



UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT

TECHNICAL REPORT

UAE National Red List of Birds

2021

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Burfield, I.J., Westrip, J., Sheldon, R.D., Hermes, C., Wheatley, H., Smith, D., Harding, K.A. Allen, D.J. and Alshamsi, O.

James Westrip, Kate Harding, and David Allen

Reviewed by MoCCaE Biodiversity Department: Ahmed Mashli, Hassina Ali, Hiba Alshehhi, Maitha Al Mheiri, Muna Alshamsi, Nahla Noobi, Obaid Alshamsi, Reem Al Mheiri

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This publication has been prepared by BirdLife International and IUCN as a deliverable of the National Red List of the United Arab Emirates project (2018–2020), funded by the Ministry of Climate Change and Environment (MOCCAE) of the United Arab Emirates.

Published by: Ministry of Climate Change and Environment (MOCCAE), Dubai, United Arab Emirates.

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Citation : Burfield, I.J., Westrip, J., Sheldon, R.D., Hermes, C., Wheatley, H., Smith, D., Harding, K.A. Allen, D.J. and Alshamsi, O. 2021. UAE National Red List of Birds. Ministry of Climate Change and Environment, Dubai, United Arab Emirates.

Design and layout: MOCCAE

Collared Kingfisher *Todiramphus chloris kalbaensis* (Oscar Campbell)

Egyptian Vulture *Neophron percnopterus* (Ahmed Al Ali)

White-tailed Lapwing *Vanellus leucurus* (Ahmed Al Ali)

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Acknowledgements

We would like to thank the many experts who have contributed to the UAE National Red List of Birds species assessments and distribution maps. We would especially like to acknowledge the invaluable inputs of the participants in the National Red List Assessment Workshop in Dubai in July 2019, where these assessments were finalised. Participants are cited in the individual species assessments and are listed in full in Appendix 3. A number of experts from within and outside the UAE also contributed during review stages before and after the assessment workshop, and we thank them too.

This assessment would not have been possible without the close collaboration of the Emirates Bird Records Committee (EBRC), whose willingness to share records from their extensive database was essential. Thanks are due to all the birdwatchers, both residents and visitors, in the UAE who have submitted records to the EBRC down the years and supplied the data that underpinned this analysis. We are particularly grateful to Colin Richardson and Tommy Pedersen (past and present UAE Bird Recorders), and to Oscar Campbell and Maxim Koshkin (for help with the initial data collation). Oscar Campbell, Colin Richardson, and Richard Porter also served as expert reviewers of the collated data.

Thanks also to Salim Javed (Environment Agency – Abu Dhabi) and Wetlands International for help with providing various unpublished data, including counts from the International Waterbird Census.

From BirdLife International, we thank many colleagues (past and present) for their assistance with this project, particularly Gen Berry, Stuart Butchart, Nicola Elliott, Mike Evans, Richard Grimmett, Melanie Heath, Sharif Jbour, Vicky Jones, and Andy Symes. From IUCN, we thank Craig Hilton-Taylor and Richard Jenkins, as well as Tristan Folland, who helped edit the maps in a voluntary capacity. Thanks also to Lizzie Sparrow, Leventis Library Manager at the David Attenborough Building in Cambridge, for helping source relevant materials and allowing us to use them for many months.

Finally, we thank all the photographers who have contributed photographs to this report (especially Oscar Campbell and Ahmed Al Ali) and to the individual species assessments. All images are credited to the photographer.



Lichtenstein's Sandgrouse *Pterocles lichtensteinii* (Ahmed Al Ali)

Executive Summary

The United Arab Emirates (UAE) contains a diversity of desert, mountain, coastal, anthropogenic, and marine habitats, within which some 460 bird species have been recorded. However, many of these species are irregular visitors or vagrants, while others have been introduced. Around 90 naturally occurring species breed in the country, of which around 70 are resident, and a similar number of species occur regularly as non-breeding visitors during the Northern-Hemisphere winter. As a relatively small country, the UAE does not hold any nationally endemic bird species, but it does support several species that are endemic or near-endemic to the Arabian Peninsula.

The conservation status of an agreed list of regularly and naturally occurring breeding, resident, and/or wintering bird species was assessed at the scale of the UAE at the National Red List of Birds Assessment Workshop, held in Dubai from 6 to 9 July 2019, through the application of the International Union for Conservation of Nature (IUCN) Red List Categories and Criteria at the national scale. The full dataset, comprising individual species assessments, supporting information, and distribution maps, is available online at <https://gis.moccae.gov.ae>

Of the 167 species assessed, 89 (53%) are classified as nationally threatened (i.e., Critically Endangered, Endangered, or Vulnerable). A further 23 species (14%) are considered Near Threatened, with 55 species (33%) evaluated as Least Concern. Among the most highly threatened species in the UAE are a significant number of raptors, including eagles, vultures, falcons, and owls, as well as multiple species of waders, terns, and larks. Of the 28 Critically Endangered species, five are considered Possibly Extinct in the UAE. The distribution of threatened bird species is similar to that of all bird species overall, with

concentrations along both coasts, especially in the north and east, and in mountainous areas.

Residential and commercial development is considered the most prevalent threat to birds in the country, affecting 62% of the species assessed. Pollution, principally in the form of oil spills, is regarded as posing a threat to 56% of species. Biological resource use also affects many species, but this requires careful interpretation: 48% of threatened species are considered to be impacted by hunting and trapping activities, but this relates mainly to activities outside the UAE that affect visiting bird populations.

The Red List Index (RLI) calculated for the period from 1996 to 2019 shows that overall, the birds of the UAE are more threatened than the global average, but that there has been a small improvement since 1996, reflected in the greater number of species whose status has genuinely improved than those whose status has deteriorated. Improvements seem to have been driven primarily by the increased availability of inland wetland and artificial aquatic habitats, while deteriorations are consistent with rapid land use change and development.

Conservation action to improve the status of threatened species in the UAE is essential to maintain this positive trend. Many species require further research into their life history and ecology to identify potential threats and help improve habitat management. Population monitoring must be strengthened and expanded, especially for terrestrial birds. Important areas for threatened species require greater protection and management. Above all, the information gathered through this assessment must be made available and effectively integrated in relevant national planning processes.



Wadi in Hajar Mountains (Oscar Campbell)



Mangroves at Kalba (Oscar Campbell)

Introduction

1. The United Arab Emirates context

The United Arab Emirates (UAE) is a federation of seven emirates (Abu Dhabi, Ajman, Dubai, Fujairah, Ras Al Khaimah, Sharjah, Umm Al Quwain) in the southeast of the Arabian Peninsula and on the southern side of the Arabian Gulf. The UAE lies between 22°35' and 26°25'N and 51°35' and 57°10' E. It shares land borders with Oman, Saudi Arabia, and Qatar, and has coastlines bordering the Arabian Gulf and Gulf of Oman (Figure 1).

The Hajar Mountains run north–south along the east of the UAE, rising to almost 2,000 m, and are composed of steep rocky peaks, slopes, and deeply incised wadis. The rest of the country consists of low-lying desert habitats, including extensive sand sheets and dunes, alluvial and interdunal gravel plains, and coastal and inland sabkhas (salt flats). In the southeast, an extensive area of sand dunes forms the northern edge of the Rub al Khali (Empty

Quarter). There are large oasis complexes at Liwa in the south and Buraimi–Al Ain on the UAE–Oman border. Anthropogenic habitats consist of irrigated farms, forest plantations, and urban areas. Commercial, industrial, and residential development has expanded greatly in the UAE during the past 30 years.

The Arabian Gulf coastline extends for about 650 km and is mainly low-lying with some rocky headlands and numerous small offshore islands. There is a range of sandy, sabkha, and beach rock habitats, with areas of mangrove forest dominated by *Avicennia marina*, with *Rhizospora mucronata* present in some locations. There are extensive seagrass beds in the subtidal zone and some coral reefs offshore. The coastal waters of the Arabian Gulf are relatively shallow. The east coast of the UAE, on the Sea of Oman, is about 70 km in length and is more rugged, with deep water lying much closer to the shore.

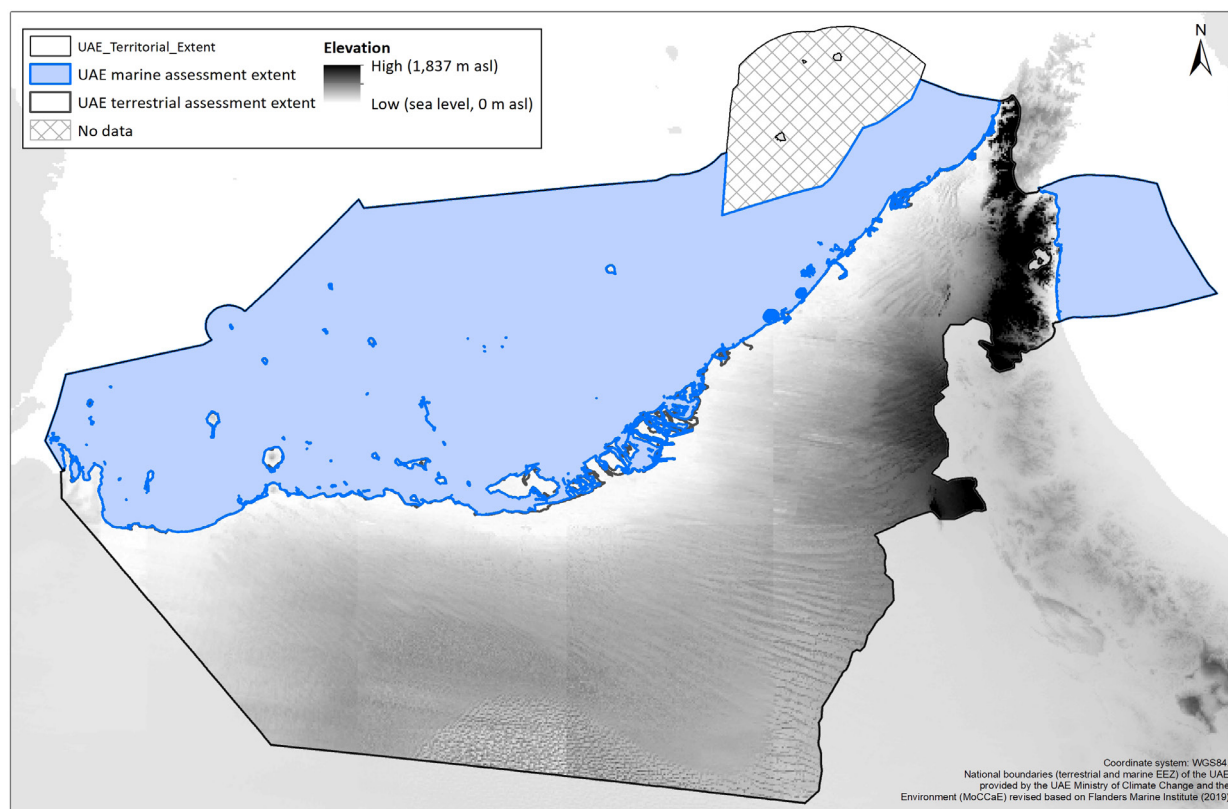


Figure 1. The UAE and its exclusive economic zone.

The climate of the UAE is characterised by hot summers and warm winters. Maximum temperatures in July and August may exceed 45°C on the coastal plain, while mean minimum temperatures are 10–14°C in January and February. Temperatures in the Hajar Mountains are lower

and decrease with elevation. Precipitation averages less than 120 mm in the lowlands but may reach 350 mm in the Hajar. However, there is wide annual variation in rainfall levels (Figure 2).

