



THE CONSERVATION STATUS AND DISTRIBUTION OF REPTILES OF THE ARABIAN PENINSULA

Compiled by Neil A. Cox, David Mallon, Philip Bowles, Johannes Els and Marcelo F. Tognelli



ARABIAN
PENINSULA



The IUCN Red List of Threatened Species™ - Regional Assessment



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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.

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يشرفنا ان نتقدم بجزيل الشكر وخالص العرفان لصاحب السمو الشيخ الدكتور سلطان بن محمد القاسمي ، عضو المجلس الأعلى حاكم الشارقة، على الدعم والاهتمام المتواصل الذي يبديه للحفاظ على التنوع الحيوي في المنطقة والذي لولا هذا الاهتمام الكبير من قبل سموه الكريم لما لاقى هذه الجهود النجاح في الحفاظ على التنوع الحيوي.

كما اننا نتقدم بالشكر الى الهيئة التي تستضيف هذا الحدث الهام وهي هيئة البيئة والمحميات الطبيعية في اماره الشارقة ومركز اثار الحيوانات المهددة بالانقراض في شبه الجزيرة العربية لتوفيرهم الدعم اللوجستي والإداري والتنسيق الناجح التي ابدوه بين جميع المشاركين لتنفيذ هذه الورشة الدولية، ونخص بالشكر كل من السيدة هنا سيف السويدي، رئيس هيئة البيئة والمحميات الطبيعية في الشارقة والسيد بول فيركمين مدير العمليات في مركز الاكثار والسيدة فينيسا جاكسون من مركز الاكثار. ان المساعدين والذين يقدمون التسهيلات في هذه الورشة هم السيد فيليب بوليز والسيد نيل كوكس. ساعد كيفن بود في تجميع هذا التقرير و كتابة تعليقات الصور.

ان جميع العلماء والخبراء في المنظمة العالمية لحفظ الطبيعة على استعداد دائم بالمساهمة بخبراتهم وجلبها الى هنا من اجل المساهمة في جعل التقديرات الخاصة بالانواع المهددة بالانقراض اكثر موثوقية والتي بدونها سيتعذر علينا جمع البيانات والتأكد منها.

وكذلك نشكر جميع الاشخاص التالية اسمائهم والذين قدموا خبراتهم ووقتهم لانجاح هذه الورشة التي تقام في اماره الشارقة، ونعتذر لاي شخص سقط اسمه سهوا او عن اي خطأ املائي في الاسماء: عوض الجهيني، ميساء الجميلي، خالد الراسي، أحمد الشمري، عبدالهادي العوفي، زهير عامر، ستيفن اندرسون، عمر باعشن، صالح بهبهاني، أحمد بوج ، سالم بوسيس، ديمن ايغا، ايهاب عيد، نشأت حميدان، رضا خان، سعيد محمد، محمد شيرك، روبرتو سندياكو، برتايل سورا، ثوماس وليمز.

ان اوضاع الانواع والتقييمات العالمية متوفرة وان مساهمة الخبراء في تحديث هذه التقييم متاحة في القائمة الحمراء للانواع المهددة بالانقراض للمنظمة العالمية لحفظ الطبيعة IUCN من خلال الموقع الالكتروني (<http://www.iucnredlist.org>).

اما مصادر التمويل لورشة العمل الدولية في الشارقة قدمت من قبل وكالة البيئة في ابو ظبي وهيئة البيئة والمحميات الطبيعية في الشارقة وان تكاليف نشر التقرير الخاص بالورشة ممول من قبل هيئة البيئة والمحميات الطبيعية في الشارقة.

كما ننوه بان تمويل جمع البيانات وتحريرها مقدم من قبل مركز بيتي وغوردون مور ، للعلوم للنظم الايكولوجية والاقتصاد، ومن المنحة سخية التي قدمتها هيئة البيئة في ابو ظبي للمنظمة العالمية لحفظ الطبيعة IUCN.

Executive Summary

The Arabian Peninsula contains a diversity of desert and mountain habitats. Reptile species richness is high, with 172 species currently recognized. Among these, 89 species (52%) are endemic to the Arabian Peninsula. The conservation status of these species was assessed at a workshop held in Sharjah, UAE, 6-9 February 2012 through the application of the IUCN Red List Categories and Criteria at the global and regional scales. Distribution maps were compiled for the majority of species. The full dataset, including maps, is available in the CD accompanying this report and through the IUCN Red List of Threatened Species™ website.

Overall, reptile species richness is highest around the edge of the Peninsula, especially the south-western mountains and Dhofar, with the least diverse area being the Rub' al Khali (or Empty Quarter) and the areas of high endemism largely follow the same pattern. The island of Socotra has an especially high number of endemic species (26). Encouragingly, only six of the Arabian Peninsula's 172 reptiles are considered to be globally threatened, and only 10 are of regional concern. Habitat loss remains the overriding threat to reptiles within the region, particularly the conversion of land to agricultural use. Notably, 144 of the 172 species are represented in protected areas. The dataset provides a valuable baseline to inform the conservation and development planning process.

شبه الجزيرة العربية تحتوي على تنوع حيوي صحراوي وجبلي. وتعتبر الزواحف هي اعلى صنف في هذا التنوع حيث سجل ١٧٢ نوع منها . وقد سجل تواجد ٨٩ نوع مستوطن حاليا في شبه الجزيرة العربية اي حوالي ما مسبته (٥٢٪). وجرى تقييم حالة حفظ هذه الأنواع في ورشة عمل دولية عقدت في الشارقة، الإمارات العربية المتحدة خلال الفترة ٦-٩ فبراير ٢٠١٢ وقد تم تطبيق المعايير العالمية الخاصة بمنظمة الحفظ الدولية IUCN على هذه الانواع. وتم تجميع خرائط توزيعها و تواجدها في المنطقة. ان مجموعة البيانات الكاملة، بما في ذلك الخرائط، متوفرة على DVD في القائمة الحمراء المهددة على موقع.

وعموما، الزواحف هي اكثر الأنواع تواجدا حول حافة شبه الجزيرة العربية، وبخاصة الجبال الجنوبية الغربية وظفار، مع مساحة أقل تنوعا في الربع الخالي والمناطق المرتفعة. جزيرة سوقطرة لديها عدد كبير من الأنواع المستوطنة ٢٦ نوع. وتعتبر ستة فقط من الزواحف ١٧٢ في شبه الجزيرة العربية مهددة على الصعيد العالمي، و ١٠ فقط هي التي تهم المنطقة. فقدان البيئات الطبيعية لهذه الانواع هو التهديد الاكبر، وخاصة تحويل الأراضي للاستخدامات الزراعية. والجدير بالذكر ان ١٤٤ من ١٧٢ في الأنواع متواجدة في المناطق المحمية. ان ورقة العمل والورش هذه تعتبر الاساس في التخطيط وتحديد التواجد والتهديدات المحيطة بها.

1. Background

1.1 The Arabian Peninsula context

The Arabian Peninsula is conventionally defined on political grounds as comprising Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, the United Arab Emirates and Yemen. The northern boundary is difficult to define ecologically, as habitats grade into those farther north. The area covers more than 3 million km² (see Figure 1).

Mountains run along the western, much of the southern, and the south-eastern coasts, rising steeply from the sea 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, which is also the highest summit in the Arabian Peninsula. The southern part of the 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. The largest wadis contain water throughout the year and are partially wooded, containing species of *Ficus*, *Cordia*, *Breonardia* and *Tamarindus*. Patches of open juniper (*Juniperus procera*) woodland remain at higher elevations.

The mountains of Dhofar, southern Oman, extending into the Mahra region of eastern Yemen, attain elevations of 1,400-1,800 m and also catch the summer monsoon. Dense woodland on their seaward slopes contains *Anogeissus dhofarica*, *Commiphora habessinica* and frankincense (*Boswellia sacra*) trees. Between Dhofar and the south-west mountains lies an extensive limestone plateau, the *jol*, which is deeply incised by the huge Wadi Hadhramaut-Wadi Masilah system, and which also contains some endemic species. In the south-east the Hajar Mountains stretch for about 700 km between the Musandam Peninsula and Ras al Hadd. Their highest point, on Jebel Al Akhdar, reaches 3,009 m. These mountains all



Figure 1. The Arabian Peninsula as defined through the current report.

harbour sets of endemic species, including reptiles, and 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).

The interior is composed of sand and gravel deserts, intersected by numerous shallow wadis.

Sand dunes occupy about 27% of the Arabian Peninsula, with the enormous Rub al Khali (Empty Quarter) in the south-east itself covering about 640,000 km². Black basalt lava flows (*harrat*) cover about 30,000 km² in northern Saudi Arabia and continue into Syria and Jordan. Salt flats (*sabkha*) occur on coasts and in places inland. Permanent flowing water is restricted to a few mountain wadis but ephemeral streams and shallow pools occur after sporadic rainfall.

Vegetation is generally sparse and low, though many wadis have open *Acacia-Commiphora* woodland, and several species of *Acacia* and *Zizyphus* are widespread. In Oman and UAE, groves of *Prosopis cineraria* trees (*ghaf*) occur. Most areas of *Acacia* and *Prosopis* have been reduced in size and degraded while overgrazing by livestock adversely affects much of the natural vegetation.

The Arabian Peninsula lies at the junction of three biogeographic realms: Western Palearctic, Afrotropical, and Oriental, which is reflected in the composition of the flora and fauna. The herpetofauna 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 reptiles of the Arabian Peninsula was discussed in detail by Arnold (1987), Gasperetti (1988) and Sindaco and Jeremčenko (2008).

1.2 Reptile diversity and endemism

For the purposes of this study of reptiles of the Arabian Peninsula, we have defined the region politically, rather than biogeographically (see section 2.2 below). Within the region of study there are 172 species of reptile (excluding the marine turtles and sea snakes which are not covered here) of which 89 (52%) are endemic. Further details are given in Table 1.

