

-- DRAFT, NOT FOR FURTHER CIRCULATION --

REVIEW REPORTS
CONCERTED ACTION SPECIES

PART I: TERRESTRIAL MAMMALS

INTRODUCTION

The present Rapid Review of Concerted Action Species was conducted by UNEP-WCMC and follows on from the exercise presented to the consideration of the CMS Scientific Council at its 12th Meeting. This version of the review sheets takes on board some of the feedback received at that meeting, and in particular it has reduced its reliance on information from the grey literature in favour more exclusively of peer-reviewed content. Similarly, following the advice received from the Council, the review sheets have been complemented with summary sheets, which indicate the overall perceived trend of the species in each country. A synopsis of the status and level of action for each species is also provided in each section.

As explained at the 12th meeting of the Council, there are a number of characteristics and methodological considerations that need to be kept in mind in order to understand the nature and purpose of the review sheets. In particular, it should be noted that these reviews are not intended as comprehensive compilations of the existing information on the species reviewed, nor are the analyses of trends and conservation status provided intended to supersede the global assessments produced by IUCN (which are included in each sheet for information). Instead, these reviews are produced with three goals in mind:

1. to examine **at the country level** the status and the known level of action for the species protected by the CMS (at this stage, the Species in Appendix I subject of Concerted Actions – Resolution 7.1)
2. to compile in a single document a **summary of the main sources of information accessible to the CMS** via the CMS Information Management System (CMS IMS) in general (including the expert information systems to which it is interconnected) and at UNEP-WCMC;
3. to provide a draft of the possible primary format and content of the **CMS Rolling Papers**, which once in electronic format on the internet (if they are indeed developed as such) could be used by Councillors and other appointed authorities to share and manage knowledge on the status and conservation actions concerning the species protected by the Convention.

The summary of actions reported for each species and contained in each review refers to the information provided in the National Reports to the CMS submitted by the Parties to the Convention in 2002 (COP7), as at the moment of producing these Reviews, the 2005 Reports had not been produced yet. In addition to the information on actions available through the CMS Reports, the Reviews also make reference to any other recent action reported by other actors identified during the review of literature. Importantly, it should also be noted that these Reviews do not include yet the action reported by Agreements and MoUs of the CMS which, needless to say, represent a fundamental component of the conservation effort orchestrated by totality of the CMS family.

These Reviews are thus only produced as working documents, for discussion at CMS meetings only, and should not be circulated elsewhere without prior permission.

Anyone wishing to use this information elsewhere should contact the Species Programme at UNEP-WCMC for advice on appropriate use of the information and on citation.

Members and observers of the Scientific Council are invited to:

- a) contribute any relevant information they may wish to share which may improve the content of these Reviews;
- b) advise on the usefulness of the exercise in general, and on the convenience of extending the model to other species protected by the CMS;
- c) advise on the convenience of making this information and format available online, within the CMS environment, as a tool for CMS users to share and manage knowledge on the status of ,and conservation actions for CMS species.

Key to general synopsis

IUCN Status:

As reported from the IUCN Red List of Threatened Species (www.redlist.org).

IUCN Trend:

The population is either increasing (↑), stable (→) or decreasing (↓). When no information about population trend is provided, there is a blank space in that column.

CMS Listed Range States:

The list of States in the distribution range of the taxon, according to the CMS Range List (2003). All range States were reviewed, including those marked as (Ex), (Ex?) and (?). When the European Union (EU) is listed as a range state by CMS, this is not included in the count but all the individual EU countries that are listed in brackets are counted.

All Range States:

The number of range states including range states reported in the literature reviewed, such as the Species Data Base (UNEP-WCMC), BirdLife International, IUCN/SSC publications, and other reliable publications. If a range state is included, which CMS does not currently list, a reference is provided.

CMS Parties Reporting Action:

This number represents the proportion of CMS Parties in the range that report conservation actions being undertaken for the taxon. This includes any actions reported in National Reports to CMS in 2002.

Range States Reporting Action:

This number represents the fraction of all range States (including those range States not included in the CMS range list but reported in the literature) in which conservation action was identified to be taking place.

Range States in Which Species Occurs in Protected Areas:

The fraction of all range states in which the species occurs in a protected area (P. A.). If a species has been reintroduced to a protected area, then this is still counted.

Key to specific synopses

The species summary sheets provide a concise overview of the information included in the more detailed Reviews. For each species, the summary sheet contains information on status, trends and conservation actions at the national level in each range state. These summary sheets do not intend to provide a comprehensive account of each taxon in question, but instead they are designed to produce a concise overview of the information on population status, trends and on conservation actions, that are readily available through the CMS IMS and in the literature.

Information contained in the summary sheets:

Range States

The range state list included range states registered in the CMS Range List as well as additional range States for which there are reliable references (e.g. BirdLife International, IUCN/SSC publications, etc.). CMS Parties are identified by use of upper-case font.

Status

The status at the national level is not represented using threat categories such as the IUCN Red List classification, since these categories are not standardised across different countries. A species is registered under a generic category of threat in a particular range state if it is included in a National Red List (or equivalent publication). Absence of information, however, should not be interpreted as an indicator that the species is not threatened in that country. Range states in which the species is registered as nationally threatened have a dot (●) in the 'Status' column, and range states for which the species is reported as extinct have an "ex" in the status column (or "ex?" if it is supposed to be extinct but information is lacking).

Trend

The apparent population trend in that range state is included, based on the information reviewed. The population is either increasing in that range state (↑), stable (→) or decreasing (↓). Intermediate trends stages are recorded using the symbols (↗) for stable to increasing, and (↘) for stable to decreasing. Range states for which no information on status was available or where the status is uncertain, are represented by an ? in the 'Trends' column.

CMS Actions

If conservation action(s) in a CMS Party range state were reported to CMS through National Reports in 2002 (note that at the time of producing this reports, 2005 National Reports had not been submitted), this is represented by a ✓ in the 'CMS Actions' column. If no action is reported this is represented with a ✖. Range states that are not CMS Parties, have a blank space in that column section.

Other Actions

If recent conservation actions other than those reported to CMS were reported in the literature for a range State, whether this be a Party or not to CMS, a ✓ is used. If no other conservation action is reported, then the range state has a blank space in this column.

General Synopsis

Name	IUCN Redlist	IUCN Trend	Countries in CMS Range List	All Range States reported in literature	CMS Parties reporting action	Range States reporting action	Range States in which species occur in P.A.
<i>Addax nasomaculatus</i>	CR	↓	10	12	6/8	8/12	4/12
<i>Gazella dama</i>	EN		12	13	6/10	8/13	8/13
<i>Gazella dorcas</i>	VU	↓	17	22	6/16	11/22	14/22
<i>Gazella leptoceros</i>	EN	↓	10	10	3/8	3/10	4/10
<i>Gorilla gorilla beringei</i>	EN	?	3	3	0/2	3/3	3/3
<i>Hippocamelus bisulcus</i>	EN		2	2	2/2	2/2	2/2
<i>Oryx dammah</i>	EW		13	14	5/11	7/14	5/14
<i>Uncia uncia</i>	EN	↓	12	13	0/5	6/13	11/13

Addax nasomaculatus - synopsis

Country	Reported as nationally threatened	Apparent trend	CMS actions reported (in 2002 National Reports)	Other recent actions reported in the literature
Algeria	ex?			✓
CHAD	•	↓	✓	
EGYPT	ex		x	
LIBYAN ARAB JAMAHIRIYA	ex		x	✓
MALI	•	↓	✓	✓
MAURITANIA	•	↓	✓	
MOROCCO	•	↑	✓	✓
NIGER	•	↓	✓	✓
Sudan	Ex?	?		
TUNISIA	•	↑	✓	
Yemen	Ex?	?		

REVIEW OF CONCERTED ACTION SPECIES

MAMMALIA: BOVIDAE

SPECIES: *Addax nasomaculatus* (de Blainville, 1816)

SYNONYMS: -

COMMON NAME: Addax (English); Addax; Addax à nez tacheté; Antilope blanche (French); Addax (Spanish)

RANGE STATES: Algeria; CHAD; EGYPT; LIBYAN ARAB JAMAHIRIYA (Ex); MALI; MAURITANIA; MOROCCO (Ex); NIGER; Sudan; TUNISIA.

RED LIST RATING: CR - A1cd (Mallon and Kingswood, 2000)

CONSERVATION STATUS AND ACTIONS:

The addax is one of the world's rarest mammals. At the turn of the century, the range of the addax extended some 8 million sq. km over most of the Sahara and the surrounding arid areas, from Mauritania in the west to Sudan in the east. Addax herds followed the rains into southern Algeria, Libya and Egypt. However, by the late 1800's this range was already shrinking. By 1972, the addax was found mainly in Mauritania (Rio de Oro), North Mali and Chad, with some in Algeria, South Libya, and North Sudan. It was rare everywhere except in the uninhabited area in Mauritania and Mali in the Western Sahara. The current range is reduced to desert regions in North-eastern Niger, North Central Chad, North-western Mali, Eastern Mauritania, Southern Libya, and North-western Sudan (Altan, 2000).

The global wild population in 1996 was estimated to be unlikely to exceed 500 (Stuart and Stuart, 1996) and in 1998 it was reported that it may not exceed a few hundred individuals (Mallon and Kingswood, 2001a). The world's captive population, however, is healthy and includes fenced herds in Morocco, Tunisia and Libya and almost 2,500 animals in European and North American zoos and ranches (East, 1999; Mallon and Kingswood, 2001b).

This antelope is heavily built and is not capable of great speed, and thus is easy prey to people with camels, horses, dogs, and modern weapons. Both the meat and the skin are prized by the natives, the latter being used for shoe and sandal soles (Nowak, 1991). Hunting has eliminated resident populations in many parts of its original range. Tourists in four-wheel-drive vehicles also affect the animals by chasing them until they die of exhaustion. Recent droughts, desertification of savannah lands, the expansion of pastoral agriculture and increasing human population have all contributed to the decrease of the addax (Altan, 2000; Massicot, 2004).

Probably the only reason that the addax has been able to survive at all is that it is able to live under extremely harsh conditions, including extensive areas of sand dunes, where hunters in motorized vehicles are unable to enter (East, 1999; Massicot, 2004). CMS is funding activities for Sahelo-Saharan antelopes, including the establishment of a geographical database, information system and website, as well as plans for development of *in situ* conservation and reintroductions in Chad, Libya and Senegal.

Algeria:

Status: The addax formerly ranged throughout Algerian Sahara but has now been all but exterminated by hunters. IUCN (1969) reported a population of up to 50 individuals but Stuart and Stuart (1996) and De Smet and Smith (2001) now consider the addax to be extinct in Algeria. In some years, however, a few animals may cross the southern border from neighbouring Niger or Mali (De Smet and Smith, 2001). The main causes for the regression of this species are loss of quietness in its distribution area, direct killing from hunting and poaching, and decrease of extension in its natural habitats due to long periods of drought and increasing pasture pressure from nomad's domestic animals (Fellous and Maaziz, 2003).

CMS actions: Not a Party to CMS.

Other actions: Any animals wandering in from the south would be protected by Hoggar National Park (De Smet and Smith, 2001). Algeria is recommended to locate favourable areas for restore populations, in areas of former occurrence; to be considered in particular: Hoggar National Park, Tassili des Ajjers National Park, Grand Erg Oriental and Grand Erg Occidental (Addax Action Plan, 2003).

CHAD:

Status: The addax was formerly widespread in the north of Chad, but excessive hunting, drought, competition for food with livestock and a 20 year war had taken a heavy toll by the 1980s (East, 1999). Today perhaps fewer than 200 individuals survive (Khattabi and Mallon, 2001; Stuart and Stuart, 1996). This includes a recent sighting of two animals by WWF and the Parks Office in 2001 (Chad National Report, 2002). Remnant populations are reported from the Ouadi Achim, in the Mourdi depression, especially in its eastern part, the Oued Chili, between Kalait and Fada, the east of the Ennedi, between Bao Bilia and the Sudanese border, and also close to the Niger border in northern Kanem (Pfeffer, 1995). The overall population continues to decline in Chad and is on the verge of extinction (Chad National Report, 2002). In all these areas uncontrolled hunting remains a serious threat (East, 1999).

CMS actions: There are plans to restore and rehabilitate the "Proennedi" area for addax (Chad National Report, 2002). CMS is funding surveys and other activities in Chad, especially on the Ouadi Rime-Ouadi Achim Reserve, the Tibesti piedmont and the Mourdi depression (Addax Action Plan, 2003).

Other actions:

EGYPT:

Status: In 1993 former addax localities in Egypt were investigated for presence of the species but no evidence was found. The species is currently considered extinct in this country (Saleh, 2001). Egypt was absent during the 2003 Workshop on Conservation of Sahelo-Saharan Ungulates.

CMS actions: None reported.

Other actions: No addax conservation measures are being undertaken in Egypt (Saleh, 2001).

**LIBYAN ARAB
JAMAHIRIYA**

(Ex):

Status: The species is now considered extinct in Libya. The last confirmed report of addax in Libya was of a few animals shot in 1966 although individuals may occasionally stray over the southern border from Niger or Chad (Khattabi and Mallon, 2001).

CMS actions: None reported.

Other actions: A few addaxes are kept in captivity at the Tripoli Reserve (Khattabi and Mallon, 2001).

MALI:

Status: The evolution of antelopes has not been studied in any depth in Mali. The difficulty of access to the areas and the absence of totally protected areas in the Sahelian and desert regions of the country have meant that little historical information is available (Mali National Report, 2002). Today the addax population is put at no more than twenty or so individuals according to very dated sources (Mali National Report, 2002). This remnant population is distributed along the Northwestern border with Mauritania where illegal hunting remains a major threat (East, 1999). Although formerly widespread in Mali, hunting pressures and competition with livestock for food have severely affected the species (East, 1999).

CMS actions: There has been an FFEM project, with the aim of creating a protected area of 500,000ha to shelter the Sahelo-Saharan antelopes of the Gao and Kidal regions (Tamesna) (Mali National Report, 2002).

Other actions: There are plans to manage habitat in areas of relict presence to increase recruitment rates and decrease mortality, especially in northern Mali (western border with Mauritania and north-eastern border with Algeria in the Adrar des Iforas) (Addax Action Plan, 2003).

MAURITANIA:

Status: The addax was formerly widespread in this country but in the 1960s motorized illegal hunting led to a catastrophic decline of the species. By the 1980s and 1990s the species numbered perhaps a few hundred animals mostly restricted to the eastern border with Mali (Mreyyé area, in the eastern part of the Majabat al Koubra). In the late 1990s the total population in Mauritania was put at no more than 150 animals, and perhaps fewer than 50. The species is at present not found in any protected area of Mauritania (Anon., 1999). Poaching remains a threat today even in remote areas and the addax could still be in decline (East, 1999; Stuart and Stuart, 1996).

CMS actions: In eastern Mauritania, a Plan for managing areas of relict presence to increase recruitment rates and decrease mortality is proposed, for the Mreyye area in the eastern part of Majabat al Koubra (Addax Action Plan, 2003).

Other actions:

MOROCCO (Ex.):

Status: Addax has not been sighted in this country since the 1950s when hunters exterminated herds with modern weapons (Aulagnier, 2001). After extensive work in the Western Sahara, Valverde (1957) concluded those addaxes were extirpated in the region (Loggers *et*

al., 1992).

CMS actions: A reintroduction programme was initiated by Morocco in collaboration with Germany. In 1994 and 1995 a total of 53 animals were brought into fenced enclosures in Souss-Massa National Park from 16 European zoos (Aulagnier, 2001; Morocco National Report, 2003). The present population has been estimated in more than 170 animals (Daali and El Mastour, 2003).

Other actions: There are plans to reintroduce the addax in Morocco's Dakhla and Iriki National Parks, where this species used to live in the past, using animals from the established population of Souss-Massa National Park (Mallon and Kingswood, 2001b; Daali and El Mastour, 2003).

NIGER:

Status: Addax was formerly widespread in the northern two thirds of Niger. As elsewhere motorized poaching beginning in the 1960s rapidly reduced distribution and abundance of the species. By the mid 1990s only a few small remnant populations remained such as one close to the Air and Tenere National Nature Reserve. Today fewer than 170 addaxes are estimated to remain in Niger and the population is in decline (East, 1999).

CMS actions: In 2002, a Scientific Expedition conducted by Françoise Claro, from the National Museum of Natural History (Paris) explored the Termit region from October 8th to November 15th; the conclusions were that a small sedentary population still exists (50-100 animals), probably due to the maintenance of good pastures during past years. The results of the expedition don't exclude the existence of fluxes from Chad populations, as this species is able to effectuate extremely long transects (Malam Issa and Barmou Moussa, 2003).

Other actions: Plans in the early 1990s to reintroduce addax to a sanctuary within the Air and Tenere National Nature Reserve were halted after an armed rebellion in the region (East, 1999).

Sudan:

Status: Addax formerly occurred widely in the northern deserts to the west of the Sudan Nile but by the mid-1980s had been reduced to the point of extinction by excessive hunting. The last report of the species in Sudan was in 1992 when animals were seen close to the Chad border (East, 1999). It is likely that addax makes seasonal movements across the border but it is not clear at present whether they move to Sudan during the rainy or dry season (Elsarag Fadlalla, 2003). There may no longer be a resident population of addax in Sudan (Saleh, 2001).

CMS actions: Not a Party to CMS, but participating in CMS agreements.

Other actions: Protection of addax can be done within the context of Sudan-Chad agreement for the protection of wildlife in the two countries and the extension of the already declared Sudanese Wadi Hawar National Park into Chadian part as a trans-boundary protected areas (Elsarag Fadlalla, 2003).

TUNISIA:

Status: The addax went extinct from Tunisia by the 1930s due to uncontrolled hunting but was reintroduced (Smith *et al.*, 2001). In the 1980's, eight

addaxes were introduced into the Bou Hedma National Park in Tunisia from West Germany, and 2 calves, a male and a female, were born in 1987. The actual population is estimated in 38 animals (Zahzah, 2003).

CMS actions: Between 1985 and 1988, 14 addaxes were transferred from zoos in Germany and the USA to semi-captive conditions in the Bou Hedma National Park. The herd has increased steadily to around 60 animals. There are plans to reintroduce the addax to the to the Djebil National Park and Oued Dekouk Natural Reserve in the Great Eastern Erg (Sahara), when their protection will be re-enforced, as in Bou Hedma National Park (Zahzah, 2003). Unlike the Bou Hedma National Park, these localities are within the species' former range (Smith *et al.*, 2001; Tunisia National Report, 2002).

