Fourth International Conservation Workshop

for

The Threatened Fauna of Arabia

Final Report
Fourth International Conservation Workshop

for

The Threatened Fauna of Arabia

Endorsed by the IUCN/SSC Conservation Breeding Specialist Group

Master map originally provided by Environmental Research and Wildlife Development Agency, edited by Breeding Centre for Endangered Arabian Wildlife, EPAA.


Additional copies of Fourth International Conservation Workshop for the Threatened Fauna of Arabia can be ordered from the Breeding Centre for Endangered Arabian Wildlife; PO Box 24395; Sharjah; United Arab Emirates.

2003
Fourth International Conservation Workshop

for

The Threatened Fauna of Arabia

Contents

Section 1 Arabian Leopard page 4
Section 2 Arabian Ungulates page 13
Section 3 Freshwaterfish and Amphibians page 32
Section 4 Participants list page 83
Appendix 1 GCC agreement page 98
Appendix 2 Arabian leopard status report presentations page 118
   a) Oman
   b) UAE
   c) Yemen
Arabian leopard

Section 1
Arabian Leopard Workshop Group

Participants:

Abdulaziz Al Midfa  U.A.E  epaa@emirates.net.ae
Abdulah Sonbul  Yemen  SANAACLEAN@y.net.ye
Abdulrahman Khoja  Saudi Arabia  ark@nwrc-sa.org
Ali Saleem Bait Said  Oman  alidofar@omantel.net.om
Andrew Spalton  Oman  acedrc@omantel.net.om
Azhar Abbas  U.A.E  drazhar@emirates.net.ae
Jacky Judas  Saudi Arabia  jacky.judas@wanadoo.fr
Jane-Ashley Edmonds  U.A.E  jane_ashley@hotmail.com
Kevin Budd  U.A.E  kevbudd@hotmail.com
Mayyas Al Qarqaz  Jordan  qarqasmayas@rscn.org.jo
Moaz Sawaf  U.A.E  arabianleopard@hotmail.com
Mohammed Ali Al Hammadi  U.A.E  qarmosha@emirates.net.ae
Nagi Saleh Thowabeh  Yemen  nagiepa@hotmail.com
Ohoud Al Raqam  Kuwait  ohoud@tsck.org.kw
Raju Vasudevan  U.A.E  rajuvasudevan@hotmail.com
Sean McKeown  U.A.E  smckeown@emirates.net.ae
Urs Breitenmoser (facilitator)  UICN, Switzerland  urs.breitenmoser@ivv.unibe.ch

The traditional CAMP and PHVA processes have been essential in developing the tools and network, which are available today. Together with CBSG, it was decided that it would be of little benefit to follow the same process again this year. In light of this, a new format for the workshop was followed and several presentations outlining the present situation within the region were presented as a general update from each region:

Towards a Conservation Strategy (Urs Breitenmoser)
Status Report: Oman (A. Spalton)
Status Report: Saudi Arabia (A. Khoja)
Status Report: UAE (C. Gross)
Status Report: Yemen (D. Mallon)
Captive Breeding Program (K. Budd)

These presentations were followed immediately by the first group discussion. The Ungulate and Leopard groups combined for a brief review and discussion of the current situation of each species in Arabia. A concern expressed during the previous CAMP workshop (2002)
was that specific people have information that pertains to both groups which is invariably ignored or forgotten once the groups have separated. The objective therefore for combining the groups was to try to ensure that information for each species is made available to all of the groups.

It was agreed to start the proceedings by reviewing the recommendations made by the group last year (CBSG, 2002).

**Review: Actions 2002**

**Goal 1 – Gain information on distribution and ecology of the Arabian leopard**

The CatSG online library has been established and can be accessed through [www.ibackup.com](http://www.ibackup.com) (user name: catsglib, password: catsglib). Reference material can be submitted to catsglib@kora.ch as either printed material or in a digital format (PDF preferred).

An online chat/discussion group has been formed and can be viewed at [http://groups.msn.com/ArabianLeopard](http://groups.msn.com/ArabianLeopard). The information is freely available for anyone to read but in order to submit and/or download any of the material you will need to register with the group’s administrator.

All CAMP workshop delegates who attended the 2002 workshop were invited to join, however, several have failed to do so. Although the chat group does not yet function as it was initially intended, the general consensus seems to be that the means are in place for the rapid exchange and sharing of information. Unfortunately those participants that have submitted pieces have become de-motivated due to the lack of feedback.

The survey report of the KSA from the area north of Madina has not yet been published and as a result the author (Mr. Johanny) was reluctant to make the information available at the workshop.

The relevant pages from the Baboon survey conducted in KSA have been received and were distributed to all interested parties. They are included in appendix 1.

No specific training material was produced during the past year not were any ranger workshops held.

There was some debate as to the benefits of hosting a training program that requires funding, organization and a limited time frame (hours or days) compared to actual fieldwork. There is no substitute for exposure to actual field techniques and it was agreed that rangers (Saudi Arabia) would ultimately learn more by spending a week in the mountains with an experienced survey team (Oman).

**Goal 2 - Coordinated conservation strategy**

Three of the four countries have submitted draft copies of the status reports to the IUCN Cat Specialist Group. Saudi Arabia, the only country not to have prepared a status report, will attempt to submit their report as soon as possible.

It was agreed that a deadline would be enforced on the 3rd day of the workshop. After which the responsibility would fall to each country to publish their Status Reports.
The UAE and Yemen failed to form their National Leopard Task Force. Oman has done so and the group met in September 2002 for the first time. Saudi Arabia was not included in the recommendation, as a group is already in place; however this group has not met since the last CAMP in February 2002.

**Goal 3 – Secure prey base of the Arabian leopard**

All available information about livestock management should be contained within the Status Reports from each country.

The summary of the diet research conducted in Oman has still not been published. A. Spalton will follow up.

**Goal 4 - Define target groups for public awareness campaigns**

No posters were produced in the UAE or Yemen.

In Oman four information panels have been produced and will be incorporated into a mobile display as well being displayed at several permanent locations; a pamphlet is also being produced. There is also some information about the Arabian leopard available on the following website [www.oryxoman.com](http://www.oryxoman.com). None of this material has been shared with the other range states due primarily to the absence of the Arabian Leopard Action Groups within the other countries. This material will be made available through the Arabian Leopard chat group website.

**Goal 5 – Secure legal protection for the Arabian leopard**

Copies of the GCC agreement were received or distributed before the workshop; however, Mr Fwaz Al-Baroudi was able to contact Mr Hani Tatwany during the course of the workshop. Copies (Arabic) were consequently made available and distributed to all interested parties.

It was agreed that the CAMP process and Status Reports have produced a good base from which to launch an appeal to the Federal Governments. This should be a top/down approach however the person/parties who can carry the message up still need to be identified.
**Arabian Leopard CAMP 2003 – List of Actions**

**Old tasks (from 2002 action list)**

<table>
<thead>
<tr>
<th>Action</th>
<th>Who</th>
<th>To whom</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finalise draft versions of country status reports (see list for details)</td>
<td>Authors (see list)</td>
<td>U. Breitenmoser</td>
<td>31.05.03</td>
</tr>
<tr>
<td>Review reports and report back</td>
<td>All authors</td>
<td>First author</td>
<td>30.06.03</td>
</tr>
<tr>
<td>Submit final version of reports</td>
<td>First authors</td>
<td>U. Breitenmoser</td>
<td>31.07.03</td>
</tr>
<tr>
<td>Produce special issue of Cat News</td>
<td>Cat SG</td>
<td>-</td>
<td>30.08.03</td>
</tr>
<tr>
<td>Produce inventory of educational material for each country</td>
<td>UAE: Jane Oman: Andrew KSA: Abdulrahman Jordan: Myyas Kuwait: Ohoud Yemen: Jane</td>
<td>Jane</td>
<td>31.05.03</td>
</tr>
<tr>
<td>Simplified taxon data sheet for cats</td>
<td>Kevin &amp; Jane</td>
<td>-</td>
<td>With final report</td>
</tr>
<tr>
<td>Produce taxon data sheets for all cats in each country</td>
<td>All</td>
<td>To Jane and Kevin</td>
<td>31.10.03</td>
</tr>
<tr>
<td>Prepare presentation on the extant cats for each country (PP, 15 min)</td>
<td>All</td>
<td>CAMP 2004</td>
<td></td>
</tr>
</tbody>
</table>

**Special issue of CAT NEWS: Status and Conservation of the Arabian Leopard**

Contents:

- Preface
- Introduction: Cat Specialist Group
- Status report Oman: J. A. Spalton, Ali Salim Bait Said
- Status report UAE\(^1\): J. A. Edmonds, K. J. Budd, C. Gross
- Status report Yemen: D. Mallon, K. Nasher, N. Thowabah
- Status report KSA: J. Judas, Abdulrahman Khoja, Ahmed Boug
- Report Jordan: Myyas Qarqaz, Mohammad Abu Baker
- Captive breeding programme: K. J. Budd, C. Gross, Abdulaziz al Midfah, and others?
- Review of the taxonomic and genetic status and the historical distribution: J. A. Spalton and others.
- Framework for a conservation strategy: U. Breitenmoser and others.

**Felid wish list 2004:**

- Day one: Arabian leopard update
- Day two: Communication, Education and human dimension workshop
- Day three: Review of cat species in all countries of Arabia

---

\(^1\) Include questionnaire survey by Moaz Sawaf
A Framework for the Conservation of the Arabian Leopard

Conclusions form the Arabian leopard workshop at the 4th Conservation Assessment and Management Plan (CAMP) meeting, Sharjah, UAE, 23 – 26 February 2003

The Arabian leopard (Panthera pardus nimr) is a distinct sub-species of the leopard that originally roamed throughout the mountains of the Arabian Peninsula (Spalton et al., this issue). Today, the range of the Arabian leopard is fragmented into about 12 local occurrences in four countries (see status reports in this issue), of which probably none can be considered viable in the long-term. In the IUCN/SSC Red List, the Arabian leopard is listed as Critically Endangered. The causes for the decline identified during the four Sharjah CAMP meetings so far are the “classical” threats to the existence of large carnivore populations, namely (1) direct persecution, partly as a consequence of predator-livestock conflicts, (2) prey deletion, and (3) habitat deterioration and fragmentation. The status, the dynamic, and the mechanisms driving the decline are, however, not understood in detail for most of the extant populations. All experts from the range countries agree that the leopard has become rare, but nobody knows how fast the decline is and how much time is left to save this unique leopard.

Urgent action is needed, both in situ and ex situ. A conservation-breeding programme was established some years ago (Budd et al., this issue) in order to secure the survival of the taxon at least in captivity. The conservation-breeding programme has made remarkable progress within a few years, but there are at present only two centres that produce leopards, and both the number of individuals and the captive gene pool are still small. To secure the survival of the wild populations, the legal protection must be implemented, local people must be informed and educated, and the habitat and the wild prey availability must be improved. But where and how should we start? In many cases, not even the distribution of the leopards is known in detail (see status reports in this issue). The only field project, so far, is ongoing in Oman [REFs]. In all other countries, a serious field survey is the point to start with.

Scenario for the recovery of the Arabian leopard

It is, however, not too early to think about a possible scenario for a recovery programme, including the reintegration of captive bread leopards in the wild population. The captive breeding programme will need some more years to be able to provide animals, but the preparations in the field will need at least the same amount of time. The ultimate aim of a recovery programme will be to restore a viable, self-sustaining population of the Arabian leopard in the wild. It is, at least from today’s perspective, not realistic to propose the recovery of the leopard in the total of its historical range; too many of its original space has been taken over by the humans. What we propose is a meta-population approach, so to create a chain of populations along the coastline mountains of Arabia, which have, through habitat corridors, a limited exchange of individuals to allow the survival of each population and the maintenance of a sufficient genetic diversity. This seems, for most of the extant occurrences, not unrealistic. What is needed to reach this goal is (1) to stop the decline of the existing populations, (2) improve the habitat and the prey base within and between the areas occupied (so connect the populations through corridors), and (3) reintroduce leopards from the captive breeding programme to booster or connect the now isolated populations.
The framework

In regard to the conservation of the extant wild populations and the long-term recovery of the Arabian leopard, actions need to be taken on different levels, this is on the range level (historic or potential distribution area of the taxon), on the country level (the countries being the most important management units), and finally, in the field, with each of the remaining occurrences. Clearly, the institutions and individuals in charge of the actions are not the same on each level and differ from country to country. During the CAMP workshops organized yearly by Animal Management Consultancy (AMC) and hosted by the Environment and Protected Areas Authority, Sharjah (EPAA), a group of experts from all range countries and international organizations has formed with the aim to advance the conservation of the Arabian leopard. This group can develop a conservation strategy on the range level and facilitate action on the national or population level. However, most of the actions needed must be implemented and carried out on the country level and fall within the responsibilities of the national institutions. A strong commitment of the organizations in charge in each of the range countries is therefore crucial for the successful conservation of the Arabian leopard. To conserve an elusive and conflict-ridden species in a harsh environment as the mountain ranges of Arabia is not only an ambitious, but also a very difficult, complicated and long-lasting mission. In order to facilitate the definition of tasks and the co-ordination and the co-operation between the three levels and the different institutions involved, the expert group has, during the CAMP workshop 2003, developed a framework. The group recommends that the following documents should be drafted and implemented on the three levels identified:

Range level

Aim: To develop a Conservation Strategy for the restoration of a viable meta-population of the Arabian leopard in its historical range.
Responsible institutions: International expert group at the CAMP workshops.

Actions: To develop a GIS model with the potential (historic) and present distribution of the Arabian leopard including, as available, information on habitat and prey distribution, and corridors and barriers between the extant populations.

To develop a long-term strategy for the recovery of a viable population, considering meta-population considerations, including the need for habitat restoration and prey enhancement, the creation of additional protected areas, conflict resolution, and local re-introductions.

To create and maintain a captive population allowing the conservation of 98% of the known genetic diversity of the Panthera pardus nimr sub-species.

To analyze the genetic status of each of the extant wild populations.
Country level

Aim: To develop a National Action Plan considering the present status of the Arabian leopard in the respective country (see status reports) and the recommendations of the global conservation strategy.

Responsible institutions: National authorities (GOs), national leopard board.

The national actions plan should address the following topics:

- Continued monitoring system for the leopard and its main prey species.
- Legal status and law enforcement.
- Identification of threats and resolution of conflicts.
- Public awareness, education, and involvement of local people.
- Creation of new protected areas if needed, and implementation of management plans for the existing protected areas.
- Cross-border co-operation where wild populations are shared by neighbouring countries.
- Incorporation of the national breeding facilities into the co-operative conservation breeding programme for the Arabian leopard, according to the recommendations of the Arabian leopard breeding group.

Population level

Aim: To outline Field Procedures (techniques, manpower, analysis and reporting) to secure field surveys to establish the status of each population and its continued monitoring.

Responsible institutions: Wildlife research or management institutions, NGOs.

On the population level, the following actions should be carried out:

- Execute the surveys and the monitoring as identified in the national action plans in order to establish the population size and trends.
- Produce relevant ecological data (land tenure system, prey use and prey availability, etc.).
- Establish co-operation with local people in order to solve the conflicts identified.
- For the captive population, the following actions are required:
- Active participation of the captive breeding facilities in the all range countries in the captive breeding programme and start breeding in Yemen and KSA.
- Secure the capacity needed to host the captive population long-term (enlarge or improve the existing facilities, incorporate new institutions into the programme).
Arabian ungulates

Section 2
UNGULATE GROUP REPORT

Participants

Dr. David Mallon (facilitator)
Fawaz Al Baroudi
Dr. Tom Bailey
Chris Drew
Fred Launay
Dr. Peter McKinney
Dr Pascal Mesochina
Mansoor Hamad Al Jahdhami
Dr Iyad A. Nader
John Newby
Declan O’Donovan
Hanan Salman Al Khalifa
Marta Abdulrazaq Al-Mutairi
Sheikha Al Dhaheri
Peter Phelan
Mayas Qarqaz
Dr. Andrew Spalton
Mubarak Ali Al Dosary
Saleh Naghoosh Thani Ali Saadi
Dr P.B. Giridas
Ingrid Barcello
Marloes van Delft

Introduction

The ungulate group reviewed the status of all species across their range in the Arabian Peninsula and carried out a formal IUCN Red List process for each one. It was decided that there was no need to complete a new series of taxon data sheets, as most of the information collated at previous CAMP meetings remained relevant. It was reaffirmed that the long-term goal should be to ensure the presence of viable populations of all species in a representative sample of former habitats and range.

Arabian Oryx (Oryx leucoryx)

Distribution and Status

Oman

The free-ranging population in the Arabian Oryx Sanctuary numbered 100 males and 6 females in early 2003. This represents a sharp decline due to poaching. Numbers were c.450 in 1996 when poaching began. After a lull that followed the involvement of the military in wardening the AOS, poaching resumed in 1999. 36 (1:35) animals were caught and returned to captivity at Yalooni. In total 91 (4:87) are now present at Yalooni. There
are about 70 oryx at the Omani Mammal Breeding Centre near Muscat. Further releases into the wild have been halted until the problem of poaching has been solved. At least 200 are estimated to have been illegally caught for sale and exported and there is believed to be a high level of mortality during transport. A number of proposals to are under active consideration to improve the situation.

**Saudi Arabia**

About 500 in Mahazat as Sayd (fenced reserve of 2900 sq km) and around 200 free-ranging in Uruq Bani Ma’rid reserve (5500 sq km). The UBM population is now at or near carrying capacity. Proposed reintroduction at Hararat al Harrah has not yet been implemented. 223 captive animals are held at NWRC, Taif, and 11 at KKWRC. There are an unknown number in private collections.

**United Arab Emirates**

According to a questionnaire survey, there are >3400 animals in collections, about 90% of them in Abu Dhabi. Some collections that did not respond also hold oryx. Preliminary consideration is being given to the feasibility of establishing a free-ranging population in the UAE.

**Bahrain**


**Jordan**

Eight oryx remain out of the original 10 taken to Wadi Rum Protected Area as part of a release programme. These are still in the pre-release enclosure as no suitable area of habitat within the PA has been identified. Possible release sites between Wadi Rum PA and the Saudi border are being investigated. Around 60 oryx are left in the fenced reserve at Shaumari (a further 14 were lost recently during floods).

**Syria**

There is a managed population of 26 animals at Al Talila Reserve, 10 of which originated from Shaumari. A release programme is planned but the implementation schedule is unknown.

**Qatar**

At least 300 are in managed collections.

**Kuwait**

Kuwait Institute for Scientific Research is conducting a feasibility study for reintroduction including identification of areas of suitable habitat for a release. It is hoped to have a free-living population in 2-3 years time.

**IUCN Red List Assessment**

Endangered EN C1
Issues

Poaching  Continuing poaching of the Oman population has caused a considerable setback to the reintroduction project and is the most important current issue. The potential market for wild-caught oryx is a long way from saturation. There was a long discussion on this very complex situation and in summary it was agreed that action was needed both in Oman to prevent poaching and in the UAE to prevent the sale of oryx. Several initiatives are currently under discussion.

Co-ordination Committee for the Conservation of Arabian Oryx (CCCAO). Meetings have already been held with representatives from range states. The secretariat is based at ERWDA and its first task will be to formulate a budget for the secretariat and a business plan. The intention is to focus on important conservation issues and a priority will be development of a Regional Action Plan for the Arabian oryx. CCCAO will also co-ordinate and collate information on practical issues concerning re-introduction. There was unanimous support for the role of CCCAO as the leading body co-ordinating Arabian oryx conservation.

Reintroduction  Efforts to return the species to the wild have slowed overall, in view of the setback to the programme in Oman. Both populations in Saudi Arabia have increased in number, though there was some debate as to the extent that the oryx in the fenced reserve at Mahazat as-Sayd qualified as a wild population. In Uruq Bani Ma’arid the population is at or near carrying capacity. One of the main limiting factors there is the availability of shade and the provision of artificial trees was suggested as a possible way of increasing the amount of shade. Further release sites in Saudi Arabia are being sought. Jordan has oryx in a pre-release enclosure but an area of suitable habitat has yet to be identified. Projects in Syria, Kuwait and UAE are at varying stages of planning. It is possible to envisage the future establishment of an Empty Quarter metapopulation encompassing expanded populations from Uruq Bani Ma’arid and Oman and releases in the UAE. However, before this can be realised the long-term problem of protecting animals outside protected areas will need to be solved.