The majority of the reptile species found within the Arabian Peninsula are within the order Squamata (lizards, snakes and amphisbaenians), with just two representatives from the order Testudines (turtles and tortoises). Most of the Squamata



Acanthodactylus felicis is known only from a few localities in Yemen and Oman. It is currently categorized by IUCN as Vulnerable. © Roberto Sindaco.

present are lizards (120 species) and snakes (47 species) with a much smaller number of amphisbaenians (3 species). The largest reptile families in the region are the Gekkonidae (geckoes – 28 species), the Lacertidae (wall lizards and relatives – 27 species), the Sphaerodactylidae (semaphore geckoes – 22 species), the Agamidae (agamas and relatives – 17 species) and the Colubridae (colubrid snakes – 17 species). Of the endemic species in the region, it is important to note that 17 of the 22 Sphaerodactylidae (semaphore geckoes) recorded are endemic to the Arabian Peninsula. There is also relatively high endemism within the small numbers of Phyllodactylidae (leaf-toed geckoes) present (7 species, 6 endemic), the chameleons (4 species, 3 endemic), the Leptotyphlopidae (thread snakes) (7 species, 5 endemic), and the amphisbaenians (3 species, 2 endemic). Table 1 provides more detail.

Since the Sharjah conservation assessment workshop an additional 12 reptile species have been identified from the Arabian Peninsula bringing the total of species present to 184 (Busais and Joger 2011; Carranza and Arnold 2012; Sindaco *et al.* 2012). These species do not form part of this report, but are listed for reference in Appendix 5.

1.3 Conservation status

One of the most widely used indicators for assessing the health of ecosystems and their biodiversity is the conservation status of plants and animals. It is also an important component of priority-setting exercises for species conservation. At the global level, the best source of information on the conservation status of plants and animals is the *IUCN Red List of Threatened Species* (IUCN, 2012). Taxa that have been evaluated using the *IUCN Red List Categories and Criteria: Version 3.1* (IUCN, 2001) (<http://www.iucnredlist.org/technical-documents/categories-and-criteria>) are included on the Red List, along with details of their taxonomy, distribution information (including a range map), population status, habitat and ecology, threats, utilization and conservation measures in place and needed. The *IUCN Red List Categories and Criteria* is designed to determine the relative risk of extinction, with the main purpose of highlighting those taxa that are facing a higher risk of global extinction (i.e., those listed as Critically Endangered, Endangered and Vulnerable). Species in these three categories are collectively referred to as 'threatened'.

Table 1. Diversity and endemism in non-marine reptile orders and families of the Arabian Peninsula.

Order	Suborder	Family	Number of species	Number of endemic species
Testudines (turtles and tortoises)	Cryptodira	Geoemydidae	1	0 (0%)
Testudines	Pleurodira	Pelomedusidae	1	0 (0%)
<i>Total - Turtles and Tortoises</i>			2	0 (0%)
Squamata (lizards, snakes and amphisbaenians)	Sauria (lizards and amphisbaenians)	Agamidae	17	8 (47%)
Squamata	Sauria	Chamaeleonidae	4	3 (75%)
Squamata	Sauria	Gekkonidae	28	15 (54%)
Squamata	Sauria	Lacertidae	27	14 (53%)
Squamata	Sauria	Phyllodactylidae	7	6 (86%)
Squamata	Sauria	Scincidae	13	5 (39%)
Squamata	Sauria	Sphaerodactylidae	22	17 (77%)
Squamata	Sauria	Trogonophidae	3	2 (67%)
Squamata	Sauria	Varanidae	2	1 (50%)
<i>Total - Lizards and Amphisbaenians</i>			123	71 (58%)
Squamata	Serpentes (snakes)	Atractaspididae	2	1 (50%)
Squamata	Serpentes	Boidae	2	0 (0%)
Squamata	Serpentes	Colubridae	17	6 (35%)
Squamata	Serpentes	Elapidae	3	1 (33%)
Squamata	Serpentes	Lamprophiidae	2	1 (50%)
Squamata	Serpentes	Leptotyphlopidae	7	5 (71%)
Squamata	Serpentes	Psammophiidae	2	0 (0%)
Squamata	Serpentes	Typhlopidae	2	1 (50%)
Squamata	Serpentes	Viperidae	10	3 (30%)
<i>Total - Snakes</i>			47	18 (38%)
<i>Total - All Reptiles</i>			172	89 (52%)

As part of this study, all the species have been evaluated for their conservation status against the IUCN system, and the results are presented in this report.

IUCN is still at the relatively early stage of assessing the world's reptile species, principally undertaken through the Global Reptile Assessment (GRA) (IUCN, Conservation International and NatureServe) and the Sampled Red List Index approach (Böhm *et al.* in press). To date (August 2012) IUCN has globally assessed 3,663 reptile species out of more than 9,500 known species (The Reptile Database [accessed August 22nd]: <http://www.reptile-database.org/>). The current assessment is for all species of the Arabian Peninsula, adding significantly to the number of species assessed to date.

1.4 Objectives of the assessment

This assessment of reptiles of the Arabian Peninsula has two main objectives:

- To assist in regional conservation planning by assessing

the status and distribution of all species occurring within the region; and

- To develop a network of regional experts to support future assessments and the updating of the information of these species within the context of the IUCN Global Reptile Assessment.

The assessment provides two main direct outputs:

- A report on the status of the reptiles of the Arabian Peninsula, including a Red List assessment of all the species, an identification of the main threats for each species, and spatial representation of the centres of diversity and threat.
- A database (IUCN's Species Information Service) that provides a baseline for monitoring the status of Arabian reptiles.

IUCN and partners will ensure the wide circulation of this document to relevant decision makers, non-governmental organizations and scientists to assist in mobilizing conservation action on the ground.



The leaf-toed gecko *Assacus montanus* is endemic to the higher elevations of the Jebel Akhdar in Oman. It is provisionally categorized by IUCN as Vulnerable. © Roberto Sindaco.



The Arabian cat snake *Telescopus dhara* is widespread on the Arabian Peninsula, where it inhabits arid and semi-arid hills and mountains. It is categorized by IUCN as Least Concern. © Johannes Els, BCEAW.

The desert monitor (*Varanus griseus*) is widespread throughout Arabia occupying a variety of arid and semi-arid habitats . It is categorized by IUCN as Least Concern. © Johannes Els, BCEAW.



2. Assessment methodology

2.1 Global and regional assessments

This was primarily an assessment of the global status of all reptile species occurring on the Arabian Peninsula. A draft assessment of the regional status of non-endemic species was also undertaken, although in the majority of cases the IUCN Category was the same at global and regional levels (see Appendix 2). Global assessments of reptiles not endemic to the Arabian Peninsula remain provisional until the species is assessed across its entire range through the ongoing Global Reptile Assessment (provisional assessments are indicated with an asterisk in Appendix 2).

2.2 Definition of the Arabian Peninsula for the assessment

For the purposes of this study the Arabian Peninsula was defined politically to include the following countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, Yemen. The status of the herpetofauna of Jordan and Syria has been covered in an earlier IUCN publication (Cox *et al.* 2006). The reptiles of the archipelago of Socotra (Yemen) were assessed independently from the main review process, but are included within this report.

2.3 Preliminary assessments

Preliminary accounts for the majority of species (including draft distribution maps) were prepared by Neil Cox of the IUCN-CI Biodiversity Assessment Unit, using existing literature and data sources. Roberto Sindaco, Istituto per le Piante da Legno e l'Ambiente, Biodiversity, Forests, Landscape (Italy), prepared species accounts for the reptiles distributed on Socotra Island (Yemen). The draft threat status of each species was assessed according to the *2001 IUCN Red List Categories and Criteria Version 3.1*. All the data collected, including information on distribution, population, habitat and ecology, threats, utilization and conservation measures were entered into the IUCN Species Information Service (SIS) database.

2.4 Review process and workshops

Review of the draft data for the reptiles of the Arabian Peninsula, were undertaken through three workshop processes. Expert herpetologists reviewed the Mediterranean

range of species that are also found on the Arabian Peninsula at the GRA Mediterranean regional review workshop held in Malaga, Spain, in December 2004; Arabian Peninsula species also present in Turkey, Iraq and Iran underwent initial review at the GRA Turkey, Caucasus, Iraq and Iran workshop held in Antalya, Turkey, in September 2008; the review of the Arabian Peninsula part of the species range, and review of taxa endemic to the Arabian Peninsula was undertaken through a four day workshop held in Sharjah, United Arab Emirates (February 2012). Species from the island of Socotra (Yemen) were evaluated through an independent expert correspondence. In each review the participants and workshop facilitators (from the IUCN-CI Biodiversity Assessment Unit) evaluated the preliminary assessments to check that they complied with the guidelines for applying the IUCN Red List Categories and Criteria and included the most up-to-date, comprehensive information.

2.5 Post-workshop follow-up

Following the review workshops, the data were edited and outstanding questions were resolved through communications with workshop participants and experts who had been unable to attend the review workshops. The resulting assessments therefore provide the best available scientific consensus concerning the status of these species, and are fully supported in the database (and on the IUCN Red List website) with relevant literature and references. Updates to the conservation status will be made as and when new information becomes available.



In Arabia the Caspian terrapin (*Mauremys caspica*) is known only from Bahrain and eastern Saudi Arabia. It is categorized by IUCN as Vulnerable on the Arabian Peninsula. © Johannes Els, BCEAW.



The Persian wonder gecko *Teratoscincus scincus* has a restricted range in Arabia and is threatened by habitat loss. It is categorized by IUCN as Regionally Endangered. © Johannes Els, BCEAW.

3. Results

3.1 Conservation status

A full list of the reptile species (excluding marine turtles and sea snakes) from the Arabian Peninsula and their global and regional IUCN Red List status is given in Appendix 2. The number of species in the different IUCN Red List Categories is shown in Table 2 and Figure 2. In summary, 3.5% of Arabian reptile species are globally threatened, with <1% Critically Endangered, none Endangered and 2.9% Vulnerable. A total of 78.5% (135 species) are assessed as Least Concern and 23 (13.4%) species were considered to be Data Deficient.

