THE CONSERVATION STATUS AND DISTRIBUTION OF THE MAMMALS OF THE ARABIAN PENINSULA

Compiled by David P. Mallon, Craig Hilton-Taylor, Giovanni Amori, Robert Baldwin, Peter L. Bradshaw and Kevin Budd

ARABIAN PENINSULA

The IUCN Red List of Threatened Species™ - Regional Assessment

SSC Species Survival Commission

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THE IUCN RED LIST OF THREATENED SPECIES™ - REGIONAL ASSESSMENT

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Contents

Executive summary

The assessment region contains a wide diversity of sand and gravel deserts, mountains, coastal and offshore habitats and sparse wetlands. It also contains a diverse mammal fauna which comprises a mix of Arabian endemics, species with affinities to the Horn of Africa and Saharo-Sindian, Iranian-Central Asian, and Mediterranean elements. There are 166 terrestrial and 23 marine species whose occurrence in the region is confirmed, giving an overall total of 189 confirmed species. Twenty-three terrestrial species are endemic to the region, with a concentration in the mountains of the south-west, and seven are near-endemic. There are no endemic marine species. Over all, species richness is highest around the mountainous margins of the Arabian Peninsula.

The conservation assessment was carried out during the 17th Sharjah International Conservation Forum for Arabia's Biodiversity, held at the Breeding Centre for Endangered Arabian Wildlife, 8-12 February 2016. The status of the terrestrial species was assessed using the IUCN Red List Categories and Criteria and application of the IUCN Regional Guidelines. The distribution and status of each marine mammal species was reviewed and updated.

Five species are regionally Extinct (two carnivores and three ungulates). Only one species is Critically Endangered, five are Endangered, and 14 Vulnerable, hence 20 species are listed in the three categories collectively regarded as 'threatened'. This represents 14.1 % of the species assessed and compares favourably to the global figure for mammals of 25 % of species threatened. However, out of the 14 species of ungulates, three are Regionally Extinct and eight (57.1 %) are threatened: reflecting a long history of hunting in the region. Two out of 24 carnivores are Regionally Extinct and seven (29.2 %) are threatened. Detailed information on many species is lacking and 21.8 % were categorised as Data Deficient.

The main drivers of declines in terrestrial species are uncontrolled hunting and habitat loss and degradation. General threats to marine mammal species include incidental mortality in fishing nets, coastal development, boat strikes and pollution.

يتضمن الإقليم محّل التقييم مجموعة واسعة من الصحاري الرملية والحصوية والجبال والموائل الساحلية والبحرية والمستنقعات المتفرقة. كما يحتوي على مجموعة متنوعة من الثدييات التي تضم مزيجًا من الأنواع العربية المستوطنة وأنواع متصلة بالقرن الأفريقي وأخرى بالصحراء السندية والإيرانية الوسط آسيوية والمتوسطية. تم تأكيد وجود 166 نوعًا بريًا و 23 نوعًا بحريًا من الكائنات الحية في الاقليم، بإجمالي يصل إلى 189 نوع. بالإضافة إلى ذلك، هناك 23 نوعًا من الكائنات الحية البرية المستوطنة في الاقليم، مع تركز وجودها في جبال الجنوب الغربي، وسبع أنواع شبه مستوطنة، بينما لا توجد أي كائنات حية بحرية مستوطنة. وبشكل عام، يتمتع هذا الإقليم بوفرة في أنواع الكائنات الحية تعد الأعلى حول الحواف الجبلية لشبه الجزيرة العربية.

تم إجراء تقييم الصون خلال منتدى الشارقة الدولي لصون التنوع الحيوي في نسخته السابعة عشر، والذي عُقد في مركز حماية وإكثار الحيوانات العربية البرية المهددة بالانقراض، في الفترة من 8 إلى 12 فبراير 2016. تم تقييم حالة الأنواع البرية باستخدام فئات ومعايير القائمة الحمراء الخاصة بالاتحاد العالمي للحفاظ على الطبيعة ومواردها (IUCN) وبتطبيق مبادئه التوجيهية الإقليمية، كما تم مراجعة وتحديث توزيع وحالة كل نوع من أنواع الثدييات البحرية.

هناك خمسة أنواع منقرضة إقليميًا (نوعان منها آكلة للحوم وثلاثة أخرى من ذوات الحوافر)، بالإضافة إلى وجود نوع واحد فقط مهدد بشدة بالانقراض، وخمسة أنوع مهددة بالانقراض، و 14 نوع معرض للانقراض، وبالتالي يصبح المجموع 20 نوع مدرج في الفئات الثلاث التي تعتبر مجتمعة «مهددة بالانقراض». يمثل هذا 14.1% من الأنواع التي خضعت للتقييم ويسهم في الرقم العالمي للثدييات المهددة بالانقراض وهو 25%. ومع ذلك، ومن بين 14 نوعًا من ذوات الحوافر، هناك ثلاثة أنواع تعرضت للانقراض إقليميًا وستة أنواع (57.1%) مهددة بالانقراض: مما يعكس تاريخًا طويلًا من الصيد الجائر في الاقليم. بالإضافة إلى ذلك، هناك اثنان من أصل 24 من آكلات اللحوم منقرضة إقليميًا وسبعة (29.2%) مهددة بالانقراض. ولا توجد معلومات تفصيلية حول العديد من الأنواع، بينما تم تصنيف 21.8% من المعلومات المتعلقة بالأنواع على أنها معلومات غير كافية.

تعزي العوامل الرئيسية لنقص أعداد الكائنات الحية البرية إلى الصيد الجائر وفقدان الموائل وتدهورها. وتشمل التهديدات العامة التي تهدد الثدييات البحرية حوادث النفوق في شباك الصيد وتطوير السواحل وحوادث اصطدام القوارب بالثدييات والتلوث.

Acknowledgements

We would like to thank His Highness Sheikh Dr Sultan bin Mohammed Al Qasimi, Member of the Supreme Council and Ruler of Sharjah, for his support and guidance, and for continuing to champion biodiversity conservation in Arabia; without which the success of this workshop would not have been possible.

We are grateful to our host organisations, the Environment and Protected Areas Authority (EPAA), Government of Sharjah and the Breeding Centre for Endangered Arabian Wildlife (BCEAW) for providing logistical and administrative support and making sure the communications and evaluation workshop ran smoothly. We would especially like to thank H. E. Ms. Hana Al Suwaidi (Chairperson, EPAA) and Mr Paul Vercammen (Operations Manager, BCEAW).

Workshop facilitators in Sharjah were Craig Hilton-Taylor, Giovanni Amori, Robert Baldwin and David Mallon. Peter Bradshaw provided GIS support and compiled the maps with help from John Pereria.

All of IUCN's global Red Listing processes rely on the willingness of scientists to contribute and pool their collective knowledge to make the most reliable estimates of species conservation status. Without their enthusiastic commitment to species conservation, this kind of regional overview would not be possible.

We would like to thank all the participants and other contributors who contributed their time and valuable expertise to evaluate all the assessments at the workshop held in Sharjah. Funding for data compilation, workshop organisation, editing and printing was provided through the Sharjah Environment and Protected Areas Authority.

1. Introduction

1.1 The assessment region

The assessment region covers the whole of the Arabian Peninsula, north to Syria and Iraq (Figure 1). This is same region covered by *The Mammals of Arabia* (Harrison and Bates, 1991) and the *Regional Red List assessment of the breeding birds of the Arabian Peninsula* (Symes et al., 2015). The total land area exceeds 3,000,000 km². The marine region assessed comprises the five sea areas surrounding the Arabian Peninsula: Red Sea, Gulf of Aden, Arabian Sea, Sea of Oman, Arabian Gulf (Figure 1). It does not include the eastern Mediterranean which borders the far north-west of the region.

The interior of the Arabian Peninsula is mainly composed of sand and gravel deserts, arid steppes and rocky plateaus intersected by numerous wadis. The largest of these are Wadi Rum in Jordan and the Wadi Hadhramaut-Wadi Masilah system in southern Yemen. Sand dunes occupy large areas, with the Rub al Khali (Empty Quarter) in the south-east occupying about 640,000 km². Black basalt lava flows (harrat) cover about 30,000 km² in northern Saudi Arabia and adjacent parts of Syria and Jordan.

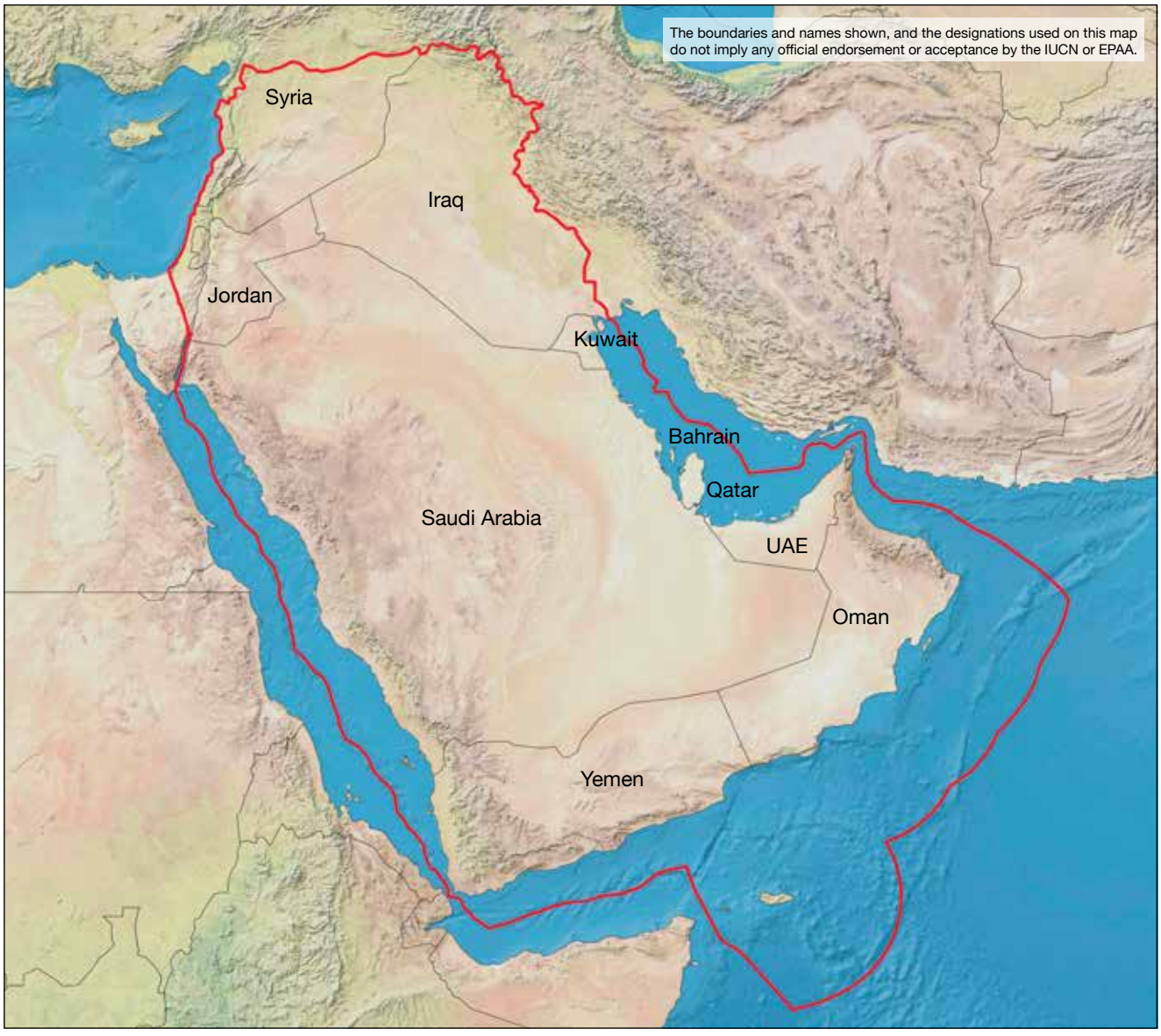


Figure 1. Mammals in the Arabian Peninsula assessment region. Source: John Pereria.

Mountains fringe the entire region except for the north-east coast of the Arabian Gulf. A range of mountains runs parallel to the Red Sea coast, rising steeply from a coastal plain and shelving more gradually towards the desert interior. The western mountains reach their highest point at Jebel An Nabi Shu'ayb (3,666 m) in Yemen. The southern part of this range, in south-west Saudi Arabia and Yemen, receives summer rainfall and the western escarpment is intensively cultivated by means of terraced fields and cut by many steep wadis, some of which contain some water throughout the year and are partially wooded, with species of Ficus, Cordia, Breonardia and Tamarindus. At higher elevations, some patches of open juniper (*Juniperus procera*) woodland remain. In the south, the mountains of Dhofar, southern Oman and the Mahra region of eastern Yemen attain elevations of 1,400-1,800 m and receive rain from the summer monsoon. Dense woodland on their seaward slopes contains *Anogeissus dhofarica*, *Commiphora habessinica* and *Boswellia sacra* (frankincense) trees. These woodlands are further maintained by moisture from coastal fog. Between Dhofar and the south-west mountains lies an extensive limestone plateau, the jol. The Hajar Mountains of Oman and United Arab Emirates run in an arc along the south-east coast for about 600 km from the Musandam Peninsula to Ras al Hadd. Their highest point, on Jebel Al Akhdar, reaches 3,009 m. The northern edge of the region is bordered by the Zagros Range, reaching 3,611 m in the Kurdistan Region of Iraq. A strip of lower hills belonging to the Mediterranean biome runs south along the north-western edge of the region from the Turkish border through Lebanon, Syria and Jordan. The vegetation here consists of Mediterranean scrub, pine (*Pinus* spp.) forests and the well-known cedar of Lebanon (*Cedrus libani*). Salt flats (sabkha) occur on coasts and in places inland. Narrow coastal strips - the Tihama in the south-west and the Batinah in Oman – contain extensive areas of agriculture. Mangroves are an important but declining habitat especially along the Gulf and Red Sea coasts.

Apart from the Tigris and Euphrates Rivers of Syria and Iraq, and the Orontes and Jordan Rivers in the north-west, permanent water is restricted to a few mountain wadis. Temporary streams and pools occur after rainfall. The marshes of southern Iraq are the region's major wetland. Draining these marshes for political reasons reduced them to about 10 % of their original extent by 2003, but flooding since then has restored about 55 % of the area covered in the 1970s.

Vegetation over most the region is generally sparse and low, though many wadis have open *Acacia-Commiphora* woodland, and several species of *Acacia* and *Ziziphus* are widespread. In Oman and United Arab Emirates, groves of *Prosopis cineraria* trees (ghaf) occur. Overgrazing by livestock has adversely affected much of the original natural vegetation. The south-west mountains, Dhofar and Hadhramaut form part of two global biodiversity hotspots – Horn of Africa and Eastern Afromontane (Mittermeier et al., 2004; Mallon, 2011).

1.2 Mammals of the Arabian Peninsula

The Arabian Penisula lies at the junction of three biogeographic realms: Western Palearctic, Afrotropical, and Indomalayan, which is reflected in the composition of the flora and fauna. The mammal fauna comprises a mix of Arabian endemics, species with affinities to the Horn of Africa and Saharo-Sindian, Iranian-Central Asian, and Mediterranean elements. The zoogeography of the mammals of the Arabian Peninsula was discussed by (Delany, 1989). The baseline for all studies of the terrestrial mammals of the region is David Harrison's three-volume The Mammals of Arabia (Harrison, 1964-72) and the updated second edition (Harrison & Bates 1991). Country summaries have been provided for Iraq (Hatt, 1959; Al Sheikhly et al., 2015a), Jordan (Amr, 2012), Kuwait (Cowan, 2013) and Yemen (Al Jumaily, 1998).

Baldwin et al. (1999) summarised the historical records and reviewed the status of marine mammals in waters around the Arabian Peninsula. Many scientific papers and reports have been published on individual species and taxonomic groups and these works are cited where appropriate in the species accounts.

In total, 201 species of mammals have been reported from the region: 173 terrestrial and 28 marine species (Table 1). The occurrence of seven terrestrial and five marine species is unconfirmed, leaving totals of 166 terrestrial and 23 marine species, hence an overall total of 189 confirmed species. Taxonomic uncertainties remain over a few bats and small mammals, so this

figure may be amended when research clarifies these issues.

Two species, Saudi gazelle (*Gazella saudiya*) and Yemen gazelle (*G. bilkis*), are already Extinct (EX) while three are Regionally Extinct (RE): lion (*Panthera leo*), cheetah (*Acinonyx jubatus*) and wild ass (*Equus hemionus*). One reported species is considered an invalid taxon (*Gazella erlangeri*). Eight species are not indigenous to the region and have been introduced or escaped and there is some doubt about the origin of the Indian grey mongoose (*Herpestes edwardsii*). In addition, domestic cats, dogs, goats and donkeys have established feral populations in some places.

Twenty-one terrestrial species are endemic to the region and six are near-endemic (defined as having ≥70 % of their range in the region). Endemic species include ten rodents, five ungulates and four out of the seven shrews. There are no endemic marine species, although the Arabian Sea population of humpback whale (*Megaptera novaeangliae*) is considered to be isolated and distinct. Terrestrial mammals in the region belong to nine taxonomic orders and marine mammals belong to two (Table 1).

Several regional subspecies have been described, usually based on morphological characters, but few of these have so far been confirmed by genetic analysis and may prove to be distinct. Research has shown that some regional populations are genetically distinct, notably three species in the south-west whose main ranges lie in Africa: Hamadryas baboon (*Papio hamadryas*), common genet (*Genetta genetta*) and white-tailed mongoose (*Ichneumia albicauda*).

1.3 The regional assessment

The assessment took place at the 18th Sharjah International Conservation Workshop for Arabian Biodiversity, held at the Breeding Centre for Endangered Arabian Wildlife, 8-12 February 2016 (Figure 2).

The assessment had the following objectives:

- To assist in regional conservation planning by reviewing the status and distribution of all mammal species occurring within the region;
- To make regional Red List assessments of all terrestrial mammals;
- To review the status of all marine mammal species;
- To develop a network of regional experts to support future assessments and the updating of the information on these species.

Figure 2. Arabian mammal experts assessing species at the workshop 8-12 February 2016. © EPAA.

Table 1. Diversity and endemism in terrestrial and marine mammal orders and families in the Arabian Peninsula

Order	Family	Number of species	Number of endemic species (%)	Number of near endemic* species (%)
Rodentia	Muridae	36	8 (22.2%)	3 (8.3%)
	Cricetidae	8	0 (0%)	1 (12.5%)
	Sciuridae	2	0 (0%)	0 (0%)
	Dipodidae	3	0 (0%)	0 (0%)
	Gliridae	2	0 (0%)	0 (0%)
	Spalacidae	1	0 (0%)	0 (0%)
	Hystricidae	1	0 (0%)	0 (0%)
	Calomyscidae	1	1 (100%)	0 (0%)
	Myocastoridae	1	0 (0%)	0 (0%)
Chiroptera	Pteropodidae	3	0 (0%)	0 (0%)
	Rhinolophidae	6	0 (0%)	0 (0%)
	Hipposideridae	7	1 (14.3%)	0 (0%)
	Rhinopomatidae	4	1 (25%)	0 (0%)
	Emballonuridae	3	0 (0%)	0 (0%)
	Nycteridae	1	0 (0%)	0 (0%)
	Molossidae	6	0 (0%)	0 (0%)
	Vespertilionidae	24	1 (4%)	0 (0%)
	Miniopteridae	1	0 (0%)	0 (0%)
Eulipotyphla	Erinaceidae	4	0 (0%)	0 (0%)
	Soricidae	7	4 (57.1%)	0 (0%)
Primates	Cercopithecidae	1	0 (0%)	0 (0%)
Cetartiodactyla (Artiodactyla)	Bovidae	14	5 (35.7%)	2 (14.3%)
	Cervidae	2	0 (0%)	0 (0%)
	Suidae	1	0 (0%)	0 (0%)
Carnivora	Felidae	9	0 (0%)	0 (0%)
	Viverridae	2	0 (0%)	0 (0%)
	Herpestidae	5	0 (0%)	0 (0%)
	Hyaenidae	1	0 (0%)	0 (0%)
	Canidae	6	0 (0%)	0 (0%)
	Ursidae	1	0 (0%)	0 (0%)
	Mustelidae	7	0 (0%)	0 (0%)
Lagomorpha	Leporidae	1	0 (0%)	0 (0%)
Perissodactyla	Equidae	1	0 (0%)	0 (0%)
Hyracoidea	Procaviidae	1	0 (0%)	0 (0%)
Total - terrestrial mammals		**173**	**21 (12.1%)**	**6 (3.4%)**
Cetartiodactyla (Cetaceae)	Balaenopteridae	6	0 (0%)	0 (0%)
	Delphinidae	15	0 (0%)	0 (0%)
	Phocoenidae	1	0 (0%)	0 (0%)
	Physeteridae	3	0 (0%)	0 (0%)
	Ziphiidae	2	0 (0%)	0 (0%)
Sirenia	Dugongidae	1	0 (0%)	0 (0%)
Total - marine mammals		**28**	**0 (0%)**	**0 (0%)**
Total - marine and terrestrial mammals		**201**	**21 (10.4%)**	**6 (2.9%)**

* has ≥70% of the global range within the region

Source: Compiled by the report authors

2. Assessment methodology

2.1 Terrestrial mammals

The status of all indigenous species occurring in the Arabian Peninsula was assessed according to the IUCN Red List Categories and Criteria, version 3.1 (IUCN, 2001; 2012) and the Guidelines for Application of IUCN Criteria at Regional Levels (IUCN, 2003) (Figure 3).

Baseline information on species' status was obtained from Harrison and Bates (1991) and other key publications and then supplemented by information from participants at the assessment workshop. Species distribution maps were also developed from Harrison and Bates (1991) and other sources, amended and updated during the workshop, and digital versions based on the global maps on The IUCN Red List of Threatened Species™ were produced following the workshop.

2.2 Marine mammals

The status of marine mammals was reviewed by a group of marine experts, based on the information in Baldwin et al. (1999) and updated with subsequent regional information, though many species remain poorly known. Regional Red List assessments of the marine mammal species were not conducted, mainly due to the difficulty in delimiting the boundaries of regional populations, especially for species that range widely over the north-west Indian Ocean. One exception is the isolated, resident population of the humpback whale *Megaptera novaeangliae* in the Arabian Sea which has been separately assessed (Minton et al., 2008).

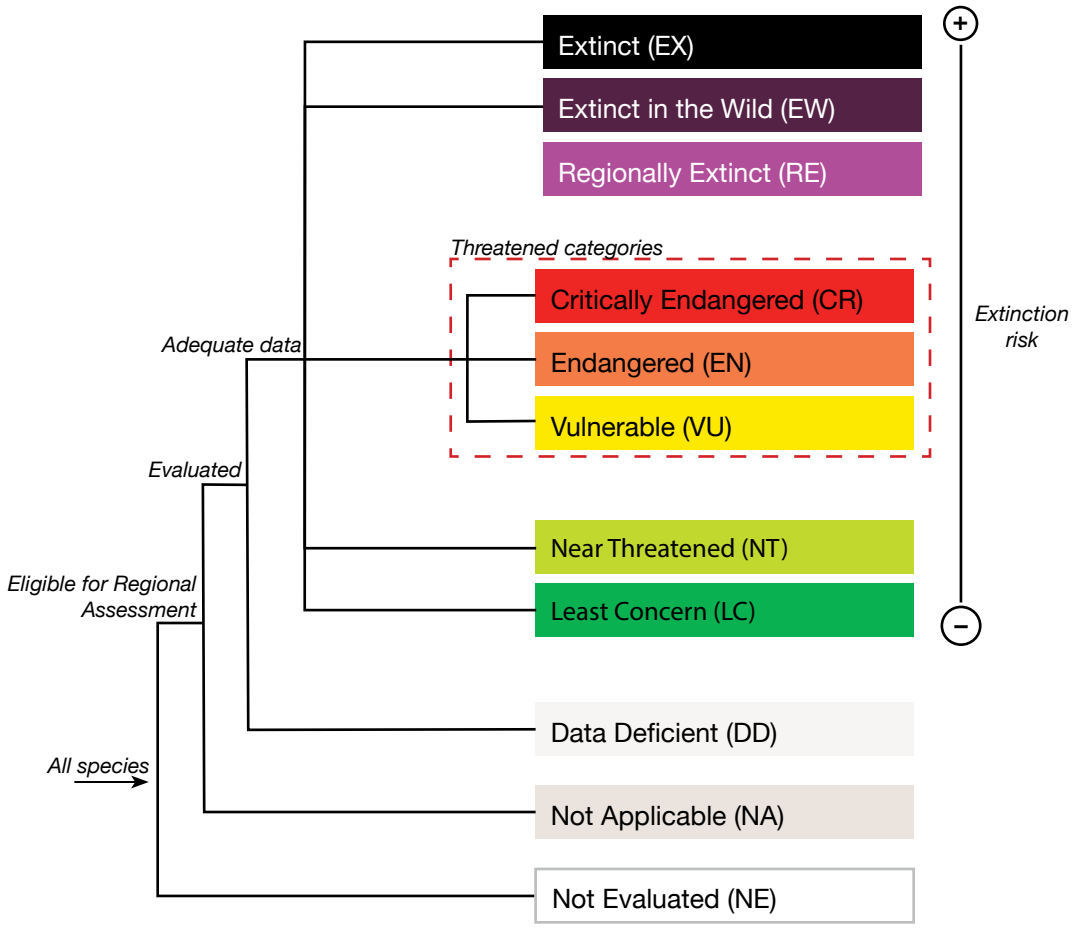


Figure 3. IUCN Red List Categories at the regional level (IUCN, 2003).

Figure 4. The Arabian leopard *Panthera pardus nimr* is the only mammal in the Arabian Peninsula to be listed as Critically Endangered. The victim of indiscriminate persecution and habitat loss. © Jane and Kevin Budd, EPAA. *Ex situ* BCEAW/EPAA.

3. Results

In total 201 species of mammal (173 terrestrial and 28 marine) are reported from the region, 36 species (31 terrestrial and 5 marine) were classed as Not Applicable. Of the remaining 165 species no attempt was made to assess the 23 species of marine mammal due to the difficulty in delimiting the boundaries of regional populations. Thus only the 142 terrestrial species were assessed at the Arabian Penisula level during the workshop.

All 165 species native to the Arabian Peninsula, together with their global IUCN Red List status and regional Red List status, for terrestrial species, are listed in Appendix 1. The 36 species classed as Not Applicable for regional assessments, including the reason why, are listed in Appendix 2.

3.1 Threatened status of terrestrial mammals

At the regional level, 3.5% (5) of terrestrial mammals are already regionally or globally Extinct, 0.7% (1) is Critically Endangered, 3.5% (5) are Endangered, and 9.9% (14) are Vulnerable. A further 6.3% (9) are considered Near Threatened (Figure 5). Overall, 14.1% (20) species are listed in the three categories collectively regarded as 'threatened'. This pattern is similar to that of Europe with 14.4% of terrestrial mammals threatened (Temple et. al. 2007), but compares favourably to the global figure for mammals of ca. 25% threatened. However, a further 31 species (21.8%) were classed as Data Deficient thus the proportion of threatened species may be higher. Species classed as threatened at the global or regional level are listed in Table 2.

Status summaries of all 165 (142 terrestrial and 23 marine) species in the region; including their geographic range, information on population, habitat and ecology, threats and conservation, where available, the regional Red List Category and the justification (for terrestrial species) are provided in Section 8. Distribution maps are provided in Section 9.

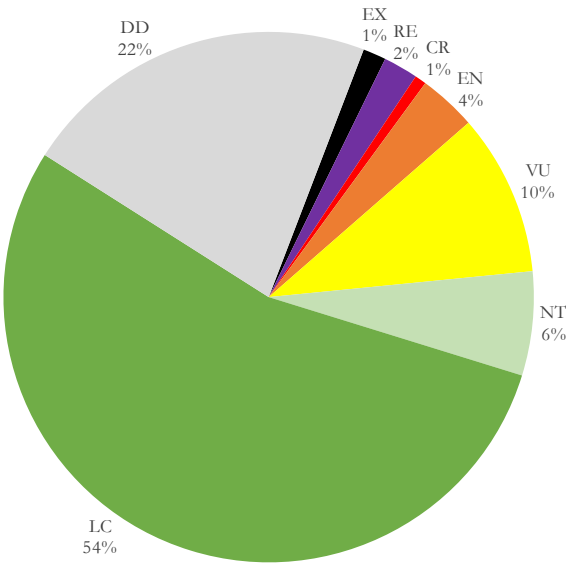


Figure 5. The proportion of terrestrial mammal species assessed in the different Red List categories (n = 142). Source: Compiled by the report authors.

3.2 Status by taxonomic group

Terrestrial mammals native to the Arabian Peninsula belong to nine taxonomic orders: Eulipotyphla (shrews, moles and hedgehogs), Rodentia (rodents), Chiroptera (bats), Primates (monkeys and baboons), Cetartiodactyla (even-toed ungulates and cetaceans), Carnivora (carnivores), Lagomorpha (rabbits, hares and pikas), Perissodactyla (odd-toed ungulates), and Hyracoidea (hyraxes). Considerable differences exist between these groups in both number of species and threatened status (Table 3). Rodents and bats constitute the majority of species but carnivores and ungulates are particularly threatened.

Of the 13 species of ungulates, one (7.6%) is Extinct, two (15.4%) are Regionally Extinct, and eight (61.5%) are threatened: reflecting a long history of hunting in the region and the severe impact in the last 70 years, as off-road vehicles and modern weapons became widely available. Two (8.3%) of the 24 carnivores are Regionally Extinct and seven (29.2%) are threatened. The main driver of declines in carnivore populations is considered to be relentless and indiscriminate persecution, by trapping, shooting and poisoning.

Thirty-one species are assessed as Data Deficient, 22 (71%) of which are bats, reflecting the paucity of

Table 2. Threatened terrestrial and marine mammal species in the Arabian Peninsula

Order	Scientific Name	Common Name	Red List Status	
			Regional	Global
Carnivora	*Panthera leo*	Lion	RE	VU
Carnivora	*Acinonyx jubatus*	Cheetah	RE	VU
Perissodactyla	*Equus hemionus*	Wild ass	RE	NT
Carnivora	*Panthera pardus*	Common leopard	CR	VU
Chiroptera	*Rhinopoma hadramauticum*	Hadhramaut mouse-tailed bat	EN	EN
Cetartiodactyla	*Gazella gazella*	Mountain gazelle	EN	EN
Cetartiodactyla	*Arabitragus jayakari*	Arabian tahr	EN	EN
Cetartiodactyla	*Dama mesopotamica*	Persian fallow deer	EN	EN
Cetartiodactyla	*Megaptera novaeangliae*	Humpback whale[1]	EN	EN
Carnivora	*Lutrogale perspicillata*	Smooth-coated otter	EN	VU
Rodentia	*Meriones sacramenti*	Buxton's jird	VU	VU
Rodentia	*Mesocricetus auratus*	Golden hamster	VU	VU
Chiroptera	*Rhinolophus euryale*	Mediterranean horseshoe bat	VU	NT
Chiroptera	*Otomops harrisoni*	Afro-Arabian free-tailed bat	VU	VU
Cetartiodactyla	*Gazella arabica*	Arabian gazelle	VU	VU
Cetartiodactyla	*Gazella dorcas*	Dorcas gazelle	VU	VU
Cetartiodactyla	*Gazella marica*	Arabian sand gazelle	VU	VU
Cetartiodactyla	*Capra nubiana*	Nubian ibex	VU	VU
Cetartiodactyla	*Oryx leucoryx*	Arabian oryx	VU	VU
Carnivora	*Lutra lutra*	Eurasian otter	VU	NT
Carnivora	*Felis margarita*	Sand cat	VU	LC
Carnivora	*Vulpes cana*	Blanford's fox	VU	LC
Carnivora	*Canis lupus*	Grey wolf	VU	LC
Carnivora	*Hyaena hyaena*	Striped hyena	VU	NT
Rodentia	*Sciurus anomalus*	Persian squirrel	NT [VU A2cd +R]	LC
Rodentia	*Allactaga euphratica*	Euphrates jerboa	NT [VU A2 +R]	NT
Chiroptera	*Rhinolophus ferrumequinum*	Greater horseshoe bat	NT [VU A2c +R]	LC
Chiroptera	*Rhinolophus hipposideros*	Lesser horseshoe bat	NT [VU A2c+R]	LC
Cetartiodactyla	*Gazella subgutturosa*	Goitered gazelle	NT [VU D1 +R]	VU
Cetartiodactyla	*Capra aegagrus*	Wild goat	NT [VU C2 +R]	VU
Carnivora	*Mellivora capensis*	Honey badger	NT [near VU C1]	LC
Carnivora	*Felis lybica*	Wild cat	NT [near VU A2]	NE
Lagomorpha	*Lepus capensis*	Cape hare	NT [near VU A2]	LC
Rodentia	*Nesokia bunnii*	Bunn's short-tailed bandicoot rat	DD	EN
Chiroptera	*Rhinolophus mehelyi*	Mehely's horseshoe bat	DD	VU
Chiroptera	*Myotis capaccinii*	Long-fingered bat	DD	VU
Carnivora	*Vormela peregusna*	Marbled polecat	DD	VU
Cetartiodactyla	*Ovis orientalis*	Urial	NA*	VU
Carnivora	*Panthera tigris*	Tiger	NA*	EN
Cetartiodactyla	*Balaenoptera musculus*	Blue whale	NE	EN
Cetartiodactyla	*Balaenoptera physalus*	Fin whale	NE	EN
Cetartiodactyla	*Balaenoptera borealis*	Sei whale	NE	EN
Cetartiodactyla	*Sousa plumbea*	Indo-Pacific hump-backed dolphin	NE	EN
Cetartiodactyla	*Neophocaena phocaenoides*	Finless porpoise	NE	VU
Cetartiodactyla	*Physeter macrocephalus*	Sperm whale	NE	VU
Sirenia	*Dugong dugon*	Dugong	NE	VU

* Species listed as NA (Not Applicable) in the Regional Red List status are of marginal occurrence or their occurrence has not been confirmed in the region.

[1] Arabian Sea subpopulation

Source: Compiled by the report authors.

information on this taxonomic group in the region. Little information is available on numbers, population trends or status of most species. Several species are represented by very few records and it is possible that some occur more widely than existing records suggest. The impacts of threats on bats are also not well understood and remain in most cases unquantified. Damage and disturbance to roost sites through quarrying and disturbance to caves are likely to be widespread, as well as changes to traditional building practices that reduce the number of available crevices or roost spaces. These factors are expected to increase along with the rate of commercial, industrial and residential development. The indirect impact of pesticides on insect prey is another potential issue, but extensive areas of agriculture currently occupy a relatively small part of the region. Few if any conservation programmes are targeted at bats, though surveys and monitoring efforts are expanding. Many species probably occur in several protected areas where their distributions overlap. A coordinated survey programme and further taxonomic research are required to develop an accurate assessment of the status of bats in the region.

3.3 Extinctions

Two species of ungulate the Saudi gazelle (*Gazella saudiya*) and Yemen gazelle (*G. bilkis*) are considered to be Extinct (EX) as there have been no sightings or specimens collected of either species since 1970 and 1951 respectively.

A further three species; lion (*Panthera leo*), cheetah (*Acinonyx jubatus*) and wild ass (*Equus hemionus*) are Regionally Extinct (RE).

There are historical accounts and anecdotal reports of lion and cheetah throughout the region but it is likely that linguistic confusion surrounding local names may account for or have obscured some records. There are no confirmed records for either species from the Arabian Peninsula in recent times.

3.4 Spatial distribution of species

3.4.1 Species richness

Information on the species richness of mammals within orders and families has already been given in Section 4.2 and Table 3. The pattern of species richness of terrestrial mammals is shown in Figure 7. The highest number of species is found in the north-west of the region, where Mediterranean and Palearctic elements mingle with those from the Middle East and endemics. The mountains of south-western Saudi Arabia and western Yemen are also relatively species-rich, containing some endemic small mammals and several species with African affiliations. These are

Table 3. Regional Red List status for terrestrial mammals in the Arabian Peninsula by taxonomic order

Order	Total	NA	EX	EW	RE	CR	EN	VU	NT	LC	DD	Total assessed	% Threatened or Extinct
Rodentia	55	13	0	0	0	0	0	2	2	34	4	42	4.8%
Chiroptera	55	6	0	0	0	0	1	2	2	22	22	49	6.1%
Eulipotyphla	11	1	0	0	0	0	0	0	0	8	2	10	0%
Primates	1	0	0	0	0	0	0	0	0	1	0	1	0%
Cetartiodactyla	17	4	2	0	0	0	3	5	2	1	0	13	76.9%
Carnivora	31	7	0	0	2	1	1	5	2	10	3	24	37.5%
Lagomorpha	1	0	0	0	0	0	0	0	1	1	0	1	0%
Perissodactyla	1	0	0	0	1	0	0	0	0	0	0	1	100%
Hyracoidea	1	0	0	0	0	0	0	0	0	1	0	1	0%
Total	**173**	**31**	**2**	**0**	**3**	**1**	**5**	**14**	**9**	**77**	**31**	**142**	**17.6%**

Source: Compiled by the report authors.

Figure 6. The Cape hare *Lepus capensis* is Near Threatened as it is close to qualifying for Vulnerable under criterion A2cd. But with potentially as many as eight different subspecies in the region, genetic analyses is necessary to clarify the taxonomy and confirm the status of distinctive regional forms. © Björn Jordan, ex situ BCEAW/EPAA.

followed by the Hajar Mountains in the south-east of the region, the Iraq marshes, and the mountains of northern Iraq, where several Palearctic species just reach the assessment region.

