

CURRENT STATUS OF THE CHEETAH (*Acinonyx jubatus*)

Laurie Marker^a

Abstract - The status of the cheetah (*Acinonyx jubatus*) varies widely in the 32 countries listed in this report. All populations are classified as vulnerable or endangered by the World Conservation Union (IUCN) and are regulated by the Convention for International Trade in Endangered Species of Wild Fauna and Flora (CITES) as Appendix I. There are 13 countries listed in this report where the cheetah has become extinct during the past 40 years. The wild cheetah is nearly extinct in Asia, with approximately 100 cheetah surviving in small pocketed areas through Iran. Free-ranging cheetah inhabit a broad section of Africa including areas of North Africa, Sahel, eastern, and southern Africa. The two strong-holds remain in Kenya and Tanzania in East Africa and Namibia and Botswana in southern Africa. Although there has not been a comprehensive survey of African cheetah since 1975, there is a consensus that the cheetah population is declining throughout Africa. Since 1991, and up-dated regularly, Cheetah Conservation Fund has made contact with researchers in cheetah range countries and has tried to keep communication open about cheetah populations in those countries. From the information gathered, it is approximated that less than 15 000 cheetah are found throughout their range, with a low estimate of 9 000 animals and an optimistic estimate of 12 000 animals. Perhaps for the cheetah, though, individual numbers of animals may not be the important point, but the numbers of viable populations still existing. Viable populations may be found in only half or less of the countries where cheetahs still exist. The cheetah has suffered a devastating decline of available habitat and prey, both necessary for its survival. In addition, the species does not do well in protected game reserves due to competition with other large predators, and the captive population is not self-sustaining but is maintained through imports of cheetahs from the wild population.

CURRENT STATUS

The status of the cheetah, (*Acinonyx jubatus*), varies widely in the 32 countries listed in this report. All populations are classified as vulnerable or endangered by the World Conservation Union (IUCN) and are regulated by the Convention for International Trade in Endangered Species of Wild Fauna and Flora (CITES) as Appendix I⁶, which bans international commerce and sporting trophies. There are 13 countries listed in this report where the cheetah has become extinct during the past forty years. Only in two or three countries are cheetah populations considered only threatened and are killed legally if found to be in conflict with human interests. In 1992, at the CITES meeting, quotas were set for export of 150 animals from Namibia, 50 animals from Zimbabwe, and 5 animals from Botswana, as live animals or as trophies¹⁶.

Five subspecies are considered valid by most taxonomists⁸⁰. But this should be changed or condensed in the future, as the validity of the existence of sub-species is questionable. Genetic research has shown the genetic distance between two subspecies, *A. j. jubatus* and *A. j. raineyi*, is trivial, 10 to 100 times less, for example, than the genetic distance between human racial groups⁶⁹.

The recognized subspecies are as follows:

North Africa and Asia

Acinonyx jubatus venaticus (Griffith, 1821): Algeria, Djibouti, Egypt, Mali (northern), Mauritania

^a Director, Cheetah Conservation Fund, P O Box 1755, Otjiwarongo, Namibia

(northern), Morocco, Niger (northern), Tunisia, Western Sahara.

On the Asian continent: Afghanistan, India, Iran, Iraq, Israel, Jordan, Oman, Pakistan, Saudi Arabia, Syria, Russia and the Commonwealth of Independent States.

West Africa

Acinonyx jubatus hecki (Hilzheimer, 1913): Benin (northern), Burkina Faso, Ghana, Mali (southern), Mauritania (southern), Niger, and Senegal.

Central Africa

Acinonyx jubatus soemmeringii (Fitzinger, 1855): Cameroon (northern), Chad, Central African Republic (northern), Ethiopia, Nigeria (northern), Niger (southern), and Sudan .

East Africa

Acinonyx jubatus raineyii (Heller, 1913): Kenya, Somalia, Tanzania (northern), and Uganda.

Southern Africa

Acinonyx jubatus jubatus (Schreber, 1976): Angola, Botswana, Democratic Republic of Congo (southern), Mozambique, Malawi, South Africa, Tanzania (southern), Zambia, Zimbabwe, *Namibia*

HISTORIC DISTRIBUTION

The cheetah was widely distributed throughout Africa and Asia. Cheetahs were originally found in all suitable habitats from the Cape of Good Hope to the Mediterranean, throughout the Arabian Peninsula, and the Middle East, from Israel to India and Pakistan, and through the southern provinces of the Russia and the former Commonwealth of Independent States.

Cheetah have become extinct in at least 13 countries over the past 50 years. These countries and the year of extinction are as follows:

1. **Djibouti:** Believed to be extinct (not a party to CITES), although in 1990 private people could still buy cheetah skins and live cheetah cubs in the market place. These skins and live cheetahs are thought to be coming from Somalia and possibly eastern Ethiopia⁸¹. Skins are still available in large numbers.

2. **Ghana:** Believed to be extinct. The Mole National Park had a small population in the reserve as of 1975⁹³.