In addition to determining the global threat of species, the regional status was examined for each one of the 172 reptile species. While most species retain the same IUCN threat status at both the global and regional levels (see Appendix 2), the following species are considered to be at a higher threat regionally than globally: *Mauremys caspica* (LC globally, VU regionally); *Acanthodactylus blanfordi* (globally LC, regionally VU); *Teratoscincus scincus* (globally LC, regionally EN); and *Pseudocerastes persicus* (globally LC, regionally VU). It is clearly important that these locally threatened populations are given due consideration when planning conservation activities at a regional scale.

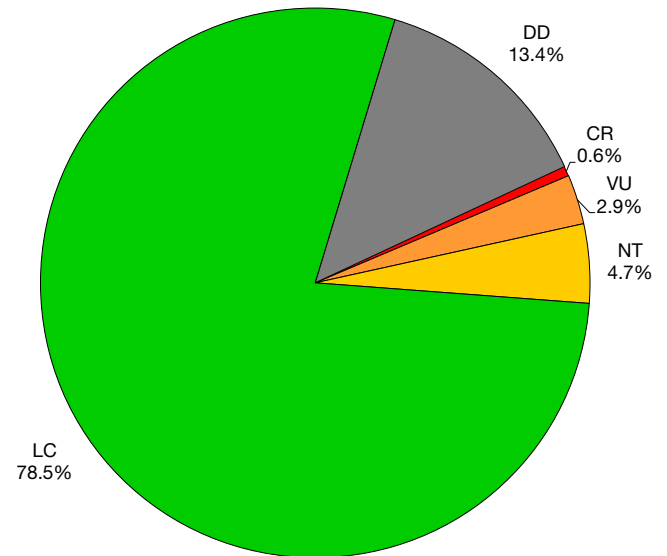


Figure 2. Summary of the conservation status for all reptiles of the Arabian Peninsula. The categories are abbreviated as: CR-Critically Endangered; VU-Vulnerable; NT-Near Threatened; LC-Least Concern; DD-Data Deficient.

Table 2. Summary of the Red List status for all of the non-marine reptiles of the Arabian Peninsula.

IUCN Red List categories	Global Assessment	Regional Assessment
Extinct (EX)	0	0
Extinct in the Wild (EW)	0	0
Threatened Categories	Critically Endangered (CR)	1
	Endangered (EN)	0
	Vulnerable (VU)	8
Near Threatened (NT)	8	8
Least Concern (LC)	135	131
Data Deficient (DD)	23	23
Not Evaluated (NE)	0	0
Total number of reptiles assessed	172	172

3.2 Patterns of species richness

An outline of the species richness of the orders, suborders and families of reptiles of the Arabian Peninsula has been given in Section 1.2 and Table 1 of this report. The geographic distribution of reptile species richness of the Arabian Peninsula is presented in Figure 3. Overall, species diversity is highest around the edge of the Peninsula, being especially rich in the following: the south-western mountains of Yemen and Saudi Arabia; Dhofar (southern Oman) and Mahra (Yemen); the Hadhramaut (Yemen); a large part of the Hajar range (Oman and UAE); Barr al Hikman (south-eastern Oman); northern Saudi Arabia; and the Jubail region of north-eastern Saudi Arabia. The least diverse area is the Rub' al Khali (or Empty Quarter), the arid sand desert in the centre-south of the Peninsula which has a very low richness when compared to the surrounding regions mentioned above. The areas of richness for species endemic to the Arabian Peninsula largely match the patterns of overall species diversity (Figure 4), with the following of particular importance: south-western mountains; Dhofar (southern Oman) and Mahra (Yemen);

Hadhramaut (Yemen); central Hajar mountain range (northern Oman) and Barr al Hikman (south-eastern Oman). A notable exception to this pattern is the island of Socotra (Yemen), where overall species richness is relatively low (27 species), but endemism is disproportionately high (26 species, 96%). There are few species endemic to the Peninsula found in the north, suggesting that the relatively high levels of species richness recorded here, in places such as northern Saudi Arabia, reflect the extension into the Peninsula of more widespread species also present in the Near East or Iraq and Iran.

The species richness and conservation status of non-marine reptiles of each country are given in Table 3 and Table 4. The higher species totals occur in: Yemen, with a high number of species (especially Peninsula endemics) found in the south-western mountains, the southern Hadhramaut and Socotra; Saudi Arabia, perhaps as expected in view of its large size and diversity of reptiles from both the southern and northern Peninsula faunas; and Oman, with concentrations of species in Dhofar and the Hajar range.

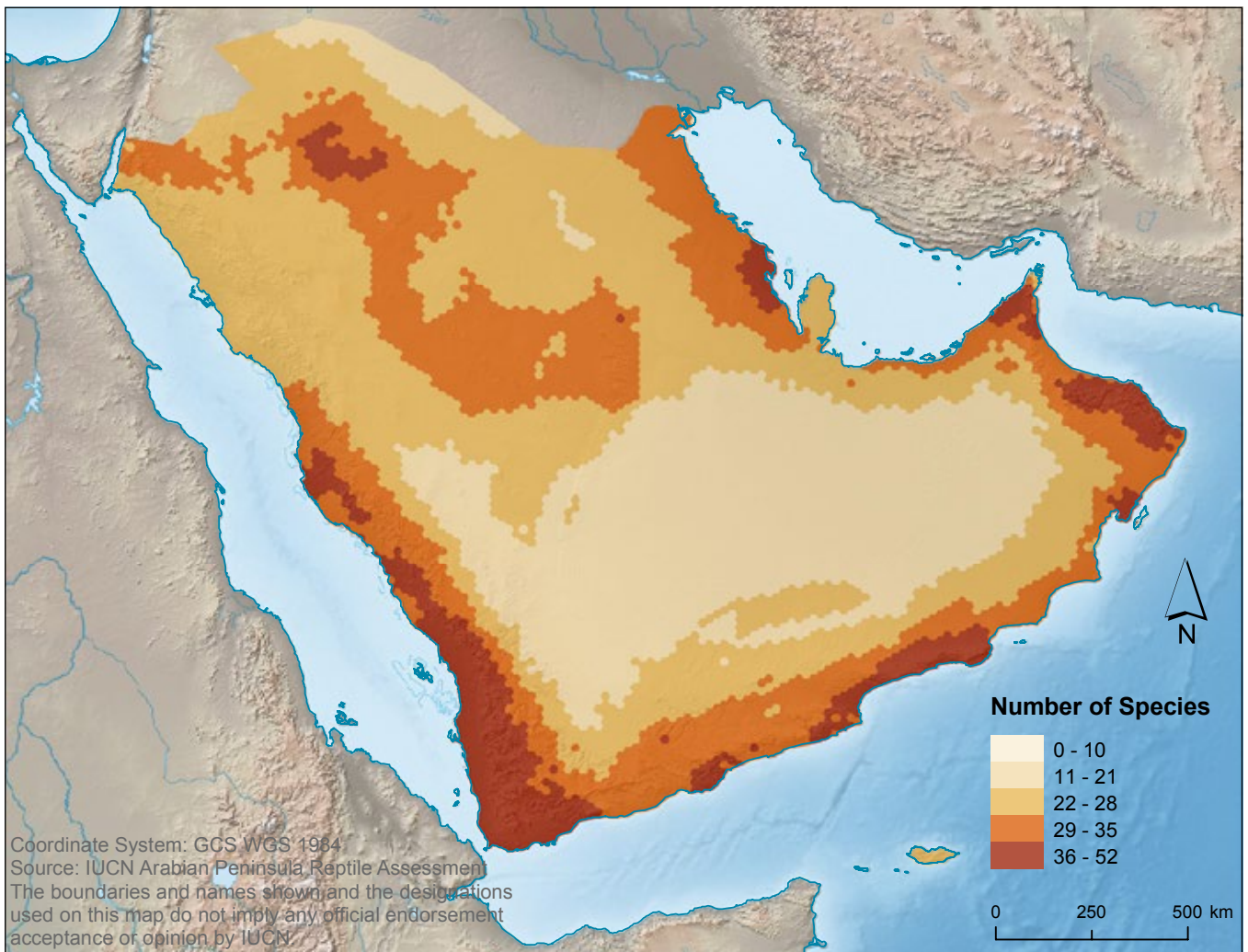


Figure 3. Species richness of reptiles of the Arabian Peninsula.



Figure 4. Endemic reptile species richness of the Arabian Peninsula.

Table 3. The number of non-marine reptiles in the countries of the Arabian Peninsula

Country	Native	Possibly Present	Introduced
Bahrain	9	1	0
Kuwait	23	1	1
Oman	74	1	2
Qatar	10	2	0
Saudi Arabia	91	7	1
United Arab Emirates	48	1	1
Yemen	112	3	1

Table 4. Conservation status of non-marine reptiles in Arabian Peninsula countries

Country	Extinct (EX)	Critically Endangered (CR)	Endangered (EN)	Vulnerable (VU)	Near Threatened (NT)	Least Concern (LC)	Data Deficient (DD)
Bahrain	0	0	0	0	0	9	1
Kuwait	0	0	0	2	0	23	0
Oman	0	0	0	4	1	66	6
Qatar	0	0	0	1	0	11	0
Saudi Arabia	0	0	0	2	1	88	8
United Arab Emirates	0	0	0	1	0	47	2
Yemen	0	1	0	2	6	90	17

3.3 Species richness of threatened reptiles

There are very few threatened species on the Arabian Peninsula as a whole (see Table 2); with only six of the 172 species considered to be globally threatened. Of the threatened species the Critically Endangered gecko *Hemidactylus dracaenacolus* is endemic to the island of Socotra (Yemen), the other species are considered to be Vulnerable and have the following distributions: *Asaccus montanus** is distributed at higher elevations of Jebel Akhdar (Oman); *Acanthodactylus felicis* is present in southern Yemen and Oman; *Uromastix aegyptia* is relatively widespread on the Arabian Peninsula; *Uromastix thomasi* is endemic to the central parts of Oman; and *Walterinnesia morgani** is present in Kuwait and Saudi Arabia on the Arabian Peninsula. The highest concentration of these few species can be found in the Dhofar region of Oman (Figure 5). For species that are not endemic to the Arabian Peninsula a regional assessment was also carried out with the following four species being considered to be at a higher threat regionally than globally. *Teratoscincus scincus* is regionally Endangered and present in coastal *sabkhas* in

* Assessments for *Asaccus montanus* and *Walterinnesia morgani* are provisional as of September 2012 and may change following final evaluation.

the United Arab Emirates. The other species, all considered to be regionally Vulnerable, are *Mauremys caspica* known from Bahrain and eastern Saudi Arabia; *Acanthodactylus blanfordi* is present in north-eastern Oman and Khor Kalba in the United Arab Emirates; and *Pseudocerastes persicus* is restricted to the higher elevations of the Hajar Mountains and Jebel Hafeet.