Captive breeding  Reproduction of oryx in captivity is not a problem and at the global level, many are produced each year. In fact, in most European and American collections newly born males are routinely put down at birth. Given the small number of founders of the original captive herd, appropriate management to maximize the genetic diversity of individual captive herds is important. At a local level some collections are excellently managed whereas others are not, with inbreeding and no proper management. In theory exchange of animals should be a straightforward process and this takes place between some collections but this is not the case with all. It was agreed that a Regional Oryx Studbook was desirable, and that this would be best accomplished by starting with an informal meeting of collection managers. Declan O’Donovan offered to organise a meeting to discuss this and other issues surrounding oryx. The remit of the group would be extended to all ungulates.

Publicity and Awareness  Websites have been set up in Saudi Arabia (www.arabianoryx.com), Oman (www.omanoryx.com), and Abu Dhabi (www.whiteoryx.org).
Gazelles

Taxonomy

Results of genetic analyses at KKWRC were now available and showed the following:

Gazella gazella contains 6 genetically distinct subspecies units:
G. g. farasani (Farasan Islands, Saudi Arabia)
G. g. cora (most of the Arabian Peninsula)
G. g. muscatensis (originally known only from the Batinah region of Oman. Current status unknown; one captive herd at Al Areen WP)
G. g. erlangeri (specimens from unspecified localities in northern Yemen. Possibly also in adjoining areas of SW Saudi Arabia. Current status in the wild unknown. One captive herd at KKWRC)
G. g. gazella (northern part of the Arabian Peninsula - outside the CAMP workshop area
G. g. acaciae (c.20 animals in a tiny area in Wadi Araba, outside the CAMP workshop area

Gazella saudiya is a valid species, but systematic analysis of all supposed captive specimens showed they are either mis-identified or hybrids.

Gazella bilkis is not specifically distinct.

Gazella [subgutturosa] marica is a very distinctive taxon that may be more appropriately placed with G. leptoceros. Research on this is continuing.

IUCN Red List Assessments

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountain gazelle Gazella gazella</td>
<td>Vulnerable</td>
<td>*VUA2ad</td>
</tr>
<tr>
<td>G. g. cora</td>
<td>Vulnerable</td>
<td>*VU C1</td>
</tr>
<tr>
<td>G. g. farasani</td>
<td>Vulnerable</td>
<td>VU D1+2</td>
</tr>
<tr>
<td>G. g. muscatensis</td>
<td>Data Deficient</td>
<td>*DD</td>
</tr>
<tr>
<td>G. g. erlangeri</td>
<td>Data Deficient</td>
<td>DD</td>
</tr>
<tr>
<td>Arabian sand gazelle Gazella [s] marica</td>
<td>Vulnerable</td>
<td>VU C2a(i)</td>
</tr>
<tr>
<td>Saudi gazelle Gazella saudiya</td>
<td>Extinct</td>
<td>*EX</td>
</tr>
<tr>
<td>Yemen gazelle Gazella bilkis</td>
<td>Extinct</td>
<td>EX</td>
</tr>
</tbody>
</table>

*Notes:
G. gazella. The status of the northern subspecies, Palestine mountain gazelle (G.g. gazella) has deteriorated sharply. Numbers have fallen from c. 10,000 to 3,000 by early 2003, a decline of 70% and qualifying for Endangered (EN A2ad). When calculated together with the decline in the mountain gazelle population in Oman, this results in a change in status for the species to Vulnerable (VU A2ad).
Although the decline in Oman is not quantified, a conservative estimate suggests that overall numbers of G.g. cora are below 10,000 mature individuals, and so a status of VU C1 is appropriate.

G.g. muscatensis: IUCN Red List regulations stipulate that a change to a lower category of threat should be made after conditions have been met for five years, so this taxon will still be listed as CR for the time being.

G. saudiya: On the same basis, this species remains EW for the time being.
Species Accounts

Reem or Arabian Sand Gazelle (Gazella [subgutturosa] marica)

Saudi Arabia

Four populations are known, all in protected areas. Total numbers estimated at 2650-3050. Two are in the north: Harat al Harrah (600-1000) and Al Khunfah (<50 in 2002 aerial census). The population in Al Khunfah has declined due to poaching and animals straying out of the reserve. At Mahazat as Sayd the reintroduced population now numbers <1000 and at Urq Bani Ma’arid also <1000. Captive: 1500 in an enclosure at Qasseem and around 360 at KKWRC, Riyadh. All these have either been genetically screened or are in the process of screening. An unknown number are in private collections.

Oman

In Dhofar, they occur from Mughshin north to the Saudi border and west to the Yemen border. Ranger records indicate some increase. Also from the Oman sector of the Empty Quarter south to the edge of the Arabian Oryx Sanctuary. Recently disappeared from the Barr al Hikman area and no longer occur in the Wahiba Sands. Size of the overall population is unknown but certainly declining due to poaching. A poacher caught with reem in May 2002 was recently sentenced to 5 years in jail.

Yemen

There are a few old records from the edge of the Empty Quarter. Current status is unknown. Some records from the 1980s-1990s of gazelles in eastern Yemen may refer to this species.

United Arab Emirates

A population occurs in the Umm al Zumur area and may number up to 1000. Fences along roads etc fortuitously enclose much of the area occupied. The area also contains plantations that the gazelles utilise for feeding. ERWDA will be funding a study of these gazelles probably involving radio-collaring. A large number, possibly 15,000, occurs on Sir Bani Yas Island but these were not included in the overall total as they probably have mixed origins. Captive herds are held at BCEAW and in many private collections.

Bahrain

The total population is >1,700. There are 100 in the reserve section of Al Areen WP, 350-400 on Hawar Island, 450-500 in the Protected Area in the south of Bahrain Island and c.700 on Umm al Nasan Island.

Jordan

Believed to still occur in the NE desert, but thought to be very few in number. Captive: 4 males are held at Shaumari and females are needed. KKWRC agreed to provide these, subject to satisfactory screening.

Syria
Some occur in the Jordan-Syria border area. Around 100 were estimated to occur there (Habibi 1998). A small captive herd of around 20 animals is present, including animals donated by KKWRC.

**Qatar**

No wild population. A captive herd is held at Al Wabra.

**Kuwait**

There are old records of occurrence from Kuwait but they have been extinct in the wild for many years. A feasibility study for reintroduction is currently under way by the Kuwait Institute of Scientific Research and it is hoped to begin a release programme within 2-3 years.
Gazella (subgutturosa) marica
Idmi or Mountain Gazelle (*Gazella gazella*)

**Saudi Arabia**

G.g. farasani: Farasan Islands (possibly up to 1000)

G.g. cora: There are reintroduced populations in the Ibex Reserve (240-300), and Uruq Bani Ma’arid (150-200). Scattered populations occur in Al-Khunfah protected area and down the western side of the country from Gulf of Aqaba to the Yemen border. Population size is small, possibly only c.100. Captive: About 240 at KKWRC, including 49 (22:27) G. g. erlangeri.

**Oman**

All idmi in Oman are regarded simply as G. gazella. The main population occurs in the Arabian Oryx Sanctuary and numbered 10,000-15,000 in 1996-98. These are subject to heavy poaching at present with around 4 reported cases per week. The area is also suffering from a drought that is presumed to have an adverse effect on the gazelles. Idmi are also known in Dhofar, including Jebel Samhan, the mountains around Muscat, Eastern Hajjar as far as Sur (including some in Wadi Sareen Tahr Reserve), and on Masirah Island. A few occur in the mountains northwest of Muscat, the area where G.g. muscatensis formerly occurred.

**Yemen**

There are scattered records from the western escarpment and localities in southern Yemen. No details of current distribution and numbers are available. Records from eastern Yemen during the 1990s may refer to idmi.

**United Arab Emirates**

Only known in the Jebel Ali area but the precise origin of these gazelles is unknown. Escapes from captivity may include animals of mixed parentage. Gazelles of mixed origins are known to have escaped or been released in places. Captive: There are herds at BCEAW, Sharjah; in Abu Dhabi (around 5,500), and in many private collections.

**Bahrain**

Al Areen Wildlife Park has 40 G. g. cora and 27 G. g. muscatensis. These are managed separately.

**Jordan**

Formerly occurred in the northern part of the Jordan Valley but there have been no records since 1986.

**Qatar**

A captive population is held at Al Wabra.

**Issues and Recommendations**
**Taxonomy.** The confusion over taxonomy has largely been cleared up as a result of the work carried out at KKWRC and this clarifies a problem that had previously held up conservation efforts. Captive herds should be managed on this basis and existing herds screened to identify them genetically. KKWRC will provide the facility for genetic screening, subject to a small charge (protocol in 2002 CAMP report). All gazelles must be genetically screened before release into the wild.

**Status.** The species as a whole is considered Lower Risk but individual populations are subject to a variety of threats. Efforts should be made to identify wild populations of G.g. erlangeri and G.g. muscatensis. Farasan gazelle G.g. farasani has a restricted range on the Farasan Islands and is susceptible to chance events. It is advisable to establish reserve populations at KKWRC and Al Areen WP. The current status of gazelles in Yemen is unknown and surveys are urgently required.

**Hybrids.** Many collections, especially in the UAE contain animals of mixed origins that have interbred. Some of doubtful origin are known to have escaped or been released. Goitered gazelles (G. subgutturosa subgutturosa) are imported from Iran and chinkara (G. bennettii) from Pakistan or NW India. Idmi cross with chinkara and dorcas gazelle, and chinkara and dorcas will also hybridise. Fortunately, idmi and reem do not interbreed, but hybridisation between reem and the nominate form of goitered gazelle is a potential problem. At least one sighting of a Thomson’s gazelle (G. thomsoni) running wild in the UAE was reported; this species does not interbreed so there should be no long-term problem.

**Poaching.** Both reem and idmi are subject to poaching in Oman and if unchecked will threaten their status.
Caprins

Arabian Tahr (Hemitragus jayakari)

Status and Distribution

Oman

Occurs sporadically in the Western and Eastern Hajar Mountains from Musandam almost to Sur. The population was estimated at 2,000 several years ago. Animals in Wadi Sareen Tahr Reserve are well protected by a permanent ranger force. A mobile ranger force in the rest of the Hajar Mountains gives some protection to other populations. The habitat is difficult to access giving some protection from hunting though limited poaching at water holes has been reported. Tahr are not viewed as a desirable item in the live capture trade or private collections.

United Arab Emirates

Surveys and camera trapping by ERWDA on Jebel Hafit have shown an increase in the number of sightings, including one of a pregnant female and tracks of female and young. It is unclear whether this reflects an increase in the local tahr population or a movement of animals from the Oman side of the mountain to reach water and greenery around a new tourist development. Work is being carried out on the possibility of making Jebel Hafit a protected area.

Captive

About 25 are held at the Oman Mammal Breeding Centre and 14 in Abu Dhabi. A small number previously held in Al Ain Zoo have recently been transferred elsewhere. Some tahr are held in small private collections in the Buraimi area.

IUCN Red List Assessment

Endangered EN C2a(i)

Issues

Status

Current status is based on estimates of population size made several years ago and updated estimates for Oman are urgently needed, especially if these can be linked to annual monitoring to provide an indication of population trends.

Habitat

Habitat is increasingly fragmented by roads and 4WD tracks through the mountains that improve access to remote areas and increase disturbance.

Captive breeding

Only a relatively small number of animals are in captivity and the small size of the wild population makes it risky to catch many more. It is therefore important to maximise effectiveness of breeding populations by exchange and establishment of herds in facilities with expertise.
Nubian Ibex (*Capra nubiana*)

**Status and Distribution**

**Saudi Arabia**

Formerly distributed widely in the mountains of western and north-central Saudi Arabia. Currently an isolated population (250-300) occurs in the Ibex Reserve, south of Riyadh and small numbers (possibly as few as 100-150) remain in the western mountains. Known localities include Tubayq (near the Jordanian border), north of Medina, and south of Bahar. The population in the Ibex Reserve is monitored at monthly intervals. Surveys are needed in the rest of the range, especially the area north of Medina, to establish current distribution and status.

**Oman**

Occur in southern Oman from the Huqf escarpment to Dhofar. The Huqf population was estimated at around 600 in the early 1990s and is now isolated from those farther west. In Dhofar ibex are found on Jebel Samhan, Jebel Qara, and Jebel Qamr (numbers unknown). Part of the Huqf lies within the Arabian Oryx Sanctuary and Jebel Samhan is a protected area. The rocky terrain of the Huqf escarpment hinders vehicle access and offers some protection from poaching. Preliminary results of research on the Huqf ibex including radio-tracking data were presented to the III World Conference on Mountain Ungulates held in Zaragoza, Spain, in June 2002. There is a single observation from the Hajjar Mountains of northern Oman dating from 1967 (Harrison 1968) but it has never been established whether a wild population of ibex existed there. On ecological grounds it is difficult to imagine how they would have been able to share the habitat with Arabian tahr.

**United Arab Emirates**

There have been occasional reports of ibex in the Hajar mountains, but these have not been confirmed, and the remarks above on the possibility of a population in northern Oman also apply here.

**Yemen**

Occur in the mountains of southern Yemen from Ras Fartak near the border with Oman to the Hadramaut and Shabwa (Harrison & Bates 1991; Evans 1994; Al-Jumaily 1998). No estimate of numbers is available but populations appear to be scattered and are believed to be declining.

**Jordan**

Found in the mountains along the eastern side of the Rift Valley from the northern end of the Dead Sea south to the Saudi border. Three main populations are known: 1. Mujib Nature Reserve and surrounding area, Madaba (Wadi Zarqa Ma’in), Karak, Ghowr Al Mazra’ah. 2. Dana NR, Faynan, Wadi Araba. 3. Wadi Rum PA south to the Saudi border. Current numbers are unknown but are believed to be declining. It has not been established whether or not these three populations are isolated from each other. Captive-
bred animals released into Mujib NR have already successfully bred with wild ibex. No further releases are planned at present.

**Captive**

Saudi Arabia: 10 at NWRC, Taif (originating from San Diego). Breeding of these animals has been halted until fresh genetic material is available. United Arab Emirates: 94 in Al Ain Zoo and 14 at BCEAW, Sharjah. An unknown number are in small private collections. Bahrain: 104 at Al Areen. These are reproducing successfully and good production of young is expected. Jordan: 22 adults (8:14) and 6 young.

**IUCN Red List Assessment**

Endangered EN C2a

**Issues and Recommendations**

**Status** The main problem is the lack of accurate information on current distribution, population size and trends. This information is urgently needed in order to accurately assess conservation status and is also likely to have relevance for the Arabian leopard. Surveys in Yemen and Saudi Arabia are priorities. Known populations are fragmented but the extent of their isolation is unknown.

**Genetics** KKWRC research has shown some genetic distinctiveness between animals from the Ibex Reserve in central Saudi Arabia, northwest Saudi Arabia, and Sinai. Ibex samples from other parts of the range, especially Oman and Yemen, are needed by KKWRC for comparison with those already analysed. However, several existing collections already contain animals of mixed origins including some from Sinai and Sudan.

**Captive breeding.** Ibex breed well in captivity, but it is important to maximise the diversity of captive populations through exchange of individuals between institutions. This finding indicates the need for care in management and future release of captive animals.

**Reintroduction.** The success of captive breeding makes this a feasible option in the future, though careful consideration should be given to the advice from KKWRC concerning genetic identity of separate populations.
**Other Species**

One wild sheep (*Ovis ammon*) was shot on Jebel Akhdar in 1967 (Harrison 1968), but as specimens are commonly imported from Iran, it seems likely in the absence of any other reports that this was an escaped (or released) exotic. A male wild goat (*Capra aegagrus*) was obtained from a local Bedouin who claimed he had obtained it as a kid near Masafi in the UAE but this too is the sole evidence of the occurrence of the species and it is doubtful whether a wild population was ever present.

**References:**


Freshwater Group Report

Facilitator: Fareed Krupp
Recorder: Emma Smart

**Group members:**
Hatem M. Al-Yami (HA)
Zuhair Amr (ZA)
Dominic Boothroyd (DB)
Ahmad M. Disi (AD)
Damien Egan (DE)
Gary R. Feulner (GF)
Nashat A. Hamidan (NH)
Yasar Khalilj (YK)
Fareed Krupp (FK)
Kais Y. Mansoor (KM)
Gordon M. Reid (GR)
Nasser M. Obaid (NO)
Moawia A. H. Osman (MO)
Essa F. Saad (EFS)
Emma Smart (ES)
Pritpal Soorae (PS)
Naomi Towers (NT)
Freshwater Group Executive Summary

In 2003 the Freshwater Group convened for a second time. While in the previous year the status of all known species of Arabian freshwater fishes had been reviewed, seven amphibian and two terrapin species were added to the agenda in 2003. The meeting began by reviewing progress towards implementing the recommendations of 2002.

During the last 12 months, several members of the freshwater group had an opportunity to conduct field surveys, investigating the status of several endemic species, which had not been recorded in the wild for many years or even decades. *Garra longipinnis*, which was previously only known from its type specimens, was re-discovered at three sites on the Saiq Plateau in the Jabal Akhdar Mountains of Oman and one site some 40 km further to the west. After all earlier efforts at finding this species had failed, this is the first confirmation of its continued existence since 1968. The Breeding Centre for Endangered Arabian Wildlife (BCEAW) received several life specimens, establishing the first captive population. *Garra dunsirei*, a species, which occurs at only one site, was observed in underground water systems at the bottom of Tawi Attayr sinkhole in the Dhofar region of Southern Oman. Individuals were collected and a captive population established at the BCEAW. Additionally, an unknown *Garra* species was discovered in the Dhofar region of Southern Oman. While the 2002 meeting expressed concern that *Garra ghorensis*, which is endemic to the Southern Dead Sea area of Jordan, might have been eradicated, several populations were recorded, confirming that the species still exists in the wild. *Garra ghorensis* is under severe pressure from construction work and the introduction of tilapiine cichlids. In situ and ex situ conservation programmes were proposed.

The isolated Hatta population of the gobiid fish *Awaous aeneofuscus* has a low population density. Because of recent damming of wadis it is now unable to reach the sea. The normal life cycle of *A. aeneofuscus* involves marine dispersal for spawning, which raises questions as to the population’s reproduction.

Legislation relevant to the conservation of freshwater biota was briefly reviewed. It is usually inadequate and in need of upgrading in the face of present levels of threats, which increase rapidly. National delegates agreed to collate the existing laws and regulations in their countries of origin and present them at the next meeting. In order to improve communication and to insure unequivocal identification of fish species it is recommended to use scientific names in legal texts. Large size freshwater fish are vital for the reproductive success of fish populations. Their collection for human consumption is of particular concern and needs to be regulated.

In the past year Dubai Municipality did not release *Aphanius dispar* into any UAE wadis, following the recommendations made at the 2002 CAMP meeting and the fact that the wadis were dry. The species was only used in farms and irrigation channels in Dubai. Although *A. dispar* usually feeds on mosquito larvae, they are also known to prey on fish larvae once mosquito larvae are no longer present, which may result in harmful effects on other species. The group recommended further investigations into problems associated with *A. dispar* introductions.

Alien species from commercial fish farms pose an increasingly serious problem for indigenous freshwater biota. The fact that exotic species are deliberately released into natural water bodies is of major concern. Tilapiine cichlids are common in many water bodies throughout the Peninsula.

The group prepared a list of captive populations of endangered fish species currently held at the BCEAW, UAE, the Royal Society for the Conservation of Nature (RSCN), Jordan, and Chester Zoo. These include *Garra barreimiae*, *G. buettikeri*, *G. dunsirei*, *G. ghorensis*, *G.
longipinnis, Garra sp., Awaous aeneofuscus and Aphanius sirhani. It is suggested to compile lists of live captive populations in systematic order and to record numbers and any transfers.

The Freshwater Group undertook the task of assessing the current status of seven amphibian and two terrapin species within the Arabian Peninsula. Conservation status was assigned in line with IUCN recommendations for inclusion in the Red List. The results are documented in Taxon Data Sheets.

Problem statements compiled in 2002 regarding threats to freshwater biota were re-assessed and amended to include relevance to amphibians and terrapins. Finally, the Group proceeded with formulating a revised list of Recommendations for Conservation. Species for which there is no information as to whether or not they still exist in the wild should receive the highest priority in future surveys. These surveys should assess the status of these species and obtain additional contemporary information. These species include Acanthobrama hadiyahensis, Garra mumshaqa, G. lautior, Carasobarbus exulatus, Bufo scorteccii and Bufo hadramautinus.