Other actions:

Yemen*:

Status: UNEP-WCMC (2004) considers Yemen to be a range state for *Addax nasomaculatus* but a recent IUCN SSC Antelope Specialist Group publication on antelopes of North Africa, the Middle East, and Asia does not confirm this (Mallon and Al-Safadi, 2001).

CMS actions: Not a Party to CMS.

Other actions:

**Additional
information -
Western Sahara:**

Status: The occurrence of addax has been reported from Western Sahara (Valverde, 1957), but it is now considered extinct there.

Actions: None reported.

REFERENCES:

- Addax Action Plan (2003) Second Seminaire sur les antilopes Sahelo-Sahariennes, Agadir (Morocco), 1-5 May 2003.
http://www.naturalsciences.be/cb/antilopes/Action%20Plans%20Species/page%20addax_nasomaculatus.htm Downloaded on 14/09/2004.
- Altan, B. (2000). "Addax nasomaculatus" Animal Diversity Web.
http://animaldiversity.ummz.umich.edu/site/accounts/information/Addax_nasomaculatus.html Downloaded on 03/09/2004
- Anon. (1999) Conservation measures for Antelo-Saharan antelopes. Status Report. In: *CMS Technical Series Publication N°4*. Published by UNEP/CMS Secretariat, Bonn, Germany.
- Anon. (2004) Redéploiement et conservation des Antilopes Sahélo-Sahariennes en Tunisie. Atelier technique, Douz, 18 –19 April 2004.
<http://www.kbinirsnb.be/cb/antilopes/News/Compte%20rendu%20reunion%20Douz%20avril%202004.pdf> downloaded on 3/09/2004.
- Aulagnier, S., Cuzin, F. and Thévenot M. (2001). Morocco. pp13-21. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Chad National Report to CMS (2002). National Report to CMS.

- Daali, A. and El Mastour, A. (2003). Morocco National Report, pp121-141 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- De Smet, K. and Smith, T.R. (2001). Algeria. pp22-29. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- East, R. (comp.) (1999). *African Antelope Database 1998. Compiled by Rod East and the IUCN/SSC Antelope Specialist Group*. Occasional paper of the IUCN Species Survival Commission No. 21. IUCN- The World Conservation Union 1999.
- Elsarag Fadlalla, M. (2003). Sudan National Report, pp. 169-177 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Fellous, A. and Maaziz, S. (2003). Algeria National Report, pp. 53-75 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- IUCN (1969). Red Data Book. Vol. 1 - Mammalia. International Union for the Conservation of Nature and Natural Resources, Morges, Switzerland.
- Khattabi, K. and Mallon, D.P. (2001). Libya. pp41-47. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Loggers, C.O., Thevenot, M. and Aulagnier, S. (1992) Status and distribution of Moroccan wild ungulates. *Biological Conservation, Volume 59, Issue 1*, pp 9-18.
- Malam Issa, A. and Barmou Moussa, S. (2003). Niger National Report, pp. 149-163 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Mali National Report to CMS (2002). National Report to CMS.
- Mallon, D.P. and Kingswood, S. (2000). *Addax nasomaculatus*. IUCN 2004. 2004 IUCN Red List of Threatened Species. www.redlist.org. Downloaded on 3/09/2004.
- Mallon, D.P. and Kingswood, S.C. (2001a). Regional status of antelopes in North Africa, the Middle East, and Asia, and identification of conservation priorities. pp213-230. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Mallon, D.P. and Kingswood, S.C. (2001b). Appendix 2. Status of Antelopes in North Africa, the Middle East, and Asia. pp248-257. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Massicot, P. (2004) Animal Info – Addax. <http://www.animalinfo.org/species/artiperi/addanaso.htm> Downloaded on 2/09/2004.
- Nowak, R.M. (1991) *Walker's mammals of the world*, Fifth Edition. John Hopkins University Press, London.
- Pfeffer, P. (1995) Convention sur la conservation des espèces migratrices appartenant à la faune sauvage. Nouvelles données sur quelques mammifères de l'Ennedi (nord-est du Tchad). CMS/ScC.6/Doc. 7.1. Bonn, Secrétariat de la Convention.
- Saleh, M.A. (2001). Egypt. Pp 48-54. In: Mallon, D.P. and Kingswood, S.C. (comps.).

- Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans.* SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Smith, T.R., Mallon, D.P. and De Smet, K. (2001). Tunisia. pp30-40. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans.* SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Stuart, C. and Stuart, T. (1996). *Africa's Vanishing Wildlife.* Smithsonian Institution Press, Washington, D.C. USA.
- Tunisia National Report to CMS (2002). National Report to CMS.
- Valverde, J. A. (1957). *Aves del Sahara Español.* Instituto de Estudios Africanos, Consejo Superior de Investigaciones Cientificas, Madrid.
- Zahzah, K. (2003). Tunisia National Report, pp. 183-193 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes.* Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.

* Range State not yet included in the CMS range list for this species.

Gazella dama - synopsis

Country	Reported as nationally threatened	Apparent trend	CMS actions reported (in 2002 National Reports)	Other recent actions reported in the literature
Algeria	•	↓		✓
BURKINA FASO	Ex?	↓	x	
CHAD	•	↓	✓	
LIBYAN ARAB JAMAHIRIYA	•	?	x	
MALI	•	↑	✓	
MAURITANIA	•	?	x	
MOROCCO	•	→	✓	
NIGER	•	→	✓	
NIGERIA	ex		x	
SENEGAL	•	?	✓	✓
Sudan	•	↓		✓
TUNISIA	•	?	✓	✓

REVIEW OF CONCERTED ACTION SPECIES

MAMMALIA: BOVIDAE

SPECIES: *Gazella dama* (Pallas, 1766)

SYNONYMS: -

COMMON NAME: Addra Gazelle; Dama Gazelle (English); Gazelle dama (French); Gacela Dama (Spanish).

RANGE STATES: Algeria; BURKINA FASO; CHAD; LIBYAN ARAB JAMAHIRIYA (Ex); MALI; MAURITANIA (Ex); MOROCCO; NIGER; NIGERIA (Ex); SENEGAL (Ex); Sudan; TUNISIA

RED LIST RATING: EN - A1c, C1 (Antelope Specialist Group, 1996)

CONSERVATION STATUS AND ACTIONS:

The largest of the gazelles, *Gazella dama* was once common in arid and semi-arid regions of the Sahara, moving into the desert to seek wet-season grazing. Since the 1950s, however, the species has suffered from uncontrolled hunting, habitat degradation, competition from domestic livestock and drought (East, 1999; Mallon and Kingswood, 2001b). The species is now reduced to a few isolated, generally decreasing remnant populations scattered across its former range (East, 1999). Of the original North African regional population of dama gazelle, there are now only remnant populations in the far south of Algeria, in Western Sahara and possibly in Morocco's Oued Drâa Valley (Mallon and Kingswood, 2001a; Mallon and Kingswood, 2001b). There are further tiny populations scattered in various sub-Saharan countries (East, 1999); Populations of the Dama Gazelle survive in the Sahel, at least in Mali, Niger, and Chad, and perhaps also in Burkina Faso, Sudan, and eastern Mauritania (Anon., 1999).

In 1996, the species was IUCN red-listed as Endangered because its population, estimated at less than 2,500 mature individuals, was then believed to have decreased by at least 50% in the previous ten years and was expected to decline at least another 20% in the following five (Mallon and Kingswood, 2001b). East (1999) puts the species global population in the low thousands.

Mallon and Kingswood (2001b) number captive populations of the two sub-species *G. d. mhorr* (originating from Western Sahara) and *G. d. ruficollis* (originating from Chad) at 174 and 384, respectively.

The major threats are habitat loss and degradation as well as harvesting of this species (IUCN, 2004). Recently, the dama gazelle's habitat has become increasingly drier and less suitable, due to long-term climate change as well as to overgrazing by livestock and loss of tree cover due to clearing by man. Civil unrest in the area where it resides has also contributed to its decline (Massicot, 2004).

CMS is funding activities for Sahelo-Saharan antelopes, including the establishment of a geographical database, information system and website, as well as plans for development of *in situ* conservation and reintroductions in Chad, Libya and Senegal.

Algeria:

Status: The dama gazelle was only known from the western border area and the southern desert. In the west, isolated individuals formerly occurred in Oued de Tindouf and Tindouf *hammadas*. In the south the species has been recorded

from scattered localities including Silet, Adrar Ahnet, Tadmait, Temassin, Tanezroult, Tamanrasset, Plaine d'Admer, Mouydir, Amguid and Ideles. Today the dama gazelle is very rare in the country and only a small remnant population occurs in the Hoggar and Tassili region of the extreme south representing less than 2% of the global population (De Smet and Smith, 2001), and it can be probably found in the semi-arid Sahelian Zone (Fellous and Maaziz, 2003).

The main threats for this species in Algeria are habitat degradation, loss of tranquillity, reduction of natural vegetation cover, and hunting and poaching (Fellous and Maaziz, 2003)

CMS actions: Not a Party to CMS.

Other actions: The species is protected by law (De Smet and Smith, 2001). There have been proposals for nature reserves to protect remnant populations in the Erg Iguidi and the *Acacia*-steppe south of Tindouf (Mallon and Kingswood, 2001b). Current conservation projects are being developed in Tassili and Hoggar National Parks, and in Algeria's arid region (Mergueb, Ogalt Daira and Taghit), as well as a National Plan to fight desertification (Fellous and Maaziz, 2003).

BURKINA FASO:

Status: The Dama gazelle once occurred in the northern Sahel region but has been eliminated from most or all of its former range by over hunting and the expansion of livestock grazing aggravated by drought. The species occurred in very small, decreasing numbers in the extreme northern Seno-Mango region (an area which is part of the Sahel Reserve) during the mid 1980s, where it could have survived (Anon., 1999). More recent information is unavailable and the species could now be extinct (East, 1999).

CMS actions: None reported.

Other actions: The species is fully protected by law (Douamba and Ouedraogo, 2003).

CHAD:

Status: The Dama Gazelle was distributed in Chad in the whole Sahelian belt, mainly between the 14th and 17th parallels, from the border with Niger in the west to the massifs of the Ouadaï, the Kapka, the Ennedi, and the depression of the Mourdi along the eastern border (Anon., 1999), but by the 1970's it had been eliminated from most of its former range (East, 1999).

Large numbers did survive in Ouadi Rime-Ouadi Achim Faunal Reserve, but most of these animals were killed off when the Reserve became a war zone in the late 1970s. Nevertheless as recently as 1993, the dama gazelle was observed in the extreme western part of the Ouadi Rime-Ouadi Achim Faunal Reserve. Local herders also indicated that the species was not uncommon in the surrounding areas of eastern Kanem and western Batha. Surveys in other parts of the country, including Ennedi, between 1990 and 1996 failed to find evidence of the species (East, 1999). More recently an expanding population of 15 animals was found in the northwest of Kanem (Chad National Report, 2002). Hunters, especially motorized poaching parties continue to threaten the species (East, 1999).

CMS actions: CMS is funding surveys and other activities in Chad, with special interest in the Ouadi Rime- Ouadi Achim Faunal Reserve and northern part of the Ennedi (Anon., 1999).

Other actions:



LIBYAN ARAB

JAMAHIRIYA

(Ex):

Status: The Dama has always been the rarest of Libya's gazelles and is known only from the far south of the country, in the periphery of the Tibesti in Chad (Khattabi and Mallon, 2001; Anon., 1999). Although the species was not reported by Essghaier (1980), and the CMS considers the species extinct from Libya, small numbers conceivably survive in the extreme south (Khattabi and Mallon, 2001).

CMS actions: None reported.

Other actions: The species is protected by Libyan law (Khattabi and Mallon, 2001).

MALI:

Status: Once widespread in the Sahel and the southern fringe of the Sahara, with herds of up to 200 animals (Mali National Report, 2002) the dama gazelle has now been eliminated from most of its former range including Ansongo-Menaka Partial Faunal Reserve and Elephant Faunal Reserve (East, 1999). Today small numbers survive northeast of Mopti and in rocky areas north of Tombouctou. The rebellion in the early 1990s may have allowed some recovery of the remnant population (East, 1999), although herds of more than ten individuals are extremely rare (Mali National Report, 2002).

However, the population is estimated in several hundreds and it is suggested a possible recent increase (Anon., 1999). Uncontrolled hunting, habitat degradation and the great drought of Sahel were key factors in the decrease of its population (East, 1999).

CMS actions: The presence of this species is confirmed in the south of the Tin-Essako area, and an expedition to Ménaka Circle (L'Azaouak Natural Region), in April 2002, explored the main areas where this species could be found; In accordance with declarations of Nomad inhabitants of this region, a relic population of 5 to 7 gazelles still exists on the Talataye, Tiderméne and Alata zones, but no live specimens were seen and only some tracks and excrements were found by the expedition (Niagate and Semega, 2003).

Other actions:

MAURITANIA (Ex):

Status: Formerly widespread in Mauritania, since the 1960s the dama gazelle has suffered catastrophic decline as a result of hunting and habitat degradation. The species was thought extinct from Mauritania by the late 1980s, but recent reports indicate that the gazelle still occurs in the remote southeast, and a few may survive near Tidjika to the west. Illegal hunting remains a major threat (East, 1999).

CMS actions: None reported.

Other actions:

MOROCCO:

Status: The species was already extremely rare in the 1940's then re-established itself locally in the 1950's (Valverde, 1957), before collapsing. Only one observation exists for the period 1960-1970, and one other for the period after 1980, both in the Drâa basin, It is possible, however, that the *Gazella dama mohrr* survives in very small numbers in the Drâa basin and in the Adrar Souttouf. In the Northern Sahara the last record is from the Tindouf Hamada in 1985, although in 1993 nomads in the Oued Drâa Valley sighted one animal. There are probably fewer than 100 animals in Morocco and

Western Sahara combined, representing less than 5% of the global population of the species (Aulagnier *et al.*, 2001).

CMS actions: A programme has been developed in collaboration with Germany for the reintroduction of this species in the Souss-Massa National Park (Morocco National Report, 2002). In 1994 and 1995 a total of eleven animals from the Munchen Zoo (bred in Almeria, Spain) were released into an enclosure of the Souss-Massa National Park (Aulagnier *et al.*, 2001). The actual population is estimated in 9 gazelles (Daali and El Mastour, 2003). In 1992, dama gazelles originating from Western Sahara were sent to the Rmila enclosure near Marrakech, where the population is now 60 animals (Morocco National Report, 2003).

Other action:

NIGER:

Status: The Dama gazelle was once widespread in the Sahel and sub-desert zones of central and southern Niger. The species also ranged northwards into the desert zone in the region of the Air Massif (East, 1999). Since the 1960s illegal hunting, habitat destruction and drought have eliminated the species from much of its former range and reduced surviving populations to low levels (East, 1999).

By the mid-late 1980s the dama gazelle occurred mainly in the Termit region and in and around the Air and Tenere National Nature Reserve with total numbers of around 1,000 animals, of which 150-250 were in the Air and 200-400 were in the Termit. Good rainfalls and a reduced hunting pressure during the 1980s had apparently allowed the species to recover in the Air and Tenere reserve (Grettenberger and Newby, 1986). The population in this reserve was stable during the 1990s whilst elsewhere the species continued to decline (East, 1999). The species is still thought to occur in the Air and Termit regions, with an estimated population of 400 animals (Anon., 1999). A lone individual was reported south of the Termit desert during a forest department mission in March 1998 (East, 1999).

The most significant cause of the decline of dama gazelle populations in the region is mechanised hunting, although the Nomad's impact on the habitat is also significant (grazing and browsing by livestock can be very intense and has deprived the species of a large amount of forage in many areas) (Grettenberger and Newby, 1986).

CMS actions: A scientific mission conducted in the Termit region between 8 October and 15 November of 2002 observed 18 gazelles, in groups of 1 to 5 animals (Malam Issa and Barmou Moussa, 2003).

Other actions:

NIGERIA (Ex):

Status: The species was recorded rarely from the Sahel zone of northeastern Nigeria in the past but is now apparently extinct (East, 1999), as there are no recent indicators of presence (Anon., 1999).

CMS actions: None reported.

Other actions:

SENEGAL (Ex):

Status: Although the Dama gazelle occasionally visited Senegal up until the 1970s, it is now considered extinct in the wild (East, 1999; IUCN, 2004). It seems to have been especially frequent in the zone of the Ferlo at the time of the Sahelian droughts of the 1970's. According to the Senegal National Report (2002) the number of dama gazelle at Gueumbeul now

stands at 55.

CMS actions: A programme to reintroduce the Dama Gazelle is planned; Its success depends mainly, as for all the southern Sahelian localisations, on the chances of limiting human pressure so as to ensure the protection of the animals and the rehabilitation of the vegetation; A reintroduction programme in the reserves of the Ferlo, including preliminary acclimatization in the Sahelian reserve of Gueumbeul, is underway (Anon., 1999).

Other actions: In 1984, seven individuals of the captive mhorr gazelle at Almeria, Spain were introduced to Gueumbeul Faunal Reserve in the northwest. Reproduction has been good but adult and juvenile mortality is high, restricting the growth of the population, which numbered 13 animals in 1992. After moving the animals to a larger enclosure and separating bachelor and breeding groups the number had risen to 25 in 1997, including three animals translocated to the privately owned Bandia Nature Reserve near Dakar (East, 1999).

Sudan:

Status: The Dama gazelle was once widespread in arid and semi-arid grasslands west of the Nile, in the northwest of the country. Hunting greatly reduced numbers and fragmented the remaining population. The last precise observations date from the years 1975-1977. Two animals killed in January 1989 between Omdurman and the western Darfur by Middle Eastern hunting tourism was noted (Anon., 1999). There is anecdotal evidence that the species persisted through the 1990s at low densities in Northern Darfur and Northern Kordofan (East, 1999). The proposed Wadi Howar reserve mission (1998) reported that dama gazelles were not observed during the survey (Elsarag Fadlalla, 2003).

Today, the species is considered in danger of extinction if not extinct in the country, but precise information on its possible survival is lacking (Anon., 1999).

