



UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT

POLICY BRIEF

**UAE National Red List of herpetofauna:
amphibians and terrestrial reptiles, sea snakes
and marine turtles**

2019

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This UAE National Red List of amphibians and terrestrial reptiles, sea snakes and marine turtles, undertaken for the Ministry of Climate Change and Environment (MoCCaE) of the UAE, provides the most up-to-date information on the conservation status and distribution of terrestrial and marine herpetofauna in the UAE. It serves as an information cornerstone for policy and priority-setting, such as through refinement and expansion of the protected areas network, and the protection of marine and terrestrial habitats, and in meeting the UAEs commitments to international environmental agreements.

KEY MESSAGES

- The Red List Index (RLI) score for the 2018 assessment of the herpetofauna of the UAE is 0.92. This score indicates that the herpetofauna are much less threatened than mammals, both globally and in the UAE.
- Nearly one-fifth of herpetofauna species for which sufficient data are available in UAE terrestrial and marine territorial areas are threatened (species assessed as Critically Endangered, Endangered and Vulnerable) with extinction.
- Of the **57 terrestrial reptile taxa considered native to the UAE for which sufficient data are available, 17% are threatened**, some having small distributions and facing a range of threats.
- Both amphibian species present in the UAE are considered to be Least Concern at present.
- The **sea snakes represent the least-well understood group in the UAE; five species out of the eight are considered Data Deficient**, with some species known from just a handful of specimens, often the result of coastal stranding.
- **Both resident species of sea turtle (*Chelonia mydas* and *Eretmochelys imbricata*) are threatened**, whilst the other three species are considered Data Deficient and occur in UAE waters occasionally
- Without immediate action, the UAE faces the loss of this biodiversity.



Overview

There is an urgent need to understand the status of biodiversity within the United Arab Emirates, to inform conservation policy and decision-making within the UAE. Biodiversity data assists with national level reporting for multilateral environmental agreements (MEAs).

Until now, there has been a lack of information on the status of biodiversity in the UAE. Where that information does exist, it is scattered and sometimes hard to access. This UAE Red List for herpetofauna (amphibians and terrestrial reptiles, sea snakes and marine turtles) was undertaken to bring together in one place the combined knowledge of experts from the UAE and internationally to assess the risk of extinction of the herpetofauna of the UAE (the UAE Red List), and to produce a baseline to understand the long-term trends in the extinction risk of herpetofauna (the Red List Index datapoint) that occur in the marine and terrestrial territory of the country.

At the request of MoCCaE, IUCN compiled the available data on each species of herpetofauna recorded from the marine and terrestrial territory of the UAE and produced draft maps of the distribution of these species in the UAE. Following preliminary review by experts in the UAE, an assessment workshop was held in Dubai 2018. The draft assessments then went through a final stage of peer review prior to finalisation by IUCN.



Background

The United Arab Emirates contain a diversity of desert, mountain and marine habitats, with 72 species of native herpetofauna (terrestrial amphibians and reptiles, sea snakes and marine turtles) recorded to date. Of these, only one species (*Asaccus caudivolvulus*, the Emirati Leaf-toed Gecko) is endemic to the UAE, where it is known from just two localities on the east coast. A further 13 species are endemic to the Hajar Mountain range (shared with Oman) and there are 20 species that are endemic to the Arabian Peninsula. Three terrestrial reptiles (*Indotyphlops braminus*, *Hemidactylus flaviviridis*, *Chalcides ocellatus* ssp. *ocellatus*) are present in the UAE but are considered to have been introduced to the country, and one sea snake (*Hydrophis viperinus*) was found to have no confirmed records within the UAE.

Many of these species provide indirect benefits to people, such as through tourism and sustaining natural ecosystems, and form an important component of the rich natural heritage of the UAE. However, terrestrial and marine habitats, especially coastal areas, are being impacted by a range of threats – especially urban, industrial and tourism development. Fortunately, the UAE has a well-developed network of protected areas and these protect key sites for some species. But not all species are known to occur within protected areas, and the distribution of most marine species, especially the sea snakes, is not well understood.