A standard protocol for captive breeding should be established. It was recommended that husbandry guidelines be developed for the reproduction of animals following standard zoo/aquarium protocols.

Finally, the group discussed the importance of incorporating freshwater invertebrates into the CAMP process. As most freshwater animals have similar conservation requirements, and in an effort to arrive at an ecosystem approach towards conservation, it was deemed desirable to extend the taxonomic scope of the working group. However, the inclusion of additional taxa may take valuable time away from progressing with work already started and with opinions divided, it was recommended to postpone a decision to the next meeting, which will have to focus on formulating comprehensive conservation strategies and detailed action plans.
Progress Review

The Freshwater Group began its meeting by reviewing the nine recommendations made at the 2002 CAMP meeting, recording activities and assessing the progress, which had been made with each recommendation.

1. Field surveys

Garra longipinnis: This species, which had previously only been known from its type specimens, was re-discovered by GF on the Saiq Plateau in the Jabal Akhdar Mountains of Oman. After all earlier efforts at finding this species had failed, this is the first confirmation of its continued existence since 1968. GF found G. longipinnis at three sites: 1) in permanent pools in Wadi Bani Habib, a major tributary of Wadi Mu'aydeen at an elevation of ca 1850 m; 2) in a single large pool fed by a spring, within steep terraced fields below Al-Ain village; and 3) in Wadi Manakher in the SE of the Saiq Plateau in pools below wadi bank plantations at the village of Manakher. Apart from the Saiq Plateau, he found what appeared to be G. longipinnis in the main wadi bank falaj at Misfah al-'Abriyeen, a site some 40 km west of Wadi Mu'aydeen. GF also confirmed that G. longipinnis is clearly distinct from G. barreimiae, a species, which is widespread in Eastern Oman and in the UAE. Each of the sites, where G. longipinnis was found, is associated with human cultivation and other activity. GF submitted a detailed report and concluded that at present G. longipinnis is not under immediate threat from its association with human populations. The Breeding Centre for Endangered Arabian Wildlife (BCEAW) now holds several life specimens.

Garra dunsirei: ES and DE reported that this species is still present in underground water systems at the bottom of Tawi Attayr sinkhole in the Dhofar region of Southern Oman. Individuals were collected and a captive population established at BCEAW. The group determined that the population might be at risk because of future groundwater pumping projects.

Unidentified Garra species: ES recorded an unknown Garra species in a wadi near Hasik, in the Dhofar region of Southern Oman. Individuals were collected and a captive population established at BCEAW. ES is currently producing a report with details on the species, to be distributed to all working group members.

Garra ghorensis: NH re-assessed the status of this species, which is endemic to the Southern Dead Sea area of Jordan. While during the 2002 meeting concern was expressed that G. ghorensis might have been eradicated, he found several populations and confirmed that the species, which is considered critically endangered, because of its limited population size, still exists in the wild. Water engineering work has changed the streambed at the type locality (Ain al-Haditha) and tilapiine cichlids have been introduced, which are likely to pose a threat to the G. ghorensis population. NH pleaded for in situ and ex situ conservation programmes for this species.

Awaous aeneofuscus: GF reported that the isolated Hatta population of this gobid fish is rather small. At the time of his visit, the water in the main pool was very opaque, with a high sediment load. Two new dams have been built in two of the joining tributaries to the Hatta pools in the last ten years: one at Hatta, the tallest in the UAE, and one at Hadf. This has resulted in the loss of two of the largest tributaries to Wadi Qhafi, which requires water from all three tributaries to be able to connect to the Sea. This may suggest that the Hatta population is isolated and unable to reach the sea, which raises a few questions as to the population’s reproduction. The normal life cycle of A. aeneofuscus involves marine dispersal. DE commented that, in captivity, the overall condition of A. aeneofuscus
deteriorated when reared in freshwater only. The possibility that, although A. aeneofuscus normally uses to migrate to the sea to breed, some populations may have adapted to reproduction in freshwater. DE also mentioned that captive A. aeneofuscus were observed to release, as a stress response, what is assumed to be a toxin, which resulted in the death of Aphanius dispar in the same aquarium. DE and DB discussed the possibility of collaboration in studying the captive breeding of A. aeneofuscus.

2. Standardisation of field techniques
FK reported that work on a standardised field protocol for fish collection and data recording at sampling sites is still in progress.

3. Field surveys, reports and collected specimens
DE is acting as co-coordinator and collaborator for field survey results, reports and collected specimens. BCEAW holds the specimens collected by GF and ES in the last year.

4. Legislation for freshwater habitats and fish
UAE legislation presently only covers marine fish. The National Commission for Wildlife Conservation and Development (NCWCD) is currently preparing the first National Biodiversity Report for the Kingdom of Saudi Arabia, which will contain a chapter on freshwater fishes. This report will provide important baseline information for the development of relevant legislation. It is recommended that national delegates collate information about existing legislation in their countries, which is relevant to freshwater biota in the Arabian Peninsula, and report the results at the next meeting. Although the role of indigenous freshwater fishes as a food source is almost negligible, they are occasionally caught for human consumption. In the UAE, GF observed Garra bariemiae being caught by local people, who construct small dams to trap the fish. In Western Saudi Arabia, foreign workers use to catch large specimens of Barbus apoensis. Individuals of this size are vital for the reproductive success of the population, and the introduction and enforcement of regulations is urgently needed.

5. Inclusion of scientific names of indigenous freshwater fishes in by-laws
Local names of freshwater fishes, if existing at all, are not well established. In order to improve communication and to ensure unequivocal identification of fish species it is recommended to use scientific names in laws and regulations.

6. The use of fish in mosquito control in the UAE
YK explained that in the past year Dubai Municipality did not release Aphanius dispar into any UAE wadis due to the recommendation made at the 2002 CAMP meeting and the fact that the wadis were dry. Aphanius dispar was only used in farms and irrigation channels in Dubai and is no longer being introduced into natural water bodies. YK requested the help of the group in identifying methods to reduce mortalities of A. dispar during transit. It is often difficult to decide whether the A. dispar population is natural or whether the species has been introduced. One possible method of finding out would be through DNA sequencing. There is also a need to look at the reminder of the UAE and the Arabian Peninsula. One deleterious effect highlighted was that, although A. dispar will
usually feed on mosquito larvae, they are also known to prey on fish larvae once mosquito larvae are no longer present, which may result in harmful effects on other species. The group recommended that further investigations be conducted to identify the problems associated with *A. dispar* introductions.

7. Commercial Fish Farming – potential threats

Potential threats of invasive species from commercial fish farms on the indigenous freshwater fauna of the Peninsula were discussed. The guppy (*Poecilia reticulata*), a non-native species, which is farmed for the aquarium trade, has been introduced into *Garra rufa* habitats in Jordan. This is the latest addition to a long list of alien species invading natural water bodies in this country. In the UAE, there are many private ponds breeding tilapiine cichlids (including *Oreochromis mossambicus*) and salmonids. PS offered to investigate reports of fish breeding ponds and farms in Abu Dhabi. In Saudi Arabia, tilapiines from fish farms invaded many natural freshwater bodies, posing a serious threat to the indigenous freshwater fauna. The transfer of exotic diseases is an additional threat from fish farms, a problem that needs more investigations in Arabia.

8. Yemeni contribution to Freshwater Group

Last year, it was recognized that, due to the importance of Yemen to freshwater fish biodiversity, a representative be invited to attend the following years meeting. With the absence of a delegate from Yemen in 2003, the group recommends attendance next year.

9. Captive Breeding Programmes

The group determined captive populations of fish species currently held at various centres and institutes:

**BC EAW:**

- *Garra buettikeri* – individuals bred, producing approx. 100 juveniles. Total captive population = 250.
- *Garra dunsirei* – 21 individuals in founder population, which have since bred once with a total of 15 offspring. Total population = 35.
- *Garra barreimiae* – surface-dwelling form, total population > 1,000; sub-terranean form, total population = 500.
- *Aphanius dispar* – unmanaged, in ponds, total population > 2,000.
- *Garra longipinnis* – individuals not yet breeding, total population = 9.
- *Awaous aeneofuscus* – 5 adults, 2 juveniles held, total population = 7.
- *Garra sp.* – 40 individuals in founder population (3 adults only) adults have reproduced, total population = 250.

**Royal Society for the Conservation of Nature (RSCN), Jordan:**

- *Aphanius sirhani* – species held in outdoor pools (200) and aquaria (120), total population = 320.
Garra ghorensis - total population = 60.

Chester Zoo:
Garra barreimiae - subterranean form

It is suggested to compile lists of live captive populations in systematic order and to record numbers and any transfers. Dubai Municipality had kept Cyprinion microphthalmum for use in mosquito control, but failed to breed them. BCEAW has also yet to succeeded in breeding C. microphthalmum. This may be a substrate problem as adult specimens feed on their eggs and newly-hatched fry.

The Freshwater Group undertook the task of assessing the current status of seven amphibian and two terrapin species within the Arabian Peninsula. Conservation status was assigned to each of these species in line with IUCN recommendations for inclusion in the Red List (see Taxon Data Sheets).

At the 2002 Meeting, a list of threats to the indigenous freshwater fish fauna was discussed, which resulted in the compilation of problem statements regarding threats being grouped and prioritised. In 2003, the Freshwater Group re-assessed these problem statements and amended them to include a relevance to amphibians and terrapins.

The Group identified the need to include the lack of a funding sources as a problem facing conservation initiatives for freshwater environments. Basic issues concerning regional co-operation were identified:

a) There is no effective mechanism to raise funding for regional activities;
b) There is no mechanism in place for regional co-operation;
c) There is a lack of internet-based communication facilities.

Consequently, the Group proceeded with formulating the revised list of recommendations for conservation of freshwater fishes, amphibians and terrapins:

1. Conduct field surveys
Species for which there is no information as to whether or not they still exist should receive the highest priority in future surveys. These surveys should assess the status of these species and obtain additional contemporary information. Each country was discussed in turn:

**UAE:** All fish species surveyed and their continued existence confirmed.

**Oman:** Garra longipinnis: previously in doubt, but population status now clarified.

**Yemen:** Garra mamshuqa: this species is only known from museum specimens.
Garra lautior: only known from museum specimens.
Carasobarbus exulatus: only known from museum specimens.
Bufo scorteccii: no recent data available.
Bufo hadramautinus: no recent data available.

Saudi Arabia: Acanthobrama hadiyahensis: only known from museum specimens.

Jordan: The inclusion of Aphanius dispar richardsoni as a subspecies of highest priority for field surveys was discussed. Although they are known to exist, their numbers are seriously declining.

It was also recommended that the current status of species found only in a single or few localities be assessed as a second priority group.

2. Standardisation of field survey techniques

The recommendations were kept as last year regarding survey techniques. In addition, it was suggested that a standard form of field data documentation should be designed as well as a standard protocol for electrofishing and sampling for DNA analysis. There is a need to include standard amphibian sampling techniques. AD agreed to supply relevant information on field surveying of aquatic amphibians and reptiles.

3. Field surveys, reports and collected specimens

It was recommended that any relevant scientific publications and reports, not already mentioned in the briefing book, be brought to the attention of DE for distribution to other working group members and for inclusion in next years briefing book. It was suggested to compile additional relevant literature, including sampling of specimens, sampling for DNA analyses, design of field protocols and compilation of data relevant for population dynamics.

4. Legislation for freshwater habitats and fish

It was decided that each group member should compile a list of the laws and regulations enacted in their country of residence, which are relevant to the conservation of freshwater habitats and associated biota.

5. Inclusion of scientific names of indigenous freshwater fish in by-laws

The group decided that the recommendation should remain unchanged. In view of the importance of the Yemeni and Omani contribution to freshwater faunal biodiversity, it was emphasised again that representatives from these countries be invited to next year’s meeting.

6. The use of fish in mosquito control in the UAE

It is suggested that impact assessments be carried out before decisions are made on methods of mosquito control, in order to determine the solution with the least environmental impact, though some agencies might not have time to wait for survey results. The use of Methoprene was discussed as a control agent, which prevents mosquito larvae from moulting and pupating. The group recommended an evaluation of the techniques used; the design of protocols for future control schemes and follow-up assessments of impact on the environment. A need was identified to formulate
recommendations to support pest control departments in researching the most environmentally friendly methods for vector control.

7. **Standardisation of captive breeding programmes**

It was suggested that a standard protocol for captive breeding be established. The group recommended that husbandry guidelines be developed for the reproduction of animals following standard zoo/aquarium protocols. With relation to the management of captive stock, it was suggested that the international standard, 7-column accounting system for zoos and aquaria be followed.

8. **Ecosystem approach towards conservation management**

The importance of the Freshwater Group, currently focusing on fish, amphibians and terrapins, changing to a freshwater ecosystem approach, which would incorporate invertebrates, was discussed. It was recommended that specialists from other fields of freshwater conservation attend forthcoming CAMP meetings. Sub-groups (e.g. fish, amphibians, invertebrates) should concentrate on completing the taxa sheets for their particular groups. As most freshwater animals have similar conservation requirements, and in an effort to arrive at an ecosystem approach towards conservation, it was recommended to extend the scope of the group to key freshwater invertebrates. Such key species may include the ephemeral shrimps and dragonfly species with limited distributions. The group decided to leave the subject open for discussion next year. The importance of freshwater invertebrates as indicators of habitat quality was highlighted. Some invertebrate taxa are already IUCN listed, but their status may need re-evaluation in Arabia. It was also recognized that some invertebrate species are better documented than amphibians and, as there is no alternative forum for invertebrate discussion, it would be better for invertebrate biologists to join the present freshwater group. Next year, the working group needs to focus on deciding goals and actions; therefore there was a general concern in the group that the inclusion of additional taxa may take valuable time away from progressing with work already started. In conclusion to this matter, and with opinions divided, it was recommended to reach a decision by the next meeting.

9. **Establishment of a freshwater e-mail group**

The group recognized the need for a system of contact between working group members and the establishment of an e-mail group was suggested. NT agreed to initiate this group in order to maintain contact amongst members of the next 12 months.

The forthcoming meeting will have to focus on formulating a comprehensive conservation strategy and detailed action plans.
## Conservation Assessment Management Plan

### Taxon Data Sheet

**Threatened Fauna of Arabia**  
**Bufo dhufarensis**  
Page 1  
Dhofar toad  

#### 1. Scientific Name:

<table>
<thead>
<tr>
<th>Scientific synonym / ambiguities</th>
<th>Authority (date)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Bufo dhufarensis</em></td>
<td>Parker, 1931</td>
</tr>
</tbody>
</table>

#### 1A. Synonyms:

<table>
<thead>
<tr>
<th>Scientific synonym / ambiguities</th>
<th>Authority (date)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Bufo andersonii</em></td>
<td>Boulenger, 1883 (misidentification)</td>
</tr>
</tbody>
</table>

#### 1B. Scientific nomenclature:

- **FAMILY:** Bufonidae
- **ORDER:** Anura
- **CLASS:** Amphibia

#### 1C. Common Names:

- Dhofar toad

#### 1D. Taxonomic level:

- **Species**

---

#### 2. Habitat

<table>
<thead>
<tr>
<th>Primary</th>
<th>Country(ies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes on Habitat</td>
<td>In arid environments, incl. gravel plains</td>
</tr>
<tr>
<td>Life form (plant):</td>
<td></td>
</tr>
<tr>
<td>Niche:</td>
<td></td>
</tr>
</tbody>
</table>

#### Distribution

- **Historical distrib:** South east, south and south west of Arabian peninsular. South of 25 degrees latitude.

- **Current countries:** Saudi Arabia, Yemen, Oman and UAE

---

#### 3. Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection

*Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon*

| Occurrence area: | ca 500 000 |
| Notes (Occurrence): | |

#### 4. Approximate Area of Occupancy of the taxon in and around the area of study/ collection

*Area of occupancy is defined as the area occupied by the taxon within the ’extent of occurrence’*

| Area of Occupancy: | > 2,001 sq km |
| Notes (Occupancy): | |

---

#### 5. Number of Subpopulations in which the taxon is distributed:

| 1 |

- **Is there a continuous declined in subpopulations / locations?** [No]
- **Are there extreme fluctuations in subpopulations/ locations?** [No]

---

Notes (subpops)
Bufo dhufarensis

6. Habitat status:

6A. Is there any change in the habitat where the taxon occurs? [ ] (No)
   If yes, describe:

6B. If decreasing, what has been the decrease in Habitat area?
   approximate change (%): over how many years:
   Notes on decrease:

6C. If stable or unknown, do you predict a decline in habitat?
   approximate change (%): over how many years:

6D. State primary cause of change:

6E. Is there any change in the quality of the habitat where the taxon occurs? [ ] (No)
   Type of change: Development Notes:

6F. Notes (general) on habitat:

7. Threats

7.1. Alien species

7.2. Predators

7.3. Water pollution

8. Trade:

8A. Is the taxon in trade? [ ] (Yes)
   Parts in Trade: Purpose Barter Local Natl Intl Comment

8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

9-10. Population numbers and Trends

9A. Avg. age of parents in pop: Unknown

9B. Global Population:

10A. Recent past trends:
   Rate of decline (past) For how many years?
   years years

10B. Will population decline? No No
   Predicted Rate (future) For how many years?
   years years

Notes: Population level and trends to be investigated

11. Population Data quality

11A. Estimates base on:
   [ ] Census or monitoring [x] Field study [x] Informal sightings
   [ ] Indirect information [x] Museum records [x] Literature
   [ ] Hearsay/belief

11B. Qualifiers: Observed, Inferred, Suspected, Estimated, or Projected

11C. Uncertainty
   95% confidence, Minimum/Maximum values,
   Range of Opinion; Evidentiary; Precautionary;
   Subjective; Hypothetical; Point estimate; or
   Range estimate

12. Recent Field Studies

43
Researcher names, Location, Dates, Topics:
Peter Cunningham and Gary Feulner, Musandam Area, UAE/Oman - survey

Part Two
13. Status (Red List)

<table>
<thead>
<tr>
<th>Prior to Workshop</th>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>13A. Global:</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13B. Cites:</td>
<td>13C. Natl wildlife Legislation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13D. Natl Red Data Book:</td>
<td>13E. Intl Red Data Book:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13F. Other legislation:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13G. Protected area presence:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13H. Endorsed protection plan:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current (Workshop)</th>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Supporting Research</td>
<td>Is research recommended for taxon?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specify:</td>
<td>[x] Genetic research</td>
<td>[x] Taxonomic research</td>
</tr>
<tr>
<td></td>
<td>[x] Survey studies</td>
<td>[x] Limiting factor research</td>
<td>[ ] Epidemiology</td>
</tr>
</tbody>
</table>

14A. Is Population and Habitat Viability Assessment recommended? | No |
| Notes: |

15. Management recommendations for the taxon

<table>
<thead>
<tr>
<th>Specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Habitat management</td>
</tr>
<tr>
<td>[ ] Wild pop management</td>
</tr>
<tr>
<td>[x] Monitoring</td>
</tr>
<tr>
<td>[ ] Translocation</td>
</tr>
<tr>
<td>[ ] Sustainable utilization</td>
</tr>
<tr>
<td>[ ] Public education</td>
</tr>
<tr>
<td>[ ] Genome Resource Banking</td>
</tr>
<tr>
<td>[ ] Limiting factor mgt.</td>
</tr>
<tr>
<td>[x] Captive breeding</td>
</tr>
<tr>
<td>[ ] Work in local communities</td>
</tr>
</tbody>
</table>

Notes:

Conservation Measures Recommended

| In place | Needed | Old in place | Old needed |

16. Captive management recommendations

<table>
<thead>
<tr>
<th>If captive breeding recommended in Q15, is it for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species recovery</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Reintroduction</td>
</tr>
<tr>
<td>Benign introduction</td>
</tr>
<tr>
<td>Research</td>
</tr>
<tr>
<td>Husbandry</td>
</tr>
<tr>
<td>Sustainable use</td>
</tr>
<tr>
<td>Preservation of live genome</td>
</tr>
</tbody>
</table>

Notes/other:

17. Do Captive stocks already exist? | Yes |

17A. Names of facilities: Breeding Centre for Endangered Arabian Wildlife, Sharjah, UAE |

17B. No. in captivity: Males | Females | Unsexed | Total | Not known?