CMS actions: Not a Party to CMS.

Other actions: The proposal to create a National Park in the Wadi Howar in the northern Darfur could offer good possibilities of conservation or recolonisation for the Dama Gazelle (Anon., 1999).

TUNISIA:

Status: Although CMS considers Tunisia to be a range state for dama gazelle, according to Smith *et al.* (2001) there have been no confirmed records of the species from Tunisia. However, since the gazelle was once widespread in neighbouring Algeria it is very likely to have occurred in desert and sub-desert zones in the south of the country. The dama gazelle probably disappeared from Tunisia sometime between the 17th and 19th centuries (Smith *et al.*, 2001). The Tunisia National Report (2002) recorded 28 animals living in semi-captivity.

CMS actions: Ecological study, conservation and restoration of the species and its habitat are planned (Tunisia National Report, 2002).

Other actions: Eight captive-bred animals were released into an enclosure at Bou-Hedma National Park between 1990 and 1992 as part of the DGF (Direction Générale des Forêts) programme to restore the native fauna of Tunisia (Smith *et al.*, 2001). In 1994, when the herd numbered 14, seven more

gazelle were added. Despite reproductive recruitment the population size has not increased, presumably as a result of predation on calves by jackals. In June 1997 the herd numbered 21 animals (Smith *et al.*, 2001), and the last estimation for this population was 30 animals (Zahzah, 2003). There are proposals to release captive animals in Tunisia's Djebil and Sidi Toui National Parks (Mallon and Kingswood, 2001b).

**Additional
information -**

Western Sahara:

Status: The dama gazelle was formerly distributed from the Oued Nun (Assaka) region to the southern part of Western Sahara. There are probably fewer than 100 animals in Morocco and Western Sahara combined, representing less than 5% of the global population of the species (Aulagnier *et al.*, 2001).

The species was reported in Western Sahara by Newby (1981) and Valverde (1957), and may still survive in the Adrar Souttouf, in the extreme south. A group of animals captured in 1969 near Dawra provided the nucleus for most dama gazelles (*G. dama mhorri*) in zoos around the world (Mallon and Kingswood, 2001b).

Actions: In 1992, dama gazelles originating from Western Sahara were sent to the Rmila enclosure near Marrakech, where the population is now 60 animals (Aulagnier *et al.*, 2001; Morocco National Report, 2003). The species has been included on a list of protected mammals since 1958 (Aulagnier *et al.*, 2001).

REFERENCES:

- Anon. (1999) Conservation measures for Antelo-Saharan antelopes. Status Report. In: *CMS Technical Series Publication N°4*. Published by UNEP/CMS Secretariat, Bonn, Germany.
- Antelope Specialist Group (1996). *Gazella dama*. In: IUCN (2004). 2004 IUCN Red List of Threatened Species. www.redlist.org Downloaded on 17/02/2004.
- Aulagnier, S., Cuzin, F. and Thévenot M. (2001). Morocco. pp13-21. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Chad National Report (2002). National Report to CMS.
- Daali, A. and El Mastour, A. (2003). Morocco National Report, pp121-141 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- De Smet, K. and Smith, T.R. (2001). Algeria. pp22-29. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Douamba, A. and Maaziz, S. (2003). Burkina Faso National Report, pp. 75-87 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- East, R. (comp.) (1999) *African Antelope Database 1998. Compiled by Rod East and the*

- IUCN/SSC Antelope Specialist Group*. Occasional paper of the IUCN Species Survival Commission No. 21. IUCN- The World Conservation Union 1999.
- Elsarag Fadlalla, M. (2003). Sudan National Report, pp. 169-177 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Essghaier, M.F.A. (1980). A plea for Libya's gazelles. *Oryx*, 15:384-385.
- Fellous, A. and Maaziz, S. (2003). Algeria National Report, pp. 53-75 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Grettenberger, J.F. and Newby, J.E. (1986) The status and ecology of the Dama Gazelle in the Air and Ténéré National Nature Reserve, Niger. *Biological Conservation* 38 (3): 207-216.
- IUCN (2004). 2004 IUCN Red List of Threatened Species. www.redlist.org Downloaded on 17/02/2004.
- Khattabi, K. and Mallon, D.P. (2001). Libya. Pp 41-47. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Malam Issa, A. and Barmou Moussa, S. (2003). Niger National Report, pp. 149-163 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Mali National Report (2002). National Report to CMS.
- Mallon, D.P. and Kingswood, S.C. (2001a). Regional action plan for antelope conservation. pp231-243. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Mallon, D.P. and Kingswood, S.C. (2001b). Appendix 2. Status of Antelopes in North Africa, the Middle East, and Asia. Pp248-257. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Massicot, P. (2004) Animal Info – Dama gazelle. <http://www.animalinfo.org/species/artiperi/gazedama.htm> Downloaded on 3/09/2004.
- Morocco National Report (2002). National Report to CMS.
- Newby, J. (1981). The conservation status of the Sahelo-Saharan fauna of Africa. Report to IUCN/WWF, Gland. Unpublished.
- Niagate, B. and Semega, A. (2003) Mali National Report, pp. 97-121 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Senegal National Report (2002). National Report to CMS.
- Smith, T.R., Mallon, D.P. and De Smet, K. (2001). Tunisia. pp30-40. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Tunisia National Report (2002). National Report to CMS.
- Valverde, J. A. (1957). Aves del Sahara Español. Instituto de Estudios Africanos, Consejo Superior de Investigaciones Científicas, Madrid.
- Zahzah, K. (2003). Tunisia National Report, pp. 183-193 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar*

-- DRAFT, NOT FOR FURTHER CIRCULATION --

on the conservation and restoration of Sahelo-Saharan Antelopes. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.

* Range State not yet included in the CMS range list for this species.

Gazella dorcas - synopsis

Country	Reported as nationally threatened	Apparent trend	CMS actions reported (in 2002 National Reports)	Other recent actions reported in the literature
Algeria	•	↓		✓
BURKINA FASO		↓	x	
CHAD	•	↓	✓	
Djibouti		→		✓
EGYPT	•	↓	✓	
Eritrea		→		
Ethiopia		→		✓
ISRAEL		→	x	✓
JORDAN	•	↓	x	
LIBYAN ARAB JAMAHIY A	•	↓	✓	✓
MALI	•	→	✓	
MAURITANI A	•	↓	x	
MOROCCO	•	↓	✓	✓
NIGER		→	x	
NIGERIA	ex		x	
SENEGAL	•	↓	x	✓
SOMALIA		→	x	
Sudan	•	↓		
TOGO		?		
TUNISIA	•	?	✓	✓
Yemen		?		

REVIEW OF CONCERTED ACTION SPECIES

MAMMALIA: BOVIDAE

SPECIES: *Gazella dorcas* (Linnaeus, 1758)

SYNONYMS: -

COMMON NAME: Dorcas Gazelle (English); Gazelle dorcas (French); Gacela dorcas (Spanish)

RANGE STATES: Algeria; BURKINA FASO (Ex?); CHAD; EGYPT; Eritrea; Ethiopia; ISRAEL; LIBYAN ARAB JAMAHIRIYA; MALI; MAURITANIA; MOROCCO; NIGER; NIGERIA (Ex?); SENEGAL; Sudan; TUNISIA; Yemen (but only the Northwest African populations qualify)

RED LIST RATING: VU - A1a (Mallon and Kingswood, 2000)

CONSERVATION STATUS AND ACTIONS:

Approximately 35,000 and 40,000 dorcas gazelle currently occur in sub-Saharan Africa (East, 1999). The dorcas gazelle is the only African antelope species to extend its range into the Middle East. A further 10,000 animals are estimated to occur in North Africa and the Middle East where the dorcas gazelle is the most widespread species in the region. Significantly, however, fewer than a quarter live in protected areas (Mallon and Kingswood, 2001b). There are more than an estimated 540 dorcas gazelles in captivity worldwide – the bulk of which are in Moroccan zoos and reserves (Mallon and Kingswood, 2001b), although around 100 animals are found in North American and European zoos (East, 1999). The most recent information is that *Gazella dorcas* still naturally occurs in all range states, except Senegal; however, with the exception of Mali, where the distribution and abundance of gazelles may have been increased due to civil war, and Ethiopia, where several hundred occur in protected areas, *Gazella dorcas* continues to be threatened by illegal hunting and, to a lesser extent, loss of habitat due to livestock overgrazing, and its numbers are declining (Anon., 1999).

An overall population decline of 20% during the past ten years prompted the change of the species' IUCN Red List status from Lower risk/near threatened to Vulnerable (East, 1999). Despite this the high fecundity, small size and adaptation of dorcas gazelles to dry conditions has enabled the species to withstand droughts, habitat degradation and hunting more successfully than other sympatric antelope species (East, 1999).

Although the dorcas gazelle survives in all of its former range states, except perhaps for Nigeria, numbers are dramatically lower and populations more fragmented than a few decades ago mainly as a result of over hunting. Habitat loss and feral dog predation are also factors explaining the population decline (East, 1999).

CMS is funding activities for Sahelo-Saharan antelopes, including the establishment of a geographical database, information system and website, as well as plans for development of *in situ* conservation and reintroductions in Chad, Libya and Senegal.

Algeria:

Status: In Algeria, important populations of dorcas gazelle are still found, and the species remains the most widespread antelope in the country. Nevertheless the species is in decline. The distribution of *Gazella dorcas* has gradually retracted southward throughout the 19th and 20th centuries (Anon., 1999). No estimate of numbers is available but where there were once herds of up to 150 individuals, today the largest groups do not exceed a few dozen. Dorcas gazelle presumably remains widely distributed in the Saharan zones of Algeria, but numbers are believed to be greatly reduced (Anon., 1999). Threats have included over hunting and habitat degradation but things are improving. Since 1994, a ban on all hunting has led to a rise in antelope numbers (De Smet and Smith, 2001).

CMS actions: Not a Party to CMS.

Other actions: A protected area network has started to be enforced with large numbers of antelope occurring in Hoggar and Tassili National Parks (De Smet and Smith, 2001).

A project for breeding dorcas gazelles in semi-captivity is being developed by the National Agency for Nature Conservation (Agence Nationale pour la Conservation de la Nature) since 1999 in the Draa Nogd area, and the actual population is 7 animals (2 females and 5 males) (Fellous and Maaziz, 2003).

BURKINA FASO (Ex?):

Status: Once found in the extreme northern Sahel region, *Gazella dorcas* still ranges in this country. The proposed Seno-Mango Biosphere Reserve may be home to some animals (East, 1999). Numbers are not known but the species is considered to be rare and in decline (East, 1999), although its status in Burkina Faso is unreported (Anon., 1999). The Burkina Faso National Report to CMS (2002) does not consider the species to range in this country.

CMS actions: None reported.

Other actions:

CHAD:

Status: Along with Niger, Chad is currently home to the largest numbers of dorcas gazelle. Formerly widespread in the north of the country, numbers have declined due to drought, war, uncontrolled hunting and competition with livestock. The species has not been affected as badly as other Sahelo-Saharan antelopes. Aerial surveys in the 1990s found good numbers in some parts of Ennedi and Ouadi Rime-Ouadi Achim Faunal Reserve and their surroundings. The Chadian Direction of National Parks and Faunal Reserves recently reported that Dorcas Gazelle remains in the Ouadi Rimé-Ouadi Achim Faunal Reserve but in greatly reduced numbers (Anon., 1999), and this likely is indicative of the species' status elsewhere in the country. Up to 80 animals are still observed occasionally. The country population is estimated at 3,057, but is decreasing (Chad National Report, 2002; East, 1999). Although the species is abundant, poaching remains as the main problem for its conservation (Hassane Idriss and Moksia, 2003).

CMS actions: Project by WWF and the Office for the Protection of Fauna and National Parks (Chad National Report, 2002). CMS is funding surveys and other activities in Chad. Rehabilitation of the Ouadi Rimé - Ouadi Achim Faunal Reserve is a priority action for the conservation of this species (Anon., 1999).

Other actions:

DJIBOUTI*:

Status: *Gazella dorcas* still commonly ranges in this country and the population is considered stable. This country remains a stronghold for the antelope. A hunting ban introduced in the early 1970s led to a rise in numbers of the species, although competition with goats limited the increase (East, 1999).

CMS actions: None reported.

Other actions: A hunting ban was introduced in the 1970s (East, 1999).

EGYPT:

Status: The species was once widespread in Egypt's western deserts, but since the 1980s it has disappeared from vast parts of its former range, and was relentlessly hunted even in the most remote parts of its range (Saleh, 1987); the few concentrations that remained were limited to remote, inaccessible areas (Anon., 1999). The present population in this country numbers between 1,000 and 2,000 animals representing less than 10% of the global population (Saleh, 2001), and the main population left is around the Qattara Depression (Egypt National Report, 2002). The species suffered a major decline as a result of hunting and, to a lesser extent, habitat destruction, associated with agricultural, industrial and urban expansion (Saleh, 1987). A small proportion of the country's population occur in protected areas but poaching is commonplace (Saleh, 2001).

CMS actions: There is an ongoing monitoring of South Sinai populations, protected areas cover certain critical habitat (Siwa and the White Desert) and the protection regulations have been enforced (Egypt National Report, 2002).

Other actions:

Eritrea:

Status: *Gazella dorcas* is still common throughout its former range and its population is considered stable. Herds of up to 50 animals are sometimes seen near the Djibouti border in the south. Since hunting pressures are low, the country remains a stronghold for the antelope (East, 1999).

CMS actions: Not a Party to CMS.

Other actions:

Ethiopia:

Status: *Gazella dorcas* is still common throughout its former range but abundance is unknown. The historic distribution of dorcas gazelle indicates that the species occurs in the northeastern lowland of Ethiopia. The Yangudi-rasa National Park and the Mille-Serdo wild ass Reserve are the two protected areas in its range. No information is available on the status of the species in the northwest, and the species was not observed in recent aerial grounds and surveys in Yangudi NP, but a population of several thousands is estimated to occur in the adjacent Mille-Serdo Reserve and Danakil desert to the north. Given estimated numbers and tribal stability in the Mille-Serdo/Danakil area, the species presently appears to be stable and not threatened (Anon., 1999). The population is considered stable and, since hunting pressures are low, the north of the country remains a stronghold for the antelope (East, 1999).

CMS actions: Not a Party to CMS.

Other actions: A study was conducted by Fanuel Kebede (2001-2003) to provide information for IUCN with regard to Dorcas population. The study was conducted in the Afar Administrative region of Ethiopia, covering an area of 2000 sq km, in the north-eastern portion of Mille Serdo Wild Ass Reserve; the ground count of the study showed a population density of 0.666 dorcas /sq.km; if a population estimate is extrapolated from this result, it is expected to reach more than 500 animals per 1000 km² (Ali and Zeleke, 2003). Ethiopia had already drafted policy and strategy for wildlife conservation and management that is expected to be approved by the Government in the foreseeable future (Ali and Zeleke, 2003).

ISRAEL:

Status: *Gazella dorcas* is rare in Israel although the population is considered stable and not at serious risk. Regular censuses indicate that the population of this species in Israel has risen from 150 animals in 1964 to less than 2000 in 1995. Today less than 10% of the global population is estimated to be found in Israel (Clark and Frankenberg, 2001).

CMS actions: None reported.

Other actions: The species is legally protected in Israel and its habitat encompasses 2,400km² of nature reserves. Agreements between conservation authorities and the army have been reached to avoid damage to the population in military training areas like the Negev Desert. Regular censuses are conducted (Clark and Frankenberg, 2001).

JORDAN*:

Status: The total population of this species in Jordan is conservatively put at 180-200 animals representing less than 1% of the global population. The Jordan population of dorcas gazelle are near continuous to those in Israel. It occurs in the proposed Jebal Mas'udi Wildlife Reserve. The gazelle is regarded as one of Jordan's most threatened species and may disappear within five to ten years unless immediate conservation measures are taken. Threats include habitat encroachment, illegal hunting and economic development activities (Kiwani *et al.*, 2001).

CMS actions: None reported.

Other actions: The species is protected by law (Kiwani *et al.*, 2001).

**LIBYAN ARAB
JAMAHIRIYA:**

Status: In the 1960s and 1970s, the species was still widely distributed across the northern and central regions (Anon., 1999); In the 1960s herds of up to 100 animals could be seen, by the early 1970s herds of 40 were exceptional (Khattabi and Mallon, 2001). In the late 1980s, the species still occurred locally in Libya but in greatly reduced numbers. The situation reportedly remains the same, however, information on the current distribution and numbers of the species is lacking (Anon., 1999). The dorcas gazelle remains the most widespread antelope in the country.

CMS actions: The Libyan Wildlife Technical Committee plans to establish a network of protected areas that will include the southern parts of the country. Selection of sites for protection should consider existing needs and potentials for restoration and conservation of Dorcas Gazelle and other antelopes (Anon., 1999).

Other actions: National Parks provide some protection for this species. An estimated 150 animals occur in the New Nisha Nature Reserve and 15 were introduced from the Sudan into the El-Kouf National Park in 1991 (Khattabi and Mallon, 2001; Anon., 1999).

MALI:

Status: To the south in the sub-desert zone (Northern Sahel), the species remains widely distributed in small populations; Numbers apparently increased during the rebellion in early 1990s. Information is lacking on the status of remnant populations in the Elephant and Ansongo-Manaka Faunal Reserves. If present population estimates are reasonably accurate, the species undoubtedly is threatened (Anon., 1999)

The dorcas gazelle used to be observed in herds of around ten to fifty individuals. Sometimes large groupings can number 200 antelopes. Uncontrolled poaching and the great drought of Sahel between 1974 and 1984 have now eliminated it from much of its former range. There are more than 2,250 animals currently existing in Mali (East, 1999; Mali National Report, 2002).

CMS actions: The latter reserve lies in the Gourma area, which has been identified as an important site for biodiversity conservation and may be the best opportunity for conservation of the species. The Adrar des Iforhas and associated plains of Tilemsi and Tamesna, where Dorcas Gazelle still occurs, also has been proposed for biodiversity conservation (Anon., 1999).