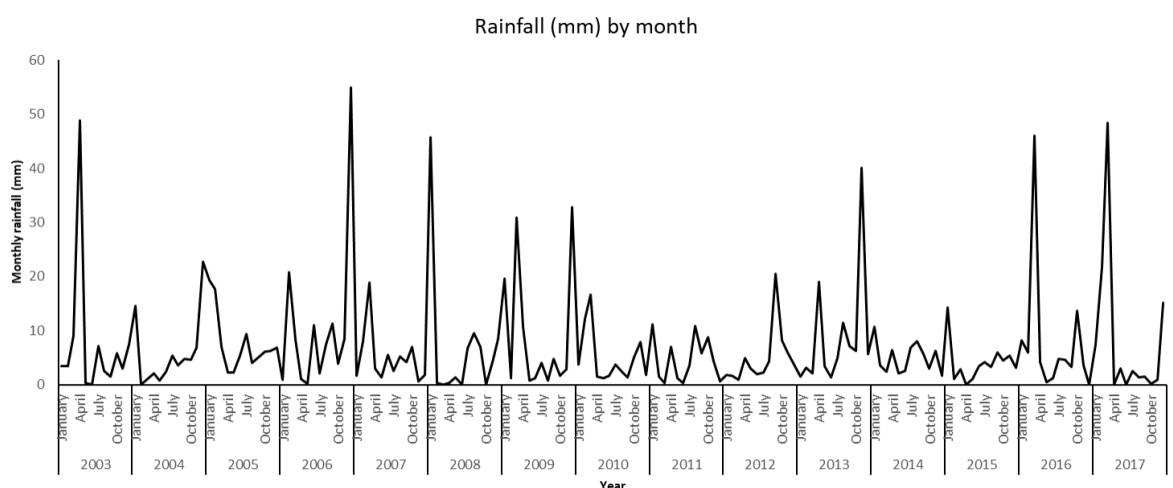


Figure 2. Monthly rainfall (mm), 2003 to 2017. Source: UAE 2019. Open Data Portal of the UAE Government.

The UAE's total human population (including nationals and expatriate residents) was estimated at just over 9.3

million in 2018, having more than tripled in the previous 20 years (Figure 3).

UAE human population size 1960 - 2018

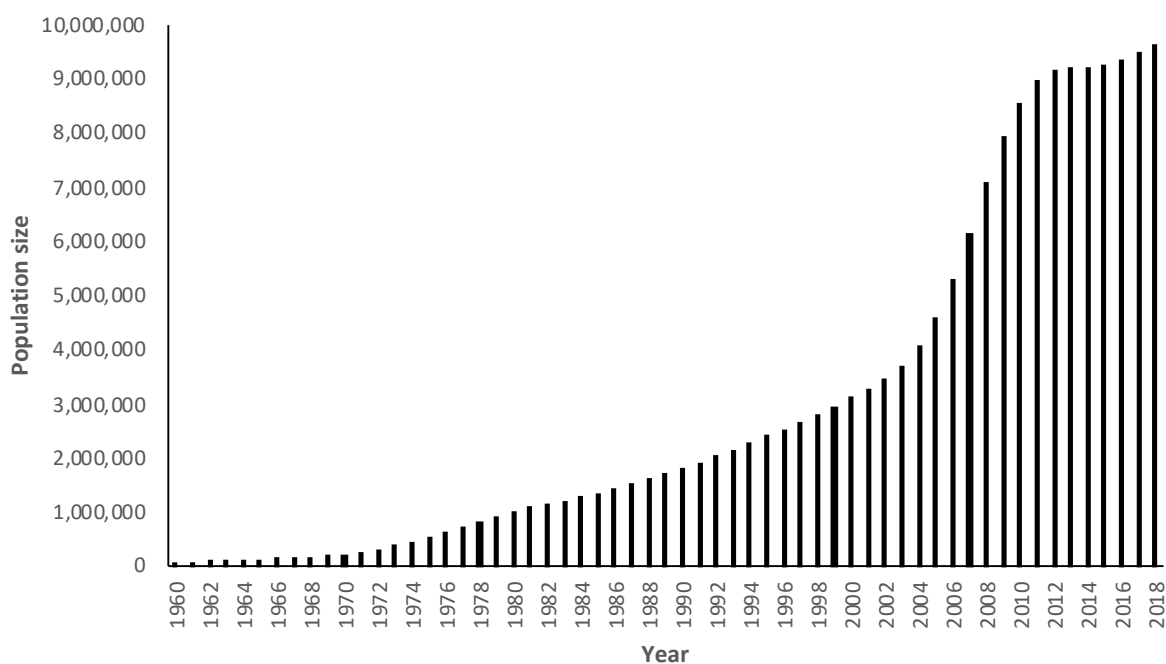


Figure 3. Estimated total human population of the UAE, 1960 to 2018. Source: World Bank. 2019. World Development Indicators, UAE.

1.2. Birds of the United Arab Emirates

Important standard texts on the birds of the country and wider region include (in order of publication): *The Birds of the United Arab Emirates* (Richardson 1990), *Status and Conservation of the Breeding Birds of the United Arab Emirates* (Aspinall 1996), *The Emirates: A Natural History* (Hellyer and Aspinall 2005), *The Breeding Birds of the United Arab Emirates* (Aspinall 2010), *Atlas of the Breeding Birds of Arabia* (Jennings 2010), *Birds of the United Arab Emirates* (Aspinall and Porter 2011), *The Conservation Status and Distribution of the Breeding Birds of the Arabian Peninsula* (Symes et al. 2015), and the *Emirates Bird Records Committee (EBRC) Annotated Checklist of the Birds of the United Arab Emirates* (Pedersen et al. 2017, with ongoing updates online). Other valuable sources of information on individual bird species include numerous articles and reports in *Sandgrouse*, *Tribulus*, *Zoology in the Middle East*, *EBRC Annual Reports on Birds in the UAE*, and other journals.

The official EBRC checklist (Pedersen et al. 2017) includes some 460 bird species that have either been recorded in the UAE in an apparently natural wild state on at least one

occasion, or were (probably) introduced by man and have subsequently established breeding populations that are now deemed self-sustaining. Almost half (41%) of these 460 species are passerines/songbirds (Passeriformes), 22% are waders/gulls/terns (Charadriiformes), 8% are raptors (Accipitriformes and Falconiformes), and 5% are ducks/geese/swans (Anseriformes). However, many of them are irregular visitors or vagrants. Around 90 naturally occurring species breed in the UAE, of which around 70 are resident.

As a relatively small country, the UAE does not hold any nationally endemic bird species, but it does support populations of variable importance of several regionally endemic or near-endemic species, including Socotra Cormorant *Phalacrocorax nigrogularis* (globally Vulnerable), Arabian Babbler *Argya squamiceps*, White-spectacled Bulbul *Pycnonotus xanthopygos*, Sand Partridge *Ammoperdix heyi*, Arabian Green Bee-eater *Merops cyanophrys*, and Crab-plover *Dromas ardeola*. In addition, the Kalba subspecies of Collared Kingfisher *Todiramphus chloris kalbaensis* is effectively endemic to the UAE.



Crab Plover *Dromas ardeola* (Oscar Campbell)

1.3. Assessment of species extinction risk

The IUCN Red List Categories and Criteria (IUCN 2012a) are designed to determine the relative risk of extinction of a taxon with the main purpose of cataloguing and highlighting those taxa that are facing an elevated risk of extinction. The IUCN Red List provides information on taxonomy, distribution, ecology, threats, and conservation status of taxa that have been evaluated using the IUCN Categories and Criteria. The IUCN Red List Categories are based on a set of quantitative criteria that are linked to population trends, size, and structure, and the geographic extent and distribution of species, as well as the threats they or their habitats face. There are nine categories, with species classified as Vulnerable (VU), Endangered (EN), or Critically Endangered (CR) collectively considered as threatened.

When conducting regional or national assessments, as in this UAE National Red List, the IUCN Red List Regional Guidelines (IUCN 2012b) are applied, with two additional

categories used: Regionally Extinct (RE) and Not Applicable (NA) (Figure 4). The Regionally Extinct category is used in the context of the scope of the assessment project, and so throughout this report, RE refers to a species that is extinct within the UAE but persists elsewhere in the wild across its global distribution.

As the extinction risk of a species can be assessed at global, regional (for example, the Arabian Peninsula), or national levels, a taxon may have a different Red List category in the global Red List than in the sub-global Red List. For example, a species that is common worldwide and classed as Least Concern (LC) in the global Red List could face a high level of threat in the UAE, and therefore be listed as threatened in the UAE National Red List. Following the regional guidelines (IUCN 2012b), adjustments to the initial category may be made if a species' regional/national extinction risk is affected by a potential 'rescue effect' by immigration from populations outside the region/country.

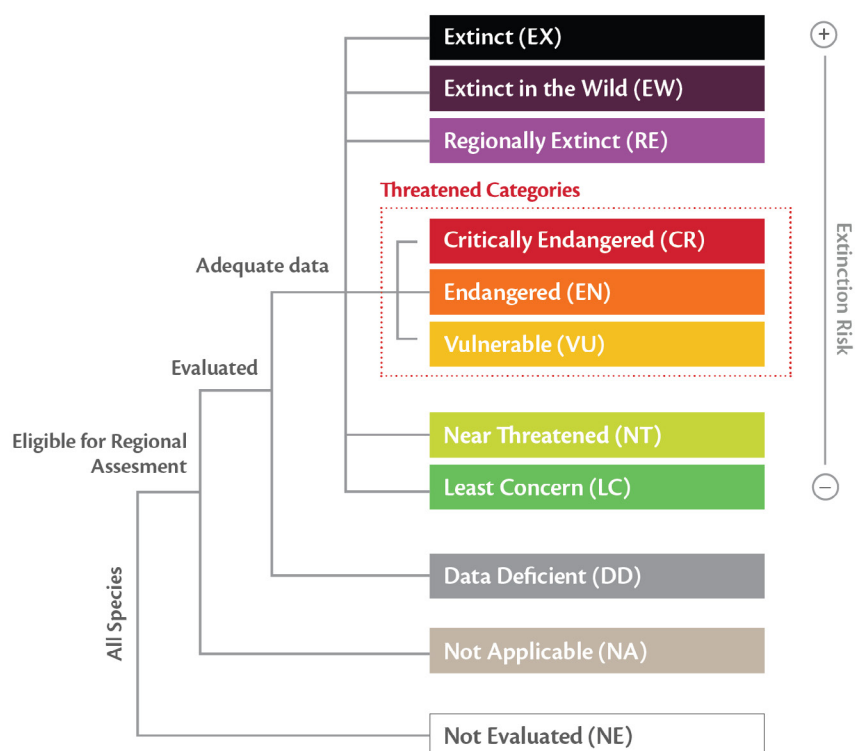


Figure 4. The IUCN Red List Categories at the regional scale, which includes two additional categories to the global Categories: Regionally Extinct (the species no longer occurs in the wild in the UAE) and Not Applicable (the species is not considered to be native to the UAE).

1.4. Red List Index

Under the Convention on Biological Diversity (CBD), Parties to the Convention adopted a strategic plan for reducing biodiversity loss, including 20 targets (the Aichi Biodiversity Targets) to be met by 2020 (Secretariat of the CBD 2010). Monitoring progress towards, and achievement of, these targets requires indicators (Balmford et al. 2005, Jones et al. 2011). Indicator sets have been adopted for the 2020 targets (Secretariat of the CBD 2010, 2014) and for the United Nations Sustainable Development Goals (SDGs; United Nations 2017). For maximum effectiveness, such indicators need to be implemented at multiple scales, including global and national.

The Red List Index (RLI) was developed by IUCN and its partners in response to the need to assess the rate of biodiversity loss (Butchart et al. 2004, 2005, 2007). The RLI measures trends in the overall extinction risk of species, and is based on assessments done using the IUCN Red List methodology (IUCN 2001, 2012a). The RLI is used as a key indicator in both the CBD and SDG indicator sets.

The RLI is based on the number of species in each Red List Category, and the number of species that change categories between assessments owing to genuine improvement or deterioration in status. It excludes changes in category resulting from improved knowledge, taxonomic changes, or revisions to the Red List Criteria

(Butchart et al. 2004, 2007). The RLI can be calculated for any set of species that has been assessed at least twice. To date, global RLIs have been published for birds (1988–2016), mammals (1996–2008), amphibians (1980–2004), reef-forming warm-water corals (1998–2008), and cycads (2003–2014) (see the Red List Index page: <https://www.iucnredlist.org/assessment/red-list-index>).

The RLI has been used mostly to track global trends in species' status (Butchart et al. 2004, 2010), but it can also be applied to different biogeographic realms (Hoffman et al. 2011), political units (Szabo et al. 2012), ecosystems, habitats, taxonomic groups, and species relevant to different international agreements and treaties (Butchart et al. 2007, Bubb et al. 2009). There has been limited but growing use of the index at national or subnational levels, e.g., British Columbia in Canada (Quayle et al. 2007), Sweden (Gärdenfors 2010), Denmark (Pihl and Flensted 2011), Australian birds (Szabo et al. 2012) and mammals (Woinarski et al. 2015), Finland (Juslén 2013), and Spain (Moreno Saiz et al. 2015).

