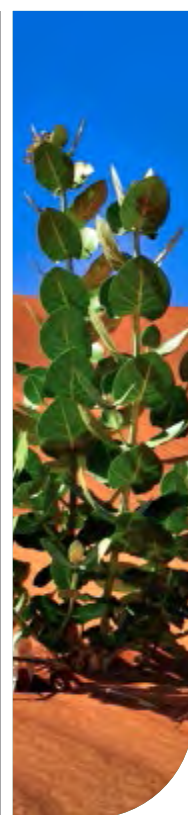
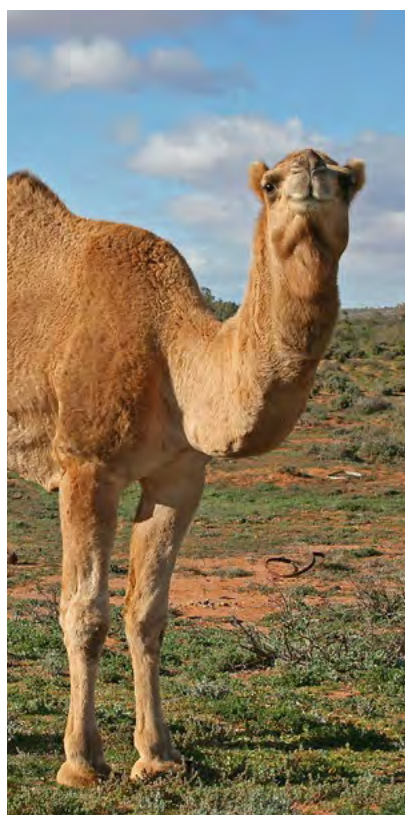
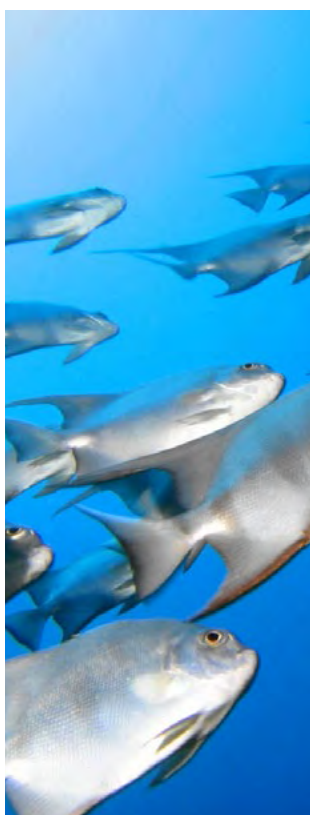




مركز الإحصاء
STATISTICS CENTRE



Biodiversity and Protected Area Statistics

Abu Dhabi Emirate

Issued in December 2012

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Foreword

Statistic Centre - Abu Dhabi (SCAD) is pleased to present the first report on Biodiversity and Protected Area Statistics, to decision makers, businessmen, researchers and all those interested in statistical figures and indicators. The report closely monitors various indicators of biodiversity and protected areas in the Emirate of Abu Dhabi under the wise leadership of HH Sheikh Khalifa bin Zayed Al Nahyan, President of the United Arab Emirates and Ruler of Abu Dhabi, and the unlimited support of HH General Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi, Deputy Supreme Commander of the Armed Forces, and Chairman of the Executive Council of the Emirate of Abu Dhabi.

As with other publications of Statistics Centre - Abu Dhabi, we acknowledge the cooperation of our strategic partners, which enables us to produce reliable, data-rich and high-quality statistical report. In this regard, we are particularly grateful to the Environment Agency – Abu Dhabi for their unstinting support to the Centre through their supply of data.

We are pleased to present this new publication of Biodiversity and Protected Area Statistics in Abu Dhabi and trust that it will meet the needs of development in the environment sector and serve the strategy of sustainable development in the Emirate at all levels.

Butti Ahmed Mohammed Bin Butti Al Qubaisi

Director General

Introduction

This report presents statistics on biodiversity and protected areas in the Emirate of Abu Dhabi for the year 2012. It comprises statistics on the total number of recorded species of fish, vascular plants, birds, reptiles, amphibians, mammals, and arthropods in the Emirate, in addition to statistics on threatened species and protected areas. The Environment Agency – Abu Dhabi is the main source for these statistics.

The Explanatory Notes section at the end of this report provides an explanation of the key terms and technical concepts used in the compilation of these statistics. Readers are encouraged to refer to that section in conjunction with reading the statistics and information outlined in the report.

About Biodiversity

What is biodiversity?

Biological diversity - or biodiversity - is a term used to describe the variety of life on earth. It refers to the wide variety of ecosystems and living organisms; micro-organisms, animals, plants, and their habitats and genes, in land, sea or freshwater environments. Thus, biodiversity covers three areas:

1. **Genetic diversity** refers to genes variations, specifically, in the DNA nucleotides. There are four types of nucleotides: Adenine, Cytosine, Guanine and Thymine.
2. **Species diversity** refers to all different species living on earth. The term “Biodiversity” is commonly used as a synonym of species diversity.
3. **Ecosystem diversity** refers to the variations of places or habitats where living species exist. These environments could be aquatic, such as seas, rivers and swamps, or terrestrial such as forests, deserts, grass, and others.

This statistical report will only address statistics of species diversity in the Emirate of Abu Dhabi, including fish, vascular plants, birds, reptiles, amphibians, mammals, arthropods and insects, as well as statistics on protected areas.

Why biodiversity is important?

Biodiversity supports life on earth since people ultimately depend on biodiversity products and services on a daily basis, such as clean water, clean air and food products, as well as many other products such as wood products.

Biodiversity is also essential in the medical field; medicinal plants are still considered the most common medication tools in traditional medicine. On the other hand, diversity of plants, animals and microbes is an integral part of bio-medical research and pharmacology. Thus, loss in biodiversity means that we are losing, before discovery, many health benefits that ecosystems can provide.

Ecotourism is another key service provided by biodiversity, in addition to the important role that biodiversity plays in preserving local heritage and symbols such as the connection between falcons and falconry.

What are the main threats to biodiversity?

Biodiversity has numerous threats with human activities being responsible for most of them. The most important threats are:

1. Habitat loss, such as in forests, swamps and plains through changes in land use, in particular the conversion of land to cropland or civil and industrial developmental projects, in addition to oil and gas exploration activities. As a result, ecosystem changes and might fail to provide its living organisms with basic survival needs from food to shelter.

2. Overexploitation of resources which occurs as a result of population growth and industrial and technological revolution. Examples of overexploitation are: overfishing, overhunting, and exploiting animal skins. Many species are in a state of decline because they are being used at unsustainable levels. Excessive consumption of water leads to groundwater depletion and excessive deforestation affects the habitats of many wild animals and plants.

3. Introduced species which are either intentionally or accidentally brought. Deliberate introduction occurs when new plants are brought and cultivated for food or ornamental purposes for example, whereas accidental introduction occurs by organisms hitch-hiking in food, household goods, wood products, and packaging materials or containers. Introduced species are not limited to plants, but also extends to include animals, insects and others. Introduced species can harm biodiversity through:

- Predation on native species or/ and displacement
- Transmission of diseases
- Alteration of food chains and webs
- Competition for food and resources

4. Pollution, such as excessive use of fertilizers which leads to excessive levels of nutrients in soil and water or sea water pollution by ships and wastewater discharge.

What is the importance of biodiversity statistics?

Biodiversity indicators and statistics play vital role in monitoring and evaluating the status of biodiversity in order to address key reasons and factors leading to biodiversity loss. Thus, providing decision makers and policy-makers with evidence to tackle these issues and take suitable actions regarding biodiversity conservation in the region.

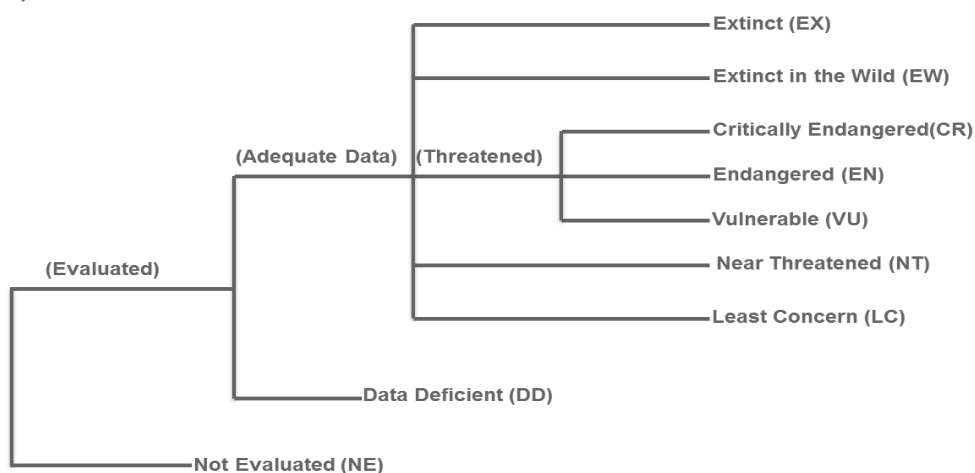
Key points

1. The IUCN Red List

The International Union for Conservation of Nature (IUCN) Red List is considered as an objective and reliable system for classifying plant and animal species in terms of extinction risk, with a standardized set of criteria. The Red List has many criteria, such as population size, continuing decline, extent of occurrence and other applied criteria to assess and classify species. Species are categorized as the following: Extinct (EX), Extinct in the wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD) and Not Evaluated (NE).

IUCN Red List describes the following three categories together: Critically endangered (CR), Endangered (EN), and Vulnerable (VU) as “threatened” since they confront a great danger of extinction in the wild.

Chart (1.1): IUCN Red List classification



Source: www.iucn.org

2. Total known and threatened species – summary statistics

Table (2.1) displays the total number of species recorded in the Emirate of Abu Dhabi based on the last update that took place in mid-2012. The total number of known recorded animals - except invertebrates – amounted to 793 terrestrial and marine species. Studies indicate that there are more than 2,000 recorded species of arthropods, 96% of the total are insects. Records on vascular plants in the Emirate show that there are about 414 recorded species.

The table also shows the total number of threatened species including the three threatened categories of the IUCN Red List: Critically endangered (CR), Endangered (EN), and Vulnerable (VU), in addition to the number of species listed within these categories according to the local Red List of the Emirate of Abu Dhabi, if any.

As for mammals, there are species that fall within the threatened categories of the global Red List, and other species within the threatened categories of the local Red List. These species accounted for 29.6% of the total number of known species of terrestrial and marine mammals. The same applies to the aquatic and terrestrial vascular plants, where threatened species of the global and local IUCN Red List formed 2.2% of the total number of known species. As for fish, birds and reptiles, threatened species accounted for around 4.0%, 3.6% and 7.1% of the total known species of each class respectively.