Other actions:

MAURITANIA:

Status: Formerly abundant and widespread, poaching in the 1970s and 1980s has caused a decline in numbers of dorcas gazelle. In the early 1980s, the species was considered threatened, and by the late 1980s, it had been largely extirpated and survived only in small numbers in very remote areas (Anon., 1999) Today the population consists of little more than 200 animals. They occur in a few areas such as the Banc d'Arguin National Park, the Areg Chach and Hank Escarpment and the Maqteir (East, 1999). Effective management of Banc d'Arguin NP is a priority for conservation of the species in Mauritania (Anon., 1999). CMS considers Mauritania to be a range state for *Gazella dorcas* but a recent IUCN SSC Antelope Specialist Group publication does not confirm this (Mallon and Al-Safadi, 2001).

CMS actions: None reported.

Other actions:

MOROCCO:

Status: Populations continue to decline and the species can be classified as rare and endangered with less than 3% of the global wild population found in Morocco. Once widespread, it is now found as scattered small herds inhabiting a portion of former range. Current estimation of Dorcas gazelle population is 2,700 animals, of which 790 are wild populations *in situ* and 1,910 are semi-captive or captive populations (Daali and El Mastour, 2003). Threats mainly include habitat loss (due to expanding permanent agriculture and overgrazing by livestock), poaching, feral dog predation and over-hunting for sport and food with modern weapons by soldiers and VIPs. Droughts may also be a problem (Aulagnier *et al.*, 2001).

CMS actions: The 1,987-hectare M'Sabih Talâa permanent hunting reserve was established in 1952 to preserve the remnant northern plains population. It has been fenced since 1960 but part of it is now in poor condition, and the population is estimated in 300 animals (Daali and El Mastour, 2003).

Other actions: Since 1961, the species has been fully protected in Morocco. In the early 1990s, the 4,000-hectare El Kheng Reserve was established and soon after, in 1994, 10-15 gazelles were observed there (Aulagnier *et al.*, 2001). Establishment of a reserve at Jeber Grouz would protect remnant populations in eastern Morocco, and enlargement of El Kheng reserve would help ensure protection of the Talifalt population (Anon., 1999).

NIGER:

Status: Along with Chad, Niger is currently home to the largest numbers of dorcas gazelle. There are approximately 20,000 animals occurring in this country, of which 5,000 are in protected areas. Despite a great reduction in numbers due to poaching, habitat degradation and competition with domestic livestock for food and shade the population is considered stable. The species occupies much of its former range (East, 1999).

The population in the Air and Ténéré Natural Reserve was estimated in 12,000 animals (Magin, 1990), but the present status of the species is unknown. Illegal hunting, habitat degradation and competition with livestock probably remain threats (Anon., 1999).

CMS actions: None reported.

Other actions:

NIGERIA (Ex?):

Status: In the past *Gazella dorcas* was occasionally recorded in the Lake Chad region. The species has likely now gone extinct from Nigeria (East, 1999).

CMS actions: None reported.

Other actions:

SENEGAL:

Status: There are fewer than 50 dorcas gazelle currently estimated to occur in this country, of which perhaps ten are found in the National Bird Park of Djoudj in the north of the country; They were introduced to the Park in the 1970s from Mauritania after the species went extinct. *Gazella dorcas* still suffers from lack of surveillance and from the effects of the Diama dam on its habitat (East, 1999; Senegal National Report, 2002).

CMS actions: None reported.

Other actions: The 1970s reintroduction (East, 1999).

SOMALIA*:

Status: *Gazella dorcas* still occupies much of its historical range in Somalia and is locally common. The population is considered stable (East, 1999).

CMS actions: None reported.

Other actions:

Sudan:

Status: In the 1930s, the species remained well distributed throughout its historical range, but by the 1970s, it had disappeared from most of the northwestern and northeastern parts of the country (Anon., 1999).

Gazella dorcas still ranges in this country but is uncommon and the species is in decline. Hashim (1995) reported that the population of dorcas gazelle appeared to increase towards the northern and western portions of the red sea Hills, where they emerge with the desert (Elsarag Fadlalla, 2003). A report of the potentiality of Hassania proposed Reserve (2002) stated that 462 dorcas gazelles were observed in the sample area with a density estimation of 2 animals in each 10 Km². The total number of animals calculated was 1190 in the total area of study (7220 Km²) (Elsarag Fadlalla, 2003). Factors responsible for the decrease of the populations include uncontrolled hunting (a current major problem) and severe land degradation (East, 1999).

CMS actions: Not a Party to CMS.

Other actions:

TOGO*:

Status: Occurrence reported (UNEP-WCMC, 2004).

CMS actions: None reported.

Other actions:

TUNISIA:

Status: Historically this species ranged throughout Tunisia south and east of the Dorsale range. Having suffered uncontrolled hunting during the 20th century, the antelope is today confined to small fragmented populations in the south of the country. The status of this species is poorly known, but the wild population is unlikely to exceed 1,000 animals. Less than 10% of the global population is estimated to be found in Tunisia (Smith *et al.*, 2001). Up to 192 animals utilize the Orbata Fauna Reserve, 100 are found in Bou-Hedma National Park, 40 in Sidi Toui National Park, 12 in the Dghoumes National Park, 12 in the Oued Dekouk Nature Reserve, five in the Dj. Touiti Reserve and more than 100 in Djebil National Park (Zahzah, 2003) Further animals are found in the vicinity of these National Parks (Smith *et al.*, 2001; Tunisia National Report, 2002).

CMS actions: Ecological study, conservation and restoration of its habitat are planned (Tunisia National Report, 2002).

Other actions: The dorcas gazelle is among species identified in a Direction Général des Forêts (DGF) programme to restore the wild fauna of Tunisia, but no measures specifically target the species. The species does however benefit from various reserves (Smith *et al.*, 2001; Anon., 1999).

Yemen:

Status: CMS considers Yemen to be a range state for *Gazella dorcas* but a recent IUCN SSC Antelope Specialist Group publication does not confirm this (Mallon and Al-Safadi, 2001).

CMS actions: Not a Party to CMS.

Other actions:

**Additional
information -**

Western Sahara:

Status: Several hundred animals probably occur in Western Sahara south of Oued Drâa Valley, but access difficulties prevent an accurate estimate (Aulagnier *et al.*, 2001).

Actions: None reported.

REFERENCES:

- Ali, M. and Zeleke, A.A. (2003). Ethiopia National Report, pp. 87-97 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Anon. (1999) Conservation measures for Sahelo-Saharan Antelopes. Status Report. In: *CMS Technical Series Publication N° 4*. Published by UNEP/CMS Secretariat, Bonn, Germany.
- Aulagnier, S., Cuzin, F. and Thévenot M. (2001). Morocco. pp13-21. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Burkina Faso National Report (2002) National Report to CMS.
- Chad National Report (2002). National Report to CMS.
- Clark, B. and Frankenberg, E. (2001). Israel (including West Bank and Gaza). pp107-111. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Daali, A. and El Mastour, A. (2003). Morocco National Report, pp121-141 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- De Smet, K. and Smith, T.R. (2001). Algeria. pp22-29. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- East, R. (comp.) (1999). *African Antelope Database 1998. Compiled by Rod East and the IUCN/SSC Antelope Specialist Group*. Occasional paper of the IUCN Species Survival Commission No. 21. IUCN- The World Conservation Union 1999.
- Egypt National Report (2002) National Report to CMS.
- Elsarag Fadlalla, M. (2003). Sudan National Report, pp. 169-177 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Fellous, A. and Maaziz, S. (2003). Algeria National Report, pp. 53-75 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Hassane Idriss, M. and Moksia, D. (2003). Chad National Report, pp. 177-183 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.

- Khattabi, K. and Mallon, D.P. (2001). Libya. pp41-47. In: Mallon, D.P. and Kingswood, S.C.(comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Kiwan, K., Boef, J. and Boudari, A. (2001). Jordan. pp102-106. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Mali National Report (2002). National Report to CMS.
- Mallon, D.P. and Al-Safadi, M. (2001). Yemen. pp63-68. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Mallon, D.P. and Kingswood, S. (2000). *Gazella dorcas*. In: IUCN 2004. 2004 IUCN Red List of Threatened Species. www.redlist.org. Downloaded on 7/02/2004.
- Mallon, D.P. and Kingswood, S.C. (2001b). Appendix 2. Status of Antelopes in North Africa, the Middle East, and Asia. pp248-257. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Saleh, M.A. (1987) The decline of Gazelles in Egypt. *Biological Conservation* 39(2), 83-95.
- Saleh, M.A. (2001). Egypt. pp48-54. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Senegal National Report (2002). National Report to CMS.
- Smith, T.R., Mallon, D.P. and De Smet, K. (2001). Tunisia. pp30-40. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Tunisia National Report (2002). National Report to CMS.
- UNEP-WCMC (2004). Species Database. www.unep-wcmc.org Downloaded on 24/02/2004.
- Zahzah, K. (2003). Tunisia National Report, pp. 183-193 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.

- Range State not yet included in the CMS range list for this species.

Gazella leptoceros - synopsis

Country	Reported as nationally threatened	Apparent trend	CMS actions reported (in 2002 National Reports)	Other recent actions reported in the literature
Algeria		?		
CHAD		?	✓	
EGYPT	•	?	✓	
LIBYAN ARAB JAMAHIRIYA		→	x	
MALI	•	↓	x	
MAURITANIA	Ex?	?	x	
MOROCCO	Ex?	?	x	
NIGER	•	↓	x	
Sudan	Ex?	?		
TUNISIA	•	?	✓	✓

REVIEW OF CONCERTED ACTION SPECIES

MAMMALIA: BOVIDAE

SPECIES: *Gazella leptoceros* (Cuvier, 1842)

SYNONYMS: -

COMMON NAME: Rhim Gazelle; Sand Gazelle; Slender-horned Gazelle (English); Gazelle à cornes fines; Gazelle leptocère; Rhim (French); Rhim (Spanish)

RANGE STATES: Algeria; CHAD (?); EGYPT; LIBYAN ARAB JAMAHIRIYA; MALI (?); MAURITANIA (?); MOROCCO; NIGER; Sudan (Ex?); TUNISIA

RED LIST RATING: EN - C1+2a (Antelope Specialist Group, 1996)

CONSERVATION STATUS AND ACTIONS:

The slender-horned gazelle was formerly found from Algeria to Mauritania eastward to Egypt and Sudan as far as the Nile River. The slender-horned gazelle is widespread in the great sandy deserts (ergs) of the North Africa and the Sahel but details of its range in the region are poorly known and there are no accurate population estimates. It still probably can be found over most of the area of its original range from Algeria to Egypt but in much reduced numbers and in highly fragmented and isolated populations (Anon., 1998). Fewer than half are thought to occur in protected areas (Mallon and Kingswood, 2001a). The only animals now surviving in the wild are ones living in inaccessible desert locations or on Reserves (AZA Antelope TAG, 2003).

The slender-horned gazelle is thought to have suffered greatly from hunting and is currently thought to number fewer than 2,500 animals, with sub-populations consisting of no more than 250 mature individuals (Mallon and Kingswood, 2001b). East (1999) postulates that the global population may only number a few hundred and the population is declining (IUCN, 2004). Up to 189 animals may be currently in captivity (Mallon and Kingswood, 2001a). The slender-horned gazelle was predicted in 2001 to decline by at least 20% in the following five years, mainly as a result of continued trophy hunting despite the fact that the species is legally protected throughout its North African range. Laws are not effectively enforced (Mallon and Kingswood, 2001b). The species only seems to remain in areas inaccessible to motorized poaching parties (East, 1999).

CMS is funding activities for Sahelo-Saharan antelopes, including the establishment of a geographical database, information system and website, as well as plans for development of *in situ* conservation and reintroductions in Chad, Libya and Sudan.

Algeria:

Status: *Gazella leptoceros* is widely distributed south of the Saharan Atlas Mountains with records from the Grand Erg Oriental, Grand Erg Occidental, Erg Admer and around Tinhert Hamada. The species still probably occurs in the dune systems of Hoggar and Tassili (Fellous and Maaziz, 2003), but is now apparently absent from the Erg Iguidi in the far west of Algeria. The horns were once common in Algerian shops but the population has declined because of hunting. No current estimate of numbers is available (De Smet and Smith, 2001) and the species is classified by the IUCN Antelope Survey as Insufficiently Known in this country (Mallon and

Kingswood, 2001b). *Gazella leptoceros* may have benefited from the decline in oil exploration (De Smet and Smith, 2001).

CMS actions: Not a Party to CMS.

Other actions: The species is legally protected and some may enjoy refuge in the Tassili National Park. (De Smet and Smith, 2001).

CHAD (?):

Status: The slender-horned gazelle was once reported in the extreme north of Chad, below the northern edge of the Tibetsi Massif and east of Tibetsi. It may occur, or have occurred, in other deserts of northern Chad such as the Mourdi Depression and Erdi in the northeast (East, 1999), and in areas bordering Libya (Hassane Idriss and Moksia, 2003). There is no recent information on the species' status, or on any population trends (Chad National Report, 2002).

CMS actions: There was in 2001 a joint project by WWF and the Office for the Protection of Fauna and National Parks (Chad National Report, 2002).

Other actions:

EGYPT:

Status: Egypt and Libya together constitute half of the species' North African range (Mallon and Kingswood, 2001a). Formerly widespread in the northern part of the Western Desert south of the Mediterranean coastal belt, the current population size of slender-horned gazelle is unknown, but it appears to be scattered in groups of a few individuals over a very large area of desert. Currently there are no animals known to be within protected areas of Egypt. Because of its rarity, the species is relentlessly sought by hunters (Saleh, 2001). Until the late 1980s a small number existed in Wadi El Raiyan but the animals were exterminated by trophy-hunters, just prior to the area being declared protected (Mallon and Kingswood, 2001b).

CMS actions: Critical habitat around Siwa Oasis was declared as a protected area in June 2002 (Egypt National Report, 2002).

Other actions: The slender-horned gazelle is protected by law, but the law is not enforced (Saleh, 2001).

**LIBYAN ARAB
JAMAHIRIYA:**

Status: Libya and Egypt together constitute half of the species' North African range (Mallon and Kingswood, 2001a). The slender-horned gazelle has probably always been rare in Libya and is known from sporadic but widespread reports. In the late 1990s a small herd was spotted in western Egypt close to the Libyan border and may have crossed over periodically (Khatabi and Mallon, 2001). A small population may occur within the Zellaf Nature Reserve (Khatabi and Mallon, 2001). The species' preference for sand dunes affords it some protection from motorized hunting parties (Khatabi and Mallon, 2001).

CMS actions: None reported.

Other actions: The species is protected by Libyan law (Khatabi and Mallon, 2001).

MALI (?):

Status: The slender-horned gazelle is present but rare and declining in Mali. Populations of *Gazella leptoceros* living in the edge surrounding the massifs of the Hoggar and the Tassili probably extend as far as Mali in the Tanezrouft

(Anon., 1999) Small numbers have been reported in the vicinity of Adrar des Iforhas and associated plains of Tilehmsi and Tamesna in the northeast of the country (East, 1999).

CMS actions: None reported.

Other actions:

MAURITANIA (?):

Status: A recent IUCN/SSC Antelope Specialist Group report found no evidence for this species in Mauritania (East, 1999).

CMS actions: None reported.

Other actions:

MOROCCO:

Status: The only observation of this species in Morocco is from the region of Bournia, southeast of the high Atlas, during the 1950s; this record, situated outside the species' habitat, corresponds to the movements of large amplitude observed in years of great drought (Anon., 1999).

CMS considers Morocco to be a range state for *Gazella leptoceros* but a recent IUCN/SSC Antelope Specialist Group publication on antelopes of North Africa, the Middle East, and Asia does not confirm this (Aulagnier *et al.*, 2001), and neither Daali and El Mastour (2003) do.

CMS actions: None reported.

Other actions:

NIGER:

Status: No recent information is available on the status of slender-horned gazelle in Niger (East, 1999). During the 1980s the species was considered rare but field surveys of the slender-horned gazelle were problematic since animals are easily confused with *Gazella dorcas*. The species, which is today in decline, may have formerly occurred throughout the northern half of the country, and its distribution, inside inhospitable areas, acts as a natural protection for this species, which is less affected by hunting than other African ungulates (Malam Issa and Barmou Moussa, 2003). Today the slender-horned gazelle may occur in the Termit Massif region, and in deserts bordering the Air Massif within the Air and Tenere National Nature Reserve. Animals may also occur to in areas to the east and north of the Reserve such as the Great Bilma Eerg and the Admer Erg, respectively (East, 1999).

CMS actions:

Other actions:

Sudan (Ex?):

Status: According to East (1999), the species still occurs in northwestern Sudan where it is threatened by illegal hunting. Elsarag Fadlalla (2003) does not provide any information for this species in Sudan National Report.

CMS actions: Not a Party to CMS.

Other actions:

TUNISIA:

Status: The slender-horned gazelle once ranged throughout the desert region of Tunisia as far north as the Djerid Salt Flat. Excessive hunting has led to a decline in the species. Indeterminate numbers remain in impenetrable, remote areas of the Erg (Smith *et al.*, 2001). 13 animals were recently reported in the Sidi Toui National Park, where a couple of gazelles from Belgium were introduced in 1999, plus one female (also from Belgium) in 2001, and the herd will be transferred to Djebil National Park (Historical

distribution) when the protection of the Park will be assured (Tunisia National Report, 2002;Zahzah, 2003); The species is classed as Insufficiently Known in Tunisia by the IUCN Antelope Survey (Mallon and Kingswood, 2001b).

CMS actions: Ecological study, conservation and restoration of the species and its habitat are being carried out (Tunisia National Report, 2002).

Other actions: The slender-horned gazelle is fully protected by law and occurs in the newly gazetted Djebil National Park, but the Park is yet to be properly staffed. Police in the area do not provide sufficient protection from hunting. There are, however, plans for camel-mounted rangers at Djebil (Smith *et al.*, 2001).