National RLIs based on national-scale assessments of extinction risk allow for more sensitive tracking of biodiversity trends, as more species move between Red List categories between assessments when the categories are assigned using national rather than global extinction risk. RLIs are hence of greater utility at the national scale, which is where the decisions are made that have greatest influence on biodiversity trends.



Greater Flamingo *Phoenicopterus roseus* (Oscar Campbell)

2. Assessment methodology

2.1. Geographic scope

The geographic scope of the UAE National Red List of Birds was defined by the terrestrial and marine (as defined by the EEZ) extents of the UAE (Figure 1). GIS spatial layers provided by the UAE Ministry of Climate Change and Environment (MOCCAEE) were used to restrict the individual species distribution maps to the country and to undertake spatial analyses.

2.2. Taxonomic scope

The UAE National Red List of Birds aimed to assess all regularly occurring wild bird species native to the country. The starting point was the EBRC checklist (Pedersen et al. 2017), comprising some 460 species. Species that were introduced (or probably introduced) by man and have subsequently established breeding populations that are now deemed self-sustaining were removed, as the Red List Guidelines specify that such taxa are not eligible for assessment. If there was any doubt about these, further checks were made using Khan (1993) and in discussion with relevant experts. [N.B. The Rock Dove (*Columba livia*) was excluded after discussion at the UAE National Red List Assessment Workshop in July 2019 because it is included (as Feral Pigeon) in the list of introduced species in the country (Pagad et al. 2017). However, there is some speculation that this species may have been native to the

Hajar Mountains (see Aspinall 1996), and as such could be of conservation concern. Further research is needed to ascertain whether there are any native individuals of this species present in the country.)

The remaining species were then evaluated to identify and remove those that occur in the UAE exclusively on passage (i.e., during migration), or as rare or scarce vagrants, using the annotated notes in the EBRC checklist and Aspinall and Porter (2011). All species that breed regularly in the country were retained. For regularly occurring non-breeding populations (especially wintering waterbirds), species were included if their global (BirdLife International 2019) and/or regional (Arabian Peninsula; Symes et al. 2015) Red List status was Near Threatened (NT) or worse. If a species was Least Concern (LC) globally, and LC or Not Applicable (NA) in the Arabian Peninsula, it was retained only if its non-breeding population size within the UAE comprised at least 50 mature individuals. Migratory species with qualifying breeding and wintering populations in the country had both breeding and non-breeding populations assessed separately when data allowed, whereas resident species (i.e., those present year-round) were assessed only once.

Having applied these various filters, a total of 167 bird species qualified for assessment in the UAE.



Socotra Cormorant *Phalacrocorax nigrogularis* (Oscar Campbell)

2.3. Data collation

Some of the most important information required to assess the Red List status of a species includes estimates of the size and trend of its population and range at the relevant spatial scale. For most of these 167 species, such data either did not exist or had not been compiled at UAE scale at the start of this initiative. Therefore, in autumn 2018, BirdLife International subcontracted Rob Sheldon to collate all relevant data and produce the first national estimates of these key parameters. This involved mobilising information from a wide variety of published and unpublished sources.

Chief amongst these was the EBRC's extensive database of bird records, which mainly comprises information

collected non-systematically by different observers over many years. It is relatively detailed for the period since 1990, either as published bird reports (mainly up to 2000) or as an actual database (mainly from 2004 onwards). General comments and trends covering the late 1970s and 1980s were summarised by Richardson (1990), based on paper files of submitted records.

Other important sources included count data from the International Waterbird Census (provided by Salim Javed of the Environment Agency – Abu Dhabi), and reference to the standard texts, relevant journals, and other sources mentioned in Section 1.2 above. The draft estimates were reviewed by three international experts (Oscar Campbell, Richard Porter, and Colin Richardson) before being submitted to BirdLife.



Red-billed Tropicbird *Phaethon aethereus* and White-cheeked Tern *Sterna repressa* (Oscar Campbell)

2.4. Assessment protocol

For all assessments, the following data were compiled using IUCN's online Red List database, the Species Information Service (SIS):

- Taxonomic classification and UAE-specific taxonomic notes;
- Geographic range within the UAE and, briefly, the global distribution of the species;
- Population information and overall population trend;
- Habitat preferences and primary ecological requirements, including pertinent biological information (e.g., generation length, maximum size and age), where available;
- Major threats;
- Conservation measures (in place and needed);
- Research needed;
- Other general information;
- National Red List Categories and Criteria and rationale;
- Back-casted assessment to 1996 and the reasons for change in status;
- Red List Index information (for species undergoing a genuine change in status since 1996);
- Key literature references.

During winter 2018–2019, qualified Red List Assessors at BirdLife International populated draft UAE-scale assessments for the agreed list of 167 bird species. These were based on published global and regional (Arabian Peninsula) assessments, but incorporated the national estimates produced by the experts above, and other relevant available literature (e.g., on species' ecology, threats, and conservation). They also included national distribution maps for each species (see Section 2.4 below).

Finalisation of assessments and distribution maps followed a three-stage process. First, the draft assessments and maps were submitted to MOCCA in March 2019,

who circulated them to national experts. In June 2019, suggested edits and comments were returned to BirdLife, who processed them, and revised the relevant assessments and maps accordingly. These second drafts were then considered in detail at the UAE National Red List of Birds Assessment Workshop, held in Dubai on 7–11 July 2019, hosted by MOCCA and facilitated by James Westrip, David Allen, and Rob Sheldon. A large number of experts contributed their time and expertise during the workshop to review both the draft assessments and distribution maps, and to assign Red List Categories. Post-workshop editing was undertaken by BirdLife and IUCN staff, and a final stage of review and commenting followed, with the drafts again circulated by MOCCA to national experts in August 2019. The resulting feedback, received in September 2019, was then incorporated by BirdLife, who finalised and submitted the assessments and maps in October 2019. Consistency in the use of IUCN Red List Criteria was checked by IUCN staff. The resulting finalised assessments are therefore products of scientific consensus concerning the status of these species, and are supported by relevant literature and data sources.

The national Red List status of the 167 species was assessed by applying the IUCN Red List Categories and Criteria (IUCN 2001, IUCN 2012a) and the guidelines for their application (IUCN Standards and Petitions Subcommittee 2017). For species with qualifying breeding and wintering populations in the UAE that were assessed separately, the final Red List Category allocated was that of the breeding population. The initial assessments were then reviewed following the Guidelines for Application of IUCN Red List Criteria at Regional Levels (IUCN 2012b), adjusting the initial categories of some species where needed to account for potential source-and-sink effects that result from interchange with populations beyond national borders (IUCN 2012b), before a final category was assigned. Figure 4 shows the structure of the categories used for the national assessment.

2.5. Species distribution mapping

Draft digital distribution maps were created by using the global distribution map for each species (as produced and maintained by BirdLife International, and submitted to IUCN for publication on The IUCN Red List of Threatened Species website). These global maps were first clipped to the national land and EEZ boundaries provided by MOCCA. They were reviewed by Oscar Campbell and Rob Sheldon in March 2019, and edited by BirdLife before being sent to MOCCA. As with the draft assessments, they were subsequently reviewed and edited before, during, and after the workshop.

Metadata coding was used to distinguish presence, origin, and seasonality across the spatial extent of species distributions in the UAE. These codes differentiate the species' presence (extant, possibly extant, or extinct), seasonal presence (the default setting of 'resident' was assigned), and the origin of the species (native, introduced, reintroduced, or uncertain). The coding information can be found in the Red List digital distribution metadata guidance (IUCN 2018).

The spatial data were analysed to produce species richness maps, using only distributions of species with the following Presence, Seasonality, and Origin codes :

- Presence: Extant, Possibly Extant, Possibly Extinct
- Origin: Native, Re-introduced
- Seasonality: Resident, Breeding, Non-Breeding

Spatial data were analysed using a geodesic discrete global grid system, defined on an icosahedron and projected to the sphere using the inverse Icosahedral Snyder Equal Area (ISEA) projection (S39). This corresponds to a hexagonal grid composed of individual units (cells) that retain their shape and area (865 km²) throughout the globe. These are more suitable for a range of ecological applications than the most commonly used rectangular grids (S40). The range of each species was converted to a hexagonal grid for analysis purposes. The pattern of species richness was mapped by counting the number of species in each cell.



European Roller Coracias garrulus (Ahmed Al Ali)

2.6. Red List Index methodology

An RLI for birds of the UAE was calculated based on national-scale assessments of the native bird species in 2019 and 1996, following the guidelines of Bubb et al. (2009) and recent practice (e.g. Butchart et al. 2010; Hoffmann et al. 2010, 2011). Once the 2019 status of each species had been finalised, experts at the July 2019 workshop used their detailed knowledge of changes in species' fortunes (and in the prevailing conditions in the UAE) to back-cast what the status of each species would have been in 1996. This identified species whose 2019 categories reflect a genuine change in status since 1996, as opposed to species that changed categories as a result of, for example, changes in knowledge or taxonomy (Butchart et al. 2007). 1996 was used to align the bird RLI with other taxa.

It was conservatively assumed that the 2019 category applied to the earlier 1996 assessments, except where there was evidence that the species had undergone a genuine improvement or deterioration in status of sufficient magnitude to cross one or more Red List Category thresholds. Such evidence included, for example, population estimates from the mid-1990s (Aspinall 1996), trends and distribution declines, known trajectories of habitat extent or quality, and existence of relevant threats.

For migratory species assessed separately for their breeding and non-breeding populations, their breeding assessments were used in the RLI. An additional complication in producing the national RLI for UAE birds involved dealing with recent colonisers. Between 1996 and 2019, a number of species colonised the country, and

so were not present in 1996 and would not have a Red List status then. To avoid biasing the RLI, these species were removed from the calculations. In some cases, e.g., Cattle Egret (*Bubulcus ibis*), the species were present as non-breeders in 1996, but only colonised the UAE as breeding species after this date. The RLI includes these species based on assessments of their non-breeding populations in 1996 and 2019. This is the first time that such considerations have had to been taken into account in any RLI process, setting a useful precedent.

The calculation of the RLI used equal-steps weights for each Red List Category – i.e., 0 for LC, 1 for NT, 2 for VU, 3 for EN, 4 for CR, and 5 for CR species tagged as Regionally Possibly Extinct and Regionally Possibly Extinct in the Wild sensu IUCN Standards and Petitions Subcommittee (2017) – rather than weights based on relative extinction risk, as the latter approach makes the index much less sensitive to changes in status of less threatened taxa. The number of taxa in each IUCN Red List Category was multiplied by these weights, and the sum expressed as a fraction of the maximum possible sum (equating to all taxa having gone extinct, i.e., the number of species multiplied by the maximum weight of 5) and subtracted from one.

Calculations were made following Bubb et al. (2009) and using an RLI calculator tool that has been developed in Microsoft Excel (see [The Red List Index Calculator](#)). The calculation produces an index value that ranges from 0 to 1. The lower the value, the faster the set of species is heading toward extinction: If the value is 1, all species in the set are Least Concern; if the value is 0, all species are (Regionally) Extinct.

3. Results

3.1. Threat status

Information on distribution, population, and threats for all bird species in the UAE was reviewed, and the status of 167 confirmed native species was assessed for the National Red List. Appendix 1 provides an overview of these species and their national, regional (Arabian Peninsula), and global Red List status. The proportion and numbers of UAE bird species assessed in each Red List category are summarised in Table 1 and Figure 4. No species assessed was regarded as Data Deficient. Over half (89 species, 53%) were classified as threatened (i.e., Critically Endangered, Endangered, or Vulnerable). A further 23 species (14%) were considered Near Threatened, with 55 species (33%) evaluated as Least Concern.

Among the most highly threatened species in the UAE are a significant number of raptors, including eagles, vultures, falcons, and owls, as well as multiple species of waders, terns, and larks. Some of these species qualify on the basis of their (naturally) small populations, but others are threatened owing to declines. Of the 28 Critically Endangered species (Table 2), four are considered Possibly Extinct in the UAE, with a fifth (golden eagle *Aquila chrysaetos*) Possibly Extinct in the Wild in the UAE. The proportion of species assessed as threatened is considerably higher than the equivalent global figure of 13% (BirdLife International 2019). This partly reflects the relatively small geographical scope of this assessment, but also the fact that it would not have been legitimate to adjust the UAE status of some species downwards, as declines outside the country currently preclude a 'rescue effect' (IUCN 2012b).