44
17C. Does a coordinated species management program exist for this species? No

If yes, specify:

17D. Is a coordinated Species Management Program recomended for range country(ies)? No

If yes, specify:

18. Level of captive breeding/cultivation recommended
   Ongoing ex situ program intensified or increased

19. Are techniques extablished to propagate the taxon?
   Techniques known for this taxon and similar taxa

20. Other Comments

Part Four


22. Compilers: Freshwater Group workshop, CAMP meeting 2003, Sharjah, UAE.

23. Reviews:

Copyright IUCN SSC / CBSG 1999, 2002
Conservation Assessment Management Plan
Taxon Data Sheet

Threatened Fauna of Arabia

Bufo hadramautinus

Page 1

Hadramaut toad

This Assessment is a Global Assessment

1. Scientific Name: Bufo hadramautinus Cherchi, 1963
   1A. Synonyms: Scientific synonym / ambiguities Authority (date)

   1B. Scientific nomenclature:
      FAMILY: Bufonidae
      ORDER: Anura
      CLASS: Amphibia

   1C. Common Names: Hadramaut toad
   1D. Taxonomic level: Species

   Notes:

2. Habitat

   Notes on Habitat: Freshwater pools, rocky areas
   Life form (plant):
   Niche:
   Distribution
   Historical distrib: Hadramaut
   Current countries: Yemen
   Geograph. extent: Hadramaut
   Migration regions:

3. Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection
   (Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)
   Occurrence area: < 100 sq km
   Notes (Occurrence):

4. Approximate Area of Occupancy of the taxon in and around the area of study/ collection
   (Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')
   Area of Occupancy: < 10 sq km
   Notes (Occupancy):

5. Number of Subpopulations in which the taxon is distributed: 1
   Is there a continuous declined in subpopulations / locations? [ ]
   Are there extreme fluctuations in subpopulations / locations? [ ]
   Percentage of population that lives in most important subarea:
   Notes (subpops)

6. Habitat status: Contiguous
If yes, describe: unknown

6A. Is there any change in the habitat where the taxon occurs? [ ] (Yes)
6B. If decreasing, what has been the decrease in Habitat area? 
   approximate change (%): 
   over how many years: Notes on decrease:
6C. If stable or unknown, do you predict a decline in habitat? 
   approximate change (%): 
   over how many years: Notes:
6D. State primary cause of change:
6E. Is there any change in the quality of the habitat where the taxon occurs? [ ] (Yes)
   Type of change Notes:
6F. Notes (general) on habitat:

7. Threats

   Lead to Under Revers- Have
   Rank Past Pres Fut decline stood ible ceased Notes
   Intrinsic

   9.9. Restricted range N Y Y N N N N

   Number of locations for serious threat: 0

8. Trade: 8A. Is the taxon in trade? [ ] (Yes)
   Parts in Trade: Purpose Barter Local Natl Intl Comment

   8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

9-10. Population numbers and Trends

9A. Avg. age of parents in pop: unknown

9B. Global Population: Total Pop. Mature Breeding pairs
   unknown unknown unknown

10A. Recent past trends:
   Rate of decline (past):
   For how many years? years years

10B. Will population decline? 
   Predicted Rate (future):
   For how many years? years years

Notes: Population numbers unknown. Small.

11. Population Data quality
11A. Estimates base on: Census or monitoring Field study Informal sightings
   Indirect information Museum records Literature

11B. Qualifiers: Observed, Inferred, Suspected, Estimated, or Projected

11C. Uncertainty
   95% confidence, Minimum/Maximum values, Range of Opinion; Evidentiary; Precautionary; Subjective; Hypothetical; Point estimate; or Range estimate

12. Recent Field Studies
   Researcher names, Location, Dates, Topics:

Part Two

13. Status (Red List)
### Bufo hadramautinus

**Hadramaut toad**

#### Prior to Workshop

<table>
<thead>
<tr>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>13A. Global:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13B. Cites:</td>
<td>13C. Natl wildlife Legislation:</td>
<td></td>
</tr>
<tr>
<td>13D. Natl Red Data Book:</td>
<td>13E. Intl Red Data Book:</td>
<td></td>
</tr>
<tr>
<td>13F. Other legislation:</td>
<td>13G. Protected area presence:</td>
<td></td>
</tr>
<tr>
<td>13H. Endorsed protection plan:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Current (Workshop)

<table>
<thead>
<tr>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global:</td>
<td>Critically endangered</td>
<td>&lt; 10 km sq Ver 3.1</td>
</tr>
</tbody>
</table>

### Part Three

#### 14. Supporting Research

Is research recommended for taxon? Yes

Specify:
- [x] Genetic research
- [x] Taxonomic research
- [x] Life history
- [x] Survey studies
- [x] Limiting factor research
- [ ] Epidemiology
- [ ] Trade

14A. Is Population and Habitat Viability Assessment recommended? Yes

Notes:

#### 15. Management recommendations for the taxon

Specify:
- [x] Habitat management
- [x] Wild pop management
- [x] Monitoring
- [x] Translocation
- [ ] Sustainable utilization
- [ ] Public education
- [x] Genome Resource Banking
- [x] Captive breeding
- [x] Work in local communities

Notes:

Conservation Measures Recommended

<table>
<thead>
<tr>
<th>In place</th>
<th>Needed</th>
<th>Old in place</th>
<th>Old needed</th>
</tr>
</thead>
</table>

#### 16. Captive management recommendations

If captive breeding recommended in Q15, is it for:

- Species recovery
- Education
- Reintroduction
- Benign introduction
- Research
- Husbandry
- Sustainable use
- Preservation of live genome

Notes/other: Translocation may reduce risk of eradication of the single population

#### 17. Do Captive stocks already exist?

No

17A. Names of facilities:

17B. No. in captivity:

<table>
<thead>
<tr>
<th>Males</th>
<th>Females</th>
<th>Unsexed</th>
<th>Total</th>
<th>Not known?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

17C. Does a coordinated species management program exist for this species? No

If yes, specify

17D. Is a coordinated Species Management Program recomended for range country(ies)? No
18. Level of captive breeding/cultivation recommended: Initiate ex situ Program within 3 years

19. Are techniques established to propagate the taxon? Some techniques known for similar taxon

20. Other Comments:

Part Four

21. Sources: Balletto et al. (1985)

22. Compilers: Freshwater group workshop, CAMP meeting 2003, Sharjah, UAE

23. Reviews:

Copyright IUCN SSC / CBSG 1999, 2002
**Conservation Assessment Management Plan**

**Taxon Data Sheet**

**Threatened Fauna of Arabia**

23 Feb 2003

**Bufo scorteccii**  
Page 1  
**Scortecci’s toad**

---

### 1. Scientific Name: **Bufo scorteccii** Balletto & Cherchi, 1970

1A. Synonyms:  
Scientific synonym / ambiguities  
Authority (date)

1B. Scientific nomenclature:  
FAMILY: Bufonidae  
ORDER: Anura  
CLASS: Amphibia

1C. Common Names:  
Scortecci’s toad

1D. Taxonomic level:  
Species

### 2. Habitat

- Notes on Habitat: Mountain pools and wadis
- Life form (plant):
- Niche:  
**Distribution**
- Historical distrib: Central Yemen
- Current countries: Yemen
- Geograph. extent: 1 location in Yemen highland

### 3. Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection

(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

- Occurrence area: < 100 sq km
- Notes (Occurrence)

### 4. Approximate Area of Occupancy of the taxon in and around the area of study/ collection

(Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')

- Area of Occupancy: < 10 sq km
- Notes (Occupancy)

### 5. Number of Subpopulations in which the taxon is distributed:

- 1
- Is there a continuous declined in subpopulations / locations? [ ]
- Are there extreme fluctuations in subpopulations / locations? [ ]
- Percentage of population that lives in most important subarea:

### 6. Habitat status:

Continuous
If yes, describe:

6A. Is there any change in the habitat where the taxon occurs? [ ] (Yes)

6B. If decreasing, what has been the decrease in Habitat area?
   approximate change (%): 
   over how many years:
   Notes on decrease:

6C. If stable or unknown, do you predict a decline in habitat?
   approximate change (%): 
   over how many years:

6D. State primary cause of change:

6E. Is there any change in the quality of the habitat where the taxon occurs? [ ] (Yes)
   Type of change: 
   Notes:

6F. Notes (general) on habitat:

7. Threats

   Lead to Under Revers- Have
   Rank Past Pres Fut decline stood ible ceased Notes

   Intrinsic

   9. Restricted range

   Number of locations for serious threat: 0

   Comment:

8. Trade: 8A. Is the taxon in trade? [ ] (Yes)
   Parts in Trade: 
   Purpose 
   Barter Local Natl Intl Comment

   8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

9-10. Population numbers and Trends

9A. Avg. age of parents in pop: unknown

9B. Global Population:
   Total Pop: unknown
   Mature: unknown
   Breeding pairs: unknown

10A. Recent past trends:
   Rate of decline (past)
   For how many years? years
   years

10B. Will population decline? No

   Predicted Rate (future)
   For how many years? years

   years

   Notes: Unknown numbers in population. Population is small

11. Population Data quality

   11A. Estimates base on:
   [ ] Census or monitoring 
   [ ] Field study
   [ ] Informal sightings
   [ ] Indirect information
   [x] Museum records 
   [x] Literature

   Notes:

   11B. Qualifiers: Observed, Inferred, Suspected, Estimated, or Projected

   11C. Uncertainty
   95% confidence, Minimum/Maximum values,
   Range of Opinion; Evidentiary; Precautionary;
   Subjective; Hypothetical; Point estimate; or
   Range estimate

12. Recent Field Studies

   Researcher names, Location, Dates, Topics:

Part Two

13. Status (Red List)
### Prior to Workshop

<table>
<thead>
<tr>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global: None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13B. Cites:</td>
<td>13C. Natl wildlife Legislation:</td>
<td></td>
</tr>
<tr>
<td>13D. Natl Red Data Book:</td>
<td>13E. Intl Red Data Book:</td>
<td></td>
</tr>
<tr>
<td>13F. Other legislation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13G. Protected area presence:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13H. Endorsed protection plan:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Global: | Critically endangered | <10 km sq Ver 3.1 |

### Notes:

#### Part Three

14. **Supporting Research**

<table>
<thead>
<tr>
<th>Is research recommended for taxon?</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify:</td>
<td></td>
</tr>
<tr>
<td>[x] Genetic research</td>
<td>[x] Taxonomic research</td>
</tr>
<tr>
<td>[x] Survey studies</td>
<td>[x] Limiting factor research</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14A. Is Population and Habitat Viability Assessment recommended? Yes

Notes:

15. **Management recommendations for the taxon**

| Specify: | |
| [ ] Sustainable utilization | [x] Public education | [x] Genome Resource Banking |
| [ ] Limiting factor mgt. | [x] Captive breeding | [ ] Work in local communities |

Notes:

### Conservation Measures Recommended

<table>
<thead>
<tr>
<th>In place</th>
<th>Needed</th>
<th>Old in place</th>
<th>Old needed</th>
</tr>
</thead>
</table>

16. **Captive management recommendations**

*If captive breeding recommended in Q15, is it for:*

Species recovery Education Reintroduction Benign introduction Research Husbandry Sustainable use Preservation of live genome

Notes/other: Translocation may reduce threat of eradication of the single known population

17. **Do Captive stocks already exist?**

No

17A. Names of facilities:

17B. No. in captivity:

<table>
<thead>
<tr>
<th>Males</th>
<th>Females</th>
<th>Unsexed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

17C. Does a coordinated species management program exist for this species? No

*If yes, specify*

17D. Is a coordinated Species Management Program recomended for range country(ies)? No
Bufo scorteccii

If yes, specify

18. Level of captive breeding/cultivation recommended

Initiate Captive breeding programme within three years

19. Are techniques established to propagate the taxon?

Some techniques known for taxon or similar taxon

20. Other Comments

Part Four
countries:

21. Sources: Balletto et al. (1985)

22. Compilers: Freshwater Group workshop, CAMP meeting 2003, Sharjah, UAE.

23. Reviews:

Copyright IUCN SSC / CBSG 1999, 2002
Conservation Assessment Management Plan
Taxon Data Sheet

Threatened Fauna of Arabia

Bufo tihamicus

Page 1

Tihama toad

This Assessment is a
Global Assessment

1. Scientific Name: Bufo tihamicus

1A. Synonyms: Scientific synonym / ambiguities
Bufo pentoni

Authority (date)

Rulletto & Cherchi, 1973

1B. Scientific nomenclature:

FAMILY: Bufonidae
ORDER: Anura
CLASS: Amphibia

1C. Common Names: Tihama toad

1D. Taxonomic level: Species

Notes:

2. Habitat

Primary

Country(ies)

Saudi Arabia Yes
Yemen Yes

Notes on Habitat: Coastal zone to <400m altitude

Life form (plant):

Niche:

Distribution

Historical distrib: Tihama, Saudi Arabia; Yemen

Current countries: Saudi Arabia; Yemen

Geograph. extent: Tihama coastal plain south-west Saudi Arabia to southern Yemen

Migration regions:

3. Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection
(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

Occurrence area: >20 000 sq km

Notes (Occurrence)

4. Approximate Area of Occupancy of the taxon in and around the area of study/ collection
(Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')

Area of Occupancy: 501-2000 sq km

Notes (Occupancy)

5. Number of Subpopulations in which the taxon is distributed:

1

Is there a continuous declined in subpopulations / locations? [ ]

Are there extreme fluctuations in subpopulations/ locations? [ ]

Percentage of population that lives in most important subarea:

Notes (subpops)

6. Habitat status:

6A. Is there any change in the habitat where the taxon occurs? [ ] (Yes)
If yes, describe: Unknown

6B. If decreasing, what has been the decrease in habitat area?
   approximate change (%): over how many years: 
   Notes on decrease:

6C. If stable or unknown, do you predict a decline in habitat?
   approximate change (%): over how many years: 

6D. State primary cause of change:

6E. Is there any change in the quality of the habitat where the taxon occurs? [x] (Yes)
   Type of change Unknown Notes: Increase in agricultural area may have an effect on habitat type available

6F. Notes (general) on habitat:

7. Threats
   Lead to Under Have
   Rank Past Pres Fut decline stood sible ceased Notes
   Extraction

   1.3.6. Groundwater extraction N Y Y N N N N Unknown

Number of locations for serious threat: 0

Comment:

8. Trade: 8A. Is the taxon in trade? [ ] (Yes)
   Parts in Trade: Purpose Barter Local Natl Intl Comment

   8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

9-10. Population numbers and Trends

9A. Avg. age of parents in pop: unknown

9B. Global Population: Total Pop. Mature Breeding pairs
   unknown unknown unknown

10A. Recent past trends:
   Rate of decline (past) For how many years? years years

10B. Will population decline? No No
   Predicted Rate (future) For how many years? years years

Notes: No recent data available.

11. Population Data quality

11A. Estimates base on: [ ] Census or monitoring [ ] Field study [ ] Informal sightings
   [ ] Indirect information [x] Museum records [x] Literature
   Notes: No recent data available. Old data fragmentary. [ ] Hearsay/belief

11B. Qualifiers: Observed, Inferred, Suspected, Estimated, or Projected

11C. Uncertainty
   95% confidence, Minimum/Maximum values,
   Range of Opinion; Evidentiary; Precautionary;
   Subjective; Hypothetical; Point estimate; or
   Range estimate

12. Recent Field Studies
   Researcher names, Location, Dates, Topics: No recent field studies

Part Two
### 13. Status (Red List)

<table>
<thead>
<tr>
<th>Status</th>
<th>Prior to Workshop</th>
<th>Status</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>13A Global:</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13B. Cites:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13D. Natl Red Data Book:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13F. Other legislation:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13G. Protected area presence:</td>
<td>Asir National Park, Saudi Arabia</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Current (Workshop)

<table>
<thead>
<tr>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global:</td>
<td>Not evaluated</td>
<td>Ver 3.1</td>
</tr>
<tr>
<td>National:</td>
<td>Not evaluated</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Possibly under threat throughout entire range. No recent specimens have been found.

### Part Three

#### 14. Supporting Research

Is research recommended for taxon? Yes

Specify:
- Genetic research
- Taxonomic research
- Life history
- Survey studies
- Limiting factor research
- Epidemiology
- Trade

#### 15. Management recommendations for the taxon

Specify:
- Habitat management
- Wild pop management
- Monitoring
- Genome Resource Banking
- Sustainable utilization
- Public education
- Captive breeding
- Work in local communities

Notes:
- Conservation Measures Recommended

Management actions

<table>
<thead>
<tr>
<th>In place</th>
<th>Needed</th>
<th>Old in place</th>
<th>Old needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

#### 16. Captive management recommendations

If captive breeding recommended in Q15, is it for:
- Species recovery
- Education
- Reintroduction
- Benign introduction
- Research
- Husbandry
- Sustainable use
- Preservation of live genome

Notes/other: Investigation into use in traditional medicines

#### 17. Do Captive stocks already exist?

No

17A. Names of facilities:

17B. No. in captivity: Males Females: Unsexed: Total Not known?

0 0 0 0

17C. Does a coordinated species management program exist for this species? No

---

Bufo tihamicus

Tihama toad

Page 3
If yes, specify

17D. Is a coordinated Species Management Program recommened for range country(ies)?

No

If yes, specify:

18. Level of captive breeding/cultivation recommended

Initiate ex situ Program within 3 years

19. Are techniques established to propagate the taxon?

Some techniques known for taxon or similar taxon

20. Other Comments

Part Four

21. Sources: Baletto et al. (1985)

22. Compilers: Freshwater Group workshop, CAMP Meeting 2003, Sharjah, UAE.

23. Reviews:

Copyright IUCN SSC / CBSG 1999, 2002
Conservation Assessment Management Plan
Taxon Data Sheet

Threatened Fauna of Arabia 23 Feb 2003

Bufo viridis  Page 1  Green toad

This Assessment is a National / Regional Assessment

1. Scientific Name: Bufo viridis Laurenti (1768)

1A. Synonyms: Scientific synonym / ambiguities Authority (date)

1B. Scientific nomenclature:
   FAMILY: Bufonidae
   ORDER: Anura
   CLASS: Amphibia

1C. Common Names: Green toad
1D. Taxonomic level: Species

Notes:

2. Habitat

Notes on Habitat Wide range of wetland and arid habitats
Life form (plant):
Niche:

Distribution
Historical distr: Jordan, south-west Arabia
Current countries: Jordan, Saudi Arabia
Geograph. extent: Jordan, south-west Arabia
Migration regions:

3. Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection
(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

Occurrence area: 5000 - 20,000 sq km
Notes (Occurrence)

4. Approximate Area of Occupancy of the taxon in and around the area of study/ collection
(Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')

Area of Occupancy: 501 - 2000 sq km
Notes (Occupancy):

5. Number of Subpopulations in which the taxon is distributed: 2
Is there a continuous declined in subpopulations / locations? [No]
Are there extreme fluctuations in subpopulations/ locations? [No]
Percentage of population that lives in most important subarea:
Notes (subpops)

5b. Specific description of major subpopulations and locations

62
### Bufo viridis

**Green toad**

<table>
<thead>
<tr>
<th>Area</th>
<th>South west Arabia</th>
<th>Size:</th>
<th>10000</th>
<th>Sq km</th>
<th>GIS latitude</th>
<th>longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes Population (best est.)</td>
<td>0</td>
<td>High:</td>
<td>0</td>
<td>Low:</td>
<td>0</td>
<td>Habitat:</td>
</tr>
<tr>
<td>Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area</th>
<th>Jordan</th>
<th>Size:</th>
<th>10000</th>
<th>Sq km</th>
<th>GIS latitude</th>
<th>longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes Population (best est.)</td>
<td>0</td>
<td>High:</td>
<td>0</td>
<td>Low:</td>
<td>0</td>
<td>Habitat:</td>
</tr>
<tr>
<td>Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 6. Habitat status:

6A. Is there any change in the habitat where the taxon occurs? [x] (Yes)

**If yes, describe:**
- **Approximate change (%):**
- **Over how many years:**

6B. If decreasing, what has been the decrease in Habitat area?
- Notes on decrease:

6C. If stable or unknown, do you predict a decline in habitat?
- Approximate change (%):
- Over how many years:

6D. State primary cause of change:
- Irrigation of land, agriculture and artificial greenbelt followers have increased suitable habitat area

6E. Is there any change in the quality of the habitat where the taxon occurs? [x] (Yes)

**Type of change development**

6F. Notes (general) on habitat:
- Factors determining habitat quality need to be evaluated: salinity, water quality, predation, parasite load?