REFERENCES:

- Anon. (1999) *Conservation measures for Sahelo-Saharan Antelopes. Status Report*. In: CMS Technical Series Publication N° 4. Published by UNEP/CMS Secretariat, Bonn, Germany.
- Aulagnier, S., Cuzin, F. and Thévenot M. (2001). Morocco. pp13-21. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK
- AZA Antelope TAG (2003). Antelope TAG website. <http://www.csew.com/antelopetag> downloaded on 9/09/2004.
- Antelope Specialist Group (1996). *Gazella leptoceros*. In: IUCN (2004). 2004 IUCN Red List of Threatened Species. www.redlist.org Downloaded on 9/09/2004.
- Chad National Report (2002). National Report to CMS.
- Daali, A. and El Mastour, A. (2003). Morocco National Report, pp121-141 in Ankouze, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- De Smet, K. and Smith, T.R. (2001). Algeria. pp22-29. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- East, R. (comp.) (1999). *African Antelope Database 1998. Compiled by Rod East and the IUCN/SSC Antelope Specialist Group*. Occasional paper of the IUCN Species Survival Commission No. 21. IUCN- The World Conservation Union 1999.
- Egypt National Report (2002). National report to CMS.
- Elsarag Fadlalla, M. (2003). Sudan National Report, pp. 169-177 in Ankouze, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Fellous, A. and Maaziz, S. (2003). Algeria National Report, pp. 53-75 in Ankouze, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Hassane Idriss, M. and Moksia, D. (2003). Chad National Report, pp. 177-183 in Ankouze, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.

- IUCN (2004). 2004 IUCN Red List of Threatened Species. www.redlist.org Downloaded on 17/02/2004.
- Khattabi, K. and Mallon, D.P. (2001). Libya. pp41-47. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Malam Issa, A. and Barmou Moussa, S. (2003). Niger National Report, pp. 149-163 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Mallon, D.P. and Kingswood, S.C. (2001a). Regional status of antelopes in North Africa, the Middle East, and Asia, and identification of conservation priorities. pp213-230. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Mallon, D.P. and Kingswood, S.C. (2001b). Appendix 2. Status of Antelopes in North Africa, the Middle East, and Asia. pp248-257. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Saleh, M.A. (2001). Egypt. pp48-54. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Smith, T.R., Mallon, D.P. and De Smet, K. (2001). Tunisia. pp30-40. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Tunisia National Report (2002). National Report to CMS.
- Zahzah, K. (2003). Tunisia National Report, pp. 183-193 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.

* Range State not yet included in the CMS range list for this species.

Gorilla gorilla beringei - synopsis

Country	Reported as nationally threatened	Apparent trend	CMS actions reported (in 2002 National Reports)	Other recent actions reported in the literature
CONGO, DEMOCRATIC REPUBLIC OF THE	•	↑	x	✓
Rwanda	•	↑		✓
UGANDA	•	↑	x	✓

REVIEW OF CONCERTED ACTION SPECIES

MAMMALIA: HOMINIDAE

<u>SPECIES:</u>	<i>Gorilla gorilla beringei</i> (Matschie, 1903)
<u>SYNONYMS:</u>	<i>Gorilla beringei</i> , <i>Gorilla beringei beringei</i>
<u>COMMON NAME:</u>	Mountain gorilla (English)
<u>RANGE STATES:</u>	CONGO, DEMOCRATIC REPUBLIC OF THE; Rwanda; UGANDA
<u>RED LIST RATING:</u>	EN - A2cd (Butynski, T. and Members of the Primate Specialist Group, 2000)

CONSERVATION STATUS AND ACTIONS:

There are two known populations of mountain gorilla, both of which occur in National Parks. One population occurs on the extinct volcanoes of the Virunga Massif along the borders of the Democratic Republic of the Congo (DRC), Rwanda, and Uganda within the Virunga National Park of DRC, the Volcano National Park in Rwanda and to a lesser extent the Mgahinga National Park, Uganda. A separate population of mountain gorillas is found in the Bwindi-Impenetrable National Park in southwest Uganda, on the border of DRC (UNEP-WCMC and WWF, 2001).

The status of the mountain gorilla was assessed in 2000, by T. Butynski and Members of the Primate Specialist Group, and is considered endangered. However, IUCN (2004) also assessed the two populations of mountain gorilla separately due to the taxonomic uncertainty that currently surrounds them. When considered separately (i.e. the Virungas and the Bwindi population as separate entities) each population is considered Critically Endangered (IUCN, 2004).

The number of mountain gorillas declined throughout the 1970s and early 1980s, and some declines were seen into the 1990s (e.g. Binyeri *et al.*, 2002). Despite the low numbers of gorillas and the severe threats they face, overall population numbers would appear to be stable and possibly slowly increasing (UNEP-WCMC, 2003a). Based on recent estimates (Kalpers *et al.*, 2003 and McNeilage *et al.*, 2001), the total number of mountain gorillas may be between 651 and 687, or according to Plumtpr *et al.* (2003) there are a total of approximately 650-700 mountain gorillas.

IUCN (1982) described a decline in the mountain gorilla numbers in the Virungas, from 400-500 in the late 1950s, to 275 in 1973 to 250 by 1981, with most of the decline occurring in the DRC section. However, by the mid 1980s the mountain gorillas of the Virungas had started to very gradually increase again. The 1989 count of mountain gorillas in the Volcano National Park, Virunga National Park and Mgahinga National Park was about 306 animals (Plumtpr and Harris, 1995). Most recently a population estimate, based on repeated observations of 17 habituated groups and information on 15 unhabituated groups, has shown the population of the Virunga mountain gorilla to be between 359 and 395 (Kalpers *et al.*, 2003). According to WWF (2002) the Virunga population of mountain gorilla has increased by 14% in the last 12 years. These changes in growth rate reflect variation in human disturbance and conservation activities during the different decades: the 1970s were marked by direct poaching of gorillas and cattle grazing in the Park; The 1980s saw an increase in conservation activities such as education and patrolling and the 1990s saw war and political instability with direct killing of gorillas, habitat degradation and the interruption of conservation activities, most notably

patrols (Kalpers *et al.*, 2003). In order to combat the threats for the species, WWF, Flora and Fauna International (FFI) and the African Wildlife Foundation (AWF) set up the International Gorilla Conservation Programme (IGCP) in 1991. Over the past 13 years, together with local authorities and Park authorities in the Democratic Republic of Congo, Rwanda and Uganda, have been working to protect and effectively manage the habitat and the gorilla population, while taking into account the needs of the local population (IGCP, 2004). The IGCP has run a number of projects and is involved in population censuses, and it has been successful in protecting mountain gorillas in the Virunga range, despite civil unrest and other setbacks (UNEP-WCMC, 2003a).

Details on population sizes and trends for the Bwindi population are given in the UGANDA section.

The major threats to mountain gorillas are (1) habitat loss or modification (e.g. through infrastructure development, wood extraction, human settlement and agricultural crops (IUCN, 2002)) and forest encroachment (Muruthi *et al.*, 2000), (2) hunting or poaching, (3) disease transmission from humans and (4) war or political unrest (Muruthi *et al.*, 2000; IUCN, 2004). Other threats include the risk of inbreeding (Muruthi *et al.*, 2000) and ongoing disturbance from tourism (IUCN, 2004). The area surrounding the gorillas' habitat has one of the highest human population densities in Africa, at 400-600 people per km² (Kalpers *et al.*, 2003); the mountain gorilla populations are separated by densely populated land and intense human land use is putting intense pressure on both populations. War and political unrest have had direct impacts on the gorilla population and its habitat, as well as increasing the likelihood of disease transmission from humans, with many people living in the forest under poor conditions of hygiene (Kalpers *et al.*, 2003). Increasing human settlement contributes to virtually all the threats listed above such as demand for land to live on and to farm, and demand for fuel and for food. Gorillas are Critically Endangered, slow reproducing animals that means that sustained levels of mortality or even a low level of mortality can have devastating impacts (UNEP-WCMC, 2003b).

D.R. CONGO:

Status: Seven habituated families in the Congolese parts of the Virunga Massif show an overall increase in the number of these gorillas from 66 to 86 between 1998 and 2002 (Binyeri *et al.*, 2002). Other reports indicate that the Virunga population of mountain gorilla has increased in the last 12 years (WWF, 2003).

CMS actions: None reported.

Other actions: In Virunga National Park, the International Gorilla Conservation Programme in conjunction with the Congolese park authorities have undertaken a Ranger-based Monitoring Programme (RBM) which acts as a tool for the rangers to collect information, which in turn helps to inform park management decisions. IUCN/WWF Project 1941 aims to carry out a survey of the status of the gorilla and provide necessary data for their improved preservation and protection of their habitat (UNEP-WCMC, 2003b).

Rwanda:

Status: Reports indicate that the Virunga population of mountain gorilla has increased in the last 12 years (WWF, 2003), although civil disturbances during and subsequent to the Rwandan civil war greatly increased poaching of mountain gorillas (Dudley *et al.*, 2002).

CMS actions: Not a Party to CMS.

Other actions: In the Volcano National Park the Mountain Gorilla Project has involved

habituating four gorilla families to the presence of humans so that visitors can be guaranteed close-up views, and it is jointly financed by the African Wildlife Foundation (AWF), Flora and Fauna International (FFI), Peoples Trust for Endangered Species (PTEF) and WWF who have worked to improve tourism so as to achieve economic independence for the park (UNEP-WCMC, 2003b).

Intensive research on the mountain gorilla and its habitat has been carried out for the past 15 years, including a census in 1980 funded by WWF and New York Zoological Society (UNEP-WCMC, 2003b). In addition, the mountain gorilla project was initiated in 1978 (UNEP-WCMC, 2001). Populations have been monitored from the Karisoke Research Centre in the Virunga Volcano region of northwestern Rwanda and eastern DRC since 1967. This research has involved the collection of valuable population data and long and short term census studies (e.g. Robbins, 1995), studies on social structures (e.g. Robbins, 1996), group dynamics (e.g. Sicotte, 1995), feeding behaviour and habitat use (e.g. Byrne and Byrne, 1993; Watts, 1998) and reproduction (Robbins, 1999). The Karisoke Research Centre has a resident director, research scientists, about 15 trackers, and camp staff.

A Veterinary Centre was established in the Virungas in 1987 to monitor the health of the gorillas, in particular in response to habituation and increasing contact with humans. However, both the work of both Karisoke Research Centre and of the Veterinary Centre have been severely disrupted as a result of the conflict in the area (UNEP-WCMC, 2003b).

UGANDA:

Status:

Estimates in 1979 showed there to be 95-130 mountain gorillas in the Bwindi Impenetrable Forest Reserve (IUCN, 1982). Harcourt *et al.* (1981) noted a total population size of c.155 in Bwindi (where 33% of the population was counted). More recently McNeilage *et al.* (2001) estimated the population in Bwindi-Impenetrable National Park in 1997 to be 292 individuals and note that this population appeared to be stable. At least 300 individuals were reported in Bwindi Impenetrable Forest National Park (Uganda Wildlife Division, 2002; Hamilton *et al.*, 2000). The Bwindi population is stable and may also be increasing (Uganda Wildlife Division, 2002; WWF, 2002; McNeilage *et al.*, 2001). Reports indicate that the Virunga population in Mgahinga National Park has increased in the last 12 years (WWF, 2003).

CMS actions: None reported.

Other actions: According to the Uganda Wildlife Division (2002), Uganda has undertaken the rationalisation of wildlife Protected Areas System Plan through the 1996 to 1998 Scientific Study, and administered special enforcement programmes in the Species Range Protected Areas (Mgahinga and Bwindi Impenetrable National Parks). In addition, Site Action Programmes have been undertaken by the Government, Regional Action Plans are being developed through the International Gorilla Conservation Programme, and a National Action Plan for conservation and monitoring of the population is being initiated through the Great Apes Survival Project, funded by UNDP.

Hamilton *et al.* (2000) and Tamale (1996) described schemes that have been established in Bwindi-Impenetrable National Park to try to mitigate the loss and resentment felt by local people by the establishment of the Park and the concern at the loss of access to local resources (Hamilton *et al.*, 2000). Bwindi-Impenetrable National Park opened for mountain gorilla tourism in 1993 (IUCN, 1996) and since 1991 about 3,600 tourists have been visiting the park per year generating approximately US \$1 million per year (UNEP-WCMC, 2003a). An overall management plan was prepared jointly

by the Institute of Tropical Forest Conservation, CARE Development through Conservation (DTC), and Uganda National Parks although a tourism-specific plan has been in use since the beginning of 1993 (UNEP-WCMC, 2003b). A management plan for Bwindi National Park has been developed, and actions for tourism development, biological inventories etc are now in place (IUCN, 1996).

In 1986, the Impenetrable Forest Conservation Project (IFCP) was set up at Ruhija and its aims include assessing the population, distribution and particular requirements of the mountain gorillas (UNEP-WCMC, 2003b). Its main achievements since 1986 are law-enforcement and also in the areas of inventory and monitoring, research, staff training, and demarcation and securing of park boundaries. A gorilla conservation project was started in Mgahinga in 1992, which included ecological surveys, training of rangers, cessation of illegal activities and the development of tourism (IUCN, 1996).

The Bwindi-Impenetrable Great Ape Project was established in 1996 and aims to achieve a better understanding of the ecological relationship between the Mountain gorillas and chimpanzees (*Pan troglodytes schweinfurthii*) that both occur in the forest. It involves the study of the behaviour, ecology and habitat of both species. A research station, Camp Kashasha, was built in 1998 (Stanford, 1999).

REFERENCES:

- Binyeri, D. K., Hibukabake, D. M and Kiyengo, C. S. (2002). The Mikeno gorillas. *Gorilla Journal*, 25: 5-7.
- Butynski, T. and Members of the Primate Specialist Group (2000). *Gorilla gorilla*. In: IUCN 2004. 2004 IUCN Red List of Threatened Species. www.redlist.org. Downloaded on 16/02/2004.
- Byrne, R. W. and Byrne, J. M. E. (1993). Complex leaf gathering skills of mountain gorillas (*Gorilla g. beringei*): Variability and standardization. *American Journal of Primatology*, 31: 241-261.
- Dudley, J.P., Ginsberg, J.R., Plumptre, A.J., Hart, J.A. & Campos, L.C. (2002) Effects of War and Civil Strife on Wildlife and Wildlife Habitats. *Conservation Biology*, Volume 16, Issue 2, pp. 319-329.
- Hamilton, A., Cunningham, A., Byarugaba, D. and Kayanja, F. (2000). Conservation in a region of political instability: Bwindi Impenetrable forest, Uganda. *Conservation Biology*, 14(6): 1722-1725.
- Harcourt, A. H., Fossey, D. and Sabater-Pi, J. (1981). Demography of *Gorilla gorilla*. *Journal of Zoology, London*, 195: 215-233.
- IGCP (2004) International Gorilla Conservation Programme website. http://www.mountaingorillas.org/about_igcp/about_igcp.htm Downloaded on 11/11/2004.
- IUCN (1982). *The conservation status of the great apes*. The World Conservation Union.
- IUCN (1996). *African Primates. Status survey and conservation action plan*. Revised edition. IUCN, Gland, Switzerland, 88 pp.
- IUCN (2004). 2004 IUCN Red List of Threatened Species. <http://www.redlist.org> Downloaded on 30/04/2003.
- Kalpers, J., Williamson, E. A., Robbins, M. M., McNeilage, A., Nzamurambaho, A., Lola N. and Mugiri, G. (2003). Gorillas in the crossfire: population dynamics of the Virunga mountain gorillas over the past three decades. *Oryx*, 37 (3): 326-337.
- McNeilage, A., Plumptre, A. J., Brock-Doyle, A. and Vedder, A. (2001). Bwindi Impenetrable National Park, Uganda: gorilla census 1997. *Oryx*, 35 (1): 39-47.
- Muruthi, P., Proce, M. S., Soorae, P., Moss, C. and Lanjouw, A. (2000). Conservation of Large Mammals in Africa. What lessons and challenges for the future? In: *Priorities for the Conservation of Mammalian Diversity: Has the Panda had its Day?* Eds A. Entwistle and N. Dunstone. *Conservation Biology* 3.

- Plumptre, A. J. and Harris, S. (1995). Estimating the biomass of large mammalian herbivores in a tropical montane forest: a method of faecal counting that avoids assuming a 'steady state' system. *Journal of Applied Ecology*, 32: 111-120.
- Robbins, M. M. (1995). A demographic analysis of male life history and social structure of mountain gorillas. *Behaviour*, 132 (1-2): 21-47.
- Robbins, M. M. (1996). Male-male interactions in heterosexual and all-male wild mountain gorilla groups. *Ethology*, 102: 942-965.
- Robbins, M. M. (1999). Male mating patterns in wild multimale mountain gorilla groups. *Animal Behaviour*, 57: 1013-1020.
- Sicotte, P. (1995) Interpositions in conflicts between males in bimale groups of mountain gorillas. *Folia Primatol.*, 65: 14-24.
- Stanford, C. B. (1999) Bwindi-Impenetrable Great Ape Project: Progress Report for 1999. <http://www.anthro.ucdavis.edu/gcn/g13bwindi.htm> Downloaded 14/05/03.
- Tamale, E. S. (1996). Incentive measures for the conservation and sustainable use of biological diversity in Uganda; A case study of the 'Development Through Conservation' Project in communities around Bwindi National park. Presented at a Workshop on Incentives for Biodiversity: Sharing Experiences, Montreal, Canada, 20 August –1 September 1996.
- Uganda Wildlife Division (2002). Uganda National Report to CMS (2002)
- UNEP-WCMC (2001) Gorilla – Species sheet.
http://www.wcmc.org.uk/species/data/species_sheets/gorilla.htm Downloaded 16 May, 2003.
- UNEP-WCMC (2003a). Report on the status and conservation of the Mountain Gorilla *Gorilla gorilla beringei*. UNEP-WCMC, Cambridge, U.K.
- UNEP-WCMC (2003b). World Conservation Monitoring Centre Protected Areas Database. http://www.unep-wcmc.org/protected_areas/data/sample/0360p.htm Downloaded 16 May, 2003.
- UNEP-WCMC and WWF International (2001). Gorillas. Threatened Species Account. World Conservation Monitoring Centre and World Wildlife Fund for Nature, International. <http://www.panda.org/resources/publications/species/threatened/downloads/GORILLs1.doc> Downloaded 15 May, 2003.
- Watts, D. P. (1998). Long term habitat use by mountain gorillas (*Gorilla gorilla beringei*). I. Consistency, variation, and home range size and stability. *International Journal of Primatology*, 19 (4): 651-680.
- WWF (2002). Gorillas Under Threat. World Wildlife Fund for Nature. http://www.panda.org/downloads/species/Gorillas_Final.pdf Downloaded 26 May, 2003.
- WWF (2004). Flagship Species: Eastern Gorillas. World Wildlife Fund for Nature. http://www.panda.org/about_wwf/what_we_do/species/what_we_do/flagship_species/great_apes/eastern_gorilla/index.cfm . Downloaded 11/11/2004..