This *UAE National Red List of Herpetofauna*, undertaken for the Ministry of Climate Change and Environment (MoCCaE) of the UAE, provides the most up-to-date information on the conservation status and distribution of marine and terrestrial herpetofauna in the UAE. Information on the status and distribution of mammals in the UAE can be applied to:

- **Improving** their representation within protected area networks through the expansion of existing protected areas and the designation of new ones.
- **Guiding** the management of existing protected areas for mammals.
- **Informing** Environmental Impact Assessments.

Methodology

At the request of MoCCaE, IUCN (The International Union for Conservation of Nature) produced the list of species for inclusion in the UAE Red List and compiled draft distribution maps for each species, as well as data on their distribution in the UAE, their population size and trend, habitat needs and ecology, and the threats that the species and their habitats face. This information underwent initial review by experts in the UAE, followed by a National Red List Assessment workshop (Dubai, September 2018) where experts from across the UAE came together to assign each species to one of nine IUCN Regional Red List categories (Figs. 1 and 2). In contrast to the mammals in the UAE, a retrospective assessment for 1996 was not produced because of the absence of data on the historical distribution and status of herpetofauna. Thus a Red List Index datapoint for 2018 was produced, not a full index.

Following a further stage of internal review by IUCN and peer review by UAE experts, the assessments and distribution maps were published by MoCCaE.

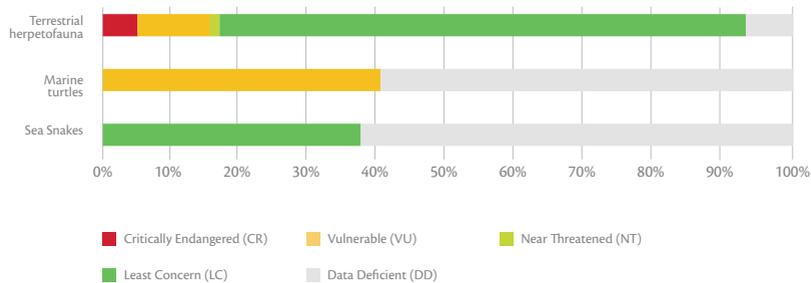


Figure 1. Extinction risk of herpetofauna assessed for the UAE National Red List: percentage of taxa within each IUCN Red List Category.