### 7. Threats

<table>
<thead>
<tr>
<th>Rank</th>
<th>Pres</th>
<th>Fut</th>
<th>Decline</th>
<th>Stand</th>
<th>Revers</th>
<th>Have</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alien species</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Tilapia</td>
</tr>
</tbody>
</table>

**Number of locations for serious threat:** 0

**Comment:**

### 8. Trade:

8A. Is the taxon in trade? [ ] (No)

**Parts in Trade:**
- **Purpose**
- **Barter**
- **Local**
- **Natl**
- **Intl**
- **Comment**

8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

### 9-10. Population numbers and Trends

9A. Avg. age of parents in pop: Unknown

<table>
<thead>
<tr>
<th>Total Pop.</th>
<th>Mature</th>
<th>Breeding pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9B. Global Population:

10A. Recent past trends:
- **Rate of decline (past):**
- **For how many years?** years

10B. Will population decline?
- **Predicted Rate (future):**
- **For how many years?** years

**Notes:**

### 11. Population Data quality

11A. Estimates base on:
- **Census or monitoring** [ ]
- **Field study** [x]
- **Informal sightings** [x]
- **Indirect information** [ ]
- **Museum records** [x]
- **Literature** [x]
- **Hearsay/belief** [ ]

**Notes:**

---

63
11B. Qualifiers: Observed  
11C. Uncertainty  
95% confidence, Minimum/Maximum values,  
Range of Opinion; Evidentiary; Precautionary;  
Subjective; Hypothetical; Point estimate; or  
Range estimate  

12. Recent Field Studies  
Researcher names, Location, Dates, Topics:  

Part Two  
13. Status (Red List)  
Prior to Workshop  
13A. Global: None  
National:  
13B. Cites:  
13C. Natl wildlife Legislation:  
13D. Natl Red Data Book:  
13E. Intl Red Data Book:  
13F. Other legislation:  
13G. Protected area presence:  
13H. Endorsed protection plan:  
Current (Workshop)  
Global: Least Concern  
National:  
Notes:  

Part Three  
14. Supporting Research  
Is research recommended for taxon? Yes  
Specify: [x] Genetic research [x] Taxonomic research [x] Life history  
[x] Survey studies [x] Limiting factor research [ ] Epidemiology [ ] Trade  
14A. Is Population and Habitat Viability Assessment recommended? No  
Notes:  
15. Management recommendations for the taxon  
Specify:  
[ ] Sustainable utilization [ ] Public education [ ] Genome Resource Banking  
[ ] Limiting factor mgt. [x] Captive breeding [ ] Work in local communities  
Notes:  
Conservation Measures Recommended  
In place Needed Old in place Old needed  
16. Captive management recommendations  
If captive breeding recommended in Q15, is it for:
Species recovery  Education  Reintroduction  Benign introduction
Research  Husbandry  Sustainable use  Preservation of live genome

Notes/other:

17. Do Captive stocks already exist?  No
   17A. Names of facilities:
   17B. No. in captivity:  Males  Females:  Unsexed:  Total  Not known?
                  0           0          0         0
   17C. Does a coordinated species management program exist for this species?  No
       If yes, specify
   17D. Is a coordinated Species Management Program recomended for range country(ies)?  No
       If yes, specify

18. Level of captive breeding/cultivation recommended  Ongoing ex situ program intensified or increased

19. Are techniques extablished to propagate the taxon?  Techniques known for this taxon or similar taxon

20. Other Comments

Part Four

21. Sources:  Balletto et al. (1985); Leviton et al. (1992); Disi et al. (2001); Disi (2002).

22. Compilers:  Freshwater group workshop, CAMP meeting 2003, Sharjah, UAE.

23. Reviews:

Copyright IUCN SSC / CBSG 1999, 2002
Bufo viridis


Conservation Assessment Management Plan
Taxon Data Sheet

Threatened Fauna of Arabia
23 Feb 2003

Bufo arabicus Page 1 Arabian toad

This Assessment is a Global Assessment

1. Scientific Name: Bufo arabicus Laurenti (1768)

1A. Synonyms: Scientific synonym / ambiguities Authority (date)
Bufo viridus Laurent, 1768 (misdidentification)

1B. Scientific nomenclature:
   FAMILY: Bufonidae
   ORDER: Anura
   CLASS: Amphibia

1C. CommonNames: Arabian toad

1D. Taxonomic level: Species

Notes:

2. Habitat

Notes on Habitat All environments of Arabia with some water availability
Life form (plant):
Niche:

Distribution
Historical distrib: West and south-east Arabia

Current countries: Saudi Arabia
Geograph. extent: West and south-east Arabia

Migration regions:

3. Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection
(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

Occurrence area: 20,000 sq km
Notes (Occurrence)

4. Approximate Area of Occupancy of the taxon in and around the area of study/ collection
(Area of occupancy is defined as the area occupied by the taxon within the ‘extent of occurrence’)

Area of Occupancy: > 2001 sq km
Notes (Occupancy):

5. Number of Subpopulations in which the taxon is distributed: 3

Is there a continuous declined in subpopulations / locations? [No]
Are there extreme fluctuations in subpopulations/ locations? [No]
Percentage of population that lives in most important subarea:

Notes (subpops)

5b. Specific description of major subpopulations and locations

67
6. Habitat status:

6A. Is there any change in the habitat where the taxon occurs? [ ] (No)
   *If yes, describe:

6B. If decreasing, what has been the decrease in Habitat area?
   approximate change (%): over how many years: Notes on decrease:

6C. If stable or unknown, do you predict a decline in habitat? (No)
   approximate change (%): over how many years:

6D. State primary cause of change:

6E. Is there any change in the quality of the habitat where the taxon occurs? [x] (Yes)
   Type of change development Notes:

6F. Notes (general) on habitat::

7. Threats

2.2. Predators
   Alien species
   Lead to Under Revers- Have
   Rank Past Pres Fut decline able ceased Notes
   Alien species

Number of locations for serious threat: 0
Comment:

8. Trade: 8A. Is the taxon in trade? [ ] (No)
   Parts in Trade: Purpose Barter Local Natl Intl Comment

   8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

9-10. Population numbers and Trends

9A. Avg. age of parents in pop: Unknown

9B. Global Population:
10A. Recent past trends: Stable Stable
    Rate of decline (past)
    For how many years? years years

10B. Will population decline? No No
    Predicted Rate (future)
    For how many years? years years

Notes:

11. Population Data quality

11A. Estimates base on: [ ] Census or monitoring [x] Field study [x] Informal sightings
    [ ] Indirect information [x] Museum records [x] Literature
    [ ] Hearsay/belief

Notes:
Bufo arabicus

11B. Qualifiers: Observed, Inferred, Suspected, Estimated, or Projected

11C. Uncertainty 95% confidence, Minimum/Maximum values, Range of Opinion; Evidentiary; Precautionary; Subjective; Hypothetical; Point estimate; or Range estimate

12. Recent Field Studies
Researcher names, Location, Dates, Topics:

Part Two
13. Status (Red List)

<table>
<thead>
<tr>
<th>Prior to Workshop</th>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>13A Global: None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13B. Cites:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13D. Natl Red Data Book:</td>
<td>13C. Natl wildlife Legislation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13F. Other legislation:</td>
<td>13E. Intl Red Data Book:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13G. Protected area presence:</td>
<td>13H. Endorsed protection plan:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current (Workshop)</th>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global: Least Concern</td>
<td></td>
<td></td>
<td>Ver 3.1</td>
</tr>
<tr>
<td>National:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notes:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Part Three
14. Supporting Research Is research recommended for taxon? Yes
Specify: [x] Genetic research [x] Taxonomic research [x] Life history
[x] Survey studies [x] Limiting factor research [ ] Epidemiology [ ] Trade

14A. Is Population and Habitat Viability Assessment recommended? No
Notes:
15. Management recommendations for the taxon Specify:
[ ] Sustainable utilization [ ] Public education [ ] Genome Resource Banking
[ ] Limiting factor mgt. [x] Captive breeding [ ] Work in local communities
Notes:
Conservation Measures Recommended In place Needed Old in place Old needed
16. Captive management recommendations If captive breeding recommended in Q15, is it for:
**Bufo arabicus**

Notes/other:

17. **Do Captive stocks already exist?** No

17A. Names of facilities:

17B. No. in captivity: Males Females Unsexed Total Not known?

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Not known?</td>
</tr>
</tbody>
</table>

17C. Does a coordinated species management program exist for this species? No

If yes, specify

17D. Is a coordinated Species Management Program recomended for range country(ies)? No

If yes, specify

18. **Level of captive breeding/cultivation recommended**

Ongoing ex situ program intensified or increased

19. **Are techniques extablished to propagate the taxon?**

Techniques known for this taxon or similar taxon

20. **Other Comments**

21. **Sources:** Balletto et al. (1985); Leviton et al. (1992)

22. **Compilers:** Freshwater group workshop, CAMP meeting 2003, Sharjah, UAE.

23. **Reviews:**

Copyright IUCN SSC / CBSG 1999, 2002
**Conservation Assessment Management Plan**

**Taxon Data Sheet**

**Euphlyctis ehrenbergii**

**Page 1**  
**Skittering frog**

---

**This Assessment is a Global Assessment**

1. **Scientific Name:** *Euphlyctis ehrenbergii* Peters, 1863

1A. Synonyms:  
- **Scientific synonym / ambiguities**  
  - *Rana cyanophlyctis* Schneider, 1799 (misidentification)

1B. Scientific nomenclature:  
- **FAMILY:** Ranidae  
- **ORDER:** Anura  
- **CLASS:** Amphibia

1C. Common Names:  
- Skittering frog

1D. Taxonomic level:  
- Species

Notes:

---

2. **Habitat**

**Primary**

**Country(ies):**  
- Saudi Arabia  
- Yemen

**Notes on Habitat:**  
- Aquatic habitats, perennial waters

**Life form (plant):**

**Niche:**

**Distribution**

**Historical distrib:**  
- West and south west Saudi Arabia

**Current countries:**  
- Saudi Arabia, Yemen

**Geograph. extent:**  
- West and south west Saudi Arabia, Yemen

**Migration regions:**

---

3. **Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection**

*(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)*

**Occurrence area:**  
- > 20,000 sq km

**Notes (Occurrence):**

---

4. **Approximate Area of Occupancy of the taxon in and around the area of study/ collection**

*(Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')*

**Area of Occupancy:**  
- 501-2000 sq km

**Notes (Occupancy):**  
- 2 phenotypes in the population

---

5. **Number of Subpopulations in which the taxon is distributed:**  
- 1

**Is there a continuous declined in subpopulations / locations?**  
- [ ]

**Are there extreme fluctuations in subpopulations/ locations?**  
- [ ]

**Percentage of population that lives in most important subarea:**

**Notes (subpops):**

---

6. **Habitat status:**  
- Fragmented
Euphlyctis ehrenbergii

Skittering frog

6A. Is there any change in the habitat where the taxon occurs? If yes, describe: Decrease
6B. If decreasing, what has been the decrease in Habitat area? approximate change (%): < 20% over how many years: 5

6C. If stable or unknown, do you predict a decline in habitat? approximate change (%): over how many years:

6D. State primary cause of change:

6E. Is there any change in the quality of the habitat where the taxon occurs? [x] (Yes) Type of change Decrease in quality Notes: Water abstraction, habitat modification, eutrophication

6F. Notes (general) on habitat:

7. Threats

<table>
<thead>
<tr>
<th></th>
<th>Lead to</th>
<th>Under</th>
<th>Reversible</th>
<th>Have ceased</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.6. Groundwater extraction</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

Alien species

2.2. Predators | N | Y | Y | N | Y | N |
Tilapia introduction

6.3. Water pollution | N | Y | Y | N | Y | N |

Number of locations for serious threat: 0

Comment:

8. Trade: 8A. Is the taxon in trade? [ ] (Yes)
Parts in Trade: Purpose Barter Local Natl Intl Comment

8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

9-10. Population numbers and Trends

9A. Avg. age of parents in pop: 0 Years

<table>
<thead>
<tr>
<th></th>
<th>Total Pop.</th>
<th>Mature</th>
<th>Breeding pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9B. Global Population:

10A. Recent past trends: Declining Declining
Rate of decline (past) For how many years? years years

10B. Will population decline? No No
Predicted Rate (future) For how many years? years years

Notes:

11. Population Data quality

11A. Estimates base on: [ ] Census or monitoring [ ] Field study [ ] Informal sightings
[ ] Indirect information [x] Museum records [x] Literature
[ ] Hearsay/belief

Notes:

11B. Qualifiers: Observed Observed, Inferred, Suspected, Estimated, or Projected

11C. Uncertainty

95% confidence, Minimum/Maximum values, Range of Opinion; Evidentiary; Precautionary; Subjective; Hypothetical; Point estimate; or Range estimate

12. Recent Field Studies
## Part Two
### 13. Status (Red List)

<table>
<thead>
<tr>
<th>Prior to Workshop</th>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>13A.</td>
<td>Global: None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13B. Cites:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13C. Natl wildlife Legislation:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13D. Natl Red Data Book:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13E. Intl Red Data Book:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13F. Other legislation:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13G. Protected area presence:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13H. Endorsed protection plan:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current (Workshop)</th>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>13A.</td>
<td>Global: Least Concern</td>
<td></td>
<td>Ver 3.1</td>
</tr>
<tr>
<td>National:</td>
<td>Least Concern</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

## Part Three
### 14. Supporting Research

Is research recommended for taxon? Yes

Specify:

- [x] Genetic research
- [x] Taxonomic research
- [x] Life history
- [x] Survey studies
- [x] Limiting factor research
- [ ] Epidemiology
- [ ] Trade

Is Population and Habitat Viability Assessment recommended? No

## Management recommendations for the taxon

Specify:

- [x] Habitat management
- [x] Wild pop management
- [x] Monitoring
- [x] Translocation
- [ ] Sustainable utilization
- [x] Public education
- [ ] Genome Resource Banking
- [x] Captive breeding
- [ ] Work in local communities

Notes:

### Conservation Measures Recommended

<table>
<thead>
<tr>
<th>In place</th>
<th>Needed</th>
<th>Old in place</th>
<th>Old needed</th>
</tr>
</thead>
</table>

## 16. Captive management recommendations

If captive breeding recommended in Q15, is it for:

<table>
<thead>
<tr>
<th>Species recovery</th>
<th>Education</th>
<th>Reintroduction</th>
<th>Benign introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>Husbandry</td>
<td>Sustainable use</td>
<td>Preservation of live genome</td>
</tr>
</tbody>
</table>

Notes/other:

## 17. Do Captive stocks already exist? Yes

Names of facilities:

Breeding Centre for Endangered Arabian Wildlife

No. in captivity: Males  Females: Unsexed: Total  Not known?
17C. Does a coordinated species management program exist for this species? No
If yes, specify:

17D. Is a coordinated Species Management Program recomended for range country(ies)? No
If yes, specify:

18. Level of captive breeding/cultivation recommended
Ongoing ex situ program intensified or increased

19. Are techniques extablished to propagate the taxon?
Techniques not known at all

20. Other Comments

21. Sources: Balletto et al. (1985), Leviton et al. (1992)
22. Compilers: Freshwater group workshop, CAMP meeting 2003, Sharjah, UAE.
23. Reviews:
Conservation Assessment Management Plan
Taxon Data Sheet

This Assessment is a Regional Assessment

1. Scientific Name: Hyla savignyi Audouin, 1829
   1A. Synonyms: Scientific synonym / ambiguities Authority (date)

1B. Scientific nomenclature:
   FAMILY: Hylidae
   ORDER: Anura
   CLASS: Amphibia

1C. Common Names:
   Green tree frog

1D. Taxonomic level:
   Species

Notes:

2. Habitat
   Primary

   Notes on Habitat: Permanent water, vegetation, above 1400m
   Country(ies): Jordan, Saudi Arabia, Yemen

   Life form (plant):
   Niche:

   Distribution
   Historical distrib: Jordan, south west Arabia
   Current countries: Jordan, south west Arabia
   Geograph. extent: Jordan, south west Arabia

   Migration regions:

3. Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection
   (Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)
   Occurrence area: > 20,000 sq km

   Notes (Occurrence)

4. Approximate Area of Occupancy of the taxon in and around the area of study/ collection
   (Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')
   Area of Occupancy: 501-2,000 sq km

   Notes (Occupancy):

5. Number of Subpopulations in which the taxon is distributed: 2
   Is there a continuous declined in subpopulations / locations? [ ]
   Are there extreme fluctuations in subpopulations/ locations? [ ]
   Percentage of population that lives in most important subarea:

   Notes (subpops)

5b. Specific description of major subpopulations and locations
   Area: South west Arabia Size: 70000 Sq km GIS latitude longitude
   Population (best est.): 0 High: 0 Low: 0 Habitat:
Hyla savignyi

**Green tree frog**

Area: Jordan  
Size: 160 Sq km  
GIS latitude:  
longitude:  
Notes Population (best est.): 0  
High: 0  
Low: 0  
Habitat:  
Notes

6. Habitat status:

6A. Is there any change in the habitat where the taxon occurs?  [x] (Yes)

If yes, describe:

Decrease in Area

6B. If decreasing, what has been the decrease in Habitat area?

approximate change (%): < 20%  
over how many years: 5  
Notes on decrease:

6C. If stable or unknown, do you predict a decline in habitat?

approximate change (%):  
over how many years:

6D. State primary cause of change:

Loss of freshwater habitat

6E. Is there any change in the quality of the habitat where the taxon occurs?  [x] (Yes)

Type of change: Decrease in quality

Notes:

6F. Notes (general) on habitat:

Deterioration of water quality, decrease in marginal vegetation

7. Threats

<table>
<thead>
<tr>
<th>Rank</th>
<th>Pres</th>
<th>Fut</th>
<th>Under</th>
<th>Reversible</th>
<th>Have</th>
<th>Notes</th>
</tr>
</thead>
</table>

Alien species

Predators

N Y Y Y Y N Y N

Introduction of alien fish

Other pollution

N Y Y Y N Y N

Insecticides, herbicides

Disasters

Other

N Y Y Y N Y N

Habitat destruction

Other human

Fire

N Y Y Y N Y N

Burning of riparian vegetation

Number of locations for serious threat: 0

Comment:

8. Trade:  

8A. Is the taxon in trade?  [ ] (Yes)

Parts in Trade:  

Purpose:  

Barter: Local Natl Intl

Comment:

8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

9-10. Population numbers and Trends

9A. Avg. age of parents in pop: 0 Years

9B. Global Population:

<table>
<thead>
<tr>
<th>Total Pop.</th>
<th>Mature</th>
<th>Breeding pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

10A. Recent past trends:

Rate of decline (past)

For how many years? years years

10B. Will population decline?

No No

Predicted Rate (future)

For how many years? years years

Notes:

11. Population Data quality

11A. Estimates base on:  

[ ] Census or monitoring  [x] Field study  
[x] Informal sightings

[ ] Indirect information  [x] Museum records  
[x] Literature

78
**Hyla savignyi**

**Green tree frog**

Notes:

11B. Qualifiers: Observed *Observed, Inferred, Suspected, Estimated, or Projected*

11C. Uncertainty

Hearsay/belief

95% confidence, Minimum/Maximum values, [ ]

12. Recent Field Studies

Researcher names, Location, Dates, Topics:


Part Two

13. Status (Red List)

<table>
<thead>
<tr>
<th>Prior to Workshop</th>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>13A. Global:</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13B. Cites:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13D. Natl Red Data Book:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13E. Intl Red Data Book:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current (Workshop)</th>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>13F. Other legislation:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13G. Protected area presence:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13H. Endorsed protection plan:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Global: Vulnerable

Habitat decline and multiple threats

Notes:

13C. Natl wildlife Legislation:

Natl: [ ]

13E. Intl Red Data Book:

Ver 3.1

Part Three

14. Supporting Research

Is research recommended for taxon? Yes

Specify:

- [x] Genetic research
- [x] Taxonomic research
- [x] Life history
- [x] Survey studies
- [x] Limiting factor research
- [ ] Epidemiology
- [ ] Trade

14A. Is Population and Habitat Viability Assessment recommended? No

15. Management recommendations for the taxon

Specify:

- [x] Habitat management
- [x] Wild pop management
- [x] Monitoring
- [ ] Translocation
- [ ] Sustainable utilization
- [x] Public education
- [x] Genome Resource Banking
- [x] Captive breeding
- [ ] Work in local communities

Notes:

Conservation Measures Recommended

In place Needed Old in place Old needed

16. Captive management recommendations

If captive breeding recommended in Q15, is it for:
**Hyla savignyi**

<table>
<thead>
<tr>
<th>Species recovery</th>
<th>Education</th>
<th>Reintroduction</th>
<th>Benign introduction</th>
<th>Research</th>
<th>Husbandry</th>
<th>Sustainable use</th>
<th>Preservation of live genome</th>
</tr>
</thead>
</table>

Notes/other:

17. **Do Captive stocks already exist?**  No

17A. Names of facilities:

<table>
<thead>
<tr>
<th>17B. No. in captivity:</th>
<th>Males</th>
<th>Females</th>
<th>Unsexed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

17C. Does a coordinated species management program exist for this species?  No

If yes, specify

17D. Is a coordinated Species Management Program recomended for range country(ies)?  No

If yes, specify

18. **Level of captive breeding/cultivation recommended**

Initiate ex situ Program within 3 years

19. **Are techniques extablished to propagate the taxon?**

Techniques known for this taxon or similar taxon

20. **Other Comments**

21. **Sources:**

    Balletto et al. (1985); Disi et al. (2001); Disi (2002)

22. **Compilers:**

    Freshwater group workshop, CAMP meeting 2003, Sharjah, UAE.