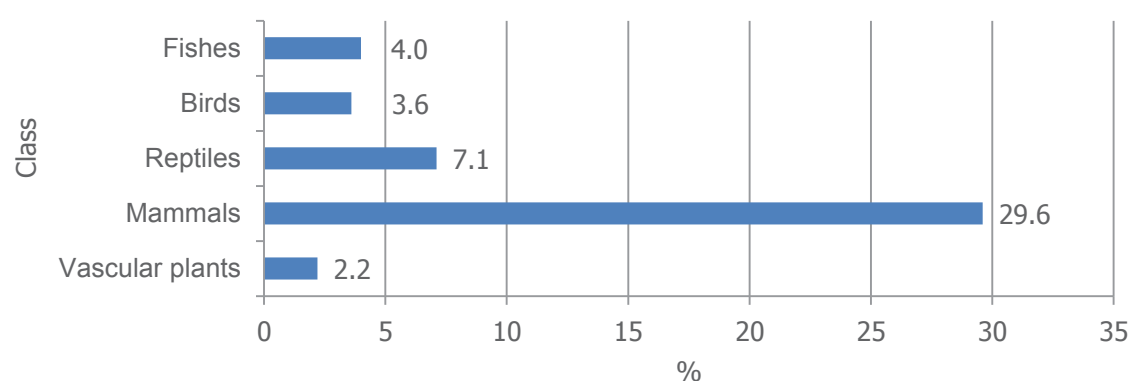
Table (2.1) Total known and threatened species ^(a) - 2012

Class	Total number of known species	Total number of threatened species
Fishes	247	10
Birds ^(b)	420	15
Reptiles ^(b)	70	5
Amphibians	2	0
Mammals ^(b)	54	16
Total	793	46
Arthropods (terrestrial)	>2000	na
Vascular plants ^(b)	414	9

Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

(a) Include species classified under global and/or local red list threatened criteria. (b) Includes terrestrial and marine species.

Chart (2.1): Percentage of threatened species from total known – 2012



Source: Statistics Centre - Abu Dhabi.

3. Marine fishes

The Emirate of Abu Dhabi is situated in the west and southwest of the United Arab Emirates, overlooking the southern coast of the Arabian Gulf. Abu Dhabi enjoys a long coastal strip that extends to more than 700 kilometers witnessing fishing activities. The fishery resources in the United Arab Emirates and the Emirate of Abu Dhabi are considered as a source of income, business and entertainment, in addition to the preservation of local heritage of the UAE by maintaining traditional means of fishing.

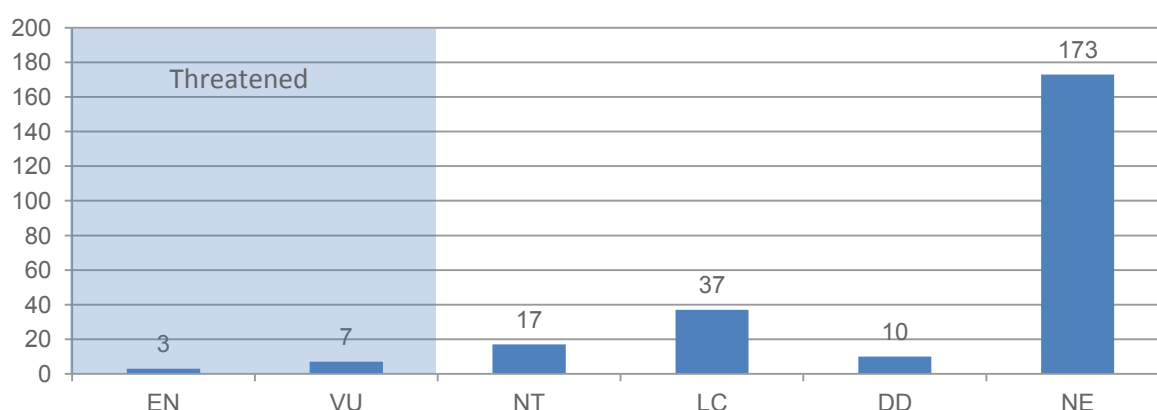
The reports and statistics issued by the Environment Agency - Abu Dhabi indicate that there are around 247 fish species recorded in Abu Dhabi waters. These species fall under about 73 fish families. The Jacks (Carangidae) family occupied the first rank in terms of number of species with (29) species, followed by the Requiem Sharks (Carcharhinidae) family with (12) species, then the Threadfin breams (Nemipteridae) family with (10) species, the Sardines or Herrings (Clupeidae) family with nine species, the Grunts (Haemulidae) family and the Snappers (Lutjanidae) family with eight species for each.

The number of species within a family is not necessarily linked to its commercial significance. The Emperors (Lethrinidae) family contains only four recorded species, while the Rabbitfishes or Spinefoots (Siganidae) family contains two recorded species and the Mulletts (Mugilidae) family contains one recorded species. Table (1) in the appendix shows scientific and Arabic commercial names of important fish families in the Emirate of Abu Dhabi.

Threat according to IUCN classification

Globally, and according to the IUCN Red List classification, 70% of the 247 fish species recorded in the waters of Abu Dhabi Emirate is classified as Not Evaluated (NE), meanwhile the classification of the remaining species is: 15% Least Concern (LC), 7% Near Threatened (NT), 4% Data Deficient (DD) and 4% fall within the threatened categories. Figure (3.1) shows the number of fish species recorded in Abu Dhabi waters according to IUCN Red List classification.

Table (3.1): Number of fish species recorded in Abu Dhabi Emirate waters according to IUCN Red List classification – 2012



Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

There are ten fish species recorded in the waters of Abu Dhabi Emirate which are classified within the IUCN threatened categories, Critically Endangered (CR), Endangered (EN), and Vulnerable (VU).

Table (3.1) includes a list of these ten species which fall under the following fish families:

Myliobatidae, Dasyatidae, Sphyrnidae, Carcharhinidae, Hemigaleidae, and Rhinobatidae.

Table (3.1): Fish species recorded in Abu Dhabi Emirate waters, classified under IUCN Red List threat categories – 2012

Family	Scientific name	Common English name	IUCN Red List
Myliobatidae	<i>Aetomylaeus maculatus</i>	Mottled eagle ray	EN
	<i>Aetomylaeus nichofii</i>	Banded eagle ray	VU
Sphyrnidae	<i>Sphyrna lewini</i>	Scalloped hammerhead	EN
	<i>Sphyrna mokarran</i>	Great hammerhead	EN
Carcharhinidae	<i>Carcharhinus plumbeus</i>	Sandbar shark	VU
	<i>Himantura gerrardi</i>	White-spotted whipray	VU
Dasyatidae	<i>Himantura uarnak</i>	Reticulated whipray	VU
	<i>Taeniura meyeni</i>	Blotched fantail ray	VU
Hemigaleidae	<i>Chaenogaleus macrostoma</i>	Hook-tooth shark	VU
Rhinobatidae	<i>Rhynchobatus djiddensis</i>	Giant guitarfish	VU

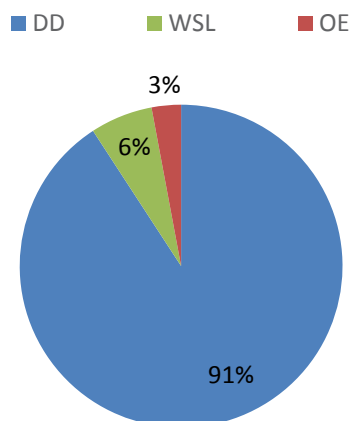
Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

Status of fish species according to local exploitation level

Studies were conducted in the Emirate of Abu Dhabi to evaluate the level of fish species exploitation in the waters of the Emirate. Figure (3.2) shows the relative distribution of evaluated fish species according to local exploitation level as follows: Over-Exploited (OE), Exploited within Sustainable Limits (WSL), or Data Deficient (DD).

These studies show that there are eight species, which are over-exploited including Painted sweetlips, Orange spotted grouper, Kingfish, and White-spotted spinefoot as illustrated in table (3.2). Species that are exploited within sustainable limits amounted to 17 species, including Longtail silver biddy, Ehrenberg's snapper, Blue spot mullet, Yellowfin seabream and others as shown in table (3.3).

Chart (3.2): Status of fish species in Abu Dhabi Emirate waters according to local exploitation level - 2012



Source: Statistics Centre - Abu Dhabi.

Table (3.2) : List of over-exploited (OE) fish species - 2012

Family	Scientific name	Common English name
Carangidae	<i>Gnathanodon speciosus</i>	Golden trevally
Haemulidae	<i>Diagramma pictum</i>	Painted sweetlips
Lethrinidae	<i>Lethrinus borbonicus</i>	Snub nose emperor
	<i>Lethrinus nebulosus</i>	Spangled emperor
Scombridae	<i>Scomberomorus commerson</i>	Kingfish
Serranidae	<i>Epinephelus coioides</i>	Orange spotted grouper
Siganidae	<i>Siganus canaliculatus</i>	White-spotted spinefoot
Sparidae	<i>Rhabdosargus sarba</i>	Goldlined seabream

Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

Table (3.3) : List of fish species exploited within sustainable limits (WSL) – 2012

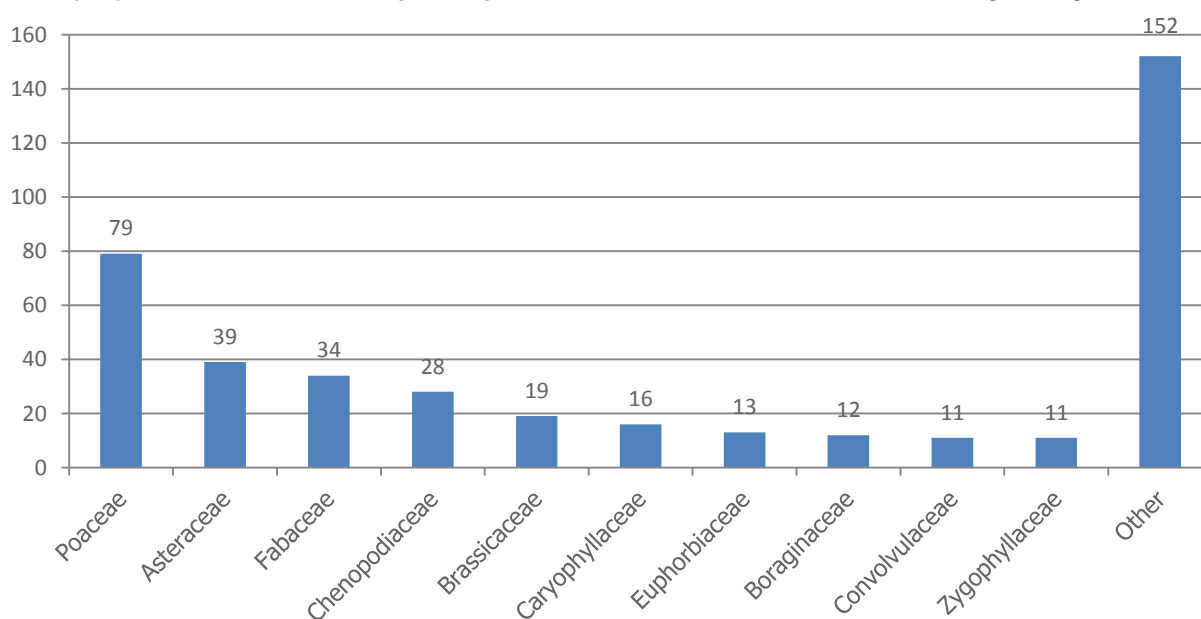
Family	Scientific name	Common English name
Ariidae	<i>Arius thalassinus</i>	Giant sea catfish
Carangidae	<i>Atule mate</i>	Yellow tail scad
	<i>Carangoides bajad</i>	Orange spotted trevally
Gerreidae	<i>Gerres longirostris</i>	Longtail silver biddy
Haemulidae	<i>Plectorhinchus gaterinus</i>	Blackspotted rubberlip
	<i>Plectorhinchus sordidus</i>	Sordid sweetlips
Lethrinidae	<i>Lethrinus lentjan</i>	Pink ear emperor
	<i>Lethrinus microdon</i>	Small tooth emperor
Lutjanidae	<i>Lutjanus ehrenbergii</i>	Ehrenberg's snapper
	<i>Lutjanus fulviflamma</i>	Black spot snapper
Mugilidae	<i>Valamugil seheli</i>	Blue spot mullet
Nemipteridae	<i>Scolopsis taeniatus</i>	Black streaked monocle bream
Pomacanthidae	<i>Pomacanthus maculosus</i>	Yellow bar angelfish
Sparidae	<i>Acanthopagrus bifasciatus</i>	Two bar seabream
	<i>Acanthopagrus latus</i>	Yellowfin seabream
	<i>Argyrops spinifer</i>	King soldier bream
Sphyraenidae	<i>Sphyraena barracuda</i>	Great barracuda

Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

4. Vascular plants

The information and statistics available to the Environment Agency - Abu Dhabi indicates that there are 414 species of vascular plants recorded in the Emirate of Abu Dhabi (411 terrestrial and three aquatic vascular plants), falling under 63 families. In terms of species number, the Poaceae (Grass) family occupied the first rank with (79) species, followed by the Asteraceae (Daisy) family with (39) species, then the Fabaceae (Pea) family with 34 species as shown in Figure (4.1).