Red List Category		Number of species
Critically Endangered (Regionally Possibly Extinct)	CR (RPE)	4
Critically Endangered (Regionally Possibly Extinct in the Wild)	CR (RPEW)	1
Critically Endangered	CR	23
Endangered	EN	34
Vulnerable	VU	27
Near Threatened	NT	23
Least Concern	LC	55
Total species assessed		167

Table 1. The numbers of UAE bird species in each IUCN Red List Category.

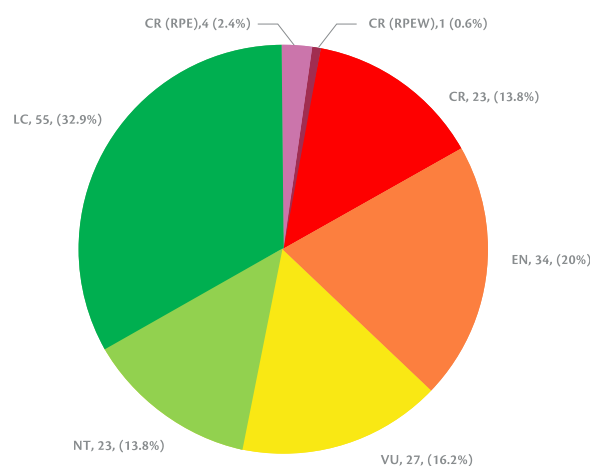


Figure 5. The proportion of UAE bird species assessed in each Red List Category. Each slice is labelled with the Red List Category abbreviation, the number of species in that category, and the proportion this represents.

Scientific name	Common name	Category	Scientific name	Common name	Category
<i>Aythya nyroca</i>	Ferruginous Duck	CR	<i>Aquila fasciata</i>	Bonelli's Eagle	CR
<i>Chlamydotis macqueenii</i>	Asian Houbara	CR	<i>Merops apiaster</i>	European Bee-eater	CR (RPE)
<i>Vanellus vanellus</i>	Northern Lapwing	CR	<i>Coracias garrulus</i>	European Roller	CR (RPE)
<i>Vanellus gregarius</i>	Sociable Lapwing	CR	<i>Alcedo atthis</i>	Common Kingfisher	CR
<i>Calidris tenuirostris</i>	Great Knot	CR	<i>Falco concolor</i>	Sooty Falcon	CR
<i>Sternula saundersi</i>	Saunders's Tern	CR	<i>Falco peregrinus</i>	Peregrine Falcon	CR
<i>Hydroprogne caspia</i>	Caspian Tern	CR	<i>Ammomanes cinctura</i>	Bar-tailed Lark	CR
<i>Strix butleri</i>	Omani Owl	CR	<i>Alaudala rufescens</i>	Lesser Short-toed Lark	CR
<i>Neophron percnopterus</i>	Egyptian Vulture	CR	<i>Calandrella brachydactyla</i>	Greater Short-toed Lark	CR
<i>Circaetus gallicus</i>	Short-toed Snake-eagle	CR	<i>Iduna pallida</i>	Olivaceous Warbler	CR
<i>Torgos tracheliotos</i>	Lappet-faced Vulture	CR	<i>Oenanthe monacha</i>	Hooded Wheatear	CR
<i>Aquila nipalensis</i>	Steppe Eagle	CR	<i>Passer hispaniolensis</i>	Spanish Sparrow	CR (RPE)
<i>Aquila heliaca</i>	Eastern Imperial Eagle	CR	<i>Bucanetes githagineus</i>	Trumpeter Finch	CR
<i>Aquila chrysaetos</i>	Golden Eagle	CR (RPEW)	<i>Emberiza calandra</i>	Corn Bunting	CR (RPE)

Table 2. The 28 bird species assessed as Critically Endangered (CR) in the UAE. RPE = Regionally Possibly Extinct. RPEW = Regionally Possibly Extinct in the Wild.

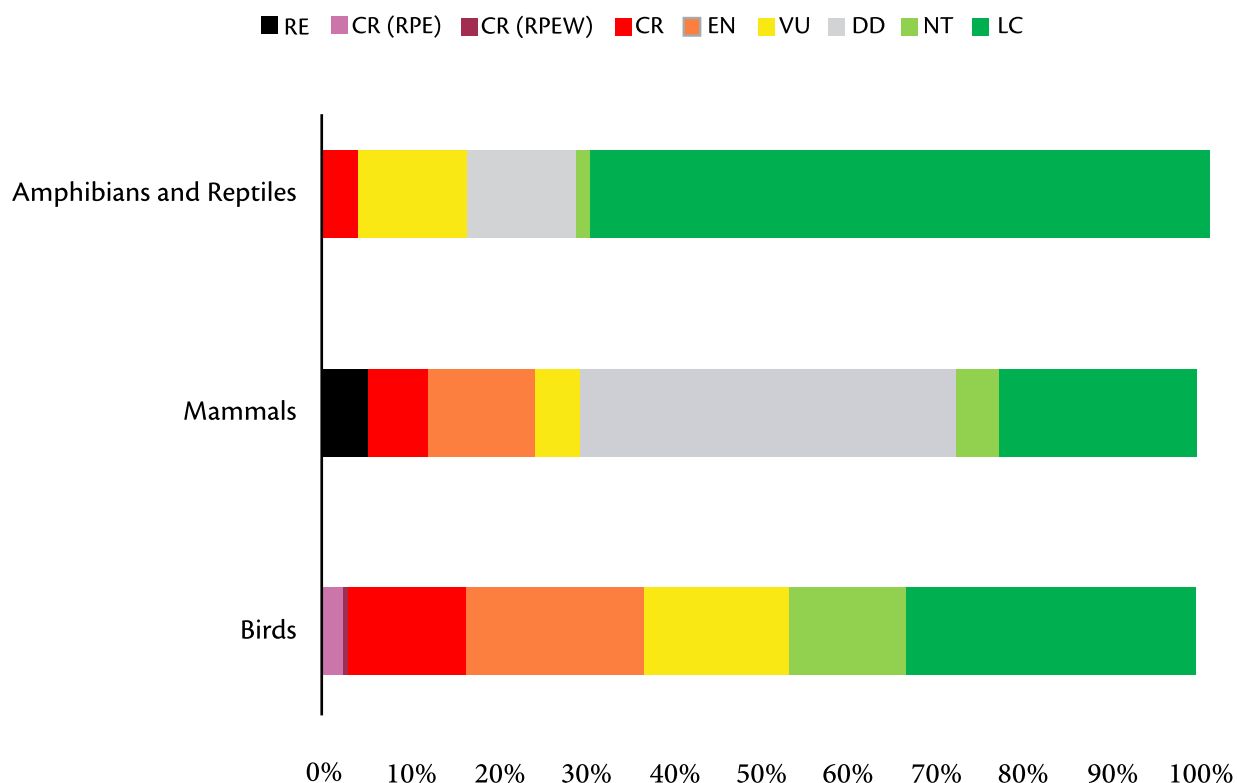


Figure 6. The proportion of species allocated to each Red List Category in each group for which a UAE regional assessment has been conducted. Data for amphibians and reptiles from Els et al. (2019), and for mammals from Mallon et al. (2019).

UAE National Red List assessments have also been carried out for herpetofauna and mammals (Els et al. 2019, Mallon et al. 2019). Similar to global Red List assessments, birds are comparatively well-known in the UAE. Despite considering a far greater number of species (167, as compared with 58 mammalian species and 72 reptiles and amphibians), no birds are regarded as Data Deficient in the UAE, compared with 43% of mammals and 13% of herpetofauna. While some of those Data Deficient species (especially amongst mammals) are in reality probably threatened in the UAE, it is noteworthy that more birds

(two-thirds of species assessed) are nationally threatened or Near Threatened (Figure 6).

3.2. Mapping analysis

The pattern of overall species richness was mapped by counting the number of species in each cell. Patterns of threatened species richness were mapped by counting the number of threatened species (categories CR, EN, and VU at the UAE national level) in each cell.

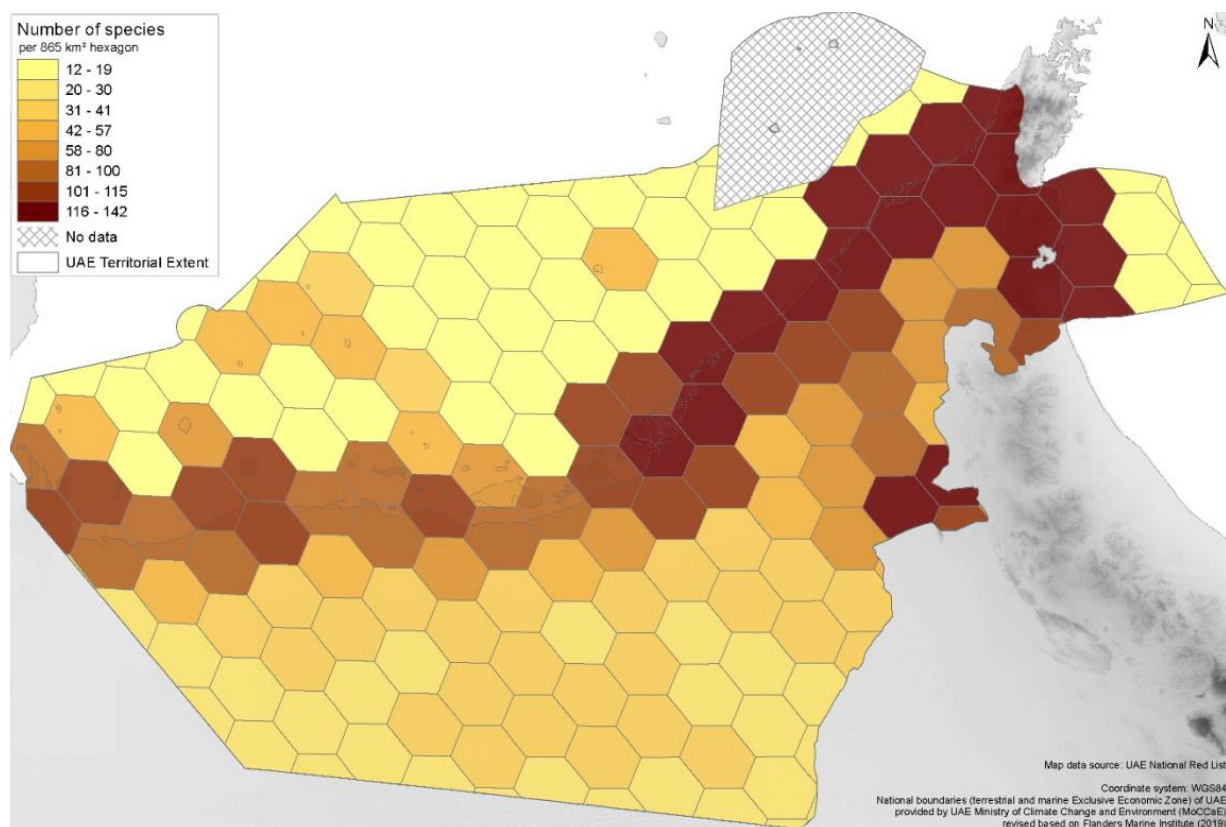


Figure 7. Species richness distribution map of all UAE birds assessed (167 species).

Figure 7 shows that the highest richness of bird species occurs along both coasts of the country, especially in the north and east, as well as in the Hajar Mountains, foothills, and Jebel Hafeet. This largely reflects the distribution of habitats and vegetation types, with most of the UAE's many waterbird species (e.g., waders and ducks) being restricted to coastal wetlands, and its seabirds (e.g., terns and cormorants) to coasts and islands.

The combination of a wider range of habitats and higher precipitation due to relief means that the UAE's montane areas also support a more diverse avifauna (including raptors) than the desert covering much of the rest of the country. Hotspots such as Al Ain demonstrate the importance of oases and irrigated farms to birds, although it is also the presence of Jebel Hafeet that explains this location's high diversity. Other areas, such as Liwa in the

far south (on the northern edge of the Empty Quarter), also have farms and oases, but hold far fewer bird species.