3.4.2 Endemic species richness

There are 21 endemic terrestrial mammal species, again with a concentration in the mountains of the south-west and small concentrations in Dhofar and the Hajar Mountains (Figure 8). There are no marine mammal species endemic to the Arabian seas.

3.4.3 Threatened species richness

The distribution of threatened mammals in the Arabian Peninsula (Figure 9) reveals a somewhat different pattern from that of the overall mammal species richness (Figure 7), with the highest numbers of threatened species occurring in the western mountains, the Hajar Mountains, and smaller patches elsewhere, some of which reflect the presence of reintroduced species in protected areas.

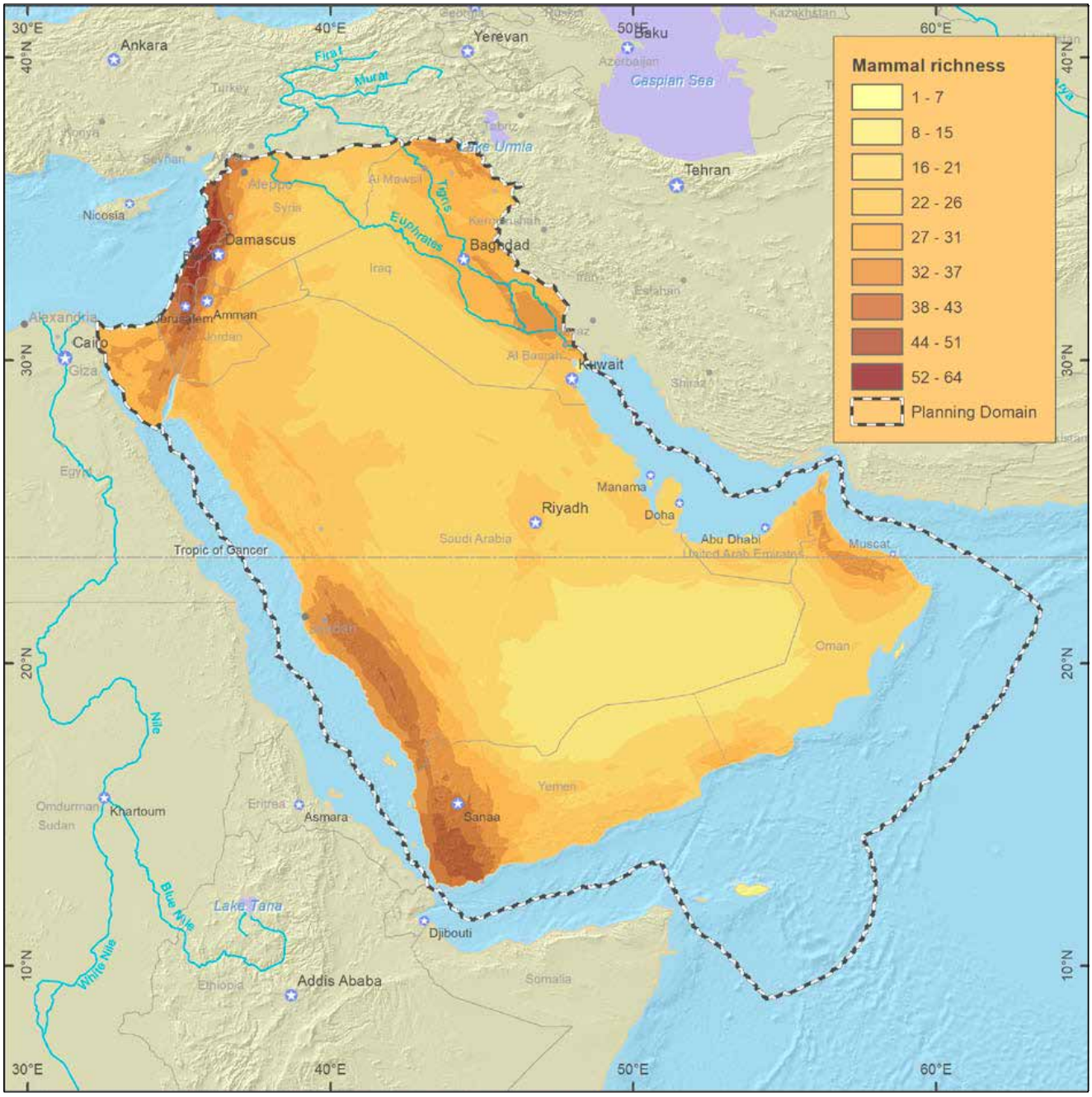


Figure 7. Terrestrial mammal species richness in the Arabian Peninsula. Source: Compiled by the report authors.

Figure 8. Endemic species richness of terrestrial mammals in Arabian Peninsula. Source: Compiled by the report authors.

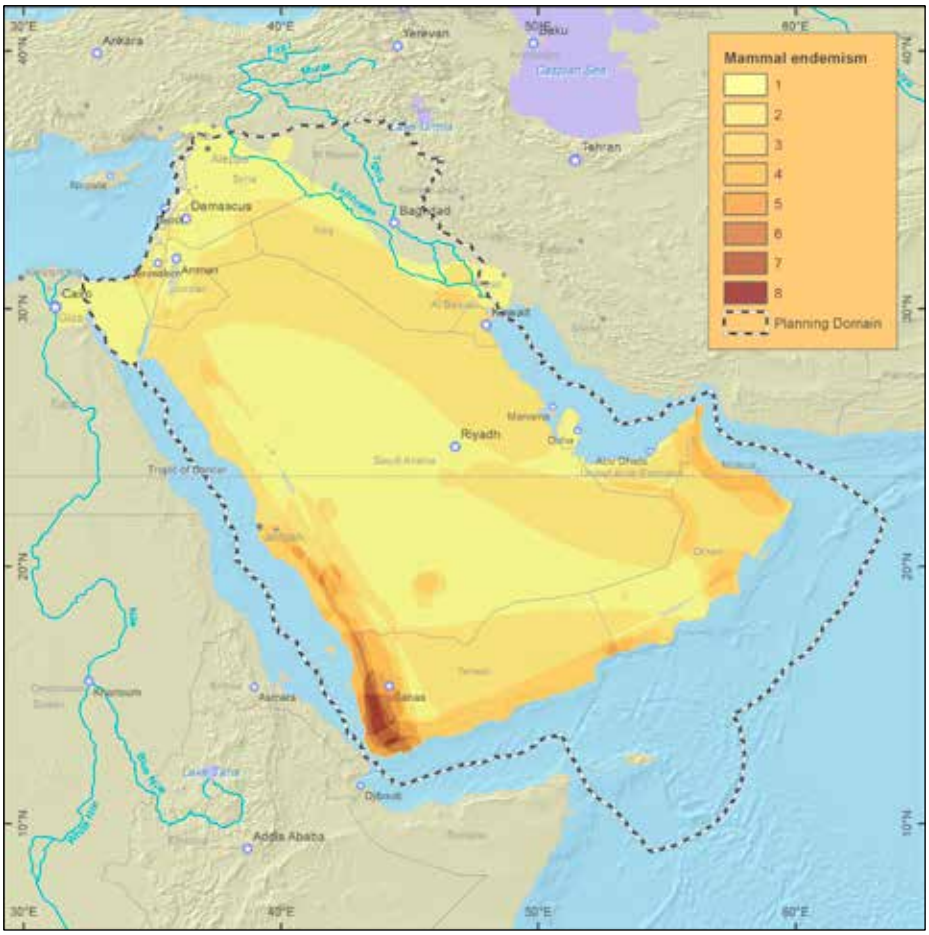
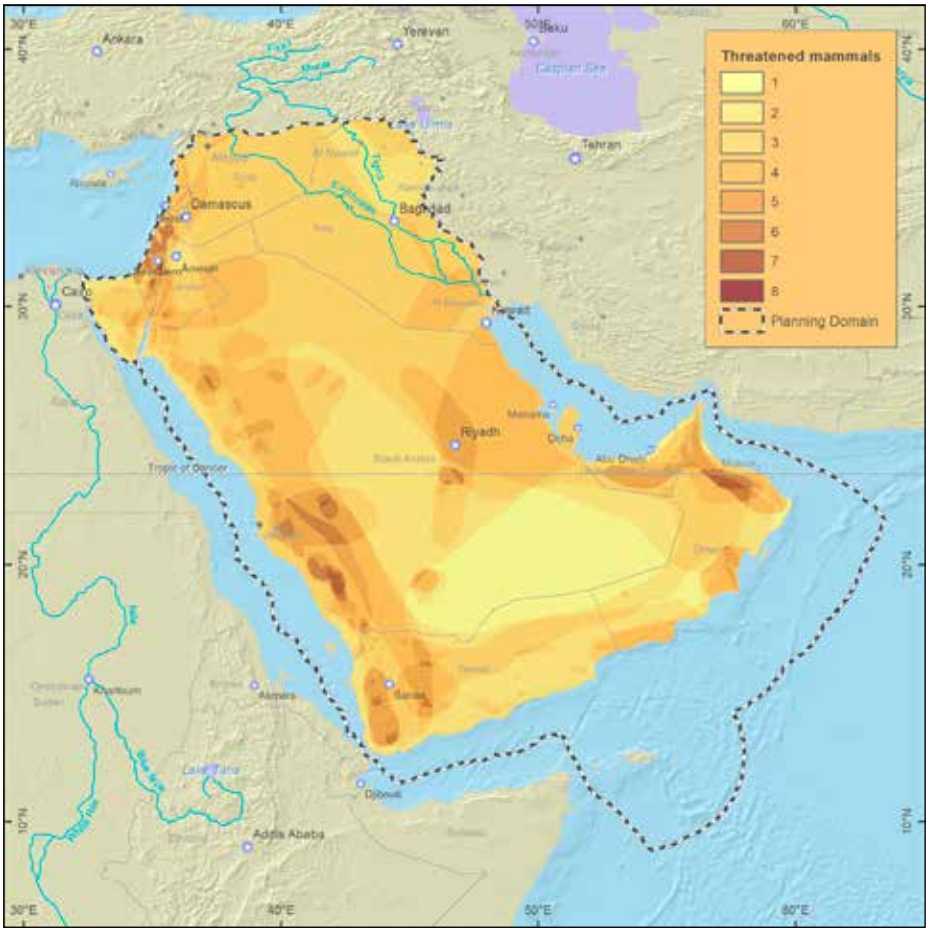


Figure 9. Threatened mammal species richness in the Arabian Peninsula. Source: Compiled by the report authors.



4. Threats

4.1 Terrestrial mammals

Threats to each species assessed were coded according to the global Red List threats classification scheme and are shown in Figure 10. Twenty-five species (all Least Concern) have no major threats, while the threats are unknown for 63 species, mainly bats and small mammals.

For species where threats are known, the main threat is biological resource use (direct hunting/harvesting or accidental off-take). This factor affects 32 species, with almost as many threatened as non-threatened and is the main cause of extinction in the region. The prevalence of hunting – usually illegal as far as large mammals is concerned – and which has deep cultural significance, together with the failure to control it effectively, despite existing legal frameworks, poses a continuing threat to the persistence of all ungulates and some smaller species, outside protected areas. Deep-seated negative attitudes towards carnivores also mean that persecution is widespread and indiscriminate (Figure 11).

The second most notable threat is loss of habitat – mainly due to due to overgrazing by livestock (14 species, 7 threatened, 6 non-threatened) and agricultural expansion (18 species – 10 threatened, 7 non-threatened), followed by other factors such as expansion of urban areas. Livestock grazing remains an important sector of the regional economy. Numbers of sheep, goats, and camels and the extent of grazing have risen sharply across the region. Construction of boreholes and new roads facilitate transport of livestock and year-round occupation of previously seasonal pastures, leading to deterioration of fragile arid grassland ecosystems over extensive areas.

Furthermore, the cultural association of livestock ownership has also seen a trend towards urban residents retaining ownership of herds of camels, and sometimes other livestock, that are tended by

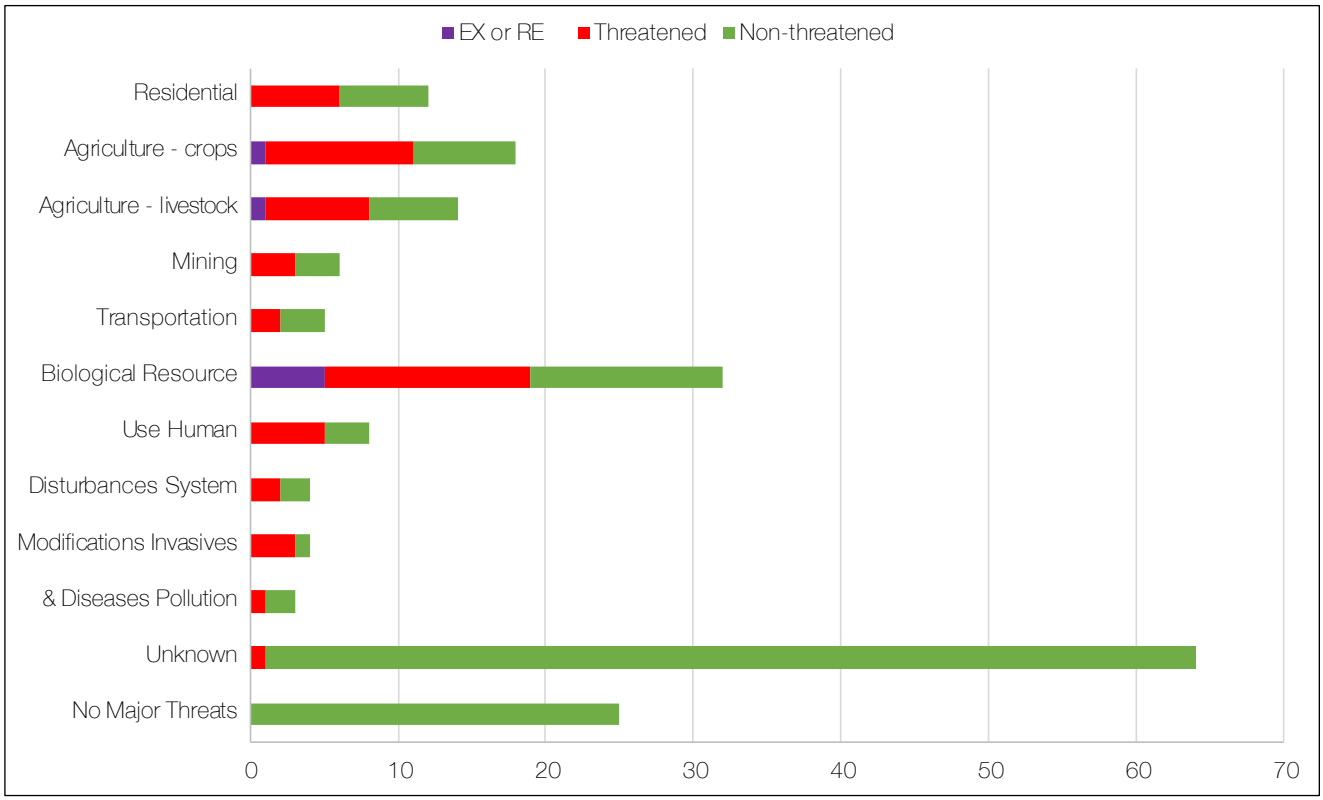


Figure 10. Threats to terrestrial mammals in the Arabian Peninsula. (EX = Extinct; RE = Regionally Extinct). Source: Compiled by the report authors.

expatriate herders, further increasing the intensity of grazing pressure.

Human disturbance includes activities (by people and livestock) at bat roost sites and increase in some tourism activities (e.g. dune bashing, and disturbance from uncontrolled whale watching boats).

Transportation is mainly the expanding road network which is fragmenting the habitat, opening up access to remote areas, and causing increased road kills.

Threats to the marine mammals were not individually quantified but general threats to the marine environment include factors such as: incidental mortality in nets and abandoned fishing gear; coastal development, including port and harbour construction; residential and tourist development; boat strikes; depletion of prey populations; pollution; noise and disturbance from offshore oil and gas exploration, shipping, and submarine sonar.

Figure 11. Negative attitudes towards carnivores result in the indiscriminate persecution, the evidence of which is often publicaly displayed. An Arabian wolf in Al Mahrah, Yemen © Henry Thompson.

Climate change is also expected to have a significant influence on the environment of the Arabian Peninsula through increasing drought and higher temperatures, as predicted though modelling exercises (Almazroui et al., 2012; AGEDI, 2015; Amin et al. 2016). However, specific predictions at site or species-level are not currently available.

In addition to the direct threats enumerated above, an underlying constraint is a lack of information on many species, terrestrial and marine, such as: population size and trend, details of biology and ecology; location of critical areas.

4.2 Marine mammals

The cetaceans occurring around the Arabian Peninsula were reviewed in detail by Baldwin et al. (1999) who provided details of all sightings and strandings up to that time. Studies have continued since then, . There are 23 species of marine mammals with confirmed presence in the region, 22 cetaceans and one sirenian. Five more cetaceans have been reported but their presence in the waters of the region is unconfirmed so far.

All marine mammals in the region are affected by a similar range of threats:

- Incidental mortality in nets and abandoned fishing gear;
- Coastal development including port and harbour construction, dredging, land reclamation, residential and tourist development;
- Boat strikes;
- Depletion of prey populations;
- Pollution (oil and organochlorines);
- Offshore oil and gas exploration; and
- Noise from shipping, submarine sonar and oil and gas rigs.

In addition, a lack of information on many species (e.g. population size and trend, location of critical areas, and feeding ecology) hinders development of conservation efforts. A relatively new factor affecting some species is disturbance from uncontrolled whale watching boats.

Threat levels are increasing virtually everywhere, but none of the threats has been adequately addressed. Species preferring shallow-water and inshore habitats, such as several dolphins, Indo-Pacific finless porpoise (*Neophocoaena phoceanoides*), false killer whale (*Pseudorca crassidens*) and dugong (*Dugong dugon*) are particularly susceptible to fishing bycatch and the effects of human activities in the coastal zone. Preen (2004) reported a 71% decline in three small species of dolphins in the Arabian Gulf from 1986 to 1999: the Indo-Pacific finless porpoise (*Neophocaena phoceanoides*), Indo-Pacific humpback dolphin (*Sousa plumbea*) and Indo-Pacific bottlenose dolphin (*Tursiops aduncus*); these dies-offs apparently coincided with the Nowruz oil spill, the Iran-Iraq war and the Gulf War oil spill.

Conservation of all species should consider the following measures:

- Research on status, biology, and in some cases, taxonomy;
- Implementation of baseline surveys in data deficient areas;
- Identification of critical areas for each species;
- Monitoring the species by direct observation o indirectly via hydrophones;
- Implementation of marine protected areas;
- Inter-agency cooperation with fisheries for effective management of fisheries and fishing activities;
- Effective implementation of fishing regulations; and
- Communications with targeted stakeholders.

5. Conservation

5.1 Protected areas

National protected area networks have been established across the region (Figure 12). Some protected areas (PAs) were established to conserve ungulates and/or to act as release sites for these species. Arabian oryx (*Oryx leucoryx*) now occur only inside PAs and Arabian gazelle (*Gazella arabica*) and sand gazelle (*G. marica*) are also well-represented in PAs. The largest populations of Arabian tahr (*Arabitragus jayakari*) also occur in PAs. The picture for other species is more mixed, especially for small mammals and bats. Conducting a gap analysis of the effectiveness of the regional PA network for mammals is hindered by the lack of detailed information - complete species inventories have not been compiled for most PAs. The coverage of marine PAs lags behind that for terrestrial areas, but several important areas have been gazetted.

The traditional hima system may confer a level of protection, but the main focus of he hima system is on regulating land management rights to grazing and wood cutting and there may be no provision for species protection. Himas vary in size, purpose and management within and among countries of the region, according to customary practice. The location of

Figure 12. Regional protected area network. Source Complied by John Pereria using data from UNEP-WCMC and IUCN (2022).

individual himas may change according to season or as part of rotational management, their boundaries are often not published, and there are no comprehensive maps or GIS layers available, which complicates the task of integrating himas into conservation planning.

A process to identify Key Biodiversity Areas (KBAs) in the Arabian Peninsula was initiated in February 2018 using the new KBA Standard (IUCN 2016). When complete, this exercise will highlight the sites of greatest important for threatened mammals and other biodiversity and contribute significantly to spatial planning in the Arabian Peninsula.

5.2 Strategic planning

Regional conservation strategies and action plans have been developed along IUCN guidelines for: Arabian oryx (EAD 2010); Arabian leopard (*Panthera pardus nimr*) (Breitenmoser et al., 2006; 2007); Arabian sand cat (*Felis margarita harrisonii*)(Banfield et al., 2014); and at national level for Arabian tahr in United Arab Emirates (Al Bustan Zoological Centre and Environment Agency – Abu Dhabi, 2015) and Arabian Leopard in Saudi Arabia (Islam et al., 2017). The General Secretariat for the Conservation of the Arabian Oryx (GSCAO) coordinates conservation efforts for the species at government level across the region.

5.3 Reintroduction

The region has played a leading role in the reintroduction of large mammals, foremost among which is the Arabian oryx (Figure 13) which became Extinct in the Wild in 1972. Captive-bred animals were released onto the Jiddat Al Harasis in Oman in 1982 (Stanley Price, 1989) and have subsequently been reintroduced to sites in Saudi Arabia (Islam et al., 2011), Israel, Jordan and United Arab Emirates. Despite some setbacks (Spalton et al., 1999; Islam et al., 2010) the programme has succeeded in improving the status of the species on The IUCN Red List of Threatened Species to Vulnerable. Arabian gazelle and sand gazelle are thriving at reintroduction sites in Saudi Arabia and the United Arab Emirates, and European roe deer (*Capreolus capreolus*) have been reintroduced to Ajloun Forest Reserve in Jordan (Amr, 2012).

5.4 Captive breeding

There are several zoos and government breeding facilities in the region, as well as many private collections, some of them very large. In total, there are several tens of thousands of oryx and gazelles in various types of management across the Arabian Peninsula, which have been used to source stock for release at several sites. There are also important captive breeding populations of Arabian leopard (Figure 14) and Arabian tahr. The Breeding Centre for Endangered Arabian Wildlife (BCEAW) in Sharjah, United Arab Emirates, holds breeding populations of many regional species including small carnivores and rodents.

Figure 13. Arabian oryx *Oryx leucoryx* have been reintroduced to several sites on the Arabian Peninsula and as a result have been downlisted to Vulnerable. © ASG.

Figure 14. Female Arabian Leopard *Panthera pardus nimr* with her cubs at BCEAW. © Jane and Kevin Budd. *Ex situ* BCEAW/EPAA.

6. Conclusions

The discovery of substantial oil and gas reserves in the region has led to rapid economic growth during the past few decades, resulting in significant and lasting changes to the physical and socio-economic landscape in the countries of the Arabian Peninsula. Some of these changes have inevitably had an adverse impact on the mammal fauna: in the last 70 years the cheetah, Saudi and Yemen gazelle all became Extinct, the Arabian oryx Extinct in the Wild and the four other species of ungulates and all the large carnivores have seen their populations and ranges reduced, in some cases severely.

These losses are being redressed by reintroductions. The return of the Arabian oryx to several sites in the Arabian Peninsula is the first time a large mammal that had disappeared from the wild has been successfully restored and it serves as a flagship example of what can be achieved when a clear vision and strategy, good science and collaboration among all stakeholders are allied to long-term government commitment.

However, when the mammals of the region are viewed as a whole, the situation is far more positive. This assessment has shown that only 14% of species are threatened, compared to about 25% globally. Many protected areas have been established, several of them of substantial size, sufficient to protect extensive tracts of desert ecosystems that will allow mammals and other species to persist in viable populations.

Twenty-two percent (22%) of species are classified as Data Deficient and details of the biology and ecology of many other species are unknown. To address these data gaps a coordinated regional survey and monitoring programmes are recommended.

The results of the assessment can be used to inform conservation measures at species, landscape and in many cases at site levels, mitigate the main identified threats as well as emerging threats such as climate change. They can also be applied at the regional scale to assist governments, IUCN, and other organizations to identify Key Biodiversity Areas and gaps in existing protected area networks.

If the information gathered during the assessment process on the mammals of the Arabian Peninsula is to be effectively integrated into the development and environmental planning processes, then:

- The data collated will need to be maintained and updated regularly, preferably through establishment of a regional database to store and disseminate records;
- There should be continuing cooperation between the network of experts who contributed their time and expertise to the assessment process;
- Links between IUCN and its partners and regional agencies and policy makers should be maintained and strengthened.

Figure 15. There is no reliable data on overall population size of Nubian ibex *Capra nubiana* but it is estimated to be less than or equal to 2,500 mature individuals. However at least three populations are estimated to contain more than 250 mature individuals and is therefore considered to be Vulnerable (C2a(i)) © Jane and Kevin Budd, EPAA. *Ex situ* Arabia's Wildlife Centre/EPAA.

7. Species summaries

7.1 Terrestrial mammals

7.1.1 Order Rodentia: Rodents

Brown rat

Rattus norvegicus

Regional assessment:	Not Applicable (introduced)
Range description:	Much less widely distributed in the region than *R. rattus* and largely confined to the north-west and the vicinity of sea ports (Harrison & Bates, 1991).
Countries of occurrence:	Bahrain; Iraq; Israel and the Palestinian Territories; Jordan; Kuwait; Lebanon; Qatar; Saudi Arabia.
Population:	Common.
Habitat and ecology:	Commensal. Occurs in towns, villages and agricultural areas.
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	None in place or needed.

Black rat

Rattus rattus

Regional assessment:	Not Applicable (introduced)
Range description:	A cosmopolitan, introduced species widespread in the region, but mainly found around the periphery, not in the desert interior (Harrison & Bates, 1991), although expansion of agriculture, roads, oil production facilities and settlements into the desert may have facilitated some range extension (Aspinall et al., 2005). Present in the United Arab Emirates for millennia; rat remains at an archaeological site in Kalba on the east coast were dated to ca. 4000 years BP (Mosseri-Marlio, 2003).
Countries of occurrence:	All countries of the region.
Population:	Declining in Kuwait (Cowan, 2013), otherwise common and widespread.
Habitat and ecology:	Commensal. It is an accomplished climber and spends more time off the ground than *Rattus norvegicus* and builds conspicuous nests in the tree canopy (Aspinall et al., 2005). It is water-dependent which limits its ability to colonise desert areas.
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	None in place or needed.

Cheesman's gerbil – ENDEMIC

Gerbillus cheesmani

Regional assessment:	Least Concern (LC) [as Global]
Justification:	Widespread and common; no declines reported.
Range description:	Found across the Arabian Peninsula and in Iraq (Amr, 2012).
Countries of occurrence:	Iraq; Jordan; Kuwait; Oman; Qatar; Saudi Arabia; Syria; United Arab Emirates; Yemen; Qatar.

Population: A common species. It is considered Least Concern in the United Arab Emirates (Hornby, 1996). It is known from many localities in Saudi Arabia. In Jordan, the density ranges from 2.71 to 3.75 individuals/ha (Scott & Dunstone, 2000).
Habitat and ecology: A nocturnal, solitary species; found on sandy soils and mud flats in eastern deserts (Abu Baker & Amr, 2003). In Saudi Arabia, the species is associated with *Haloxylon*, *Calligonum* and *Artemisia* bushes (Shenbrot & Amr, 2016).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Wagner's gerbil – NEAR ENDEMIC

Gerbillus dasyurus

Regional assessment: Least Concern (LC) [as Global]
Justification: Widespread and common.
Range description: Widespread in the north-west; also occurs in Iraq, the mountains of the south-west and more scattered records across the Arabian Peninsula (Harrison & Bates, 1991).
Countries of occurrence: Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Oman; Saudi Arabia; Syria; United Arab Emirates.
Population: Common.
Habitat and ecology: This solitary, burrowing species occurs in a variety of arid habitats including desert, semi-desert, and rocky habitats in hill country (Amori et al., 2016).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Egyptian gerbil

Gerbillus gerbillus

Regional assessment: Least Concern (LC)
Justification: It has a relatively small distribution in the region but is widespread in the Sinai Peninsula and no major threats have been reported so it is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Range description: This is a North African species whose range extends to the Sinai Peninsula and Wadi Arabia of Israel and Jordan.
Countries of occurrence: Egypt (Sinai); Israel and the Palestinian Territories; Jordan.
Habitat and ecology: Prefers sandy habitats (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution may overlap some protected areas.

Pygmy gerbil

Gerbillus henleyi

Regional assessment: Least Concern (LC)
Justification: Widespread and common.
Range description: This species is widespread in the region, except the south-east (Abu Baker & Amr, 2003).
Countries of occurrence: Israel and the Palestinian Territories; Jordan; Oman; Saudi Arabia; Syria; Yemen.
Population: This species is relatively abundant in suitable habitat.

Habitat and ecology:	A semi-desert and desert species (Abu Baker & Amr, 2003).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution overlaps several protected areas.

Harrison's gerbil

Gerbillus mesopotamiae

Regional assessment:	Least Concern (LC)
Justification:	It is quite widespread and reportedly common.
Range description:	Most of the range is in the of the Tigris and Euphrates valleys in Iraq, but it extends into eastern Syria in the valleys of the Euphrates and its tributary, the Khabur, and the Karun valley in Khuzistan Province, south-western Iran (Kock & Amr, 2016).
Countries of occurrence:	Iraq; Syria.
Population:	It is believed to be common in suitable habitat in Iraq (Al-Sheikhly et al., 2015b).
Habitat and ecology:	This species is adapted to the zone between alluvial valley bottoms and dry desert, where it lives in colonies in burrows in areas with sparse vegetation (Lay & Nadler, 1975). It is crepuscular and nocturnal. It appears that reproduction occurs throughout the year.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution may overlap some protected areas.

Baluchistan gerbil

Gerbillus nanus

Regional assessment:	Least Concern (LC)
Justification:	Widespread and common; no declines reported.
Range description:	The species occurs widely across the Arabian Peninsula and Iraq, except for parts of the north (Harrison & Bates, 1991).
Countries of occurrence:	Egypt (Sinai); Jordan; Israel and the Palestinian Territories; Oman; Qatar; Saudi Arabia; United Arab Emirates; Yemen.
Population:	Common.
Habitat and ecology:	Found in desert, semi-desert, sand-clay plains, arable land and gardens. Mostly found in sites with relatively deep soil and abundant vegetation, such as wadis and oases.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution overlaps several protected areas.

Anderson's gerbil

Gerbillus andersoni

Regional assessment:	Least Concern (LC).
Justification:	Although the population in Jordan has suffered a large decline, the species is believed to remain common elsewhere within its regional range. However, the range in Israel is also restricted to a narrow coastal strip and further monitoring of its status is required.
Range description:	The species occur in northern Sinai, a narrow coastal strip of costal Palestine and Israel and a small area of SW Jordan (Harrison & Bates, 1991; Abu Baker & Amr, 2003).
Countries of occurrence:	Egypt (Sinai); Israel and the Palestinian Territories; Jordan.

Population:	Locally common in southern Jordan (Abu Baker & Amr, 2003) and in the coastal strip south of Haifa (Harrison and Bates 1991). However, its habitat in Jordan is under threat from extraction of sand for glass making and it is considered nationally Critically Endangered (Z. Amr, pers. comm. 2016).
Habitat and ecology:	The species is found in areas of light sand dunes dominated by Anabasis (Abu Baker & Amr, 2003).
Use and trade:	Not known in trade.
Major threats:	The habitat in Jordan is under threat due to extraction of sand for glass making (Z. Amr, pers. comm. 2016).
Conservation actions:	The distribution overlaps several protected areas.

Black-tufted gerbil – ENDEMIC

Gerbillus famulus

Regional assessment:	Least Concern (LC)
Justification:	There is little information available on this species, but it has a relatively wide distribution, it is believed to be common in suitable habitats, no major threats have been reported and so it is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Range description:	Endemic to Yemen. The limits of its geographic range are not yet clear.
Countries of occurrence:	Yemen.
Population:	It is believed to be common in suitable habitats.
Habitat and ecology:	This is a social burrowing species, which occurs in Euphorbia wooded hillsides, sometimes inhabiting the burrows of other species (Harrison & Bates, 1991). It has also been trapped in fallow fields. Little is known of its biology and ecology.
Use and trade:	Not known in trade.
Major threats:	There are believed to be no major threats to this species.
Conservation actions:	It is not known whether or not this species occurs in any protected areas. Research is needed to determine its geographic distribution, abundance, ecological requirements, threats and conservation needs.

Flower's gerbil

Gerbillus floweri

Taxonomic notes:	Synonym *G. pyramidum*.
Regional assessment:	Not Applicable (marginal)
Justification:	Although this species has a limited distribution in the region it is reportedly common and is unlikely to be facing any significant threats.
Range description:	The species is restricted within the region to the Sinai Peninsula and Israel, including the Negev.
Countries of occurrence:	Egypt (Sinai); Israel and the Palestinian Territories.
Population:	Common.
Habitat and ecology:	Associated with sandy habitats in desert and semi desert areas.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Unknown.

Large Aden gerbil – ENDEMIC

Gerbillus poecilops

Regional assessment:	Least Concern (LC) [as Global]
Justification:	This is a widespread, common and adaptable species and no significant threats have been reported.
Range description:	This species is endemic to the coastal mountain ranges of the Red Sea and the westernmost part of the Gulf of Aden in western and southern Yemen and in southwestern Saudi Arabia (Harrison & Bates, 1991).
Countries of occurrence:	Saudi Arabia; Yemen.
Population:	Believed to be abundant in suitable habitat.
Habitat and ecology:	This heavily built gerbil prefers sandy areas near villages and cultivated areas. It appears to be less adapted to arid areas than most of its counterparts. Little is known of its biology (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution overlaps some protected areas.

Macedonian mouse

Mus macedonicus

Regional assessment:	Least Concern (LC)
Justification:	Widespread and common; no reported declines.
Range description:	Only found in the Mediterranean fringe of the north-west.
Countries of occurrence:	Israel and the Palestinian Territories; Jordan; Syria; Lebanon.
Population:	Common.
Habitat and ecology:	It occurs in a wide range of habitats including cultivated farmland, orchards, olive groves, and the vicinity of human settlements (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	None in place or needed

House mouse

Mus musculus

Regional assessment:	Not Applicable (introduced)
Range description:	Widespread throughout the region, mainly around the periphery, avoiding interior deserts.
Countries of occurrence:	All countries of region.
Population:	Common.
Habitat and ecology:	Residential areas, buildings, farms.
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	None in place or needed.

Yellow-necked mouse

Apodemus flavicollis

Regional assessment:	Least Concern (LC)
Justification:	Common and widespread; no declines reported.

Range description: Occurs in the north of the region. However, there has been some confusion in the past between this species and other *Apodemus* species.
Countries of occurrence: Iraq; Jordan; Lebanon; Syria.
Population: It is common throughout much of its range. Populations in Jordan and Syria are patchy (Abu Baker & Amr, 2008).
Habitat and ecology: It inhabits a variety of open woodland habitats. It tends to be a forest edge species (Abu Baker & Amr, 2008).
Use and trade: Not known in trade.
Major threats: There are no major threats. Locally, habitat degradation due to agriculture may cause population declines.
Conservation actions: It occurs in protected areas across its range.

Broad-toothed field mouse

Apodemus mystacinus

Regional assessment: Least Concern (LC)
Justification: Common and widespread; no declines reported.
Range description: Occurs in the mountains of the north-west and northern Iraq (Harrison & Bates, 1991).
Countries of occurrence: Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Syria.
Population: Common.
Habitat and ecology: Occurs from sea level to the tree line, in cultivated areas and woodland; in northern Iraq occurs in oak forests to 2,700 m (Harrison & Bates, 1991; Al Sheikhly et al., 2015b).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: It occurs in protected areas across its range.

Steppe field mouse

Apodemus witherbyi

Taxonomic notes: Includes *A. sylvaticus arianus*.
Regional assessment: Not Applicable (marginal).
Justification: Restricted to the edge of the region in northern Iraq.
Range description: The species has a limited range in northern Iraq.
Countries of occurrence: Iraq.
Habitat and ecology: Agricultural areas, fields.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation Actions Unknown.

Tristram's jird

Meriones tristami

Regional assessment: Least Concern (LC)
Justification: Widespread and common; no declines reported.
Range description: The range extends across the northern part of the region.
Countries of occurrence: Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Syria.
Population: Common.
Habitat and ecology: Found in steppe and semi-desert habitats and Mediterranean mountains (Amr, 2012).
Use and trade: Not known in trade.

Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Sundevall's jird

Meriones crassus

Regional assessment: Least Concern (LC)
Justification: Widespread and common; no declines reported.
Range description: Wide distribution in the region with the exception of Yemen.
Countries of occurrence: Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan; Kuwait; Oman; Qatar; Syria; Saudi Arabia; United Arab Emirates.
Population: Common.
Habitat and ecology: Prefers dry habitats in sandy or hammada deserts.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Libyan jird

Meriones libycus

Taxonomic notes: Formerly included *M arimalius*. The precise boundary between these two species is not yet clearly defined.
Regional assessment: Least Concern (LC)
Justification: Widespread and common; no declines reported.
Range description: Widely distributed across the north and east of the region (Harrison & Bates, 1991).
Countries of occurrence: Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan; Kuwait; Saudi Arabia; Syria; United Arab Emirates?
Population: Common in deserts in Kuawit (Cowan, 2013).
Habitat and ecology: Occupies desert and semi-desert habitats, generally in areas with stabilised dunes. It becomes most abundant in dry river plains and it is often found close to wadis; sometimes found in arable land.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Persian jird,

Meriones persicus

Regional assessment: Not Applicable (marginal)
Range description: In the region it is found only in the mountains of the Kurdistan Region of northern Iraq.
Countries of occurrence: Iraq.
Population: Common.
Habitat and ecology: Rocky hill slopes. Strictly nocturnal (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: Unknown.