Chart (4.1): Number of vascular plant species recorded in Abu Dhabi Emirate by family – 2012



Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

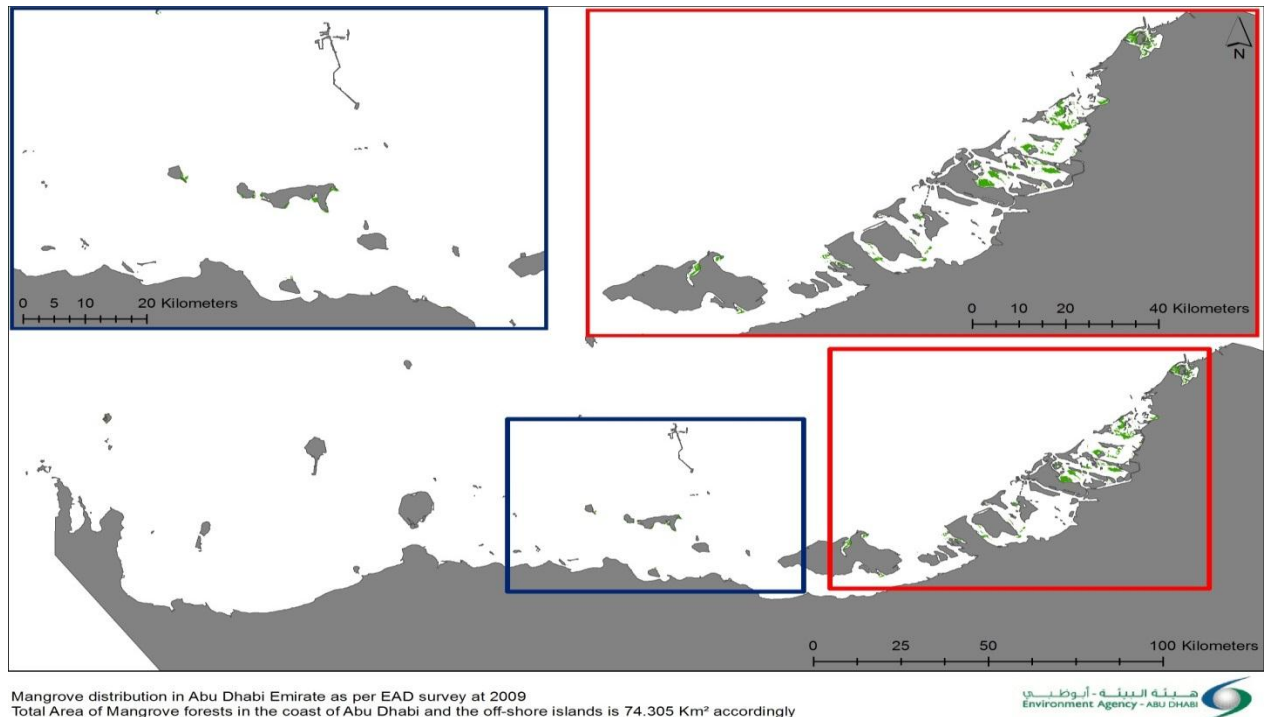
It should be noted that however some families have poor species number; they contain species of great ecological importance, as these plants dominate the vegetation cover of the Emirate. Amongst the famous types are:

- Date palm tree (*Phoenix dactylifera* L.) from the Arecaceae (Palm) family, which includes two recorded species in the Emirate of Abu Dhabi. The palm tree is source of dates, while palm trunks are used for construction and the dry leaves are used to make roofs and fences. Palm leaves are also used in the manufacture of fans, baskets and mats.
- Al Ghaf (*Prosopis cineraria* (L.) Druce) and Acacia (*Acacia tortillis* (Forssk.) Hayne) plants from the Mimosaceae (Mimosa) family, which includes six recorded species in the Emirate. Both Al Ghaf and Acacia are used for camels and goats grazing.
- Bean caper (*Tetraena (Zygophyllum) qatarense* Hadidi) from the Zygophyllaceae (Bean Caper or Caltrop) family, which includes 11 recorded species in the Emirate. Bean caper is used to cure sick and weak camels.

- Mangroves (*Avicennia marina* (Forssk.) Vierh) from the Avicenniaceae family which includes one recorded species in the Emirate of Abu Dhabi. Mangrove is locally common in the Emirate as it grows alone in the bays of the Arabian Gulf coast and the islands. Environmental wise, mangrove forests are important habitat for resident and migratory birds, and are suitable for the growth of fish and some marine organisms between the roots.

According to a survey conducted by the Environment Agency - Abu Dhabi in 2009, the area covered by mangrove forests in the Emirate of Abu Dhabi (coasts and islands) amounted to 74.305 km². Figure (4.2) sites mangrove forests distribution in the Emirate of Abu Dhabi as per 2009 survey.

Chart (4.2): Mangrove distribution in Abu Dhabi Emirate



Source: Environment Agency - Abu Dhabi

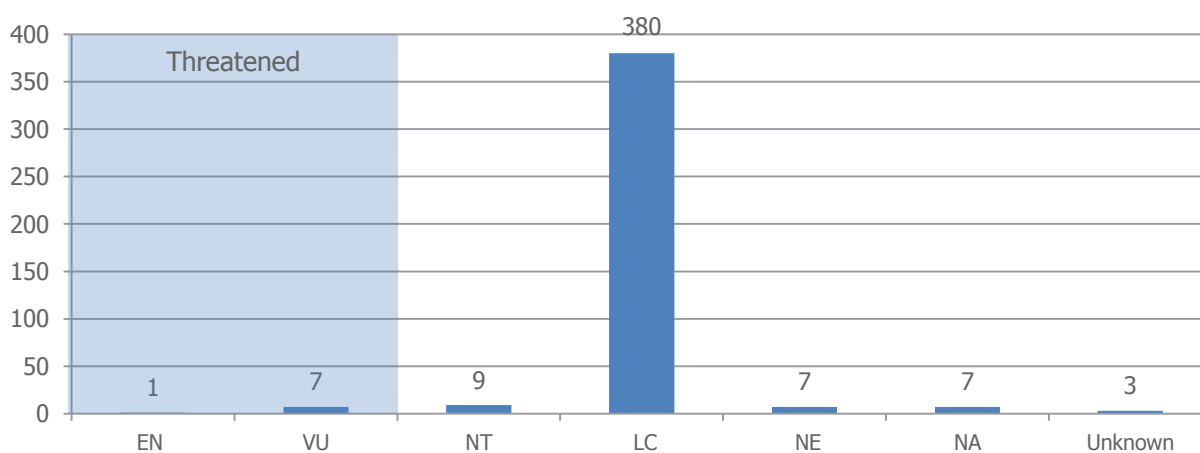
Threat according to IUCN classification

Most vascular plants recorded in Abu Dhabi Emirate are included in the Not Evaluated (NE) category of the IUCN Red List classification, forming 96% of the total. Vascular plants classified as Least Concern (LC) in the Emirate of Abu Dhabi formed 4%, meanwhile the only type recorded as Critically Endangered (CR) was (*Beta vulgaris* L. subsp. *maritima* (L.) Arcang).

Threat according to Abu Dhabi Local Red List classification

Abu Dhabi Emirate vascular plants were locally classified as per its status in the Emirate and based on the IUCN Red List criteria. Figure (4.3) shows vascular plants classification according to the local Red List. The vast majority of species (92%) are classified as Least Concern (LC), meanwhile species within the threatened categories accounted for approximately 2% of the total number of recorded species. Table (4.1) presents a list containing all eight species of vascular plants listed within the locally threatened categories.

Chart (4.3): Number of vascular plant species recorded in Abu Dhabi Emirate according to the Local Red List classification - 2012



Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

Table (4.1): Vascular plant species recorded in Abu Dhabi Emirate, classified under the Local Red List threat categories – 2012

Family	Scientific name	Common English name	Local Red List
Asclepiadaceae	<i>Caralluma arabica</i> N.E.Br.	na	VU B2 (iii)
	<i>Caralluma flava</i> N.E.Br.	na	VU B2 (iii)
Avicenniaceae	<i>Avicennia marina</i> (Forssk.) Vierh.	Mangrove	VU A2 (a & c)
Chenopodiaceae	<i>Haloxylon persicum</i> Bunge	na	VU B1 (a)
Plumbaginaceae	<i>Limonium carnosum</i> (Boiss.) O. Kuntze	na	VU A2(a & c)
Scrophulariaceae	<i>Schweinfurthia imbricata</i> A. Miller	Schweinfurthia	EN A3(c & d)
Poaceae	<i>Echinochloa crus-galli</i> (L.) P.Beauv.	Jungle rice, Millet rice, Corn panic grass	VU D2
Arecaceae) (Palmae	<i>Nanorrhops ritchieana</i> (Griffith) Aitch.	Dwarf palm, Mazari palm	VU B2 (a)

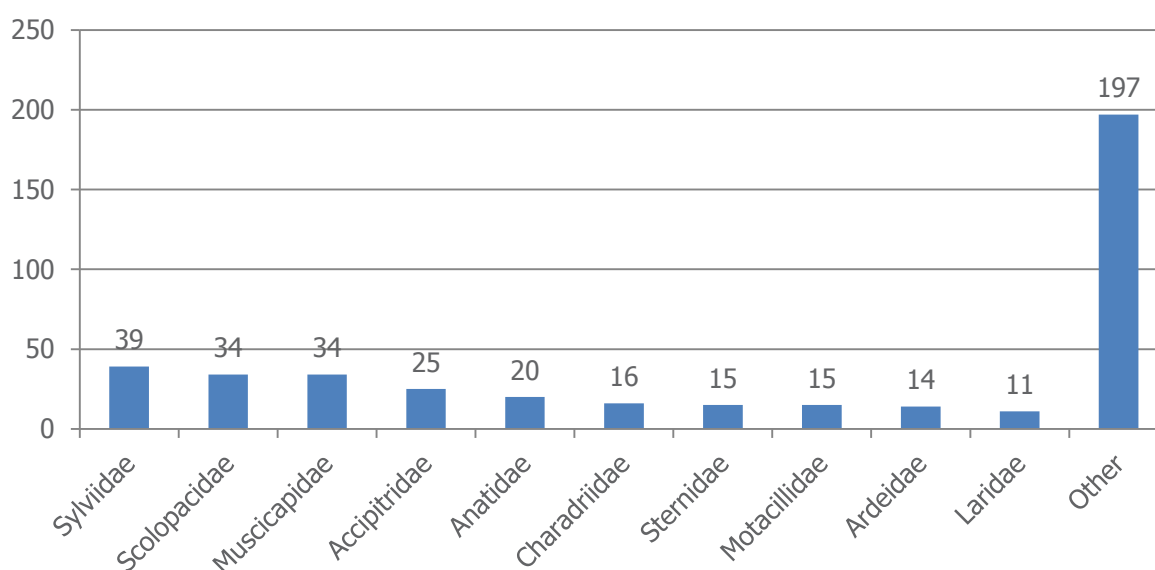
Source: Environment Agency - Abu Dhabi.