Observer effort may also be a contributory factor in some locations, since many more bird surveys have been conducted in these areas than elsewhere, with large parts of the western and southern deserts in particular being undersurveyed. Some minor adjustments to the pattern of bird species richness may therefore be expected following completion of systematic surveys across the desert zone, but compared to other taxa (e.g., mammals and reptiles), it is unlikely to have a major impact on birds.

The pattern of threatened bird species distribution (Figure 8) is very similar to that of the overall bird species richness, reflecting the relatively high number of threatened waterbirds, seabirds, and raptors.

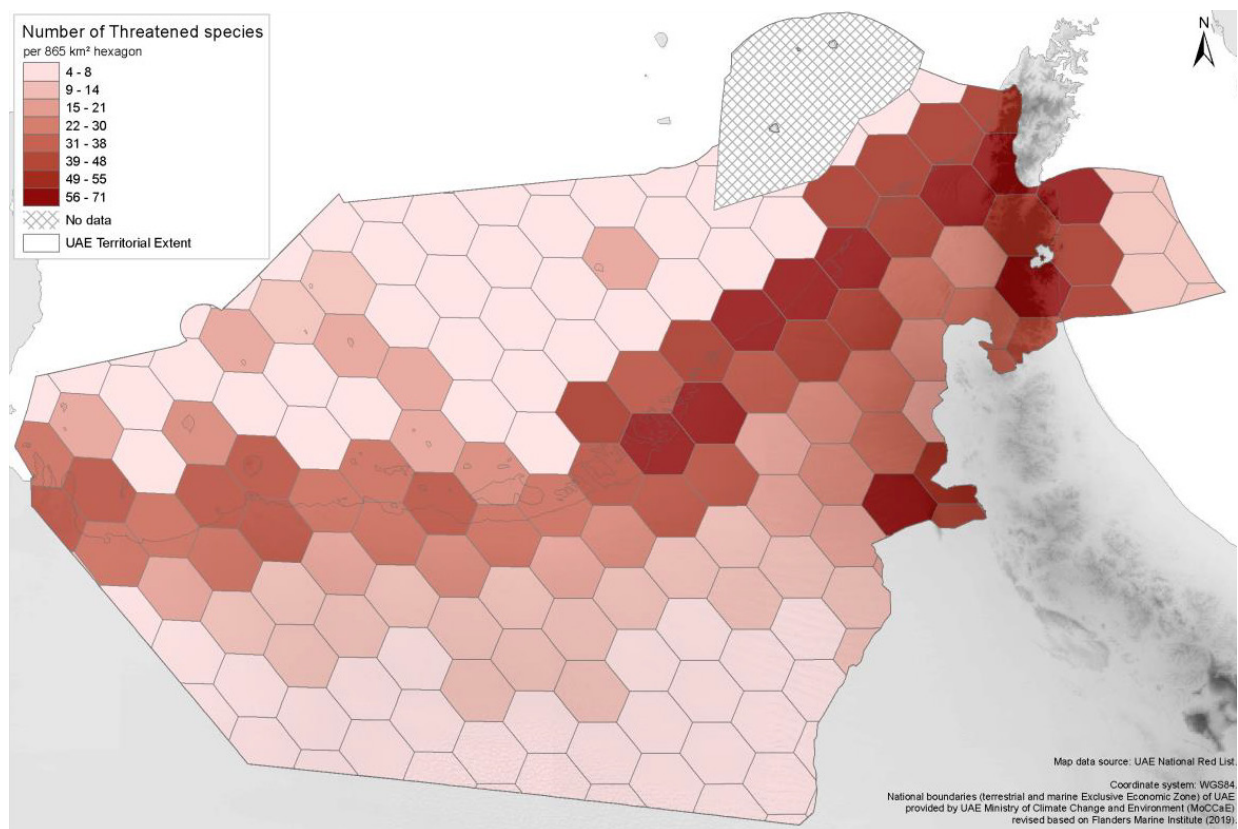


Figure 8 . Species richness distribution map of UAE threatened birds (89 species).



Jebel Hafeet (Oscar Campbell)

3.3. Major threats to birds in the UAE

The threats to each species were coded in the SIS database using the standard IUCN Threats Classification Scheme. A summary of the relative importance of the major categories of threats is shown in Figure 9. The threat affecting the most bird species (104, 62% of all those assessed) in the UAE is residential and commercial development. Pollution, principally in the form of oil spills, is regarded as posing a threat to 94 species (56%).

Biological resource use also affects many species, but this

requires careful interpretation. Figure 10 divides biological resource use into its sub-categories, to show the impact of hunting and trapping. Despite being listed here as a threat to 48% of the UAE's threatened bird species (43 out of 89), the UAE has strict laws on hunting and trapping in the country is regulated by strict laws, which generally appear to be fairly well adhered to. In reality, this coding relates principally to hunting and trapping outside the UAE, which still affect the populations of migrants that winter in or migrate through the UAE country (Brochet et al. 2016, 2019a,b).

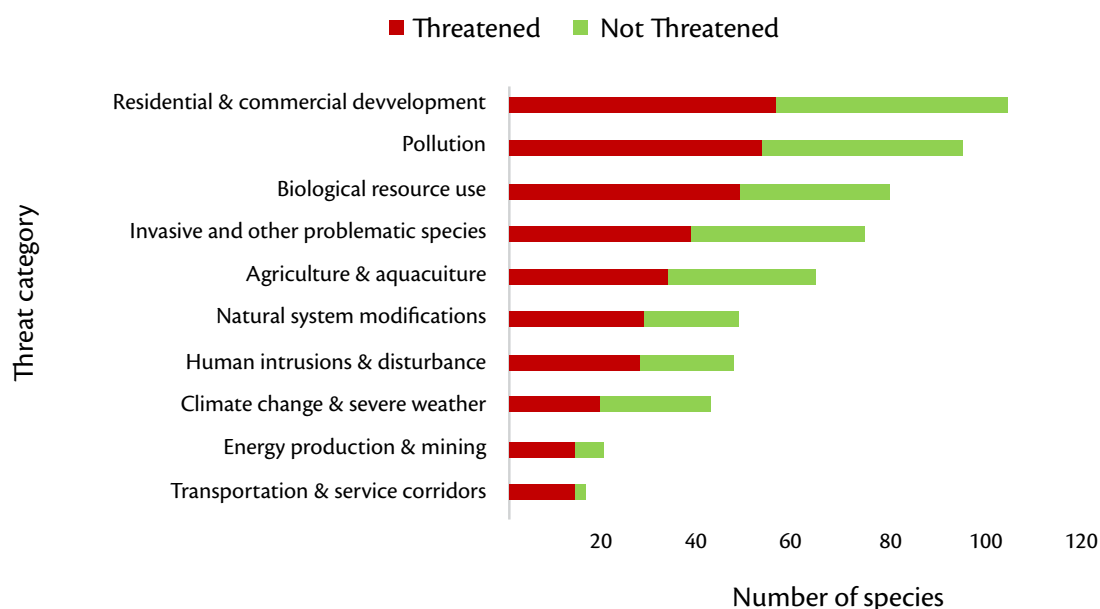


Figure 9. The major threats faced by bird species of the UAE, ordered by number of species affected.

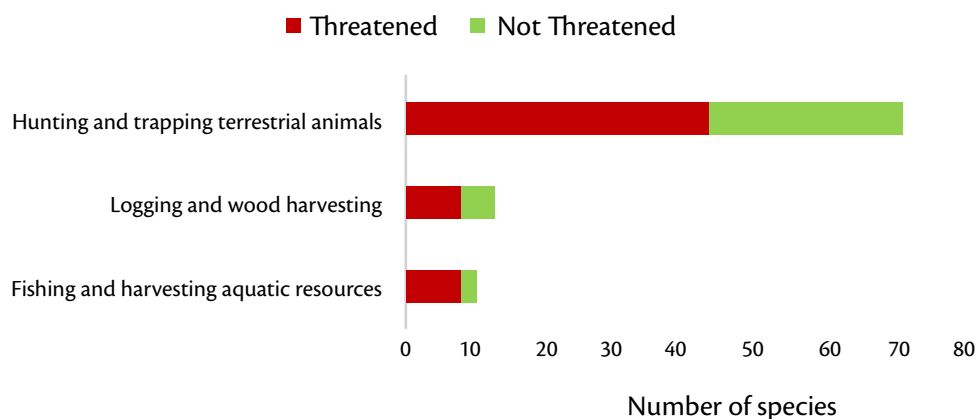


Figure 10. Biological resource use threats affecting UAE bird species, ordered by number of species affected. Note that hunting and trapping refers predominantly to activities occurring elsewhere in species' ranges, rather than within the UAE.



Human intrusions and disturbance represent a threat to various bird species in the UAE (Oscar Campbell)

3.4. Population trends

The population trends for all assessed bird species in the UAE are summarised in Figure 11. Over half of the species assessed (59%, 98 species) are considered to have populations that are either stable or increasing. However, the population trend is not known for a substantial

number of species (55, 33%), a disproportionate number of which are threatened (40 species, 73% of the species for which the population trend is unknown, and 45% of the species assessed as threatened). While no UAE species are Data Deficient, this highlights a key knowledge gap that pertains especially to threatened species.

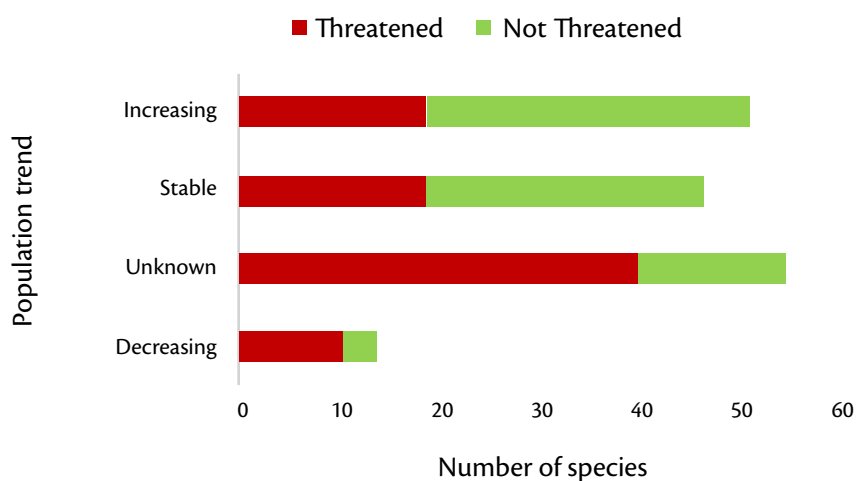


Figure 11. Population trends of UAE bird species.

3.5. Red List Index datapoint

The RLI figure for UAE birds in 2019 was calculated as 0.66. The global RLI for all birds is 0.91, reflecting a higher proportion of threatened species in the UAE regional assessment when compared with the global assessment (see Section 3.1: Threat status). However, while the RLI for all bird species globally is decreasing, reflecting rising extinction risk, the figure for UAE birds has shown a slight increase, from a back-cast calculation of 0.64 in 1996 to 0.66 in 2019. This reflects the greater number of species whose status genuinely improved between 1996 and

2019, compared to those whose status deteriorated (Appendix 2).

Considering the types of species in these two categories, it seems that improvements have been driven primarily by the increased availability of inland wetland and artificial aquatic habitats, which has allowed various waterbird species to colonise, spread, and/or increase. The drivers of deteriorations in status are more varied, but some at least are consistent with the main threats reported for birds (Section 3.3), including rapid land use change and development.