23. **Reviews:**

    Copyright IUCN SSC / CBSG 1999, 2002
Conservation Assessment Management Plan
Taxon Data Sheet

Threatened Fauna of Arabia 23 Feb 2003

Mauremys caspica

Page 1

Conservation Assessment Management Plan
Taxon Data Sheet

Mauremys caspica

Page 1

This Assessment is a National / Regional Assessment

1. Scientific Name: Mauremys caspica Gineline, 1774

1A. Synonyms: Scientific synonym / ambiguities Authority (date)

1B. Scientific nomenclature:
   FAMILY: Emydidae
   ORDER: Testudines
   CLASS: Reptilia

1C. Common Names: Caspian terrapin

1D. Taxonomic level: Species

Notes:

2. Habitat

Primary Country(ies)

Notes on Habitat

Oasis pools and springs

Saudi Arabia

Yes

Life form (plant):

Niche:

Distribution

Historical distrib: Eastern Saudi Arabia, Bahrain

Current countries: Saudi Arabia, Bahrain

Geograph. extent: Eastern Saudi Arabia, Bahrain

Migration regions:

3. Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection

(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

Occurrence area: 5,001 - 20,000 sq km

Notes (Occurrence):

4. Approximate Area of Occupancy of the taxon in and around the area of study/ collection

(Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')

Area of Occupancy: < 10 sq km

Notes (Occupancy):

5. Number of Subpopulations in which the taxon is distributed: 5

Is there a continuous declined in subpopulations / locations? [ ]

Are there extreme fluctuations in subpopulations/ locations? [ ]

Percentage of population that lives in most important subarea:

Notes (subpops)

5b. Specific description of major subpopulations and locations

Area

Population (best est.)

Bahrain Size: 5 Sq km GIS latitude 26°16’N longitude 50°37’E

High: 0 Low: 0 Habitat:
Mauremys caspica

<table>
<thead>
<tr>
<th>Area</th>
<th>Hofuf</th>
<th>Size: 10 Sq km</th>
<th>GIS latitude 25°22'N</th>
<th>longitude 49°34'E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes Population (best est.):</td>
<td>Less than 5km sq.</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High:</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low:</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Habitat:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes

<table>
<thead>
<tr>
<th>Area</th>
<th>Qatif</th>
<th>Size: 2 Sq km</th>
<th>GIS latitude 26°33'N</th>
<th>longitude 49°58'E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes Population (best est.):</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High:</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low:</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Habitat status:

6A. Is there any change in the habitat where the taxon occurs? [x] (Yes)
   If yes, describe: Decrease in Area

6B. If decreasing, what has been the decrease in Habitat area?
   approximate change (%): < 20% over how many years: 5
   Notes on decrease: |

6C. If stable or unknown, do you predict a decline in habitat?
   approximate change (%): over how many years: |

6D. State primary cause of change: |

6E. Is there any change in the quality of the habitat where the taxon occurs? [x] (Yes)
   Type of change: Decrease in quality
   Notes: Agriculture, water abstraction

6F. Notes (general) on habitat: |

7. Threats

<table>
<thead>
<tr>
<th>1.3.6. Groundwater extraction</th>
<th>N</th>
<th>Y</th>
<th>Y</th>
<th>Y</th>
<th>N</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2.2. Predators</th>
<th>N</th>
<th>Y</th>
<th>Y</th>
<th>Y</th>
<th>N</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>7.7. Other</th>
<th>N</th>
<th>Y</th>
<th>Y</th>
<th>Y</th>
<th>N</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>7.7. Other</th>
<th>N</th>
<th>Y</th>
<th>Y</th>
<th>N</th>
<th>Y</th>
<th>N</th>
<th>N</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>8.2. Predators</th>
<th>N</th>
<th>Y</th>
<th>Y</th>
<th>Y</th>
<th>N</th>
<th>N</th>
<th>N</th>
</tr>
</thead>
</table>

Number of locations for serious threat: 0

Comment:

8. Trade:

8A. Is the taxon in trade? [x] (Yes)

Parts in Trade: Purpose | Barter | Local | Natl | Intl | Comment
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Live animal</td>
<td>Aquarium trade</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

Sub-populations are currently genetically distinct. Trade may result in decline and genetic pollution if specimens from different sub-populations are released into different sub-populations.

9-10. Population numbers and Trends

9A. Avg. age of parents in pop: 0 Years

<table>
<thead>
<tr>
<th>Total Pop</th>
<th>Mature</th>
<th>Breeding pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10A. Recent past trends: Declining
Mauremys caspica

Caspian terrapin

Rate of decline (past)
For how many years? years

10B. Will population decline? No

Predicted Rate (future)
For how many years? years

Notes:

11. Population Data quality
11A. Estimates base on: [ ] Census or monitoring [x] Field study [x] Informal sightings
[ ] Indirect information [x] Museum records [x] Literature

Notes:

11B. Qualifiers: Observed Observed, Inferred, Suspected, Estimated, or Projected
11C. Uncertainty 95% confidence, Minimum/Maximum values, Range of Opinion; Evidentiary; Precautionary; Subjective; Hypothetical; Point estimate; or Range estimate

12. Recent Field Studies
Researcher names, Location, Dates, Topics:

Part Two
13. Status (Red List)

Prior to Workshop

<table>
<thead>
<tr>
<th>Prior to Workshop</th>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>13A Global:</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13B. Cites: 13C. Natl wildlife Legislation:
13D. Natl Red Data Book: 13E. Intl Red Data Book:
13F. Other legislation:
13G. Protected area presence:
13H. Endorsed protection plan:

Current (Workshop)

<table>
<thead>
<tr>
<th>Current (Workshop)</th>
<th>Status</th>
<th>Criteria</th>
<th>Red list version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global:</td>
<td></td>
<td>Least Concern</td>
<td>Ver 3.1</td>
</tr>
<tr>
<td>National:</td>
<td></td>
<td>Least Concern</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Least concern subject to further investigations of subpopulations

Part Three
14. Supporting Research
Is research recommended for taxon? No

Specify:
[x] Genetic research [x] Taxonomic research [x] Life history
[x] Survey studies [x] Limiting factor research [ ] Epidemiology [x] Trade

14A. Is Population and Habitat Viability Assessment recommended? Yes
Notes:

15. Management recommendations for the taxon Specify:
Mauremys caspica

Caspian terrapin

[ ] Sustainable utilization [x] Public education [x] Genome Resource Banking
[ ] Limiting factor mgt. [x] Captive breeding [ ] Work in local communities

Notes:

Conservation Measures Recommended

<table>
<thead>
<tr>
<th>In place</th>
<th>Needed</th>
<th>Old in place</th>
<th>Old needed</th>
</tr>
</thead>
</table>

16. Captive management recommendations

If captive breeding recommended in Q15, is it for:

- Species recovery
- Education
- Reintroduction
- Benign introduction
- Research
- Husbandry
- Sustainable use
- Preservation of live genome

Notes/other:

17. Do Captive stocks already exist? Yes

17A. Names of facilities:

- Environmental protection Council, Bahrain.
- Breeding Centre for Endangered Arabian Wildlife, Sharjah, UAE.

17B. No. in captivity:

<table>
<thead>
<tr>
<th>Sex</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>0</td>
</tr>
<tr>
<td>Females</td>
<td>0</td>
</tr>
<tr>
<td>Unsexed</td>
<td>110</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
</tr>
</tbody>
</table>

17C. Does a coordinated species management program exist for this species? No

If yes, specify

17D. Is a coordinated Species Management Program recomended for range country(ies)? Yes

If yes, specify Saudi Arabia, Bahrain

18. Level of captive breeding/cultivation recommended

Ongoing ex situ program intensified or increased

19. Are techniques extablished to propagate the taxon?

Techniques known for this taxon or similar taxon

20. Other Comments

Part Four

21. Sources:

- Gasperetti et al. (1993)
- Fritz & Wischeif (1997)

22. Compilers:

- Freshwater group workshop, CAMP meeting 2003, Sharjah, UAE.

23. Reviews:

Copyright IUCN SSC / CBSG 1999, 2002
Conservation Assessment Management Plan
Taxon Data Sheet

Threatened Fauna of Arabia

23 Feb 2003

Pelomedusa subrufa

Page 1

Marsh terrapin

This Assessment is a National / Regional Assessment

1. Scientific Name: Pelomedusa subrufa Lacépède, 1788

1A. Synonyms: Scientific synonym / ambiguities Authority (date)

1B. Scientific nomenclature:
   FAMILY: Pelomedusidae
   ORDER: Testudines
   CLASS: Reptilia

1C. Common Names: Marsh terrapin

1D. Taxonomic level: Species

Notes:

2. Habitat

   Primary Country(ies)
   Notes on Habitat:
   Stagnant and slow flowing waters
   Yemen Yes

   Life form (plant):

   Niche:

   Distribution
   Historical distrib:
   South western Saudi Arabia
   Current countries:
   Saudi Arabia, Yemen
   Geograph. extent:
   South western Saudi Arabia, Yemen
   Migration regions:

3. Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection
(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

   Occurrence area: > 20,000 sq km
   Notes (Occurrence):

4. Approximate Area of Occupancy of the taxon in and around the area of study/ collection
(Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')

   Area of Occupancy: 11-500 sq km
   Notes (Occupancy):

5. Number of Subpopulations in which the taxon is distributed: 1

   Is there a continuous declined in subpopulations / locations? [ ]
   Are there extreme fluctuations in subpopulations/ locations? [ ]
   Percentage of population that lives in most important subarea:
   Notes (subpops)

6. Habitat status: Fragmented

87
6A. Is there any change in the habitat where the taxon occurs? If yes, describe: [x] (Yes) Decrease in Area

6B. If decreasing, what has been the decrease in Habitat area? approximate change (%): < 20% over how many years: 5 Notes on decrease:

6C. If stable or unknown, do you predict a decline in habitat? approximate change (%): over how many years: 

6D. State primary cause of change: Water abstraction

6E. Is there any change in the quality of the habitat where the taxon occurs? [x] (Yes) Type of change Decrease in quality Notes:

6F. Notes (general) on habitat::

7. Threats

<table>
<thead>
<tr>
<th>Rank</th>
<th>Past</th>
<th>Pres</th>
<th>Fut</th>
<th>Lead to</th>
<th>Under</th>
<th>Revers</th>
<th>Have</th>
<th>ceased</th>
<th>Extraction</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of locations for serious threat: 0 Comment:

8. Trade: 8A. Is the taxon in trade? [ ] (Yes)

Parts in Trade: Purpose Barter Local Natl Intl Comment

8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

9-10. Population numbers and Trends

9A. Avg. age of parents in pop: Unknown

<table>
<thead>
<tr>
<th>Total Pop.</th>
<th>Mature</th>
<th>Breeding pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Declining</td>
<td>Declining</td>
</tr>
</tbody>
</table>

10A. Recent past trends:

Rate of decline (past) For how many years? years years

10B. Will population decline? Yes Yes

Predicted Rate (future) For how many years? years years

Notes:

11. Population Data quality

11A. Estimates base on: [ ] Census or monitoring [ ] Field study [ ] Informal sightings

[ ] Indirect information [x] Museum records [x] Literature

[x] Hearsay/belief

11B. Qualifiers: Observed, Inferred, Suspected, Estimated, or Projected

11C. Uncertainty

95% confidence, Minimum/Maximum values, Range of Opinion; Evidentiary; Precautionary; Subjective; Hypothetical; Point estimate; or Range estimate

12. Recent Field Studies

Researcher names, Location, Dates, Topics:

Part Two
13. Status (Red List)  

Prior to Workshop | Status | Criteria | Red list version
--- | --- | --- | ---
13A Global: None |  |  | 
13B. Cites: |  |  | 
13C. Natl wildlife Legislation: |  |  | 
13D. Natl Red Data Book: |  |  | 
13E. Intl Red Data Book: |  |  | 
13F. Other legislation: |  |  | 
13G. Protected area presence: |  |  | 
13H. Endorsed protection plan: |  |  | 

Current (Workshop) | Status | Criteria | Red list version
--- | --- | --- | ---
Global: |  |  | Ver 3.1
National: Least Concern |  |  | 

Notes:

Part Three

14. Supporting Research  
Is research recommended for taxon? Yes

Specify:  
[x] Genetic research  
[x] Taxonomic research  
[x] Life history  
[x] Survey studies  
[x] Limiting factor research  
[ ] Epidemiology  
[ ] Trade

14A. Is Population and Habitat Viability Assessment recommended? No

Notes:

15. Management recommendations for the taxon  
Specify:

[x] Habitat management  
[ ] Wild pop management  
[ ] Monitoring  
[ ] Translocation  
[ ] Sustainable utilization  
[ ] Public education  
[ ] Genome Resource Banking  
[x] Limiting factor mgt.  
[x] Captive breeding  
[ ] Work in local communities

Notes:

Conservation Measures Recommended

<table>
<thead>
<tr>
<th>In place</th>
<th>Needed</th>
<th>Old in place</th>
<th>Old needed</th>
</tr>
</thead>
</table>

16. Captive management recommendations  
If captive breeding recommended in Q15, is it for:

Species recovery  
Education  
Research  
Reintroduction  
Husbandry  
Sustainable use  
Preservation of live genome

Notes/other:

17. Do Captive stocks already exist? Yes

17A. Names of facilities: Breeding Centre for Endangered Arabian Wildlife, Sharjah, UAE.

17B. No. in captivity:  
Males: 0  
Females: 0  
Unsexed: 13  
Total: 13  
Not known?

17C. Does a coordinated species management program exist for this species? No

If yes, specify
17D. Is a coordinated Species Management Program recomended for range country(ies)?
   No

If yes, specify

18. Level of captive breeding/cultivation recommended:
   Ongoing ex situ program intensified or increased

19. Are techniques established to propagate the taxon?
   Techniques known for this taxon or similar taxon

20. Other Comments

Part Four

21. Sources:
   Gasperetti et al. (1993)

22. Compilers:
   Freshwater group workshop, CAMP meeting 2003, Sharjah, UAE.

23. Reviews:

Copyright IUCN SSC / CBSG 1999, 2002
Conservation Assessment Management Plan
Taxon Data Sheet

This Assessment is a  National / Regional Assessment

1. Scientific Name: Rana cf. ridibunda

1A. Synonyms: Scientific synonym / ambiguities

1B. Scientific nomenclature:
   FAMILY: Ranidae
   ORDER: Anura
   CLASS: Amphibia

1C. Common Names: Marsh frog

1D. Taxonomic level: Species

2. Habitat

   Primary

   Country(ies)
   Bahrain  Yes
   Saudi Arabia  Yes

   Notes on Habitat
   Oases, mountainous wadis

   Life form (plant):

   Niche:

   Distribution

   Historical distrib: Saudi Arabia, Bahrain

   Current countries: Saudi Arabia, Bahrain

   Geograph. extent: South-west Saudi Arabia, East Saudi Arabia, Bahrain

   Migration regions:

3. Approximate Area of Occurrence of the taxon in and around the area of study/ sighting/ collection
   (Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

   Occurrence area: > 20,000 sq km

   Notes (Occurrence)

4. Approximate Area of Occupancy of the taxon in and around the area of study/ collection
   (Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')

   Area of Occupancy: 11-500 sq km

   Notes (Occupancy)

5. Number of Subpopulations in which the taxon is distributed: 2

   Is there a continuous declined in subpopulations / locations?  [ ]

   Are there extreme fluctuations in subpopulations/ locations?  [ ]

   Percentage of population that lives in most important subarea: 

   Notes (subpops)

5b. Specific description of major subpopulations and locations

<table>
<thead>
<tr>
<th>Area</th>
<th>Eastern Arabia</th>
<th>Size: 20000</th>
<th>Sq km</th>
<th>GIS latitude</th>
<th>longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (best est.)</td>
<td>0 High: 0</td>
<td>Low: 0</td>
<td>Habitat:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Rana cf. ridibunda

**Area**
South west Saudi Arabia

**Size:** 20000 Sq km

**Notes**
Population (best est): 0
High: 0
Low: 0
Habitat: Notes

---

### 6. Habitat status:

6A. Is there any change in the habitat where the taxon occurs?  [ ] (Yes)

**If yes, describe:**

6B. If decreasing, what has been the decrease in Habitat area?

approximate change (%):
over how many years:

Notes on decrease:

6C. If stable or unknown, do you predict a decline in habitat?

approximate change (%):
< 20% over how many years:

6D. State primary cause of change:

Water abstraction

6E. Is there any change in the quality of the habitat where the taxon occurs?

Type of change: Decrease in quality

Notes: Development, water abstraction, fertilisers, pollution by livestock, eutrophication

6F. Notes (general) on habitat:

---

### 7. Threats

<table>
<thead>
<tr>
<th>Rank</th>
<th>Past</th>
<th>Pres</th>
<th>Fut</th>
<th>Lead to</th>
<th>Under</th>
<th>Reversible</th>
<th>Have ceased</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.6</td>
<td>Groundwater extraction</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Predators</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>Introduction of Tilapia</td>
</tr>
<tr>
<td>7.7</td>
<td>Other</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>7.7</td>
<td>Other</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.2</td>
<td>Research</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Alien species**

**Disasters**

**Other human**

**Other human**

Number of locations for serious threat: 0

Comment:

---

### 8. Trade:

8A. Is the taxon in trade?  [ ] (Yes)

Parts in Trade: Purpose Barter Local Natl Intl Comment

8C. Which form of trade (specified form) is resulting in a perceived or inferred population decline?

---

### 9-10. Population numbers and Trends

9A. Avg. age of parents in pop: Unknown

<table>
<thead>
<tr>
<th>Total Pop.</th>
<th>Mature</th>
<th>Breeding pairs</th>
</tr>
</thead>
</table>

9B. Global Population:

10A. Recent past trends:

Declining Declining

Rate of decline (past): For how many years? years years

10B. Will population decline?  No  No

Predicted Rate (future): For how many years? years years

Notes:
Rana cf. ridibunda

11. Population Data quality
   11A. Estimates base on:  
       [ ] Census or monitoring  [ ] Field study  [x] Informal sightings  
       [x] Indirect information  [x] Museum records  [x] Literature  
       [ ] Hearsay/belief  

   Notes:  

   11B. Qualifiers:  
       Observed  

   11C. Uncertainty  
       95% confidence, Minimum/Maximum values, 
       Range of Opinion; Evidentiary; Precautionary; 
       Subjective; Hypothetical; Point estimate; or 
       Range estimate  

12. Recent Field Studies

   Researcher names, Location, Dates, Topics:

Part Two

13. Status (Red List)

   Prior to Workshop  
   Status  
   Criteria  
   Red list version  
   13A Global:  
   None  
   National:  

   13B. Cites:  
   13C. Natl wildlife Legislation:  

   13D. Natl Red Data Book:  
   13E. Intl Red Data Book:  

   13F. Other legislation:  
   13G. Protected area presence:  

   13H. Endorsed protection plan:

   Current (Workshop)  
   Status  
   Criteria  
   Red list version  
   Global:  
   Least Concern  
   Ver 3.1  
   National:  
   Least Concern  

   Notes:

Part Three

14. Supporting Research  
   Is research recommended for taxon?  
   Yes  
   Specify:  
   [x] Genetic research  
   [x] Taxonomic research  
   [ ] Life history  
   [x] Survey studies  
   [x] Limiting factor research  
   [ ] Epidemiology  
   [x] Trade  

   14A. Is Population and Habitat Viability Assessment recommended?  
   Yes  

   Notes:

15. Management recommendations for the taxon  
   Specify:  
   [x] Habitat management  
   [ ] Wild pop management  
   [x] Monitoring  
   [ ] Translocation  
   [ ] Sustainable utilization  
   [x] Public education  
   [ ] Genome Resource Banking  
   [ ] Limiting factor mgt.  
   [x] Captive breeding  
   [ ] Work in local communities  

   Notes:

   Conservation Measures Recommended  
   In place  
   Needed  
   Old in place  
   Old needed
16. Captive management recommendations

If captive breeding recommended in Q15, is it for:

<table>
<thead>
<tr>
<th>Species recovery</th>
<th>Education</th>
<th>Reintroduction</th>
<th>Benign introduction</th>
<th>Research</th>
<th>Husbandry</th>
<th>Sustainable use</th>
<th>Preservation of live genome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes/other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. Do Captive stocks already exist?  