Vinogradov's jird

Meriones vinogradovi

Regional assessment:	Data Deficient (DD)
Justification:	Known only from two sites in northern Syria.
Range description:	The species has a very limited range in the region, around Tell Abiad in Syria. Its global range extends into the South Caucasus and Iran. There is almost no information available on the regional status.
Countries of occurrence:	Syria.
Population:	It was formerly abundant in Syria (Harrison & Bates, 1991). Its current status is unknown
Habitat and ecology:	A variety of habitats are occupied, including semi-desert, bare mountains and wastelands (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Unknown.

Arabian jird – ENDEMIC

Meriones arimalius

Taxonomic notes:	Formerly included in *M. libycus*.
Regional assessment:	Least Concern (LC) [as Global].
Justification:	Although this species is known mainly from isolated records from a large area, it is listed as Least Concern in view of its likely wide distribution, occurrence in an area where its habitats are not significantly threatened, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category (Cassola, 2016c).
Range description:	This species is endemic to the northern sands of the Rub al Khali in Saudi Arabia and Oman. There are records of *M. lyibcus arimalius* from Jebel Faiyah in the United Arab Emirates and Wadi al Ain in Oman (Harrison, 1972). Its distribution is poorly known.
Countries of occurrence:	Oman; Saudi Arabia; United Arab Emirates.
Population:	Unknown.
Habitat and ecology:	It occurs in sandy deserts. It is a very poorly known species.
Use and trade:	Not known in trade.
Major threats:	Occurs in a remote area where there are unlikely to be any significant threats.
Conservation actions:	It is not known whether or not this species occurs in any protected areas. Research is needed to determine its geographic distribution, abundance, ecological requirements, threats and conservation needs.

King jird – ENDEMIC

Meriones rex

Regional assessment:	Least Concern (LC) [as Global]
Justification:	Despite the rather restricted range, it is a common and adaptable species and no major threats or declines have been reported.
Range description:	This species occurs in the highlands of the southwestern Arabian Peninsula, from near Mecca in Saudi Arabia south to near Aden in Yemen (Harrison & Bates, 1991; Al-Jumaily, 1998).
Countries of occurrence:	Saudi Arabia; Yemen.
Population:	This species is apparently common in the mountains of Yemen. Frequently reported by birdwatchers at Kawkaban near Sana'a.

Habitat and ecology: This jird lives in large burrows amongst bushes, preferring raised areas bordering agricultural land, though it can be found in a variety of habitats. It is active in the evening and early morning. Burrows are shared with other rodents and lizards; in Saudi Arabia the species has been reported from 1,350 to 2,200 m asl (Harrison & Bates, 1991; Al-Jumaily, 1998).
Use and trade: Not known in trade.
Major threats: An adaptable species, not facing any significant threats. It is reported to cause damage to agricultural fields and may act as a disease reservoir of human infections.
Conservation actions: It is not known whether this species occurs in any protected areas.

Buxton's jird – ENDEMIC

Meriones sacramenti

Regional assessment: Vulnerable (VU B1ab(iii)) [as Global]
Justification: There has been a 15% decline in extent of available habitat over a 15-year period since 1990 (G. Shenbrot, pers. comm. 2016). The species' extent of occurrence is less than 20,000 km². However, some parts of its range are in protected areas, in Israel at least. Assessed precautionarily as Vulnerable, but the extent of fragmentation and the number of locations needs to be assessed (Hutterer et al., 2008c).
Range description: Known only from the coast along the Sinai Peninsula, Palestine and Israel including northern Negev (Harrison & Bates, 1991).
Countries of occurrence: Egypt (Sinai); Israel and the Palestinian Territories.
Population: The species tends to occur at relatively low densities (Hutterer et al., 2008c).
Habitat and ecology: Coastal sandy dunes with limited with limited vegetation cover.
Use and trade: Not known in trade.
Major threats: Habitat reduction due to urbanisation, development of coastal areas and conversion to agricultural areas.
Conservation actions: The distribution overlaps some protected areas.

Cairo spiny mouse

Acomys cahirinus

Regional assessment: Not Applicable (marginal)
Justification: A North African species whose distribution just extends to western Sinai Peninsula (Cassola, 2016a).
Range description: Egypt (Sinai).
Countries of occurrence: Egypt.
Habitat and ecology: Rocky areas.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: Unknown.

Arabian spiny mouse

Acomys dimidiatus

Taxonomic notes: Formerly considered a subspecies of *A. cahirinus*.
Regional assessment: Least Concern (LC)
Justification: Common and widespread; no threats or declines reported.
Range description: Widely distributed across the Arabian Peninsula (Cassola, 2016b).

Countries of occurrence: Egypt (Sinai); Israel and the Palestinian Territories; Jordan; Lebanon; Oman; Saudi Arabia; Syria; United Arab Emirates; Yemen.
Population: Common.
Habitat and ecology: This species has been recorded in rocky areas and dry deciduous forest and scrub forests (Amr, 2012).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Golden spiny mouse – NEAR-ENDEMIC

Acomys russatus

Taxonomic notes: The form *A. russatus lewisi* extending into Jordan, northern Saudi Arabia and Syria may be a separate species (Amr, 2012).
Regional assessment: Least Concern (LC)
Justification: Common and widespread; no declines reported.
Range description: The species occurs in the north-west of the region and at scattered localities across the rest of the Arabian Peninsula (Harrison & Bates, 1991).
Countries of occurrence: Israel and the Palestinian Territories; Jordan; Oman; Saudi Arabia; Yemen.
Population: Common in parts of its range e.g. Jordan (Amr, 2012).
Habitat and ecology: Occurs strictly in rocky habitats, sandstone desert or black lava desert. It is diurnal and insectivorous.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Nile rat

Arvicanthis niloticus

Regional assessment: Least Concern (LC)
Justification: Reportedly common in Yemen and no declines or major threats reported.
Range description: The species has a mainly sub-Saharan distribution, with regional populations in Yemen (Taiz and Lahej) and Dhofar in southern Oman (Snowden et al., 2000; Al Rasbi, pers. comm. 2016).
Countries of occurrence: Oman; Yemen.
Population: Common in Yemen (Harrison & Bates, 1991); there are few records from Oman.
Habitat and ecology: Favours shrublands on the edge of farmlands (Al Rasbi, pers. comm. 2016) and also rocky wadis with water.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution may overlap some protected areas.

Yemeni mouse – ENDEMIC

Myomyscus yemeni

Taxonomic notes: Formerly *Praomys fumatus*.
Regional assessment: Least Concern (LC)
Justification: It has a relatively wide distribution, presumed large population, and it is unlikely to be declining fast enough to qualify for listing in a more threatened category

Range description: This species is endemic to the mountains of western Yemen and south-western Saudi Arabia (Harrison & Bates, 1991; Al-Jumaily, 1998).
Countries of occurrence: Saudi Arabia; Yemen.
Population: There is no information on abundance but according to A.K. Nasher and M. Al Jumaily (pers. comm. 2016) it is not thought to be common.
Habitat and ecology: It inhabits bushland in the Yemen mountains to over 2,000 m) (Harrison & Bates, 1991) and up to 2,200 m in the Asir mountains of Saudi Arabia in *Juniperus procera* woodland (Buttiker & Harrison, 1982).
Use and trade: Not known in trade.
Major threats: There is very little information, but it is thought that it is unlikely that this species is facing significant threats as it occurs in a region of limited human impact.
Conservation actions: It is not known whether or not this species occurs in any protected areas. Research is needed to determine its geographic distribution, abundance, ecological requirements, threats and conservation needs.

Lesser bandicoot rat

Bandicota bengalensis

Regional assessment: Not Applicable (introduced)
Range description: An Asian species known in the region from four specimens caught in Jeddah, Saudi Arabia. It is likely that this species is a ship-borne introduction.
Countries of occurrence: Saudi Arabia.
Habitat and ecology: Saudi specimens were caught in agricultural areas.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: Not applicable.

Bandicoot rat – ENDEMIC

Nesokia bunnii

Taxonomic notes: Described as a separate species by Khajuria (1981) but its validity was doubted by Harrison & Bates (1991).
Regional assessment: Data Deficient (DD)
Justification: Listed as DD in view of the taxonomic uncertainty, the difficulty in separating the taxon from *N. indica*, and the small number of specimens.
Range description: This taxon has been recorded only from marshes at the confluence of the Tigris and Euphrates Rivers in the vicinity of Al-Qurna, and downstream near Basra. It possibly occurs in Al-Hawizeh marsh to the east straddling the Iraq-Iran border (Stuart, 2008).
Countries of occurrence: Iraq.
Population: It is known from only a few specimens.
Habitat and ecology: Appears to prefer moist habitats, such as marshes and swamps.
Use and trade: Not known in trade.
Major threats: The marshlands of southern Iraq were extensively drained and all but destroyed by 2003 (Richardson & Hussain, 2006). Following reflooding, by September 2005 a high volume of good-quality water entered the marshes from the Tigris and Euphrates Rivers. Field surveys found a remarkable rate of re-establishment of native macroinvertebrates, macrophytes, fish, and birds in reflooded marshes (Richardson & Hussain, 2006). However, the future availability of water for restoration is in question, which suggests that only a portion of the former marshes may be restored (Richardson & Hussain, 2006).

	Also, landscape connectivity between marshes is greatly reduced, causing concern about local extinctions in isolated wetlands (Richardson & Hussain, 2006). There is no information on how these massive land-use changes have affected the bandicoot rat, but as a species believed to be dependent on marshes, its populations must have suffered significantly (Stuart, 2008).
Conservation actions:	The marshlands of southern Iraq were gazetted as a UNESCO World Heritage Site in 2016. Research is needed to resolve the taxonomy and confirm whether this is a distinct species.

Short-tailed bandicoot rat

Nesokia indica

Regional assessment:	Least Concern (LC)
Justification:	Widespread and common; no declines reported.
Range description:	It has been recorded in south-east Jordan, Israel and along the plains of the Tigris and Euphrates Rivers in Syria and Iraq. It is present as an isolated population in eastern Saudi Arabia (Amr, 2012).
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Jordan; Saudi Arabia.
Population:	Common.
Habitat and ecology:	It is a riparian species found along riverbanks, streams and ditches and irrigated agricultural fields.
Use and trade:	Not known in trade.
Major threats:	Populations in the lower Tigris and Euphrates valleys were no doubt impacted by the draining of the Iraqi marshes. Large-scale dam construction in the upper reaches of these rivers may also affect the habitat in future.
Conservation actions:	No specific measures are in place. May occur in protected areas in the Iraqi marshes.

Fat jird

Psammomys obesus

Regional assessment:	Least Concern (LC)
Justification:	Widespread and common; no declines reported.
Range description:	There are many recorded localities in the north-west of the region, and more scattered records in north-west and eastern Saudi Arabia (Harrison & Bates, 1991).
Countries of occurrence:	Egypt (Sinai); Israel and the Palestinian Territories; Jordan; Saudi Arabia; Syria.
Population:	Common.
Habitat and ecology:	The species is found in the vicinity of succulent shrubs (*Anabasis* spp.), which are its main food source. It occurs in semi-desert and desert so long as succulent shrubs are present but avoids sandy areas.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution overlaps several protected areas.

Indian gerbil

Tatera indica

Regional assessment:	Least Concern (LC).
Justification:	Widespread and common; no declines reported.

Range description:	Occurs across the north of the region, Syria, Iraq (many localities) and Kuwait (Harrison & Bates, 1991). The Indian Gerbil may have been eradicated in Kuwait by the Ministry of Health (Cowan, 2013).
Countries of occurrence:	Iraq; Kuwait; Syria.
Population:	Common.
Habitat and ecology:	Prefers agricultural areas, semideserts and woodlands (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution overlaps some protected areas.

Bushy-tailed jird – NEAR ENDEMIC

Sekeetamys calurus

Regional assessment:	Least Concern (LC)
Justification:	Although sometimes considered a rare species, it is widely distributed and is not considered to be facing major threats.
Range description:	The species is nearly endemic to the region, also occurring in the eastern desert of Egypt and in Sudan. It occurs in the Sinai Peninsula, southern Israel and Jordan and three locations in the Tuwaiq mountains, central Saudi Arabia (Harrison & Bates, 1991). It was recently recorded at three sites in Jabal Samhan Nature Reserve, southern Oman (Soto & Pardinas, 2016). Further studies are likely to show it to be more widely distributed in the region.
Countries of occurrence:	Egypt (Sinai); Israel and the Palestinian Territories; Jordan; Oman; Saudi Arabia.
Population:	A naturally rare species, occurring at relatively low densities.
Habitat and ecology:	Found in arid rocky mountain habitats, including mountain summits. It is nocturnal, feeding mainly on plants and perhaps insects.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Occurs in Jebel Samhan NR, Oman. There are no specific conservation measures in place. Further studies are needed into the distribution, abundance, and ecology of this species.

Social vole

Microtus socialis

Taxonomic notes:	It is provisionally considered that specimens previously referred to *M. socialis* from the Levant should be assigned to *M. guentheri* and specimens from Iraq to *M. socialis* (Amr, 2012). Both species are listed for Iraq and the Levant by Amori (2016) and Tsytulina et al. (2016).
Regional assessment:	Least Concern (LC)
Justification:	Likely to be numerous within its regional range and no declines have been reported.
Range description:	Only found in the mountains of the Kurdistan Region of Iraq.
Countries of occurrence:	Iraq.
Population:	Unknown.
Habitat and ecology:	Grassy slopes to above the treeline
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Unknown.

Günther's vole

Microtus guentheri

Taxonomic notes:	It is provisionally considered that specimens previously referred to *M. socialis* from the Levant should be assigned to *M. guentheri* and specimens from Iraq to *M. socialis* (Amr, 2012). Both species are listed for Iraq and the Levant by Amori (2016) and Tsytulina et al. (2016).
Regional assessment:	Least Concern (LC)
Justification:	Widespread and common; no declines reported.
Range description:	The species occurs in Jordan, Syria, Israel, and Palestinian Territories. Taxonomic difficulties mean the geographic distribution needs further work and should be considered as provisional at this stage.
Countries of occurrence:	Israel and the Palestinian Territories; Jordan; Lebanon; Syria.
Population:	The species is considered locally common.
Habitat and ecology:	It inhabits dry grasslands with sparse vegetation on well-drained soil.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	No specific measures are in place. Resolving the taxonomic issues and confirming the identity of Microtus species and their distributions in the region is important.

Grey dwarf hamster

Cricetulus migratorius

Regional assessment:	Least Concern (LC)
Justification:	Common and widespread; no declines reported.
Range description:	Occurs across the north-west of the region and in Iraq.
Countries of occurrence:	Syria; Lebanon; Iraq; Israel and the Palestinian Territories; Jordan.
Population:	Common.
Habitat and ecology:	Occupies a wide range of habitats; mainly nocturnal (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution may overlap some protected areas.

European snow vole

Chionomys nivalis

Regional assessment:	Least Concern (LC)
Justification:	Despite the restricted range in the region, no threats or declines have been reported.
Range description:	This is an alpine species with a very restricted range in the region at higher altitudes on the mountains occurring in the north-west.
Countries of occurrence:	Israel and the Palestinian Territories; Lebanon.
Population:	Never seems to be abundant and does not form dense colonies (Harrison & Bates, 1991)
Habitat and ecology:	Occupies rocky habitats; in Lebanon at 1,150–2,700 m (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	May occur in some protected areas.

Transcaucasian mole vole

Ellobius lutescens

Taxonomic notes:	Formerly included in *E. fuscocapillus*.
Regional assessment:	Not Applicable (unconfirmed and/or marginal)
Range description:	Occurs Turkey and Iran bordering the north of the region. Harrison & Bates (1991) said that it probably occurred in the mountains of Iraqi Kurdistan but there are no confirmed records.
Population:	Unknown.
Habitat and ecology:	Fossorial and prefers meadows and cultivation (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Unknown.

Golden hamster – NEAR-ENDEMIC

Mesocricetus auratus

Regional assessment:	Vulnerable (VU B1ab(iii)) [as Global]
Justification:	The global extent of occurrence is <20,000 km², possibly <5,000 km², there are fewer than 10 locations in Syria and the population is declining due to conversion of the habitat for agriculture and poisoning. The species is rare in Turkey where there are only three locations so there is no significant rescue effect (Yigit & Kryštufek, 2008).
Range description:	Occurs in a small area along the Syria-Turkey border near Aleppo, with most of the range in Syria. The global extent of occurrence is <20,000 km², possibly <5,000 km², there are fewer than 10 locations in Syria and the population is declining due to conversion of the habitat for agriculture and poisoning (Yigit & Kryštufek, 2008).
Countries of occurrence:	Syria.
Population:	Declining due to persecution (poisoning as an agricultural pest) and loss of habitat due to conversion to agriculture (Yigit & Kryštufek, 2008).
Habitat and ecology:	This species is nocturnal and can be found in arable fields.
Use and trade:	Not known in trade.
Major threats:	Habitat conversion, poisoning.
Conservation actions:	No specific measures in place. Research is required to determine population trends.

Northern water vole

Arvicola amphibius

Regional assessment:	Not Applicable (marginal)
Justification:	This species is confirmed from only one locality in the region, in the mountains of Iraq (Harrison & Bates, 1991).
Countries of occurrence:	Iraq.
Population:	Unknown.
Habitat and ecology:	Rivers, streams and marshes (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Unknown.

Crested rat

Lophiomys imhausii

Regional assessment: Not Applicable (unconfirmed)
Range description: This is a northeast African species. There is a subfossil record from the north-west and reports of individuals in Saudi Arabia and on the coast of Oman but there are no confirmed records from the region (Harrison & Bates, 1991).

Persian squirrel

Sciurus anomalus

Regional assessment: Near Threatened (NT)
Justification: The population is subject to a continuing declining due to ongoing and increasing threats to the habitat (fire, fragmentation, urbanisation and other development) and also an extensive pet trade in parts of its regional range. A decline of >30% over three generations is suspected, meeting the requirement for Vulnerable under criterion A2cd. The potential rescue effect from Turkey and Iran results in a regional adjustment and final category of Near Threatened.
Range description: The species is restricted to wooded areas in the north and north-west of the region. A small population was present in parks and gardens in Abu Dhabi, United Arab Emirates, in 1999–2003, presumably derived from escaped pets (Aspinall et al., 2005) but the species has not been reported since then (Judas & Hellyer, 2016) and may not have become established.
Countries of occurrence: Syria; Lebanon; Israel and the Palestinian Territories; Iraq; Jordan; United Arab Emirates (introduced).
Population: The species is declining in Jordan. It was once considered abundant in the coastal mountains of Syria. The species is quite common in northern Iraq (Al-Sheikhly et al., 2015a).
Habitat and ecology: The species predominantly lives in mixed and deciduous forest, although it also occurs in coniferous forests as well as rocky outcrops (Amr, 2012).
Use and trade: Trapped for the pet trade in Iraq.
Major threats: Destruction of the forest habitat have reportedly caused numbers to decrease in all the Arabian range.
Conservation actions: Occurs in protected areas. In Jordan is protected by law (Appendix 3 law n. 43, 2008).

Five-striped palm squirrel

Funambulus pennantii

Regional assessment: Not Applicable (introduced)
Justification: Native to South Asia. First reported in 2009 in United Arab Emirates where small breeding populations have become established, presumably from escaped or released pets (Judas & Hellyer, 2016).
Range description: Reported from widespread localities in United Arab Emirates (Abu Dhabi, Ajman, Dubai, Fujairah, Ras Al Khaimah, and Sharjah) and one site in Oman (Dibba, close to the United Arab Emirates border). At least some of these colonies appear to be self-sustaining (Judas & Hellyer, 2016).
Countries of occurrence: Oman; United Arab Emirates.
Population: Unknown. Reported to be common in Sharjah National Park where >50 have been estimated.

Habitat and ecology:	Parks, gardens and farms. The species has the potential to reach pest status, as it has in Australia (Judas & Hellyer, 2016).
Use and trade:	Traded as a pet.
Major threats:	Unknown.
Conservation actions:	No actions are in place or needed.

Euphrates jerboa

Allactaga euphratica

Regional assessment:	Near Threatened (NT)
Justification:	The population is continuing to decline due to habitat destruction and hunting for falcon food. In Jordan it is suspected to have declined by 50% over 20 years. The rate of decline across the region is suspected to have exceeded 30% over three generations, meeting the threshold for Vulnerable under criterion A2cd. The rescue effect from neighbouring populations results in a regional adjustment and final category of Near Threatened.
Range description:	Occurs across the northern part of the region from Syria and eastern Jordan, through northern Saudi Arabia and Iraq to Kuwait. It has recently been recorded in Lebanon (Abi-Said, 2004). The southern and eastern limits of the range are poorly defined.
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Kuwait; Lebanon; Jordan; Saudi Arabia; Syria.
Population:	This species was common in Jordan (Amr, 2012), in central and southern Iraq (Al-Sheikhly et al., 2015b), and in Saudi Arabia. In Jordan surveys have shown that in 2005 the species was very infrequently encountered in areas where it was previously considered common; the situation in Syria is similar with surveys from 2000–2003 showing a marked decrease (Z. Amr, pers. comm. 2016).
Habitat and ecology:	The species occurs in steppe and semi-desert habitats and up to 2,660 m in Lebanon.
Use and trade:	This species is captured in Syria and Jordan sold for falcon food and human consumption. In some areas of Saudi Arabia the species is common near circular irrigation systems where wheat is cultivated.
Major threats:	The major threat is agricultural expansion in Jordan and Syria. In Jordan, the species has declined by approximately 50% over the past 20 years owing to agricultural expansion; its population there continues to decline (Z. Amr, pers. comm. 2016). It is considered edible by several tribes of Bedouin in Jordan (Qumsiyeh, 1996). In Syria, there is large-scale capture (using spotlights at night) of the species, which is sold to falconers for food (G. Serra, pers. comm. 2016).
Conservation actions:	The species occurs in several protected areas in Jordan and Saudi Arabia. It is important to control the exploitation of this species for food for falcons.

Lesser jerboa

Jaculus jaculus

Regional assessment:	Least Concern (LC)
Justification:	Although the population is continuing to decline due to habitat destruction and hunting for food, the rate of decline is not yet suspected to have reached 20–25% over three generations so it is not close to meeting the threshold for Vulnerable under criterion A2.
Range description:	This species is patchily distributed throughout the Arabian Peninsula except in mountainous regions.
Countries of occurrence:	All countries of the region.
Population:	Reported to be common in Kuwait (Cowan, 2013) and several other range states (e.g. Jordan and Saudi Arabia).

Habitat and ecology: The habitat of this species varies from sand dunes to rocky substrates, but it is always found near vegetation.

Use and trade: The species is used for falcon food and bait in Jordan and Syria and for human consumption.

Major threats: In some areas in Jordan, the species is spotlighted and hunted for food and bait for falconry. Can be trapped while grooming outside the burrow and are considered edible by several tribes of Bedouin in Jordan and the Negev (Qumsiyeh, 1996). In Syria, there is large-scale capture using spotlights at night, and the species is sold to falconers for food (G. Serra, pers. comm. 2016).

Conservation actions: It is presumed to occur in a number of protected areas throughout its range.

Greater Egyptian jerboa

Jaculus orientalis

Regional assessment: Least Concern (LC)

Justification: No declines or major threats have been reported.

Range description: This is a North African species whose distribution extends into the Sinai Peninsula and the Negev (Harrison & Bates, 1991).

Countries of occurrence: Egypt (Sinai); Israel and the Palestinian Territories.

Population: Occurs at densities of 1-50/0.8 km² (Harrison & Bates, 1991).

Habitat and ecology: Found in sandy and gravel desert areas.

Use and trade: Not known in trade.

Major threats: Unknown.

Conservation actions: The distribution may overlap some protected areas.

Forest dormouse

Dryomys nitedula

Regional assessment: Least Concern (LC)

Justification: Appears to occur at low densities in the region but no declines or major threats have been reported.

Range description: Occurs on the fringes of the region in the hills bordering the Mediterranean and there is one record from the Kurdistan region of Iraq (Harrison & Bates, 1991).

Countries of occurrence: Iraq; Israel and the Palestinian Territories; Syria.

Population: Unknown.

Habitat and ecology: Occurs in evergreen oak forests (Harrison & Bates, 1991).

Use and trade: Not known in trade.

Major threats: Unknown.

Conservation actions: The distribution overlaps some protected areas.

Asian garden dormouse

Eliomys melanurus

Taxonomic notes: It is suggested that some populations require further taxonomic investigation (Z. Amr, pers. comm. 2016).

Regional assessment: Least Concern (LC)

Justification: Widespread, is presumed to have a large population and no declines or major threats have been reported.

Range description: Occurs as relict populations in the north-west from the Sinai Peninsula to Lebanon; in Iraq, and in the western mountains of Saudi Arabia and Yemen.
Countries of occurrence: Egypt; Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Syria; Saudi Arabia; Yemen.
Population: Unknown.
Habitat and ecology: Rocky areas in steppe desert and mountains. In Lebanon it has been found in areas that are snow covered throughout winter (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Overgrazing and loss of vegetation is a problem in some areas, for example in the Negev desert.
Conservation actions: Found in some protected areas.

Palestine mole-rat

Nannospalax ehrenbergi

Taxonomic notes: This taxon was previously included in *Spalax leucodon*. Taxonomic work is needed on this species group (i.e. *N. ehrenbergi*, *leucodon* and *nehringi*) as the karyotype is highly polymorphic, with over 30 chromosomal forms (Coşkun et al., 2012; Arslan et al., 2016) and at least some of these forms are likely to be distinct species (Schlitter et al., 2017).
Regional assessment: Data Deficient (DD).
Justification: Until the taxonomy has been resolved it is unclear how many species occur in the region, or their distributions.
Range description: This species (*sensu largo*) occurs across the north of the region.
Countries of occurrence: Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Syria (Lahony et al., 2013).
Population: Abundant in Lebanon (Harrison & Bates, 1991).
Habitat and ecology: Only penetrates the edges of deserts. Spends most of its life underground, surfacing occasionally at night (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: Found in some protected areas.

Indian crested porcupine

Hystrix indica

Regional assessment: Least Concern (LC)
Justification: Although the population is continuing to decline due to habitat destruction and hunting for food, the rate of decline is not suspected to have reached a level of 20-25% over three generations so is not yet close to meeting the threshold for Vulnerable under criterion A2.
Range description: Occurs widely in Iraq and the north-west of the region; western Saudi Arabia and western Yemen; Dhofar and the Jiddat al Harasis in southern Oman (Harrison & Bates, 1991).
Countries of occurrence: Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Oman; Saudi Arabia; Syria; Yemen.
Population: Declining throughout its range due to a variety of threats.
Habitat and ecology: This species has a broad habitat tolerance, occupying mountain areas, rocky hillsides, tropical and temperate shrubland, grasslands, forests, arable land, plantations, and gardens. It is not found in true desert and open habitats.
Use and trade: Hunted and traded for food and folk medicine.

Figure 16. The black-tufted gerbil *Gerbillus famulus* is endemic to Yemen, but very little is known about it's biology and ecology. © Damien Egan.

Figure 17. The golden spiny mouse *Acomys russatus* is common and widespread in the north west and is a near-endemic due to its restricted range outside the assessment region. © Bjorn Jordan, EPAA. *Ex situ* BCEAW.

Major threats: Porcupines are considered agricultural pests in some localities, so they may be trapped or killed. Habitat change (urbanisation, agricultural expansion) is a further threat.
Conservation actions: The species is found in several protected areas. No specific measures are in place.

Tsolov's mouse-like hamster – ENDEMIC

Calomyscus tsolovi

Taxonomic notes: Formerly regarded as a subspecies of *C. bailwardi*.
Regional assessment: Data Deficient (DD) [as Global]
Justification: This species is known only from the type series; there is no information available on distribution, population size or trend (Gerrie & Kennerley, 2016b).
Range description: *C. tsolovi* is known only from the type series: ca. 15 specimens were obtained around the villages of Hammer and Thafas in Derra [Deraa] district in south-west Syria (Peshev, 1989; Harrison & Bates, 1991). This locality may not represent where the species was actually recorded. Surveys in northern Jordan have failed to find the species (Z. Amr, pers. comm. 2016).
Countries of occurrence: Syria.
Population: Unknown.
Habitat and ecology: This species probably occupies open areas with terra rossa.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: Research is needed to establish the distribution and status of this species.

Coypu

Myocastor coypus

Regional assessment: Not Applicable (introduced)
Justification: Escaped animals from fur farms have established colonies in the Jordan Valley and other sites in the north-west.
Countries of occurrence: Israel and the Palestinian Territories; Jordan.
Habitat and ecology: Rivers, streams, irrigation channels. Has potential to reach pest status through burrowing and damage to crops.
Use and trade: Farmed for its fur.
Major threats: Unknown.
Conservation actions: No measures in place or needed.

7.1.2 Chiroptera: Bats

Lesser mouse-eared bat

Myotis blythii

Regional assessment: Data Deficient (DD)
Justification: This species has a limited distribution in the north-west of the region; there is no information on population size and although it is known to be declining in Jordan, the rate of decline regionally is unknown.
Range description: North-west of the region.
Countries of occurrence: Syria; Lebanon; Iraq; Israel and the Palestinian Territories; Jordan (two localities).
Population: Unknown.

Habitat and ecology: Roosts in caves. Collected at 1,575 m in Lebanon roosting in holes under a bridge (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: In Jordan it is threatened by destruction of caves and disturbance of roost sites by people and livestock.
Conservation actions: It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

Long-fingered bat

Myotis capaccinii

Regional assessment: Data Deficient (DD)
Justification: The species is known in the region from only a handful of records in the north-west and Iraq and there is no information on population size or trend. This is a Mediterranean species that is globally listed as Vulnerable (VU A4bce) (Paunović, 2016).
Range description: There are only a few records: in Israel (Harrison & Bates, 1991); one specimen from Jordan (Tabqat al Fahl; Qumsiyeh et al., 1986); one in Lebanon (Atallah, 1977); and one from Keesh in Iraq (Hatt, 1959).
Countries of occurrence: Iraq; Israel and the Palestinian Territories; Jordan; Lebanon.
Population: Unknown.
Habitat and ecology: Roosts in caves (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps some protected areas.

Greater mouse-eared bat

Myotis myotis

Regional assessment: Data Deficient (DD); Jordan – Endangered (EN)
Justification: Declining in Jordan but no information on population size or trend is available from elsewhere in the region.
Range description: Distributed in the north-west, where it is at the southern edge of its global range.
Countries of occurrence: Israel and the Palestinian Territories; Jordan; Lebanon; Syria.
Population: Declining in Jordan; unknown elsewhere.
Habitat and ecology: Gregarious and at least partially migratory in Lebanon (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

Natterer's bat

Myotis nattereri

Regional assessment: Data Deficient (DD)
Justification: There is no information on population size or trend.
Range description: Restricted to the north-west. Occurs in north-west Jordan and Dana; Israel and the Palestinian Territories.
Countries of occurrence: Iraq (Kurdistan region); Israel and the Palestinian Territories; Jordan; Lebanon.
Population: Unknown.

Habitat and ecology: Roosts in caves and ruins (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps some protected areas, including Dana Wildlands Reserve, Jordan.

Bocage's mouse-eared bat

Myotis bocagii

Regional assessment: Not Applicable (marginal)
Justification: This is an African species. There is only one specimen from the region, obtained in Aden (Harrison & Bates, 1991).
Countries of occurrence: Yemen.
Habitat and ecology: Nothing is known of the biology or ecology of this species in Arabia (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: Not applicable – marginal.

Kuhl's pipistrelle

Pipistrellus kuhlii

Regional assessment: Least Concern (LC)
Justification: Listed as Least Concern in view of its wide distribution, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Range description: Widespread across the region.
Countries of occurrence: Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan; Kuwait; Lebanon; Oman; Saudi Arabia; United Arab Emirates; Yemen.
Population: Numerous. It is the most common bat species in the United Arab Emirates (Judas et al., 2018) and Jordan. Fairly common in urban areas in Kuwait (Cowan, 2013).
Habitat and ecology: Colonial. Roosts in buildings and underground falaj, but also seen in open desert and up to 1,500 m (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Has suffered from a loss of roost sites in Saudi Arabia as clay houses are replaced with more modern structures that provide fewer roost opportunities.
Conservation actions: The distribution overlaps several protected areas.

Common pipistrelle

Pipistrellus pipistrellus

Regional assessment: Not Applicable (marginal)
Justification: Only known from two localities in the north-west.
Countries of occurrence: Israel and the Palestinian Territories; Lebanon.
Population: Unknown.
Habitat and ecology: Records from the region are from agricultural land (Harison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: Unknown.

Rüppell's pipistrelle

Pipistrellus rueppellii

Regional assessment: Data Deficient (DD).
Justification: This a poorly known species with a very small number of records in the region from the north-west, southern Iraq and a single record from Bahrain (Harrison & Bates, 1991).
Countries of occurrence: Bahrain, Iraq; Israel and the Palestinian Territories.
Habitat & Ecology: Most records in the region are from buildings and areas of human habitation (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps some protected areas.

Desert pipistrelle

Pipistrellus ariel

Taxonomic notes: Includes *P. bodenheimeri* which was previously considered as a separate species by some authors.
Regional assessment: Least Concern (LC)
Justification: Although there is no information on population size, the species is widespread in the region and the population is apparently stable.
Range description: Recorded in the north-west and the south-west including Yemen (Aden, Seioun, Hawf, Socotra).
Countries of occurrence: Egypt (Sinai); Israel and the Palestinian Territories; Jordan; Saudi Arabia; Yemen.
Population: Small but apparently stable (Benda & Aulagnier, 2008).
Habitat and ecology: Occurs in rocky areas, desert and semi-desert, also in oases and in Jordan around farms and irrigated areas. Roosts in cracks and crevices (Benda & Aulagnier, 2008).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Lanza's pipistrelle – ENDEMIC

Pipistrellus (Hypsugo) lanzai

Taxonomic notes: Recently split from *P. ariel* on morphological grounds (as *Hypsugo lanzai*, Benda et al., 2011a). Not yet assessed globally.
Regional assessment: Data Deficient (DD)
Justification: Only known from three specimens obtained on Socotra.
Countries of occurrence: Yemen.
Habitat and ecology: The type specimen was collected in Wadi Es Gego (Benda et al., 2011), a small wadi with sparse bushes.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: No measures in place.

Serotine bat

Eptesicus serotinus

Regional assessment: Not Applicable (marginal)

Justification: There are only a small number of records, all from the north-west of the region.
Range description: Recorded at two locations in Israel and two in Lebanon (Harrison & Bates, 1991).
Countries of occurrence: Iraq; Israel and the Palestinian Territories; Lebanon.
Population: Unknown.
Habitat and ecology: Recorded in rocky ravines and is presumed to roost in caves and crevices (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution may overlap some protected areas.

Botta's serotine bat

Eptesicus bottae

Taxonomic notes: The systematics and phylogeny of serotine bats was investigated by Juste et al. (2013) who proposed that the specimens from Iraq should be assigned to *E. anatolicus*.
Regional assessment: Least Concern (LC)
Justification: Listed as Least Concern in view of its wide distribution, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Range description: Widespread in mountains and foothills in central and northern Iraq (Al-Sheikhly et al., 2015b), and widespread and common in Jordan. There are five specimens from Oman, one from Yemen, and one recent record from Tabuk (northern Saudi Arabia; Z. Amr, pers. comm).
Countries of occurrence: Iraq; Jordan; Oman; Saudi Arabia; Yemen.
Population: Common in Jordan; elsewhere unknown.
Habitat and ecology: Occupies a wide range of habitats and occurs up to 2,100 m in Oman (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Grey long-eared bat

Plecotus austriacus

Taxonomic notes: Spitzenberger et al. (2006) propose a provisional revision of this species into several cryptic species, but this arrangement has not yet been confirmed.
Regional assessment: Data Deficient (DD)
Justification: There are few records of the grey long-eared bat (*Sensu largo*) in the region and the assignment of populations to the recently proposed taxa is incomplete.
Range description: There are scattered records in the north-west and one from western Saudi Arabia (Harrison & Bates, 1991). There are also recent records from Tabuk, northern Saudi Arabia (Z. Amr, pers. comm. 2016) and Sana'a and Lahejour in Yemen (M. Al Jumaily, pers. comm. 2016).
Countries of occurrence: Egypt (Sinai); Israel and the Palestinian Territories; Saudi Arabia; Syria; Yemen.
Population: Unknown.
Habitat and ecology: Lives in caves and tunnels (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps some protected areas.

African yellow house bat

Scotophilus dinganii

Regional assessment:	Least Concern (LC)
Justification:	Despite the limited distribution in the region there are many recent records and no evidence of a decline that would qualify for listing in a more threatened category.
Range description:	Known from the mountains of south-west Saudi Arabia and western Yemen;
Countries of occurrence:	Saudi Arabia; Yemen.
Population:	Recent records suggest this species is common.
Habitat and ecology:	Plantations, oases, mountain wadis.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution overlaps some protected areas.

Savi's pipistrelle

Hypsugo (Pipistrellus) savii

Regional assessment:	Not Applicable (marginal)
Justification:	There are only four specimens from the north-west margin of the region (Harrison & Bates, 1991).
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Syria.
Habitat & Ecology:	Nothing is known of its biology or ecology on the region (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	None in place

Arabian pipistrelle

Hypsugo (Pipistrellus) arabicus

Regional assessment:	Data Deficient (DD)
Justification:	Known from only two specimens, in the Hajar Mountains of Oman (Harrison & Bates, 1991). It was believed to be endemic to the Hajar until 12 specimens were found in Baluchistan, south-east Iran (Benda et al., 2002).
Range description:	Specimens have been obtained in Wadi Sahtan and Wadi Fidah, Oman.
Countries of occurrence:	Oman.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution overlaps some protected areas.