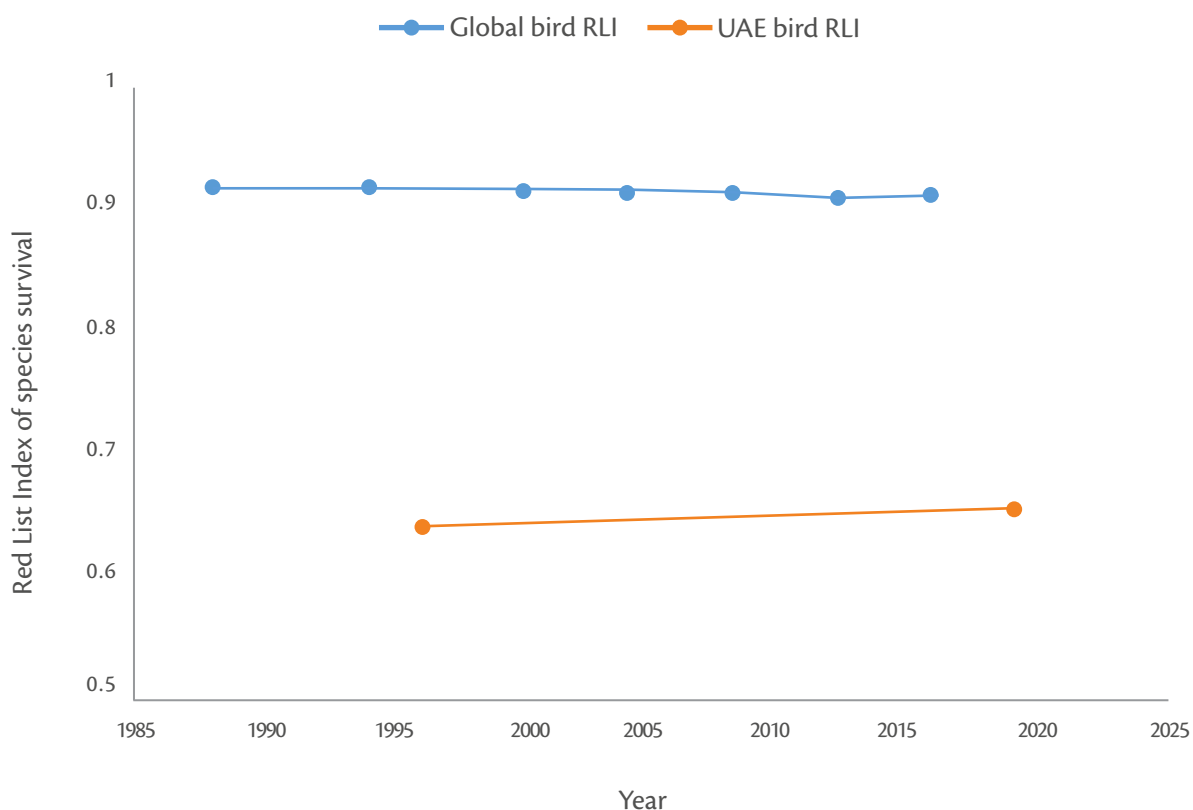


Figure 12. The 1996–2019 regional UAE RLI for birds (orange line), compared with the 1988–2016 global RLI for all species. A lower RLI indicates greater extinction risk, i.e., a value of 1 would indicate mean that all species are Least Concern, whereas a value of 0 would indicate mean that all species are extinct (or extinct in the wild) within the geographic scope of the assessment.

Gaps in knowledge

In general, all species, including those that are abundant and widespread, require further research into their life history and ecology, to identify potential threats and help improve habitat management. This is particularly important for those species now known to be threatened in the UAE, especially (Critically) Endangered species.

The population sizes and trends of wintering waterbirds and breeding seabirds in the UAE country are now relatively well-monitored (e.g., EAD 2016), although it would be helpful if the results of these schemes were made publically available and shared more widely, both for national and international purposes. Expanding waterbird monitoring beyond the International Waterbird

Census would also be desirable.

However, most terrestrial species remain poorly known and virtually unsurveyed, and would clearly benefit from the establishment of an appropriate well-designed nationwide monitoring scheme (or different initiatives covering e.g. desert and montane birds). This would not only provide alerts if declines are detected, but also allow the impacts of conservation measures to be assessed, and provide supply vital data for repeating this assessment and updating the National Red List and RLI in future. Research into the status of the Rock Dove / Feral Pigeon is also needed.



Egyptian Nightjar Caprimulgus aegyptius (Oscar Campbell)



Hooded Wheatear Oenanthe monacha (Oscar Campbell)

4. Recommendations

4.1. Conservation actions

Figure 14 shows the major categories of management interventions identified in this assessment as necessary to improve the conservation status of UAE bird species. Those actions identified were predominantly focussed on the establishment of legally protected areas (land/water protection) and their actual management (land/water management).

In 2018, a review of the status of Important Bird and Biodiversity Areas (IBAs) in the UAE was conducted by MOCCA in partnership with BirdLife International (MOCCA 2018). The IBA programme uses a set of standardised criteria to identify sites of international importance for the conservation of birds and wider biodiversity. The 2018 review confirmed 30 IBAs in the

UAE, covering 4,204 km² (5% of the land area of the country; Figure 15). However, the level of protection that these areas receive varies. While positive progress is being made in terms of conservation response in wholly or mostly protected IBAs, 37% (11 out of 30) of the IBAs remain unprotected and may be under threat of development, including key sites such as Khor al-Beida and Siniyah Island in Umm Al Quawain, and Al Jazirah Khor in Ras Al -Khaimah.

Residential and commercial development is regarded as the principal threat facing both birds (see Figure 9, Section 3.3.) and IBAs (MOCCA 2018). In light of this, it has been proposed that protected areas, IBAs, and other high- priority areas be mapped as part of a system of integrated coastal zone planning, enabling developers to better avoid sensitive areas (MOCCA 2018).

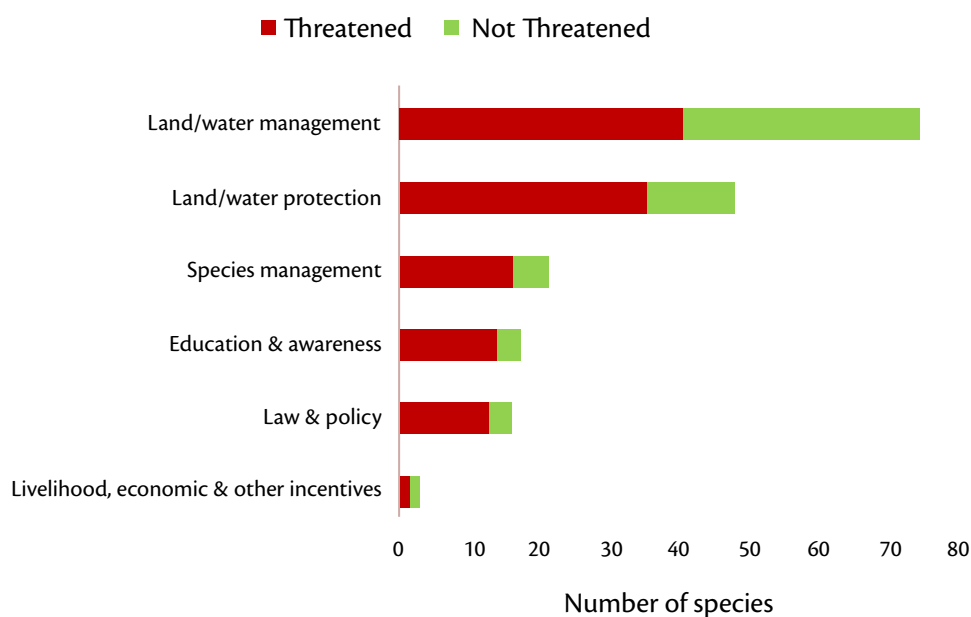


Figure 14. Categories of interventions identified as necessary to improve the conservation status of UAE birds, ordered by number of species for which the action is recommended.

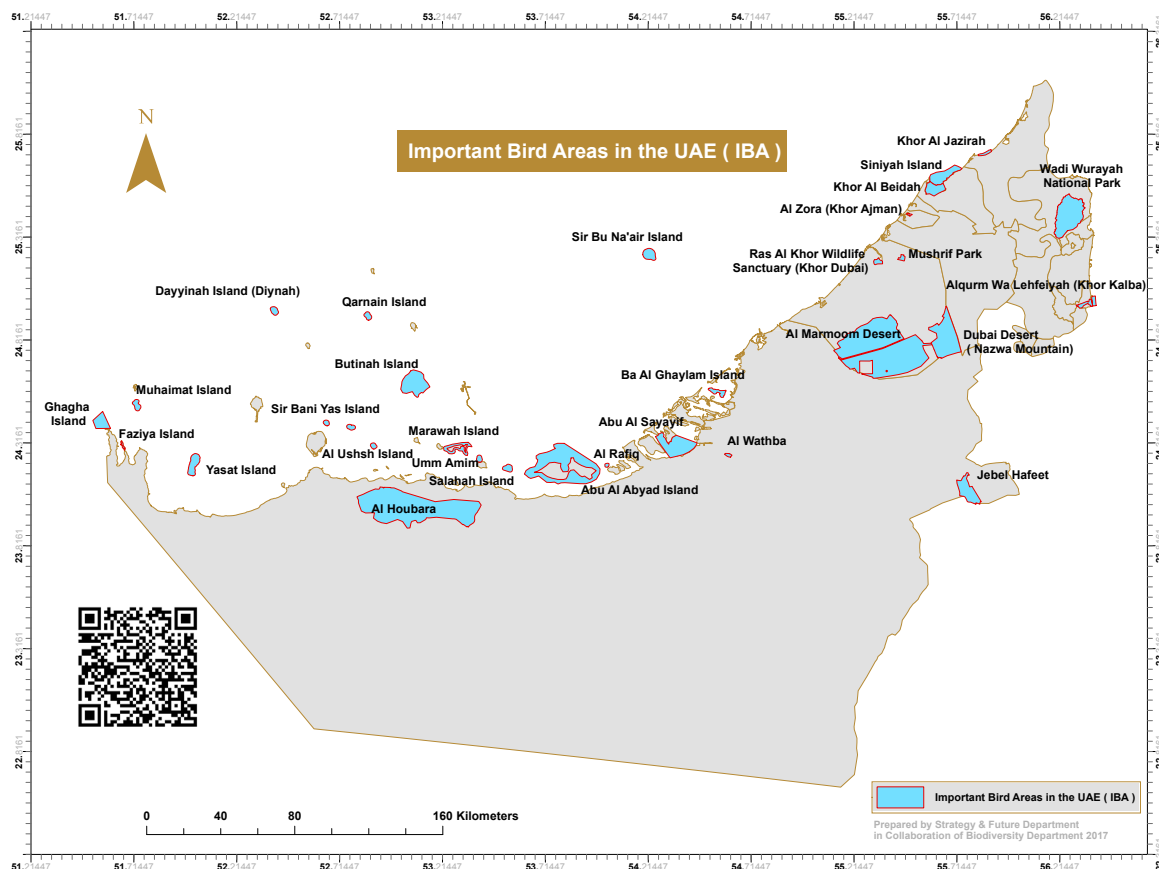


Figure 15. Important Bird Areas (IBAs) in the UAE. <https://www.moccae.gov.ae/assets/download/7fceb8a1/bird-area.aspx>

4.2. Application of project outputs

The main outputs of this assessment are:

1. The first RLI for birds in the UAE.
2. The first national assessments of the extinction risk of 167 bird species in the UAE.
3. Compilation of comprehensive species data and distribution maps for birds in the UAE.

These outputs can be applied by MOCCA and other government agencies to track trends in bird conservation, to inform reports on, and revisions to, the National Biodiversity Strategy and Action Plan (2014–2021 NBSAP), and to prioritise species and sites for conservation action, such as protected areas.

4.3. Future work

If the information on the species of the United Arab Emirates is to be effectively integrated within the national developmental and environmental planning processes, then:

- The data collated for this assessment need to be maintained and updated regularly through ongoing collaboration with the network of experts who have contributed their valuable time and knowledge to this National Red List
- Population monitoring must be strengthened and expanded, especially of terrestrial birds.
- Links between BirdLife, IUCN, partners, policymakers, and regional decision makers must be maintained and strengthened, and data made freely available to these organisations.
- A best-practice methodology for the process of integrating biodiversity information within national planning processes needs to be developed. It is important that this methodology aims to provide the information in a user-friendly format for all stakeholders, and sets out guidelines as to when and where the information should appropriately be made available.

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Including all sources cited in this report, along with others used extensively during data compilation.

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Appendix

Appendix 1. Red List status of bird species assessed in the UAE.