Yes

17A. Names of facilities:  

Breeding Centre for Endangered Arabian Wildlife, Sharjah, UAE

17B. No. in captivity:  

<table>
<thead>
<tr>
<th>Males</th>
<th>Females</th>
<th>Unsexed</th>
<th>Total</th>
<th>Not known?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not known</td>
</tr>
</tbody>
</table>

17C. Does a coordinated species management program exist for this species?  

No

17D. Is a coordinated Species Management Program recommended for range country(ies)?  

No

18. Level of captive breeding/cultivation recommended  

Ongoing ex situ program intensified or increased

19. Are techniques extablished to propagate the taxon?  

Techniques known for this taxon or similar taxon

20. Other Comments

21. Sources:  

Balletto et al. (1985); Gallagher (1971), Leviton et al. 1992

22. Compilers:  

Freshwater group workshop, CAMP meeting 2003, Sharjah, UAE.

23. Reviews:  

Copyright IUCN SSC / CBSG 1999, 2002
Participants List

Section 4
Bahrain

1 Mr. Mubarak Al-Dosary
   Head of Mammals
   Department for Protected Areas
   NCWP
   PO Box 28696
   State of Bahrain
   T  00973 836116
   F  00973 836118
   M  00973 919 6108
   Email: bncftpw@batelco.com.bh

2 Mr. Essa Faraj Saad
   Head of Birds Section
   Al Areen Wildlife Park
   PO Box 28690
   State of Bahrain
   T  00973 836116
   F  00973 836118

Germany

3 Dr. Fareed Krupp
   Forschungsinstitut Senckenberg
   Senckenberganlage 25
   Frankfurt D-60325
   Germany
   T:  0049 49 7542255
   F:  0049 69 754 2253
   Email: F.Krupp@senckenberg.de

4 Dr. Dieter Ernst
   Biologist
   Kielerstr. 148
   D-22769
   Hamburg
   T/F:  040/8503995

Jordan

5 Mr. Nashat Hamidan
   Central Ecologist
   Royal Society for Conservation of Nature
   PO Box 6354
   Amman 11183
   T  00962 6 5337931
   F  00962 6 5347411
6 Mr. Mayyas Qarqas
Ecologist
Royal Society for Conservation of Nature
PO Box 6354
Al-Jubiha 11183
Jordan
T 00962 6 5337931/32
F 00962 6 5347411
Email: qarqasmayas@rscn.org.jo

7 Dr. Zuhair S. Amr
Dept. of Biology
Jordan University of Science and Technology
PO Box 3030
Irbid
Jordan
T 00962 2 295111 ext 3468
F 00962 2 295123
M 00962 79 545281
Email: amrz@go.com.jo
    amrz@just.edu.jo

8 Prof. Dr. Ahmad M. Disi
Dept of Biological Science
University of Jordan
Amman
Jordan
T 00962 6 843555
    00962 6 843666 ext: 3162
    00962 6 5159687 (home)
F 00962 6 5348932
Email: ahmadmdisi@yahoo.com

9 Mr. Mohammad Abu Baker
Jordan University of Science and Technology
PO Box 3030
Irbid
Jordan
T 00962 2 295111
F 00962 2 295123
M 00962 79 545281

Kuwait

10 Mr. Tony Mc Ewan
The Scientific Centre
PO Box 3504
11 Ms. Ohoud Al Raqham
The Scientific Centre
PO Box 3504
Salmiya 22036
Kuwait
T  00965 2240313
F  00965 5710297
Email: tmcewan@tsck.org.kw

12 Ms. Hanan Al Khalifa
Kuwait Institute for Scientific Research
PO Box 24885
13109 Safat
Kuwait
T: 00965 483 6100
F: 00965 484 6891
Email: hkhalifa@safat.kisr.edu.kw

13 Mrs. Matra El-Mutairi
Research Associate
Airdland Agriculture and Greenery Dept.
Kuwait Institute for Scientific Research
PO Box 24885
13109 Safat
Kuwait
T: 00965 483 6100 ext 5297
F: 00965 481 5194
Email: mmutairy@safat.kisr.edu.kw

Oman

14 Mr. Ali Salem Bait Said
Director of Nature Conservation
Ministry of Regional Municipalities and Environment and Water Resources
PO Box 461
Code No. 112
Muscat
Sultanate of Oman
T: 00968 692 471
F: 00968 692 553
Email: alidofar@omantel.net.om

15 Mr. Salih bin Naghmoosh Al-Saadi
Ministry of Regional Municipalities and Environment and Water Resources
16 Dr. Andrew Spalton
Assistant Advisor
Office of the Advisor for Conservation of the Environment
Diwan Royal Court
PO Box 246
Muscat 113
Sultanate of Oman
T: 00968 693 538
F: 00968 693 883
Email: acedrc@omantel.net.om
spalt@omantel.net.om

17 Mansoor Al Jadhami
Office of the Advisor for Conservation of the Environment
Diwan Royal Court
PO Box 246
Muscat 113
Sultanate of Oman
T: 00968 693 538
F: 00968 693 883

Saudi Arabia

18 Mr. Abdulrahman Khoja
NWRC
PO Box 1086
Taif
Kingdom of Saudi Arabia
T: 00966 2 745 5188
F: 00966 2 745 5176
Email: ark@nwrc-sa.org

19 Dr. Iyad Nader
King Khalid Wildlife Research Centre
NCWCD
PO Box 61681
Riyadh 11575
Kingdom of Saudi Arabia
T: 00966 1 404 4412
00966 1 404 2527
00966 1 401 4168
F: 00966 1 401 1527
Email: kkwrc.ksa@zajil.net
20  Mr. Pascal Mésochina  
    Mammal Curator  
    National Wildlife Research Centre  
    PO Box 1086  
    Taif  
    Kingdom of Saudi Arabia  
    T 00966 2 7455188/92/96  
    F 00966 4 7455176  
    Email: mesochina@nwrc-sa.org  
        www.arabianoryx.org

21  Mr. Fawaz Albaroudi  
    National Commission for Wildlife Conservation and Development  
    PO Box 61681  
    Riyadh 11575  
    Kingdom of Saudi Arabia  
    T 00966 1 4418700  
    F 00966 1 4418413  
    M 00966 55201757

22  Mr. Hatim Al Yami  
    National Commission for Wildlife Conservation and Development  
    PO Box 61681  
    Riyadh 11575  
    Kingdom of Saudi Arabia  
    T 00966 1 4418700  
    F 00966 1 4418413  
    M 00966 55201757

Switzerland

23  Dr. Urs Breitenmoser  
    KORA  
    Thunstr. 31  
    Muri CH-3074  
    Switzerland  
    T 0041 31 9519020  
    F 0041 31 9519040/1  
    Email: urs.breitenmoser@ivv.unibec.ch

United Arab Emirates

Abu Dhabi

24  Dr. Azhar Abbas  
    Chief Curator  
    Al Ain Zoo and Aquarium  
    PO Box 1204
United Arab Emirates
T 00971 3 7829663
F 00971 3 7829112
M 00971 506232218
Email: drazhar@emirtaes.net.ae

25  Mr. Christopher Drew
Zoologist
TERC
ERWDA
PO Box 45553
Abu Dhabi
UAE
T: 02 693 4646
F: 02 681 0008
Email: cdrew@erwda.gov.ae

26  Ms. Shaikha al Dhaheri
Zoologist
TERC
ERWDA
PO Box 45553
Abu Dhabi
UAE
T: 02 693 4646
F: 02 681 0008
Email: saldhaheri@erwda.gov.ae

27  Ms. Ingrid Barcello
Research Associate
ERWDA
PO Box 45553
Abu Dhabi
UAE
T: 02 693 4646
F: 02 681 0008
Email: illanes@erwda.gov.ae

28  Dr. Fred Launay
WWF Project Office
World Wide Fund for Nature
PO Box 45553
Abu Dhabi
United Arab Emirates
T: 02 6817171  direct: 02 6934510
F: 02 681 0008  direct: 02 681 7347
M: 050 642 1869
Email: flaunay@erwda.gov.ae
wwfuae@erwda.gov.ae
29 Mr. John Newby  
Director Terrestrial Environment Research Centre (TERC)  
Environment Research and Wildlife Development Agency (ERWDA)  
PO Box 45553  
Abu Dhabi  
United Arab Emirates  
T: 00971 2 6934643  
F: 00971 2 6817361  
M: 00971 504109650  
Email: jnewby@erwda.gov.ae

30 Mr. Pritpal Soorae  
Projects Manager  
Reintroduction Specialist Group IUCN/SSC  
PO Box 45553  
Abu Dhabi  
T: 00971 2 6934650  
F: 00971 2 6810008  
Email: psoorae@erwda.gov.ae

Dubai

31 Miss Zeina Aboul Hosn  
Educational Coordinator  
Emirates Environmental Group  
PO Box 7013  
Dubai  
United Arab Emirates  
T: 04 331 8100  
F: 04 332 8500  
Email: eeg@emirates.net.ae

32 Emirates Environmental Group  
PO Box 7013  
Dubai  
United Arab Emirates  
T: 04 331 8100  
F: 04 332 8500  
Email: eeg@emirates.net.ae

33 Jonathan Ali Khan  
Managing Director  
Ocean World Productions FZLLC  
PO Box 27419  
Dubai  
UAE  
T: 04 282 0872  
F: 04 282 4165
Email: cycleoflife_ow@yahoo.co.uk

34 Ms. Emma Smart  
Freshwater Fish Researcher/Production Assistant  
Ocean World Production FZLLC  
PO Box 27419  
Dubai  
UAE  
T: 04 282 0872  
F: 04 282 4165  
Email: cycleoflife_ow@yahoo.co.uk

35 Moaz Sawaf  
Logistics Manager and Mammals Researcher  
Ocean World Production FZLLC  
PO Box 27419  
Dubai  
UAE  
T: 04 282 0872  
F: 04 282 4165  
Email: cycleoflife_ow@yahoo.co.uk

36 Farad Mohammed Ali  
Assistant Cameraman  
Ocean World Production FZLLC  
PO Box 27419  
Dubai  
UAE  
T: 04 282 0872  
F: 04 282 4165  
Email: cycleoflife_ow@yahoo.co.uk

37 Naomi Towers  
Invertebrate Researcher  
Ocean World Production FZLLC  
PO Box 27419  
Dubai  
UAE  
T: 04 282 0872  
F: 04 282 4165  
Email: cycleoflife_ow@yahoo.co.uk

38 Mr. Mani Mirsadeghi  
Producer and Country Manager Iran  
PO Box 19395 6956  
Tehran  
Iran  
T: 0098 21 806 3848  
F: 0098 21 270 2556
39 Dr. Tom Bailey  
Dubai Falcon Hospital  
PO Box 23919  
Dubai  
UAE  
F: 04 337 9223  
M: 050 644 5829  
Email: tom.bailey@dfh.ae

40 Mr. Dominic Boothroyd  
Operations Manager  
National Marine Aquarium  
Burj Al Arab  
PO Box 74147  
Dubai  
UAE  
T: 04 3017777  Direct: 04 3017198  
F: 04 301 7217  
Email: aquarium@burj-al-arab.com

41 Mr. Gary Feulner  
Dubai Natural History Group  
PO Box 31045  
Dubai  
UAE  
T 00971 4 330 3600  
F 00971 4 330 3550  
Email: GRFeulner@shuaacapital.com

42 Mr. Sean McKeown  
Collection Manager  
H.E. Sheikh Butti bin Juma al Maktoum's Wildlife Centre  
PO Box 7237  
Dubai  
UAE  
T 00971 4 337 9097  
F 00971 4 337 9097  
M 00971 50 451 7373  
Email: smckeown@emirates.net.ae

43 Dr. Peter McKinney  
Veterinary Officer  
Wildlife Protection Office  
PO Box 54049  
Dubai  
UAE  
T: 04 3344262
44 Mr. Declan O' Donovan  
Wadi al Safa Wildlife Centre  
PO Box 27875  
Dubai  
UAE  
M: 00971 506590777  
F: 00971 4 335 9000  
Email: cianod@emirates.net.ae

45 Dr. Raju P. Vasudevan  
Veterinarian  
PO Box 12188  
Hatta Conservation Area  
UAE  
M: 00971 50 6554108  
Email: rajuvasudevan@hotmail.com

46 Mr. Mohammed Al-Marzoqui  
Pest Control Section  
Public Health Department  
Dubai Municipality  
PO Box 67  
Dubai UAE  
T: 00971 4 2215555  
F: 00971 4 224 6666  
M: 00971 506537451  
Email: info@dm.gov.ae  
www.dm.gov.ae

47 Mr. Yassar Khalili  
Pest Control Section  
Public Health Department  
Dubai Municipality  
PO Box 67  
Dubai  
UAE  
T: 00971 4 2215555  
F: 00971 4 224 6666  
M: 00971 506537449  
Email: info@dm.gov.ae  
www.dm.gov.ae

48 Mr. Nasser Obaid  
Acting Head of Pest Control Section  
Public Health Department  
Dubai Municipality  
PO Box 67  
Dubai
UAE
T 00971 4 2215555
F 00971 4 224 6666
M 00971 50 6537448
F 00971 4 347 4733
Email: info@dm.gov.ae
www.dm.gov.ae

49 Mr. Moawiya Ahmed
Pest Control Section
Public Health Department
Dubai Municipality
PO Box 67
Dubai UAE
T 00971 4 221 5555
F 00971 4 224 6666
M 00971 50 6537450
Email: info@dm.gov.ae
www.dm.gov.ae

50 Mr. Mohammed Ali Hashem Al-Hussain
Marine Inspector
Dubai Municipality Environment Department
PO Box 67
Dubai UAE
T: 00971 4 2215555
F: 00971 4 2246666
Email: info@dm.gov.ae
www.dm.gov.ae

51 Mr. Kais Mansoor Al-Yamoor
Fisheries Inspector
Dubai Municipality Environment Department
PO Box 67
Dubai UAE
T: 00971 4 2215555
F: 00971 4 2246666
Email: info@dm.gov.ae
www.dm.gov.ae

Sharjah

52 Mr. Christian Gross
Director AMC
PO Box 1022
Umm al Quwain
UAE
T: 00971 6 531 1212
F: 00971 6 5311 156
M: 00971 50 633 2185
Email: chgross@emirates.net.ae
www.breedingcentresharjah.com

53 Mr. Abdulaziz Al Midfa
Director General
Environment and Protected Areas Authority
PO Box 2926
Sharjah
UAE
T: 00971 6 531 1999
F: 00971 6 531 1419
Email: epaa@emirates.net.ae

54 Mr. Kevin Budd
Assistant Operations Manager
BCEAW
PO Box 29922
Sharjah
UAE
T: 00971 6 531 1212
F: 00971 6 531 156
M: 00971 50 633 2185
Email: breeding@epaa-shj.gov.ae
www.breedingcentresharjah.com

55 Ms. Jane Edmonds
BCEAW
PO Box 29922
Sharjah
UAE
T: 00971 6 531 1212
F: 00971 6 531 156
M: 00971 50 633 2185
Email: breeding@epaa-shj.gov.ae
www.breedingcentresharjah.com

56 Mr. Damien Egan
BCEAW
PO Box 29922
Sharjah
UAE
T: 00971 6 531 1212
F: 00971 6 531 156
M: 00971 50 633 2185
Email: breeding@epaa-shj.gov.ae
www.breedingcentresharjah.com

57 Mr. Peter Phelan
BCEAW
PO Box 29922
Sharjah
58 Ms. Marloes van Delft  
BCEAW  
PO Box29922  
Sharjah  
UAE  
T: 00971 6 531 1212  
F: 00971 6 5311 156  
M: 00971 50 633 2185  
Email: breeding@epaa-shj.gov.ae  
www.breedingcentresharjah.com

59 Mr. Paul Vercammen  
Operations Manager  
BCEAW  
PO Box29922  
Sharjah  
UAE  
T: 00971 6 531 1212  
F: 00971 6 5311 156  
M: 00971 50 633 2185  
Email: breeding@epaa-shj.gov.ae  
www.breedingcentresharjah.com

United Kingdom

60 Dr. David Mallon  
Regional Chairperson of the Antelope Specialist Group (Asia and Middle East)  
Species Survival Commission (IUCN)  
3 Acre Street  
Glossop  
Derbyshire  
SK13 8J S  
UK  
T: 0044 1457 853560  
F: 0044 1457 852578  
Email: d.mallon@zoo.co.uk

61 Prof. Gordon McGregor Reid  
Director and Chief Executive  
North of England Zoological Society  
Zoological Gardens  
Chester
Yemen

62  Mr. Nagie Thowabeh
    Dir Gen for Training and International Relations
    Central Org for Control and Auditing
    PO Box 151
    Sana’a,
    Yemen
    T/F  00967 1 270760
    M  00967 71120421
    Email: nagiepa@hotmail.com

63  Engineer Abdullah Sonbul
    Deputy of Sana’a Capital Secretary
    Executive Director of Cleaning and Improvement Fund
    PO Box 16858
    Sana’a
    Yemen
    T:  009671 420386
    F:  009671 418594
    M:  00967 7 320 6625
    Email: SANAACLEAN@y.net.ye
Appendix 1a

GCC Agreement
Cooperation Council for Arab States (Countries) of the Gulf

Agreement for the Preservation of Wildlife and Conservation of its Natural Habitats in the Arab Gulf States (Countries) of the Gulf Cooperation Council
Agreement for the Preservation of Wildlife and Conservation of its Natural Habitats in the Arab Gulf States (Countries) of the Gulf Cooperation Council

Introduction:

Due to the Countries members of the GCC Countries believes in the mutual destiny and common objectives that unify their people, and their endeavours to achieve full cooperation, integrity and solidarity between their citizens, which would enhance the efforts exerted in all fields aiming to implement the objectives towards a prosperous future and,

Their admissions that all type of wildlife are forming the infrastructure of the rural and human sustainable prosperity and for the long term economic development besides its main heritage importance for the Arab Nations, being the guardians of these resources which all mighty god has entrusted (given) them to protect and preserve for the future generations and,

By understanding that many type of wild life with all its species and Natural Habitats are facing serious threat to be destroyed due to the misuse and other different human activities that could lead to the deterioration of the wildlife natural habitats and,

In recognition of the importance of considering the preservation of all type of wild life in the strategies and objectives of National Planning and,

According to the seventh rule of the public policies and general principles to protect the environment and the mutual environmental work in the GCC countries,

They hereby agreed upon the following:
Article one (1)

General Provisions

Definitions:
The following expressions shall have the meaning given hereunder:

Cooperation Council: The Cooperation Council for the Arab States of the Gulf which includes the United Arab Emirates, Bahrain, Saudi Arabia, Oman, Qatar and Kuwait.


Ministers: Ministers of the Environment Affairs within the Countries of the Council.


The Agreement: Agreement for Preservation of the Wildlife and Natural Habitats within the GCC countries.

The Permanent Commission: The commission responsible for following up with agreement implementation.

The Environmental Coordination Committee: The Environmental Coordination Committee for the Countries of the Council.

The Secretariat: The Secretariat of the agreement.

The Wildlife: Living and non-living organisms, whether plants, animals, bacteria or mycetes in their natural habitat or elsewhere.

Preservations: Group of rules, regulations and procedures maintaining to protect the wildlife, its production, regeneration and its sustainable use, and to rehabilitate it as well as its habitats which was deteriorated due to men and natural factors.

Trading: It includes the Import and Export business, sales, exhibit, trade in and exchange.

The Habitat: All Natural Habitats with diversities they contain.