Guinean pipistrelle

Neoromicia guineensis

Regional assessment:	Data Deficient (DD)
Justification:	A widespread African species that was recently recorded in Yemen, the first occurrence in the Arabian Peninsula (Benda et al., 2011a).
Range description:	Collected at two sites in western and south-west Yemen.
Countries of occurrence:	Yemen.
Habitat and ecology:	Specimens were obtained from sites including Jabal Bura (Benda et al., 2011a) which is thickly wooded on its lower slopes.

Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Probably occurs in Bura'a protected area. No other actions are in place. Further research to establish its status in the region is needed.

Common noctule

Nyctalus noctula

Regional assessment:	Data Deficient (DD)
Justification:	Only known in Lebanon and Israel where it is very rare, as well as one specimen from Masirah Island off the coast of Oman, possibly a vagrant (Harrison & Bates, 1991).
Range description:	Scarce records in the north-west of the region and one record from Oman.
Countries of occurrence:	Lebanon; Israel and the Palestinian Territories; Oman.
Population:	Rare.
Habitat and ecology:	In its Palearctic range it is usually associated with trees and wooded areas.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

Eastern barbastelle

Barbastella leucomelas

Regional assessment:	Data Deficient (DD)
Justification:	There are only four records from the region: Jordan, Sinai, and one recent record from Tabuk, northern Saudi Arabia (Z. Amr, pers. comm. 2016).
Countries of occurrence:	Egypt (Sinai); Jordan; Saudi Arabia.
Habitat and ecology:	Roosts in caves, tunnels and crevices.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution may overlap some protected areas.

Particoloured bat

Vespertilio murinus

Regional assessment:	Not Applicable (marginal/vagrant)
Justification:	The first record for this region was a specimen captured on 13 May 2014 at the Breeding Centre for Endangered Arabian Wildlife, Sharjah, United Arab Emirates and identified based on molecular (cytochrome b gene) and morphological characters (Monadjem et al., 2016). This species is widespread across the Palearctic region and the nearest colonies to the United Arab Emirates are in western Iran and Afghanistan (Coroiu, 2016).
Countries of occurrence:	United Arab Emirates.
Habitat and ecology:	Across its global range the Particoloured Bat occupies a wide range of open and wooded habitats.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Unknown.

Schlieffen's bat

Nycticeinops schlieffeni

Regional assessment:	Data Deficient (DD)
Justification:	Known form a small number of localities in the south-west. There is no information on population size or trend.
Range description:	Known from the mountains of south-west Saudi Arabia, south of Taif, and western Yemen and Aden.
Countries of occurrence:	Saudi Arabia; Yemen.
Habitat and ecology:	Mountain wadis, foothills.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution overlaps several protected areas.

Desert long-eared bat

Otonycteris hemprichii

Taxonomic notes:	Benda and Gvoždík (2010) proposed splitting this species into two; *O. hemprichii* in North Africa and Arabia and *O. leucophaea* in Iran and Central Asia.
Regional assessment:	Least Concern (LC).
Justification:	Listed as Least Concern in view of its wide distribution in the region, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Range description:	Recorded in the north-west, central Saudi Arabia, and the south-east (Harrison & Bates, 1991).
Countries of occurrence:	Israel and the Palestininian Territories; Jordan; Oman; Qatar; Saudi Arabia; Syria; United Arab Emirates.
Population:	Unknown.
Habitat and ecology:	Adapted to arid areas (Harrison & Bates, 1991). Occurs in open desert and mountain regions, roosting in crevices and buildings.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution overlaps several protected areas.

Sind serotine bat

Rhyneptesicus (Eptesicus) nasutus

Regional assessment:	Least Concern (LC)
Justification:	Listed as Least Concern in view of its wide distribution, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Range description:	The species has been recorded in southern Iraq and across the southern half of the Arabian Peninsula including the mountains of the south-west and the Hajar Mountains. There are recent records from Ruwais and Wadi Wurrayah in United Arab Emirates.
Countries of occurrence:	Iraq; Oman; Saudi Arabia; United Arab Emirates; Yemen.
Population:	Unknown.
Habitat and ecology:	Little known. In Oman the species has been found in crevices in walls.
Use and trade:	Not known in trade.
Major threats:	Unknown.

Conservation actions: Occurs in Wadi Wurrayah N.P., Fujairah and its distribution overlaps several other protected areas.

Egyptian fruit bat

Rousettus aegyptiacus

Regional assessment: Least Concern (LC)
Justification: Listed as Least Concern because it is widespread and common and despite some localised declines is not considered to be declining at a rate that would qualify for a more threatened category.
Range description: Occurs in Lebanon, western Syria, western Jordan, Israel, Saudi Arabia (along the whole Sarawat range parallel to the west coast); Yemen (western mountains, Hadhramaut and Hawf); Oman (Dhofar, Masirah Island, Hajar Mountains); and United Arab Emirates (Abu Dhabi, Fujairah, Ras Al Khaimah).
Countries of occurrence: Israel and the Palestinian Territories; Jordan; Lebanon; Oman; Saudi Arabia; Syria; United Arab Emirates; Yemen.
Population: Very common in Saudi Arabia. Some local extirpations in Jordan and a decline noted at one site in United Arab Emirates based on cave visits.
Habitat and ecology: Feeds on a range of fruit and may become a pest. Roosts in colonies in large caves (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Some persecution by farmers. In Jordan the blood is used for medicinal purposes.
Conservation actions: Occurs in Wadi Sareen NR (Oman), and Wadi Wurrayah NP (Fujairah, United Arab Emirates).

Ethiopian epauletted fruit bat

Epomophorus labiatus

Regional assessment: Data Deficient (DD)
Justification: A common African species with only a few records in the region.
Range description: Mountains of the south-west, north to Taif. First recorded in Yemen by Benda et al. (2011a).
Countries of occurrence: Saudi Arabia; Yemen.
Population: Rare. No further information available.
Habitat and ecology: Unknown.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

Straw-coloured fruit bat

Eidolon helvum

Taxonomic notes: Subspecies *E. h. sabaeum* has been described from Arabia.
Regional assessment: Least Concern (LC)
Justification: Listed as Least Concern because it is common, widely distributed and not considered to be declining at a rate that would qualify for a more threatened category.
Range description: Mountains of the south-west from the vicinity of Abha in Saudi Arabia south to Aden and Lahej in Yemen.

Countries of occurrence: Saudi Arabia; Yemen.
Population: Common in Yemen, some colonies in trees in the capital, Sana'a; common in Saudi Arabia.
Habitat and ecology: May travel long distances to feed. Feeds on fruit, including dates and wild figs. May be a pest to farmers. Occurs in large colonies.
Use and trade: Not known in trade.
Major threats: In Saudi Arabia they may be killed for food or medicine, however, the extent of this threat is unknown.
Conservation actions: Occurs in some protected areas.

Nigerian free-tailed bat

Chaerephon nigeriae

Regional assessment: Data Deficient (DD)
Justification: This is a widespread African species, known in the region only from specimens collected in Abha and the Abha-Raydah escarpment in south-west Saudi Arabia and Hajja in western Yemen.
Countries of occurrence: Saudi Arabia; Yemen.
Habitat and ecology: The specimen from the Abha-Raydah escarpment was caught at 2,250 m (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

Little-free-tailed bat

Chaerephon pumilus

Regional assessment: Least Concern (LC).
Justification: Appears to be common and not declining at a rate that would qualify for a more threatened category.
Range description: Known in south-west Saudi Arabia and western Yemen south to Aden.
Countries of occurrence: Saudi Arabia; Yemen.
Population: Common in Yemen.
Habitat and ecology: Poorly known; may roost in houses (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps some protected areas.

Midas mops bat

Mops midas

Regional assessment: Data Deficient (DD)
Justification: This is a widespread African species, known in the region only from two localities in south-west Saudi Arabia, near Al Mowassam and Al Jowa (Nader, 1982).
Countries of occurrence: Saudi Arabia.
Population: Unknown.
Habitat and ecology: Roosts in hollow trees (Harrison & Bates, 1991).
Use and trade: Not known in trade.

Major threats: Unknown.
Conservation actions: It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

European free-tailed bat

Tadarida teniotis

Regional assessment: Least Concern (LC)
Justification: It is common and not considered to be declining at a rate that would qualify for a more threatened category.
Range description: Very common in Jordan; also recorded in Israel, north-west Saudi Arabia and Iraq.
Countries of occurrence: Iraq; Israel and the Palestinian Territories; Jordan; Saudi Arabia.
Population: Unknown.
Habitat and ecology: Roosts in narrow crevices, sometimes in large colonies (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Egyptian free-tailed bat

Tadarida aegyptiaca

Regional assessment: Data Deficient (DD)
Justification: Known from a few records in Saudi Arabia, Yemen and Oman. There is no other information on the species in the region.
Countries of occurrence: Oman; Saudi Arabia; Yemen.
Habitat and ecology: Unknown.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

Afro-Arabian free-tailed bat

Otomops harrisoni

Taxonomic notes: Formerly included in *O. martiensseni*. North-east African and Arabian specimens were split into a new species on morphometric and molecule evidence (Ralph et al., 2015; Richards et al. 2017)).
Regional assessment: Vulnerable (VU D2)
Justification: Known in the region from only one locality in Yemen (Al-Jumaily, 1999),
Range description: It has been recorded from Hud Sawa cave, Ar-Rayadi Al-Gharbi Mountains, Yemen (Al Jumaily, 1999).
Countries of occurrence: Yemen.
Population: The cave contained ca. 3,000 individuals. The species is considered to be globally declining (Richard, 2017).
Habitat and ecology: Montane woodlands and shrublands; roosts in caves (Al Jumaily, 1999; Richard, 2015).
Use and trade: Not known in trade.
Major threats: The only known roosting cave in Yemen is at risk of disturbance by casual visitors and livestock herders using it as a shelter.
Conservation actions: No actions in place. Further research to establish its status in the region is needed.

Blasius' horseshoe bat

Rhinolophus blasii

Regional assessment:	Least Concern (LC)
Justification:	Listed as Least Concern because it is relatively common and not considered to be declining at a rate that would qualify for a more threatened category.
Range description:	Found in the north-west Syria, Yemen and Oman. Records are widely separated, and it may be under-recorded.
Countries of occurrence:	Israel and the Palestinian Territories; Jordan; Syria; Oman; Yemen.
Population:	Common in Yemen and in Jordan.
Habitat and ecology:	Found in caves.
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	Occurs in some protected areas.

Mediterranean horseshoe bat

Rhinolophus euryale

Regional assessment:	Vulnerable (VU A2c)
Justification:	Listed as VU A2 due to an inferred decline of >30% in 10 years (three generations) from loss of habitat; the population in the Arabian Peninsula is isolated and there is no significant rescue effect.
Range description:	It has a limited distribution in the north-west of the region. The first record for Iraq, from the Kurdistan region in the north, was reported by Al-Sheikhly et al. (2015a).
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Lebanon; Jordan; Syria.
Population:	Declining.
Habitat and ecology:	Poorly known.
Use and trade:	Not known in trade.
Major threats:	Threatened by loss and degradation of forest habitats and destruction of cave roost sites from quarrying. In 2015 the cave holding the largest roost in Jordan was destroyed by quarrying.
Conservation actions:	Occurs in some protected areas.

Greater horseshoe bat

Rhinolophus ferrumequinum

Regional assessment:	Near Threatened (NT)
Justification:	A decline of >30% over 10 years (three generations) is inferred from habitat loss, particularly affecting roost sites, due to quarrying, deforestation and tree cutting, leading to a regional assessment as Vulnerable (VU A2c); the potential rescue effect from adjoining populations results in a regional adjustment and reduction by one category to Near Threatened.
Range description:	Found across the north-west of the region.
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Syria (four localities).
Population:	Declining.
Habitat and ecology:	Prefers wooded in limestone areas, roosting in caves but also occupies buildings and ruins.
Use and trade:	Not known in trade.
Major threats:	Habitat destruction.
Conservation actions:	Occurs in some protected areas.

Lesser horseshoe bat

Rhinolophus hipposideros

Regional assessment:	Near Threatened (NT)
Justification:	A decline of >30% over ten years (three generations) is inferred from habitat loss, particularly affecting roost sites, due to quarrying and deforestation and tree cutting, leading to a regional assessment as Vulnerable (VU A2c); the potential rescue effect from adjoining populations results in a regional adjustment and reduction by one category to Near Threatened.
Range description:	Mainly the north-west of the region and Iraq, with a few records in the western mountains of Saudi Arabia.
Countries of occurrence:	Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Syria (three localities in the north-west).
Population:	Declining in Jordan.
Habitat and ecology:	Seems to be rarer than *H. ferrumequinum* (Harrison & Bates, 1991); prefers caves and tunnels.
Use and trade:	Not known in trade.
Major threats:	Threatened by loss and degradation of forest habitats and destruction of cave roost sites from quarrying.
Conservation actions:	Unknown.

Mehely's horseshoe bat

Rhinolophus mehelyi

Regional assessment:	Data Deficient (DD)
Justification:	Very little information is available on this species in the region. Records are sparse and localities are scattered.
Range description:	There are sparse records from Iraq, two in the Euphrates valley in Syria and one record in Jordan.
Countries of occurrence:	Iraq; Israel and the Palestinian Territories Jordan; Syria.
Population:	Unknown.
Habitat and ecology:	Inhabits desert caves, sometimes in large colonies (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

Cretzschmar's [Geoffroy's] horseshoe bat

Rhinolophus clivosus

Regional assessment:	Least Concern (LC)
Justification:	Listed as Least Concern because it is common, widely distributed and not considered to be declining at a rate that would qualify for a more threatened category.
Range description:	Southern Jordan (Wadi Araba to Wadi Rum), Sinai, western and central Saudi Arabia and Yemen.
Countries of occurrence:	Egypt (Sinai); Israel and the Palestinian Territories; Jordan; Saudi Arabia; Yemen.
Population:	Very common in Yemen
Habitat and ecology:	Prefers to roost in buildings (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	None known.

Conservation actions: Occurs in some protected areas.

Sundevall's roundleaf bat

Hipposideros caffer

Regional assessment: Least Concern (LC)
Justification: Listed as Least Concern because it is relatively common and not considered to be declining at a rate that would qualify for a more threatened category.
Range description: Mountains of western Saudi Arabia and Yemen.
Countries of occurrence: Saudi Arabia; Yemen.
Population: Appears to be common.
Habitat and ecology: Rather poorly known but seems to be versatile in its roosting habits (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: None known.
Conservation actions: Unknown.

Ethiopian large-eared roundleaf bat

Hipposideros megalotis

Regional assessment: Not Applicable (vagrant)
Justification: Only one specimen is known, obtained in Jeddah, Saudi Arabia (Gaucher & Brosset, 1990).
Range description: Jeddah, Saudi Arabia.
Habitat and ecology: In its African range it occurs in arid savanna and senideset habitats.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: Not Applicable (vagrant).

Somali trident leaf-nosed bat

Asellia italosomalica

Taxonomic notes: Formerly considered a subspecies of *A. tridens* (Benda et al., 2011b)
Regional assessment: Data Deficient (DD)
Justification: Recently recorded on Socotra Island (Benda et al., 2011a,b).
Countries of occurrence: Yemen (Socotra).
Population: Unknown.
Habitat and Ecology Unknown.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

Patrizi's trident leaf-nosed bat

Asellia patrizii

Regional assessment: Data Deficient (DD)

Justification: In the region this species is only known from Saudi Arabia, where two specimens have been collected, from Farasan Kebir Island and As-Saqid Island, both in the Red Sea (Moerschler et al., 1990).
Countries of occurrence: Saudi Arabia.
Population: Unknown.
Habitat and ecology: Unknown.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The Farasan Islands are a protected area; surveys are required to gather more information on this species so that its status can be determined.

Geoffroy's trident leaf-nosed bat

Asellia tridens

Regional assessment: Least Concern (LC)
Justification: Listed as Least Concern because it is considered relatively common and is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Range description: Distributed across the north of the Arabian Peninsula.
Countries of occurrence: Bahrain; Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan (three localities); Qatar; Saudi Arabia, United Arab Emirates.
Population: Common.
Habitat and ecology: A colonial species inhabiting caves and ruins; avoids interior deserts (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Arabian trident leaf-nosed bat – ENDEMIC

Asellia arabica

Taxonomic notes: Formerly included in *A. tridens* (Benda et al., 2011b).
Regional assessment: Least Concern (LC); Globally assessed as Data Deficient (DD)
Justification: Listed as Least Concern as it appears to be widespread within its range and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Range description: Restricted to Yemen and Dhofar in SW Oman (Benda et al., 2011b).
Countries of occurrence: Oman; Yemen.
Population: Appears to be common.
Habitat and ecology: A colonial species roosting in caves and ruins.
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Persian trident bat

Triaenops persicus

Regional assessment: Least Concern (LC)
Justification: Appears to be common and not declining at a rate that would qualify for a more threatened category.

Range description: Occurs in the Hajar Mountains of the south-east with isolated records in Dhofar (southern Oman) and Aden (Yemen).
Countries of occurrence: Oman, United Arab Emirates, Yemen.
Population: Sometimes roosts in large colonies.
Habitat and ecology: Recorded roosting in underground water channels and caves (Gallagher & Harrison, 1988).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: The distribution overlaps several protected areas.

Naked-bellied tomb bat

Taphozus nudiventris

Regional assessment: Least Concern (LC)
Justification: Listed as Least Concern because it is common, widely distributed and not considered to be declining at a rate that would qualify for a more threatened category.
Range description: Widespread in the region.
Countries of occurrence: Bahrain; Jordan; Iraq; Oman; Saudi Arabia; Syria; United Arab Emirates; Yemen.
Population: Common.
Habitat and ecology: Lives in large colonies roosting in crevices in cliffs and buildings. The guano is collected at some sites for use as fertiliser (Harrison & Bates, 1991). In United Arab Emirates it is a seasonal migrant, arriving in March and remaining for about eight weeks. In southern Iraq it hibernates from November to March (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: Occurs in some protected areas.

Egyptian tomb bat

Taphozus perforatus

Regional assessment: Least Concern (LC)
Justification: Listed as Least Concern because it is relatively common, widely distributed and not considered to be declining at a rate that would qualify for a more threatened category.
Range description: Rather patchily distributed, in the north-west of the region, western Saudi Arabia, Yemen and the Hajar Mountains. There is also a recent record from the Ibex Reserve in central Saudi Arabia.
Countries of occurrence: Israel and the Palestinian Territories; Oman; Saudi Arabia; Yemen.
Population: Common.
Habitat and ecology: Buildings, caves, and crevices.
Use and trade: Not known in trade.
Major threats: None known.
Conservation actions: Occurs in some protected areas.

African sheath-tailed bat

Coleura afra

Regional assessment: Least Concern (LC)

Justification:	Listed as Least Concern because although its regional distribution is limited, it appears to be common and is not declining at a rate that would qualify for a more threatened category.
Range description:	Occurs in south-west Yemen.
Countries of occurrence:	Yemen.
Population:	Common.
Habitat and ecology:	Caves, crevices, cellars.
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	Unknown.

Schreiber's bent-winged bat

Miniopterus schreibersi

Taxonomic notes:	Specimens from northern Arabia have been assigned to *M. s. pallidus* which is considered by some authorities to be a separate species.
Regional assessment:	Least Concern (LC)
Justification:	Listed as Least Concern in view of its wide distribution, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Range description:	There are records from the north-west of the region, Iraq and the western mountains of Saudi Arabia and Yemen.
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Saudi Arabia; Yemen.
Population:	Unknown.
Habitat and ecology:	Inhabits caves and ruins (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The distribution overlaps several protected areas.

Egyptian slit-faced bat

Nycteris thebaica

Regional assessment:	Least Concern (LC)
Justification:	Listed as Least Concern because it is relatively common, widely distributed and not considered to be declining at a rate that would qualify for a more threatened category.
Range description:	Common in western and central Saudi Arabia and Yemen; also recorded in Dhofar (Oman), the Sinai Peninsula and Jordan.
Countries of occurrence:	Egypt (Sinai); Israel and the Palestinian Territories; Oman; Saudi Arabia; Yemen.
Population:	Common.
Habitat and ecology:	Roosts in buildings, ruins, well-shafts and caves (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	Occurs in some protected areas.

Greater mouse-tailed bat

Rhinopoma microphyllum

Regional assessment:	Data Deficient (DD); Jordan – Endangered (EN)

Justification:	This is considered a rare species in the region but there is no information on population size or trend.
Range description:	There are a few records in the north-west and the western mountains (where it is rare), as well as Iraq.
Countries of occurrence:	Iraq; Syria; Jordan; Israel and the Palestinian Territories; Saudi Arabia.
Population:	Unknown size and trend.
Habitat and ecology:	Roosts in caves in rocky cliffs (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

Muscat mouse-tailed bat

Rhinopoma muscatellum

Taxonomic notes:	Subspecies *R. m. muscatellum* has been described from Arabia.
Regional assessment:	Least Concern (LC)
Justification:	Listed as Least Concern because it appears to be common and not declining at a rate that would qualify for a more threatened category.
Range description:	Hajar Mountains of the south-east. Widespread and assumed to occupy the whole range.
Countries of occurrence:	Oman; United Arab Emirates.
Population:	Unknown size and trend. No evidence of a decline.
Habitat and ecology:	Cliffs, caves, underground caverns.
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	The distribution overlaps some protected areas.

Egyptian mouse-tailed bat

Rhinopoma cystops

Taxonomic notes:	Split from *Rhinopoma hardwickii* by Hulva et al. (2007). *R. cystops* occurs in Africa and Arabia and *R. hardwickii* in Iran and India.
Regional assessment:	Least Concern (LC)
Justification:	Listed as Least Concern because it is common, widely distributed and not considered to be declining at a rate that would qualify for a more threatened category.
Range description:	Widespread in the region.
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Jordan; Saudi Arabia; Oman; Yemen.
Population:	Common.
Habitat and ecology:	Colonies roost in caves, tunnels and cellars.
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	The distribution overlaps some protected areas.

Hadhramaut mouse-tailed bat – ENDEMIC

Rhinopoma hadramauticum

Taxonomic notes:	First described by Benda et al. (2009) from specimens in Yemen.
Regional assessment:	Endangered (EN D) [as Global].
Justification:	Known only from specimens collected at a single locality in 2007.

Range description:	Only known from a single locality: the town of Ash Sheher (14046'N, 49036'E), Hadhramaut Governorate, Yemen (Benda et al., 2009).
Countries of occurrence:	Yemen.
Population:	Unknown size and trend.
Habitat and ecology:	Specimens were collected from a colony of ca. 150 roosting in an unoccupied house.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	It is not known if the species occurs in any protected areas; surveys are required to gather more information on this species so that its status can be determined.

7.1.3 Eulipotyphla: Shrews and Hedgehogs

Lesser white-toothed shrew

Crocidura suaveolens

Taxonomic notes:	Extensive field work carried out by Professor Z. Amr (pers. comm.) and co-workers in Jordan, Syria and Lebanon found no evidence of *C. leucodon* and suggest that previous records of this species from the region in fact refer to *C. suaveolens*.
Regional assessment:	Least Concern (LC)
Justification:	Widespread and with a presumed large population. No major threats or declines have been reported.
Range description:	Widely distributed in the north-west and Iraq, with isolated records from Saudi Arabia and Yemen (Harrison & Bates, 1991).
Countries of occurrence:	Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Saudi Arabia; Syria; Yemen.
Population:	Populations are considered to be stable.
Habitat and ecology:	Prefers habitats with long grass; thick vegetation along streams, river edges and vegetation channels; around houses and in forested areas (Bates & Harrison, 1989).
Use and trade:	Not known in trade.
Major threats:	Pesticides and herbicides may have a negative impact in agricultural habitats but at present this does not seem to be a major threat.
Conservation actions:	Found in some protected areas. It is protected by law in Jordan (Appendix 3, law no. 43, 2008).

Katinka's shrew – ENDEMIC

Crocidura katinka

Regional assessment:	Data Deficient (DD) [as Global].
Justification:	Very little information is available.
Range description:	Recorded from the north-west; the records from Israel are old and are based on owl pellets and it is likely that the species is now extinct there. In Syria it is known from only two localities; there is also an unpublished record from south-western Iran that may represent this species (Hutterer et al., 2008a).
Countries of occurrence:	Israel and the Palestinian Territories; Syria.
Population:	Unknown.
Habitat and ecology:	Preferred habitat is unknown.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Research is needed to determine the status of this species.

Dhofarian shrew – ENDEMIC

Crocidura dhofarensis

Taxonomic notes:	Formerly considered a subspecies of *C. somalica*.
Regional assessment:	Data Deficient (DD) [as Global]
Justification:	This species is only from two sites; there is no information available regarding its distribution, population size or population trends, or likely threats (Gerrie & Kennerley, 2016a).
Range description:	Known from the type locality (Khadrafi in Dhofar, Oman) and the species was later collected in Hawf Forest, eastern Yemen, about 40 km west of the type locality (Benda & Nasher, 2006).
Countries of occurrence:	Oman; Yemen.
Population:	No information available.
Habitat and ecology:	Specimens have been collected in semiarid grassland at an altitude of 620 m and in dry woodland.
Use and trade:	Not known in trade.
Major threats:	The habitat in both countries is under threat due to grazing and development.
Conservation actions:	Found in Hawf Forest protected area, Yemen.

Arabian white-toothed shrew – ENDEMIC

Crocidura arabica

Regional assessment:	Least Concern (LC) [as Global]
Justification:	No major threats or declines have been reported.
Range description:	Known from localities in Yemen, Dhofar and Musandam (Harrison & Bates, 1991).
Countries of occurrence:	Oman; Yemen.
Population:	Population size and trends have not been quantified, but no declines are reported.
Habitat and ecology:	In grassland and woodland on coastal plains (Hutterer, 2008).
Use and trade:	Not known in trade.
Major threats:	May include overgrazing of grassland and associated woodland by livestock.
Conservation actions:	May occur in some protected areas. No specific conservation measures are in place.

Negev shrew – ENDEMIC

Crocidura ramona

Regional assessment:	Least Concern (LC) [as Global]
Justification:	It is very likely to be more widespread in the region than currently known and there are no known threats at present. More data on range, population densities and trends, and potential threats would be useful for a future reassessment (Hutterer et al., 2008b).
Range description:	So far, the Negev shrew is known only from three locations, but it is likely that the species occurs more widely in the region, including Jordan, where similar habitats occur and *Crocidura* species have not been well surveyed (Hutterer et al., 2008b).
Countries of occurrence:	Israel and the Palestinian Territories.
Population:	Unknown.
Habitat and ecology:	The three locations in which the species occurs are rocky desert areas at 200–950 m above sea level. It appears to be a naturally rare habitat specialist.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Most of the known localities are in protected areas.

House shrew

Suncus murinus

Regional assessment:	Not Applicable (introduced)
Range description:	An introduced species, restricted to the vicinity of seaports such as Hodeida, Aden, Jeddah and Muscat; also known in Iraq and Bahrain (Harrison & Bates, 1991).
Countries of occurrence:	Bahrain; Iraq; Oman; Saudi Arabia; Yemen.
Population:	Not known.
Habitat and ecology:	A human commensal living in and around seaports.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	No measures in place or needed.

Pygmy white-toothed shrew

Suncus etruscus

Taxonomic notes:	Includes *S. madagsacariensis* (Omar et al., 2011).
Regional assessment:	Least Concern (LC)
Justification:	Widespread and with a presumed large population. No major threats or declines have been reported.
Range description:	Widespread in the region.
Countries of occurrence:	Bahrain; Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Oman; Syria; United Arab Emirates, Yemen (including Socotra).
Population:	Common.
Habitat and ecology:	It has been recorded in both semi-arid and moist habitats and has been collected on the edge of pine woods and in olive groves (Harrison & Bates, 1991; Amr, 2012).
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	Probably present in some protected areas.

East European hedgehog

Erinaceus concolor

Regional assessment:	Least Concern (LC)
Justification:	Widespread and with a presumed large population. No major threats or declines have been reported.
Range description:	Found in the mountains of northern Iraq and the western hills from Lebanon southwards to Gaza (Harrison and Bates, 1991).
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Syria.
Population:	Considered common in Jordan (Amr, 2012), very little other information on population is available.
Habitat and ecology:	Seems to prefer woodland to arid areas (Amr, 2012).
Use and trade:	Sometimes used for food and as pets.
Major threats:	None known.
Conservation actions:	Occurs in some protected areas.

Ethiopian hedgehog

Paraechinus aethiopicus

Taxonomic notes:	The form occurring in Arabia has been named as a separate subspecies *P. a. dorsalis*; DNA sequencing has recently confirmed the distinctiveness of this form (Derouiche et al., 2017).
Regional assessment:	Least Concern (LC)
Justification:	Widespread and with a presumed large population. No major threats or declines have been reported.
Range description:	Distributed widely across the Arabian Peninsula.
Countries of occurrence:	Bahrain; Egypt (Sinai); Iraq; Israel and Palestinian Territories; Oman; Qatar; Saudi Arabia; United Arab Emirates; Yemen.
Population:	This is generally a common species. Uncommon or rare in Kuwait (Cowan, 2013).
Habitat and ecology:	Widespread throughout arid desert and dry steppes but tends to favour areas such as oases and vegetated wadis (Harrison & Bates, 1991). The species avoids higher altitudes (top of mountains) in south-western Arabia.
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	It is presumed to be present in some protected areas.

Brandt's hedgehog

Paraechinus hypomelas

Regional assessment:	Least Concern (LC)
Justification:	Widespread and no major threats or declines have been reported.
Range description:	It has been recorded only from the southern part of the Arabian Peninsula where it may be a relic montane species (Harrison and Bates, 1991).
Countries of occurrence:	Oman; Saudi Arabia; United Arab Emirates; Yemen.
Population:	There is little information on the abundance of this species.
Habitat and ecology:	Can live in very arid regions and at least in Oman favours mountain ranges (Harrison & Bates 1991).
Use and trade:	Not known in trade.
Major threats:	None known.
Conservation actions:	May occur in some protected areas.

Long-eared hedgehog

Hemiechinus auritus

Regional assessment:	Least Concern (LC)
Justification:	Widespread and with a presumed large population. No major threats or declines have been reported.
Range description:	Widespread in the Tigris and Euphrates valleys of Iraq (Hatt, 1959), the north-west from Jordan to northern Sinai Peninsula and eastern Saudi Arabia and Bahrain (Harrison and Bates, 1991).
Countries of occurrence:	Bahrain; Egypt (Sinai); Iraq; Israel and Palestinian Territories; Jordan; Kuwait; Saudi Arabia; Syria.
Population:	Common across most of its range.
Habitat and ecology:	Inhabits different types of dry steppes and semi-deserts. It prefers dry river valleys, gullies, forest shelter belts, abandoned irrigation ditches and shrubby areas, and often settles in oases and around human settlements, including cultivated habitats.

Use and trade:	Not known in trade.
Major threats:	None known at present.
Conservation actions:	Occurs in several protected areas.

7.1.4 Order Primates

Hamadryas baboon

Papio hamadryas

Taxonomic notes:	Specimens from Arabia have been provisionally assigned to *P. h. arabicus* (Harrison & Bates, 1991). Genetic analysis showed that there has been no gene flow across the Red Sea since at least the end of the last Ice Age (Wildman et al., 2004). A later analysis of mtDNA sequences of baboons from four Saudi Arabian populations and others from Eritrea revealed a unique clade in Arabia indicating genetic differentiation of Arabian from African populations (Winney et al., 2015).
Regional assessment:	Least Concern (LC)
Justification:	Listed as Least Concern as this species is widespread and abundant where it occurs, and there are no major range-wide threats believed to be resulting in a significant decline. There is some loss of habitat due to agricultural expansion, but the species has also adapted by becoming commensal and is considered a pest species in parts of its range.
Range description:	Occurs in the western mountains of Saudi Arabia and Yemen from just south of Jeddah to Aden; there are a few records farther east, in Hadhramaut (Harrison & Bates, 1991; Al Jumaily, 1998).
Countries of occurrence:	Saudi Arabia; Yemen.
Population:	Common, abundant in places and forming large troops of up to several hundred (Harrison & Bates, 1991). Increasing in numbers in several areas and reaching pest proportions. Appears to be much less common in Hadhramaut.
Habitat and ecology:	Favours mountainous regions and sites with access to water; known up to 2,100 m in Saudi Arabia (Harrison & Bates, 1991). Frequents rubbish dumps and abandoned camps.
Use and trade:	Not known in trade.
Major threats:	None reported. Becoming a pest in several areas.
Conservation actions:	Occurs in Bura'a reserve in Yemen and other reserves in Saudi Arabia. No other measures are in place or needed.

7.1.5 Order Cetartiodactyla: Even-toed Ungulates

Dorcas gazelle

Gazella dorcas

Regional assessment:	Vulnerable (VU D1).
Justification:	The regional population was estimated in 2013 at ca. 800, well below the threshold of 1,000 mature individuals. There is no significant rescue effect.
Range description:	Restricted to the north-west of the region. A rare visitor to Jordan (Amr, 2012).
Countries of occurrence:	Egypt (Sinai), Israel and the Palestinian Territories, Jordan.
Population:	In 2013, the Israel Nature and Parks Authority (INPA) reported a population size of approximately 800 dorcas gazelles that has remained relatively stable over the previous few years (Hadas et al., 2015). The species is a rare visitor to Jordan and may no longer occur in Sinai.

Habitat and ecology: Deserts, wadis.
Use and trade: Not known in trade.
Major threats: Quarrying, agriculture and military activities in the Negev and Arava cause some habitat disturbance and fragmentation (Hadas et al., 2015).
Conservation actions: Regular monitoring is carried out by INPA. Occurs in some nature reserves.

Goitered gazelle

Gazella subgutturosa

Taxonomic notes: This species formerly included Arabian sand gazelle (*G. marica*, which is now considered a separate species (Wacher et al., 2010).
Regional assessment: Near Threatened (NT)
Justification: The regional population is estimated to number <1,000 mature individuals, thus qualifying for Vulnerable under criterion D1. The rescue effect from populations in Iran results in a regional adjustment and final category of Near Threatened.
Range description: In the region this species is only known for certain to the north-east of the Tigris River in Iraq.
Countries of occurrence: Iraq.
Population: Estimated at <1,000 mature individuals and likely declining.
Habitat and ecology: Desert and semi-desert plains and low hills.
Use and trade: Hunted for meat and sport.
Major threats: Hunting.
Conservation actions: No specific measures are in place.

Arabian sand gazelle, Reem – NEAR-ENDEMIC

Gazella marica

Taxonomic notes: Formerly considered a subspecies of the goitered gazelle (*G. subgutturosa*) but now shown to be a separate species *G. marica* (Wacher et al., 2010).
Regional assessment: Vulnerable (VU C2a(i)) [as Global].
Justification: The Arabian sand gazelle is listed as Vulnerable because although there are only an estimated 1,750–2,100 mature individuals in total (below the threshold for Endangered), two subpopulations contain >250 mature individuals. Many of the wild populations are now in protected areas where they are stable or increasing, while remnant populations elsewhere are threatened and may be declining (IUCN SSC Antelope Specialist Group, 2017d).
Range description: Occurs from south-eastern Turkey southwards across the Arabian Peninsula to the United Arab Emirates, Oman and Yemen (Mallon & Kingswood, 2001). In the north-east and east of the range, the boundary between the Arabian sand gazelle and goitered gazelle is not precisely known, especially in Iraq, where the Tigris River may separate the two forms. The Arabian sand gazelle is assumed to have once occurred in suitable habitat across most of the Arabian Peninsula. Its range has been considerably reduced and it is now restricted to protected areas and a few small scattered populations elsewhere. In Saudi Arabia, the two main populations occur in Mahazat As-Sayd and Uruq Bani Ma'arid reserves. A few other very small populations may still be present. The former population (ca. 1,000) in Harrat Al Harrah reserve in the north has been extirpated by poaching. In the United Arab Emirates there are several small wild populations and the species has been reintroduced to Umm al Zumoul reserve in the south-east of Abu Dhabi emirate. In Oman, the species has become scarce.. There are a few old records in Yemen (Harrison

& Bates, 1991; Al Jumaily, 1998) but no recent information, although extensive areas of suitable habitat exist in the north of the country along the edge of Rub Al Khali. There are semi-managed populations in Bahrain. The species occurred in Kuwait, Qatar and Syria, but the current status there is unclear. Very small numbers survive in the eastern desert of Jordan. The Arabian sand gazelle is still believed to occur in western Iraq but there is little recent information available.

Countries of occurrence: Bahrain; Iraq; Jordan; Kuwait (RE); Oman; Qatar (RE); Saudi Arabia; Syria; United Arab Emirates; Yemen.

Population: Estimated 1,750–2,100 mature individuals. This includes 600–700 in Mahazat as Sayd reserve and ca. 400 in Uruq Bani Ma'arid reserve, Saudi Arabia.

Habitat and ecology: Occurs in deserts, including sand dunes and areas of sand and gravel as well as coastal flats; it avoids steep and rocky areas.

Use and trade: Hunted for meat and sport.

Major threats: Uncontrolled hunting, and in parts of the range, habitat degradation due to overgrazing.

Conservation actions: There is a large captive breeding herd (ca. 500) at Al Wusta Reserve, Oman, and a programme of releases is planned. It is found in Shaumari reserve, Jordan (ca. 50); Mahazat as Sayd and Uruq Bani Ma'arid reserves, Saudi Arabia. The species has been reintroduced to Umm Al Zumoul reserve, Abu Dhabi. There are breeding centres in Turkey, United Arab Emirates, Jordan (Shaumari), Saudi Arabia and Iraq. The species is also kept in many private collections. There are very large numbers (probably >100,000) in captivity and semi-captivity in the United Arab Emirates.