3.4 Data Deficient species

Species for which the conservation status is unclear from the data available are typically assessed under the IUCN Red List Categories and Criteria as Data Deficient. In total, 23 of the 172 species of reptiles from the Arabian Peninsula are considered through this study to be Data Deficient. Geographically, these species are concentrated in the south-west and Dhofar (Figure 6). In view of this lack of sufficient knowledge on the conservation status for 14% of the region's reptiles, and because so many (12) new species have recently been described from the Arabian Peninsula (Busais and Joger 2011; Carranza and Arnold 2012; Sindaco *et al.* 2012), it is clear that additional field surveys will be needed to better understand the status of the region's reptile fauna.

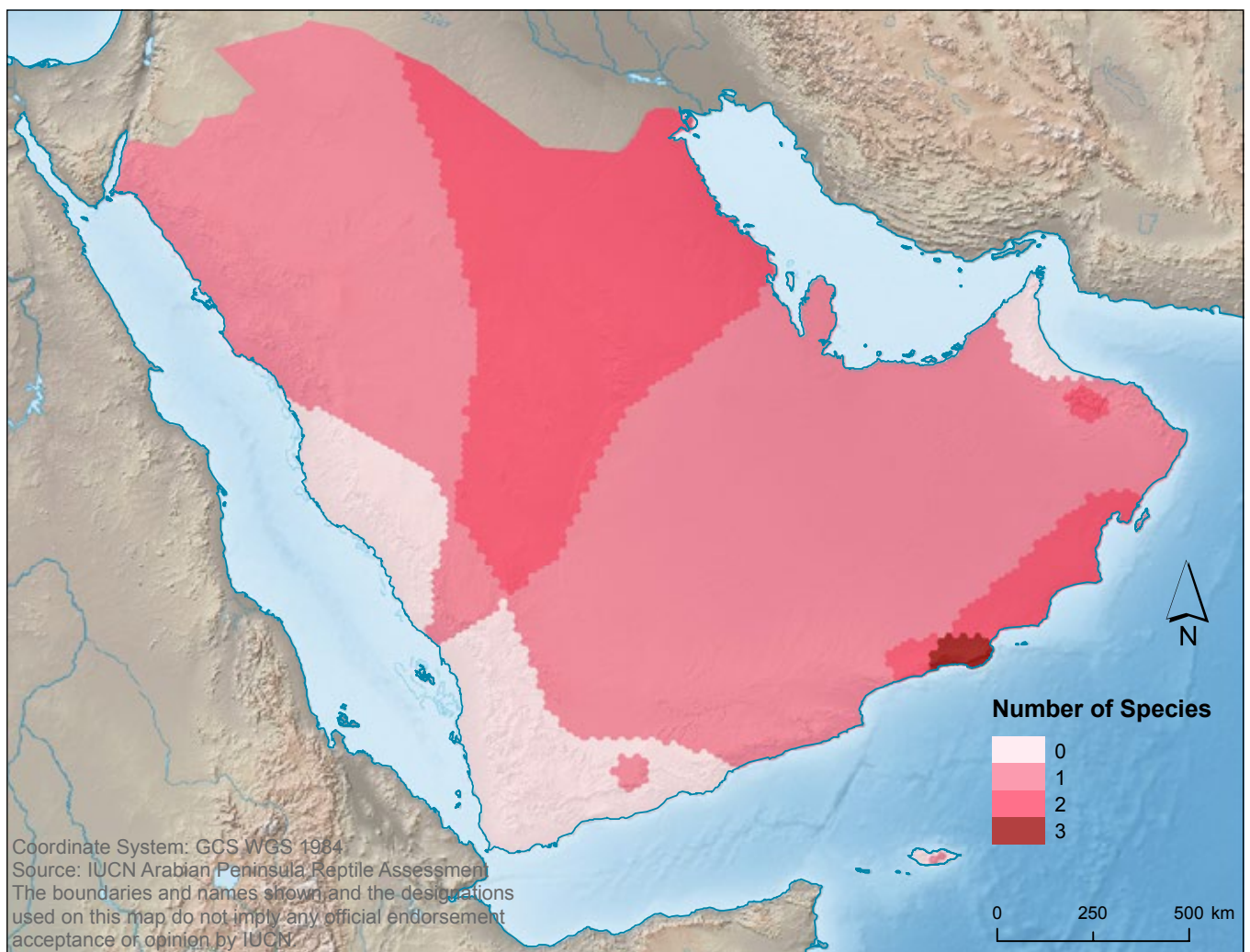


Figure 5. Species richness of globally threatened reptiles of the Arabian Peninsula.



Figure 6. Concentrations of Data Deficient species of reptiles for the Arabian Peninsula.



Uromastyx thomasi is endemic to the coastal regions of Oman, north east of Dhofar and Masirah Island. It is categorized by IUCN as Vulnerable. © Thomas Wilms.

3.5 Major threats to reptiles

The threats for each species were coded in the SIS database using the IUCN Threats Classification Scheme. The full compilation of species affected by each type of threat is given in Appendix 3. A summary of the relative importance of the different threatening processes is shown in Figure 7.

Perhaps unsurprisingly habitat loss, principally through livestock farming and ranching, is considered to be the greatest threat to reptiles of the Arabian Peninsula affecting 27 of the

overall species at present. Another significant threat remains the current hunting and trapping of animals for various uses within the Arabian Peninsula. Of the hunted/trapped species, 14 are threatened by persecution and it is probable that this relates mostly to snakes, most of which are harmless to man and may even be considered beneficial in controlling pest species (e.g. rats). Of the threatened species, general conversion of habitat for development and agricultural use are the key threats; while hunting and trapping are considered to threaten species such as *Uromastix aegyptia*.

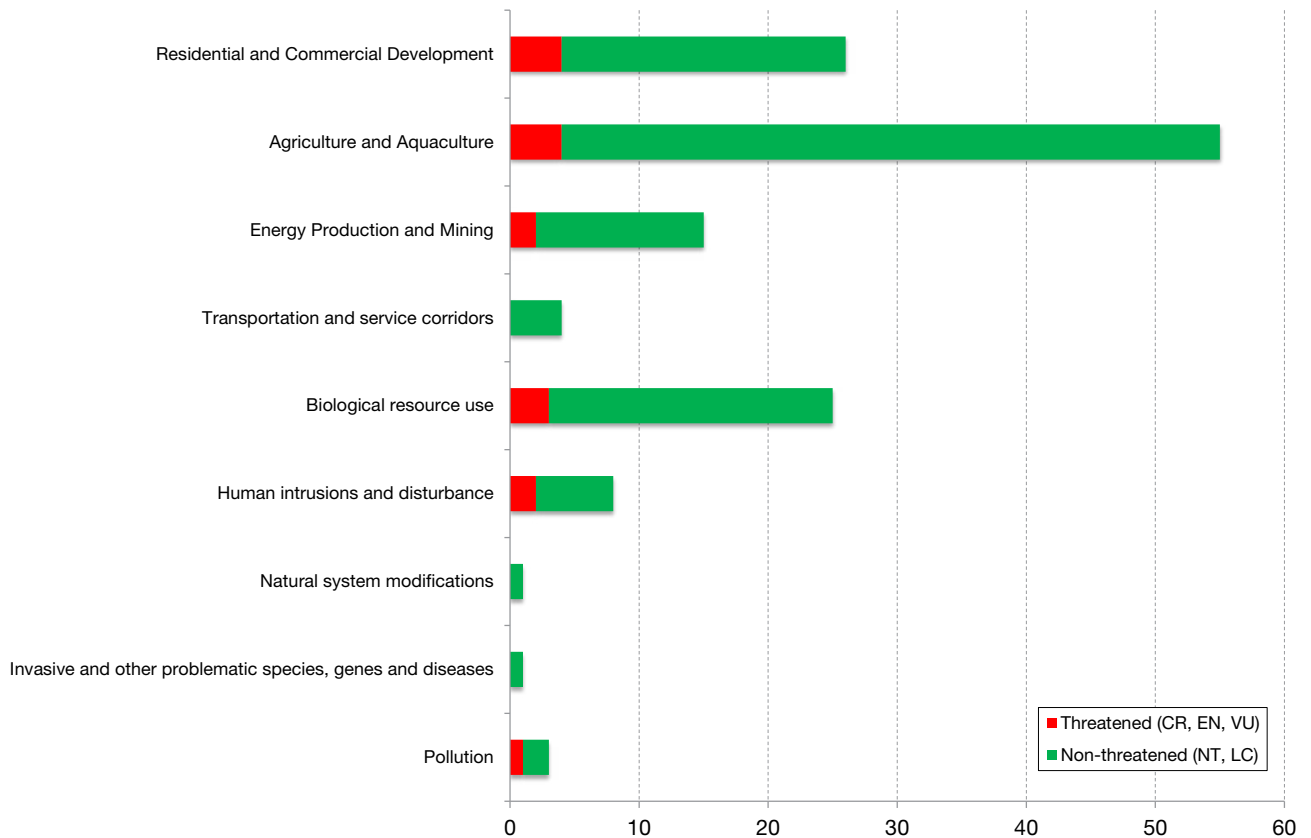


Figure 7. The present major threats to reptile species in the Arabian Peninsula



The gecko *Hemidactylus dracaenacolus* is endemic to the island of Socotra, Yemen. It is currently categorized by IUCN as Critically Endangered. © Roberto Sindaco.