5. Birds

Birds are considered one of the most significant elements of biodiversity. Reports and statistics released by the Environment Agency - Abu Dhabi show that there are 452 species of birds recorded in the United Arab Emirates, of which 420 species are recorded in the Emirate of Abu Dhabi (93% of the total bird species recorded in the UAE). Recording bird species in the Emirate is based on birds seen and probable occurrence.

The bird species recorded in the Emirate of Abu Dhabi fall under 60 families, where Sylviidae family occupies the first rank in terms of number of species recorded with (39) species, followed by Scolopacidae and Muscicapidae families with (34) species for each. The Accipitridae family has (25) species, followed by Anatidae with (20) species and the Sternidae family with (15) species, as shown in Figure (5.1). There are other families that contain fewer species; however they enjoy regional and local importance due to their correlation to culture and heritage, such as Falconidae and Otidae families. Some other species have ecological importance such as the Phoenicopteridae family, which receives a special attention by Abu Dhabi government to maintain its breeding environments.

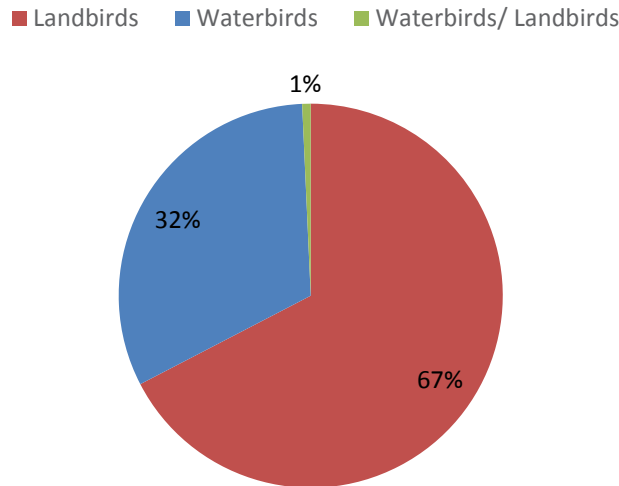
Chart (5.1): Number of bird species recorded in Abu Dhabi Emirate by family - 2012



Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

The majority of bird species recorded in the UAE and the Emirate of Abu Dhabi are migratory birds, accounting for 84% of the total species in the Emirate. Terrestrial birds form more than half of the bird species at 67% as shown in Figure (5.2).

Chart (5.2): Percentage distribution of water and land bird species - 2012



Source: Statistics Centre - Abu Dhabi.

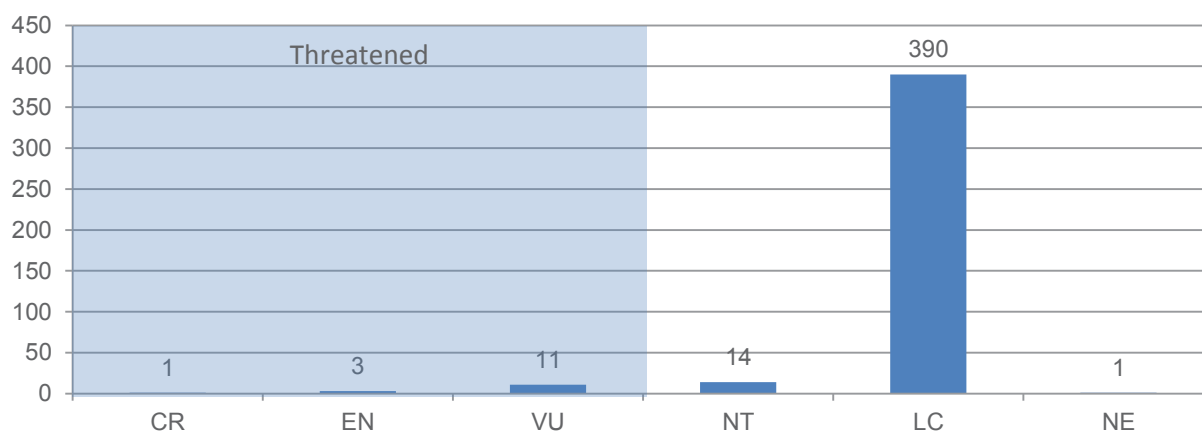
Note: Some birds are edge species and can occur in both habitats.

Threat according to IUCN classification

Globally, and according to the IUCN Red List classification, 93% of the 420 bird species recorded in the Emirate of Abu Dhabi fall under the Least Concern (LC) category, while 3% fall under the Near Threatened (NT) category. The three threatened categories: Critically Endangered (CR), Endangered (EN), and Vulnerable (VU), accounted for 4% of the total number of species recorded in the Emirate. Figure (5.3) shows the number of bird species as classified by the global Red List.

The list of birds recorded in the Emirate of Abu Dhabi contains 15 species included in the globally threatened categories, such as: Socotra cormorant (*Phalacrocorax nigrogularis*), Greater spotted eagle (*Aquila clanga*), Saker falcon (*Falco cherrug*) and Macqueen's bustard (*Chlamydotis macqueenii*) as shown in the table (5.1).

Chart (5.3): Number of bird species recorded in Abu Dhabi Emirate according to IUCN Red List - 2012



Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

Table (5.1): Bird species recorded in Abu Dhabi Emirate, classified under IUCN Red List threat categories - 2012

Family	Scientific name	Common English name	IUCN Red List
Anatidae	<i>Anser erythropus</i>	Lesser white-fronted goose	VU
	<i>Marmaronetta angustirostris</i>	Marbled duck	VU
Phalacrocoracidae	<i>Phalacrocorax nigrogularis</i>	Socotra cormorant	VU
Pelecanidae	<i>Pelecanus crispus</i>	Dalmatian pelican	VU
	<i>Haliaeetus leucoryphus</i>	Pallas's fish eagle	VU
	<i>Neophron percnopterus</i>	Egyptian vulture	EN
Accipitridae	<i>Torgos tracheliotos</i>	Lappet-faced vulture	VU
	<i>Aquila clanga</i>	Greater spotted eagle	VU
	<i>Aquila heliaca</i>	Eastern imperial eagle	VU
Falconidae	<i>Falco cherrug</i>	Saker falcon	EN
Otididae	<i>Chlamydotis macqueenii</i>	Macqueen's bustard	VU
Charadriidae	<i>Vanellus gregarius</i>	Sociable lapwing	CR
Scolopacidae	<i>Calidris tenuirostris</i>	Great knot	VU
Sylviidae	<i>Acrocephalus griseldis</i>	Basra reed warbler	EN
Emberizidae	<i>Emberiza aureola</i>	Yellow-breasted bunting	VU

Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

6. Reptiles and amphibians

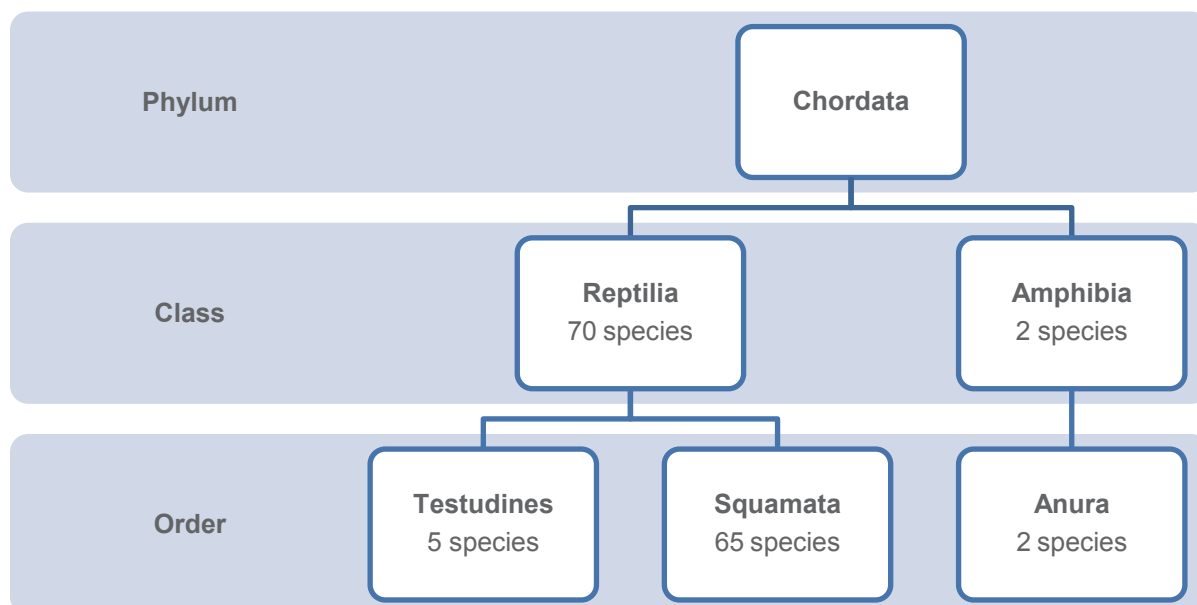
Reptiles and Amphibians fall under the Chordata phylum, and are considered to be prominent vertebrates in the UAE, as is the case in many desert and dry areas of the world. Figure (6.1) shows number of reptile and amphibian species recorded in the Emirate of Abu Dhabi by class and order.

There are 70 reptile species recorded in the Emirate of Abu Dhabi, falling under the Squamata and Testudines orders. These species consist of 54 species of terrestrial reptiles and 14 species of marine reptiles.

The Squamata order contains 12 families including 65 species: of which 56 are terrestrial and nine are marine represented by the Hydrophiidae family, while Testudines order contains two families represented by five species of marine turtles.

The Amphibia class contains one order, the Anura, which is represented by the Bufonidae family only. The Bufonidae family contains two recorded species: the Arabian frog (*Duttaphrynus arabicus*) and the Dhofar frog (*Duttaphrynus dhufarensis*).