Saudi gazelle – ENDEMIC

Gazella saudiya

Taxonomic notes: Sometimes treated as a subspecies of the dorcas gazelle *G. dorcas* but, on the basis of genetic analyses, Hammond et al. (2001) maintained that these are two distinct and closely related species.

Regional assessment: Extinct (EX) [as Global]

Justification: There have been no records for several decades despite frequent surveys in areas of former habitat. Systematic investigations of privately owned populations throughout the Arabian Peninsula provided no evidence of surviving Saudi Gazelles (Hammond et al., 2001; IUCN SSC Antelope Specialist Group, 2016b).

Range description: This species distribution formerly covered the western part of the Arabian Peninsula with several recorded sites in Saudi Arabia and Yemen. There is one record from Kuwait, well to the east of all other records, but its validity was doubted by Dunham et al. (2001). Recent DNA studies show that a specimen from Iraq (Harrison & Bates, 2001) in fact refers to Arabian sand gazelle (*G. marica*) (R. Hammond, pers. comm., in Cowan, 2013).

Countries of occurrence: Kuwait(?); Saudi Arabia; Yemen.

Population: No information on former population size.

Habitat and ecology: Occurred on gravel and sandy plains, preferring open *Acacia* (*Vachellia*) country; found singly and in groups of up to 20 (Harrison & Bates, 1991).

Use and trade: Formerly hunted for sport and meat.

Major threats: The main cause of its decline was believed to be over-hunting; its preference for open gravel plains made the species highly vulnerable to motorised hunting (Harrison & Bates, 1991; Hammond et al., 2001).

Conservation actions: Extinct – not applicable.

Yemen gazelle; Queen of Sheba's gazelle – ENDEMIC

Gazella bilkis

Taxonomic notes: This species was described on the basis of five specimens collected in 1951 in mountains near Ta'izz, Yemen (Groves & Lay, 1985; Greth et al., 1993). Some authors have considered *bilkis* as a subspecies of *G. arabica*, a little-known taxon known from a few specimens on the Farasan Islands (Grubb, 2005). However, the type specimen of *G. arabica* has recently been shown to be a composite (Bärman et al., 2012) and the name has been assigned to the populations of gazelles on the Arabian Peninsula, formerly considered *G. gazella*, casting considerable doubt on the validity of *G. bilkis* as a separate species.

Regional assessment: Extinct (EX) [as Global].

Justification: This gazelle is known only from five specimens, collected in 1951 in the mountains near Ta'izz, where it was reportedly common at the time. There have been no subsequent specimens, sightings or reports, and the species is now considered Extinct, if indeed it is really a valid species (IUCN SSC Antelope Specialist Group, 2016a).

Range description: The localities where the specimens were collected in 1951 were in mountains near Ta'izz and included Wadi Maleh, Usaifira, and Jabal Zarba (Groves & Lay, 1985; Greth et al., 1993).

Countries of occurrence: Yemen (EX).

Population: The population was described as very common in 1951 (Sanborn & Hoogstraal, 1953) but there have been no records since the 1950s. During surveys conducted in 1992 in the mountains south of Ta'izz, local people reported that this species had not been seen in the area for several decades (Greth et al., 1993).

Habitat and ecology: Seen in small groups of 1–3 on *Euphorbia*-covered hillsides at altitudes of 1,230–2,150 m; not seen in cultivated areas or near roads (Sanborn & Hoogstraal, 1953).

Use and trade: Gazelles in Yemen are subject to illegal hunting for meat and sport.

Major threats: Unknown. Poaching is suspected to have been the principal cause of decline.

Conservation actions: Extinct – not applicable.

Mountain gazelle – NEAR-ENDEMIC

Gazella gazella

Taxonomic notes: Recent molecular and morphometric analyses have demonstrated the distinctness of *G. arabica* from mountain gazelle (*G. gazella* Pallas, 1766) of the Levant (Wronski et al., 2010; Bärmann et al., 2013; Lerp et al., 2013; Hadas et al., 2015).

Regional assessment: Endangered (EN A2acd) [as Global].

Justification: Numbers of *G. g. gazella* were estimated at 10,000 by Clark & Frankenberg (2001) but had declined sharply to approximately 3,000 by 2008. Annual monitoring transects counted a total of 1,210 gazelles in the three main populations in March 2015 (Dr. Gila Kahila Bar Gal, in litt. August 2015). There are also smaller, scattered groups of this species outside the main population nuclei, but the overall total is considered to be <3,000. The overall population has therefore declined by at least 70% over the last 15 years (three generations), due to poaching, road kills, habitat degradation and fragmentation – factors that are all ongoing (IUCN SSC Antelope Specialist Group, 2017c).

Range description: Occurs from the Golan Heights through Israel and the Palestinian Territories and the Jordan Rift Valley. Former populations in Jordan, Lebanon and Syria are believed to be extremely small or extinct.

Countries of occurrence: Israel and the Palestinian Territories; Lebanon; Syria; Jordan.

Population: Estimated to number 1,210 in the three main populations in 2015 and <3,000 overall.

Habitat and ecology: Dry hills, Mediterranean shrubland.
Use and trade: Not known in trade, but subject to illegal hunting.
Major threats: Poaching, habitat degradation, road kills, fragmentation.
Conservation actions: Occurs in some protected areas. Annual monitoring of the main populations is carried out.

Arabian gazelle – ENDEMIC

Gazella arabica

Taxonomic notes: This name was first given to a specimen obtained in 1825 from the Farasan Kebir Islands but the taxon remained an enigma as it did not resemble the gazelles currently present on the islands. Bärmann et al. (2012) analysed DNA and showed that the type specimen was actually a composite, the skull and skin originating from two different animals, from different localities, representing different taxa. Molecular and morphometric analyses have also demonstrated that the former *Gazella gazella* should be split into two species, with *G. gazella* restricted to the former subspecies *G. g. gazella* in the north of the region, and the animals from the rest of the Arabian Peninsula regarded as a different species. Since *G. arabica* (Lichtenstein, 1827) has been shown to be invalid (see above), it has been proposed to apply the name instead to this taxon (Wronski et al., 2010; Bärmann et al., 2013; Lerp et al., 2013; Hadas et al., 2015). This has been upheld by a recent decision of the International Council for Zoological Nomenclature which approved the change and set aside the skull in favour of the skin as the type specimen (Bärmann et al., 2014; Bulletin of Zoological Nomenclature, 2017: 73(2-4):170-171).
Regional assessment: Vulnerable (VU C2a(i)) [as Global].
Justification: The current population is estimated to number below 10,000, hence fewer mature individuals, and there has been an estimated and continuing decline of more than 10% over 15 years (three generations) (IUCN SSC Antelope Specialist Group, 2017b).
Range description: This species is distributed in the mountains, hills and coastal plains around the western, southern, and south-eastern periphery of the Arabian Peninsula (Harrison & Bates, 1991).
Countries of occurrence: Saudi Arabia; United Arab Emirates; Yemen. The species has been (re)introduced to the Ibex Reserve and Uruq Bani Ma'arid in Saudi Arabia.
Population: Current estimates are: <5,000 in Oman (A. Spalton, pers. comm. 2016); 580–780 in Saudi Arabia (including 300–500 on the Farasan Kabir Islands, perhaps 100 in the western mountains, 50 in the Ibex Reserve and 30 in Uruq Bani Ma'arid); perhaps 100 in the mountains north of Sana'a, Yemen. There are also an estimated 3,000 in Dubai (United Arab Emirates), some of which may be in semi-captive conditions and likely others elsewhere. This provides a regional total of approximately 5,680–5,880 (without the Dubai animals) and 8,680-8,880 (including the Dubai animals). Even if all of these are eligible, and taking account of the others in United Arab Emirates, the number of mature individuals is <10,000.
Habitat and ecology: The Arabian gazelle inhabits hillsides, mountain slopes and wadis as well as coastal plains. It often occurs in steep terrain but avoids rocky areas. The animals on Farasan Island inhabit areas of broken coral ravines and flat gravel. They apparently emerge to feed at night (mainly on *Cyperus*) and obtain water mainly from dew (Flamand et al., 1988).
Use and trade: Hunted for meat and sport.
Major threats: Illegal hunting for meat and live capture for pets and private collections; habitat loss through agricultural development.
Conservation actions: Legally protected in Saudi Arabia and Oman, but enforcement is not always effective. The Arabian gazelle occurs in the following protected areas in Saudi Arabia: Uruq Bani

Ma'arid (5,500 km²); Ibex Reserve (2,370 km²); and the Farasan Islands (600 km²) that have been a nature reserve under the control of the National Commission for Wildlife Conservation and Development (NCWCD) since 1988, and aerial censuses are carried out by NCWCD there at 2-3 yearly intervals. In Oman this species occurs in the following protected areas: Al Wusta Sanctuary (c.3,000 km²); Wadi Sareen Tahr Reserve (800 km²); Jebel Samhan Nature Reserve (4,500 km²), As Saleel National Park (220 km²). There are large numbers in captivity in United Arab Emirates.

Neumann's gazelle

Gazella erlangeri

Taxonomic notes: This is an enigmatic taxon described only from a group of captive gazelles in Saudi Arabia and was regarded originally as a subspecies of *G. gazella* (Harrison & Bates, 1991), now regarded as *G. arabica*. Recent research has revealed that the mtDNA haplotypes of this captive population were nested within the haplotype variation of *G. arabica*. These results, along with morphological signatures of domestication (e.g. reduced brain case size), suggest genetic bottlenecks and domestication effects as a consequence of prolonged captive breeding (Wronski et al., 2017).

Regional assessment: Not Applicable (invalid taxon).

Justification: *G. erlangeri* is not considered by IUCN SSC Antelope Specialist Group to represent a valid species because there is no evidence that a wild population ever existed, so it is not assessed on the IUCN Red List.

Wild goat

Capra aegagrus

Regional assessment: Near Threatened (NT)

Justification: Assessed initially as Vulnerable (C2a(i)) as the population size is estimated at <10,000 mature individuals and there is a continuing decline due to the impacts of poaching, the range lying within a war zone, loss of habitat due to over-grazing by livestock, and disease (foot and mouth disease). Due to a potential rescue effect from the population in Iran a regional adjustment is applied, hence a final category of Near Threatened.

Range description: Only found in the Zagros Mountains of northern and north-eastern Iraq. A live specimen was obtained near Masafi, United Arab Emirates, and sent to the London Zoo (Harrison & Bates, 1991). There is no other evidence of a wild population in the Hajar Mountains and this animal may have been imported as a pet or for hunting.

Countries of occurrence: Iraq.

Population: Herds of 20–30 have been reported on Qara Dagh and 2,000 estimated in Sulaimani governorate. Estimated at <10,000 mature individuals in Iraq.

Habitat and ecology: Arid grassland and shrubland on rocky mountains.

Use and trade: Hunted for sport. The skin and horns are highly valued (Harrison & Bates, 1991).

Major threats: Poaching, loss of habitat due to over-grazing by livestock, disease (foot and mouth disease).

Conservation actions: Animals living on Barzan Mountain receive some local protection.

Nubian ibex

Capra nubiana

Taxonomic notes: Sometimes treated as a subspecies of *C. ibex*, but usually regarded as a distinct species.

Regional assessment: Vulnerable (VU C1)

Justification: There is no reliable figure for the overall population size in the region but estimates for several known populations in the global Red List assessment in 2008 suggest 2,300 plus unknown numbers in Oman, Yemen and Saudi Arabia outside the Ibex Reserve. It is likely therefore that even with the addition of these animals, the total population contains close to, or below 2,500 mature individuals. However, at least three populations are estimated to contain >250 mature individuals, above the threshold for Endangered, therefore an assessment of Vulnerable (C2a(i)) is appropriate. There is no significant rescue effect from populations on the eastern side of the Red Sea, hence no regional adjustment.

Range description: The Nubian ibex formerly occurred in the mountains running down the western side of the region from Lebanon to Bab Al Mandeb, then eastwards to Hadhramaut, Dhofar and Duqm in southern Oman. In Lebanon, Nubian ibex were found in Barouk, the Ammiq mountains and on Mount Harmon (northern Lebanon) until the early 1900s but they are now extinct (Serhal, 1997a). In Syria, Nubian ibex was found in the Jabal ash-Sharqi mountain ranges north of Dimasq which run south-west–north-east, as far as Aleppo and to just south of Tadmur (Palmyra), presumably in the Jabal al Khunayzir (Harrison, 1968). There are no recent records of the species in Syria (Masseti, 2004) and it is considered extinct there (Serhal, 1997b). In Jordan, Nubian ibex are found in from the north-eastern escarpment of the Dead Sea, south along the Rift valley to Wadi Araba, and further south-east in the mountains of Wadi Rum (Harrison, 1968). In Israel and the Palestinian Territories, Nubian ibex occur in three major nuclei: the Judean desert, Negev, and Eilat Mountains. In Saudi Arabia, it is known from many sites in the western mountains and the Ibex Reserve in the centre of the country, but the range overall has declined (Harrison & Bates, 1991). It has been considered rare for a long time in northern Yemen and it is mainly restricted to Hadhramaut and Al Mahra in the south-east (Harrison & Bates, 1991). In southern Oman, its range extends from Jebel Qamr, close to the border with Yemen, and Jebel Samhan in Dhofar, and on the escarpment on the eastern side of Jiddat Al Harasis, across the Huqf depression and east to Duqm. A specimen obtained from a local hunter in the Jabal Akkdar region of the Hajar Mountains was reported in Harrison (1968) but this locality is far outside the known distribution and the specimen is unlikely to have been a genuinely wild individual.

Countries of occurrence: Egypt (Sinai); Israel and the Palestinian Territories; Jordan; Lebanon (RE); Oman; Saudi Arabia; Syria (RE); Yemen.

Population: In Saudi Arabia, the largest populations appear to be in Jabal Qaraqar, Hemah Fiqrah and the Ibex Reserve (Habibi & Tatwany, 1997). Alkon et al. (2008) estimated 1,500 in Israel and the Palestinian Territories (800, 500 and 200 in the three main populations); ca. 400 in Jordan (200 each in Mujib and Dana); and 400 in the Ibex Reserve. This gives a total of 2,300, plus unknown numbers in Oman, Yemen, and the rest of Saudi Arabia. It seems likely that the regional population numbers <5,000.

Habitat and ecology: Occurs in rocky desert mountains with steep slopes and hills and associated plateaus, canyons and wadis. The species was monographed by Habibi (1994).

Use and trade: In Wadi Hadhramaut the Nubian Ibex has considerable cultural significance; horns of males are placed on roofs and doorways and a ritual hunt takes place annually (see Serjeant 1976 for details).

Major threats: Poaching and habitat degradation through overgrazing.

Conservation actions: The Nubian ibex occurs in the Ibex Reserve (Saudi Arabia), Jebel Samhan Reserve (Oman), and Dana and Mujib reserves (Jordan).

Lesser kudu

Tragelaphus imberbis

Regional assessment: Not Applicable (unconfirmed occurrence in the region)

Justification: Two sets of horns have been obtained, one in Yemen in 1967 and another in central Saudi Arabia, but it is not clear whether these came from wild stock (Harrison & Bates, 1991). This is a large and very distinctive species and it is difficult to see how a wild population could have been overlooked. No local name has been reported. Lesser kudu is not considered part of the regional fauna.

Wild sheep

Ovis orientalis

Regional assessment: Not Applicable (marginal)

Justification: The range just extends into the Zagros Mountains in the north-east of the region but there are few, if any, recent records.

Range description: Known only in the Kurdistan Region of Iraq where there are a few records (Harrison & Bates, 1991). There is also a specimen from Oman in 1967 and two other records from United Arab Emirates and Saudi Arabia (Harrison & Bates, 1991). However, there is no evidence of established populations and these specimens were most likely imported as pets or for sport hunting.

Countries of occurrence: Iraq.

Population: Unknown.

Habitat and ecology: Inhabits arid and semiarid grassland in hills and mountains.

Use and trade: Not known in trade.

Arabian oryx – ENDEMIC

Oryx leucoryx

Regional assessment: Vulnerable (VU D1) [as Global].

Justification: There is considerable debate around the extent of management intervention at several sites and the eligibility of their populations for inclusion in the Red List assessment. On the most parsimonious interpretation, there are 810 Arabian oryx regarded as self-sustaining or 'lightly managed'. Even adding the estimated 410 animals in the Arabian Oryx Reserve (Abu Dhabi), this gives an overall total of 1,220 (about 850 mature individuals), well below the threshold of 1,000 for VU D1.

Range description: The Arabian oryx formerly occurred through most of the Arabian Peninsula, north to Kuwait and Iraq. The species' range had already contracted by the early years of the 20th century and the decline accelerated thereafter. Before 1920, its distribution was separated into areas over 1,000 km apart: a northern population in and around the Nafud, and a larger southern population in the Rub Al Khali and the plains of central-southern Oman. The Arabian oryx disappeared from the north in the 1950s. In the south, their range steadily decreased due to hunting, and by the 1960s the remaining animals were restricted to parts of central and southern Oman and the eastern part of what is noth south-eastern Yemen. The last wild individuals were believed to have been shot in 1972 on the Jiddat al Harasis (IUCN SSC Antelope Specialist Group, 2017a). Arabian oryx have been reintroduced to Oman (Arabian Oryx Sanctuary, from 1982); Saudi Arabia (Mahazat as-Sayd Reserve, 2,244 km² from 1990 and Uruq Bani Ma'arid Reserve, 12,000 km² from 1995); Israel (three sites in the Northern Arava and Negev Desert, from 1997); United Arab Emirates (Arabian Oryx Reserve, Abu Dhabi, from 2007); and Jordan (Wadi

Rum, beginning 2009). There is an introduced population on Hawar Island, Bahrain and large semi-managed populations at several sites in Qatar, Saudi Arabia and the United Arab Emirates.

Countries of occurrence: Israel and the Palestinian Territories; Jordan; Oman; Qatar, Saudi Arabia; United Arab Emirates.

Population: Latest estimates (2015) are: Saudi Arabia 610 (500 in Mahazat as Sayd and 110 in Uruq Bani Ma'arid); Israel and the Palestinian Territories 110; Jordan 80 (Wadi Rum); Oman ca. 10 (the number of released animals inside Al Wusta reserve; there are many more inside the captive breeding facility awaiting release); United Arab Emirates 410 (Arabian Oryx Sanctuary).

Habitat and ecology: Inhabits sandy and stony deserts.

Use and trade: Traded between private collections.

Major threats: The Oman population has been devastated by illegal live capture for sale to private collections. Some poaching has been recorded in Uruq Bani Ma'arid. Other populations in protected areas are generally secure from poaching but the security of animals that wander outside release sites cannot be guaranteed, except perhaps in Israel. Drought and overgrazing have reduced habitat quality in places and limited the choice of potential release further release sites.

Conservation actions: The Arabian oryx is listed on CITES Appendix I. Protective legislation in all countries with reintroduced populations is adequate. All reintroduced animals occur in protected areas. A regional conservation strategy and action plan has been developed in (EAD 2010). The General Secretariat for the Conservation of the Arabian Oryx (GSCAO) is an inter-governmental body charged with coordination of conservation efforts within the Arabian Peninsula and coordinates conservation of Arabian oryx across the region at government level. It is hosted by the Environment Agency-Abu Dhabi. GSCAO convenes regular meetings, monitors numbers, and coordinates other activities, such as a veterinary disease survey in 2013. GSCAO also initiated a five-year action plan to enhance implementation of the regional strategy for the conservation of the Arabian oryx, focused on four priorities including herd management, genetic and small population management, diseases and other veterinary aspects, and reintroduction and rehabilitation. The global captive population is well-managed, with an international studbook. Within the Arabian Peninsula, 9,706 oryx were held in 2015 in 25 collections, covering 54 sites, across Bahrain, Iraq, Jordan, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates. Some of these hold large numbers of animals in semi-captive conditions, for example, 450 in Dubai Desert Conservation Reserve, United Arab Emirates.

Arabian tahr – ENDEMIC

Arabitragus jayakari

Regional assessment: Endangered (EN C2a(i)) [as Global].

Justification: Assessed as Endangered as the population size is estimated to be fewer than 4,000 individuals (less than 2,500 mature individuals), there is a continuing decline due to hunting and no subpopulation is larger than 250 mature individuals (the largest subpopulation at Wadi Sareen consists of 200–300 in total) and there is a continuing decline in the number of mature individuals (Insall, 2008).

Range description: The Arabian tahr is restricted to the Hajar mountains in the south-east of the region, consisting of a a 600 km crescent from the limestone massifs of the Musandam Peninsula through the United Arab Emirates and Oman as far as Jebel Qahwan, south of Sur. Tahr apparently no longer occur in Musandam and sightings in the United Arab Emirates are sporadic and rare. The most important populations occur near Nakhl, in Wadi Sareen

Nature Reserve and Jebel Qahwan reserve in the Ja'alan (Insall 2008). In the United Arab Emirates, there are confirmed records from Jebel Hafit in Abu Dhabi, Wadi Wurayah in Fujairah and Hatta in Dubai. A survey of Ru'us Al Jebel in Ras al Khaimah found no signs of the Arabian Tahr and local people there did not know the species (EPAA, 2006). The latest record of this species in Wadi Wurayah dates from October 2012 (Al Bustan Zoological Centre and Environment Agency – Abu Dhabi, 2015). Arabian Tahr are still present on Jebel Hafit, which is shared between United Arab Emirates and Oman (six were camera trapped there in 2015; Al Zaabi and Soorae, 2015) and in Hatta mountain reserve in Dubai.

Countries of occurrence: Oman; United Arab Emirates.

Population: Estimated at 2446 (2201-2324 mature individuals).

Habitat and ecology: The Arabian tahr prefers north facing slopes at 1,000–1,800 m, which are characterised by cooler temperatures, relatively high rainfall and diverse vegetation. However, in some locations it occurs at much lower elevations. In addition to the well-vegetated limestone escarpments, Arabian tahr range through the lower altitude ophiolite mountains which form nearly 60% of its former habitat. Although the vegetation here is sparser and less diverse, there are more open pools and perennial springs due the lower permeability of the rock (Insall, 2008). A recent systematic camera trap survey across the whole range used occupancy modelling to quantify habitat associations and create a predictive distribution model for the species. The results showed that Arabian tahr preferred steep, rugged mountain habitats, and occupancy was much higher in protected areas. Occupancy decreased with proximity to villages, and with increasing numbers of domestic goats (Ross et al., 2017).

Use and trade: Hunted for sport and meat. In recent years live-caught for sale to private collections.

Major threats: Within protected areas its status is sound, elsewhere threats include restricted habitat, poaching, and most importantly, competition with livestock. In some areas of prime habitat there has been a steady increase in domestic livestock numbers, where new road networks make it easy to transport animals to new pasture or to bring in supplementary food and water. In times of severe drought Arabian tahr have been found in poor condition. Illegal hunting remains a significant threat in some areas. This is exacerbated by the burgeoning network of graded secondary roads which are fragmenting suitable habitat throughout its range (Insall, 2008).

Conservation actions: Protected law in both range states. Occur in the following protected areas in Oman: Jabal Al Akhdar Sanctuary for Natural Scenery (125.9 km²), As Salil Natural Park (220 km²), Jabal Qahwan Nature Reserve (285.5 km²), Ras Ash Shajar Nature Reserve (106.3 km²), Wadi As Sareen Nature Reserve, (740.1 km²). Jabal Qahwan and Wadi Sareen NRs protect the most extensive habitat and most important populations. In the United Arab Emirates, tahr occur in Hatta Mountain Reserve and until recently also in Wadi Wurayah NP but have not been recorded there for several years. Wadi Wurayah NP has been identified as a possible reintroduction site. A strategic framework for Arabian tahr in United Arab Emirates has been developed (Al Bustan Zoological Centre and Environment Agency – Abu Dhabi, 2015). There is a large captive population in United Arab Emirates (ca. 500) and a further 58 in the Omani Mammal Breeding Centre (Al Bustan Zoological Centre and Environment Agency – Abu Dhabi, 2015). Based on recent research findings, future conservation efforts should focus on creating further protected areas, control measures to partition goats from core Arabian tahr habitats, and restoration and captive reinforcement within suitable habitats that currently lack Arabian tahr (Ross et al., 2017).

Roe deer

Capreolus capreolus

Taxonomic Notes:	Subspecies *C. c. coxi* was described on the basis of individuals observed in the Zakho of the Kurdistan region of Iraq (Harrison, 1968).
Regional assessment:	Not Applicable (marginal)
Justification:	The region lies on the southern edge of the roe deer's global range. The species has always been rare in the mountains of northern Iraq (Hatt, 1959; Harrison & Bates, 1991) and has disappeared from the north-west, with the exception of a small reintroduced population.
Range description:	Rare in the Zagros Mountains of northern Iraq (Hatt, 1991). Recently camera-trapped in that area and a small herd is reported near Barzan Mountain (Al Sheikhly et al., 2015a). It has disappeared from the north-west, but 26 animals have been released into Ajloun Forest Reserve (Amr, 2012).
Countries of occurrence:	Iraq; Israel and the Palestinian Territories (RE); Jordan (reintroduced); Lebanon (RE); Syria (RE?).
Population:	Unknown.
Habitat and ecology:	Forests and wooded hills.
Use and trade:	Not known in trade.
Major threats:	Illegal hunting.
Conservation actions:	Reintroduced recently into Ajloun Forest Reserve (Amr, 2012). Once this population is confirmed to have become established the species will be eligible for a regional assessment.

Persian fallow deer

Dama mesopotamica

Regional assessment:	Endangered (EN D) [as Global].
Justification:	There is a small reintroduced population in Israel (Werner et al., 2015). It is Regionally Extinct (RE) in other countries of the region.
Range description:	Formerly occurred in the mountains of northern Iraq and the north-west but there have been no recent records (Harrison & Bates, 1991).
Countries of occurrence:	Iraq (RE); Israel and the Palestinian Territories (Reintroduced); Jordan (RE); Lebanon (RE); Syria (RE).
Population:	The reintroduced population numbers >250 (Werner et al., 2015).
Habitat and ecology:	Mountain forests. There are few details of its former habitat in the region.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	The reintroduced population is fully protected.

Wild boar

Sus scrofa

Regional assessment:	Least Concern (LC)
Justification:	This species is widespread, has a presumed large population size and there are no major threats or declines reported.
Range description:	In the north-west of the region and along the Tigris and Euphrates valleys of Iraq.
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Syria.
Population:	Increasing and becoming a pest in some locations.
Habitat and ecology:	Riverine thickets and woodlands. Can reach pest status in agricultural areas.

Use and trade:	Not known in trade.
Major threats:	None. The meat is not eaten and the species is not hunted.
Conservation actions:	No specific measures are in place or needed.

7.1.6 Order Carnivora: Carnivores

Least weasel

Mustela nivalis

Regional assessment:	Not Applicable (marginal)
Justification:	There is an old record of this species from Lebanon (Harrison & Bates, 1991) and two recent records from Barzan Mountain in the Kurdistan Region of Iraq (H.A. Raza, pers. comm. 2016).
Countries of occurrence:	Iraq; Lebanon.
Population:	Unknown. Appears to be rare in the region (Harrison & Bates, 1991).
Habitat and ecology:	Found in a wide range of habitats.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Unknown.

Stone marten

Martes foina

Regional assessment:	Least Concern (LC)
Justification:	Provisionally listed as Least Concern because despite the recorded decline in Jordan (where it is listed as Vulnerable) its range is expanding elsewhere and there is no evidence of a decline that would approach the threshold for a threatened category. There would likely be a rescue effect from adjacent populations in Turkey and Iran.
Range description:	Occurs in the mountains of the north-west and northern Iraq. The extent of occurrence in Jordan is calculated at 939 km² and its area of occupancy is only 48 km².
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Syria.
Population:	Declining sharply in Jordan due to loss and degradation of forest habitat. Reportedly expanding in some parts of its range (Harrison & Bates, 1991).
Habitat and ecology:	An adaptable species found in forests and on the ground; it makes its dens in trees or in rock crevices (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Loss and degradation of forest.
Conservation actions:	Occurs in Ajloun Forest Reserve, Jordan and probably in other protected areas.

Eurasian badger

Meles meles

Taxonomic notes:	The form occurring in Arabia and south-west Asia *M. m. canescens* was elevated to species status by Proulx et al. (2016).
Regional assessment:	Data Deficient (DD)
Justification:	There is no information regarding the population size or trend.

Range description:	In Iraq, the species found in the northern mountains and parts of the centre (Al Sheikhly et al., 2015a). In Jordan, it is found in the north to Betaa (Baker & Amr, 2002) and western Syria where it is scarce (Massetti, 2009).
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Lebanon; Jordan; Syria.
Population:	In Iraq it is apparently common. In Jordan it is highly threatened.
Habitat and ecology:	Forested and scrub-covered hills.
Use and trade:	Not known in trade but is hunted for food in some areas.
Major threats:	Hunted and may be trapped and poisoned as part of generalised predator control.
Conservation actions:	May occur in some protected areas.

Eurasian otter

Lutra lutra

Regional assessment:	Vulnerable (VU C1)
Justification:	The regional population is estimated to number <10,000 mature individuals and there is an estimated and projected decline of at least 10% over three generations (23 years). There is a possibility of reinforcement from populations in Iran and Turkey, but this is not likely to amount to a significant rescue effect. The species may be close to meeting the criteria for Regionally Endangered. Considered Critically Endangered (possibly Extinct in the Wild) in Jordan.
Range description:	Occurs in the north-west and in the Tigris and Euphrates Rivers in Iraq and Syria and is still present at several sites in Iraq (Al Sheikhly & Nader, 2013). In Jordan, there were records in 2007 and 2012 from Yarmouk. There is one record in Lebanon (Ammiq swamp; Lewis et al., 1968).
Countries of occurrence:	Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Syria.
Population:	Sharp declines have reported in Jordan where it is possibly Extinct in the Wild. Assumed to have declined in Iraq due to hunting and drainage of the southern marshes (Al Sheikhly & Nader, 2013; Al Sheikhly et al., 2014).
Habitat and ecology:	Rivers, lakes, reed-beds.
Use and trade:	Hunted for its fur and the pet trade.
Major threats:	Dam construction, water abstraction, pollution, hunting and trapping, incidental mortality in fishing nets. Hatt (1959) reported that otters were caught in high numbers at Hindiya barrage. Al Sheikhly et al. (2014) describe traditional hunting methods in the Iraq marshes.
Conservation actions:	Four marshes in the lower Tigris-Euphrates valleys are included within the Ahwar of Southern Iraq World Heritage Site, gazetted in 2016. Research on status and population trend is needed.

Marbled polecat

Vormela peregusna

Regional assessment:	Data Deficient (DD)
Justification:	There is little information available on this species in the region where it appears to be rather uncommon, although some range expansion has been reported in parts of the range.
Range description:	Occurs in the north-west and northern Iraq. In Jordan it is known from the desert and the western mountains. There is a single confirmed record from northern Saudi Arabia, a live specimen obtained on 15 April 1990 near Turayf, very close to the border with Jordan (Nader, 1991). It is not clear whether this was a natural occurrence, or the specimen was brought across the border (Mallon & Budd, 2011).

Countries of occurrence: Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Saudi Arabia (?); Syria.
Population: No information but seems uncommon.
Habitat and ecology: Open semidesert and rocky areas. Mainly nocturnal (Harrison & Bates, 1991).
Use and trade: Sometimes caught for sale.
Major threats: Unknown.
Conservation actions: Unknown.

Honey badger

Mellivora capensis

Taxonomic notes: Specimens from southern Arabia are assigned to *M. c. pumilio* and those from northern Saudi Arabia, Kuwait and northern Arabia to *M. c. wilsoni*; there is probably an intermediate zone in central Saudi Arabia (Harrison & Bates, 1991). These forms have been distinguished principally on coat colour and their validity has not yet been confirmed by genetic analysis.
Regional assessment: Near Threatened (NT)
Justification: It is suspected that the population is declining due to persecution across its range. It is a long-lived species (generation length is around 12–13 years) and a decline of at least 10% over the last 38 years is considered plausible. Some maintain that the regional population may be only 5000, but 10,000 was considered a more realistic figure. With few direct data available at present, the most appropriate preliminary assessment is Near Threatened (close to meeting VU under criterion C1). There is a low possibility of a significant rescue effect from populations outside the region, so no regional adjustment was made.
Range description: This species is widely, but sparsely distributed across the region. In Oman it occurs in the south and is not known north of Ja'aluni. In central and southern Iraq it is widespread (Al Sheikhly et al., 2015a). In Yemen it is widespread (Al Jumaily, 1998). In Kuwait it is a rare resident (Cowan, 2013).
Countries of occurrence: Iraq; Israel and the Palestinian Territories; Jordan; Kuwait; Oman; Saudi Arabia; Yemen.
Population: It appears to occur at low densities, for example, only 2–3 pairs were estimated to occur in Mahazat as Sayd reserve (2,244 km²). In southern Oman 6–8 have been seen congregating at garbage dumps. There is no evidence that the species is declining across its range. In Saudi Arabia the species is apparently stable in some protected areas. However, overall it is estimated to be declining due to persecution (Mallon & Budd, 2011).
Habitat and ecology: The honey badger occurs in most habitats (wadis, mountains, sandy-gravel desert, plateaux) in the Arabian Peninsula with the exception of extensive sand dunes. It has been recorded at 2,000 m in Abha, southwestern Saudi Arabia. In Mahazat as Sayd, honey badgers have been known to prey upon houbara (*Chlamydotis macqueenii*) chicks in breeding enclosures and have also been recorded preying upon foxes (Rüppell's fox *Vulpes rueppelli* and red fox *Vulpes vulpes*) caught in live traps (Islam et al., 2011). Very little is known about the honey badger's life history and behaviour in Arabia (densities, home range, etc.) and more research is needed.
Use and trade: Rarely seen in animal markets.
Major threats: General persecution is a threat to this species and it is occasionally seen on 'hanging trees'. It is deliberately killed by bee keepers because it destroys bee hives/nests.
Conservation actions: It is known to occur in several protected areas: Azraq (Jordan); Kuwait NP (Kuwait); Arabian Oryx Sanctuary, Jebel Samhan (Oman); Mahazat as Sayd, Saja, Tabuk, Umm Ar Rimth (Saudi Arabia); Hawf (Yemen).

Smooth-coated otter

Lutrogale perspicillata,

Taxonomic notes: This population is very isolated from all others and has been named *L. p. maxwelli*.

Regional assessment: Endangered (EN A2cd)

Justification: The regional population is estimated to have suffered a decline of at least 50% over the last 30 years (three generations) due to destruction of its main habitat and poaching. The marshes of southern Iraq were reduced to ca. 10% of their original extent due to drainage in 1991–2003. Reflooding in 2003-2006 restored the marshes to about 40% of the original area, a net loss of 60%. Poaching and incidental mortality in fishing nets are continuing. This population is isolated so there is no rescue effect and so no regional adjustment. It may also qualify as Endangered under criterion C1.

Range description: Restricted to the marshes of southern Iraq – Central Marshes, Hammar Marshes and Hawizeh Marsh – where they are still present (Al Sheikhly & Nader, 2013). A specimen was recently obtained 500 km to the north at Taq Taq on the Little Zab River, a tributary of the Tigris (Omer et al., 2012; Al Sheikhly & Nader, 2013). The marshes of southern Iraq were reduced to ca. 10% of their original extent due to drainage in 1991–2003. Following reflooding, a high volume of good-quality water had entered the marshes from the Tigris and Euphrates Rivers by September 2005 and field surveys found a high rate of re-establishment of native macroinvertebrates, macrophytes, fish, and birds (Richardson & Hussain, 2006). However, the reflooding has restored only about 40% of the original extent and landscape connectivity between marshes is greatly reduced.

Countries of occurrence: Iraq.

Population: No estimate of population size is available, but based on the area of occupancy, it is likely to number <2,500 mature individuals. Estimated to be declining due to habitat loss and poaching.

Habitat and ecology: Lakes, marshes and reed beds.

Use and trade: Hunted for their skins and the pet trade. Killed by spearing, shooting and netting (Al Sheikhly et al., 2014). Theisger (1964) reported that a single hunter had shot 40 individuals (presumably of both otter species) in only two months.

Major threats: Draining of the marshes is the biggest threat, resulting in a loss of 60% of the original habitat since 1991. Water pollution and diversion of water continue to have a negative effect on habitat quality. A dam on the Iranian side of the border prevents water flowing into Hawizeh Marsh. Dam construction upstream on the Tigris and Euphrates are expected to reduce the volume of water reaching the marshes. Hunting of otters for their skins or as pets remains a widespread practice (Al Sheikhly et al., 2014).

Conservation actions: Four marshes in the lower Tigris-Euphrates valleys are included within the Ahwar of Southern Iraq World Heritage Site, gazetted in 2016. Research on taxonomy and status is needed.

Jungle cat

Felis chaus

Regional assessment: Data Deficient (DD)

Justification: The species is widespread in Iraq but has a very limited range in the north-west where it is declining. There is insufficient data on population size and trend across the region.

Range description: In Jordan the jungle cat has been recorded in the north near Yarmouk but has an estimated area of occupancy of only 28 km². Widely distributed in the Tigris and Euphrates valleys and marshes of southern Iraq.

Countries of occurrence: Iraq; Jordan.

Population: Unknown.
Habitat and ecology: Vegetated river valleys, wetland margins.
Use and trade: Not known in trade.
Major threats: Generalised persecution of carnivores.
Conservation actions: No specific measures are in place.