4. Conclusions

4.1 Conservation priorities

A clear message from the analysis of the conservation status of the Arabian reptile fauna is that very few of the species found within the region are globally threatened under the IUCN Categories and Criteria. Only 3.5% of the species present here (out of a total of 172 species) meet the IUCN Criteria for threatened status. This is very good news for the region, indicating perhaps that conservation measures currently in place are largely protecting the region's reptile fauna; and perhaps that threats are not as severe to reptiles in this region as for other areas. A particularly interesting point is made by examining the number of species found in protected areas; of the 172 species 144 are present within existing protected areas, with only one threatened species (*Assacus montanus*) outside of protected areas (see Appendix

4). Overexploitation of a few widespread species (e.g. *Uromastyx aegyptia*) needs better control and regulation to ensure harvests are sustainable with populations maintained for future generations. Geographically, section 3.2 (Figure 3 and Figure 4) provides an overview of the areas of species richness and Figure 8 indicates where protected areas are needed to maintain full species diversity for the Peninsula. As noted a number of times in the above report, the island of Socotra is very rich in endemic species and perhaps requires special attention to maintain this unique fauna (including conservation attention for the Critically Endangered gecko *Hemidactylus dracaenacolus*).

Recent studies (Busais and Joger 2011; Carranza and Arnold 2012; Sindaco *et al.* 2012) have uncovered a greater richness of species in the region (including 12 recently described species), indicating that there is a need for additional fieldwork for

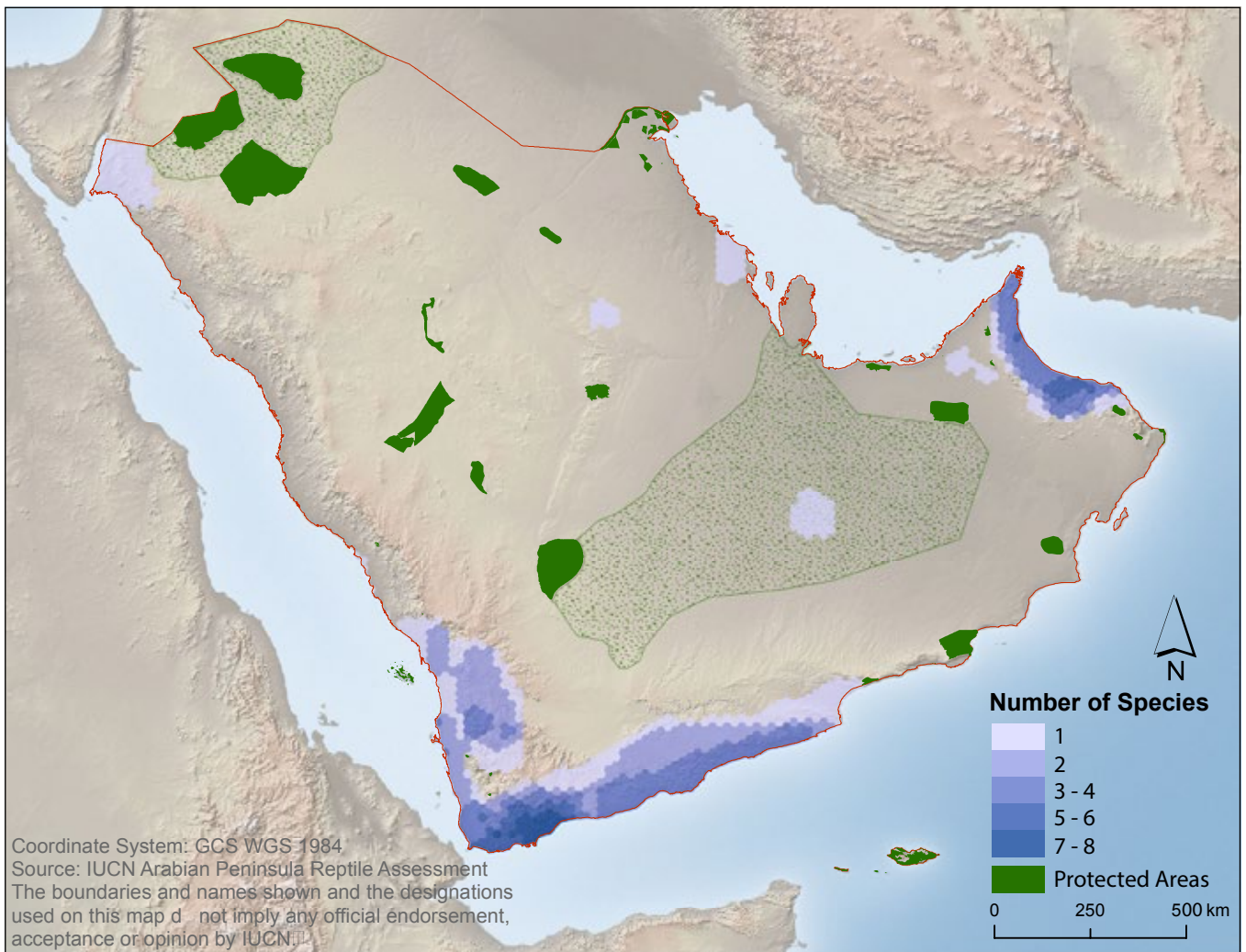


Figure 8. Gap analysis for reptile species of the Arabian Peninsula depicting number of species found outside of protected areas. Protected area layer developed from World Database on Protected Areas, with additional new information for the region (adapted from Al Omari 2011). Large non-hunting zones (shown stippled in the map) with minimal protection are shown but are excluded from this analysis.

the Arabian Peninsula, perhaps even in areas that have been considered well-surveyed in the past. An evaluation of the IUCN conservation status of these species will be undertaken outside of the scope of the current Sharjah workshop results.

4.2 Application of project outputs

The outputs of this project can be applied at the regional scale to assist organizations, such as IUCN, to prioritise sites for conservation at both the regional and global scales (including internationally important sites for biodiversity – e.g. Key Biodiversity Areas [Langhammer *et al.* 2007] and Alliance for Zero Extinction sites [Ricketts *et al.* 2005]). All of the endemic species assessments from this project are available on version 2012.2 of the IUCN Red List (<http://www.iucnredlist.org/>). Global assessments for the non-endemic species will be included in the IUCN Red List when data from portions outside of their Arabian range have been collected and assessed.

4.3 Future work

If the information on the species of the Arabian Peninsula are to be effectively integrated within the development or environmental planning process then:

- The data collated will need to be maintained and updated regularly through on-going collaboration with the network of experts who have contributed their valuable time to this project;
- Links between IUCN and its partners and decision and policy makers and regional decision makers and policy makers must be maintained and strengthened and the data must be made freely available to these people and/or organizations; and
- A “best practice” methodology for the process of integrating biodiversity information within the environmental/development planning process needs to be developed. It is important that this methodology aims to provide the information in a “user-friendly” format for all stakeholders and provides guidelines as to when and where the information should appropriately be made available.



In Arabia the false horned viper *Pseudocerastes persicus* is restricted to the higher elevations of the Hajar Mountains and Jebel Hafeet. It is categorized by IUCN as Least Concern globally, but is Vulnerable on the Arabian Peninsula. © Drew Gardner.

The Arabian cobra *Naja arabica* was only recognised as a full species in 2009. It is currently categorized by IUCN as Least Concern. © Johannes Els, BCEAW.



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Appendix 1. CD ROM contents and instructions

The CD ROM accompanying this publication includes:

Species Summaries

Summary information for each of the 172 species reviewed as part of the conservation assessment process for the reptiles of the Arabian Peninsula.

Species Distribution Maps

An image range map for the Arabian Peninsula for each reptile species present on the Arabian Peninsula.

Shapefiles

Distribution shapefiles for all species reviewed at the Sharjah workshop. Some of these shapefiles remain in draft format; please refer to Appendix 2 (Publication Status) to determine which shapefiles remain in progress.