Hippocamelus bisulcus - synopsis

Country	Reported as nationally threatened	Apparent trend	CMS actions reported (in 2002 National Reports)	Other recent actions reported in the literature
<i>ARGENTINA</i>	●	↓	✓	✓
<i>CHILE</i>	●	↓	✓	✓

REVIEW OF CONCERTED ACTION SPECIES

MAMMALIA: CERVIDAE

SPECIES: *Hippocamelus bisulcus* (Molina, 1782)

SYNONYMS: -

COMMON NAME: Chilean Guemal; Chilean Huemul; South Andean Deer; South Andean Huemul (English); Cerf des Andes méridionales; Huémul des Andes méridionales (French); Ciervo andino meridional; Huemul (Spanish)

RANGE STATES: ARGENTINA; CHILE

RED LIST RATING: EN - C2a (Deer Specialist Group, 1996)

CONSERVATION STATUS AND ACTIONS:

Originally, the South Andean deer ranged along the Andes from about 34°S in Chile and 40°S in Argentina, spreading in Patagonia (south of 44°S) to Pacific coast islands and east along the highlands of Argentina, possibly to the Atlantic coast (Povilitis, 1983). By the early 1970s it appeared to be largely gone from the entire region north of Patagonia except in two areas. At that time, most huemuls were found in Chile's Aysen Region with smaller numbers along adjacent areas of Argentina. By 1997 it appeared that remaining populations were limited to protected areas (Oryx, 1997). Currently, South Andean Deers are found in a small nucleus lost in the Nevados de Chillán (36° S) and in other localities in mountainous and coastal of Palena, in the region of Aysén and Magallanes (43° to 54° S). The current distribution only represents 50 % of the original one (Drouilly, 1983), and most surviving huemuls, however, likely occur along Chile's southern coast, where isolation, rugged topography, and inclement weather maintain low human densities (Frid, 2001).

In 1983, the global wild population was estimated at 1,300 individuals (Povilitis, 1983). Since the early 1980's the population is estimated at around 2,000 individuals or fewer (Burton and Pearson, 1987; Frid, 1991). López *et al.* (1998) estimated a minimum population size of 780 individuals for both Chile and Argentina. Saucedo and Gill (2004) estimate the population in less than 1000 individuals, with isolated and fragmented populations. A review of surveys of the huemul carried out in Argentina and Chile in 1997 found little immediate threat to populations within reserves but little evidence of established populations outside protected areas; even in protected areas populations are small and extremely localized (Anon., 1997).

Overhunting for food has been a major cause of the South Andean deer's decline. Habitat loss from fire and erosion, competition with domestic animals and introduced red deer (*Cervus elaphus*), disease transmitted from livestock, persecution for its perceived competition with livestock and killing by domestic dogs are other important factors (Massicot, 2002).

Because of the remoteness and harshness of their environment, coastal populations have largely escaped human impacts, but have also received little conservation attention; some of them are likely to be affected by logging, and there is a demand for transplanting coastal deer to interior reserves. Both interior and coastal populations need to be conserved to maintain genetic diversity, but only coastal populations may have the potential for ensuring the species' long-term survival (Frid, 1994).

ARGENTINA:

Status:

In Argentina, the range of the South Andean Deer has shrunk considerably. At the beginning of the 20th century, it was found in the north as far as the south of Mendoza. Yepes (1943) mentions the 36° S as the northern limit of the distribution. Currently the northern limit in Argentina appears to be situated at the height of the Lago Espejo, in the Parque Nacional Nahuel Huapi (40° 30' S) and the southern most records come from central area of the Parque Nacional Los Glaciares (Laguna Tannhäuser, 49° 54' S), although a few records exist from further south.

Two main populations exist within Argentina (López *et al.*, 1998). One which ranges from the south of Neuquén until the north of Chubut, forming a virtual biological corridor protected by the Parque Nacional Lanín until the Area Natural Protegida Lago Baggilt. The second one is located in the Provincia de Santa Cruz and coincides, mainly, with the Parques Nacionales Perito Moreno and Los Glaciares. However, there exist subpopulations between these main blocks that connect the two populations (Anon., 2002).

The main population census until now has been conducted in the Parque Nacional Perito Moreno and estimated a minimum population size of 100 (Serret, 1991). It is listed in the Red Data Book of Threatened Mammals (SAREM, 2000).

CMS actions:

The Fundacion Vida Silvestre Argentina, funded by CMS, has built an observatory for the study and observation of the Huemul Deer. The objective of the observatory is to provide visitors with the opportunity to observe this species in its natural habitat (Argentina National Report, 2002).

Other actions:

In 2002 a National Action Plan for the conservation of the South Andean Deer was published, and priority actions for the species' conservation were highlighted: increase public awareness in the species' distribution area, control of poaching, prevent introduction of red deer and other exotic herbivorous, and implementation of protected areas. Population censuses have been conducted (Anon., 2002).

The species was declared as a "Natural Monument" by Law 24.702/96, the maximum legal protection figure in Argentina (Anon., 2002).

CHILE:

Status:

Huemuls have vanished from the northern part of their historic range, except for a single population in Central Chile, located in the Nevados de Chillán Mountains-Polcura Valley area, with an estimated population of about 45 huemuls (Acosta-Jamett, 2004).

The South Andean Deer occurs discontinuously throughout the south of Chile, with a population nucleus in the Andean zone in Region VIII, and a more continuous population from the tenth to the twelfth Regions. The population in Region VIII consists of about 60 individuals and, regrettably, continues to decline. In the southern Regions censuses have been conducted only in few sites, such as the National Reserve Tamango with about 60 specimens, the National Park Torres del Paine with about 50 individuals, sector Río Claro of the National Park Río Simpson with 10 specimens; A new area has been acquired, close to the Ñuble National Reserve, with wintering habitat for the species, in Region VIII (Chile National Report, 2002).

According to Oryx (1973), the Chilean population numbered only a few hundred individuals in 1973 and according to Povilitis (1983) this figure was around 1,000 in 1983. The density at Río Claro was calculated at 1 individual/1.3 sq. km (1 individual/0.5 sq. mi) (Povilitis, 1983). It is listed in

the Red Data Book of Terrestrial Vertebrates (CONAF, 1988).

The main causes for the decline of the species in Chile are poaching, habitat loss from forest clearing that occurred during the 1940s, logging and farming, disturbance and predation by domestic dogs, natural predation by *Puma concolor* and livestock-related diseases (Saucedo, 2004),

CMS actions: There are several finished and ongoing projects about the behaviour and ecology of the species. Since 1974 censuses have been conducted at various sites in Regions VIII and XI. A plot of land has been obtained, next to National Reserve Ñuble, with a winter habitat for the species in the mountain range in Region VIII (Chile National Report, 2002).

Other actions: The huemul is protected in 13 Chilean National Parks and reserves managed by the Chilean State Body Corporación Nacional Forestal (CONAF), primarily in Chilean Patagonia. The conservation of the huemul is considered a high priority by CONAF, although protection is considered inadequate due to the small size of the reserves and inadequate coverage of the protected network (Saucedo, 2004).

In August 2000, a 3-year project funded by the Darwin Initiative commenced, developed jointly by CONAF and Raleigh International. Other institutions such as UK Forest Research, the Macaulay Land Use Research Institute and the Pontificia Universidad Católica de Chile were also involved at various stages, and there was additional funding from the Wellcome Trust. The project covered four geographical areas in the Aysén region, namely Tamango National Reserve, La Baguala estate, Candonga Forest estate and Traiguanca, and extensive training of Chilean field researchers and park rangers in deer capture and radio-tracking techniques was undertaken (Acosta-Jamett, 2004; Saucedo, 2004). This project has developed methods of capture for huemul which will prove useful for future research projects and reintroduction programs, in areas where huemul has become scarce or locally extinct (Saucedo & Gill, 2004).

REFERENCES:

- Acosta-Jamett, G. (2004) Environmental Catastrophe induces a decline in the endangered northernmost huemul (*Hippocamelus bisulcus*) deer population in Central Chile. *Deer Specialist Group Newsletter* 19, pp 10-13.
<http://iibce.edu.uy/citogenetica/deer/en8.htm> Downloaded on 16/09/2004.
- Anon. (1997) Huemul conservation. *Oryx* 31(1), pp.28.
- Anon. (2002). Plan Nacional de Conservacion y recuperacion del huemul (*Hippocamelus bisulcus*) en Argentina.
<http://iibce.edu.uy/citogenetica/deer/Plan%20Nacional%20huemul.pdf> Downloaded on 14/09/2004.
- Argentina National Report (2002) National Report to CMS.
- Burton, J.A. and Pearson, B. (1987). *Rare Mammals of the World*. Stephen Greene Press, Lexington, MA, USA.
- Chile National Report (2002). National Report to CMS.
- CONAF (1988). *Libro Rojo de los Vertebrados Terrestres de Chile*, Corporación Nacional Forestal (CONAF), Santiago, Chile.
- Deer Specialist Group (1996). *Hippocamelus bisulcus*. In: IUCN (2004). 2004 IUCN Red List of Threatened Species. www.redlist.org Downloaded on 17/02/2004.
- Drouilly, P. (1983). Recopilación de antecedentes biológicos y ecológicos del Huemul chileno y consideraciones sobre su manejo. *Boletín Técnico CONAF*, 5. 57 pages.

- Frid, A. (1991). *International Wildlife*. Nov: 14.
- Frid, A. (2001) Habitat use by endangered huemul (*Hippocamelus bisulcus*): cattle, snow and the problem of multiple causes. *Biological Conservation*, 100 (2), pp. 261-267.
- Frid, A. (1994) Observations on habitat use and social organization of a Huemul (*Hippocamelus bisulcus*) coastal population in Chile. *Biological Conservation*, Volume 67 (1), pp. 13-19.
- IUCN (2004). 2004 IUCN Red List of Threatened Species. www.redlist.org Downloaded on 17/02/2004.
- López, R., Serret, A., Fáunder, R. and Palé, G. (1998). Documento: *estado del conocimiento actual de la distribución del huemul (Hippocamelus bisulcus, Cervidae) en Argentina y Chile*. FVSA, WWF and CODEFF. 32 pages.
- Massicot, P. (2002). Animal Info – South Andean Deer. <http://www.animalinfo.org/species/artiperi/hippbisu.htm> Downloaded on 08/03/2004.
- Oryx (1997). Huemul conservation. *Oryx*, 31:28.
- Povilitis, A. (1983). The huemul in Chile: national symbol in jeopardy? *Oryx*, 17:34.
- Povilitis, A. (1998) Characteristics and conservation of a fragmented population of huemul (*Hippocamelus bisulcus*) in central Chile. *Biological Conservation*, 86(1), pp 96-104.
- SAREM (2000). *Libro Rojo: Mamíferos amenazados de la Argentina*, 106 pp.
- Saucedo, C. (2004) The Endangered huemul or south Andean deer *Hippocamelus bisulcus*. *Oryx* 38(2), pp.132-133.
- Saucedo, C. & Gill, R (2004) Huemul (*Hippocamelus bisulcus*) ecology research : conservation planning in Chilean Patagonia. *Deer Specialist Group Newsletter* 19, pp 13-15. <http://iibce.edu.uy/citogenetica/deer/en8.htm> Downloaded on 16/09/2004.
- Serret, A. (1991). Proyecto Huemul - Fundación Vida Silvestre Argentina. Situación del Huemul, *Hippocamelus bisulcus*, en el Parque Nacional Perito Moreno, Provincia de Santa Cruz.
- Yepes, J. (1943). Importancia científica y económica de la fauna de Mendoza. *Physis*, XIII: 77-87.

* Range State not yet included in the CMS range list for this species.

Oryx dammah - synopsis

Country	Reported as nationally threatened	Apparent trend	CMS actions reported (in 2002 National Reports)	Other recent actions reported in the literature
Algeria	ex			✓
BURKINA FASO	Ex?		x	
CHAD	•		✓	
EGYPT	Ex?		x	
LIBYAN ARAB JAMAHIRIYA	ex			✓
MALI	Ex?		✓	
MAURITANIA	ex		x	
MOROCCO	ex		✓	✓
NIGER	•		x	
NIGERIA	ex		x	
SENEGAL	ex		✓	✓
Sudan	Ex?			
TUNISIA	•	↑	✓	✓

REVIEW OF CONCERTED ACTION SPECIES

MAMMALIA: BOVIDAE

- SPECIES:** *Oryx dammah* (Cretzschmar, 1826)
- SYNONYMS:** *Oryx tao*
- COMMON NAME:** Sahara Oryx; Scimitar-horned Oryx; White Oryx (English); Oryx algazelle; Oryx de Libye (French); Orix algacel; Orix de Cimitarra (Spanish)
- RANGE STATES:** Algeria (Ex); BURKINA FASO (Ex); CHAD; EGYPT (Ex?); LIBYAN ARAB JAMAHIRIYA (Ex); MALI; MAURITANIA (Ex); MOROCCO (Ex); NIGER; NIGERIA (Ex); SENEGAL (Ex); Sudan (Ex?); TUNISIA
- RED LIST RATING:** EW (Mallon and Kingswood, 2000)

CONSERVATION STATUS AND ACTIONS:

The scimitar-horned oryx formerly ranged over several million squared kilometres of semi-arid sahelian grassland and scrubland on the northern and southern fringes of the Sahara (East, 1999), from Mauritania in the west to the Red Sea in the east (Massicot, 2004).

This species' status was given as Critically Endangered in the 1996 IUCN Red List of Threatened Animals on the basis of unconfirmed reports that a few animals survived in the wild in Chad. No definite evidence of its survival in the wild was obtained by Scholte (1997) or during the compilation of information from its range states for the CMS Workshop on the Conservation and Restoration of Sahelo-Saharan Antelopes held at Djerba, Tunisia in February 1998 (Smith, 1998). Its status was therefore changed to Extinct in the Wild in the 2002 Red List, despite a recent unsubstantiated sighting of four animals in northern Niger (Mallon and Kingswood, 2000).

Overhunting and habitat loss have been reported as the main reasons for the extinction of the wild population of *Oryx dammah*. Competition with domestic livestock has also contributed to the species decline (IUCN, 2004).

Conservation measures were started as long ago as the 1960s with a global captive breeding programme. By 2000 there were at least 1,500 captive animals held in zoos and parks around the world (more than 150 locations) (Morrow *et al.*, 2000), with a further 2,145 on ranches in Texas (East, 1999). Reintroduction of the species has been proposed for all of the North African countries, and specific programmes have been started in both Morocco and Tunisia (Mallon and Kingswood, 2001). Once these reintroduced populations breed and the offspring themselves start breeding, the "Extinct in the Wild" status will change (IUCN, 2004).

CMS is funding activities for Sahelo-Saharan antelopes, including the establishment of a geographical database, information system and website, as well as plans for development of *in situ* conservation and reintroductions in Chad, Libya and Senegal.

Algeria (Ex):

Status: The scimitar-horned oryx formerly inhabited sub-desert and steppe regions both north and south of the Sahara but has long been considered extinct in northern Algeria; Its historical distribution covered all around Hoggar and Tassilli massifs (Fellous and Maaziz, 2003). The last oryx in Algeria was

shot in the extreme south of the country in 1987. Hoggar National Park would protect any animals wandering in from the south but since the species is now extinct from neighbouring Mali and Niger, recolonisation from the south is not a possibility (De Smet and Smith, 2001).

CMS actions: Not a Party to CMS.

Other actions: The species is fully protected by law (De Smet and Smith, 2001). The Ben Aknoun Zoological Park hosts at this time 10 oryx, and there are plans to reintroduce the species in the Hoggar and Tassilli National Parks (Fellous and Maaziz, 2003).

**BURKINA
FASO (Ex?):**

Status: The scimitar-horned oryx formerly inhabited the sahel zone to the north, but was hunted almost to extinction by the 1950s. The last reliable sighting was reported close to the Mali border in 1986. There is no further evidence that the species survives in the country (East, 1999; Burkina Faso National Report, 2002).

CMS actions: None reported.

Other actions:

CHAD:

Status: The scimitar-horned oryx was formerly abundant in the sub-desert and northern Sahel zones in central Chad. By the 1970s the species was almost extinct as a result of uncontrolled hunting, drought, desertification and competition with livestock. A population of several thousand animals did survive in Ouadi Rime-Ouadi Achim Faunal Reserve until 1978, but the area lost protection because of military activity and the oryx population plummeted (East, 1999).

The last animals were seen in northeastern Kanem in the late 1980s. Surveys conducted in north-central Chad between 1990 and 1996 failed to spot oryx (East, 1999).

CMS actions: A reintroduction of species into the area is planned according to the Chad National Report (2002). CMS is funding surveys and other activities in Chad. A recent joint mission of the WWF and the Office of Parks found a few old horns (Chad National Report, 2002).

Other actions:

EGYPT (Ex?):

Status: The scimitar-horned oryx formerly inhabited most of the Western Desert, but the last live animal was seen in 1975 near the Siwa road 130km south of Matruh. Despite extensive searches and interviews with local bedouin people in the early 1990s no evidence was found of the species, which is now considered extinct in Egypt (Saleh, 2001).

CMS actions: None reported.

Other actions: No conservation measures are being taken in Egypt (Saleh, 2001).

**LIBYAN ARAB
JAMAHIRIYA (Ex):**

Status: The scimitar-horned oryx was once widespread in certain southeastern and southwestern parts of Libya, but there are no recent records from these areas. The last tentative report dates from the Cyrenaica-Tripolitania border in northern Libya in 1964. A few animals could have crossed over the southern border with Chad from time to time,

but since the scimitar-horned oryx is now considered extinct in the wild this is no longer possible (Khattabi and Mallon, 2001).

CMS actions: None reported.

Other actions: The scimitar-horned oryx is listed as a protected species in Libyan hunting laws, and a captive herd is maintained at the Tripoli Reserve (Khattabi and Mallon, 2001).

MALI:

Status: The scimitar-horned oryx formerly inhabited the sahel zone in central Mali, and extended northwards into parts of the desert zone. Hunters and the spread of livestock have eliminated the species. The most recent reliable record – of a pair of animals on the Burkina Faso border – dates back to 1986 (East, 1999).