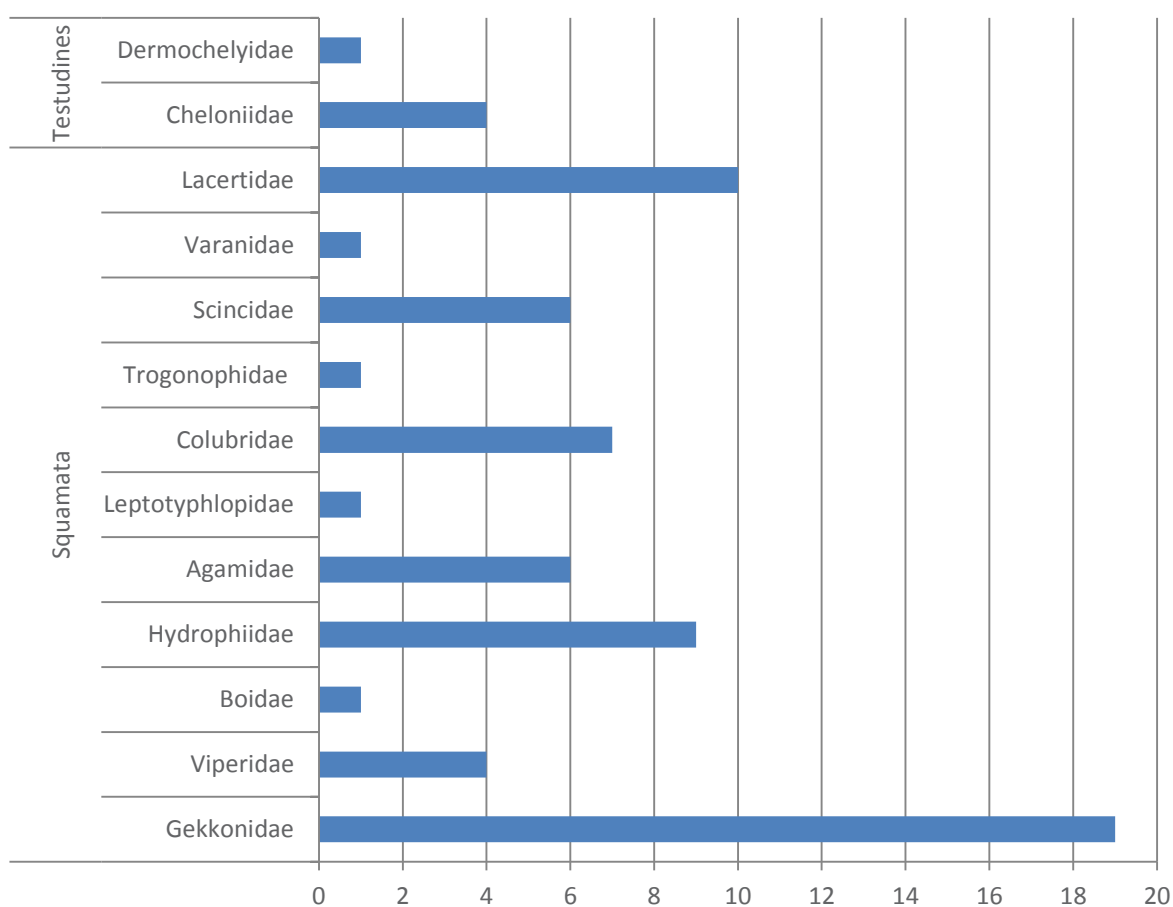
Chart (6.1): Number of reptile & amphibian species in Abu Dhabi Emirate by class and order - 2012



Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

Figure (6.2) presents the number of species within the Testudines and Squamata orders of the Reptila class by family. The figure also reflects that the Gekkonidae is considered one of the most diversified families in terms of number of species. The Gekkonidae family contains 19 species, followed by the Lacertidae family with ten species and the Hydrophiidae family with nine species. Tables (2) and (3) in the appendix provide a list of terrestrial and marine reptile species by order and family.

Chart (6.2): Number of reptile species* recorded in Abu Dhabi Emirate by order and family - 2012



Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

* Includes terrestrial and marine species

Threat according to IUCN classification

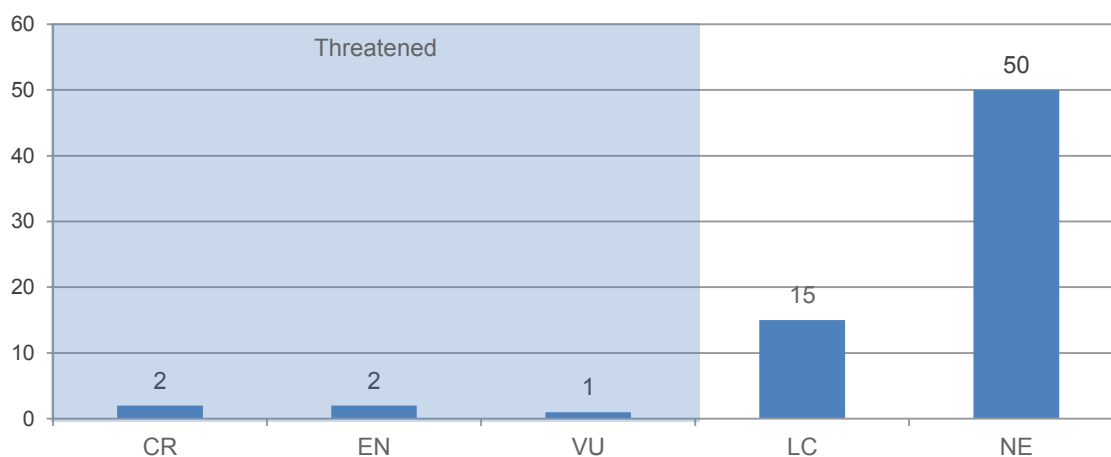
According to the IUCN Red List, 7% of the 70 species of reptiles recorded in the Emirate of Abu Dhabi fall within the globally threatened categories: 3% Critically Endangered (CR), 3% Endangered (EN) and 1% Vulnerable (VU), while 21% of the total fall within the Least Concern category (LC), and the remaining 72% are Not Evaluated (NE). Figure (6.3) shows the number of reptile species as classified by the global Red List.

The three threatened categories: Critically Endangered (CR), Endangered (EN) and Vulnerable (VU), contains five species of reptiles: four from the (Cheloniidae) family and one from the (Dermochelyidae) family as shown in table (6.1).

The green turtle (*Chelonia mydas*) and the hawksbill turtle (*Eretmochelys imbricata*) are common marine turtle species in the waters of Abu Dhabi Emirate as they use the warm waters for foraging and the sandy beach for nesting.

As for the two species of amphibians recorded in the Emirate of Abu Dhabi are: the Arabian frog (*Duttaphrynus arabicus*) and the Dhofar Toad (*Duttaphrynus dhufarensis*), they fall within the Least Concern category (LC).

Chart (6.3): Number of reptile species* recorded in Abu Dhabi Emirate according to IUCN red list - 2012



Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

* Includes terrestrial and marine species

Table (6.1): Reptile species recorded in Abu Dhabi Emirate, classified under IUCN Red List threat categories - 2012

Family	Scientific name	Common English name	IUCN Red List
Cheloniidae	<i>Chelonia mydas</i>	Green turtle	EN
	<i>Eretmochelys imbricata</i>	Hawksbill turtle	CR
	<i>Caretta caretta</i>	Loggerhead turtle	EN
	<i>Lepidochelys olivacea</i>	Olive Ridley turtle	VU
Dermochelyidae	<i>Dermochelys coriacea</i>	Leatherback turtle	CR

Source: Environment Agency - Abu Dhabi.

7. Mammals

The Mammalia class falls within the animal kingdom under the Chordata phylum and is considered to be prominent vertebrate animals. Mammals in the Emirate of Abu Dhabi include both terrestrial and marine species and there are about 54 recorded species of mammals in the Emirate: 47 species of terrestrial mammals and seven species of marine mammals.

Terrestrial mammals

Terrestrial mammals recorded in the Emirate of Abu Dhabi amounted to 47 species; they are classified in nine orders and 18 families. The Carnivora order ranked first in terms of number of species with (14) species followed by the Rodentia order with ten species, then the Chiroptera order with eight species. Table (7.1) shows the number of terrestrial mammals recorded in the Emirate of Abu Dhabi by order.

Table (7.1): Number of terrestrial mammal species recorded in Abu Dhabi Emirate by order – 2012

Order	Number of families	Number of species
Artiodactyla	1	7
Carnivora	5	14
Chiroptera	5	8
Erinaceomorpha	1	3
Hyracoidea	1	1
Lagomorpha	1	1
Perissodactyla	1	1
Rodentia	2	10
Soricomorpha	1	2
Total	18	47

Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

Terrestrial mammal species recorded in the Emirate include Native species, such as the Arabian Oryx (*Oryx leucoryx*), the Cape hare (*Lepus capensis*), and Introduced species, such as the wild goat (*Capra aegagrus aegagrus*), and other Domesticated species, such as camels (*Camelus dromedaries*) and donkeys (*Equus asinus*).

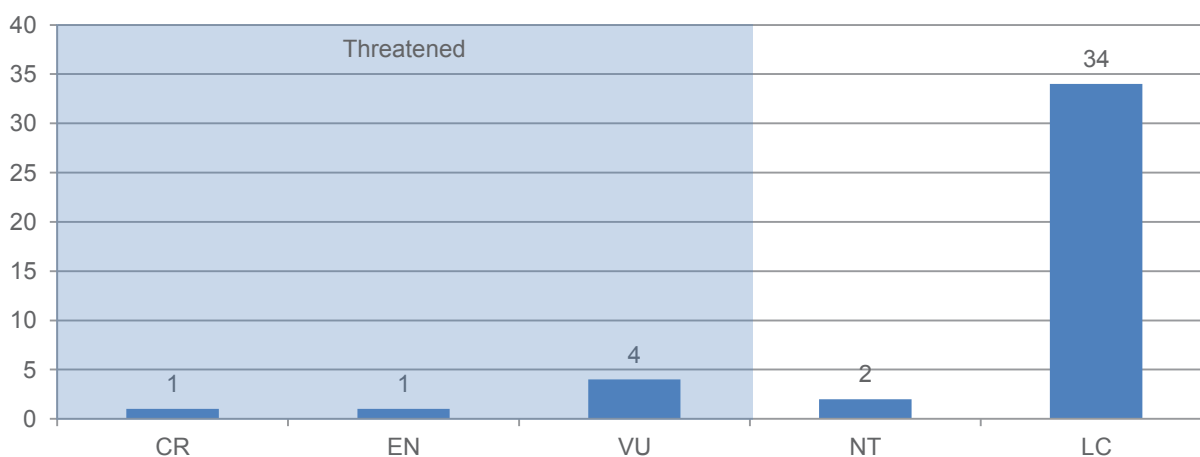
Tables (4, 5, and 6) in the appendix include lists of terrestrial mammal species classified as (native, introduced and domesticated) by order and family.

Threat according to IUCN classification

According to the IUCN Red List, 72% of terrestrial mammals recorded in the Emirate of Abu Dhabi fall globally within the Least Concern category (LC), 4% are Near Threatened (NT), and 13% fall within the three Threatened categories. Meanwhile, 11% of terrestrial mammal species in the Emirate are Not Listed (NL) within the global list; they are the domesticated mammals (camels, dogs, cats, donkeys and goats).

Figure (7.1) shows the number of terrestrial mammals species recorded in the Emirate of Abu Dhabi as classified by the global IUCN Red List. Table (7.2) presents a list of Abu Dhabi terrestrial mammal species classified within the threatened categories in the global Red List, where the Bovidae family has the largest number of the globally threatened species, such as the Arabian tahr (*Hemitragus jayakri*) and the Arabian oryx (*Oryx leucoryx*).