Appendix 2. Non-marine reptiles of the Arabian Peninsula

Order	SubOrder	Family	Genus	Species	IUCN Red List Category	IUCN Red List Criteria	Regional IUCN Red List Category	Regional Red List Criteria	Endemic to Arabia (Yes/No)	Publication Status
Testudines	Cryptodira	Geoemydidae	<i>Mauremys</i>	<i>caspica</i>	LC		VU		N	*
Testudines	Pleurodira	Pelomedusidae	<i>Pelomedusa</i>	<i>subrufa</i>	LC		LC		N	*
Squamata	Sauria	Agamidae	<i>Acanthocercus</i>	<i>adramitanus</i>	LC		LC		Y	
Squamata	Sauria	Agamidae	<i>Acanthocercus</i>	<i>yemensis</i>	LC		LC		Y	
Squamata	Sauria	Agamidae	<i>Calotes</i>	<i>versicolor</i>	LC		LC		N	*
Squamata	Sauria	Agamidae	<i>Phrynocephalus</i>	<i>arabicus</i>	LC		LC		N	
Squamata	Sauria	Agamidae	<i>Phrynocephalus</i>	<i>maculatus</i>	LC		LC		N	*
Squamata	Sauria	Agamidae	<i>Pseudotrapelus</i>	<i>sinaitus</i>	LC		LC		N	*
Squamata	Sauria	Agamidae	<i>Stellagama</i>	<i>stellio</i>	LC		LC		N	
Squamata	Sauria	Agamidae	<i>Trapelus</i>	<i>agnetae</i>	LC		LC		N	
Squamata	Sauria	Agamidae	<i>Trapelus</i>	<i>flavimaculatus</i>	LC		LC		Y	
Squamata	Sauria	Agamidae	<i>Trapelus</i>	<i>jayakari</i>	DD		DD		Y	
Squamata	Sauria	Agamidae	<i>Trapelus</i>	<i>runderatus</i>	LC		LC		N	
Squamata	Sauria	Agamidae	<i>Uromastix</i>	<i>aegyptia</i>	VU	A2abcd+4abcd	VU	A2abcd+4abcd	N	
Squamata	Sauria	Agamidae	<i>Uromastix</i>	<i>benti</i>	LC		LC		Y	
Squamata	Sauria	Agamidae	<i>Uromastix</i>	<i>ornata</i>	LC		LC		N	
Squamata	Sauria	Agamidae	<i>Uromastix</i>	<i>shobraki</i>	NT		NT		Y	
Squamata	Sauria	Agamidae	<i>Uromastix</i>	<i>thomasi</i>	VU	A2d	VU	A2d	Y	*
Squamata	Sauria	Agamidae	<i>Uromastix</i>	<i>yemenensis</i>	NT		NT		Y	
Squamata	Sauria	Chamaeleonidae	<i>Chamaeleo</i>	<i>arabicus</i>	LC		LC		Y	
Squamata	Sauria	Chamaeleonidae	<i>Chamaeleo</i>	<i>calyptratus</i>	LC		LC		Y	
Squamata	Sauria	Chamaeleonidae	<i>Chamaeleo</i>	<i>chamaeleon</i>	LC		LC		N	
Squamata	Sauria	Chamaeleonidae	<i>Chamaeleo</i>	<i>monachus</i>	NT		NT		Y	
Squamata	Sauria	Gekkonidae	<i>Bunopus</i>	<i>spatularus</i>	LC		LC		Y	
Squamata	Sauria	Gekkonidae	<i>Bunopus</i>	<i>tuberculatus</i>	LC		LC		N	*
Squamata	Sauria	Gekkonidae	<i>Cyrtopodion</i>	<i>scabrum</i>	LC		LC		N	*
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>dracaenaculus</i>	CR	B1ab(ii,iii,v)	CR	B1ab(ii,iii,v)	Y	
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>flaviviridis</i>	LC		LC		N	*
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>forbesii</i>	LC		LC		Y	
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>granti</i>	NT		NT		Y	
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>homeolepis</i>	LC		LC		Y	
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>inintellectus</i>	LC		LC		Y	
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>lemurinus</i>	DD		DD		Y	
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>leschenaultii</i>	LC		LC		N	*
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>oxyrhinus</i>	LC		LC		Y	
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>persicus</i>	LC		LC		N	*
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>pumilio</i>	LC		LC		Y	
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>robustus</i>	LC		LC		N	*
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>sinaitus</i>	LC		LC		N	*
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>yerburyi</i>	LC		LC		N	*
Squamata	Sauria	Gekkonidae	<i>Stenodactylus</i>	<i>arabicus</i>	LC		LC		Y	
Squamata	Sauria	Gekkonidae	<i>Stenodactylus</i>	<i>doriae</i>	LC		LC		N	
Squamata	Sauria	Gekkonidae	<i>Stenodactylus</i>	<i>grandiceps</i>	LC		LC		N	
Squamata	Sauria	Gekkonidae	<i>Stenodactylus</i>	<i>khobarensis</i>	LC		LC		N	
Squamata	Sauria	Gekkonidae	<i>Stenodactylus</i>	<i>leptocosymbotus</i>	LC		LC		Y	*
Squamata	Sauria	Gekkonidae	<i>Stenodactylus</i>	<i>pulcher</i>	LC		LC		Y	
Squamata	Sauria	Gekkonidae	<i>Stenodactylus</i>	<i>slevini</i>	LC		LC		N	
Squamata	Sauria	Gekkonidae	<i>Stenodactylus</i>	<i>yemenensis</i>	LC		LC		Y	
Squamata	Sauria	Gekkonidae	<i>Tropicolotes</i>	<i>nattereri</i>	LC		LC		N	
Squamata	Sauria	Gekkonidae	<i>Tropicolotes</i>	<i>scortecchi</i>	LC		LC		Y	
Squamata	Sauria	Gekkonidae	<i>Tropicolotes</i>	<i>wolfgangboehmei</i>	DD		DD		Y	
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>arabicus</i>	LC		LC		Y	
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>blanfordi</i>	LC		VU	B1ab(iii)	N	*
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>boskianus</i>	LC		LC		N	*
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>felicis</i>	VU	B1ab(iii)	VU	B1ab(iii)	Y	
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>gongrorhynchatus</i>	DD		DD		Y	
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>grandis</i>	LC		LC		N	
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>haasi</i>	LC		LC		Y	
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>masirae</i>	DD		DD		Y	
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>opheodurus</i>	LC		LC		N	
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>robustus</i>	LC		LC		N	

Order	SubOrder	Family	Genus	Species	IUCN Red List Category	IUCN Red List Criteria	Regional IUCN Red List Category	Regional Red List Criteria	Endemic to Arabia (Yes/No)	Publication Status
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>schmidti</i>	LC		LC		N	
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>scutellatus</i>	LC		LC		N	*
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>tilburyi</i>	LC		LC		N	
Squamata	Sauria	Lacertidae	<i>Acanthodactylus</i>	<i>yemenicus</i>	LC		LC		Y	
Squamata	Sauria	Lacertidae	<i>Latastia</i>	<i>longicaudata</i>	LC		LC		N	*
Squamata	Sauria	Lacertidae	<i>Mesalina</i>	<i>adramitana</i>	LC		LC		Y	
Squamata	Sauria	Lacertidae	<i>Mesalina</i>	<i>ayuensis</i>	DD		DD		Y	
Squamata	Sauria	Lacertidae	<i>Mesalina</i>	<i>balfouri</i>	LC		LC		Y	
Squamata	Sauria	Lacertidae	<i>Mesalina</i>	<i>brevirostris</i>	LC		LC		N	*
Squamata	Sauria	Lacertidae	<i>Mesalina</i>	<i>guttulata</i>	LC		LC		Y	*
Squamata	Sauria	Lacertidae	<i>Mesalina</i>	<i>kuri</i>	LC		LC		Y	
Squamata	Sauria	Lacertidae	<i>Mesalina</i>	<i>martini</i>	LC		LC		N	*
Squamata	Sauria	Lacertidae	<i>Mesalina</i>	<i>olivieri</i>	LC		LC		N	*
Squamata	Sauria	Lacertidae	<i>Omanosaura</i>	<i>cyanura</i>	LC		LC		Y	
Squamata	Sauria	Lacertidae	<i>Omanosaura</i>	<i>jayakari</i>	LC		LC		Y	
Squamata	Sauria	Lacertidae	<i>Ophisops</i>	<i>elbaensis</i>	DD		DD		N	
Squamata	Sauria	Lacertidae	<i>Philochortus</i>	<i>neumanni</i>	LC		LC		Y	
Squamata	Sauria	Phyllodactylidae	<i>Asaccus</i>	<i>caudivolvulus</i>	LC		LC		Y	
Squamata	Sauria	Phyllodactylidae	<i>Asaccus</i>	<i>gallagheri</i>	LC		LC		Y	
Squamata	Sauria	Phyllodactylidae	<i>Asaccus</i>	<i>montanus</i>	VU	D2	VU	D2	Y	*
Squamata	Sauria	Phyllodactylidae	<i>Asaccus</i>	<i>platyrhynchus</i>	LC		LC		Y	
Squamata	Sauria	Phyllodactylidae	<i>Haemodracon</i>	<i>riebeckii</i>	LC		LC		Y	
Squamata	Sauria	Phyllodactylidae	<i>Haemodracon</i>	<i>trachyrhinus</i>	LC		LC		Y	
Squamata	Sauria	Phyllodactylidae	<i>Ptyodactylus</i>	<i>hasselquistii</i>	LC		LC		N	*
Squamata	Sauria	Scincidae	<i>Ablepharus</i>	<i>pannonicus</i>	LC		LC		N	*
Squamata	Sauria	Scincidae	<i>Chalcides</i>	<i>levitoni</i>	DD		DD		Y	
Squamata	Sauria	Scincidae	<i>Chalcides</i>	<i>ocellatus</i>	LC		LC		N	*
Squamata	Sauria	Scincidae	<i>Eumeces</i>	<i>schneideri</i>	LC		LC		N	*
Squamata	Sauria	Scincidae	<i>Eurylepis</i>	<i>taeniolatus</i>	LC		LC		N	*
Squamata	Sauria	Scincidae	<i>Hakaria</i>	<i>simonyi</i>	NT		NT		Y	
Squamata	Sauria	Scincidae	<i>Scincus</i>	<i>hemprichii</i>	LC		LC		Y	
Squamata	Sauria	Scincidae	<i>Scincus</i>	<i>mitranus</i>	LC		LC		N	
Squamata	Sauria	Scincidae	<i>Scincus</i>	<i>scincus</i>	LC		LC		N	*
Squamata	Sauria	Scincidae	<i>Trachylepis</i>	<i>brevicollis</i>	LC		LC		N	*
Squamata	Sauria	Scincidae	<i>Trachylepis</i>	<i>septemtaeniatus</i>	LC		LC		N	*
Squamata	Sauria	Scincidae	<i>Trachylepis</i>	<i>socotrana</i>	LC		LC		Y	
Squamata	Sauria	Scincidae	<i>Trachylepis</i>	<i>tessellata</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>abdelkuri</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>carteri</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>celerrimus</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>collaris</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>crucifer</i>	LC		LC		N	*
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>flavipunctatus</i>	LC		LC		N	*
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>gallagheri</i>	NT		NT		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>guichardi</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>imisgnoides</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>insignis</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>longipes</i>	DD		DD		N	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>mazbah</i>	DD		DD		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>minimus</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>obsti</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>ornithocephalus</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>popovi</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>rupestris</i>	LC		LC		N	*
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>saada</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>samhaensis</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>schneideri</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus</i>	<i>socotranus</i>	LC		LC		Y	
Squamata	Sauria	Sphaerodactylidae	<i>Teratoscincus</i>	<i>scincus</i>	LC		EN	B1ab(iii)	N	*
Squamata	Sauria	Trogonophidae	<i>Agamodon</i>	<i>arabicus</i>	DD		DD		Y	
Squamata	Sauria	Trogonophidae	<i>Diplometopon</i>	<i>zarudnyi</i>	LC		LC		N	
Squamata	Sauria	Trogonophidae	<i>Pachycalamus</i>	<i>brevis</i>	DD		DD		Y	
Squamata	Sauria	Varanidae	<i>Varanus</i>	<i>griseus</i>	LC		LC		N	*
Squamata	Sauria	Varanidae	<i>Varanus</i>	<i>yemenensis</i>	DD		DD		Y	
Squamata	Serpentes	Atractaspidae	<i>Atractaspis</i>	<i>andersonii</i>	LC		LC		Y	
Squamata	Serpentes	Atractaspidae	<i>Atractaspis</i>	<i>engaddensis</i>	LC		LC		N	
Squamata	Serpentes	Boidae	<i>Eryx</i>	<i>jaculus</i>	LC		LC		N	*
Squamata	Serpentes	Boidae	<i>Eryx</i>	<i>jayakari</i>	LC		LC		N	

