">www.uaeinteract.com/marine</a>
Plants: .....	<a href="http://www.uaeinteract.com/plants">www.uaeinteract.com/plants</a>
Solar energy: .....	<a href="http://www.uaeinteract.com/solar">www.uaeinteract.com/solar</a>
Waste water management: .....	<a href="http://www.uaeinteract.com/wastewater">www.uaeinteract.com/wastewater</a>
Waste: .....	<a href="http://www.uaeinteract.com/waste">www.uaeinteract.com/waste</a>
Water: .....	<a href="http://www.uaeinteract.com/water">www.uaeinteract.com/water</a>
Weather: .....	<a href="http://www.uaeinteract.com/weather">www.uaeinteract.com/weather</a>
Wildlife: .....	<a href="http://www.uaeinteract.com/wildlife">www.uaeinteract.com/wildlife</a>