Chart (7.1): Number of terrestrial mammal species recorded in Abu Dhabi Emirate according to IUCN Red List - 2012



Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

Note: Domesticated mammals are not included in red list

Table (7.2): Terrestrial mammal species recorded in Abu Dhabi Emirate, classified under IUCN Red List threat categories - 2012

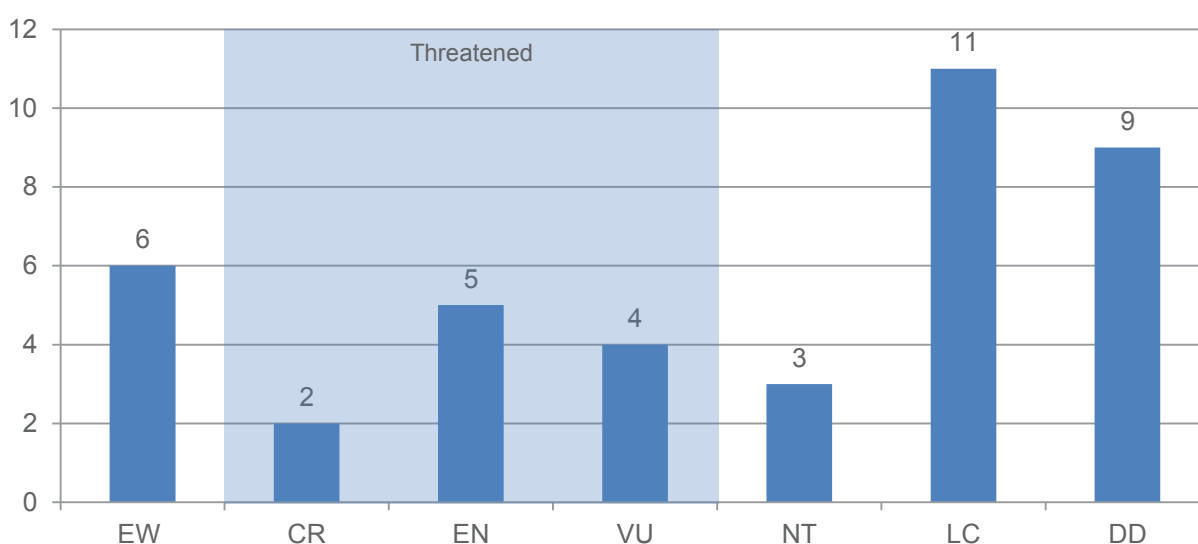
Family	Scientific name	Common English name	IUCN Red List
Felidae	<i>Panthera pardus nimr</i>	Arabian leopard	CR
	<i>Oryx leucoryx</i>	Arabian oryx	VU
Bovidae	<i>Gazella subgutturosa marica</i>	Sand gazelle	VU
	<i>Gazella gazella cora</i>	Mountain gazelle	VU
	<i>Hemitragus jayakari</i>	Arabian tahr	EN
	<i>Capra aegagrus aegagrus</i>	Wild goat	VU

Source: Environment Agency - Abu Dhabi.

Threat according to Local Red List classification

Terrestrial mammals were locally classified as per its status in the Emirate of Abu Dhabi based on the same criteria of the IUCN Red List. According to the local Red List classification, 24% of terrestrial mammals fall within the three threatened categories: 4% as Critically Endangered (CR), 11% as Endangered (EN), and 9% as Vulnerable (VU), while Extinct in the Wild (EW) mammals accounted for 13% of total terrestrial mammal species recorded. The rest are classified as following: 6% is in the Near Threatened (NT) category, 23% is in the Least Concern (LC) category, 19% are in the Data Deficient (DD) category, and 15% are Not Listed (NL). Figure (7.2) shows the number of recorded terrestrial mammal species in the Emirate of Abu Dhabi according to the local Red List.

Chart (7.2): Number of terrestrial mammal species recorded in Abu Dhabi Emirate according to Local Red List - 2012



Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

Note: seven species are not listed (NL) in the above classification.

Table (7.3) lists the names of Extinct in the Wild (EW) species in the Emirate of Abu Dhabi, while table (7.4) lists the names of terrestrial mammal species classified within the threatened categories of the local Red List. The Bovidae and Felidae families have the largest number of the locally threatened species.

Table (7.3): Terrestrial mammal species recorded in Abu Dhabi Emirate, classified as Extinct in the Wild (EW) according to the Local Red List - 2012

Family	Scientific name	Common English Name
Felidae	<i>Panthera pardus nimr</i>	Arabian leopard
Canidae	<i>Canis lupus arabs</i>	Wolf
Hyaenidae	<i>Hyaena hyaena</i>	Striped hyaena
Mustelidae	<i>Mellivora capensis</i>	Ratel /Honey badger
Bovidae	<i>Oryx leucoryx</i>	Arabian oryx
	<i>Capra aegagrus aegagrus</i>	Wild goat

Source: Environment Agency - Abu Dhabi.

Table (7.4): Terrestrial mammal species recorded in Abu Dhabi Emirate, classified under Local Red List threat categories - 2012

Family	Scientific name	Common English Name	Local Red List
Felidae	<i>Caracal caracal schmitzi</i>	Caracal lynx	VU
	<i>Felis silvestris gordonii</i>	Gordon's wildcat	EN
	<i>Felis margarita</i>	Sand cat	EN
Canidae	<i>Vulpes cana</i>	Blanford's fox	EN
	<i>Vulpes rueppellii</i>	Rüppell's fox	EN
Herpestidae	<i>Ichneumia albicauda</i>	White-tailed mongoose	EN
Bovidae	<i>Gazella subgutturosa marica</i>	Sand gazelle	CR
	<i>Gazella gazella cora</i>	Mountain gazelle	VU
	<i>Hemitragus jayakari</i>	Arabian tahr	CR
Erinaceidae	<i>Hemiechinus auritus</i>	Long-eared hedgehog	VU
Pteropodidae	<i>Rousettus aegyptiacus</i>	Egyptian fruit bat	VU

Source: Environment Agency - Abu Dhabi.

Marine mammals

Studies dedicated to the presence and abundance of marine mammals in the waters of the United Arab Emirates are still few, however the dugong or the sea cow (*Dugong dugon*) is deemed to be a significant species to biodiversity, being the only surviving species from the (Dugongidae) family of the (Sirenia) order. Sea cows live in the shallow waters near the coast of Abu Dhabi, feeding on seaweed. The group of sea cows living in the Arabian Gulf is the second largest group in the world after Australia.

Generally, the known marine mammals in Abu Dhabi waters amounted to about seven species, which fall under two orders (Cetacea and Sirenia) and the following four families:

- Balaenidae
- Delphinidae
- Phocoenidae
- Dugongidae

The Indo-Pacific humpback dolphin (*Megaptera novaeangliae*) and the bottle-nose dolphin (*Tursiops truncatus*) are relatively common in Abu Dhabi waters, while the short-beaked dolphin (*Delphinus delphis*) is less common, and the finless porpoise (*Neophocaena phocaenoides*) is rare to find in Abu Dhabi waters.

Table (5.7) includes a list of marine mammals recorded in the Emirate of Abu Dhabi and their international and local Red List classification. Globally, only the sea cow and the finless porpoise are in the Vulnerable category (VU), while locally sea cow is classified as Endangered (EN).

Table (7.5): Marine mammal species recorded in Abu Dhabi Emirate waters according to IUCN and Local Red List – 2012

Family	Scientific name	Common English Name	IUCN Red List	Local Red List
Balaenidae	<i>Balaenoptera edeni</i>	Bryde's whale	DD	DD
	<i>Megaptera novaeangliae</i>	Humpback whale	LC	DD
Delphinidae	<i>Sousa chinensis</i>	Indo-pacific Humped-back dolphin	NT	DD
	<i>Tursiops truncatus</i>	Bottlenose dolphin	LC	DD
	<i>Delphinus delphis</i>	Short-beaked common dolphin	LC	DD
Phocoenidae	<i>Neophocaena phocaenoides</i>	Finless porpoise	VU	DD
Dugongidae	<i>Dugong dugon</i>	Sea cow	VU	EN

Source: Environment Agency - Abu Dhabi, Statistics Centre – Abu Dhabi.

8. Arthropods

Arthropoda is considered the largest phylum of animals in terms of abundance and species diversity. The Insecta class forms the vast majority of terrestrial arthropods in the United Arab Emirates and the Emirate of Abu Dhabi, as is the case in most parts of the world. Besides Insecta, there are three other classes recorded in the Emirate, which fall under terrestrial arthropods, namely: Chilopoda, Arachnida and Crustacea represented by the sub-order Malacostraca. Table (8.1) presents the number of arthropod species recorded by class and order.

Preliminary figures indicate the presence of more than 1,900 species of Insecta and more than 90 types of Arachnida. Arachnida is represented by the orders of Araneae, Scorpion, Pseudoscorpions (or false scorpions), Solifugae, Prostigmata and Acari.

Arachnida and its different orders did not receive comprehensive detailed study and classification, therefore its exact number is unknown. There are at least 63 species of Araneae, seven species of Scorpions, two species of Pseudoscorpiones and three species of Solifugae. Solifugae species are often named as 'camel spiders' due to the fact that some species possess an arch-shaped structure resembling camel's hump. Camel spiders are commonly found in deserts and sandy soils, therefore they are considered to be global biological indicators of deserts.

Unlike the huge diversity of insects, only two species of the Chilopoda class were recorded in the Emirate. These two species are relatively common and they fall under the genus Scolopendra of the Scolopendromorpha order. Prostigmata and Acari together have 19 recorded species. Studies are still ongoing to identify the species of this phylum in more details.

Table (8.1): Number of terrestrial arthropod species in Abu Dhabi Emirate by class and order - 2012

Class	Order	Number of Families	Number of Species*
Arachnida	Araneae	14	63
	Scorpions	1	7
	Pseudoscorpiones	1	2
	Solifugae	3	3
	Prostigmata	5	6
	Acari	2	13
Chilopoda	Scolopendromorpha	1	2
Crustacea	Isopoda	1	1
Insecta	22 Orders	> 234	> 1900

Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

*Number of Species in the table might be underestimated.

Insects

Insects or Insecta in the Emirate of Abu Dhabi is represented by 22 orders including about 234 families and more than 1,900 known species at least, taking into consideration that there are many insect species with incomplete data and classification. The dominating orders of insects – represented by a large number of species – include Hymenoptera, Coleoptera, Diptera and Lepidoptera, which all fall under Endopterygota subclass. On the other hand, there are few orders that are represented by fewer species but they are well known, such as Blattodea (Cockroaches) and Odonata (Dragonflies). Table (8.2) shows the number of insect species by order.

Table (8.2): Number of Insect species recorded in Abu Dhabi Emirate by order - 2012

Order	English Common name	Number of families	Number of species*
Subclass: Apteriygota			
Collembola	Springtails	1	6
Thysanura	Bristletails & Silverfish	1	5
Subclass: Pterygota – Endopterygota			
Coleoptera	Beetles	40	394
Lepidoptera	Butterflies and Moths	25	237
Hymenoptera	Ants, Bees, & Wasps	31	554
Siphonaptera	Flees	1	2
Neuroptera	Antlions & Lacewings	7	71
Diptera	True flies	50	330
Strepsiptera	Stylopids	1	1
Subclass: Pterygota – Exopterygota			
Orthoptera	Grasshoppers & Crickets	8	61
Psocoptera	Psocids or Booklice	8	15
Phthiraptera	Lice	2	3
Heteroptera	True bugs	17	98
Homoptera	Cicadas, Planthoppers & Aphids	17	72
Thysanoptera	Thrips	4	17
Phasmida	Stick insects	1	1
Dermaptera	Earwigs	3	4
Embioptera	Web-spinners	1	1
Blattodea	Cockroaches	3	8
Mantodea	Mantids	3	10
Isoptera	Termites	3	3
Odonata	Dragonflies & Damselflies	5	20
Ephemeroptera	Mayflies, Collembola	2	4
Total		234	1917

Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

*Number of Species in the table might be underestimated.