Wild cat

Felis lybica

Taxonomic notes: The taxonomy is confused, with several named forms recorded in the Arabian Peninsula, including *F. l. gordoni* in the southeast, *F. l. tristrami* elsewhere and *F. l. iraki* in Kuwait (Harrison & Bates 1991; Kitchener et al., 2017). None of these forms have been validated by genetic analysis and the boundaries between their ranges are unclear. Kitchener et al. (2017) list all wild cats in the region as *F. l. lybica*.
Regional assessment: Near Threatened (NT)
Justification: There are no direct data available on the population size. However, hybridisation with domestic cats was identified as a serious threat to the species more than 10 years ago. Over the last 10–20 years, human settlements and road networks have expanded across the region extending the range of domestic cats. The practice of dumping stray domestic cats in remote areas also continues to be a problem. For these reasons, it is considered highly likely that the wild cat population has declined by at least 20-30% over the last 15–20 years (three generations), close to or possibly even reaching the threshold for Vulnerable under criterion A. This results in an assessment of Near Threatened. There is no significant rescue effect from outside the region, so no regional adjustment has been made. The status should be reassessed as soon as more information is available and an uplisting to a threatened category may be appropriate (Mallon & Budd, 2011).
Range description: The species is widespread in the region and is presumed to cover all the Arabian Peninsula except for extensive areas of sand dunes such as Rub Al Khali. Obtaining accurate distribution records is complicated by the presence of hybrids.
Countries of occurrence: All countries of the region.
Population: There are no estimates of population size. Considered to have been declining for at least the last 10–15 years due to hybridisation, disease, loss of habitat, persecution, and fragmentation (Mallon & Budd, 2011).
Habitat and ecology: Occurs in rocky areas, scrub deserts, dunes and plains from sea level to 2,300 m. There are few detailed studies in Arabia except for a radio-tracking study of two animals in United Arab Emirates (Phelan & Sliwa, 2005; 2006). A female that was tracked for 14 months occupied a home range size of 52.7 km² and used 42 den sites during that time and were often fox burrows (Phelan & Sliwa, 2006). A wild cat was found resting in the hollow of a ghaf tree (*Prosopis cinerea*) (Mallon & Budd, 2011). The species is presumed to be a generalist feeder, preying upon rodents, small birds, reptiles, eggs, etc. The stomach of one wild cat examined on the Batinah coast, Oman, contained Coleoptera, Orthoptera, lizards, mammal fur, and a date stone, with the insect remains perhaps a response to the scarcity of rodents during a period of drought (Harrison & Bates, 1991).
Use and trade: Not recorded in trade.
Major threats: The major threat is hybridisation with feral and free-ranging domestic cats. These are now extremely widespread throughout the Arabian Peninsula even in remote desert areas. In places, stray cats are collected up and dumped in the desert, making the problem worse. Disease transfer from domestic cats is also a risk. Direct persecution occurs, for example, a dead wild cat has been observed hanging in a tree (Harrison & Bates, 1991). Wild cats may not be specifically targeted but never the less remain vulnerable

to indirect persecution through trapping and poisoning. Habitat loss and fragmentation are also a threat due to expansion of settlements and development of agriculture.

Conservation actions: Wild cats are known in the following protected areas: Ajloun, Azraq, Dana, Mujib, Shaumari and Wadi Rum (Jordan); Ibex Reserve, Mahazat as-Sayd, Uruq Bani Ma'arid (Saudi Arabia); Arabian Oryx Sanctuary, Jebel Samhan (Oman); Dubai Desert Conservation Reserve, Jebel Hafit (United Arab Emirates); and are presumed to occur in other protected areas across the peninsula. There are captive breeding populations within the region at the Breeding Centre for Endangered Arabian Wildlife (Sharjah, United Arab Emirates) and Oman Mammal Breeding Centre (Oman). More taxonomic research is required to refine the knowledge of the subspecies ranges within the region. Research is needed to determine the full extent of the hybridisation issue and the risk of disease transfer between domestic cats and wild cats.

Sand cat

Felis margarita

Taxonomic notes: Specimens from Arabia have been assigned to *F. m. harrisoni* based on craniological and dental characters (Harrison & Bates, 1991). This form is not considered valid by Kitchener et al. (2017).

Regional assessment: Vulnerable (VU C1)

Justification: Based on the recent records and confirmation that it occurs in very low densities, the regional population size is estimated to be below 10,000 mature individuals, and a more than a 10% continuing decline over two generations is inferred as a result of the loss of sand dune habitat which impacts the prey of this species. It therefore qualifies for listing as Vulnerable. There is unlikely to be any significant rescue effect hence no regional adjustment is made.

Range description: The sand cat was first recorded from the Arabian Peninsula in 1950 and has continued to be recorded widely but sparsely across the region (Gasperetti et al., 1985; Goodman & Helmy, 1986; Harrison & Bates, 1991; Banfield et al., 2014). These reports consist of specimens, confirmed records, live-caught and camera-trapped animals, skulls, skins and local reports. Two records from Qatar were reported in Harrison & Bates (1991). Wild caught individuals have been acquired by Al Wabra Wildlife Preservation which are assumed to have been caught locally within Qatar (H. Matthews, pers. comm. 2016). The sand cat was first recorded in Iraq in 2012 when three animals were obtained from the desert near An Najaf, south of Baghdad (Mohammad et al., 2013). The first record in Syria was obtained during a camera trap study in the Tadmor area in 2005 (Serra 2007). In Kuwait the species has been photographed in Jal Az Zor NP and live animals reportedly caught locally have been presented to the Desert Animal Facility (Cowan, 2013). In Jordan specimens have been collected from Wadi Rum and an individual was caught near Qasr Burqu' in the Badia region of north-east Jordan (Bunaian et al., 1998; Bunaian et al., 2001; Amr, 2012). In Oman there are records from Ramlat al Ghafa, Umm as Samim, south-west of Ibri, the Arabian Oryx Sanctuary and As Saleel Nature Reserve in the Hajar mountains; wild caught animals from Mughshin (Maghshan) (in the south-west) and Wahiba Sands (south-east) have been acquired by the Oman Wild Animal Breeding Centre (Harrison & Bates, 1991; Banfield et al., 2014). In Saudi Arabia there are records from the east, Ashayrah in the west, and Wafra on the Kuwait border (Harrison & Bates, 1991). This species has also been recorded in Uruq Bani Ma'arid reserve, Harrat Al Harrah reserve, and they were regularly caught in small numbers in fox traps in Mahazat as Sayd reserve between 1998 and 2003 (Banfield et al., 2014). Several animals have been live-trapped during a long-term study at Saja/Umm Ar Rimth

Protected Area in central Saudi Arabia (Strauss et al., 2007). In the United Arab Emirates there are a few confirmed records plus some anecdotal evidence. The first live sighting was in 2001 about 35 km northwest of Al Ain when an animal was found near a den with tracks and prey remains (Cunningham, 2002). One individual was found for sale in a pet shop in 2002, having been caught south of Al Ain, one was seen in the Sweihan area in autumn 2004 and one observed in the Baynoonah area of western Abu Dhabi in 2005 (Drew & Tourenq, 2005). Between 1995 and 2005 there were only four confirmed records despite intensive surveys in areas of suitable habitat (Drew & Tourenq, 2005). Occurrence in Baynoonah was confirmed in 2015 when 46 photographs of Sand Cat were obtained during a camera trap survey (Ahmed et al., 2016). Between 1995 and 2005 there were only four authenticated records despite intensive surveys and trapping in favourable habitats between 2002 and 2005 (Drew & Tourenq, 2005). One sand cat was caught near Beihan, Yemen, in 1952 and sent to London Zoo (Harrison & Bates, 1991). There have been no other reports of the species since then (Al-Jumaily, 1998; Mallon & Budd, 2011). Extensive areas of sandy habitat exist, for example, along the southern fringe of the Rub al Khali and in the Ramlat as Sabatayn. For a detailed account of sand cat records in the region see Banfield et al. (2014).

Countries of occurrence: Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan; Kuwait; Oman' Qatar; Saudi Arabia; Syria; United Arab Emirates; Yemen.

Population: The population size within the Arabian Peninsula region is impossible to estimate at present as this is a cryptic species. Numbers are presumed to be low, based primarily on the scarcity of records. Preliminary results of a trapping study were reported in Strauss et al. (2007) and updated information showed that in 4,509 trap-nights, 64 (31.33) sand cats were captured compared with ten times the number of Rüppell's fox (*Vulpes rueppelli*) which shares a similar preference for sandy habitats (M. Sher Shah and M. Shobrak, pers. comm. in Banfield et al., 2014). In Oman, six sand cats were recorded during 2009, which is considered a relatively high number for this species in one year. Considered to be declining, but at an unknown rate (Banfield et al., 2014).

Habitat and ecology: The sand cat is a habitat specialist of vegetated sandy desert, sand dunes and sand/gravel plains. Between February 2004 and July 2006 12 animals were fitted with radio-collars and 600 locations were subsequently obtained. Annual home range sizes of seven (three males and four females) animals were estimated at 19.6-50.7 km² (M. Sher Shah and M. Shobrak, pers. comm., in Banfield et al., 2014). Sand cats have been recorded preying upon the spiny-tailed sizard (*Uromastyx aegyptia*) (Mendelssohn, 1989) and jird (*Meriones* sp.) (J. Judas, pers. comm. 2016). They may feed on locusts when they swarm (Cunningham, 2002). Sand cats are solitary with male and females generally only coming together for mating. Dens can be found in open areas or beneath rocks or vegetation and may have multiple entrances. Although generally reported as nocturnal there are several records of diurnal activity of sand cats in Arabia, especially in winter when conditions are cooler.

Use and trade: Not known in trade.

Major threats: Habitat loss and degradation through overgrazing by camels and other livestock and expansion of roads and settlements are likely to be major threats to the sand cat. 'Dune bashing' further damages fragile sand dune habitat. Sand cats are vulnerable to indiscriminate trapping and poisoning in relation to predator control. They are unlikely to be directly targeted although there have been occasional reports of animals shot in south-east Saudi Arabia (M. Strauss, pers. comm. 2016). Four sand cats were trapped in fences 2004–2007 at Saja/Umm ar-Rimth PA in Saudi Arabia (Sher Shah & Cunningham, 2008). In view of the widely scattered known localities, fragmentation may also be a factor, but this requires further investigation.

Conservation actions: The sand cat is found in the following protected areas: Wadi Rum (Jordan); Jal Az-Zor NP (Kuwait); Arabian Oryx Sanctuary, As Saleel reserve (Oman); Harrat al Harrah, Ibex Reserve, Mahazat as Sayd, Saja/Umm ar-Rimth, Uruq Bani Ma'arid (Saudi Arabia); Dubai Desert Conservation Reserve, Umm Al Zumul (United Arab Emirates). It is listed on CITES Appendix II. There are captive breeding populations within the region at Al Wabra (Qatar); Al Ain Wildlife Park and Resort, the Breeding Centre for Endangered Arabian Wildlife (United Arab Emirates); and Riyadh Zoo (Saudi Arabia). Captive breeding populations in the USA are managed through a Species Survival Plan and in Europe through a European Endangered Species Programme. There is an urgent need to develop reliable survey methods to estimate population sizes and trends for this species. In Saudi Arabia, studies are underway in the Mahazat Al-Sayed, Saja/Umm Ar-Rimth and Uruq Bani Ma'arid Protected Areas.

Lion

Panthera leo

Regional assessment: Regionally Extinct (RE)
Justification: The last individual in the region was killed in 1918 (Hatt, 1959).
Range description: Lions occurred in Syria and Iraq along the Tigris and Euphrates valleys to the end of the 19th century and the early years of the 20th century. The last animal was reportedly killed in 1918 (Hatt, 1959). Lions were also known from Jordan and Palestine in the 12th century (Bodenheimer, 1935; Harrison 1972). Schnitzler (2011) listed Neolithic rock engravings of lions in Saudi Arabia and Oman and reported their possible presence on the Tihama coastal plain of Yemen during the 10th century. There have been recent sporadic anecdotal reports of lions in Yemen, but these are believed to reflect linguistic confusion with species such as *Hyaena hyaena* and lions are not considered part of Yemen's mammal fauna (M. Al Jumaily, pers. comm. 2016).
Countries of occurrence: Iraq (RE)
Population: Never common, now regionally extinct.
Habitat and ecology: Riverine thickets.
Use and trade: Not known in trade.
Major threats: Hunting and habitat clearance are believed to be the principle causes of the decline.
Conservation actions: Regionally Extinct – not applicable.

Common leopard

Panthera pardus

Taxonomic notes: The Arabian leopard (*P. p. nimr*) occurs across the Arabian Peninsula; the form occurring in the Caucasus and south-west Asia, *P. p. tulliana*, just reaches the north-eastern edge of the region in the mountains of northern Iraq (Kitchener et al., 2017) and is not considered further as this subspecies is marginal and therefore Not Applicable.
Regional assessment: *P. p. nimr* Critically Endangered (CR C2a(i)) [as Global].
Justification: Listed as Critically Endangered, as the effective population size is clearly below 250 mature individuals, there is a continuing decline, and the population is severely fragmented with isolated subpopulations not larger than 50 mature individuals (Mallon et al., 2008).
Range description: Formerly occurred widely in the mountains of the west, south and south-east of the region but is now reduced to a few small fragments. The current stronghold for the Arabian leopard lies in the mountains of Dhofar in Oman, extending across the border into Hawf Forest of eastern Yemen (Spalton et al., 2014). Leopards have been reported from several

localities in the mountains of western Yemen (Al Jumaily et al., 2006) but whether any still exist is unclear. Since 2015, several photos of dead or captured leopards in the Al Dabiyaniya arean of Ad dale governorate have been posted on social media, indicating a population of leopards in this part of southern Yemen (A. Alfotooh, EPA, Yemen, per comm.). There are also small, isolated populations in Saudi Arabia (Zaffar-ul-Islam et al., 2014). There are local reports of leopard presence, but no confirmed records since 2014. Eight individuals were estimated to be present in Israel's Judean Desert and Negev Highlands (Perez et al., 2006). The species is likely extirpated in the Musandam Peninsula and Hajar mountains of Oman and United Arab Emirates (Edmonds et al., 2006; Spalton et al., 2006; Spalton & Al Hikmani, 2006, 2014); in Jordan (Qarqaz & Abu Baker, 2006) and Egypt's Sinai Peninsula (Spalton et al., 2006).

Countries of occurrence: Israel and the Palestinian Territories; Jordan (Regionally Extinct); Oman; Saudi Arabia; United Arab Emirates (Regionally Extinct); Yemen.

Population: There is no reliable figure available, but the total population is estimated at <250 mature individuals.

Habitat and ecology: Mountains and rocky wadis. In Dhofar and Hawf forest the habitat consists also of dense monsoonal forests.

Use and trade: Caught and traded across the region for private collections and display.

Major threats: Killing and persecution by livestock owners is a major threat, as is depletion of wild prey. Traditional stone traps called margaba to catch leopards are found in many places.

Conservation actions: The species is listed on CITES Appendix I. Occurs in Jebel Samhan NR in Dhofar and Hawf Forest reserve in Yemen. A conservation strategy has been developed (Breitenmoser et al., 2006; 2007). There are captive breeding populations at Al Ain Zoo, Al Bustan Zoological Centre, Breeding Centre for Endangered Arabian Wildlife (United Arab Emirates), Omani Mammal Breeding Centre, and National Wildlife Research Centre in Taif, Saudi Arabia. Collaborative breeding programmes have been initiated between several facilities.

Tiger

Panthera tigris

Regional assessment: Not Applicable (Unconfirmed or Vagrant)

Justification: A previously overlooked account of this species in the region was reported by Kock (1990). This concerned an old anecdotal report of an animal seen near Mosul (Iraq) in 1885 and published later in German (Nolde, 1887; Kock, 1990). The report referred to 'great alarm' among the local people. The incident occurred a long way from the nearest known tiger population in Iran and there is no other evidence to corroborate the report. It is possible that the animal was a long-distance vagrant, but also possible that linguistic confusion between the terms used for tiger and leopard led to a misidentification.

Eurasian lynx

Lynx lynx

Regional assessment: Not Applicable (marginal)

Justification: Only known in the mountains of northern Iraq, where there is one recent camera-trap record (Barzani, 2013).

Countries of occurrence: Iraq.

Population: Unknown.

Habitat and ecology: In Iraq it inhabits montane forests.

Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: Unknown.

Caracal

Caracal caracal

Taxonomic notes: Specimens from Arabia and south-west Asia are assigned to *C. c. schmitzi* Matschie, 1912 which is smaller and paler than the nominate form (Harrison & Bates, 1991). This subspecies is regarded as possibly valid (Kitchener et al., 2017).

Regional assessment: Least Concern (LC)

Justification: Listed as Least Concern due to its widespread distribution throughout the region and presumed large population which appears to be stable at present. However, if the population size falls below 10,000 mature individuals and the decline reported in some range states becomes more widespread, the species may approach the threshold of a 10% decline over three generations thus qualifying for Vulnerable status under criterion C1, so it may already be close to Near Threatened.

Range description: Found across the whole region but not recorded in the Rub Al Khali (Harrison & Bates, 1991). In Oman it is found everywhere including Musandam, except in sand habitats. In Saudi Arabia it is widely distributed, but records are concentrated in the mountains of the south-west. In Yemen it occurs in the south of the country (Al Jumaily, 1998) and recent camera trap surveys have recorded the caracal from Mahra on the eastern border with Oman (Mallon & Budd, 2011). In Jordan it has been recorded at five localities but has disappeared from the eastern desert (Amr, 2012). There are a few records from central and southern Iraq. In the United Arab Emirates it is recorded in wadis of the northern mountains. It appears to no longer exist in Kuwait (Cowan, 2013).

Countries of occurrence: All countries of the region.

Population: Rough estimates of population size based on likely distribution and home range size indicates it is likely to be close to 10,000 mature individuals. No national population estimates have been made. In Oman this species is considered stable or increasing; 'good numbers' are found in Saudi Arabia; in Dana Wildlands reserve, Jordan, only five photos of caracal were obtained in four years of camera trapping; and it appears to be declining in Ras Al Khaimah, United Arab Emirates.

Habitat and ecology: The caracal prefers mountainous and hilly areas, often resting in caves and rock crevices (Harrison & Bates, 1991) and occurs from sea level to 3,000 m. It occurs in wadis, foothills, mountains and basalt fields. In Dhofar and eastern Yemen it is found in wooded mountains dominated by *Anogeissus dhofarica*. Caracals in the region feed on birds, small mammals, gazelles, lizards and snakes (Harrison & Bates (1991). Van Heezik & Seddon (1998) tracked a radio-collared male caracal for 11 months in Harrat al Harrah Protected Area in northern Saudi Arabia and found that scats contained mostly rodent bones, particularly Libyan jird ( ) but animals were also observed feeding upon Arabian sand gazelle (*Gazella marica*) and once on a steppe eagle (*Aquila niplaensis*). The collared animal had a range size >1,100 km². The species may have benefited in mountainous areas from the disappearance or decline of the leopard.

Use and trade: Some animals are caught and traded for pets; in Saudi Arabia, animals are seen in markets approximately every two weeks. In the United Arab Emirates, animals have been seen for sale in markets for the international pet trade, but the source of these animals is not known.

Major threats: Vulnerable to generalised persecution of predators. Habitat loss and fragmentation due to expanding road networks and settlements are also a serious threat. Gazelle

populations have greatly declined across the Arabian Peninsula (Mallon & Kingswood, 2001), reducing the potential prey base, and during periods of drought the rodent prey base is likely to be reduced.

Conservation actions: The species is listed on CITES Appendix I. It is included in the Oman National Red Data Book (CR C2a). The caracal occurs in the following protected areas: Dana (Jordan); Arabian Oryx Sanctuary, Jebel Samhan (Oman); Harrat Al Harrah, Raydah, Shada (Saudi Arabia); Wadi Wurrayah NP, United Arab Emirates; Jebel Bura'a, Hawf, Otamah (Yemen) and is likely to occur in many other protected areas. There are captive breeding populations within the region at Al Ain Wildlife Park and Resort, the Breeding Centre for Endangered Arabian Wildlife (United Arab Emirates), and Riyadh Zoo (Saudi Arabia)

Cheetah

Acinonyx jubatus

Taxonomic notes: The Arabian population has been assigned to the Asian subspecies *A. j. venaticus* (Harrison & Bates, 1991). DNA analysis has recently confirmed that an animal shot in Dhofar in 1977 belonged to this subspecies (Charruau et al., 2011).

Regional assessment: Regionally Extinct (RE)

Justification: The last animal obtained in the northern part of the regional range dates from around 1951. There is doubt over the origin of an animal shot in southern Oman in 1977. There have been no photos or confirmed reports of field signs since then and the cheetah is regarded by almost all experts as extinct in the region.

Range description: There are very old records from the north-west of the region and a number of records from Iraq, northern Saudi Arabia and possibly Syria (Harrison & Bates, 1991). This species has been reported from Kuwait but it is unclear whether the locality is within the current national boundaries (Dickson, 1949; Cowan, 2013). The latest record from this part of the region apparently dates from around 1951 (Harrison & Bates, 1991). There are older records from near Jebel Tubaiq, north-west Saudi Arabia. A cheetah was observed in Wadi Mitan, southern Yemen, in March 1963 (Harrison, 1972) and an animal was shot near Jibjat in southern Oman in 1977 (Harrison & Bates, 1991). These are the only records ever obtained in southern Arabia and some doubt has been expressed over whether these animals were within their natural range; they are not included in the global IUCN Red List assessment of the species (Durant et al., 2015). There has been confusion between the Arabic local names for leopard and cheetah which may have obscured some records; for example, Raswan (1935) reported his guide shooting 'a leopard and cubs' in northern Saudi Arabia, but the animals shown in his photo are clearly cheetahs.

Countries of occurrence: Iraq; Israel and the Palestinian Territories; Jordan; Kuwait; Oman? Saudi Arabia; Syria?; Yemen? (all RE).

Population: Formerly described as uncommon or rare by all authors.

Habitat and ecology: Open deserts and semideserts.

Use and trade: Not known in trade.

Major threats: Believed to have been extirpated due to hunting and depletion of prey.

Conservation actions: Regionally extinct – not applicable.

Red fox

Vulpes vulpes

Taxonomic notes:	Specimens from the Arabian Peninsula are referred to *V. v. arabica* and are characterised by relatively small size and pale colour (Harrison & Bates, 1991). However, the validity of this and other subspecies has not been confirmed by genetic analysis.
Regional assessment:	Least Concern (LC)
Justification:	Widespread, with a presumed large population that is stable or increasing and no declines have been reported.
Range description:	Ubiquitous throughout the region.
Countries of occurrence:	All countries in the region.
Population:	Common and increasing in some localities, aided in part by spread of human settlements.
Habitat and ecology:	Adaptable and occurs in a wide range of habitats, though not recorded from the interior of extensive dune areas such as Rub Al Khali. The red fox is less well adapted than Rüppell's fox (*V. rueppellii*) to extreme arid areas. It is likely to be less common than Blanford's fox (*V. cana*) in rocky mountain areas.
Use and trade:	Rarely occurs in trade.
Major threats:	Subject to persecution and poisoning by livestock herders. Rabies outbreaks killed a number of red foxes in the Arabian Oryx Sanctuary in 1990 and 1998 (Spalton, 2002), however, the degree to which rabies is a threat is unknown.
Conservation actions:	Occurs in many protected areas.

Blanford's fox

Vulpes cana

Regional assessment:	Vulnerable (VU C1)
Justification:	While there is no robust population estimate available, its limited distribution and scattered records suggest that a population <10,000 mature individuals is plausible. A decline of 10% over 10–12 years (generation length is four years) is considered conservative on the basis of continuing persecution, quarrying and tourist development in the mountains. Hence a preliminary assessment of Vulnerable under Criterion C1 has been assigned. There is no significant rescue effect and therefore, no regional adjustment.
Range description:	Blanford's fox was first recorded in the region in 1981. All records are from the mountainous periphery of the Arabian Peninsula, except one from the Ibex Reserve in central Saudi Arabia which lies 800 km inland. In Jordan, this species was first recorded in 1996, from the Dana Biosphere Reserve, and has subsequently been recorded in Wadi Rum, Mujib, Petra and Jabal Masuda (Abu Baker et al., 2004; Eid et al., 2013). In Oman, this species was first recorded in 1985 when two were trapped on Jebel Samhan in Dhofar, and it has been camera trapped there regularly since then. It has also been recorded on Jebel Qamar in Dhofar and has been found at Wadi Sarin Tahr Reserve and Jebel Qahwan in the Hajar Mountains. Spalton (2002) considered it likely to occur more widely in Dhofar and throughout the Hajar mountains. In Saudi Arabia there are two records from the south-western mountains: one killed on the road on the Biljuraishi escarpment and one photographed in the same general area (Harrison & Bates, 1991). Camera-trap photographs were obtained in Al Tubayq Reserve close to the Jordan border in 2001 and from the Ibex Reserve in 2004 (Cunningham & Wronski, 2009), which lies 800 km inland and represents a considerable range extension. In the United Arab Emirates, there are many records (camera traps, live traps) in the northern mountains up to the Oman border on the Musandam Peninsula and also on Jebel Hafit, where a skull was found in 2009. In Yemen, the first confirmed records of this species were obtained between December

2011 and May 2012 when 18 camera trap images of the species were taken in Hawf Forest close to the eastern border with Oman (Al Jumaily et al., 2012). Al Jumaily (1998) did not include it on her list of Yemen mammals. However, the mountains of western Yemen are contiguous with those in Asir, south-west Saudi Arabia, where Blanford's fox has been recorded, so there is a good possibility that it also occurs in some parts of north-west and western Yemen.

Countries of occurrence: Egypt (Sinai); Israel and the Palestinian Territories; Jordan; Oman; Saudi Arabia; United Arab Emirates; Yemen.

Population: No estimates of the overall population size are available. In Jebel Samhan Reserve, it was camera trapped nearly 150 times (Spalton, 2002), whereas in the Ibex Reserve only one picture was obtained during five years of camera trapping (Cunningham & Wronski, 2009). It is regarded as not rare in suitable habitat in Saudi Arabia and United Arab Emirates. A capture-mark-recapture study on Jabal Masuda (Jordan) using two analyses found 8.5 animals/km², and 0.177–9/ km², which is higher than reported elsewhere (Eid et al., 2013).

Habitat and ecology: Blanford's fox prefers rocky mountainous areas. In Jordan, all known localities are in rocky sandstone areas including juniper woodland on Jabal Masouda (Eid et al., 2013). Elsewhere it has been found inhabiting thickly vegetated monsoonal woodlands (south-east Yemen and Dhofar). Rodent remains occurred in 33% of scats (n = 85) in United Arab Emirates, as well as hare, goat hair, birds, reptiles (<6%) and invertebrates, plus the fruit of *Ziziphus spina-christii* and wild fig (*Ficus salicifolia*) (Stuart & Stuart, 2003). In Jordan, scats on Jabal Masouda contained predominantly berries of *Juniperus phoenicia* as well as coleopterans and goat hair (Eid et al., 2015).

Use and trade: Seen on sale in Taif market, Saudi Arabia, for 1,300 rials (ca. 350 USD).

Major threats: General persecution including indirect poisoning, habitat loss due to expanding human settlement and tourism development. Rocky habitat preference may keep it away from human habitation.

Conservation actions: Legally protected in Oman. Occurs in the following Protected Areas: Dana, Jabal Masouda, Wadi Rum, Mujib (Jordan); Jebel Samhan, Wadi Sareen (Oman); Al Tubayq reserve, Ibex Reserve (Saudi Arabia); Wadi Wurrayah (United Arab Emirates); Hawf Forest (Yemen).

Rüppell's fox

Vulpes rueppellii

Taxonomic notes: Specimens from the Arabian Peninsula and northern Arabia have been assigned to *V. r. sabaea*, which is reportedly much paler than the nominate subspecies, though there is some intergradation in the Sinai Peninsula (Harrison & Bates, 1991). The validity of these subspecies has not been confirmed by genetic analysis.

Regional assessment: Least Concern (LC)

Justification: Widespread across the region and is regarded as common in Saudi Arabia and Yemen. The popultions is presumably large and there is no evidence of a significant decline.

Range description: Records indicate a wide range within suitable habitat. In Oman, Rüppell's fox is known from the Arabian Oryx Sanctuary (186 sightings 1990–1997), Wahiba Sands and the edge of Rub Al Khali, (Fisher, 1999; Spalton, 2002). In Saudi Arabia, this species has been recorded in Rub al Khali and several localities in the centre and north of the country, and there are recent records from Mahazat as Sayd, Harrat al Harrah, Al Khunfah and Uruq Bani Ma'arid reserves. In the United Arab Emirates, Rüppell's fox is assumed to be widely distributed though there are only a few confirmed records: Al Dhafra (south-west Abu Dhabi); Liwa (southern Abu Dhabi), Al Maha and Jebel Ali (both Dubai) (Gross,

1987; Murdoch et al., 2007). In Yemen, this species has been recorded in southern (Hadhramaut, Mahra, other localities) and northern areas of the country (Al Jouf).

Countries of occurrence: Iraq; Israel and the Palestinian Territories; Jordan; Oman; Saudi Arabia; United Arab Emirates; Yemen.

Population: Olferman & Hendrichs (2006) trapped 150 Rüppell's foxes during 12 trapping sessions in their study area in Mahazat as Sayd Reserve (Saudi Arabia). The density was estimated to be 0.25–0.62/km², and 0.16–0.17/km² for adults only. Extrapolating these figures to even 20% of the Arabian Peninsula (a very conservative estimate of the area of suitable habitat) would suggest a population size of 32,000–34,000 adults.

Habitat and ecology: This species inhabits arid steppe, sandy, stony and rocky deserts (Larivière & Seddon, 2001). In Mahazat as Sayd, Rüppell's foxes showed a clear preference for open stony habitats (gravel or basalt) with short grass or low shrubs (Olferman & Hendrichs, 2006). Crepuscular and nocturnal, this species spends daylight hours underground, and utilises breeding and resting dens either dug themselves, or enlarged burrows of spiny-tailed lizards (dhab) (*Uromastyx aegyptiacus*) (Olferman & Hendrichs, 2006). They are agile and climb trees, fences and rocks (Larivière & Seddon, 2001). Average home-range size in Mahazat as Sayd was 16.3 km² (Olferman & Hendrichs, 2006) and 69.1 km² in Oman (Lindsay & Macdonald, 1986). Small mammals and birds formed 85–90% of the diet in Mahazat (Olferman & Hendrichs, 2006). They are territorial and form monogamous pairs. They are seasonal breeders in central Saudi Arabia, mating mid-late November and giving birth in early to mid-June/July. Rüppell's fox is adapted to arid areas that are marginal for the red fox (*V. vulpes*). There is no evidence of direct competition though Rüppell's foxes are known to vacate areas when red foxes move in near to human habitation (Lindsay & Macdonald, 1986). Preyed on by eagle owls (*Bubo bubo*) and steppe eagle (*Aquila nipalensis*) (Olferman & Hendrichs, 2006).

Use and trade: Not known in trade.

Major threats: Persecution and poisoning, loss and fragmentation of desert habitat, grazing pressure, agricultural development, and off-road driving. In Oman (Arabian Oryx Sanctuary) and parts of United Arab Emirates it has been displaced around settlements by the red fox. Three specimens were found hanging from a tree in an area used for dune-driving, 50 km north of Riyadh (Cunningham, 2009).

Conservation actions: In Oman, it is protected by law and foxes are not actively hunted (Spalton, 2002). Occurs in the following protected areas: Mahazat as Sayd, Uruq Bani Ma'arid, Harrat Al Harrah (Saudi Arabia); Arabian Oryx Sanctuary (Oman); Arabian Oryx Reserve (United Arab Emirates) and probably in several others.

Fennec fox

Vulpes zerda

Regional assessment: Not Applicable (Unconfirmed and/or marginal)

Justification: This is a North African species whose range extends into western Sinai Peninsula where three animals have been obtained (Harrison & Bates, 1991). There is also a specimen from Kuwait and another from southern Iraq, but these localities are isolated by a considerable distance from the main distribution and these specimens may have been misidentified (Cowan, 2013).

Grey wolf

Canis lupus

Taxonomic notes: According to Harrison & Bates (1991) the subspecies *C. l. arabs* occurs in the Arabian Peninsula and *C. l. pallipes* in Iraq and northern Arabia, with animals intermediate in size recorded in Kuwait. The possible separation of these two forms has not yet been determined by genetic evidence.

Regional assessment: Vulnerable (VU C1)

Justification: While there is no robust population estimate, the limited distribution suggests that a population <10,000 mature individuals is plausible. A decline of 10% over 10-12 years (generation length is four years) was considered conservative on the basis of widespread, continuing persecution. Hence this species has been given a preliminary assessment of Vulnerable under Criterion C1. There may be some rescue effect, but this is not considered significant enough to justify a regional adjustment. The species was assessed as Endangered in the southern part of the region (i.e. the Arabian Peninsula excluding Syria and Iraq (Mallon & Budd, 2011).

Range description: Distribution in the region was formerly extensive, with confirmed records from all parts except the Rub al Khali and part of the northeast (Harrison & Bates, 1991). It is now much more sparsely distributed and has disappeared from many localities but is considered common in places. In Oman, it appears to have virtually disappeared from north of Thumrait but is still found in Dhofar and in Jebel Samhan nature reserve, where it is able to scavenge off the increased numbers of livestock in the mountains. In Saudi Arabia it is widespread: Cunningham & Wronski (2010) reviewed unpublished reports at the Saudi Wildlife Commission and added a further 64 confirmed sightings and documented presence in 12 protected areas; it has also been recorded from several areas in the north-west (Al Qassim, Jebel Al Lawz, Bajdat); is a fairly regular sighting in Tabuk; and has been recorded from Hail and Mahat al Dahab (Mallon & Budd, 2011). The grey wolf apparently tno longer occurs in Kuwait (Cowan, 2013). In United Arab Emirates, one was captured in Dubai Emirate in 1978, one was shot in 1984 at Al Ain, and a few sightings and track reports were received up to 1987 (Gross, 1987). It was regarded as Extinct in the Wild in yhe United Arab Emirates by Hornby (1996). In Yemen, there are confirmed records from several parts of southern Yemen but few from the north (Harrison & Bates, 1991; Al Jumaily, 1998), though there are anecdotal reports of their presence in the western mountains. A camera trapping project in Hawf on the eastern border with Oman captured 100 photos of this species between September 2010 and January 2011 (D. Stanton, pers. comm. 2016). It is rare in Jordan, but still occurs in the south (including Wadi Rum), the north (Azraq) and centre (Dana). The grey wolf is widespread in Iraq (Al Sheikhly et al., 2015) and was formerly widespread in Syria and Lebanon (Harrison & Bates, 1991).

Countries of occurrence: Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan; Kuwait (Regionally Extinct); Lebanon; Oman; Saudi Arabia; Syria; United Arab Emirates (Regionally Extinct); Yemen.

Population: The grey wolf is considered rare in most places, and occurs at low densities; for example, only 17 sightings or tracks were recorded in a seven-year period (1991–1997) in the Arabian Oryx Sanctuary, Oman. However, in some mountainous areas of Saudi Arabia, local bedu regarded the grey wolf as numerous (Cunningham & Wronski, 2010). In most parts of the region it is declining.

Habitat and ecology: The grey wolf occurs in all habitats in the region except extensive areas of loose sand. It is usually seen in ones and twos, and occasionally in larger groups; an attack by five animals on livestock in north-west Saudi Arabia has been reported.

Use and trade: In parts of northern Saudi Arabia the gall bladder is used to treat cataracts.

Major threats: Direct persecution – shooting, trapping, and poisoning – is the primary threat. The use of 'hanging trees' to display the carcasses of the grey wolf and other predators is widespread especially in Saudi Arabia (e.g. Cunningham et al., 2009). Other threats include a reduced wild prey base (e.g. most gazelle species have sharply declined outside protected areas), habitat destruction and fragmentation. Hybridisation with domestic/feral dogs is known, with one recent case in Saudi Arabia confirmed by DNA analysis but the extent of interbreeding with domestic dogs is unknown (Mallon & Budd, 2011).

Conservation actions: Legally protected except in Yemen, but law enforcement is weak or absent outside protected areas. This species occurs in the following protected areas: Azraq, Dana, Wadi Rum (Jordan); Arabian Oryx Sanctuary, Jebel Samhan (Oman); Al Khunfah, Al Tubayq, Harrat al Harrah, Harrat 'Uwayrid, Ibex Reserve, Jabal Shada, Mahazat as Sayd, Majami al Hadb, Raydah, Saja/Umm al Rimth, Uruq Bani Ma'arid, Wadi Dhum (Saudi Arabia); and Hawf (Yemen).

Golden jackal

Canis aureus

Taxonomic notes: Animals in Iraq have been assigned to *C. a. aureus* and those from Northern Arabia to *C. a. syriacus*, but the forms are not clearly defined and show considerable intergradations (Harrison & Bates, 1991).

Regional assessment: Least Concern (LC).

Justification: The species is widespread in the north of the region and is presumed to have a population >10,000 mature individuals that is stable and increasing.

Range description: In Iraq, the golden jackal is widespread, especially along the Tigris and Euphrates valleys. In Jordan, it is found from the north to Dana including Wadi Rum and Azraq. In the Arabian Peninsula, it is restricted to a small part of eastern Saudi Arabia in the Hofuf area and around Al Asfah Lake. There were sightings in Qatar in the 1950s (Gillespie, 2008) and in 2008 (Hellyer, 2009). An anecdotal report of one animal caught near the Abu Dhabi-Saudi Arabia border (Gross, 1987) is presumed to have been from a location west of the current border. There are no confirmed records from United Arab Emirates (Hellyer 2009). Reports from Aden and Sheikh Othman in southern Yemen in 1895 (cited in Harrison & Bates, 1991) are unconfirmed and are likely to be erroneous or refer to released or imported animals. The species is not included in a recent list of the mammals of Yemen by Al Jumaily (1998) and it is not considered part of the Kuwait fauna (Cowan, 2013).

Countries of occurrence: Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Qatar; Saudi Arabia; Syria.