CMS actions: There are plans to reintroduce the oryx in Mali (Niagate and Semega, 2003).

Other actions:

MAURITANIA (Ex):

Status: The scimitar-horned oryx formerly occurred widely in the west and south of Mauritania but was wiped out by uncontrolled hunting, probably by the 1960s (East, 1999).

CMS actions: None reported.

Other actions:

MOROCCO (Ex):

Status: The scimitar-horned oryx formerly inhabited the main-sub-desert regions of North Africa and Western Sahara where people used the hide to make tough shields. All historic locations occur south of the Oued Draa, in the regions of Zemmour, Wad ed Dahab, and Tiris (Loggers *et al.*, 1992). Records from the 1900s are scarce and all are from south of the Sequiat el Hamra. These animals were probably transients visiting the area in response to unusual vegetation growth. The last report was from 1973 and today the animal is considered extinct (Aulagnier *et al.*, 2001).

CMS actions: A programme has been developed (in collaboration with Germany) for the reintroduction of this species. In 1995, five oryx were brought to enclosures in Souss-Massa National Park. A further 15 to 20 animals were expected to arrive in 1996 (Aulagnier *et al.*, 2001; Morocco National Report, 2002). In 1998, the population had increased to 35 animals, and to 90 in 2003 (Daali and El Mastour, 2003).

Other actions: There are plans to reintroduce the species to sites such as the lower Drâa Valley, the Aydar and the Adrar Souttoug areas (Mallon and Kingswood, 2001).

NIGER:

Status: Formerly widespread in the sub-desert and Sahelian zones of central and southern Niger, the scimitar-horned oryx had been reduced to precariously low levels by the 1980s (East, 1999).

A few animals, probably vagrants, were recorded in the area of Air and Tenere National Nature Reserve up until 1982, but this area is too arid for permanent occupation. The last reported sighting of scimitar-horned oryx in Niger was in 1986, and 4 animals were seen by Newby (1983) in the Tafidet zone (southeastward from Air bordering with Ténéré) (Malam Issa and Barmou Moussa, 2003). The species was presumed extinct by the end

of the 1980s (East, 1999), although there has been a more recent unsubstantiated sighting of four animals in the north of the country, and one female horns were found in the central area of the Termit massif (Mallon and Kingswood, 2000; Malam Issa and Barmou Moussa, 2003).

Key Threats were illegal poaching, competition with livestock for food and exclusion from prime habitat by the increasing extension of deep permanent-water bore holes for livestock (East, 1999).

CMS actions: None reported.

Other actions: Plans in the late 1980s and early 1990s by the IUCN and the Zoological Society of London to reintroduce the species to Niger were thwarted by civil unrest in the country (East, 1999).

NIGERIA (Ex):

Status: The scimitar-horned oryx formerly occurred in the extreme northeast, but possibly only as a seasonal vagrant. The species is now considered extinct in Nigeria (East, 1999).

CMS actions: None reported.

Other actions:

SENEGAL (Ex):

Status: The scimitar-horned oryx formerly inhabited the sahel zone of northern Senegal, but was hunted to extinction before 1914 (East, 1999).

CMS actions: A small group of oryx was reintroduced to the Gueumbeul sanctuary in February 1999, and a further two females in February 2002. The current population consists of 23 animals (Senegal National Report, 2002).

Other actions: There are proposals to upgrade 6,000km² of the Northern and Southern Ferlo Faunal Reserves in the northeast to National Park status. In January 2003, two males and five females were transferred from Gueumbeul sanctuary to Northern Ferlo Faunal Reserve (Demba, 2003).

Sudan (Ex?):

Status: The scimitar-horned oryx formerly occurred widely in the subdeserts and deserts of northwest Sudan, but was apparently hunted to extinction (East, 1999). The proposed Wadi Hawar Reserve mission report (1998) stated that the scimitar-horned oryx was not observed for decades (Elsarag Fadlalla, 2003)

CMS actions: Not a Party to CMS.

Other actions:

TUNISIA:

Status: The scimitar-horned oryx formerly inhabited the semi-desert and desert regions of southern Tunisia as far north as the steppe of the High Plateau. Its dried meat (*tichtar*) was even once a common item for sale at markets on the Tunisian-Algerian-Libyan border. The species went extinct however in 1910 due to over-hunting (Smith *et al.*, 2001). According to the Tunisia National Report (2002) there are now 136 animals at the Bou-Hedma National Park, approximately 32 individuals at Sidi-Toui National park and a further four in Oued Dekouk Nature Reserve, all of them arisen from re-introduction programmes (Zahzah, 2003).

CMS actions: The Tunisia National Report (2002) also documents that a study of the ecology of the species, its conservation and the restoration of its habitat are planned.

Other actions: The species is fully protected by law in Tunisia (Smith *et al.*, 2001). In 1985 a reintroduction programme was commenced when 10 sub-adults were brought from British zoos to an acclimatization pen in Bou-Hedma National Park. 18 months (1988) later the animals were transferred to a larger fenced area. The animals soon started to exhibit wild behaviours and became independent of the pens and rationed foods.

The captive herd has steadily increased in size. In 1991 there were 21 animals, 70 in 1996 and 81 in 1997 (Smith *et al.*, 2001). The actual population is estimated in 136 animals (Zahzah, 2003). There are problems however since the original plans to enlarge the Bou-Hedma National Park look unlikely to materialize. As numbers continue to grow, they may eventually have to be controlled. Because of this it was decided that oryx should start being transferred to other reserves such as Sidi Toui and Djebil National Parks (Smith *et al.*, 2001). In 1999, 11 oryx from different European zoos were introduced in Sidi Toui National Park, and in the Oued Dekouk Natural Reserve; Current estimations of oryx populations in these two sites are 32 animals in Sidi Toui and four in Oued Dekouk (Zahzah, 2003).

There are plans to reintroduce the species in Dghoumés National Park and create a distant population's genetic pools (Zahzah, 2003).

**Additional
information -
Western Sahara:**

Status: The scimitar-horned oryx was reported from Western Sahara by Gillet (1965) and Valverde (1957).

Actions: None reported.

REFERENCES:

- Aulagnier, S., Cuzin, F. and Thévenot M. (2001). Morocco. pp13-21. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Burkina Faso National Report (2002) National Report to CMS.
- Chad National Report (2002). National Report to CMS.
- Daali, A. and El Mastour, A. (2003). Morocco National Report, pp121-141 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- De Smet, K. and Smith, T.R. (2001). Algeria. pp22-29. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Demba, M.A. (2003). Senegal National Report, pp. 162-169 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.

- East, R. (comp.) (1999). *African Antelope Database 1998. Compiled by Rod East and the IUCN/SSC Antelope Specialist Group*. Occasional paper of the IUCN Species Survival Commission No. 21. IUCN- The World Conservation Union 1999.
- Elsarag Fadlalla, M. (2003). Sudan National Report, pp. 169-177 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Fellous, A. and Maaziz, S. (2003). Algeria National Report, pp. 53-75 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Gillet, H. (1965). L'oryx algazelle et l'addax du Tchad. *La Terre et la Vie*, 112(3): 257-272.
- Hassane Idriss, M. and Moksia, D. (2003). Chad National Report, pp. 177-183 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- IUCN (2004). 2004 IUCN Red List of Threatened Species. www.redlist.org Downloaded on 19/09/2004.
- Khattabi, K. and Mallon, D.P. (2001). Libya. pp41-47. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Loggers, C.O., Thevenot, M., Aulagnier, S. (1992) Status and distribution of Moroccan wild ungulates. *Biological Conservation* 59(1), pp.9-18.
- Malam Issa, A. and Barmou Moussa, S. (2003). Niger National Report, pp. 149-163 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Mallon, D. & Kingswood, S. (2000). *Oryx dammah*. In: IUCN (2004). 2004 IUCN Red List of Threatened Species. www.redlist.org Downloaded on 17/02/2004.
- Mallon, D.P. and Kingswood, S.C. (2001). Appendix 2. Status of Antelopes in North Africa, the Middle East, and Asia. pp248-257. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Massicot (2004) Animal Info- Scimitar horned Oryx
<http://www.animalinfo.org/species/artiperi/oryxdamm.htm> Downloaded on 16/09/2004.
- Morocco National Report (2002). National Report to CMS.
- Morrow, C.J., Wolfe, B.A., Roth, T.L., Wildt, D.E., Bush, M., Blumer, E.S., Atkinson, M.W. and Monfort, S.L. (2000) Comparing ovulation synchronization protocols for artificial insemination in the Scimitard-horned Oryx (*Oryx dammah*). *Animal Reproduction Science* 59, pp.71-86.
- Niagate, B. and Semega, A. (2003). Mali National Report, pp. 97-121 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.
- Saleh, M.A. (2001). Egypt. Pp 48-54. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Scholte, P. (1997). *Notes on the status of antelopes in central and southern Chad*. Report to IUCN/SSC Antelope Specialist Group.

- Senegal National Report (2002). National Report to CMS.
- Smith, T. (1998). *Sahelo-Saharan antelopes. Draft status report*. Workshop on the conservation and restoration of Sahelo-Saharan antelopes. Djerba, Tunisia, February 1998. Brussels, Institut Royal des Sciences Naturelles de Belgique.
- Smith, T.R., Mallon, D.P. and De Smet, K. (2001). Tunisia. pp30-40. In: Mallon, D.P. and Kingswood, S.C. (comps.). *Antelopes. Part 4: North Africa, the Middle East, and Asia. Global Survey and Regional Action Plans*. SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Tunisia National Report (2002). National Report to CMS.
- Valverde, J. A. (1957). *Aves del Sahara Español*. Instituto de Estudios Africanos, Consejo Superior de Investigaciones Cientificas, Madrid
- Zahzah, K. (2003). Tunisia National Report, pp. 183-193 in Ankouz, M., Müller-Helmbrecht, A., Beudels-Jamar, R.C. and De Smet, K. *Proceedings of the second regional seminar on the conservation and restoration of Sahelo-Saharan Antelopes*. Agadir, Morocco, May 2003. UNEP/CMS Secretariat, Bonn, Germany. 333pages.

- Range State not yet included in the CMS range list for this species.

Uncia uncia - synopsis

Country	Reported as nationally threatened	Apparent trend	CMS actions reported (in 2002 National Reports)	Other recent actions reported in the literature
Afghanistan		↓		
Bhutan	●	→		
China	●	→		✓
INDIA	●	→	x	✓
Kazakhstan	●	↓		
Kyrgyzstan	●	↓		✓
MONGOLIA	●	→	x	✓
Myanmar		?		
Nepal	●	→		
PAKISTAN	●	?	x	✓
Russian Federation	●	↓		✓
TAJIKISTAN	●	↓	x	
UZBEKISTAN	●	↓	x	

REVIEW OF CONCERTED ACTION SPECIES

MAMMALIA: FELIDAE

SPECIES: *Uncia uncia* (Schreber, 1775)

SYNONYMS: *Panthera uncia*

COMMON NAME: Ounce; Snow Leopard (English); Irbis; Léopard des neiges; Once; Panthère des neiges (French); Leopardo de las nieves; Leopardo nival; Pantera de la nieves (Spanish)

RANGE STATES: Afghanistan; Bhutan; China; INDIA; Kazakhstan; Kyrgyzstan; MONGOLIA; Nepal; PAKISTAN; Russian Federation; TAJIKISTAN; UZBEKISTAN

RED LIST RATING: EN C2a(i) (Cat Specialist Group, 2002)

CONSERVATION STATUS AND ACTIONS:

The snow leopard is found only in the high mountain regions of Central Asia. Its range extends from the eastern edge of the Tibetan Plateau westward along the Himalaya of Sikkim, Bhutan, Nepal and India to the Karakoram and Hindu Kush ranges of Pakistan and Afghanistan. From there its range extends northeastward over the Pamir and Tien Shan ranges in the former Soviet Union and China and through the Altai and Khangai ranges of Mongolia to the Sayan Mountains near Lake Baikal (Sunquist & Sunquist, 2002).

The snow leopard has an extremely patchy and fragmented distribution, consisting of a mix of long narrow mountain systems and islands of montane habitat scattered throughout a vast region surrounding the Central Asian deserts and plateaus (Nowell and Jackson, 1996). Through most of their range, snow leopards are associated with arid and semi-arid shrub land, grassland or steppe (Fox, 1989; Jackson 1992). In the mountains of Russia and parts of the Tian Shan they occur in open coniferous forest, but generally avoid dense forest (Heptner and Sludskij, 1972).

Although the snow leopard's range extends over some 2.3 million km² of Central Asia, occupied habitat is estimated at only 1.6 million km², most of which is in Tibet and other parts of China (Fox, 1994). The species is generally found at elevations between 3,000-4,500m, although they occasionally go above 5,500m in the Himalayas, and at the northern limits of their range can be found between 600-1,500m (Heptner and Sludskii, 1972; Fox, 1989, Schaller *et al.*, 1994). Core areas of its habitat follow long, narrow mountain ranges, and thus populations are separated into small pockets and islands, embedded in a vast desert plateau (Sunquist & Sunquist, 2002).

Based on estimates of density and geographic range (Nowell and Jackson 1996), the snow leopard's total effective population size is estimated at below 2,500 mature breeding individuals with no subpopulation containing more than 250 mature breeding individuals (Cat Specialist Group, 2002). Theile (2003), however, puts the global population of snow leopards between about 4,000 and 7,000, and Sunquist & Sunquist (2002) estimate it between 4,500 and 7,500 animals. Snow leopards now breed very successfully in captivity, and since 1980s the captive population has undergone a population explosion. It has been estimated that a well-managed captive population of about 230 animals will maintain nearly 90 percent of its original genetic variation for 200 years. More than 500 snow leopards are held in captivity worldwide, and the captive population is spread among many zoos, providing a safeguard against disease or natural disasters (Sunquist & Sunquist, 2002).

It has been accorded nation-wide legal protection, usually with hunting bans, in almost every range state (with the probable exception of Afghanistan), in some cases since the 1970s (Nowell and Jackson, 1996; Theile, 2003). However, in some countries the relevant legislation may not always be very effective, e.g., because penalties are too low to function as deterrent, or they contain some significant loopholes (McCarthy & Chapron, 2003).

Today, the species is menaced primarily by intentional killing and loss of wild prey (Theile, 2003). Snow Leopards have been hunted during the 1990s in numbers as high as at any time in the past and this killing continues in the present century. Generally speaking, conflict with herders is seen as the main threat to Snow Leopards in the Himalayan region of their range and in the Karakorum and Hindu Kush mountains, while killing for trade is the prominent threat in the central Asian region and northern part of the species' range - in the Chinese Altai and Tien Shan mountains, Mongolia and the Russian Federation. There are indications that both types of threat have increased in recent years. Loss of natural prey is the second major threat to the species and is a factor throughout its range. Habitat fragmentation and accidental trapping or poisoning are regarded as secondary threats to the snow leopard (Theile, 2003).

In February 2001, the International Snow Leopard Trust initiated development of the Snow Leopard Survival Strategy, with the aim of providing comprehensive conservation and research guidelines to ensure a co-ordinated effort to conserve snow leopards throughout their range. The Strategy was designed after thorough analysis of the threats facing the species in each range state and attempts to identify conservation, education and policy measures needed to address these threats, to determine the most urgent information needs and provide advice on appropriate methodologies (Theile, 2003).

A network of conservation areas is being established in the mountains of central Asia. Bhutan and Sikkim have designated more than 20 percent of their geographic area as protected lands, and more than 9 percent of India, Nepal and Pakistan is covered by conservation areas (Sunquist & Sunquist, 2002).

Afghanistan:

Status:

Snow Leopards inhabit areas of the Hindu Kush range (in north-east Afghanistan). They are to be found in northwestern and central parts of the mountain range, as well as easternmost parts, which extend into Wakhan, Badakhshan Province. It is not known how many Snow Leopards are in Afghanistan, but based on an estimate of the available habitat, it has been calculated that there are around 100-200 individuals. Snow leopard tracks were recently observed during UNEP field missions in the Wakhan Corridor, an arm of land stretching eastwards between the borders of Tajikistan, Pakistan and China, forming the south-easternmost part of the greater Pamir mountain range. Key current threats include retaliation by herders for livestock predation and active hunting for pelts (Theile, 2003). In the past, snow leopards have been widely hunted because of the fur trade and stock theft (McCarthy & Chapron, 2003).

CMS actions: Not a Party to CMS.

Other actions:

Bhutan:

Status:

Although no population surveys for Snow Leopards have been undertaken in Bhutan, anecdotal reports indicate that the species occurs at elevations of 4,000-5,000m in the northern parts of the country bordering the Tibet Autonomous Region of China. The Jigme Dorje National Park and the Kulong Cchu Wildlife Sanctuary are the most important protected areas for Snow Leopards in Bhutan. According to map-based estimates, about 100 individuals may inhabit Bhutan (McCarthy & Chapron, 2003). Key current

threats include retaliation by herders for livestock predation and grazing competition with livestock. Surveys are needed to confirm snow leopard presence in Torsa Strict Nature Reserve, Kulong Chhu Wildlife Sanctuary and Sakteng Wildlife Sanctuary (McCarthy & Chapron, 2003). Bhutan seems to be the only range state where snow leopards and their parts are not traded (Theile, 2003).

CMS actions: Not a Party to CMS.

Other actions: The hunting of snow leopards is prohibited in Bhutan through the *Forest and Nature Conservation Act, 1995* (Theile, 2003).

China:

Status: Snow leopards occur in six provinces or autonomous regions (Qinghai, Gansu, Sichuan, Yunnan, Xinjiang and Xizang or Tibet), but are in the verge of extinction in a seventh (in Inner Mongolia). Although snow leopards are more numerous in China than in other range States, field surveys conducted between 1996 and 2000 revealed that the historical distribution range of snow leopards had decreased, in particular in the provinces of Qinghai, Gansu and Sichuan. The total population has been estimated in 2,000-2,500 individuals (assuming a mean density of 1 animal per 250-300 km²) (McCarthy & Chapron, 2003). Key current threats include hunting for pelts and bones, poaching of prey species, habitat destruction and occasional retaliatory killings (Theile, 2003). It is catalogued as Endangered in the China Red Data Book of Endangered Animals (Wang, 1998).

Not a Party to CMS.