Order	SubOrder	Family	Genus	Species	IUCN Red List Category	IUCN Red List Criteria	Regional IUCN Red List Category	Regional Red List Criteria	Endemic to Arabia (Yes/No)	Publication Status*
Squamata	Serpentes	Colubridae	<i>Coluber</i>	<i>insulanus</i>	DD		DD		Y	
Squamata	Serpentes	Colubridae	<i>Coluber</i>	<i>thomasi</i>	DD		DD		Y	
Squamata	Serpentes	Colubridae	<i>Dolichophis</i>	<i>jugularis</i>	LC		LC		N	
Squamata	Serpentes	Colubridae	<i>Dasyteltis</i>	<i>scabra</i>	LC		LC		N	*
Squamata	Serpentes	Colubridae	<i>Eirenis</i>	<i>coronella</i>	LC		LC		N	
Squamata	Serpentes	Colubridae	<i>Hemerophis</i>	<i>socotrae</i>	NT		NT		Y	
Squamata	Serpentes	Colubridae	<i>Lytrohynchus</i>	<i>diadema</i>	LC		LC		N	*
Squamata	Serpentes	Colubridae	<i>Lytrohynchus</i>	<i>gasperetti</i>	DD		DD		Y	
Squamata	Serpentes	Colubridae	<i>Platyceps</i>	<i>elagantissimus</i>	LC		LC		N	
Squamata	Serpentes	Colubridae	<i>Platyceps</i>	<i>rhodarchis</i>	LC		LC		N	*
Squamata	Serpentes	Colubridae	<i>Platyceps</i>	<i>saharicus</i>	LC		LC		N	*
Squamata	Serpentes	Colubridae	<i>Platyceps</i>	<i>sinai</i>	NT		NT		N	
Squamata	Serpentes	Colubridae	<i>Platyceps</i>	<i>variabilis</i>	LC		LC		Y	
Squamata	Serpentes	Colubridae	<i>Platyceps</i>	<i>ventromaculatus</i>	LC		LC		N	*
Squamata	Serpentes	Colubridae	<i>Rhynchocalamus</i>	<i>arabicus</i>	DD		DD		Y	
Squamata	Serpentes	Colubridae	<i>Spalerosophis</i>	<i>diadema</i>	LC		LC		N	*
Squamata	Serpentes	Colubridae	<i>Telescopus</i>	<i>dhara</i>	LC		LC		N	*
Squamata	Serpentes	Elapidae	<i>Naja</i>	<i>arabica</i>	LC		LC		Y	
Squamata	Serpentes	Elapidae	<i>Walterinnesia</i>	<i>aegyptia</i>	LC		LC		N	
Squamata	Serpentes	Elapidae	<i>Walterinnesia</i>	<i>morgani</i>	VU	A2ad	VU	A2ad	N	*
Squamata	Serpentes	Lamprophiidae	<i>Boaedon</i>	<i>fuliginosus</i>	LC		LC		N	*
Squamata	Serpentes	Lamprophiidae	<i>Dityophis</i>	<i>vivax</i>	LC		LC		Y	
Squamata	Serpentes	Leptotyphlopidae	<i>Leptotyphlops</i>	<i>filiformis</i>	DD		DD		Y	
Squamata	Serpentes	Leptotyphlopidae	<i>Leptotyphlops</i>	<i>macrurus</i>	DD		DD		Y	
Squamata	Serpentes	Leptotyphlopidae	<i>Leptotyphlops</i>	<i>wilsoni</i>	DD		DD		Y	
Squamata	Serpentes	Leptotyphlopidae	<i>Myriopholis</i>	<i>burii</i>	DD		DD		Y	
Squamata	Serpentes	Leptotyphlopidae	<i>Myriopholis</i>	<i>macrorhyncha</i>	LC		LC		N	*
Squamata	Serpentes	Leptotyphlopidae	<i>Myriopholis</i>	<i>nursii</i>	LC		LC		N	*
Squamata	Serpentes	Leptotyphlopidae	<i>Myriopholis</i>	<i>yemenicus</i>	DD		DD		Y	
Squamata	Serpentes	Psammophiidae	<i>Psammophis</i>	<i>schokari</i>	LC		LC		N	*
Squamata	Serpentes	Psammophiidae	<i>Rhagerhis</i>	<i>moilensis</i>	LC		LC		N	*
Squamata	Serpentes	Typhlopidae	<i>Ramphotyphlops</i>	<i>braminus</i>	LC		LC		N	*
Squamata	Serpentes	Typhlopidae	<i>Typhlops</i>	<i>socotranus</i>	DD		DD		Y	
Squamata	Serpentes	Viperidae	<i>Bitis</i>	<i>arietans</i>	LC		LC		N	*
Squamata	Serpentes	Viperidae	<i>Cerastes</i>	<i>cerastes</i>	LC		LC		N	*
Squamata	Serpentes	Viperidae	<i>Cerastes</i>	<i>gasperetti</i>	LC		LC		N	
Squamata	Serpentes	Viperidae	<i>Echis</i>	<i>borkini</i>	LC		LC		Y	
Squamata	Serpentes	Viperidae	<i>Echis</i>	<i>carinatus</i>	LC		LC		N	*
Squamata	Serpentes	Viperidae	<i>Echis</i>	<i>coloratus</i>	LC		LC		N	*
Squamata	Serpentes	Viperidae	<i>Echis</i>	<i>khosatzkii</i>	LC		LC		Y	
Squamata	Serpentes	Viperidae	<i>Echis</i>	<i>omanensis</i>	LC		LC		Y	
Squamata	Serpentes	Viperidae	<i>Pseudocerastes</i>	<i>feldi</i>	LC		LC		N	
Squamata	Serpentes	Viperidae	<i>Pseudocerastes</i>	<i>persicus</i>	LC		VU	B1ab(iii)	N	*

* For reptiles not endemic to the Arabian Peninsula the Global assessments remain provisional until the species is assessed across its entire range through the ongoing Global Reptile Assessment.

Appendix 3. Major threats to reptiles of the Arabian Peninsula

Major Threat	All Species			Threatened Species		
	Past	Present	Future	Past	Present	Future
1 Residential and Commercial Development	0	26	0	0	4	0
1.1 Housing and Urban Areas	0	16	0	0	2	0
1.2 Commercial and Industrial Areas	0	2	0	0	0	0
1.3 Tourism and Recreation Areas	0	8	0	0	2	0
2 Agriculture and Aquaculture	0	55	2	0	4	0
2.1 Annual & perennial non-timber crops	0	14	0	0	1	0
2.1.2 Small-holder farming	0	2	0	0	0	0
2.1.3 Agro-industry farming	0	10	0	0	1	0
2.1.4 Scale unknown/unrecorded	0	2	0	0	0	0
2.3 Livestock farming and ranching	0	27	2	0	0	0
2.3.1 Nomadic Grazing	0	16	1	0	1	0
2.3.2 Small-holder grazing, ranching or farming	0	8	0	0	1	0
2.3.3 Agro-industry grazing, ranching or farming	0	1	0	0	0	0
2.3.4 Scale unknown/unrecorded	0	2	1	0	0	0
3 Energy Production and Mining	0	15	0	0	2	0
3.1 Oil & gas drilling	0	1	0	0	1	0
3.2 Mining & quarrying	0	14	0	0	1	0
4 Transportation & service corridors	0	4	0	0	0	0
4.1 Roads and railroads	0	4	0	0	0	0
5 Biological resource use	0	25	0	0	3	0
5.1 Hunting & Trapping terrestrial animals	0	21	0	0	3	0
5.1.1 Intentional use (species is the target)	0	14	0	0	2	0
5.1.3 Persecution/control	0	7	0	0	1	0
5.3 Logging & wood harvesting	0	4	1	0	0	0
5.3.5 Unintentional effects (subsistence/small scale) [harvest]	0	2	0	0	0	0
5.3.5 Motivation unknown/unrecorded [harvest]	0	2	1	0	0	0
6 Human intrusions and disturbance	1	8	0	0	2	0
6.1 Recreational activities	0	8	0	0	2	0
6.2 War, civil unrest & military exercises	1	0	0	0	2	0
7 Natural system modifications	0	1	2	0	0	0
7.1 Fire and fire suppression	0	2	0	0	0	0
7.1.3 Trend unknown/unrecorded	0	2	0	0	0	0
7.2 Dams and water management/use	0	1	2	0	0	0
7.2.4 Abstraction of surface water (unknown use)	0	0	1	0	0	0
7.2.11 Dams (size unknown)	0	1	1	0	0	0
8 Invasive and other problematic species, genes & diseases	0	1	0	0	0	0
8.1 Invasive non-native/alien species/diseases	0	1	0	0	0	0
8.1.1 Unspecified species	0	1	0	0	0	0
9 Pollution	0	3	0	0	1	0
9.1 Domestic & urban waste water	0	1	0	0	0	0
9.1.3 Type unknown/unrecorded	0	1	0	0	1	0
9.3 Agricultural and forestry effluents	0	2	0	0	0	0
9.3.4 Type unknown/unrecorded	0	2	0	0	0	0