Population: Estimated to be >10,000 mature individuals. Described as abundant along rivers in Iraq and in the southern marshes (Al Sheikhly et al., 2015a) and the population is increasing in Jordan.

Habitat and ecology: Lake-sides, reeds and agricultural areas.

Use and trade: Not known in trade.

Major threats: Unknown.

Conservation actions: Occur in Dana, Wadi Rum and Azraq reserves (Jordan). No other specific measures are in place.

Egyptian mongoose

Herpestes ichneumon

Regional assessment:	Least Concern (LC)
Justification:	The species is widespread and abundant in parts of the region and there are no known threats.
Range description:	Occurs in the north-west mountains and desert fringe.
Countries of occurrence:	Israel and the Palestinian Territories; Jordan; Lebanon; Syria.
Population:	Abundant in parts of its regional range (Harrison & Bates, 1991).
Habitat and ecology:	Usually found not far from water and in areas with plant cover (Harrison & Bates, 1991).
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	Photographed in Mujib Nature Reserve, Jordan, in 2010. May occur in other protected areas.

Indian grey mongoose

Herpestes edwardsii

Taxonomic notes:	Arabian specimens are assigned to *H. e. ferrugineus*, distinguished by its longer winter coat and other external features including a strong tendency for reddish forms (Harrison & Bates, 1991). The status of the subspecies has not yet been corroborated by genetic analysis.
Regional assessment:	Least Concern (LC)
Justification:	Assuming that its occurrence in the region is natural, it is listed as Least Concern in view of the presumed population size (>1,000 mature individuals), and lack of a known decline. If the species' presence results from an accidental introduction it would be Not Applicable.
Range description:	Its distribution in the region is restricted to the Gulf coast of Kuwait, Saudi Arabia and Bahrain. There is one record from Oman: a specimen caught in Badia and brought to the Oman Mammal Breeding Centre in 1997 (Mallon & Budd, 2011). No specimens have been recorded from Iraq (Hatt, 1959). This species is probably a ship-borne introduction in Kuwait (Cowan, 2013) and its distribution adjacent to sea ports suggests the possibility of an introduced origin (Mallon & Budd, 2011). It is listed as native in all countries in the region by Mudappa & Choudhury (2016) and a natural spread of this species from Iran cannot be completely ruled out.
Countries of occurrence:	Bahrain; Kuwait; Oman; Saudi Arabia.
Population:	Considered abundant in Kuwait City around 70 years ago (Cowan, 2013).
Habitat and ecology:	Mainly occurs near the coast and up to 40 km inland, around human habitation and in agricultural areas.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	No actions in place or needed.

Small Indian mongoose

Herpestes auropunctatus

Regional assessment:	Least Concern (LC)
Justification:	Assuming that its occurrence in the region is natural, it is listed as Least Concern in view of the extensive distribution in Iraq and lack of known threats. If it was introduced, then it would be Not Applicable.

Range description: This is a South Asian species known in the region only from the Tigris and Euphrates valleys in Iraq. It is known in the region since early historical times but unclear whether the species was introduced (to control snakes and rodents) or if it is naturally occurring.
Countries of occurrence: Iraq.
Population: Unknown.
Habitat and ecology: Lives along river valleys, avoiding the desert and frequently around agricultural areas and human habitation (Harrison & Bates, 1991).
Use and trade: Not known in trade.
Major threats: Unknown.
Conservation actions: No measures in place or needed.

Bushy-tailed mongoose

Bdeogale crassicauda

Regional assessment: Not Applicable (unconfirmed occurrence in the region)
Justification: There is only one Arabian specimen, an immature female obtained near Sana'a (Nader & Al Safadi, 1991). Simmons (1995) noted that the length of the tail of this specimen exceeded the length considered diagnostic in differentiating the species from white-tailed mongoose (*Ichneumon albicauda*) and he recommended that the specimen should be confirmed on craniological evidence. The bushy-tailed mongoose is not considered part of the Yemen mammal fauna (M. Al-Jumaily, pers comm. 2016).

White-tailed mongoose

Ichneumon albicauda

Taxonomic notes: This is an African species with isolated populations in southern Arabia. Analysis of mtDNA indicated a unique genetic lineage and a single colonisation event ca. 32,500 years ago (Fernandes, 2011).
Regional assessment: Least Concern (LC).
Justification: Fairly widespread, presumed to be numerous, expanding in some areas and no major threats have been reported.
Range description: In Arabia it is distributed in southwestern Saudi Arabia and western Yemen (north to about 20°N), Dhofar (southern Oman) and the Hajar Mountains of Oman and United Arab Emirates. It has also been recorded from Farasan Kabir Island in the Red Sea (Simmons, 1995) where it is believed to have been introduced. In Saudi Arabia and Yemen, the white-tailed mongoose appears to be extending its distribution down to the Tihama coastal plain and also eastwards; for example, it is now reported more often in the Taif area. In United Arab Emirates it is known in Wadi Shawka, Ras al Khaimah and in Musandam.
Countries of occurrence: Oman; Saudi Arabia; Yemen.
Population: Not uncommon in south-west Saudi Arabia but less common in Oman. There is no estimate of population size, but records of this species have been increasing across a wider area of south-west Arabia in recent years and the population seems to be increasing.
Habitat and ecology: White-tailed mongoose can be found in wooded wadis, coastal plains, plantations, gardens and even urban areas. Details of the diet in Arabia are unknown, but they have recorded preying upon the eggs of the Kentish plover (*Charadrius alexandrinus*) on the Farasan Kabir Islands (Mallon & Budd, 2011).
Use and trade: Not known in trade.
Major threats: Unknown.

Conservation actions: Occurs in the following protected areas: Wadi Sareen, Jebel Samhan (Oman) and Farasan Kabir Islands, Shada, Raydah (Saudi Arabia). It is important to avoid release of animals from Africa in order to conserve the unique evolutionary history of the Arabian population (Fernandes, 2011).

Common genet

Genetta genetta

Taxonomic notes: This species has a mainly African distribution and the population in southern Arabia is completely isolated. Arabian animals are usually assigned to subspecies *G. g. grantii* (Harrison & Bates, 1991) and this population displays a high degree of chromosomal differentiation (Oom et al., 2010). Further research may demonstrate greater genetic distinctiveness.

Regional assessment: Least Concern (LC)

Justification: Relatively common within its limited range and apparently stable; no declines have been reported.

Range description: Distribution in the region is restricted to the mountains of southwestern Saudi Arabia and Yemen, north to approximately 20°N, and the mountains of Dhofar (Oman). The species may also occur in similar habitat across the border in Hawf Forest in the far east of Yemen. It is widespread in southern Asir (Harrison & Bates, 1991; Mallon & Budd, 2011).

Countries of occurrence: Oman; Saudi Arabia; Yemen.

Population: Unknown.

Habitat and ecology: The species tends to be found in wooded wadis and rocky areas, often near settlements and water. It has been recorded in low and high elevations, to at least 2,000 m (Mallon & Budd, 2011).

Use and trade: This is not a commonly traded species. However, live animals are sometimes seen on sale in markets in southern Saudi Arabia (e.g. Al Khobar) possibly for medicinal use. The scale and any effect of this trade on the regional population are not known.

Major threats: No major threats, though in recent years some increase in road kills has been noted in south-west Saudi Arabia, as new roads are constructed in the mountains and existing tracks are hard-surfaced, increasing vehicle speeds.

Conservation actions: The common genet occurs in the following protected areas: Raydah and Shada (Saudi Arabia). There should be more focus on coordinating camera trap efforts throughout the range states to compile confirmed records for this species. This will help to confirm the full extent of this species' range within the region. Further research on the life history and behaviour of the common genet is also required (e.g. to determine home range size, density, generation length, diet, habitat preferences, etc.). Local trade in parts of its range needs to be further investigated to determine the scale and effects of this on the regional population.

Small Indian civet

Viverricula indica

Regional assessment: Not Applicable (introduced)

Justification: A south and south-east Asian species that has been introduced to the island of Socotra (Al Jumaily, 1998).

Countries of occurrence: Yemen (Socotra).

Population: Unknown.

Habitat and ecology:	Occupies a range of habitats often in the vicinity of human settlements.
Use and trade:	Not known in trade.
Major threats:	Unknown.
Conservation actions:	No actions in place or needed.

Brown bear

Ursus arctos

Regional assessment:	Not Applicable (marginal)
Justification:	Restricted to the far north-west of the region.
Range description:	The main regional distribution is in the Zagros Mountains of northern Iraq where it is still quite widespread and has been recently camera trapped on Barzan Mountain (H.A. Raza, pers. comm. 2016). Brown bears formerly occurred in the north-west of the region but were believed to be extinct there (Bodenheimer, 1935; Harrison & Bates, 1991). However, a few sightings have been reported in Syria and Lebanon in recent years. In the Sannir range of south-west Syria, tracks were found in 2004 and 2011, and a bear was photographed in the snow in January 2015. At the end of December 2015, night video taken at Baalbek in Lebanon appears to show a bear (http://www.spnl.org/the-reappearance-of-the-syrian-brown-bear-in-lebanon/)
Countries of occurrence:	Iraq, Lebabnon, Syria.
Population:	No information available.
Habitat and ecology:	Mountain forests.
Use and trade:	Not known in trade.
Major threats:	Subject to hunting.
Conservation actions:	Unknown.

Striped hyena

Hyaena hyaena

Taxonomic notes:	Animals from southern Arabia are assigned to *H. h. sultana* and those from the north to *H. h. syriaca*, but characteristics are not sharply defined and the two forms are thought to intergrade in northern Saudi Arabia (Harrison & Bates, 1991).
Regional assessment:	Vulnerable (VU C1)
Justification:	Listed as Vulnerable because the regional population size is estimated to be below 10,000 mature individuals and is experiencing deliberate and incidental persecution coupled with a decrease in its prey base such that it meets a continuing decline of more than 10% over the past three generations (21 years) especially in the northern parts of the region. The possible rescue effect is considered not significant and no regional adjustment is made.
Range description:	Formerly distributed widely in the Arabian Peninsula except for Rub Al Khali, with numerous records from the mountains of south-west Saudi Arabia and western Yemen (Harrison & Bates, 1991) but has declined sharply. In Jordan, the striped hyena is widespread in the eastern desert and rocky hills on the eastern side of the Jordan Valley and Wadi Araba (Qarqaz et al., 2004) but considered to have declined by at least 50% in the last 20 years (M. Al Qarqaz and K. Al Omari, pers. comm., in Mallon & Budd, 2011). In Oman, this species formerly occurred throughout, but currently found mainly in Dhofar. It is now believed to be extinct north of Qureiyat; recorded in Arabian Oryx Sanctuary (1991-97), Wahiba Sands (1998) and camera trapped in Jebel Samhan reserve (Spalton, 2002). Two cubs were found in 2010 in the mountains near Ibri. The striped hyena is widespread

in Saudi Arabia especially the western mountains. It occurs in the Tabuk area, Jebel Al Lawz, Medina, Hesam (west of Tabuk), Jebel Madyen and Jebel Hijaz. It is also known from rocky areas near Riyadh. The latest record from United Arab Emirates is a sighting from 1984 (Hornby, 1996). In Yemen, it is widespread in the western mountains and in the south (Al Jumaily, 1998). It appears to be common in Hawf Protected Area where over 300 photos were taken by camera traps during September 2010–January 2011 and was also camera trapped on Jebel Milhan in Hajja governorate (D. Stanton, pers. comm., in Mallon & Budd, 2011). It is widespread in Iraq (Al Sheikhly et al., 2015a).

Countries of occurrence: Egypt (Sinai); Iraq; Israel and the Palestinian Territories; Jordan; Lebanon; Oman; Saudi Arabia; Syria; United Arab Emirates; Yemen.

Population: Estimated to be <10,000 mature individuals and declining in many areas. Striped hyaenas were recorded more often than the grey wolf (*Canis lupus*) in camera traps in Hawf, parts of Saudi Arabia and Jebel Samhan and is generally regarded as more common than the grey wolf in Yemen and Jordan (Mallon & Budd, 2011).

Habitat and ecology: The striped hyena occurs in a wide range of habitats but apparently avoids extensive areas of loose sand. Needs rocky areas in which to site dens and that are not too far from water (Qarqaz et al., 2004). May feed at garbage dumps. Mainly active at night. Density estimates in the Negev desert were 0.016/km² (van Aarde et al., 1988).

Use and trade: Killed for their meat, for medicinal purposes and organs as an aphrodisiac.

Major threats: Routinely killed by poisoning, shooting and trapping. Traditional stone traps in the Hajar Mountains are called *madhba*, indicating that their primary purpose may have been to catch hyaenas. In parts of the region, there is a folk belief that witches ride hyaenas, increasing their unpopularity and the species has an unjustified reputation as a grave-robber (Abi-Said, 2006). Other threats include loss and fragmentation of habitat due to quarrying for stone, tourist developments and expansion of settlements and roads.

Conservation actions: Legally protected across the region except in Yemen. However, protection is not enforced outside protected areas. The striped hyena occurs in the following protected areas: Ajloun, Azraq, Dana, Mujib, Shaumari, Uweishat, Wadi Rum (Jordan); Al Wusta Sanctuary, Jebel Samhan, Wadi Sareen (Oman); Al Khunfah, Harrat al Harrah, Al Tubayq, Raydah (Saudi Arabia); Hawf (Yemen). There are captive breeding populations within the region at the Breeding Centre for Endangered Arabian Wildlife and on Sir Bani Yas Island (United Arab Emirates).

7.1.7 Order Lagomorpha: Hares and Rabbits

Cape hare

Lepus capensis

Taxonomic notes: Up to eight subspecies have been described in the region, all based on morphological variation. However, the form on Masirah Island *L. c. jefferyi* is particularly distinct and *L. c. atallahi* on Bahrain is also very small (Harrison & Bates, 1991).

Regional assessment: Near Threatened (NT)

Justification: This is a widespread species, and although still common it is undergoing significant declines because of habitat loss and deterioration due to overgrazing and the impacts of hunting. From the loss of habitat, it is inferred that the decline may be greater than 20% (but less than 30%) over the past 10 years (three generations) hence it is assessed as Near Threatened as it is close to qualifying for Vulnerable under criterion A2cd. The potential rescue effect is not considered significant and no regional adjustment is made. If genetic analyses clarify the taxonomy and confirm the status of distinctive regional forms

	these should be reassessed separately. Monitoring of population declines is important in case these reach a rate that would warrant a listing in a higher category.
Range description:	Widespread across the entire region.
Countries of occurrence:	All countries of the region.
Population:	No estimates available. Declining across much of the region.
Habitat and ecology:	Occupies a wide range of open habitats.
Use and trade:	Not known in trade.
Major threats:	Habitat loss and degradation due to overgrazing; hunting.
Conservation actions:	Occurs in many protected areas.

7.1.8 Order Perissodactyla: Horses and Wild Asses

Wild ass

Equus hemionus

Taxonomic notes:	The Syrian wild ass *E. h. syriacus* formerly occurred in the region.
Regional assessment:	Regionally Extinct (RE)
Justification:	The last confirmed record was from near Sinjar (Iraq) in approximately 1927 (Hatt, 1959). This subspecies is regarded as Extinct (Kaczensky et al., 2015).
Range description:	The wild ass formerly occurred across the northern part of the region. See Hatt (1959) and Harrison (1972) for details of early records and the decline of the species in the region. A population of mixed *E. h. kulan* and *E. h. onager* has been released into the Negev desert and numbers ca. 250 (Gueta et al., 2014). It is unclear at present whether this population is eligible for regional assessment; if it is, the appropriate category would be Endangered under criterion D (more than 50 and less than 250 mature individuals.
Countries of occurrence:	Iraq (RE); Israel and the Palestinian Territories (RE); Jordan (RE); Syria (RE).
Population:	The indigenous population is extinct. The released population numbers ca. 250.
Habitat and ecology:	Desert and semidesert plains.
Use and trade:	Not known in trade.
Major threats:	Unknown. Hunting is considered to be one of the main causes of the decline.
Conservation actions:	Unknown. A breeding group is maintained at Hai-Bar Reserve.

7.1.9 Order Hyracoidea: Hyraxes

Rock hyrax

Procavia capensis

Regional assessment:	Least Concern (LC)
Justification:	Listed as Least Concern in view of its wide distribution, presumed large population and no evidence of an overall decline approaching the thresholds for Vulnerable (VU). There are concerns that the population in Saudi Arabia is declining and as this constitutes a large part of the Arabian population, it is important to monitor this population; if the decline continues, listing in a higher category may be warranted.
Range description:	The rock hyrax occurs along the whole western mountainous fringe of the region from Lebanon to the Bab Al Mandeb; there is an isolated population in Dhofar (southern Oman) and a single record from central Saudi Arabia (Harrison & Bates, 1991). In United Arab Emirates, the species either escaped or was released onto Jebel Hafit, Abu Dhabi Emirate in 1998-1999 (Cunningham, 1999) and has also been introduced on Sir Bani

	Yas Island, but does not seem to have become established (Aspinall et al., 2005; Judas & Hellyer, 2016).
Countries of occurrence:	Israel and the Palestinian Territories; Jordan; Lebanon; Oman; Saudi Arabia; United Arab Emirates (introduced); Yemen.
Population:	Unknown.
Habitat and ecology:	Inhabits rocky areas, cliffs, and steep wadi sides. It is colonial, dwelling in small caves and rock fissures.
Use and trade:	Not known in trade.
Major threats:	It is eaten for food in some places (Harrison & Bates, 1991; Aloufi & Eid, 2014).
Conservation actions:	Occurs in several protected areas. There is a captive breeding population at the Breeding Centre for Endangered Arabian Wildlife in Sharjah, United Arab Emirates.

Figure 18. The rock hyrax *Procavia capensis* is widespread in western and southern Arabia and has be introduced on Jebel Hafit and Sir Bani Yas Island in the United Arab Emirates. © Jane and Kevin Budd, EPAA. *Ex situ* BCEAW

7.2 Marine mammals

7.2.1 Order Cetartiodactyla (Cetacea): Whales and dolphins

Humpback whale

Megaptera novaeangliae

Taxonomic notes: The Arabian Sea subpopulation is geographically, demographically and genetically isolated, and believed to have a unique year-round residency in sub-tropical waters of the Arabian Sea (Minton et al., 2008). However, in late 2017 a female, one of 14 tagged Arabian Sea humpbacks, travelled 1,500 km from Masirah Island off Oman to the coast of India, covering the distance in only nine days (https://gulfnews.com/news/gulf/oman/tagged-arabian-sea-humpback-whale-reaches-india-1.2148647). Regional Assessment: The current estimate of abundance for the Oman subpopulation – based on photo-identification – is 82 animals (95% CI 60–111). The basis for an Endangered (EN) listing is that the subpopulation is geographically distinct and plausibly contains fewer than 250 mature individuals. Even if the Arabian Sea humpback whale population estimate were biased downward, it is highly unlikely that the total abundance would exceed 400 (Minton et al., 2008).

Range description: Red Sea, Gulf of Aden, Arabian Sea, Sea of Oman and Arabian Gulf. There are two records of humpback whale strandings in the Arabian Gulf and other records from around the region. Re-sightings of photographically identified individuals off the coast of Oman provide evidence of year-round residency (Minton et al., 2008; Minton et al., 2011).

Countries of occurrence: Iraq; Kuwait; Oman; United Arab Emirates; Yemen.

Population: The Oman subpopulation is geographically, demographically and genetically isolated, with a unique year-round residency in sub-tropical waters of the Arabian Sea. The original size of the subpopulation is unknown, but the current estimate of abundance for the Oman subpopulation – based on photo-identification – is 82 animals (95% CI 60–111), which may be an underestimate (Minton et al., 2008; Minton et al., 2011).

Habitat and ecology: The humpback whale is principally a deep-water species. The south-west monsoon system in the Arabian Sea drives one of the five largest upwelling systems in the world and during the peak monsoon months of July and August, high nutrient levels in the upwelling systems result in phytoplankton blooms and high productivity. This productivity is believed to supply the food that permits whales to reside year-round in the Arabian Sea (Minton et al., 2008).

Major threats: Nine humpback whales have been recorded entangled in fishing gear. Eight of these were freed, another was observed swimming but trailing gear. Analysis of scarring on the caudal peduncle region of photographically identified Humpback Whales in Oman indicates that between 30-40% are likely to have been involved in entanglements with fishing gear (Minton et al., 2011). In addition, tattoo-like lesions have been noted in this population. The high prevalence of this disease, its increase over time and its progression in some individuals are of concern (Van Bressem et al., 2014). In the 1960s at least 242 humpback whales were killed by illegal Soviet whaling activity off the coasts of Oman, Pakistan and India (Mikhalev, 1997, 2000).

Bryde's whale

Balaenoptera edeni

Taxonomic notes: It has been proposed to split *B. edeni* into three species (*B. brydei*, *B. edeni* and *B. omurai*). All DNA samples collected from specimens in regional coastal waters have been found to be *B. brydei* (Baldwin et al., 1999). However, a single species, *B. edeni*, is recognized by the Committee on Taxonomy of the Society of Marine Mammalogy (Committee on Taxonomy 2017) and the International Whaling Commission (IWC). The Committee on Taxonomy recognizes *B. e. edeni* and *B. e. brydei* as subspecies. *Balaenoptera edeni brydei* is the larger, predominantly offshore form, while *B. e. edeni* is the smaller, predominantly coastal form (Cooke & Brownell, 2018). The length of specimens recorded in the United Arab Emirates ranges from approximately 10 m to at least 14 m, suggesting that two forms may be present, possibly representing different subspecies (Baldwin, 2005).

Range description: Arabian Gulf, Red Sea, Arabian Sea, Sea of Oman and Gulf of Aden. The Gulf of Masirah is an important habitat.

Countries of occurrence: Bahrain; Egypt (Sinai); Iraq; Qatar; Oman; Saudi Arabia; United Arab Emirates; Yemen.

Population: Abundant in the Sea of Oman and Gulf of Aden.

Habitat and ecology: Seen feeding in Arabian Sea, Sea of Oman and the Gulf of Aden. Observed as individuals and in pairs.

Blue whale

Balaenoptera musculus

Taxonomic notes: Several subspecies of this species have been reported, but the locally occurring subspecies (*B. m. indica*) is not yet taxonomically accepted. DNA studies on specimens from Oman and the Maldives are under way.

Range description: Arabian Gulf, Sea of Oman, Arabian Sea, Gulf of Aden. The Gulf of Aden as well as other upwelling areas such as the Gulf of Yemen are critical habitats.

Countries of occurrence: Bahrain; Kuwait; Oman; Qatar; Saudi Arabia; United Arab Emirates; Yemen.

Population: With the exception of the Gulf of Aden, it is considered a rare species in the region.

Habitat and ecology: Mostly found in deep waters, but also occur in coastal environments. Blue whales move from Sri Lanka to the Maldives, then to the Gulf of Aden and back. Observed in pairs and as individuals. The species is known to feed on krill and small schooling fish such as sardines.

Fin whale

Balaenoptera physalus

Range description: Arabian Gulf, Arabian Sea.

Countries of occurrence: Oman; Saudi Arabia; United Arab Emirates.

Population: There are few records from the region. Skeletons have been found on beaches at Dharan near the head of the Gulf and Jebel Ali, Dubai; there is one live sighting in the Arabian Sea and unconfirmed records in the Arabian Gulf, Gulf of Oman and Arabian Sea (Baldwin et al., 1999). However, the species does not occur in the north-west Indian Ocean and these records are no longer considered valid (R. Baldwin pers. comm. 2018).

Habitat and ecology: A deep water species.

Indo-Pacific finless porpoise

Neophocaena phocaenoides

Taxonomic notes: The recognition of two externally distinct morphological forms of finless porpoises as separate biological species, the Indo-Pacific finless porpoise (*N. phocaenoides*) and the narrow-ridged finless porpoise (*N. asiaeorientalis*), was accepted only recently when it was demonstrated that the two forms are reproductively isolated even though they occur sympatrically in a fairly large area of eastern Asia (Wang & Reeves, 2015). Much of the literature published before ca. 2010 refers to all finless porpoises (both species) as *N. phocaenoides*.

Range description: Patchily distributed within the Arabian Gulf. Almost all United Arab Emirates records are from the waters of western Abu Dhabi, with concentrations in the Marawah Island and Sila'a areas (Aspinall & Baldwin, 1999). The former lies within the Marawah Marine Biosphere Reserve.

Countries of occurrence: Bahrain; Iraq; Kuwait; Qatar; Saudi Arabia; United Arab Emirates.

Population: The Indo-Pacific finless porpoise appears to be rare, as there are limited records of live sightings and strandings and it is relatively less abundant in the region than the common bottlenose (*Tursiops truncatus*) and Indo-Pacific humpback dolphins (*Sousa plumbea*). No estimates are available, but surveys in the Arabian Gulf for the dugong (*Dugong dugon*) suggested a 71% decline in three small dolphins, including this species, from 1986 to 1999 (Preen, 2004). Globally assessed as Vulnerable based on population declines (Wang & Reeves, 2017).

Habitat and ecology: Found moving from Iraq to Kuwait, Saudi Arabia, Qatar, and United Arab Emirates (Dubai and Ras Al Khaimah). Keeps to coastal waters and occurs in channels, mangrove creeks and undisturbed shallow coastal environments, but not in artificial channels. Known to feed on crustaceans.

Long-beaked common dolphin

Delphinus capensis

Taxonomic notes: There are two subspecies, *D. c. capensis* in the Atlantic and Pacific Oceans, and *D. c. tropicalis* in the Indo-Pacific (Hammond et al., 2008).

Range description: Red Sea, Sea of Oman, Arabian Gulf, Red Sea, Arabian Sea.

Countries of occurrence: Jordan; Kuwait; Oman; Qatar; Saudi Arabia; United Arab Emirates; Yemen.

Population: Abundant.

Habitat and ecology: Mostly an offshore, deep-water species. Occurs in groups of 100 to over 3,000 individuals. Feeds on small pelagic fish.

Grampus griseus, ***Risso's dolphin***

Range description: Red Sea, Sea of Oman, Arabian Sea, Gulf of Aden.

Countries of occurrence: Jordan; Oman; Saudi Arabia; United Arab Emirates, Yemen.

Population: Size and trend unknown. Not uncommon in the Red Sea (Frazier, 1987).

Habitat and ecology: Found in offshore waters around continental slopes. Occurs as individuals and in groups of up to 500. Diet includes squid.

Indian Ocean humpback dolphin

Sousa plumbea

Taxonomic notes: Indo-Pacific humpback dolphins in the Indian Ocean were recently recognised as a distinct species *Sousa plumbea* that occurs in coastal waters from South Africa to India. Genetic studies in Oman show an invisible barrier between African populations in Mughsayl and the Omani population.

Regional assessment: The conservation status of all four Sousa species has recently been assessed for the IUCN Red List, and S. plumbea is listed as Endangered (EN) (Braulik et al., 2017).

Range description: Arabian Gulf, Sea of Oman, Arabian Sea, Gulf of Aden and Red Sea. There are indications that the distribution is discontinuous, with fragmented and likely discrete populations in the Red Sea and Gulf of Aden. There is also a gap in their known distribution between Musandam and Ras al Had (Baldwin et al., 2004).

Countries of occurrence: Bahrain; Iraq; Kuwait; Oman; Qatar; Saudi Arabia; United Arab Emirates; Yemen.

Population: There are no estimates of population size, but surveys for the dugong (*Dugong dugon*) in the Arabian Gulf suggested a 71% decline from 1986 to 1999 in three small dolphins, including this species (Preen, 2004).

Habitat and ecology: This species occurs in near-shore habitat, typically less than two km from shore and generally in water less than 30 m deep. In Oman, it can be found in channels, lagoons, shallow waters and even rocky shores. It is therefore exposed to high levels of human activity throughout its range (Reeves et al., 2008). The Indo-Pacific humpback dolphin is known to feed on small fishes from the Cyanadae family. Mostly found in groups of up to 35 individuals. In Oman, groups containing up to 100 individuals have been observed, though these may represent several groups swimming together. A detailed review of the Indo-Pacific humpback dolphin in the region is provided by Baldwin et al. (2004).

Pan-tropical spotted dolphin

Stenella attenuata

Range description: Arabian Gulf, Sea of Oman, Arabian Sea, Gulf of Aden, Red Sea.

Countries of occurrence: Jordan; Oman; Saudi Arabia; United Arab Emirates; Yemen.

Population: The Pan-tropical spotted dolphin is reportedly the most common dolphin in the Red Sea (Frazier, 1987). It is relatively abundant in the Gulf of Aden and seen in groups of 1–50, occasionally 300 (Baldwin et al., 1999).

Habitat and ecology: This species is commonly found in the offshore waters of the Gulf of Aden and the Red Sea where it hunts in the thermocline for small pelagic fish. Found in groups from 10 to 300 individuals. Mixes with the both the common bottlenose (*Tursiops aduncus*) and spinner dolphins (*Stenella longirostris*).

Striped dolphin

Stenella coeruleoalba

Range description: Red Sea, Sea of Oman, Arabian Sea and the Gulf of Aden.

Countries of occurrence: Oman; Yemen.

Population: Size and trend unknown.

Habitat and ecology: Found in offshore waters.

Spinner dolphin

Stenella longirostris

Taxonomic notes: May consist of more than one species.
Range description: Arabian Gulf, Arabian Sea, Sea of Oman, Red Sea and Gulf of Aden.
Countries of occurrence: Oman; Saudi Arabia; United Arab Emirates; Yemen.
Population: Relatively abundant in the Sea of Oman (Baldwin et al., 1999).
Habitat and ecology: Mostly found offshore, around continental shelves and sometimes near the shore. Feeds in thermocline waters on migratory fish during the night. Occurs in groups of 10–400 individuals.

Rough-toothed dolphin

Steno bredanensis

Range description: Red Sea, Gulf of Aden, Arabian Sea and Gulf of Oman.
Countries of occurrence: Oman; Yemen; Saudi Arabia
Population: Size and trend unknown.
Habitat and ecology: Mostly found in offshore waters.

Indo-Pacific bottlenose dolphin

Tursiops aduncus

Taxonomic notes: Formerly included *T. truncatus* but these are now regarded as a distinct species.
Range description: Arabian Sea, Sea of Oman, Red Sea, Arabian Gulf and Gulf of Aden.
Countries of occurrence: Bahrain; Iraq; Jordan; Kuwait; Oman; Qatar; Saudi Arabia; United Arab Emirates; Yemen.
Population: No estimates are available but surveys for the dugong (*D. dugon*) in the Arabian Gulf suggested a 71% decline in three small dolphins, including this species, in the from 1986 to 1999 (Preen, 2004).
Habitat and ecology: More coastal than the common bottlenose dolphin (*T. truncatus*). It occurs in channels, lagoons and shallow waters. Known to feed on both benthic and pelagic fish as well as cephalopods such as squid and cuttlefish. Solitary in the Arabian Gulf but has been observed in groups of 40 individuals elsewhere. Calves are observed around winter and spring.

Common bottlenose dolphin

Tursiops truncatus

Taxonomic notes: Formerly included in *T. aduncus* but now regarded as a distinct species.
Range description: Red Sea, Sea of Oman, Arabian Sea.
Countries of occurrence: Jordan, Kuwait, Oman, Saudi Arabia.
Population: Size and trend Unknown.
Habitat and ecology: The common bottlenose dolphin is predominantly an offshore species and occurs in groups of five to over 300 individuals in Omani waters.

Pygmy killer whale

Feresa attenuata

Range description: Sea of Oman and Gulf of Aden. There are few records from the region.
Countries of occurrence: Oman; Yemen.

Population: Size and trend unknown.
Habitat and ecology: Found in deep offshore waters.

Short-finned pilot whale

Globicephala macrorhynchus

Range description: Gulf of Aden, Red Sea and Sea of Oman.
Countries of occurrence: Oman; Saudi Arabia; Yemen.
Population: Size and trend unknown.
Habitat and ecology: Generally found in deep offshore waters.

Killer whale

Orcinus orca

Range description: Arabian Gulf, Sea of Oman, Gulf of Aden, Red Sea and Arabian Sea.
Countries of occurrence: Bahrain; Kuwait; Oman; Qatar; Saudi Arabia; United Arab Emirates; Yemen.
Population: Size and trend unknown.
Habitat and ecology: Found inshore and offshore in both very shallow and deep waters. It is a mobile species (determined by the lack of repeated sightings of the same individual in the same area). Has been observed pursuing dolphins. Observed solitarily and in groups of up to 10 individuals. In the Arabian Gulf, groups usually consist of females and calves. In the Sea of Oman and the Arabian Sea, however, groups containing a mix of both males and females have been observed.
Threats: In addition to the generic threats listed above, disturbance from uncontrolled whale watching in Oman may be having a negative impact. Adding controls on whale-watching boats and a maximum permitted proximity are needed.

Melon-headed whale

Peponocephala electra

Range description: Sea of Oman.
Countries of occurrence: Oman.
Population: There is only one record, from the Halaaniyaat Islands, off Oman (Baldwin et al., 1999).
Habitat and ecology: Deep offshore waters.

False killer whale

Pseudorca crassidens

Range description: Arabian Gulf, Gulf of Aden, Red Sea, Sea of Oman, Arabian Sea.
Countries of occurrence: Kuwait; Oman; United Arab Emirates; Yemen.
Population: Appears to be abundant, but data are very limited.
Habitat and ecology: Found in deep water on continental shelves. Observed to feed on smaller fish species such as tuna. Observed in groups of 1–300 individuals. A stranded specimen was found south of Kuwait City in 1964 and displayed in the Kuwait Natural History Museum (Cowan, 2013).

Pygmy sperm whale

Kogia sima

Range description: Sea of Oman and Arabian Sea.
Countries of occurrence: Oman; United Arab Emirates.
Population: Regionally this is a rare species known to frequent the exact same areas. There was a stranding in Oman in 1979 and a few subsequent sightings (Baldwin et al., 1999).
Habitat and ecology: A deep-water species. Found as solitary individuals or in groups of up to five. Mixes particularly with bottlenose dolphins (*Tursiops* spp.).

Sperm whale

Physeter macrocephalus

Range description: Sea of Oman, Arabian Sea, Gulf of Aden and Red Sea.
Countries of occurrence: Oman; Saudi Arabia; United Arab Emirates; Yemen.
Population: One of the most abundant large cetaceans in the region.
Habitat and ecology: Found in deep waters around and beyond continental slopes. Occurs as solitary males and in groups of up to 55 individuals.

Cuvier's beaked whale

Ziphius cavirostris

Range description: Sea of Oman, Arabian Sea.
Countries of occurrence: Oman.
Population: Size and trend unknown. There are few records in the region.
Habitat and ecology: Found in deep, off-shore waters in groups of 1–3.

7.2.2 Order Sirenia: Sirenians

Dugong

Dugong dugon

Regional assessment: The dugong is assessed globally as Vulnerable (VU A2bcd+4bcd) (Marsh & Sobtzick, 2015). The regional population has not been assessed separately.
Range description: Red Sea and Arabian Gulf. In the Gulf, the dugong is mainly found off Abu Dhabi and in the waters between Bahrain, Qatar and United Arab Emirates.
Countries of occurrence: Bahrain; Kuwait; Qatar, Saudi Arabia; United Arab Emirates; Yemen.
Population: Numbers are estimated at 7,300 (EAD, 2014), of which an estimated 2,000 are in the Red Sea and the remainder in the Gulf. Abundant in Marawah Marine Biosphere Reserve, Al Yasat Marine Protected Area, Hawar Islands (Bahrain), and some waters west of Yemen.
Habitat and ecology: Occurs in shallow waters and near-shore areas and uses natural channels between foraging areas where it consumes sea grass (*Halodule* spp. and *Halophila* spp.) (Marsh et al., 2011; EAD, 2014). Observed as solitary individuals and in groups of up to 200. The average daily movement in the Arabian Gulf is 32.7 km/day, as recorded on the United Arab Emirates satellite telemetry study; EAD 2014).
Major threats: Dugongs used to be harvested and sold as meat in fish markets up until 1970. Incidental mortality in illegal fishing nets and abandoned fishing gear is the biggest threat. Other

threats include vessel strikes, degradation of sea grass beds due to coastal development and water pollution.

Conservation actions: Dugongs are listed on the Appendices of the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Appendix I) and the Convention on Migratory Species of Wild Animals (CMS) (Appendix II) (Marsh & Sobtzick, 2015).

Table 4. Occurrence of marine mammals around the Arabian Peninsula

Species	Marine Area					Country								
	Red Sea	Gulf of Aden	Arabian Sea	Sea of Oman	Arabian Gulf	Jordan	Saudi Arabia	Yemen	Oman	UAE	Bahrain	Qatar	Kuwait	Iraq
Humpback whale *Megaptera novaeangliae*		•	•	•	•			•	•	•			•	•
Bryde's whale *Balaenoptera bydei*	•	•	•	•	•		•	•	•	•	•	•		
Blue whale *Balaenoptera musculus*		•	•	•	•		•	•	•	•	•	•	•	
Fin whale *Balaenoptera physalus*			•		•		•		•	•				
Indo-Pacific finless porpoise *Neophocaena phocaenoides*					•		•			•				
Common dolphin *Delphinus capensis*	•	•	•	•	•	•	•	•	•	•		•	•	•
Risso's dolphin *Grampus griseus*	•	•	•	•		•	•	•	•	•				
Indo-Pacific humpbacked dolphin *Sousa plumbea*	•	•	•	•	•		•	•	•	•	•	•	•	•
Pantropical spotted dolphin *Stenella attenuata*	•	•	•	•	•	•	•	•	•	•				
Striped dolphin *Stenella coeruleoalba*	•	•	•	•				•	•	•				
Spinner dolphin *Stenella longirostris*	•	•	•	•	•		•	•	•	•				
Rough-toothed dolphin *Steno bredanensis*	•	•	•	•	•		•	•	•	•				
Indo-Pacific bootlenose dolphin *Tursiops aduncus*	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Common bottlenose dolphin *Tursiops truncatus*	•		•	•			•	•		•			•	
Pygmy killer whale *Feresa attenuata*		•		•				•	•					
Short-finned pilot whale *Globicephala macrorhynchus*		•	•	•			•	•	•					
Killer whale *Orcinus orca*	•	•	•	•	•		•	•	•	•	•	•	•	
Melon-headed whale *Peponocephala electra*				•					•					
False killer whale *Pseudorca crassidens*	•	•	•	•	•			•	•	•			•	
Dwarf sperm whale *Kogia sima*			•	•					•	•				
Sperm whale *Physeter macrocephalus*	•	•	•	•			•	•	•	•				
Cuvier's beaked whale *Ziphia cavirostris*			•	•					•					
Dugong *Dugong dugon*	•				•		•	•		•	•	•	•	

Source: Complied by authors.