			Red List status		
Family	Scientific name	Common name	UAE	Arabian Peninsula	Global
PHASIANIDAE	<i>Alectoris chukar</i>	Chukar	EN	LC	LC
PHASIANIDAE	<i>Ammoperdix heyi</i>	Sand Partridge	NT	LC	LC
ANATIDAE	<i>Tadorna tadorna</i>	Common Shelduck	VU	NA	LC
ANATIDAE	<i>Aythya ferina</i>	Common Pochard	EN	NA	VU
ANATIDAE	<i>Aythya nyroca</i>	Ferruginous Duck	CR	NT	NT
ANATIDAE	<i>Spatula clypeata</i>	Northern Shoveler	LC	NA	LC
ANATIDAE	<i>Anas platyrhynchos</i>	Mallard	LC	NA	LC
ANATIDAE	<i>Anas acuta</i>	Northern Pintail	EN	NA	LC
ANATIDAE	<i>Anas crecca</i>	Common Teal	LC	NA	LC
PODICIPEDIDAE	<i>Tachybaptus ruficollis</i>	Little Grebe	LC	LC	LC
PHOENICOPTERIDAE	<i>Phoenicopus roseus</i>	Greater Flamingo	VU	LC	LC
PHAETHONTIDAE	<i>Phaethon aethereus</i>	Red-billed Tropicbird	EN	LC	LC
COLUMBIDAE	<i>Streptopelia turtur</i>	European Turtle-dove	NT	LC	VU
COLUMBIDAE	<i>Streptopelia decaocto</i>	Eurasian Collared-dove	LC	LC	LC
COLUMBIDAE	<i>Spilopelia senegalensis</i>	Laughing Dove	LC	LC	LC
COLUMBIDAE	<i>Oena capensis</i>	Namaqua Dove	VU	LC	LC
PTEROCLIDAE	<i>Pterocles exustus</i>	Chestnut-bellied Sandgrouse	EN	LC	LC
PTEROCLIDAE	<i>Pterocles lichtensteinii</i>	Lichtenstein's Sandgrouse	EN	LC	LC
CAPRIMULGIDAE	<i>Caprimulgus aegyptius</i>	Egyptian Nightjar	EN	LC	LC
APODIDAE	<i>Apus pallidus</i>	Pallid Swift	LC	LC	LC
RALLIDAE	<i>Rallus aquaticus</i>	Western Water Rail	EN	NT	LC
RALLIDAE	<i>Porphyrio porphyrio</i>	Purple Swamphe	EN	LC	LC
RALLIDAE	<i>Gallinula chloropus</i>	Common Moorhen	LC	LC	LC
RALLIDAE	<i>Fulica atra</i>	Common Coot	NT	LC	LC
OTIDIDAE	<i>Chlamydotis macqueenii</i>	Asian Houbara	CR	EN	VU
PROCELLARIIDAE	<i>Ardenna grisea</i>	Sooty Shearwater	EN	NA	NT
PROCELLARIIDAE	<i>Ardenna carneipes</i>	Flesh-footed Shearwater	EN	NA	NT
PROCELLARIIDAE	<i>Puffinus persicus</i>	Persian Shearwater	LC	LC	LC
PROCELLARIIDAE	<i>Bulweria fallax</i>	Jouanin's Petrel	EN	NT	NT
THRESKIORNITHIDAE	<i>Platalea leucorodia</i>	Eurasian Spoonbill	VU	LC	LC
THRESKIORNITHIDAE	<i>Plegadis falcinellus</i>	Glossy Ibis	NT	LC	LC
ARDEIDAE	<i>Ixobrychus minutus</i>	Common Little Bittern	EN	LC	LC
ARDEIDAE	<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	EN	LC	LC

Family	Scientific name	Common name	Red List status		
			UAE	Arabian Peninsula	Global
ARDEIDAE	<i>Butorides striata</i>	Green-backed Heron	NT	LC	LC
ARDEIDAE	<i>Bubulcus ibis</i>	Cattle Egret	NT	LC	LC
ARDEIDAE	<i>Ardea cinerea</i>	Grey Heron	LC	NT	LC
ARDEIDAE	<i>Ardea alba</i>	Great White Egret	NT	NA	LC
ARDEIDAE	<i>Egretta gularis</i>	Western Reef-egret	LC	LC	LC
SULIDAE	<i>Sula dactylatra</i>	Masked Booby	EN	NT	LC
PHALACROCORACIDAE	<i>Phalacrocorax carbo</i>	Great Cormorant	NT	NA	LC
PHALACROCORACIDAE	<i>Phalacrocorax nigrogularis</i>	Socotra Cormorant	VU	VU	VU
HAEMATOPODIDAE	<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	LC	NA	NT
RECURVIROSTRIDAE	<i>Recurvirostra avosetta</i>	Pied Avocet	EN	NT	LC
RECURVIROSTRIDAE	<i>Himantopus himantopus</i>	Black-winged Stilt	LC	LC	LC
CHARADRIIDAE	<i>Pluvialis squatarola</i>	Grey Plover	LC	NA	LC
CHARADRIIDAE	<i>Pluvialis fulva</i>	Pacific Golden Plover	VU	NA	LC
CHARADRIIDAE	<i>Charadrius hiaticula</i>	Common Ringed Plover	NT	NA	LC
CHARADRIIDAE	<i>Charadrius dubius</i>	Little Ringed Plover	NT	LC	LC
CHARADRIIDAE	<i>Charadrius alexandrinus</i>	Kentish Plover	LC	LC	LC
CHARADRIIDAE	<i>Charadrius mongolus</i>	Lesser Sandplover	LC	NA	LC
CHARADRIIDAE	<i>Charadrius leschenaultii</i>	Greater Sandplover	NT	NT	LC
CHARADRIIDAE	<i>Vanellus vanellus</i>	Northern Lapwing	CR	NA	NT
CHARADRIIDAE	<i>Vanellus indicus</i>	Red-wattled Lapwing	LC	LC	LC
CHARADRIIDAE	<i>Vanellus gregarius</i>	Sociable Lapwing	CR	NA	CR
CHARADRIIDAE	<i>Vanellus leucurus</i>	White-tailed Lapwing	EN	LC	LC
SCOLOPACIDAE	<i>Numenius phaeopus</i>	Whimbrel	NT	NA	LC
SCOLOPACIDAE	<i>Numenius arquata</i>	Eurasian Curlew	VU	NA	NT
SCOLOPACIDAE	<i>Limosa lapponica</i>	Bar-tailed Godwit	LC	NA	NT
SCOLOPACIDAE	<i>Limosa limosa</i>	Black-tailed Godwit	VU	NA	NT
SCOLOPACIDAE	<i>Arenaria interpres</i>	Ruddy Turnstone	NT	NA	LC
SCOLOPACIDAE	<i>Calidris tenuirostris</i>	Great Knot	CR	NA	EN
SCOLOPACIDAE	<i>Calidris pugnax</i>	Ruff	NT	NA	LC
SCOLOPACIDAE	<i>Calidris falcinellus</i>	Broad-billed Sandpiper	EN	NA	LC
SCOLOPACIDAE	<i>Calidris ferruginea</i>	Curlew Sandpiper	LC	NA	NT
SCOLOPACIDAE	<i>Calidris temminckii</i>	Temminck's Stint	VU	NA	LC
SCOLOPACIDAE	<i>Calidris alba</i>	Sanderling	NT	NA	LC
SCOLOPACIDAE	<i>Calidris alpina</i>	Dunlin	LC	NA	LC
SCOLOPACIDAE	<i>Calidris minuta</i>	Little Stint	LC	NA	LC
SCOLOPACIDAE	<i>Gallinago gallinago</i>	Common Snipe	NT	NA	LC

Family	Scientific name	Common name	Red List status		
			UAE	Arabian Peninsula	Global
SCOLOPACIDAE	<i>Phalaropus lobatus</i>	Red-necked Phalarope	LC	NA	LC
SCOLOPACIDAE	<i>Xenus cinereus</i>	Terek Sandpiper	VU	NA	LC
SCOLOPACIDAE	<i>Actitis hypoleucos</i>	Common Sandpiper	EN	NA	LC
SCOLOPACIDAE	<i>Tringa nebularia</i>	Common Greenshank	NT	NA	LC
SCOLOPACIDAE	<i>Tringa totanus</i>	Common Redshank	LC	NA	LC
DROMADIDAE	<i>Dromas ardeola</i>	Crab-plover	EN	VU	LC
GLAREOLIDAE	<i>Cursorius cursor</i>	Cream-coloured Courser	EN	LC	LC
LARIDAE	<i>Larus genei</i>	Slender-billed Gull	LC	LC	LC
LARIDAE	<i>Larus ridibundus</i>	Black-headed Gull	LC	NA	LC
LARIDAE	<i>Larus ichthyaetus</i>	Pallas's Gull	VU	NA	LC
LARIDAE	<i>Larus hemprichii</i>	Sooty Gull	VU	LC	LC
LARIDAE	<i>Larus fuscus</i>	Lesser Black-backed Gull	LC	NA	LC
LARIDAE	<i>Larus cachinnans</i>	Caspian Gull	EN	NA	LC
LARIDAE	<i>Onychoprion anaethetus</i>	Bridled Tern	LC	LC	LC
LARIDAE	<i>Sternula saundersi</i>	Saunders's Tern	CR	LC	LC
LARIDAE	<i>Gelochelidon nilotica</i>	Common Gull-billed Tern	EN	LC	LC
LARIDAE	<i>Hydroprogne caspia</i>	Caspian Tern	CR	LC	LC
LARIDAE	<i>Sterna hirundo</i>	Common Tern	LC	LC	LC
LARIDAE	<i>Sterna repressa</i>	White-cheeked Tern	VU	LC	LC
LARIDAE	<i>Thalasseus bengalensis</i>	Lesser Crested Tern	LC	LC	LC
LARIDAE	<i>Thalasseus sandvicensis</i>	Sandwich Tern	VU	NA	LC
LARIDAE	<i>Thalasseus bergii</i>	Greater Crested Tern	NT	LC	LC
TYTONIDAE	<i>Tyto alba</i>	Common Barn-owl	EN	LC	LC
STRIGIDAE	<i>Athene noctua</i>	Little Owl	LC	LC	LC
STRIGIDAE	<i>Otus brucei</i>	Pallid Scops-owl	NT	LC	LC
STRIGIDAE	<i>Strix butleri</i>	Omani Owl	CR	NA ⁴	DD
STRIGIDAE	<i>Bubo ascalaphus</i>	Pharaoh Eagle-owl	EN	LC	LC
STRIGIDAE	<i>Bubo africanus</i>	Spotted Eagle-owl	EN	LC	LC
PANDIONIDAE	<i>Pandion haliaetus</i>	Osprey	VU	LC	LC
ACCIPITRIDAE	<i>Neophron percnopterus</i>	Egyptian Vulture	CR	VU	EN
ACCIPITRIDAE	<i>Circaetus gallicus</i>	Short-toed Snake-eagle	CR	VU	LC
ACCIPITRIDAE	<i>Torgos tracheliotos</i>	Lappet-faced Vulture	CR	VU	EN
ACCIPITRIDAE	<i>Clanga clanga</i>	Greater Spotted Eagle	EN	NA	VU
ACCIPITRIDAE	<i>Aquila nipalensis</i>	Steppe Eagle	CR	NA	EN
ACCIPITRIDAE	<i>Aquila heliaca</i>	Eastern Imperial Eagle	CR	NA	VU
ACCIPITRIDAE	<i>Aquila chrysaetos</i>	Golden Eagle	CR (RUPW)	EN	LC