Appendix 4. Reptile species occurring wholly outside the protected areas of the Arabian Peninsula

Order	SubOrder	Family	Species name	IUCN RL Category
Squamata	Sauria	Agamidae	<i>Acanthocercus yemensis</i>	LC
Squamata	Sauria	Agamidae	<i>Uromastyx yemenensis</i>	NT
Squamata	Sauria	Gekkonidae	<i>Hemidactylus leschenaultii</i>	LC
Squamata	Sauria	Gekkonidae	<i>Stenodactylus pulcher</i>	LC
Squamata	Sauria	Gekkonidae	<i>Stenodactylus yemenensis</i>	LC
Squamata	Sauria	Gekkonidae	<i>Tropicolotes nattereri</i>	LC
Squamata	Sauria	Gekkonidae	<i>Tropicolotes wolfgangboehmei</i>	DD
Squamata	Sauria	Lacertidae	<i>Acanthodactylus arabicus</i>	LC
Squamata	Sauria	Lacertidae	<i>Acanthodactylus blanfordi</i>	LC
Squamata	Sauria	Lacertidae	<i>Acanthodactylus gongrorhynchatus</i>	DD
Squamata	Sauria	Lacertidae	<i>Mesalina martini</i>	LC
Squamata	Sauria	Phyllodactylidae	<i>Asaccus caudivolvulus</i>	LC
Squamata	Sauria	Phyllodactylidae	<i>Asaccus montanus</i>	VU
Squamata	Sauria	Phyllodactylidae	<i>Asaccus platyrhynchus</i>	LC
Squamata	Sauria	Scincidae	<i>Chalcides levitoni</i>	DD
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus collaris</i>	LC
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus crucifer</i>	DD
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus gallagheri</i>	NT
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus longipes</i>	DD
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus mazbah</i>	DD
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus ornithocephalus</i>	LC
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus saada</i>	LC
Squamata	Sauria	Sphaerodactylidae	<i>Pristurus schneideri</i>	LC
Squamata	Sauria	Trogonophidae	<i>Agamodon arabicus</i>	DD
Squamata	Serpentes	Colubridae	<i>Rhynchocalamus arabicus</i>	DD
Squamata	Serpentes	Leptotyphlopidae	<i>Myriopholis burii</i>	DD
Squamata	Serpentes	Viperidae	<i>Echis omanensis</i>	LC
Squamata	Serpentes	Viperidae	<i>Pseudocerastes persicus</i>	LC

Appendix 5. Newly described Arabian reptile species

Order	SubOrder	Family	Genus	Species	Range
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>alkiyumii</i>	Oman
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>endophis</i>	Oman
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>festivus</i>	Oman
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>hajarensis</i>	Oman
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>inexpectatus</i>	Oman
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>jumailiae</i>	Yemen
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>luqueorum</i>	Oman
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>masirahensis</i>	Oman
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>paucituberculatus</i>	Oman
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>saba</i>	Yemen
Squamata	Sauria	Gekkonidae	<i>Hemidactylus</i>	<i>shihraensis</i>	Yemen
Squamata	Sauria	Scincidae	<i>Trachylepis</i>	<i>cristinae</i>	Yemen

Appendix 6. Example species summary and distribution map



Common Names: No Common Names
Synonyms: Trigonodactylus Haas, 1957;

Stenodactylus arabicus - (Haas, 1957)

ANIMALIA - CHORDATA - REPTILIA - SQUAMATA - GEKKONIDAE - Stenodactylus - arabicus

Red List Status
LC - Least Concern, (IUCN version 3.1)

Red List Assessment

Assessment Information

Reviewed?	Date of Review:	Status:	Reasons for Rejection:	Improvements Needed:
true	2012-03-16	Passed	-	-

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Reviewers: Cox, N.A. & Bowles, P.

Facilitators/Compilers: Cox, N.A.

Assessment Rationale

This species is listed as Least Concern in view of its wide range and lack of significant threats.

Distribution

Geographic Range

This species is present in Saudi Arabia, southern and central Oman and the United Arab Emirates. It is found from sea level to 500-600 m asl.

Elevation / Depth / Depth Zones

Elevation Lower Limit (in metres above sea level): 0

Elevation Upper Limit (in metres above sea level): 600

Map Status

Map Status	Data Sensitive?	Justification	Geographic range this applies to:	Date restriction imposed:
Done	-	-	-	-

Biogeographic Realms

Biogeographic Realm: Palearctic

Occurrence

Countries of Occurrence

Country	Presence	Origin	Formerly Bred	Seasonality
Oman	Extant	Native	-	Resident
Saudi Arabia	Extant	Native	-	Resident
Yemen	Extant	Native	-	Resident

Population

It occurs at very high densities.

Habitats and Ecology

It is a nocturnal ground gecko found in vast soft sandy areas (van der Kooij 2000). Arnold (1977) reports it from fine windblown sand, but that it is also found on firmer substrates.

Life History

Breeding Strategy

Does the species lay eggs?	Does the species give birth to live young	Does the species exhibit parthenogenesis
Yes	No	No

Systems

System: Terrestrial

Use and Trade

General Use and Trade Information

There is no trade in this species.

Threats

There appear to be no threats to this species.

Conservation

It is present in some protected areas.

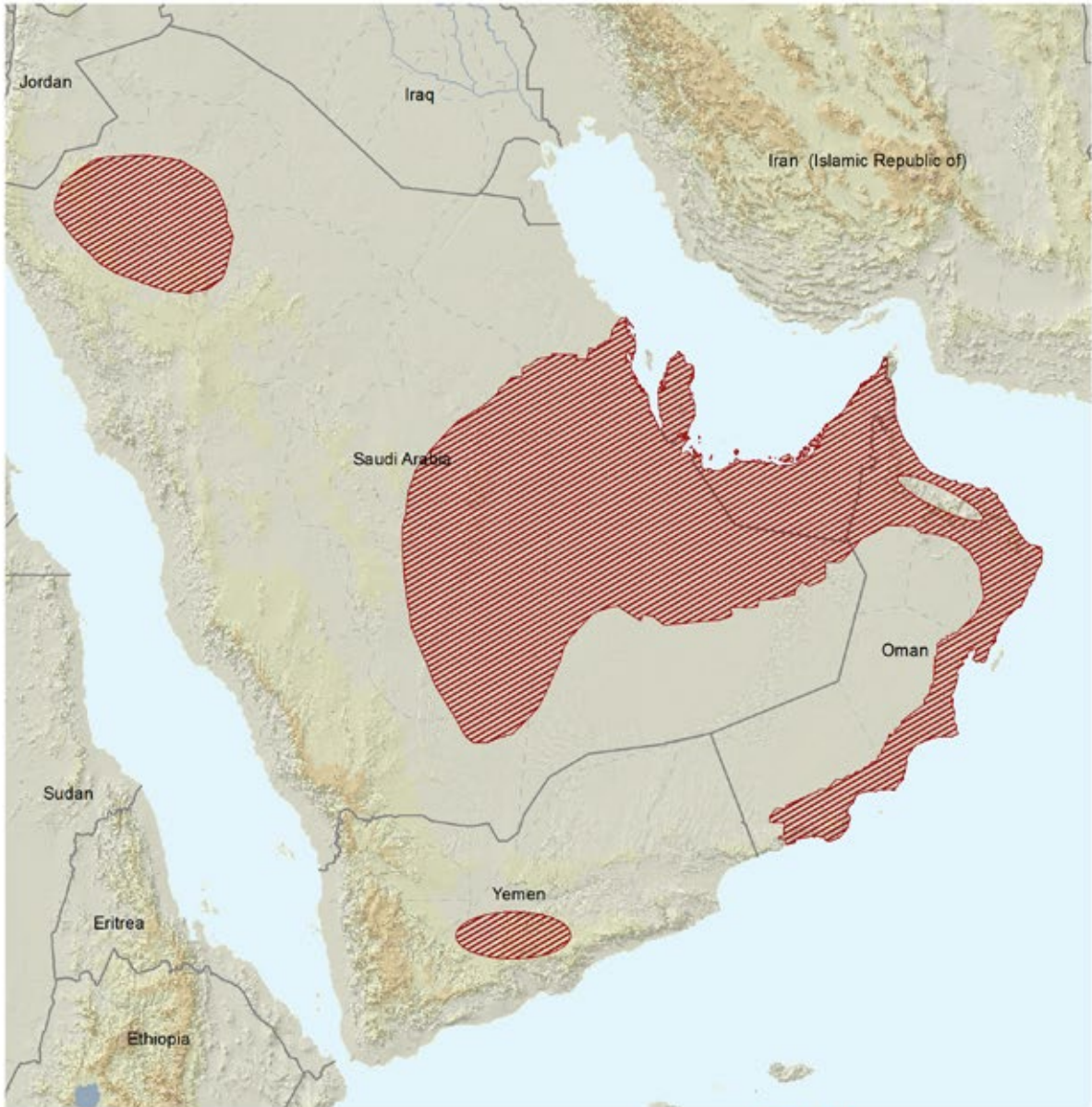
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Stenodactylus arabicus


range type

 Native (resident)

— national boundaries

- - - subnational boundaries

 lakes, rivers, canals

 salt pans, intermittent rivers

data source:
IUCN



gall stereographic central point: 0°, 0°

Map created 09/06/2012



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

The black desert cobra *Walterinnesia morgani* range in Arabia is restricted to northeastern Saudi Arabia. It is currently categorized by IUCN as Vulnerable. © Johannes Els, BCEAW.





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