CMS actions:

Other actions: The Wildlife Animal Protection Law (WAPL) of the People's Republic of China (1989) and the Enforcement Regulations for the Protection of Terrestrial Wildlife (1992) are the two principal laws providing full protection to snow leopard in China (McCarthy & Chapron, 2003). Hunting of Snow Leopards constitutes a criminal offence and sale and purchase of Snow Leopards or their products is strictly prohibited (although scientific research, domestication, breeding, or exhibition is allowed with a permit). Field surveys have been conducted (Theile, 2003).

INDIA:

Status: The snow leopard is known to occur above about 3,200m across the Himalayan regions of India. Its range extends from Jammu and Kashmir, to Himachal Pradesh and Uttaranchal in the central Himalayas, to the eastern states of Sikkim and Arunachal Pradesh. There are at least 18 and possibly as many as 34 existing and proposed protected areas that could harbor snow leopard (McCarthy & Chapron, 2003). The total population is estimated at 200-600 animals, with the largest number inhabiting central Ladakh, in Jammu and Kashmir. Key current threats to snow leopards in India include retaliatory killings and hunting for, and trading in pelts (Theile, 2003). Most local people, as a result of its occasional predation on livestock, regard the snow leopard with hostility, though it is less of a threat in this regard than the wolf (Mallon, 1991). The species is included in the Indian Red Data Book as Endangered (Ghosh, 1994).

CMS actions: None reported.

Other actions: The snow leopard is protected (National Wildlife Protection Act of 1972 as well as under the Jammu and Kashmir Wildlife Protection Act of 1978) and hunting is generally forbidden. (Theile, 2003). The Snow Leopard

Conservancy and The Mountain Institute initiated a programme in 1999 to provide livestock with better protection from predators. In collaboration with the inhabitants of Markha, the village with the highest predation rate in the Hemis National Park, predator-proof corrals were built in 2000. Since the completion of the corrals, no livestock have been lost to predators (Theile, 2003).

In 2001, the Snow Leopard Conservancy, in partnership with The Mountain Institute and UNESCO, initiated the Traditional Village Homestay programme as a pilot project in Hemis National Park, Ladakh to empower local communities to benefit directly from an eco-system that includes snow leopards, through income-generation schemes. Workshops were held in 2002 and 2003 (Theile, 2003).

An incentive program was developed for Kibber, one of the largest villages in Spiti Valley, with a livestock insurance program (Mishra *et al.*, 2003).

Kazakhstan:

Status:

Snow leopards occur on the edge of the high mountain ranges to the north and east of the country, in the Tien Shan mountains in the southeast, and possibly in a few isolated populations between these places and along the border with China. In the south, the species occur along the Khigizskiy Range and Tasskiy Alatau bordering Kyrgystan, in the Sarytau Mountains near Alma Ata, and bordering China in the Dzungarsky Alatau (McCarthy & Chapron, 2003). The most recent population estimate of 180-200 animals dates from 1990. However, the population is thought to be in decline, according to the country's Red Data Book. Key current threats to the snow leopard include poaching and a decline in prey species (Theile, 2003).

CMS actions: Not a Party to CMS.

Other actions: The snow leopard is legally protected under the Law on Wildlife Protection of January 1993 and hunting, possession and sale of the species are prohibited (Theile, 2003).

Kyrgyzstan:

Status:

Snow leopards occur in the Talasskiy Alatau and Ferganskiy mountains, as well as the Tien Shan bordering China and Kazakstan (McCarthy & Chapron, 2003). Kyrgyzstan used to have one of the largest snow leopard populations. In the late 1980s, what is now Kyrgyzstan and neighbouring Tajikistan were estimated to have 1,200-1,400 individuals. At the time, this represented around 75% of all snow leopards in the Soviet Union, but dramatic declines in numbers in the region have been reported since then (Theile, 2003).

Koshkarev (1994) estimated that populations in Kyrgyzstan and Tajikistan were reduced by 50-80% in the 1990s and that up to 120 animals were killed each year in the mid-1990s. In Kyrgyzstan, as few as 150-500 mature individuals may remain (McCarthy & Chapron, 2003), but no recent population figures are available and, since the independence of Kyrgyzstan, no systematic population surveys have been undertaken. The key current threat remains poaching (Theile, 2003).

CMS actions: Not a Party to CMS.

Other actions: Hunting, possession and trade of snow leopards is legally prohibited and the species is listed in the Red Data Book. In 1998, the German Society for Nature Conservation (NABU) developed a national conservation strategy, with the primary aim of stopping snow leopard poaching, in co-operation

with the Kyrgyz Government and local experts. In 1999, the group established a specialized anti-poaching unit (Theile, 2003).

The Government recently established the Sarychat-Ertush Nature Reserve in the Central Tien Shan, which offers good habitat for snow leopard, argali and ibex (McCarthy & Chapron, 2003).

MONGOLIA:

Status:

The snow leopard is distributed in mountainous areas in the west of Mongolia. These include the Altai Mountains and some isolated mountainous sections in the southwest of Mongolia, close to the border with China. Additionally, remnant populations occur in the Hangayn Nuruu, mountains trending northwest to southeast, occupying much of central-west Mongolia, and possibly in the mountains of Hovsgol Province, in northern Mongolia, although no individuals have been sighted there since the 1960s (Theile, 2003). At least 10 protected areas harbour snow leopards, totalling about 18% of the snow leopard's range within Mongolia (McCarthy & Chapron, 2003).

The total range of the species in Mongolia is around 80,000 to 100,000km², but the snow leopard populations in Mongolia have an extremely patchy and fragmented distribution, which may reduce genetic interchange and thus diminish their long-term viability (Theile, 2003).

Estimates of the number of snow leopards in Mongolia from the 1970s and 80s ranged between 500-900 and 2,000-4,000. It has been reported that population estimates vary between 800 and 1,700 animals, with a density of around 1-1.5 Snow Leopards per 100km². The highest densities are said to occur in the South Gobi, Central Transaltai, and Northern Altai (McCarthy & Chapron, 2003). Key current threats include retaliatory (and preventative) killings by herders, and hunting for, and the trade in, leopard products. It is listed in the Mongolian Red Data Book as 'very rare' since 1972 (Theile, 2003).

CMS actions: None reported.

Other actions: Hunting snow leopards has been prohibited since 1972, when the species was listed in the Mongolian Red Data Book as 'very rare'; however, sport hunting of the species was legal until 1992 (McCarthy & Chapron, 2003). In 1999, the *Mongolian Snow Leopard Conservation Management Plan* was developed by WWF Mongolia, the International Snow Leopard Trust and other stakeholders, in co-operation with the relevant governmental agencies. However, the Plan is not yet fully recognized as an official policy document by the Mongolian Government (Theile, 2003).

Recent conservation actions in this country include "Snow Leopard Enterprises", a scheme set up by the Mongolian branch of the International Snow Leopard Trust with the aim of addressing conflicts between herders and snow leopards. This community-based conservation programme offers herders an opportunity to increase their household income through handicraft sales, in return for a commitment to protect the snow leopard and its natural prey. WWF Mongolia has established an anti-poaching team operating in Uvs Province, western Mongolia (Theile, 2003).

Myanmar*:

Status:

A small area of potential habitat occurs in Myanmar along the Yunnan border. Snow leopards have been reported from this country (Rabinowitz and Saw Tun Khaing, 1998). This concurs with a geographical model of potential snow leopard habitat constructed by country that includes Myanmar (Hunter and Jackson, 1997). A focused survey along the 4,700-km² area of high mountains is required to verify presence/absence of snow leopard (McCarthy

& Chapron, 2003).

CMS actions: Not a Party to CMS.

Other actions:

Nepal:

Status:

Snow leopards are found in the Nepalese Himalayas, along the border with the Tibet Autonomous Region of China. Their distribution seems to be localized in the western half of this area: the species is reported to occur in Manang District, in western Nepal, and in Mugu and Dolpa Districts, in the far west. There are also unverified reports of Snow Leopards elsewhere in Nepal, including in Mustang District, some 70km north of Annapurna. Snow Leopards occur in eight protected areas in Nepal, but the number in each is unknown (Theile, 2003).

The largest population is thought to exist in Nepal's largest National Park, the Shey-Phoksundo National Park (covering parts of Mugu and Dolpa Districts) and in the Annapurna Conservation Area. Nepal's total snow leopard population was estimated in 1990 to number 300-500 animals, but no recent national surveys have been undertaken. Key current threats include retaliatory (and preventative) killings by herders and hunting for, and the trade in, leopard products (Theile, 2003).

A successful resolution of the livestock predation issue is important for the future of both local pastoralists and snow leopards. However, financial compensation would involve a continuing high burden on the limited financial resources of the Annapurna Conservation Area Project. Any alteration of grazing areas or husbandry techniques such as closer guarding or the construction of enclosures for night-time corralling were considered by the herdsmen to be unacceptable (Oli *et al.*, 1994).

CMS actions: Not a Party to CMS.

Other actions: The snow leopard has been fully protected under the National Parks and Wildlife Conservation (NPWC) Act 2029 since 1973 (McCarthy & Chapron, 2003).

PAKISTAN:

Status:

Snow Leopard habitat in Pakistan is spread over an area of 81,000km², and occurs in the Hindu Kush range in the Northwest Frontier Province's Chitral District, and in the Karakorum Range of the Northern Areas in the Gilgit, Hunza and Baltistan districts. Less than seven per cent of this area is protected for wildlife (McCarthy & Chapron, 2003).

Recent information on the numbers of snow leopards in Pakistan is lacking. Based on surveys undertaken in the early 1970s, the total population of snow leopards in Pakistan was estimated to be around 150 to 200 animals. It was reported in 1997 that the number could be around 400 animals. Recent surveys undertaken in the Balistan District of the Northern Areas resulted in an estimate of 90-120 animals in that District and 300-420 animals throughout Pakistan. Key current threats include retaliatory killings by herders and hunting for pelts and other leopard products (Theile, 2003).

CMS actions: None reported.

Other actions: There is no law applied for the protection of Snow Leopards nationally in Pakistan. However, provinces have their own wildlife laws and the snow leopard is legally protected in the three States of Pakistan where it occurs (Theile, 2003).

In 2001, government agencies, conservation NGOs and other

stakeholders met to develop a strategic plan for the conservation of snow leopards that would serve as a guiding tool for agencies and organizations participating in the conservation of snow leopards. It was expected to gain full acceptance as an official policy of the Government of Pakistan in 2002 (Theile, 2003).

In addition, Project Snow Leopard is a community-based approach initiated in 1999 that aims to resolve the conflict between local farmers and Snow Leopards in northern Pakistan; to break through local hostility to parks and conservation areas, WWF-Pakistan initiated two projects designed to give local people a role in the decision-making process, in the Khunjerab National Park and in the Bar Valley near Gilgit (Sunquist & Sunquist, 2003).

Russian Federation:

Status:

Potential habitat totals 131,000 km², with snow leopard being reported from the Altay and Sayan ranges bordering the People's Republic of Mongolia (McCarthy & Chapron, 2003). The historic range of the species was considerably larger than now and ranged from the Altay mountain range, in the central south of the country, to the Lena River, in eastern Siberia. However, since the early twentieth century, the species has been absent from several areas of this range, especially in the southwestern parts and most probably in the Baykal and Transbaykal regions (Theile, 2003).

The snow leopard's range now spans mountain groups in the central south of the Russian Federation, from the Altay mountains, east through the Sayan mountains and the Republic of Tyva, to the Tunkinskiye and Kitoiskiye mountains, just west of the southern tip of Lake Baykal. This area now forms the northernmost limit of the snow leopard's global range (Theile, 2003).

Certain areas of this range are heavily impacted by deforestation and human encroachment, which have led to increased fragmentation of populations, and possibly to isolation of western populations from those in the east. Between 150 and 200 Snow Leopards are estimated to live in the Russian Federation, according to comprehensive surveys undertaken in 2000 and 2001. Key current threats include poaching for trade, loss of prey species, retaliatory killings and accidental trapping and poisoning (Theile, 2003).

CMS actions: Not a Party to CMS.

Other actions: The snow leopard is legally protected and is included in the Red List of the Russian Federation. From the mid-1990s, WWF Russia facilitated the development of a Snow Leopard conservation and management plan, in cooperation with several governmental and non-governmental agencies and, in 2002, the *Strategy for the Conservation of the Snow Leopard in the Russian Federation* was officially approved by the Head of the State Service for Environment Protection (Theile, 2003).

WWF Russia set up a scheme in 2000 in the Tyva Republic of the Russian Federation which works by combining an insurance system with eco-tourism: farmers pay insurance premiums into a fund managed by the community (Theile, 2003).

TAJIKISTAN:

Status:

The species is said to occur in the central and western parts in the Zeravshanskiy, Gissarskiy, Karateginskiy, and Petr Pervyi mountains, and in the Hazratishog and Darvaskiy Mountains, and in the Gorno-Badahshansk area, including the Pamirs (McCarthy & Chapron, 2003).

Little is known about the current status and distribution of snow leopard in this Republic, but populations are thought to be in decline. In 1990, the total population of Snow Leopards in Tajikistan was put at around 200-300 animals, but this figure has been considered an over-estimate and others put the total population at 80-100 or 120-300 animals. A more recent population estimate for Tajikistan suggests that the total population is around 180-220 animals. Key current threats include a decline in prey and habitat degradation (both effects of civil war) and poaching. Snow Leopards in Tajikistan are listed in the Red Data Book as 'rare' (Theile, 2003).

CMS actions: None reported.

Other actions:

UZBEKISTAN:

Status:

It occurs in Western Tien-Shan and Western Pamir-Alay. It inhabits middle and high belts of the mountains. The species never was numerous, but last decades numbers have been decreasing, and the present population might be 20-30 individuals. Limiting factors are: development of high mountain pastures, decrease in prey numbers, human persecution and poaching. Catalogued as Critically Endangered in the Uzbekistan Red Data Book (Academy of Sciences of the Republic of Uzbekistan *et al.*, 2003).

CMS actions: None reported.

Other actions: The Snow Leopard is protected in Uzbekistan under the *Law on Nature Protection* of January 1993 and hunting, possession and sale is prohibited. (Theile, 2003).

REFERENCES:

- Academy of Sciences of the Republic of Uzbekistan, State Committee For Nature Protection of the Republic of Uzbekistan and Uzbek Zoological Society (2003) *The Red Book of the Republic of Uzbekistan. Volume II: Animals*. Chinor ENK, Uzbekistan.
- Cat Specialist Group (2002). *Uncia uncia*. In: IUCN (2004). 2004 IUCN Red List of Threatened Species. www.redlist.org. Downloaded on 16/09/2004.
- Fox, J.L. (1989). A review of the status and ecology of the snow leopard (*Panthera uncia*). International Snow Leopard Trust, Seattle
- Fox, J.L. (1994). Snow leopard conservation in the wild - a comprehensive perspective on a low density and highly fragmented population. In: J.L. Fox and Du Jizeng (eds). *Proceedings of the Seventh International Snow Leopard Symposium*. International Snow Leopard Trust, Seattle.
- Ghosh, A.K. (1994) *The Red Data Book on Indian Animals. Part I: Vertebrata*. Zoological Survey of India, Calcutta.
- Heptner, V.G. and Sludskii, A.A. (1972). *Mammals of the Soviet Union. Vol III: Carnivores (Feloidea)*. Vyssha Shkola, Moscow (in Russian). English translation edited by R.S. Hoffmann, Smithsonian Inst. and the National Science Foundation., Washington DC, 1992.
- Hunter, D.O. and Jackson, R. (1997). A range-wide model of potential snow leopard habitat, in Jackson, R. and Ahmad, A.A. (Comps). *Proceedings of the Eighth International Snow Leopard Symposium, Islamabad, Pakistan, November 1995*. International Snow Leopard Trust and WWF-Pakistan.
- IUCN (2004). 2004 IUCN Red List of Threatened Species. www.redlist.org Downloaded on 16/09/2004.
- Jackson, R. (1992). Snow leopard. Unpublished data sheet. IUCN/SSC/Cat Specialist Group,

- Bougy-Villars, Switzerland.
- Koshkarev, E.P. (1994). Snow Leopard poaching in Central Asia. *Cat News*, 21: 18.
- Mallon, D.P. (1991) Status and conservation of large mammals in Ladakh. *Biological Conservation* 56 (1), pp. 101-119.
- McCarthy, T.M. & Chapron, G. (2003) *Snow leopard survival strategy*. International snow leopard trust and Snow leopard network, Seattle, USA.
http://www.snowleopard.org/islt/pdf_bin/slss_full.pdf downloaded on 17/09/2004.
- Mishra, C., Allen, P., McCarthy, T., Madhusudan, M.C., Bayarjargal, A., and prins, H.H.T. (2003) The role of incentive programs in conserving the Snow Leopard. *Conservation Biology*, 17(6), pp 1512.
- Nowell, K. and Jackson, P. (comps. and eds.) (1996). *Wild Cats. Status Survey and Conservation Action Plan*. IUCN/SSC Cat Specialist Group. IUCN, Gland, Switzerland.
- Oli, M.K., Taylor, I.R., Rogers, M.E. (1994) Snow leopard *Panthera uncia* predation of livestock: An assessment of local perceptions in the Annapurna Conservation Area, Nepal. *Biological Conservation* 68(1), pp. 63-68.
- Rabinowitz, A. and Saw Tun Khaing. (1998). Status of selected mammal species in north Myanmar. *Oryx*, 32: 201-208.
- Schaller, G.B., Ren, J.R. and Qiu, M.J. (1988). Status of snow leopard (*Panthera uncia*) in Qinghai and Gansu provinces, China. *Biological Conservation*, 45:179-194.
- Schaller, G.B., Tserendeleg, J. and Amarsanaa, G. (1994). Observations on snow leopards in Mongolia. In: J.L. Fox and Du Jizeng (eds). *Proceedings of the Seventh International Snow Leopard Symposium*. International Snow Leopard Trust, Seattle
- Sunquist, M. & Sunquist, F. (2002) *Wild cats of the World*. University of Chicago Press, Chicago and London, 452 pp.
- Theile, S. (2003). *Fading footprints: The killing and trade of snow leopards*. TRAFFIC Report, August 2003. 72pp.
- Wang, S. (1998) *China Red Data Book of Endangered Animals: Mammalia*. Science Press, Beijing, China.

* Range State not yet included in the CMS range list for this species.