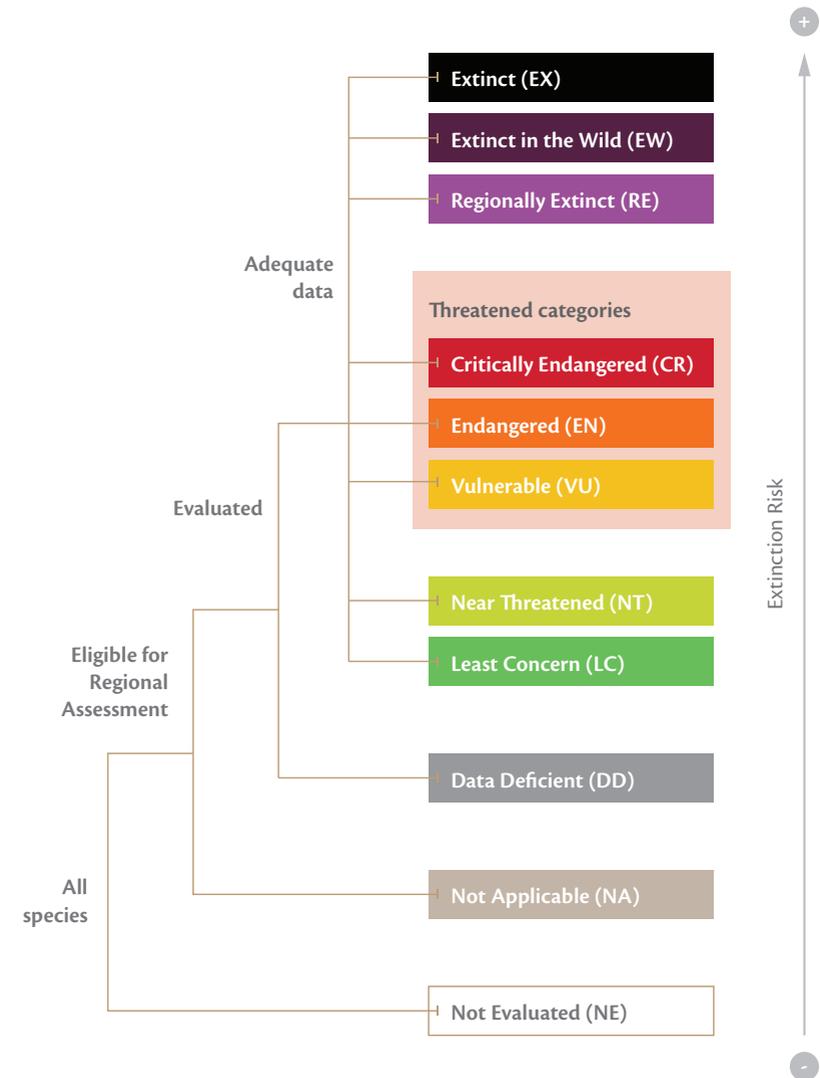


Figure 2. IUCN Red List Categories at the regional scale.



OUTCOMES

Threatened species – priorities for conservation action

All terrestrial and marine herpetofauna considered native to the UAE were assessed for their risk of extinction using The IUCN Red List of Threatened Species™ regional Categories and Criteria (Fig. 1), and their distributions within the UAE mapped. This represents **the first comprehensive assessment of herpetofauna** for the UAE (Fig. 2).

Terrestrial reptiles and amphibians

Two amphibians and 57 species of terrestrial reptiles were considered native to the UAE.

17% of all terrestrial reptiles are threatened with extinction – see the full report for more details on this statistic. This level of threat is high in comparison with the 2012 Arabian Peninsula assessment through which just 6.7% of species for which sufficient data are available were found to be threatened. The terrestrial herpetofauna are relatively well understood, with only four species considered Data Deficient. Species richness is highest in the Hajar Mountains however threatened species are concentrated on the offshore islands and on the gravel plains.

The two species of toads (*Duttaphrynus dhufarensis* and *Sclerophrys arabica*) are widespread throughout much of their range on gravel plains and rocky habitats in the Hajar Mountains.

Marine reptiles – the turtles and sea snakes

Of all the reptiles within the UAE, the sea snakes are among the most specialized, yet least studied of all snake species, despite their wide global distributions. Of the eight species confirmed as present in the UAE, **three sea snakes were assessed as Least Concern while five were considered Data Deficient**. The distribution of sea snakes in general is very poorly known, with only occurrence of the east coast benefiting from consistent survey as a result of work undertaken by the Al Mayya Sanctuary, Fujairah.

The picture is similar for the marine turtles, with three of the five species recorded for the UAE considered Data Deficient, highlighting the need for further research and monitoring. The other two turtles, both confirmed to nest within the UAE, were assessed as Vulnerable. The Hawksbill Turtle qualified as VU because of its restricted distribution and population size. Whilst its current population trend is considered to be stable, some nesting sites have been lost and others are at risk, and it is essential that the species benefits from further research and monitoring to understand the structure and movement of subpopulations within the Arabian Gulf, and the species might well qualify for the Endangered category on the basis of actual or future declines in the numbers of mature individuals.

Species information remains very limited for marine species in the UAE EEZ with **nearly two-thirds (62%) assessed as Data Deficient (DD)**, meaning there was insufficient knowledge to assess their extinction risk. Given the range of threats observed across the hotspot it is reasonable to expect that some of these DD species are also threatened. **There is therefore an urgent need for new field research** to better understand these species' distributions, taxonomy and population trends. Without this knowledge it will be difficult to ensure the future survival of these species.

This level of threat significantly exceeds that recorded for reptiles from the Arabian Peninsula, where 6.7% of species for which sufficient data are available were found to be threatened (Cox *et al.* 2012).

Threats to herpetofauna in the UAE

Human activities were identified as major threats to terrestrial herpetofauna in the UAE and include: i) **Development, primarily urban infrastructure**, is considered to be the greatest threat in the UAE; ii) **Persecution and control**, primarily relating to snakes; iii) **Mining and quarrying**; and iv) **Road construction and mortality on roads**.

For the marine species, the following were identified as the primary threats; (i) **Pollution**: light pollution affects both threatened marine turtles, whilst oil spills and marine debris (abandoned fishing gear and garbage) impacts all marine species; (ii) **Coastal development**: recreational and urban infrastructure developments; (iii) **Fishery activities**: all marine species are affected by accidental capture as bycatch; (iv) **Shipping mortality**: boat-strike by commercial and recreational vessels is a significant but unquantified threat to, especially, the marine turtles; (v) **Recreational and tourism activities**: marine turtle nesting beaches are impacted through disturbance and egg and young mortality.