9. Protected areas

A protected area is defined as an area of land and/or sea especially dedicated to the protection of biological diversity, and of natural and associated cultural resources, managed through legal or other effective means, prohibiting human activities that may endanger, pollute and exploit these resources.

There are three officially declared protected areas in the Emirate of Abu Dhabi; covering a total area of 6,306 km² in addition to other proposed locations waiting for official declaration. These three protected areas accounted for about 5% of the total area of Abu Dhabi Emirate, while the total area of the officially declared and proposed protected areas together totaled 15,357 km², or 13.2% of the total area of the Emirate. Table (9.1) lists the names of the official and proposed protected areas (terrestrial and marine), while Figure (9.1) shows the locations of terrestrial and marine protected areas in the Emirate of Abu Dhabi.

Table (9.1): Officially declared and proposed protected areas in Abu Dhabi Emirate by type

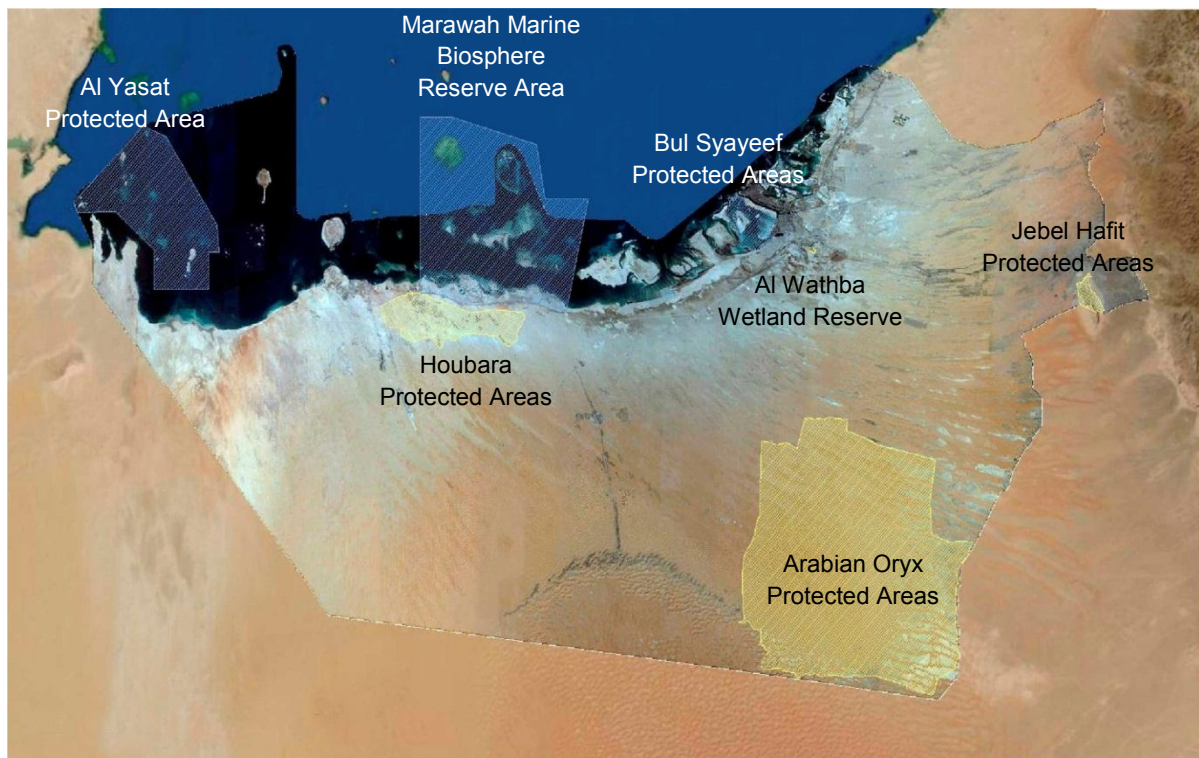
Name	Type	Proclamation year	Location	Total area (km ²)
Officially declared protected areas				
Al Wathba Wetland Reserve	Terrestrial	1998	Abu Dhabi	5
Marawah Marine Biosphere Reserve	Marine	2001	Al Gharbia	4,255
Al Yasat Protected Area	Marine	2005 & 2009	Al Gharbia	2,046
Total officially declared protected areas				6,306
Proposed protected areas				
Bul Syayeeef Protected Areas	Marine	2007	Al Gharbia	282
Houbara Protected Areas	Terrestrial	2009	Al Gharbia	769
Arabian Oryx Protected Areas	Terrestrial	2009	Al Gharbia	7,904
Jebel Hafit Protected Areas	Terrestrial	na	Al Ain	96
Total proposed protected areas				9,051
Total				15,357

Source: Environment Agency - Abu Dhabi, Statistics Centre - Abu Dhabi.

Al Wathba protected area is generally characterized by rich biodiversity of plants and animals. It is an important habitat for the breeding of the greater flamingos (*Phoenicopterus roseus*) in particular. The Arabian Oryx and Houbara protected areas aim at increasing the number of these species to re-introduce them in their natural habitats.

The significance of marine protected areas lies in that all destructive and fishing activities are prohibited throughout the year, otherwise during certain seasons and under regulations that specify the number of fishing boats and fishing methods. Marine protected areas aim at protecting sea grasses, coral reefs and areas of great importance to fish, dugongs, turtles as well as resident and migratory birds.

Chart (7.2): Location of terrestrial and marine protected areas in Abu Dhabi Emirate – 2012



. Source: Abu Dhabi Geospatial Portal, Statistics Centre - Abu Dhabi.

Appendix

Table (1): Scientific and commercial Arabic names of fish families recorded in Abu Dhabi Emirate

Family	Commercial Arabic name
Ariidae	Khan
Carangidae	Jesh
Gerreidae	Badah
Haemulidae	Farsh
Lethrinidae	Shaari
Lutjanidae	Naiser
Mugilidae	Beyah
Nemipteridae	Sultan Ibrahim
Pomacanthidae	Anfooz
Scombridae	Kanaad
Serranidae	Hamour
Siganidae	Safi
Sparidae	Kofar
Sphyraenidae	Jedd

Source: Environment Agency - Abu Dhabi, Ministry of Agriculture and Fisheries, Food and Agriculture Organization (FAO).

Table (2): Marine Reptiles species recorded in Abu Dhabi Emirate by order and family - 2012

Order	Family	Scientific name	Common English name
Testudines	Cheloniidae	<i>Chelonia mydas</i>	Green turtle
		<i>Eretmochelys imbricata</i>	Hawksbill turtle
		<i>Caretta caretta</i>	Loggerhead turtle
		<i>Lepidochelys olivacea</i>	Olive Ridley turtle
	Dermochelyidae	<i>Dermochelys coriacea</i>	Leatherback turtle
Squamata	Elapidae	<i>Hydrophis ornatus</i>	Ornate sea snake
		<i>Hydrophis cyanocinctus</i>	Annulated sea snake
		<i>Hydrophis lapemoides</i>	Arabian Gulf sea snake
		<i>Hydrophis gracilis</i>	Small-headed sea snake
		<i>Hydrophis spiralis spiralis</i>	Yellow sea snake
		<i>Pelamis platurus</i>	Yellow-bellied sea snake
		<i>Lapemis curtus</i>	Short sea snake
	Hydrophiidae	<i>Enhydrina schistosa</i>	Beaked sea snake
	Elapidae	<i>Praescutata viperina</i>	Viperine sea snake

Source: Environment Agency – Abu Dhabi.

Table (3): Terrestrial reptile species recorded in Abu Dhabi Emirate by order and family - 2012

Order	Family	Scientific name	Common English name	
Anura	Bufonidae	<i>Duttaphrynus arabicus</i>	Arabian toad	
		<i>Duttaphrynus dhufarensis</i>	Dhofar toad	
Squamata	Agamidae	<i>Trapelus flavimaculatus</i>	Yellow-spotted agama	
		<i>Pseudotrapelus sinaitus</i>	Sinai agama	
		<i>Phrynocephalus arabicus</i>	Arabian toad-headed agama	
		<i>Phrynocephalus maculatus</i>	Spotted toad-headed agama	
		<i>Uromastyx aegyptia leptieni</i>	Leptien's spiny-tailed lizard	
		<i>Uromastyx aegyptia microlepis</i>	Egyptian spiny-tailed lizard	
		Gekkonidae	<i>Asaccus gallagheri</i>	Gallagher's leaf-toed gecko
			<i>Asaccus caudivolvulus</i>	Musandam leaf-toed gecko
			<i>Bunopus spatalurus hajarensis</i>	Banded rock gecko
			<i>Bunopus tuberculatus</i>	Arabian ground gecko
			<i>Cyrtopodion scabrum</i>	Rough-tailed bowfoot gecko
			<i>Hemidactylus flaviviridis</i>	Yellow-bellied house gecko
			<i>Hemidactylus persicus</i>	Persian gecko
			<i>Hemidactylus robustus</i>	Red sea gecko
			<i>Pristurus carteri</i>	Carter's semaphore gecko
	<i>Pristurus celerrimus</i>		Bar-tailed semaphore gecko	
	<i>Pristurus minimus</i>		Least semaphore gecko	
	<i>Pristurus rupestris</i>		Rock semaphore gecko	
	<i>Ptyodactylus hasselquistii</i>		Fan-footed gecko	
	<i>Stenodactylus arabicus</i>		Arabian sand gecko	
	<i>Stenodactylus doriae</i>		Dune sand gecko	
	<i>Stenodactylus khobarensis</i>		Gulf sand gecko	
	<i>Stenodactylus leptocosymbotes</i>		Eastern sand gecko	
	<i>Stenodactylus slevini</i>		Slevin's sand gecko	
	<i>Teratoscincus keyserlingii</i>	Desert skink gecko		
	Lacertidae	<i>Acanthodactylus boskianus</i>	Bosk's fringe-toed sand lizard	
		<i>Acanthodactylus gongrorhynchatus</i>	Saudi fringe-toed sand lizard	
		<i>Acanthodactylus haasi</i>	Haas's spiny-footed lizard	
		<i>Acanthodactylus ophiodurus</i>	Snake-tailed fringe-toed lizard	
		<i>Acanthodactylus schmidti</i>	Schmidt's fringe-toed lizard	
		<i>Acanthodactylus blanfordii</i>	Blanford's fringe-toed lizard	
		<i>Omanosaura cyanura</i>	Blue-tailed Oman lizard	
		<i>Omanosaura jayakari</i>	Jayakar's Oman lizard	
<i>Mesalina adramitana</i>		Hadramaut sand lizard		
<i>Mesalina brevirostris</i>		Short-nosed sand lizard		
<i>Ablepharus pannonicus</i>		Asian snake-eyed skink		
<i>Chalcides ocellatus ocellatus</i>		Ocellated skink		
Scincidae		<i>Mabuya tessellata</i>	Tessellated mabuya	
		<i>Scincus mitranus</i>	Sand skink	
		<i>Scincus scincus conirostris</i>	Iranian sand skink	
	<i>Trachylepis septemtaeniata</i>	Golden grass mabuya		
Varanidae	<i>Varanus griseus</i>	Desert Monitor		
Trogonophidae	<i>Diplometopon zarudnyi</i>	Zarudny's worm lizard		
Leptotyphlopidae	<i>Leptotyphlops macrorhynchus macrorhynchus</i>	Hook-nosed thread snake		
Boidae	<i>Eryx jayakari</i>	Jayakar's sand boa		
	<i>Platyceps ventromaculatus</i>	Gray's racer snake		
	<i>Platyceps rhodorachis</i>	Wadi racer		
Colubridae	<i>Lytorhynchus diadema</i>	Crowned leaf-nosed snake		
	<i>Malpolon moilensis</i>	Hooded malpolon		
	<i>Psammophis schokari</i>	Schokari sand racer		
	<i>Spalerosophis diadema cliffordii</i>	Clifford's diadem snake		
	<i>Telescopus dhara</i>	Arabian cat snake		
	<i>Cerastes gasperettii</i>	Arabian horned viper		
Viperidae	<i>Pseudocerastes persicus persicus</i>	Persian horned viper		
	<i>Echis carinatus sochureki</i>	Sindh saw-scaled viper		
	<i>Echis omanensis</i>	Oman saw-scaled viper		

Source: Environment Agency - Abu Dhabi.