Family	Scientific name	Common name	Red List status		
			UAE	Arabian Peninsula	Global
ACCIPITRIDAE	<i>Aquila fasciata</i>	Bonelli's Eagle	CR	LC	LC
ACCIPITRIDAE	<i>Circus aeruginosus</i>	Western Marsh-harrier	VU	NT	LC
ACCIPITRIDAE	<i>Circus macrourus</i>	Pallid Harrier	EN	NA	NT
ACCIPITRIDAE	<i>Accipiter badius</i>	Shikra	VU	LC	LC
UPUPIDAE	<i>Upupa epops</i>	Common Hoopoe	LC	LC	LC
MEROPIDAE	<i>Merops cyanophrys</i>	Arabian Green Bee-eater	LC	LC ²	LC
MEROPIDAE	<i>Merops persicus</i>	Blue-cheeked Bee-eater	EN	LC	LC
MEROPIDAE	<i>Merops apiaster</i>	European Bee-eater	CR (RPE)	LC	LC
CORACIIDAE	<i>Coracias benghalensis</i>	Indian Roller	LC	LC	LC
CORACIIDAE	<i>Coracias garrulus</i>	European Roller	CR (RPE)	NT	LC
ALCEDINIDAE	<i>Alcedo atthis</i>	Common Kingfisher	CR	NT	LC
ALCEDINIDAE	<i>Todiramphus chloris</i>	Collared Kingfisher	EN	EN	LC
FALCONIDAE	<i>Falco tinnunculus</i>	Common Kestrel	VU	LC	LC
FALCONIDAE	<i>Falco concolor</i>	Sooty Falcon	CR	VU	VU
FALCONIDAE	<i>Falco peregrinus</i>	Peregrine Falcon	CR	NA ¹	LC
LANIIDAE	<i>Lanius excubitor</i>	Great Grey Shrike	LC	LC	LC
CORVIDAE	<i>Corvus ruficollis</i>	Brown-necked Raven	LC	LC	LC
ALAUDIDAE	<i>Alaemon alaudipes</i>	Greater Hoopoe-lark	NT	LC	LC
ALAUDIDAE	<i>Ammomanes cinctura</i>	Bar-tailed Lark	CR	LC	LC
ALAUDIDAE	<i>Ammomanes deserti</i>	Desert Lark	LC	LC	LC
ALAUDIDAE	<i>Eremopterix nigriceps</i>	Black-crowned Sparrow-lark	LC	LC	LC
ALAUDIDAE	<i>Alaudala rufescens</i>	Lesser Short-toed Lark	CR	LC	LC
ALAUDIDAE	<i>Calandrella brachydactyla</i>	Greater Short-toed Lark	CR	LC	LC
ALAUDIDAE	<i>Alauda arvensis</i>	Eurasian Skylark	EN	NA	LC
ALAUDIDAE	<i>Galerida cristata</i>	Crested Lark	LC	LC	LC
CISTICOLIDAE	<i>Prinia gracilis</i>	Graceful Prinia	LC	LC	LC
ACROCEPHALIDAE	<i>Iduna pallida</i>	Olivaceous Warbler	CR	LC	LC
ACROCEPHALIDAE	<i>Acrocephalus scirpaceus</i>	Common Reed-warbler	VU	LC	LC
ACROCEPHALIDAE	<i>Acrocephalus stentoreus</i>	Clamorous Reed-warbler	LC	LC	LC
HIRUNDINIDAE	<i>Hirundo rustica</i>	Barn Swallow	LC	LC	LC
HIRUNDINIDAE	<i>Ptyonoprogne obsoleta</i>	Pale Rock Martin	LC	LC	LC
HIRUNDINIDAE	<i>Riparia riparia</i>	Collared Sand Martin	VU	NA ³	LC
PYCNONOTIDAE	<i>Pycnonotus xanthopygos</i>	White-spectacled Bulbul	NT	LC	LC
SCOTOCERCIDAE	<i>Scotocerca inquieta</i>	Streaked Scrub-warbler	VU	LC	LC
SYLVIIDAE	<i>Sylvia nana</i>	Asian Desert Warbler	LC	NA	LC
SYLVIIDAE	<i>Sylvia curruca</i>	Lesser Whitethroat	VU	LC	LC

Family	Scientific name	Common name	Red List status		
			UAE	Arabian Peninsula	Global
SYLVIIDAE	<i>Sylvia mystacea</i>	Menetries's Warbler	NT	LC	LC
LEIOTRICHIDAE	<i>Argya squamiceps</i>	Arabian Babbler	LC	LC	LC
STURNIDAE	<i>Sturnus vulgaris</i>	Common Starling	VU	LC	LC
MUSCICAPIDAE	<i>Cercotrichas galactotes</i>	Rufous-tailed Scrub-robin	NT	LC	LC
MUSCICAPIDAE	<i>Phoenicurus ochruros</i>	Black Redstart	LC	NT	LC
MUSCICAPIDAE	<i>Oenanthe isabellina</i>	Isabelline Wheatear	LC	LC	LC
MUSCICAPIDAE	<i>Oenanthe monacha</i>	Hooded Wheatear	CR	LC	LC
MUSCICAPIDAE	<i>Oenanthe deserti</i>	Desert Wheatear	LC	LC	LC
MUSCICAPIDAE	<i>Oenanthe albonigra</i>	Hume's Wheatear	LC	LC	LC
HYPOCOLIIDAE	<i>Hypocolius ampelinus</i>	Hypocolius	EN	LC	LC
NECTARINIIDAE	<i>Cinnyris asiaticus</i>	Purple Sunbird	LC	LC	LC
ESTRILDIDAE	<i>Euodice malabarica</i>	Indian Silverbill	LC	LC	LC
PASSERIDAE	<i>Passer domesticus</i>	House Sparrow	LC	LC	LC
PASSERIDAE	<i>Passer hispaniolensis</i>	Spanish Sparrow	CR (RPE)	LC	LC
PASSERIDAE	<i>Gymnoris xanthocolis</i>	Chestnut-shouldered Bush-sparrow	EN	LC	LC
MOTACILLIDAE	<i>Anthus cervinus</i>	Red-throated Pipit	VU	NA	LC
MOTACILLIDAE	<i>Anthus spinoletta</i>	Water Pipit	LC	NA	LC
MOTACILLIDAE	<i>Anthus richardi</i>	Richard's Pipit	EN	VU	LC
MOTACILLIDAE	<i>Anthus campestris</i>	Tawny Pipit	LC	NA	LC
MOTACILLIDAE	<i>Anthus similis</i>	Long-billed Pipit	VU	LC	LC
MOTACILLIDAE	<i>Motacilla cinerea</i>	Grey Wagtail	VU	NT	LC
MOTACILLIDAE	<i>Motacilla citreola</i>	Citrine Wagtail	VU	NA	LC
MOTACILLIDAE	<i>Motacilla alba</i>	White Wagtail	LC	NA	LC
FRINGILLIDAE	<i>Bucanetes githagineus</i>	Trumpeter Finch	CR	LC	LC
EMBERIZIDAE	<i>Emberiza calandra</i>	Corn Bunting	CR (RPE)	LC	LC
EMBERIZIDAE	<i>Emberiza striolata</i>	Striolated Bunting	LC	LC	LC

Notes

Arabian Peninsula assessments: Symes et al. (2015)

Global assessments: BirdLife International (2019)

CR = Critically Endangered

EN = Endangered

VU = Vulnerable

NT = Near Threatened

LC = Least Concern

RPE = Regionally Possibly Extinct

RPEW = Regionally Possibly Extinct in the Wild

DD = Data Deficient

NA = Not Applicable

Notes on Arabian Peninsula assessments:

¹ *Falco peregrinus* assessed as *F. p. peregrinus* (EN) and *F. p. peregrinoides* (VU).

² *Merops cyanophrys* assessed as *M. orientalis* (LC).

³ *Riparia riparia* assessed as lumped *R. riparia* and *R. diluta* (LC).

⁴ Assessment for species named as *Strix butleri* was for *S. hadorami*.

Appendix 2. Species whose UAE Red List status underwent a genuine change during 1996–2019.

Improved	
Scientific name	Common name
<i>Tadorna tadorna</i>	Common Shelduck
<i>Spatula clypeata</i>	Northern Shoveler
<i>Tachybaptus ruficollis</i>	Little Grebe
<i>Phoenicopterus roseus</i>	Greater Flamingo
<i>Oena capensis</i>	Namaqua Dove
<i>Rallus aquaticus</i>	Western Water Rail
<i>Gallinula chloropus</i>	Common Moorhen
<i>Chlamydotis macqueenii</i>	Asian Houbara
<i>Plegadis falcinellus</i>	Glossy Ibis
<i>Ixobrychus minutus</i>	Common Little Bittern
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron
<i>Butorides striata</i>	Green-backed Heron
<i>Bubulcus ibis</i>	Cattle Egret
<i>Himantopus himantopus</i>	Black-winged Stilt
<i>Charadrius dubius</i>	Little Ringed Plover
<i>Vanellus indicus</i>	Red-wattled Lapwing
<i>Gallinago gallinago</i>	Common Snipe
<i>Clanga clanga</i>	Greater Spotted Eagle
<i>Upupa epops</i>	Common Hoopoe
<i>Acrocephalus scirpaceus</i>	Common Reed-warbler
<i>Acrocephalus stentoreus</i>	Clamorous Reed-warbler
<i>Sylvia mystacea</i>	Menetries's Warbler
<i>Sturnus vulgaris</i>	Common Starling
<i>Cercotrichas galactotes</i>	Rufous-tailed Scrub-robin
<i>Phoenicurus ochruros</i>	Black Redstart
<i>Anthus spinoletta</i>	Water Pipit
<i>Anthus campestris</i>	Tawny Pipit

Deteriorated	
Scientific name	Common name
<i>Anas acuta</i>	Northern Pintail
<i>Ardenna carneipes</i>	Flesh-footed Shearwater
<i>Phalacrocorax nigrogularis</i>	Socotra Cormorant
<i>Vanellus vanellus</i>	Northern Lapwing
<i>Calidris tenuirostris</i>	Great Knot
<i>Calidris falcinellus</i>	Broad-billed Sandpiper
<i>Sternula saundersi</i>	Saunders's Tern
<i>Sterna repressa</i>	White-cheeked Tern
<i>Thalasseus bergii</i>	Greater Crested Tern
<i>Aquila chrysaetos</i>	Golden Eagle
<i>Merops apiaster</i>	European Bee-eater
<i>Coracias garrulus</i>	European Roller
<i>Falco concolor</i>	Sooty Falcon
<i>Alaemon alaudipes</i>	Greater Hoopoe-lark
<i>Pycnonotus xanthopygos</i>	White-spectacled Bulbul
<i>Passer hispaniolensis</i>	Spanish Sparrow
<i>Gymnoris xanthocollis</i>	Chestnut-shouldered Bush-sparrow
<i>Emberiza calandra</i>	Corn Bunting

Appendix 3. List of participants at in the UAE National Red List of Birds Assessment Workshop, Dubai, July 2019.

Name	Affiliation
Hessa Al Qahtani	Al Ain Zoo, UAE
Lisa Banfield	Al Ain Zoo, UAE
Mouza Alhajiri	Al Ain Zoo, UAE
Ahmed Al Ali	Emirates Bird Records Committee (EBRC), UAE
Lyle Glowka	Convention on the Conservation of Migratory Species of Wild Animals
Fatima Al Hantoubi	Dibba Municipality, UAE
Esmat Elhassan	Dubai Municipality, UAE
Junid Shah	Dubai Municipality, UAE
Saoud Faisal Badaam	Dubai Municipality, UAE
Reza Khan	Dubai Safari, UAE
Shamshad Alam	Dubai Safari, UAE
Jacky Judas	Emirates Nature–WWF, UAE
Mohammed Al Remeithi	Environment Agency – Abu Dhabi (EAD), UAE
Shahid Khan	Environment Agency – Abu Dhabi (EAD), UAE
Shakeel Allah Ditta	Environment Agency – Abu Dhabi (EAD), UAE
Zamzam Alrashdi	Environment Agency – Abu Dhabi (EAD), UAE
Ghaya Abdalla	Environment and Protected Areas Authority (EPAA), UAE
Hessa Burehaima	Environment and Protected Areas Authority (EPAA), UAE
Sami Majeed	Fujairah Municipality, UAE
Ahmad Meshli	Ministry of Climate Change and Environment (MOCCA), UAE
Hanadi Al Ali	Ministry of Climate Change and Environment (MOCCA), UAE
Hassina Ali	Ministry of Climate Change and Environment (MOCCA), UAE
Hiba Al Shehhi	Ministry of Climate Change and Environment (MOCCA), UAE
Maitha Almheiri	Ministry of Climate Change and Environment (MOCCA), UAE
Muna Alshamsi	Ministry of Climate Change and Environment (MOCCA), UAE
Nahla Noobi	Ministry of Climate Change and Environment (MOCCA), UAE
Obaid Al Shamsi	Ministry of Climate Change and Environment (MOCCA), UAE
Reem Almheiri	Ministry of Climate Change and Environment (MOCCA), UAE
Syed Hajamaideen	Municipality and Planning Department, Ajman, UAE
Sabir Bin Muzaffar	United Arab Emirates University, UAE
Workshop Facilitators	
David Allen	Red List Unit, IUCN, UK
James Westrip	Red List Unit, IUCN, UK
Robert Sheldon	RDS Conservation (Consultant, BirdLife International)

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For further information or feedback:

Ministry of Climate Change & Environment

PO Box 1509, Dubai, United Arab Emirates

Email: info@moccae.gov.ae



@MOCCAЕUAE

www.moccae.gov.ae