MANAGEMENT AND CONSERVATION RECOMMENDATIONS

Amphibians

Both species of amphibians within the UAE occur within protected areas with stable populations that require no direct conservation actions at present.

- Further research into amphibian life history is required in the UAE.
- The amphibian disease chytridiomycosis, caused by the chytrid fungus *Batrachochytrium dendrobatidis*, was not detected in surveys of wild populations in the UAE in 2012 however, ongoing surveillance for this disease is needed.
- Despite both species of amphibians being assessed as Least Concern, they must remain part of conservation efforts due to the species dependence for reproduction in freshwater habitats, which are limited within their natural range and under threat from overutilization.

Terrestrial reptiles

The majority of the UAE terrestrial reptiles require no direct conservation measures with most of the widespread species occurring within one or more protected areas across their distribution ranges.

- It is recommended that the existing legislation for environmental impact assessments prior to development should be fully implemented to limit or avoid the degradation of ecologically sensitive areas through local and national authorities.

The terrestrial reptile species *Eryx jayakari*, *Uromastyx aegyptia leptieni*, *Uromastyx aegyptia microlepis* and *Varanus griseus* are listed as Appendix II under CITES. In the UAE, the following species are listed as protected under Federal Law Nos. 23 and 24 (1999) and No. 11 (2002): *Uromastyx aegyptia* ssp. *leptieni*, *Uromastyx aegyptia* ssp. *microlepis*, *Varanus griseus*, *Stenodactylus slevini*, *Pristurus rupestris*.

The habitat of *Asaccus caudivolvulus*, the only vertebrate that is endemic to the UAE, is under severe transformation pressure.

- The preservation of its habitat is recommended to ensure the future survival of this species.
- *Pristurus carteri* is not recorded within any protected area.
- The species will require site protection and research into its population trends to prevent biodiversity loss for the UAE.
- *Teratoscincus keyserlingii* is known from four protected areas across its range in the UAE.
- It is important that the conservation action plan (Soorae *et al.* 2017) for the species is implemented.
- Sabkha habitats within the UAE, the primary habitat for *Pseudoceramodactylus khobarensis*, are a frequent target for development.
- Habitat and population monitoring is required for this species.

Acanthodactylus blandfordii populations have benefited from the designation of the Alquarm protected area in Sharjah. Prior to that, threats included recreational activities, fisheries activities and recreational driving on the dunes, which had a significant impact on the species.

Mesalina brevirostris is known from some protected areas but the species requires additional coastal area protection on the mainland to prevent further declines in its population throughout its wider known distribution range within the UAE.

- *Mesalina brevirostris* requires the designation of further protected areas within its distribution.

Ptyodactylus ruusaljibalicus is not known to occur in any protected areas and within the UAE and it is limited to a small geographical area that will require protection in the near future.

- *Ptyodactylus ruusaljibalicus* requires the identification of protected areas.
- *Pseudocerates persicus* requires monitoring in trade and collection from the wild, and further population size, trend and ecological studies are required.
- *Platycephalus ventromaculatus* requires additional research into its population status and will benefit from site protection on the islands it occupies. Sea snakes

There are no species-specific conservation measures in place for any of the species with only two confirmed records within any of the marine protected areas in the UAE. None of the sea snakes are currently protected under any laws nationally or internationally. There is ongoing research into sea snakes on the east coast of the UAE carried out by Al Mayya Sanctuary, Fujairah.

- A research priority in the UAE is for a better understanding of the distribution of the species in the UAE EEZ, as well as their habitat requirements, population size and trend.

Marine turtles

The marine turtle species are all protected under Appendix I of CITES and under the Convention on the Conservation of Migratory Species of Wild Animals (CMS). In the UAE, the species is protected under Federal Law Nos. 23 and 24 (1999) and No. 11 (2002), and a National Plan of Action for Marine Turtles has been developed. *Chelonia mydas* is the focus of ongoing studies in the UAE, including satellite flipper tagging projects to understand its migration and movements within the UAE marine areas. There are education and rehabilitation projects, and the species occurs frequently in protected areas. Two species of marine turtles, *Eretmochelys imbricata* and *Chelonia mydas*, are known from marine protected areas.