Table (4): Terrestrial native mammal species recorded in Abu Dhabi Emirate – 2012

Order	Family	Scientific name	Common English name
Artiodactyla	Bovidae	<i>Oryx leucoryx</i>	Arabian oryx
		<i>Gazella subgutturosa marica</i>	Sand gazelle
		<i>Gazella gazella cora</i>	Mountain gazelle
		<i>Hemitragus jayakari</i>	Arabian tahr
Carnivora	Felidae	<i>Panthera pardus nimr</i>	Arabian leopard
		<i>Caracal caracal schmitzi</i>	Caracal lynx
		<i>Felis silvestris gordonii</i>	Gordon's wildcat
		<i>Felis margarita</i>	Sand cat
	Canidae	<i>Canis lupus arabs</i>	Wolf
		<i>Vulpes vulpes arabica</i>	Red fox
		<i>Vulpes cana</i>	Blanford's fox
Hyaenidae	<i>Hyaena hyaena</i>	Striped hyaena	
Mustelidae	<i>Mellivora capensis</i>	Ratel/ Honey badger	
Herpestidae	<i>Ichneumia albicauda</i>	White-tailed mongoose	
Chiroptera	Pteropodidae	<i>Rousettus aegyptiacus</i>	Egyptian fruit bat
	Rhinopomatidae	<i>Rhinopoma muscatellum</i>	Muscat mouse-tailed bat
	Hipposideridae	<i>Triaenops persicus</i>	Persian leaf-nosed bat
	Hipposideridae	<i>Asellia tridens</i>	Trident leaf-nosed bat
	Vespertilionidae	<i>Otonycteris hemprichii</i>	Hemprich's long-eared bat
	Vespertilionidae	<i>Eptesicus nasutus</i>	Sind serotine bat
	Vespertilionidae	<i>Pipistrellus kuhlii</i>	Kuhl's pipistrelle
	Emballonuridae	<i>Taphozous nudiventris</i>	Naked bellied tomb bat
Erinaceomorpha	Erinaceidae	<i>Hemiechinus hypomelas</i>	Brandt's hedgehog
	Erinaceidae	<i>Hemiechinus aethiopicus</i>	Ethiopian hedgehog
	Erinaceidae	<i>Hemiechinus auritus</i>	Long-eared hedgehog
Lagomorpha	Leporidae	<i>Lepus capensis</i>	Cape hare
Rodentia	Muridae	<i>Acomys cahirinus</i>	Egyptian spiny mouse
		<i>Gerbillus dasyurus</i>	Wagner's gerbil
		<i>Gerbillus nanus</i>	Baluchistan gerbil
		<i>Meriones crassus</i>	Sundevall's jird
		<i>Meriones arimalius</i>	Arabian jird
		<i>Gerbillus cheesmani</i>	Cheesman's gerbil
	Dipodidae	<i>Jaculus jaculus</i>	Lesser jerboa
Soricomorpha	Soricidae	<i>Suncus etruscus</i>	Savi's pygmy shrew

Source: Environment Agency - Abu Dhabi.

Table (5): Terrestrial introduced mammal species recorded in Abu Dhabi Emirate - 2012

Order	Family	Scientific name	Common English name
Carnivora	Felidae	<i>Felis catus</i>	Feral cat
	Herpestidae	<i>Herpestes edwardsii</i>	Indian grey mongoose
Artiodactyla	Bovidae	<i>Capra aegagrus aegagrus</i>	Wild goat
Rodentia	Muridae	<i>Mus musculus</i>	House mouse
		<i>Rattus norvegicus</i>	Brown rat
		<i>Rattus rattus</i>	Black rat
Hyracoidea	Procaviidae	<i>Procavia capensis</i>	Cape hyrax/Rock hyrax
Soricomorpha	Soricidae	<i>Suncus murinus</i>	House shrew

Source: Environment Agency - Abu Dhabi.

Table (6): Terrestrial domesticated mammal species recorded in Abu Dhabi Emirate - 2012

Order	Family	Scientific name	Common English name
Perissodactyla	Equidae	<i>Equus asinus</i>	Feral donkey
Artiodactyla	Bovidae	<i>Capra aegagrus hircus</i>	Feral domestic goat
Artiodactyla	Bovidae	<i>Camelus dromedarius</i>	Camel
Carnivora	Canidae	<i>Canis lupus familiaris</i>	Feral dog

Source: Environment Agency - Abu Dhabi.

Explanatory Notes

Glossary

This report contains certain terms specific to biodiversity and necessary when analyzing biodiversity statistics of Abu Dhabi Emirate. They include the following terms:

Scientific Name

A method used for naming living organisms formed by the combination of two terms; the first is the genus of the organism and the second is its species name.

Native Species

Native or Indigenous mean a species occurring within its natural range (past or present) and dispersal potential, i.e. within the range it occupies naturally or could occupy without direct or indirect introduction or care by humans (IUCN).

Introduced Species

Non-indigenous or exotic species transported intentionally or accidentally by humans into habitats outside its native range.

Scientific Classification

Scientific taxonomy used to categorize organisms according to its common characteristics.

This report includes the following categories:

- **Phylum**

One of the taxonomic groups of organisms, containing related classes; related phylum are grouped into kingdom (IUCN).

- **Class**

One of the taxonomic groups of organisms, containing related orders; related classes are grouped into phyla (IUCN).

- **Order**

One of the taxonomic groups of organisms, containing families; related orders are grouped into classes (IUCN).

- **Family**

Taxonomic category used in the classification of living beings in order to group one or several similar genders that are supposed to be closely related. Normally, the characteristics used to designate the families are easily observable (IUCN).

– **Genus (plural: genera)**

One of the taxonomic groups of organisms, containing related species; related genera are grouped into families (IUCN).

– **Species**

All the individuals and populations of particular kind of organism, maintained by biological mechanisms that result in their breeding only with their own kind (United Nations, 1997).

Biodiversity

The range of genetic differences, species differences and ecosystem differences in a given area (United Nations, 1997).

IUCN red list

The IUCN Red list classification consists of the following categories:

– **Extinct (EX)**

A species is Extinct when there is no reasonable doubt that the last individual has died. A species is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), and throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the species's life cycle and life form (IUCN, 2001).

– **Extinct in the wild (EW)**

A species is Extinct in the wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A species is presumed extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), and throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the species's life cycle and life form (IUCN, 2001).

– **Threat Categories**

Threat categories include the three threat categories: Endangered (CR), Endangered (EN) and Vulnerable (VU).

Species is classified into Critically Endangered (CR), Endangered (EN) or Vulnerable (VU) when its best available evidence meet one of the five criteria (A to E) of each category (see part five of the IUCN categories and criteria in the sources), which indicates that its facing an extremely high risk of extinction in the wild in the immediate future (IUCN, 2001).

– **Near Threatened (NT)**

A species is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future (IUCN, 2001).

– **Least Concern (LC)**

A species is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category (IUCN, 2001).

– **Data Deficient (DD)**

A species is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A species in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution is lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate (IUCN, 2001).

– **Not Evaluated (NE)**

A species is Not Evaluated when it has not yet been assessed against the criteria (IUCN, 2001).

Protected Areas

An area of land and/or sea especially dedicated to the protection of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means (IUCN).

Vascular plants

Plants which have vascular tissues (xylem and phloem) to transport water and nutrients throughout the plants' body. The vascular system is composed of elements like leaves, roots and stems. Gymnosperms, angiosperms (flowering plants) and ferns are all examples of vascular plants.

Ecosystem

System in which the interaction between organisms and their environment generates a cyclic interchange of materials and energy (United Nations, 1997).

Over-Exploited (OE)

Over-exploitation refers to irresponsible overfishing by increasing fishing capacities (number of boats, fishing equipment or time dedicated for fishing) which has excessive adverse impact on fish reserves. This will decrease the fish stock in such a negative way affecting its ability to renew itself naturally.

Exploitation within Sustainable Limit (WSL)

Exploitation within sustainable limit refers to fishing which maintains the population of fish stock so that exploitation does not affect its reproductive ability and genetic diversity.

Data sources

Data are obtained from The Environment Agency – Abu Dhabi. The data are processed and passed to Statistic Centre – Abu Dhabi for further editing and compilation.

Technical notes

Methodology adopted

All numbers and figures on biodiversity statistics relied on data received from the Environment Agency – Abu Dhabi according to the latest updates carried out in mid-2012. Statistics Centre – Abu Dhabi has then processed the data to produce the statistics and tables of this report.

Total Number of Known species refers to the total number of a particular type of species known, described and documented in a given class in a particular country or region (Abu Dhabi Emirate). Total number of known mammals and reptiles recorded include marine species. Total number of known bird species recorded includes residential and migratory bird species.

Total Number of threatened species refers to the total number of species facing a higher risk of global extinction or/and local extinction; those which are critically endangered (CR), endangered (EN), or vulnerable (VU) in the IUCN Red List and/or Local Red List.

Number of threatened species should be interpreted as the number of species known to be threatened within those that have been assessed to date; there are still species that have not yet been assessed.

Extinction is a chance process. Thus, a listing in a higher extinction risk category implies a higher expectation of extinction, and over the time-frames specified more taxa listed in a higher category are expected to go extinct than those in a lower one (without effective conservation action). However, the persistence of some taxa in high-risk categories does not necessarily mean their initial assessment was inaccurate (IUCN, 2001).

Abbreviations used

EX:	Extinct
EW:	Extinct in the wild
CR:	Critically Endangered
EN:	Endangered
VU:	Vulnerable
NT:	Near Threatened
LC:	Least Concern
DD:	Data Deficient
NE:	Not Evaluated
OE:	Over-Exploited
WSL:	Exploitation within Sustainable Limit
IUCN:	International Union for Conservation of Nature
na:	Not Available

Symbols used

“>” number in reality exceeds what is documented in table.

Notes on tables

All tables in this publication relate to the Emirate of Abu Dhabi as per the latest update carried out in mid-2012.

More information and next release

For more information about environment & waste and other official statistics, please visit the statistics link on the SCAD website at <http://www.scad.ae>

The next release is expected in December 2017.

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