Environmental system: All Habitats with all assembles, groups of living diversities they contain whether plants, animals or other organisms that interact among one another and with its surrounding as whole integral system.

The Biodiversity: All type of living things on earth, which include all species with its hereditary diversities and the whole environmental systems as well.

Productions: Any Natural or artificial parts taken from a natural organism.
2. Objectives:

This agreement aimed to preserve the environmental systems and wildlife in a good and developing way, especially those types liable to the danger of extinction, particularly when density of those species exceed the international border of two or more neighbouring countries or whenever they migrate through those countries including the territorial waters and airspace under their sovereignties.

3. The Countries Parties shall undertake according to this agreement to develop and apply policies and activities aiming to preserve the wildlife and natural habitats and to rehabilitate them to guarantee its sustainable use by:

a) To enact, apply and develop suitable laws, legislations and policies.

b) To protect and manage appropriate areas of habitats which are suitable for wildlife whether are natural or not, to be as conservative areas according to the International Standards and National Laws.

c) To prevent the wildlife and its environment from all threats as the pollution and the deterioration and to take the necessary measures for fight them and control them immediately whenever occurred, in order to minimize its effects.

d) To stipulate to carry out studies to evaluate the environmental impact of all developmental projects before starting with this projects and to find a mechanism to follow up with the implementation of the approved environmental measures and conditions in each country.

e) To pay attention for the environmental education to make aware of the importance of preserving the wildlife, its Natural Habitats and its social, economical and environmental impacts especially for the primary preparatory and secondary educational levels.

f) To work towards raising awareness of the importance to preserve the Wild Life and its Natural Habitats by using different mass media.

g) To cooperate in the field of researches, exchange of experiences, the training of specialized staff and to solve the common problems related to the management of the natural resources.
Article 2
Protection of Natural Habitats

Each party in this agreement shall:

1. Issue the necessary legal policies to ensure the conservation and whenever needed to rehabilitate and well administrate the appropriate areas of Natural Habitats which are suitable for Wild Life, especially for those geographically isolated species, or the progenies colonized in the land of any country Party of this agreement.

2. Give priority to assure that the protected Natural Habitats are managed in a way that is liable to achieve the goal from this protection, and this will include:
   
   a) To prevent or restrict the human activities that could lead to any of the following:
      To destroy the nature of these Habitats
      To contaminate or poison it
      To deteriorate or to threat to deteriorate the bio-diversity of these habitats or its environmental reproduction
   
   b) To take the necessary measures to restore the bio-diversity of Habitats that was exposed to deterioration.

3. To coordinate and make efforts with other parties to protect the Natural Habitats in a suitable way especially whenever:

   a) This protection would be in a common border zone
   
   b) These habitats are important for the immigrant species as mentioned in the second and third appendix of this agreement.
Article 3

Protection of Natural Species

1. Each party in this agreement has to enact the necessary laws to protect the Natural Species listed in the three appendices attached herewith as follows:

   a) The botanical group listed in the first appendix:
      1. To protect those species in their Natural Habitats wherever they are or suitable for their relocation
      2. To prohibit or to control the pull or cut of any of its parts, or to collect its grains except for the permitted scientific and research purposes

   b) The zoological group listed in the second appendix:
      1. To protect those species in the their Natural Habitats wherever they are or suitable for their resettlement
      2. To prohibit all types of hunting or killing by purpose, destroying or collecting their eggs, or disturbing them especially during their reproduction and breeding seasons.

   c) The zoological group listed in the third appendix:
      1. To assure that any utilization of the above species is performed in order to prevent any threatening towards the existence and sustain of those species in natural areas, by taking necessary measures such as:
         • To prohibit hunting or to determine the season where hunting will be allowed and to stipulate policies liable to rationalize their standards.
         • To prohibit and/or organise the use of these groups in order to enable those groups to reproduce satisfactorily

2. Each party in this agreement shall take all the necessary legal and administrative procedures towards:

   a) Registration of all species stated in the first, second and third annexes that are legally permitted to be possessed.
   b) Stipulation of breeding conditions for those species and enhancing its reproduction under capture
   c) Prohibiting or regulating the release of those species in the natural areas
   d) Prohibiting or regulating all types of local regional and international trading of those species listed in the first, second and third annexes or any of its productions or parts.

3. Prohibition from possessing any kind of animals mentioned in the third annex, or to kill it by any means that could lead to its extinction or by using any of the permitted tools except with a licence stipulating conditions that would regulate its possession or the use of these tools such licences or permissions shall be issued by the competent authorities within the countries Parties of the agreement.
4. Besides the measures stipulated in this agreement, the states parties shall undertake to coordinate its efforts to protect the migratory groups of those kind mentioned in the second and third appendices.
Article 4
Restrictive Measures

1. Each party of this agreement may at a national level; implement restrictive measures to regulate the trade of any wild species, its parts or produces which are stated in the first, second and third annexes, if those species are living on this country’s land or territorial water or migrating through in a normal way, and to control the use of any of the species stated in the third appendix on this land.

2. Each state party of this agreement shall notify the permanent commission of any such local restrictive measures to be adopted and which species are full protected on its land rather than those listed in the first and second appendices.
Article 5
Supplementary Provisions

To implement the provisions of this agreement, each party should abide to:

1. To cooperate amongst the other countries Parties especially if this would enhance the efficiency of the adopted measure under this agreement provisions.

2. To encourage and coordinate the researches, and exchange of information and experience that could serve the goal of this agreement especially those related to the programs of reproduction of species under capture and the resettlement of those species in their Natural Habitats.

3. To coordinate and integrate the efforts, and to exchange information about the transition of resettled species through the borders towards other state territories.

4. To work towards benefiting from the modern technology in exchanging information and networks among the concerned institutions in the countries parties to facilitate the exchange of information related to the agreement and its applications.
Article 6
The Permanent Commission

1. According to this agreement, a commission named the permanent commission for the agreement conserving the wild life and its natural habitats at the GCC countries shall be established.

2. The permanent commission shall be consisted by representatives from all countries of the council, provided that representation levels do not go for less than Director (Manager).

3. The duty of the permanent committee is to implement principles and objectives determined in this agreement. Therefore the committee shall carry the following responsibilities and competence:

   a) To follow up with the implementation of this agreement
   b) To facilitate carrying out extensive researches and studies about Natural Habitats of species, their density areas and their ordinary movement in such locations
   c) To collect information and to prepare regional periodical reports about the wild species; its conditions, numbers, distributions and changes that could emerge and factors that might affect them
   d) To analyse and publish the information mentioned in the above clauses A and B
   e) To determine the wild life preservation requirements for species and to analyse the effectiveness of the preservation procedures adopted by the parties for the implementation of this agreement
   f) To put and adopt and reconsider the preservation procedures pending on the best provided scientific proves which will include the following:
      1. To designate some areas as conservative areas to preserve and rehabilitate the biodiversities
      2. To set up the timing for starting and ending the hunting season
      3. To regulate the conditions of hunting aiming to avoid the intensification of Hunting activities in any area or region or for particular species
      4. To regulate the pasturing and to determine its locations and its timing
      5. To take other preservative procedures that the permanent committee may find them necessary to achieve the objectives of this agreement. This will include setting plans and programs liable to prevent the negative effects due to the development projects in the natural expansion areas for the Wild Life group of plants and animals as specified in the annexes attached to this agreement.
   g) To carry a periodical review on the appendices attached to this agreement and to suggest their amendments upon the request of any of the countries Parties, which shall be approved by the Environmental Coordination Committee.
   h) To review the measures adopted by the countries Parties in accordance with the clause (2) of the fourth Article of this agreement.
i) To prepare the suggested related budget for this agreement
j) To propose drafts of the bylaws and the financial and administrative systems for the permanent committee and to approve them from the ministers.
k) To aim at easing the amicably compromise to solve any conflicts that might occur between the parties during the application of this agreement according to the article nine thereof.

4. The permanent committee shall convene at least twice a year, other regular or extraordinary meetings could be arranged upon the request from one of the countries parties and the confirmation of another, the Cooperative Council General Secretariat shall call for the committee first meeting within a period not exceeding three months from the date this agreement will be put to effect.

5. The permanent committee shall form specialized sub-commissions or working groups whether temporary or permanently up to their needs to perform their functions properly.

6. According to this agreement provisions the countries parties shall apply the preservation procedures recommended by the permanent committee and confirmed by the ministers as follows:
   l) The permanent committee shall notify all the countries parties of the preservation procedures.
   m) The preservation procedures shall be binding to all states parties after 60 days from the notification date.

7. The permanent committee shall evaluate the implementation of the agreement after three years from the date the agreement came into force and at least once every six years after that.
Article 7
The Secretariat

According to this agreement a secretariat shall be set up to perform the following functions:

1. To organise and prepare for the permanent committee meetings in coordination with the General Secretariat.

2. To prepare reports on activities it exerted to perform its functions according to this agreement and to submit them to the permanent committee.

3. To coordinate with the concerned authorities to preserve the wild life in the GCC countries and with the similar Regional and International Organizations and Conventions.

4. To coordinate for the exchange of information and data among the countries Parties in the agreement and to notify the concerned authorities with the same.

5. Any other assigned functions.
A party in this agreement could suggest to amend it by submitting an application to the entrusted body that will raise it to the Ministers for approval, the same provisions mentioned in the clause (2) of the tenth Article concerning the validity of this agreement shall be applied for this amendment.
Article 9
To settle conflicts

The permanent committee shall do its best to facilitate (ease) the amicably settlement to solve any conflicts that might arise during the application of this agreement. If it was hard to reach such settlement or to solve such conflicts through direct negotiations between concerned parties, then the committee shall raise the issue to the ministers.
Article 10
Validation

1. This agreement has to be approved by the Supreme Council and endorsed by the countries members as per their constitutional procedures.

2. The agreement shall be enforced after 90 days from the endorsement of four countries of the GCC.
1. A country when it comes to deposit the document of its agreement endorsement, it may take one or more reservation towards the species stated in the first, second and third annexes, or in relation to the measures and methods of killing, catching or using one or more species of those mentioned in this agreement.

2. A state party of the agreement may draw any reservation from her side at any time by notifying the secretary general in writing. This reservation shall be cancelled after 30 days from the date of notification.
Article 12
Withdrawal

A country Party of the agreement has the right to withdraw from it at any time by issuing and official letter addressed to the Secretary General, such withdrawal shall be valid 180 days from the date the notification has been handed over to the Secretary General without effecting the validity of the agreement.
Article 13
The Deposit

1. The General Secretariat shall hold the deposit of this agreement and will send official copies of the endorsement documents to all country members of the GCC.

2. The General Secretariat shall notify the ministers and the countries members in the agreement as well, with the following:
   a) The date the agreement entered into effect.
   b) Any reservation on this agreement according to the clause (1) of the eleventh Article of the agreement.
   c) The withdrawal of any reservation shall take place according to the clause (2) of the eleventh Article.
   d) Any withdrawal from the agreement according to the twelfth Article of the agreement and the effective date of such withdrawal.
The Relation between the agreement to preserve the wild life in the Countries of the Council and the Cooperative Council:

The Supreme Council

The Ministerial Council

Ministers Responsible of the Environmental Affairs within the Countries of the Council

Environmental Coordination Committee

Permanent commission for the Agreement

Agreement Secretariat
Appendix 2 a

Arabian Leopard

Status Report presentation: Oman
Status Report: Sultanate of Oman

Authors: J.A. Spalton1 & Ali Salim Bait Said2

1Office of the Adviser for Conservation of the Environment, Diwan of Royal Court, PO Box 246, Muscat 113, Sultanate of Oman. Email: accdrcc@omantel.net.om
2Directorate General of Environment, Ministry of Regional Municipalities, Environment & Water Resources, PO Box 2035, Salalah 211, Sultanate of Oman.

Status and Distribution Records

- To get the most accurate picture of the status of leopard in Oman only records where an animal has been photographed or its remains recovered are included in our principal database.
- Status in Musandam, Al Hajar Mountains and Dhofar are presented:

Mandal Musandam

- 1976: Female killed near Limah
- 1979: Animal killed in Wadi Maqalayli
- 1980: Eight leopards killed at different locations
- 1981: Male killed near Taf al Qarha
- 1990: Male killed near Khasab
- 1997: Two leopard trapped & killed

Al Hajar

- Undated: Skin recovered SW of Ibra
- 1976: Leopard shot near Nakhl

Dhofar

- 1947: Leopard collected Jabal Samhan
- 1947/48: Leopard collected Dhofar
- 1977: Remains of two collected
- 1985: Four trapped for captive breeding
- 1994: Skull found near Jabhat
- 1995-2000: 17 animals camera trapped in Jabal Samhan
- 2001-2002: Seven animals trapped for tracking
- 2002: Three leopards camera trapped in Jabals Qara & Qamar

Habitat

- Historically woodlands & grasslands of Qara & Qamar in Dhofar best habitat.
- However, huge increases in numbers of livestock have led to massive overgrazing of Dhofar’s ‘green mountains’ and destruction of leopard habitat.
Causes of increase in livestock numbers

- Veterinary care
- Subsidized feed
- Improved water supplies
- Cash incomes
- Breakdown of tribal management of stock
- Intrusion of camels into cattle grazing areas year round

Habitat II

- In northern Oman habitat also degraded by livestock and development projects.
- Today best habitat is confined to the steep wooded slopes of Jebel’s Qara and Qamar and the semi-desert of Jebel Samhan.

Prey Species

- Jebel Samhan has good populations of prey including ibex, Arabian gazelle, hyrax, porcupine and ground birds like partridge.
- Jebels Qara and Qamar support few ungulates but hyrax and small animals are very common.
- Al Hajar range is home to the Arabian tahr but few other prey species.
- In many areas the tahr’s niche has been filled by semi-feral goats.

Domestic Stock

- In Dhofar numbers of camels have increased exponentially since 1970.
- In Jebel’s Qara and Qamar domestic stock (cattle, camel, goat) live in close proximity to leopard and share ranges and trails. They show both spatial and temporal overlap.
- In Jebel Samhan there is less contact with domestic stock.

LEGAL STATUS

- Penalty for hunting or capture of leopard is imprisonment for not less than 6 months and not exceeding 5 years and a fine not less than RO 1000 and not exceeding RO 5000.

Royal Decree 114/2001

Conflicts

- Leopard kill domestic stock
- However, on some occasions leopard may be falsely accused. Wolf and hyena may also kill stock.
- The result is that on occasion people illegally shoot leopard.
A resolvable issue?

- Education/Public Awareness
- Employment opportunities
- Active response to cases of livestock killing
  - To verify
  - To demonstrate concern
- Compensation programmes?

Ongoing Work I

- **Camera trapping** to determine distribution and to investigate livestock killing.
- Graduate and school leaver staff carry out most of the field work.

Cameras in Jabals Qara & Qamar

- 10 traps deployed winter 2002-3
- Leopard at one site
- Caracal at most sites
- Does the leopard competitively exclude the caracal?
- Other species such as wolf, hyena, porcupine common.

Ongoing work II

- **Satellite tracking** - results of animals trapped and collared in 2001 being analyzed.
- One further collar to be recovered.
- Further collaring of leopard planned for Jebel Qamar to look at range in ‘green jebel’ and to investigate extent of interaction with humans and their livestock.

Death of leopard

- Male leopard died under sedation while being fitted with satellite collar
- Examination revealed massive fracture of right radius.
- Metal fragments show that fracture resulted from severe gunshot wounds.
- Animal weakened by injury and less able to cope with sedation.

Ongoing work III

- **Genetic studies** underway with Sultan Qaboos University.
  - Molecular scatology to differentiate large carnivore faeces.
  - To support investigations of livestock kills.
  - To look at species and sub species issues.
Ongoing work IV

- **Public awareness** and education materials produced and exhibited.
- Approval has been given to produce a film about the leopard and other educational materials.

Recommendations

- Survey & Research to continue
- Implementation of management plan for Jabal Samhan Reserve
- Public Awareness programs to continue
- Social Survey
- Collaboration with range states
- Surveys in Musandam
- Captive Breeding Programme to continue
Appendix 2 b

Arabian Leopard

Status Report presentation: UAE
Status of the Arabian leopard
Panthera pardus nimr
in the U.A.E.

Habitat
- The vast majority of reports indicate that leopards prefer mountainous wadis with permanent water.
- Water is a limiting factor and due to the predominantly arid environment substantially reduces the marginal habitat.
- No suitable protected areas are presently in place with the Emirates although an area of the Rara al-Rahil Mountain has been proposed.

Prey Species
- The consensus of the participants in previous CAMP workshops is that the traditional prey species are in a state of decline.
- Feral goats and sheep have therefore replaced these species as the leopard's primary prey.

Domestic Animals
- There is very little proof to substantiate the claims that the loss of livestock in the U.A.E. is primarily due to the leopard.
- Throughout the leopards range goats are considered to be feral and there is some evidence to suggest that they are also targeted by hunters.
- There is no compensation system in place within the Emirates and current livestock management is unlikely to prevent a leopard from killing a livestock.

Legal Status
- Listed under CITES appendix 1 since 1975 and listed as critically endangered in the global IUCN Red List.
- There is no well enforced legislation protecting the Arabian leopard within the Emirates and until recently there has also been poor enforcement of CITES regulations.
- At present very few of the leopard’s prey species are listed under CITES or protected by any local legislation.
**Conflicts & Public Awareness**

- The leopard's reputation amongst the people as an aggressive animal and a killer of livestock has led to ongoing persecution.
- The Arabian Leopard Trust (ALT) was extremely active promoting conservation issues within the UAE during the late 1990s, but has since closed.

**People & Institutions**

- The ALT was actively involved with the conservation issues surrounding the Arabian leopard between 1994 and 2001.
- Other than the work carried out at the Breeding Centre for Endangered Arabian Wildlife, Sharjah there are few other organizations in the UAE directly involved with the conservation of the Arabian leopard.

**Ongoing Work and Research**

- There has been no fieldwork specifically targeting the Arabian leopard since the blanket survey commissioned by the ALT in 1995.
- The BCEAW is conducting reproductive research and in conjunction with Omaha's Henry Doorly Zoo have been conducting genetic studies.
- Collection and analysis of morphological data collected from captive species is being compiled.

**Recommendations**

- Intensive baseline surveys specifically targeting the Arabian leopard need to be conducted.
- Improved international cooperation and communication between the four range states to encourage movement of individuals on breeding loan agreement.
- Ensure the captive populations gene pool remains as diverse as possible.

**Inventory**

- 7.6 (13) at the BCEAW.
- 1.0 (1) at the Al Wathba Cheetah Centre.
Appendix 2 c

Arabian Leopard

Status Report presentation: Yemen
Arabian Leopard in Yemen

David Mallon
Karim Nasher
Nagi Thowabeh

Summary of Old Records

- Bury (1911) heard a leopard in Wadi Khatib
- Sanborn & Hoegstraal (1953) said leopards were widespread but scarce in the highlands. They bought skins in Ma‘bar and Sana‘a
- Scott (1942) said they occurred in the vicinity of Ta‘izz. He saw one caged and obtained a skin in Sana‘a, said to be of local origin
- Thesiger (1949) saw tracks in Wadi Makhia (N of Wadi Hadhramaut)
- Harrison (1964) said they were widespread but scarce in the hills north of Aden and listed 4 specimens: West of Beihan, Jebel Hasha, near Dhalia, Ma'rib, Arqali Kaur

Recent Records (post-1990)

- Evans (1994) said leopards occurred in the hills above Wadi Hajar (central southern Yemen)
- Obadi (1993) reported leopards killed in Lodar area and said they occurred between Habil Jabr and the Al-Kaur mountains of Abyan province [this is approximately the same area referred to by Harrison
- Jennings (1992) reported 4 shot in “S and E Yemen” in recent years
- El Mustgairy (1995) and Layeçot & Layeçot (1999) gave relatively detailed reports of leopards being captured or killed in Wadi‘a‘Al Wadi‘a‘a about 120 km north of Sana‘a

Local Reports

- 7 areas of current presence
  1. Between Sa‘dah and the Saudi border
  2. Kufi Shammar in Hajja Governorate
  3. Al Hayma, east of Manakha
  4. Jebel Barah
  5. Jebel Raymah
  6. Highlands between Ta‘izz and Aden
  7. Al Mahra on the eastern border with Oman

Prey

- Ibex: recorded in a few parts of the south and east. Rare.

- Gazelles: severely depleted by hunting

- Hamadryas Baboon: occur at several localities in the mountains. Can leopards prey on these?

- Small-medium prey: hyrax, hares, small carnivores, birds