8. Distribution maps

Red hatching denotes the distribution. Range in neighbouring areas is also shown to provide regional context and the potential extent of immigration and 'rescue effect'. All maps Compiled by the report authors.

8.1 Terrestrial species

Brown rat *Rattus norvegicus*

Black rat *Rattus rattus*

Cheesman's gerbil *Gerbillus cheesmani*

Wagner's gerbil *Gerbillus dasyurus*

Egyptian gerbil *Gerbillus gerbillus*

Pygmy gerbil *Gerbillus henleyi*

Harrison's gerbil *Gerbillus mesopotamiae*

Baluchistan gerbil *Gerbillus nanus*

Anderson's gerbil *Gerbillus andersoni*

Black-tufted gerbil *Gerbillus famulus*

Flower's gerbil *Gerbillus floweri*

Large Aden gerbil *Gerbillus poecilops*

Macedonian mouse *Mus macedonicus*

House mouse *Mus musculus*

Yellow-necked mouse *Apodemus flavicollis*

Broad-toothed field mouse *Apodemus mystacinus*

Steppe field mouse *Apodemus witherbyi*

Tristram's jird *Meriones tristrami*

Sundevall's jird *Meriones crassus*

Libyan jird *Meriones libycus*

Persian jird *Meriones persicus*

Vinogradov's jird *Meriones vinogradovi*

Arabian jird *Meriones arimalius*

King jird *Meriones rex*

Buxton's jird *Meriones sacramenti*

Arabian spiny mouse *Acomys dimidiatus*

Golden spiny mouse *Acomys russatus*

Nile rat *Arvicanthis niloticus*

Yemen mouse *Myomyscus yemeni*

Lesser bandicoot rat *Bandicota bengalensis*

Short-tailed bandicoot rat *Nesokia indica*

Bunn's short-tailed bandicoot rat *Nesokia bunnii*

Fat jird *Psammomys obesus*

Indian gerbil *Tatera indica*

Bushy-tailed jird *Sekeetamys calurus*

Social vole *Microtus socialis*

Günther's vole *Microtus guentheri*

Grey hamster *Cricetulus migratorius*

European snow vole *Chionomys nivalis*

Transcauscasian mole vole *Ellobius lutescens*

Golden hamster *Mesocricetus auratus*

Northern water vole *Arvicola amphibius*

Caucasian squirrel *Sciurus anomalus*

Euphrates jerboa *Allactaga euphratica*

Lesser jerboa *Jaculus jaculus*

Greater Egyptian jerboa *Jaculus orientalis*

Forest dormouse *Dryomys nitedula*

Asian garden dormouse *Eliomys melaurus*

Palastine mole-rat *Nannospalax ehrenbergi*

Indian crested porcupine *Hystrix indica*

Tsolov's mouse-like hamster *Calomyscus tsolovi*

Lanza's pipistrelle *Pipistrellus lanzai*

Arabian barbastelle *Barbastella leucomelas*

Straw-coloured fruit bat *Eidolon helvum*

Greater horseshoe bat *Rhinolophus ferrumequinum*

Cretzschmar's horseshoe bat *Rhinolophus clivosus*

Big-eared leaf-nosed bat *Hipposideros megalotis*

Somali trident leaf-nosed bat *Asellia italosomalica*

Patrizi's trident leaf-nosed bat *Asellia patrizii*

Hadhramaut mouse-tailed bat *Rhinopoma hadramauticum*

Lesser white-toothed shrew *Crocidura suaveolens*

Katinka's shrew *Crocidura katinka*

Dhofar shrew *Crocidura dhofarensis*

Arabian white-toothed shrew *Crocidura arabica*

Negev shrew *Crocidura ramona*

House shrew *Suncus murinus*

Etruscan shrew *Suncus etruscus*

Eastern European hedgehog *Erinaceus concolor*

Ethiopian hedgehog *Paraechinus aethiopicus*

Brandt's hedgehog *Paraechinus hypomelas*

Long-eared hedgehog *Hemiechinus auritus*

Hamadryas baboon *Papio hamadryas*

Dorcas gazelle *Gazella dorcas*

Goited gazelle *Gazella subgutturosa*

Arabian gazelle *Gazella arabica*

Wild goat *Capra aegagrus*

Nubian ibex *Capra nubiana*

Lesser kudu *Tragelaphus imberbis*

Urial *Ovis orientalis*

Arabian oryx *Oryx leucoryx*

Arabian tahr *Arabitragus jayakari*

European roe deer *Capreolus capreolus*

Persian fallow deer *Dama mesopotamica*

Wild boar *Sus scrofa*

Least weasel *Mustela nivalis*

Stone marten *martes foina*

Eurasian otter *Lutra lutra*

Eurasina badger *Meles meles*

Marbled polecat *Vormela peregusna*

Honey badge *Mellivora capensis*

Smooth-coated otter *Lutrogale perspicillata*

Jungle cat *Felis chaus*

Wild cat *Felis lybica*

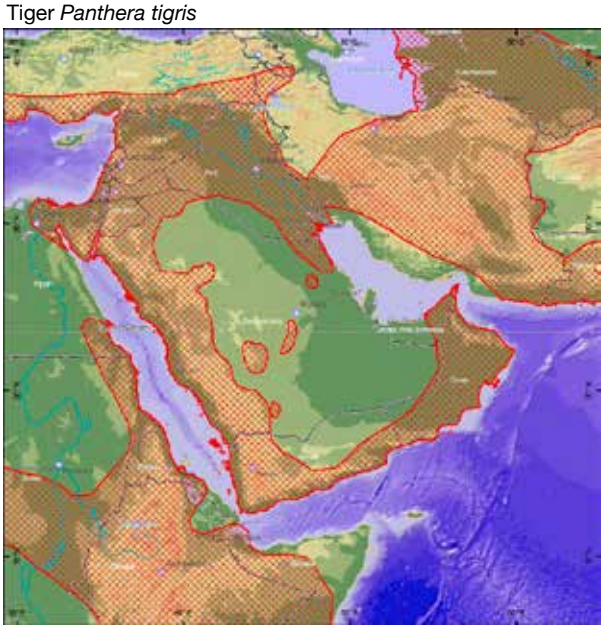
Sand cat *Felis margarita*

Lion *Panthera leo*

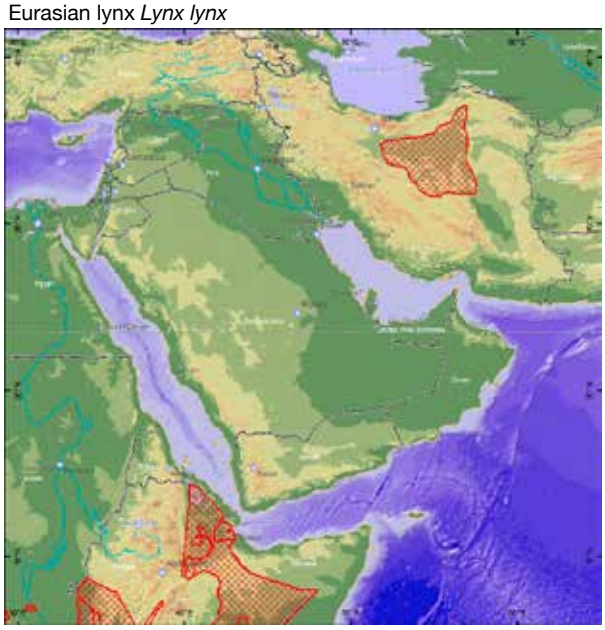
Common leopard *Panthera pardus*

Tiger *Panthera tigris*

Eurasian lynx *Lynx lynx*



Caracal *Caracal caracal*



Cheetah *Acinonyx jubatus*

Red fox *Vulpes vulpes*

Blanford's fox *Vulpes cana*

Rüppell's fox *Vulpes rueppellii*

Fennec fox *Vulpes zerda*

Grey wolf *Canis lupus*

Golden jackal *Canis aureus*

Egyptian mongoose *Herpestes ichneumon*

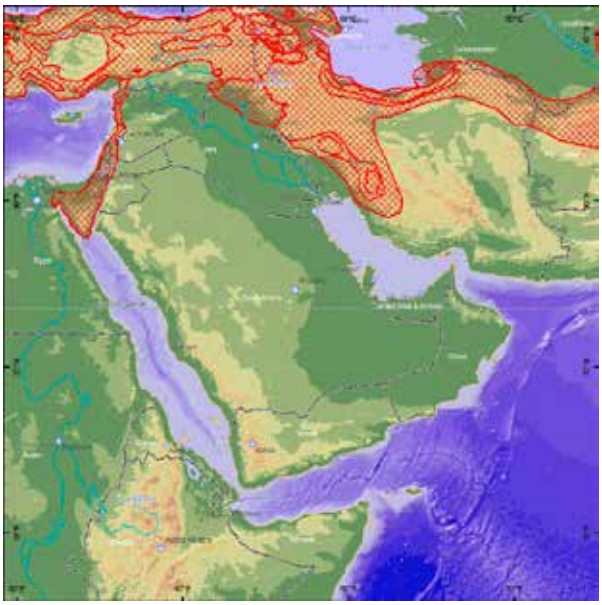
Indian grey mongoose *Herpestes edwardsii*

Bushy-tailed mongoose *Bdeogale crassicauda*

White-tailed mongoose *Ichneumia albicauda*

Common genet *Genetta genetta*

Small Indian civet *Viverricula indica*



Brown bear *Ursus arctos*

Striped hyaena *Hyaena hyaena*

Cape hare *Lepus capensis*

Wild ass *Equus hemionus*

Rock hyrax *Procavia capensis*

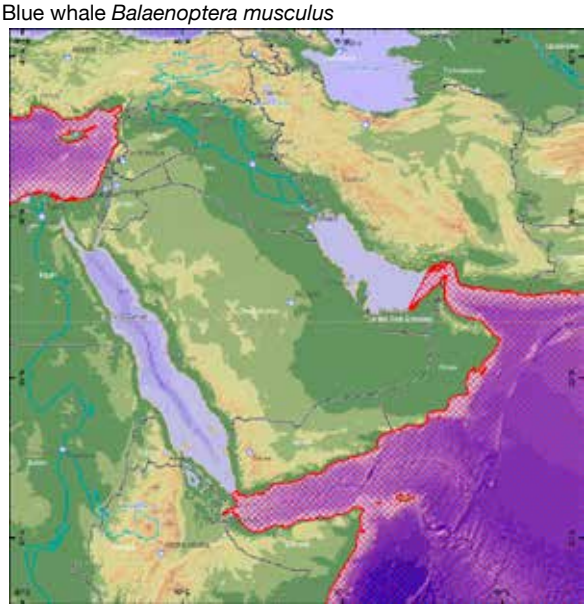
8.2 Marine species

Humpbacked whale *Megaptera novaeangliae*

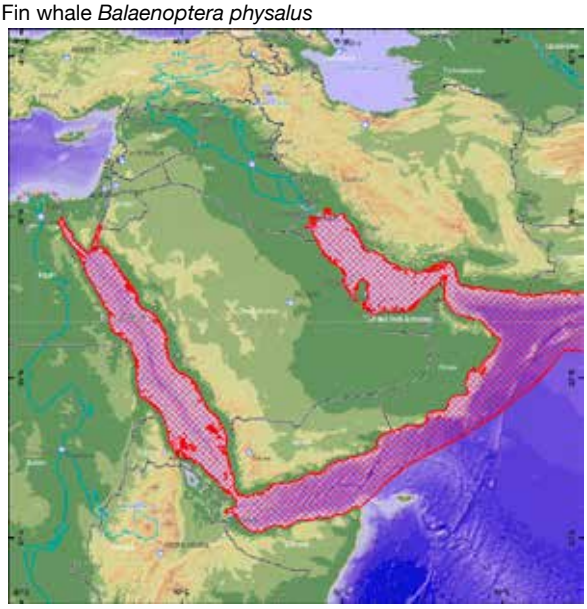
Bryde's whale *Balaenoptera edeni*

Blue whale *Balaenoptera musculus*

Fin whale *Balaenoptera physalus*



Minke whale *Balaenoptera acutorostrata*



Common dolphin *Delphinus capensis*

Risso's dolphin *Grampus griseus*

Pantropical spotted dolphin *Stenella attenuata*

Striped dolphin *Stenella coeruleoalba*

Spinner dolphin *Stenella longirostris*

Rough-toothed dolphin *Steno bredanensis*

Indo-pacific bottlenose dolphin *Tursiops aduncus*

Common bottlenose dolphin *Tursiops truncatus*

Pygmy killer whale *Feresa attenuata*

Short-finned pilot whale *Globicephala macroorhynchus*

Killer whale *Orcinus orca*

Melon-headed whale *Peponocephala electra*

False killer whale *Pseudorca crassidens*

Fraser's dolphin *Lagenodelphis hosei*

Finless porpoise *Neophocaena phocaenoides*

Dwarf sperm whale *Kogia sima*

Sperm whale *Physeter macrocephalus*

Pygmy sperm whale *Kogia breviceps*

Cuvier's beaked whale *Ziphius cavirostris*

Blainville's beaked whale *Mesoplodon densirostris*

Dugong *Dugong dugon*

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Appendix 2. Red List status of mammals in the Arabian Peninsula

				IUCN Red List Category & Criteria		
Order	**Family**	**Species**	**Common name**	**Global[1]**	**Regional**	**Endemic**
Rodentia	Muridae	*Gerbillus cheesmani*	Cheesman's gerbil	LC	LC	Y
Rodentia	Muridae	*Gerbillus dasyurus*	Wagner's gerbil	LC	LC	NE
Rodentia	Muridae	*Gerbillus gerbillus*	Egyptian gerbil	LC	LC	
Rodentia	Muridae	*Gerbillus henleyi*	Pygmy gerbil	LC	LC	
Rodentia	Muridae	*Gerbillus mesopotamiae*	Harrison's gerbil	LC	LC	
Rodentia	Muridae	*Gerbillus nanus*	Baluchistan gerbil	LC	LC	
Rodentia	Muridae	*Gerbillus andersoni*	Anderson's gerbil	LC	LC	
Rodentia	Muridae	*Gerbillus famulus*	Black-tufted gerbil	LC	LC	Y
Rodentia	Muridae	*Gerbillus poecilops*	Large Aden gerbil	LC	LC	Y
Rodentia	Muridae	*Mus macedonicus*	Macedonian mouse	LC	LC	
Rodentia	Muridae	*Apodemus flavicollis*	Yellow-necked mouse	LC	LC	
Rodentia	Muridae	*Apodemus mystacinus*	Broad-toothed field mouse	LC	LC	
Rodentia	Muridae	*Meriones tristrami*	Tristram's jird	LC	LC	
Rodentia	Muridae	*Meriones crassus*	Sundevall's jird	LC	LC	
Rodentia	Muridae	*Meriones libycus*	Libyan jird	LC	LC	
Rodentia	Muridae	*Meriones vinogradovi*	Vinogradov's jird	LC	DD	
Rodentia	Muridae	*Meriones arimalius*	Arabian jird	LC	LC	Y
Rodentia	Muridae	*Meriones rex*	King jird	LC	LC	Y
Rodentia	Muridae	*Meriones sacramenti*	Buxton's jird	VU B1ab(iii)	VU B1ab(iii)	Y
Rodentia	Muridae	*Acomys dimidiatus*	Arabian spiny mouse	LC	LC	
Rodentia	Muridae	*Acomys russatus*	Golden spiny mouse	LC	LC	NE
Rodentia	Muridae	*Arvicanthis niloticus*	Nile rat	LC	LC	
Rodentia	Muridae	*Myomyscus yemeni*	Rock rat	LC	LC	Y
Rodentia	Muridae	*Nesokia indica*	Short-tailed bandicoot rat	LC	LC	
Rodentia	Muridae	*Nesokia bunnii*	Bunn's short-tailed bandicoot rat	EN A2c	DD	Y
Rodentia	Muridae	*Psammomys obesus*	Fat jird	LC	LC	
Rodentia	Muridae	*Tatera indica*	Indian gerbil	LC	LC	
Rodentia	Muridae	*Sekeetamys calurus*	Bushy-tailed jird	LC	LC	NE
Rodentia	Cricetidae	*Microtus socialis*	Social vole	LC	LC	
Rodentia	Cricetidae	*Microtus guentheri*	Günther's vole	LC	LC	
Rodentia	Cricetidae	*Cricetulus migratorius*	Grey hamster	LC	LC	
Rodentia	Cricetidae	*Chionomys nivalis*	Snow vole	LC	LC	
Rodentia	Cricetidae	*Mesocricetus auratus*	Golden hamster	VU B1ab(iii)	VU B1ab(iii)	NE
Rodentia	Sciuridae	*Sciurus anomalus*	Persian squirrel	LC	NT [VU A2cd +R]	

Order	Family	Species	Common name	IUCN Red List Category & Criteria		Endemic
				Global[1]	Regional	
Rodentia	Dipodidae	*Allactaga euphratica*	Euphrates jerboa	NT	NT [VU A2 +R]	
Rodentia	Dipodidae	*Jaculus jaculus*	Lesser jerboa	LC	LC	
Rodentia	Dipodidae	*Jaculus orientalis*	Greater Egyptian jerboa	LC	LC	
Rodentia	Gliridae	*Dryomys nitedula*	Forest dormouse	LC	LC	
Rodentia	Gliridae	*Eliomys melanurus*	Asian garden dormouse	LC	LC	
Rodentia	Spalacidae	*Nannospalax ehrenbergi*	Palestine mole-rat	DD	DD	
Rodentia	Hystricidae	*Hystrix indica*	Indian crested porcupine	LC	LC	
Rodentia	Calomyscidae	*Calomyscus tsolovi*	Tsolov's mouse-like hamster	DD	DD	Y
Chiroptera	Vespertilionidae	*Myotis blythii*	Lesser mouse-eared bat	LC	DD	
Chiroptera	Vespertilionidae	*Myotis capaccinii*	Long-fingered bat	VU A4bce	DD	
Chiroptera	Vespertilionidae	*Myotis emarginatus*	Geoffroy's bat	LC	DD	
Chiroptera	Vespertilionidae	*Myotis myotis*	Greater mouse-eared bat	LC	DD	
Chiroptera	Vespertilionidae	*Myotis nattereri*	Natterer's bat	LC	DD	
Chiroptera	Vespertilionidae	*Pipistrellus kuhlii*	Kuhl's pipistrelle	LC	LC	
Chiroptera	Vespertilionidae	*Pipistrellus rueppellii*	Ruppell's pipistrelle	LC	DD	
Chiroptera	Vespertilionidae	*Pipistrellus ariel*	Desert pipistrelle	DD	LC	
Chiroptera	Vespertilionidae	*Eptesicus bottae*	Botta's serotine bat	LC	LC	
Chiroptera	Vespertilionidae	*Plecotus austriacus*	Grey long-eared bat	LC	DD	
Chiroptera	Vespertilionidae	*Scotophilus dinganii*	Lesser yellow house bat	LC	LC	
Chiroptera	Vespertilionidae	*Hypsugo arabicus*	Arabian pipistrelle	DD	DD	
Chiroptera	Vespertilionidae	*Neoromicia guineensis*	Guinean pipistrelle	LC	DD	
Chiroptera	Vespertilionidae	*Pipistrellus lanzai*	Lanza's pipistrelle	NE	DD	Y
Chiroptera	Vespertilionidae	*Barbastella leucomelas*	Arabian barbastelle	LC	DD	
Chiroptera	Vespertilionidae	*Nyctalus noctula*	Common noctule bat	LC	DD	
Chiroptera	Vespertilionidae	*Nycticeinops schlieffeni*	Schlieffen's bat	LC	DD	
Chiroptera	Vespertilionidae	*Otonycteris hemprichii*	Desert long-eared bat	LC	LC	
Chiroptera	Vespertilionidae	*Rhyneptesicus nasutus*	Sind serotine bat	LC	LC	
Chiroptera	Pteropodidae	*Rousettus aegyptiacus*	Egyptian fruit bat	LC	LC	
Chiroptera	Pteropodidae	*Epomophorus labiatus*	Ethiopian epauletted fruit bat	LC	DD	
Chiroptera	Pteropodidae	*Eidolon helvum*	Straw-coloured fruit bat	NT	LC	
Chiroptera	Molossidae	*Chaerephon nigeriae*	Nigerian free-tailed bat	LC	DD	
Chiroptera	Molossidae	*Chaerephon pumilus*	Lesser free-tailed bat	LC	LC	
Chiroptera	Molossidae	*Mops midas*	Sundevall's free-tailed bat	LC	DD	
Chiroptera	Molossidae	*Tadarida teniotis*	European free-tailed bat	LC	LC	
Chiroptera	Molossidae	*Tadarida aegyptiaca*	Egyptian free-tailed bat	LC	DD	
Chiroptera	Molossidae	*Otomops harrisoni*	Afro-Arabian free-tailed bat	VU A2c	VU D2	
Chiroptera	Rhinolophidae	*Rhinolophus blasii*	Blasius' horseshoe bat	LC	LC	
Chiroptera	Rhinolophidae	*Rhinolophus euryale*	Mediterranean horseshoe bat	NT	VU A2c	

				IUCN Red List Category & Criteria		
Order	**Family**	**Species**	**Common name**	**Global[1]**	**Regional**	**Endemic**
Chiroptera	Rhinolophidae	*Rhinolophus ferrumequinum*	Greater horseshoe bat	LC	NT [VU A2c +R]	
Chiroptera	Rhinolophidae	*Rhinolophus hipposideros*	Lesser horseshoe bat	LC	NT [VU A2c+R]	
Chiroptera	Rhinolophidae	*Rhinolophus mehelyi*	Mehely's horseshoe bat	VU A4c	DD	
Chiroptera	Rhinolophidae	*Rhinolophus clivosus*	[Geoffroy's] Cretzschmar's horseshoe bat	LC	LC	
Chiroptera	Hipposideridae	*Hipposideros caffer*	[Sundevall's roundleaf bat] lesser leaf-nosed bat	LC	LC	
Chiroptera	Hipposideridae	*Asellia italosomalica*	Somali trident leaf-nosed bat	DD	DD	
Chiroptera	Hipposideridae	*Asellia patrizii*	Patrizi's trident leaf-nosed bat	LC	DD	
Chiroptera	Hipposideridae	*Asellia tridens*	Trident leaf-nosed bat	LC	LC	
Chiroptera	Hipposideridae	*Asellia arabica*	Arabian trident leaf-nosed bat	DD	DD	Y
Chiroptera	Hipposideridae	*Triaenops persicus*	Persian leaf-nosed bat	LC	LC	
Chiroptera	Emballonuridae	*Taphozous nudiventris*	Naked-bellied tomb bat	LC	LC	
Chiroptera	Emballonuridae	*Taphozous perforatus*	Egyptian tomb bat	LC	LC	
Chiroptera	Emballonuridae	*Coleura afra*	African sheath-tailed bat	LC	LC	
Chiroptera	Miniopteridae	*Miniopterus schreibersi*	Schreiber's bent-winged bat	NT	LC	
Chiroptera	Nycteridae	*Nycteris thebaica*	[Cape long-eared bat] Egyptian slit-faced bat	LC	LC	
Chiroptera	Rhinopomatidae	*Rhinopoma microphyllum*	Greater mouse-tailed bat	LC	DD	
Chiroptera	Rhinopomatidae	*Rhinopoma muscatellum*	Muscat mouse-tailed bat	LC	LC	
Chiroptera	Rhinopomatidae	*Rhinopoma cystops*	Egyptian mouse-tailed bat	LC	LC	
Chiroptera	Rhinopomatidae	*Rhinopoma hadramauticum*	[Yemeni] Hadhramaut mouse-tailed bat	EN D	EN D	Y
Eulipotyphla	Soricidae	*Crocidura suaveolens*	Lesser white-toothed shrew	LC	LC	
Eulipotyphla	Soricidae	*Crocidura katinka*	Katinka's shrew	LC	DD	Y
Eulipotyphla	Soricidae	*Crocidura dhofarensis*	Dhofar shrew	DD	DD	Y
Eulipotyphla	Soricidae	*Crocidura arabica*	Arabian white-toothed shrew	DD	LC	Y
Eulipotyphla	Soricidae	*Crocidura ramona*	Negev shrew	LC	LC	Y
Eulipotyphla	Soricidae	*Suncus etruscus*	[Pygmy white-toothed shrew] Etruscan shrew	LC	LC	
Eulipotyphla	Erinaceidae	*Erinaceus concolor*	Eastern European hedgehog	LC	LC	
Eulipotyphla	Erinaceidae	*Paraechinus aethiopicus*	Ethiopian hedgehog	LC	LC	
Eulipotyphla	Erinaceidae	*Paraechinus hypomelas*	Brandt's hedgehog	LC	LC	
Eulipotyphla	Erinaceidae	*Hemiechinus auritus*	Long-eared hedgehog	LC	LC	
Primates	Cercopithecidae	*Papio hamadryas*	Hamadryas baboon	LC	LC	
Cetartiodactyla	Bovidae	*Gazella dorcas*	Dorcas gazelle	VU A2cd	VU D1	

Order	Family	Species	Common name	IUCN Red List Category & Criteria		Endemic
				Global[1]	Regional	
Cetartiodactyla	Bovidae	*Gazella subgutturosa*	Goitered gazelle	VU A2acd	NT [VU D1 +R]	
Cetartiodactyla	Bovidae	*Gazella marica*	Arabian sand gazelle	VU C2a(i)	VU C2a(i)	NE
Cetartiodactyla	Bovidae	*Gazella saudiya*	Saudi gazelle	EX	EX	Y
Cetartiodactyla	Bovidae	*Gazella bilkis*	Yemen gazelle	EX	EX	Y
Cetartiodactyla	Bovidae	*Gazella gazella*	Mountain gazelle	EN A2acd	EN A2acd	NE
Cetartiodactyla	Bovidae	*Gazella arabica*	Arabian gazelle	VU C2a(i)	VU C2a(i)	Y
Cetartiodactyla	Bovidae	*Capra aegagrus*	Wild goat	VU A2cd	NT [VU C2 +R]	
Cetartiodactyla	Bovidae	*Capra nubiana*	Nubian ibex	VU C1+2a(i)	VU C1	
Cetartiodactyla	Bovidae	*Oryx leucoryx*	Arabian oryx	VU D1	VU D1	Y
Cetartiodactyla	Bovidae	*Arabitragus jayakari*	Arabian tahr	EN C2a(i)	EN C2a(i)	Y
Cetartiodactyla	Cervidae	*Dama mesopotamica*	Persian fallow deer	EN D	EN D	
Cetartiodactyla	Delphinidae	*Stenella coeruleoalba*	Striped dolphin	LC	NE	
Cetartiodactyla	Delphinidae	*Stenella attenuata*	Pantropical spotted dolphin	LC	NE	
Cetartiodactyla	Delphinidae	*Stenella longirostris*	Spinner dolphin	LC*	NE	
Cetartiodactyla	Delphinidae	*Tursiops truncatus*	Common bottlenose dolphin	LC	NE	
Cetartiodactyla	Delphinidae	*Tursiops aduncus*	Indo-pacific bottlenose dolphin	DD	NE	
Cetartiodactyla	Delphinidae	*Globicephala macrorhynchus*	Short-finned pilot whale	DD	NE	
Cetartiodactyla	Delphinidae	*Sousa plumbea*	Indian Ocean humpbacked dolphin	EN A2cd+3cd+4cd	NE	
Cetartiodactyla	Delphinidae	*Delphinus capensis*	Common dolphin	DD	NE	
Cetartiodactyla	Delphinidae	*Grampus griseus*	Risso's dolphin	LC*	NE	
Cetartiodactyla	Delphinidae	*Peponocephala electra*	Melon-headed whale	LC	NE	
Cetartiodactyla	Delphinidae	*Pseudorca crassidens*	False killer whale	DD	NE	
Cetartiodactyla	Delphinidae	*Steno bredanensis*	Rough-toothed dolphin	LC	NE	
Cetartiodactyla	Delphinidae	*Orcinus orca*	Killer whale	DD	NE	
Cetartiodactyla	Delphinidae	*Feresa attenuata*	Pygmy killer whale	LC*	NE	
Cetartiodactyla	Ziphiidae	*Ziphius cavirostris*	Cuvier's beaked whale	LC	NE	
Cetartiodactyla	Suidae	*Sus scrofa*	Wild boar	LC	LC	
Cetartiodactyla	Balaenopteridae	*Balaenoptera physalus*	Fin whale	EN A1ad	NE	
Cetartiodactyla	Balaenopteridae	*Balaenoptera musculus*	Blue whale	EN A1ad*	NE	
Cetartiodactyla	Balaenopteridae	*Balaenoptera edeni*	Bryde's whale	LC	NE	
Cetartiodactyla	Balaenopteridae	*Megaptera novaeangliae*	Humpback whale (Arabian sea subpopulation)	EN D	EN D	
Cetartiodactyla	Phocoenidae	*Neophocaena phocaenoides*	Finless porpoise	VU A2cde+ 3cde+4cde	NE	
Cetartiodactyla	Physeteridae	*Kogia sima*	Dwarf sperm whale	DD	NE	
Cetartiodactyla	Physeteridae	*Physeter macrocephalus*	Sperm whale	VU A1d	NE	
Carnivora	Mustelidae	*Martes foina*	Stone marten	LC	LC	

Order	Family	Species	Common name	IUCN Red List Category & Criteria		Endemic
				Global[1]	Regional	
Carnivora	Mustelidae	*Meles meles*	Eurasian badger	LC	DD	
Carnivora	Mustelidae	*Lutra lutra*	Eurasian otter	NT	VU C1	
Carnivora	Mustelidae	*Vormela peregusna*	Marbled polecat	VU A2cde	DD	
Carnivora	Mustelidae	*Mellivora capensis*	Honey badger	LC	NT [near VU C1]	
Carnivora	Mustelidae	*Lutrogale perspicillata*	Smooth-coated otter	VU A2cde	EN A2cd	
Carnivora	Felidae	*Felis chaus*	Jungle cat	LC	DD	
Carnivora	Felidae	*Felis lybica*	Wild cat	NE	NT [near VU A2]	
Carnivora	Felidae	*Felis margarita*	Sand cat	LC	VU C1	
Carnivora	Felidae	*Panthera leo*	Lion	VU A2abcd	R EX	
Carnivora	Felidae	*Panthera pardus*	Leopard	VU A2cd	CR C2a(i)	
Carnivora	Felidae	*Caracal caracal*	Caracal	LC	LC	
Carnivora	Felidae	*Acinonyx jubatus*	Cheetah	VU A2acd; C1	R EX	
Carnivora	Canidae	*Vulpes vulpes*	Red fox	LC	LC	
Carnivora	Canidae	*Vulpes cana*	Blanford's fox	LC	VU C1	
Carnivora	Canidae	*Vulpes ruepellii*	Rüppell's fox	LC	LC	
Carnivora	Canidae	*Canis lupus*	Grey wolf	LC	VU C1	
Carnivora	Canidae	*Canis aureus*	Golden jackal	LC	LC	
Carnivora	Herpestidae	*Herpestes ichneumon*	Egyptian mongoose	LC	LC	
Carnivora	Herpestidae	*Herpestes edwardsii*	Indian grey mongoose	LC	LC	
Carnivora	Herpestidae	*Herpestes auropunctatus*	Small Indian mongoose	LC	LC	
Carnivora	Herpestidae	*Ichneumia albicauda*	White-tailed mongoose	LC	LC	
Carnivora	Viverridae	*Genetta genetta*	Common genet	LC	LC	
Carnivora	Hyaenidae	*Hyaena hyaena*	Striped hyena	NT	VU C1	
Lagomorpha	Leporidae	*Lepus capensis*	Cape hare	LC	NT [near VU A2]	
Perissodactyla	Equidae	*Equus hemionus*	Wild ass	NT	R EX	
Hyracoidea	Procaviidae	*Procavia capensis*	Rock hyrax	LC	LC	
Sirenia	Dugongidae	*Dugong dugon*	Dugong	VU A2bcd+4bcd	NE	

[1] The information for global IUCN Red List Category is primarily from the 2018-1 update of the IUCN Red List (www.iucnredlist.org; these assessments vary in date from 2008 to 2017, but for five of the cetaceans, new assessments that have been accepted for publication in the 2018-2 update have been included (indicated by *).

[2] A near-endemic species is defined as one with ≥70% of the global range within the assessment region.

Appendix 3. Species assessed as Not Applicable (NA)

Order	Family	Species	Common Name	IUCN Red List Category & Criteria		Justification
				Global	Regional	
Rodentia	Muridae	*Rattus norvegicus*	Brown rat	LC	NA	Introduced
Rodentia	Muridae	*Rattus rattus*	Black rat	LC	NA	Introduced
Rodentia	Muridae	*Gerbillus floweri*	Flower's gerbil	LC	NA	Marginal
Rodentia	Muridae	*Mus musculus*	House mouse	LC	NA	Introduced
Rodentia	Muridae	*Apodemus witherbyi*	Steppe field mouse	LC	NA	Marginal
Rodentia	Muridae	*Meriones persicus*	Persian jird	LC	NA	Marginal
Rodentia	Muridae	*Acomys cahirinus*	Cairo spiny mouse	LC	NA	Marginal
Rodentia	Muridae	*Bandicota bengalensis*	Lesser bandicoot rat	LC	NA	Introduced
Rodentia	Cricetidae	*Ellobius lutescens*	Transcauscasian mole vole	LC	NA	Unconfirmed
Rodentia	Cricetidae	*Arvicola amphibius*	Northern water vole	LC	NA	Marginal
Rodentia	Cricetidae	*Lophiomys imhausii*	Crested rat	LC	NA	Unconfirmed
Rodentia	Sciuridae	*Funambulus pennantii*	Five-striped ground squirrel	LC	NA	Introduced
Rodentia	Myocastoridae	*Myocastor coypus*	Coypu	LC	NA	Introduced
Chiroptera	Vespertilionidae	*Myotis bocagii*	Bocage's mouse-eared bat	LC	NA	Marginal
Chiroptera	Vespertilionidae	*Pipistrellus pipistrellus*	Common pipistrelle	LC	NA	Marginal
Chiroptera	Vespertilionidae	*Pipistrellus savii*	Savi's pipistrelle	LC	NA	Marginal
Chiroptera	Vespertilionidae	*Eptesicus serotinus*	Serotine bat	LC	NA	Marginal
Chiroptera	Vespertilionidae	*Vespertilio murinus*	Particoloured bat	LC	NA	Vagrant
Chiroptera	Hipposideridae	*Hipposideros megalotis*	Ethiopian large-eared roundleaf bat	LC	NA	Vagrant
Eulipotyphla	Soricidae	*Suncus murinus*	House shrew	LC	NA	Introduced
Cetartiodactyla	Bovidae	*Gazella erlangeri*	Neumann's gazelle	NE	NA	Invalid
Cetartiodactyla	Bovidae	*Tragelaphus imberbis*	Lesser kudu	NT	NA	Unconfirmed
Cetartiodactyla	Bovidae	*Ovis orientalis*	Urial	VU A2cde+ 3cde+4cde	NA	Marginal
Cetartiodactyla	Cervidae	*Capreolus capreolus*	European roe deer	LC	NA	Marginal
Cetartiodactyla	Delphinidae	*Lagenodelphis hosei*	Fraser's dolphin	LC	NA	Unconfirmed
Cetartiodactyla	Ziphiidae	*Mesoplodon densirostris*	Blainville's beaked whale	DD	NA	Unconfirmed
Cetartiodactyla	Balaenopteridae	*Balaenoptera acutorostrata*	Minke whale	LC	NA	Unconfirmed
Cetartiodactyla	Balaenopteridae	*Balaenoptera borealis*	Sei whale	EN A1abd	NA	Unconfirmed
Cetartiodactyla	Physeteridae	*Kogia breviceps*	Pygmy sperm whale	DD	NA	Unconfirmed
Carnivora	Mustelidae	*Mustela nivalis*	Least weasel	LC	NA	Marginal
Carnivora	Felidae	*Panthera tigris*	Tiger	EN A2abcd; C1	NA	Unconfirmed
Carnivora	Felidae	*Lynx lynx*	Eurasian lynx	LC	NA	Marginal
Carnivora	Canidae	*Vulpes zerda*	Fennec fox	LC	NA	Unconfirmed
Carnivora	Herpestidae	*Bdeogale crassicauda*	Bushy-tailed mongoose	LC	NA	Unconfirmed

Order	Family	Species	Common Name	IUCN Red List Category & Criteria		
				Global	Regional	Justification
Carnivora	Viverridae	*Viverricula indica*	Small indian civet	LC	NA	Introduced
Carnivora	Ursidae	*Ursus arctos*	Brown bear	LC	NA	Marginal

* Species were considered to be of marginal occurrence if it was estimated that less than 1% of their global of their range occurs in the Arabian Penisula.

THE IUCN RED LIST
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