Eretmochelys imbricata is benefiting from a research project funded by the Mohamed bin Zayed Species Conservation Fund. The project, the Marine Turtle Conservation Project was launched by Emirates Nature-WWF and is using satellite transmitters to understand turtle movements and habitat requirements. Sir Bu Na'ir Island (Sharjah) is an IOSEA (Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia) Marine Turtle site and a protected area. Breeding beaches for this species are also located within the Marawah marine biosphere reserve, which was designed to protect key sites for marine turtles. There is a need to undertake further research in order to understand the threats, distribution and population trends for this species in UAE waters. In particular, more data, through tracking studies, for example, is needed to understand habitat use and movements so that key areas and habitats can be protected, and it is recommended that this species should be reassessed when these data become available. *Eretmochelys imbricata* in particular requires ongoing research and monitoring, and it is essential that all its nesting sites benefit from effective conservation and protection.

Red List Index

The Red List Index (RLI) score for the 2018 assessment of the herpetofauna of the UAE is 0.92, where a score of 1 indicates that all species are Least Concern, and the lower the value the faster the set of species is heading toward extinction. This score indicates that the herpetofauna are much less threatened than the mammals of the UAE, which had a score of 0.63 in the 2018 UAE National Red List assessment. However, the threatened species require continued conservation action as they play a vital role in the health of the UAE's ecosystems. The information compiled in the UAE National Red List of Herpetofauna, combined with political will and subsequent action, can help to ensure the long-term survival of these species in the UAE.

KEY RECOMMENDATIONS

This report finds that:

- The *UAE National Red List of Herpetofauna* should be repeated on a regular basis, ideally every ten years.
- Regularly reassessing species can provide an accurate assessment of long-term trends through the development of a Red List Index for the UAE. Such national-level information can help to ensure the enduring survival of these species in the UAE.
- The UAE National Red List of Herpetofauna should be repeated so that a Red List Index can be produced and contribute to CBD and SDG reporting. It is important to maintain the high index score through targeted conservation actions and research into Data Deficient species.
- This information can and should be used for national reporting for the UAE's commitments to the MEAs, including CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), Ramsar (Convention on Wetlands of International Importance), CMS (Convention on the Conservation of Migratory Species of Wild Animals), and notably, the Convention on Biological Diversity (CBD), where several opportunities exist:
 - Progress of national implementation of Aichi Biodiversity Target 12 (*Species extinction and recovery*).
 - In the 6th National Report for the UAE.
 - Reporting on relevant targets of the *UAE National Biodiversity Strategy and Action Plan (2014)*.
 - Targets for the Sustainable Development Goals, notably: Target 14.1 to prevent and significantly reduce marine pollution of all kinds;
 - Target 14.2 to sustainably managing and protecting marine and coastal ecosystems;
 - Target 14.4 to regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices;

- Target 14.5 to conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information;
- Target 15.1 for the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, and;
- Target 15.5 for urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.

Capacity building

Capacity must be increased to ensure government bodies (national to local) are able to capitalise upon this new information on herpetofauna biodiversity through training in the application of biodiversity data sets to species and site-based management and enforcement activities.

Environmental safeguards

The data made available through the *UAE National Red List of Herpetofauna* should inform the Performance Standards and Environmental Safeguard policies of the UAE private sector to help avoid or minimise impacts of their operations in and around areas containing threatened species. Civil society can play a key role in research, monitoring, conservation planning and action, and in educating fishers and local communities

Harmonisation of environmental policies

Environmental policy needs to be better integrated and coordinated across sectorial policies such as the extractive industries, urban planning, energy and agriculture to avoid contradictory regulatory objectives and inconsistent financial initiatives. Without such coordination, herpetofauna species and ecosystems will continue to decline.

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Where can I get more information?

Read the full report: Els *et al.* 2019. *UAE National Red List of Herpetofauna: amphibians and terrestrial reptiles, sea snakes and marine turtles*
<https://bit.ly/2rbnp9n>

Visit the UAE National Red List portal: gis.moccae.gov.ae

Contact MoCCaE: biodiversity@moccae.gov.ae

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