3. **India:** Extinct in 1952. Last known cheetah found in Hyderabad in 1951 and Chittoor in 1952. Indians were importing cheetah from Africa to be used as hunting leopards in 1929 due to the rarity of local cheetahs^{18, 29, 93}. There has been talk of reintroducing cheetah back to India, but availability of prey species and unsuitable habitat are limiting factors. A captive breeding effort may be launched.

4. **Iraq:** Extinct (not a party to CITES). Last sighting in 1950.

5. **Israel:** Extinct. Last report of cheetah was in 1956^{47, 57}. There have been thoughts of re-introduction of cheetah into the Biblical Wildlife Reserve of the Negev Desert^{47, 57}.

6. **Jordan:** Extinct. In 1935 many skins were still sold in Be'er Sheva'. May still have been found in Negev Desert, the Palestine Mountains, Sinai Desert, and Trans Jordan until the late 1940's²⁹.

7. **Morocco:** Extinct. Were still found up to 40 years ago in the mountainous regions of the country bordering the Sahara⁹³.

8. **Nigeria:** Extinct²⁰. Skins are found for sale in the public market in Lagos which are probably coming from the countries north of Nigeria⁸⁷.

9. **Oman:** Extinct (not a party to CITES). Last sighting in 1968⁹³, probably lived on until the early 1970's on the Jiddat al Harasis Plateau, Dhofar province⁷¹.

10. **Russia and the former Commonwealth of Independent States:** Considered extinct as of 1989. No confirmed sightings in the past few years. A small expedition looked for cheetah during the summer of 1989 but no animals or tracks were seen²². Cheetahs existed in many areas until the

1940's and 1950's when their prey, the goitred gazelle, was reduced drastically from over-hunting. Some cheetahs were believed to have moved down into Afghanistan when the goitred gazelles conducted a permanent move southward. In the 1960's and 1970's the last cheetahs existed in parts of Turkmenia and Uzbekistan (east and west of Murgab, east of the Caspian Sea, and in the Badkhyz Preserve). In these areas they lived mostly on remnant populations of goitred gazelle and arkhar sheep, saiga antelope, kopet-dag sheep and hares^{17, 22, 34, 43, 73, 83, 84}. In 1972 it was suggested that the cheetah be listed as a living monument and very strict international laws be proposed to save the last of the Asian cheetah. The Commonwealth would like to reintroduce cheetahs into areas with sufficient prey populations such as the Ustyurt Plateau of Uzbekistan. We have suggested that before they introduce African cheetahs they wait until the genetics have been run on the Asian cheetahs in Iran.

11. **Saudi Arabia:** Extinct (not a party to CITES). Four cheetahs shot in 1950 near Saudi, Jordan, Iraq border intersection²⁹; last cheetah in the country probably lived on until the 1970's in the remote parts of Rubrquote Al-Khali desert⁷¹.

12. **Syria:** Extinct (not a party to CITES). Oil pipeline worker killed one of the last cheetah in the Syrian Desert in 1950²⁹. The last cheetahs lived on until the 1960's in the eastern temperate Syrian steppe (Badiyat ash-sham) near Khabur River⁷¹.

13. **Tunisia:** Believed to be extinct. Formerly found in the region of Chott el Djerid and the desert south of Tatahoume⁹³. Last cheetah sighted and killed was in 1968 near Bordj Bowrgiba in the extreme south¹⁹, 1990. Last Tunisian cheetahs lived until the 1970's in the Alfalfa-endash Acacia steppes at the North of the Hammada El Homra, near the Libyan border⁷¹. Re-introduction of cheetah back into Tunisia may occur in the next few years in Bou Hedma National Park, which has good prey diversity⁷¹.

CURRENT DISTRIBUTION

Reports on the status of cheetahs in the following countries are included in this document:

In Africa: Algeria, Angola, Benin, Burkina Faso, Botswana, Cameroon, Central African Republic, Democratic Republic of Congo, Egypt, Ethiopia, Gambia, Kenya, Libya, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Senegal, Somalia, South Africa, Sudan, Tanzania, Tunisia, Uganda, Western Sahara, Zambia, and Zimbabwe (Fig. 1).

On the Asian continent: Iran and possibly Pakistan.

POPULATION CENSUS

Censusing such an elusive species as the cheetah is very difficult, particularly since it is largely diurnal and widely roaming. Current information about the status of the cheetah in many countries, especially countries that have been engaged in long civil wars, is lacking. The following material is taken from recent literature, and where noted, from recent communications originating from researchers in the field.

From the information gathered, it is estimated that there are less than 15 000 cheetah throughout their range, with a low estimate of 9 000 animals and an optimistic estimate of 12 000 animals. Perhaps for the cheetah, though, individual numbers of animals may not be the important point, but the numbers of viable populations still existing. Viable populations may be found in only half or less of the countries where cheetahs still exist.

ASIA

The wild cheetah is nearly extinct in Asia. Once widely distributed throughout Asia, the cheetah has suffered a devastating decline of available habitat and prey. A small number of Asian cheetah still survive in small pocketed areas through Iran, and possibly in the boarding areas of Pakistan.

AFRICA

Free-ranging cheetah inhabit a broad section of Africa including areas of North Africa, Sahel,

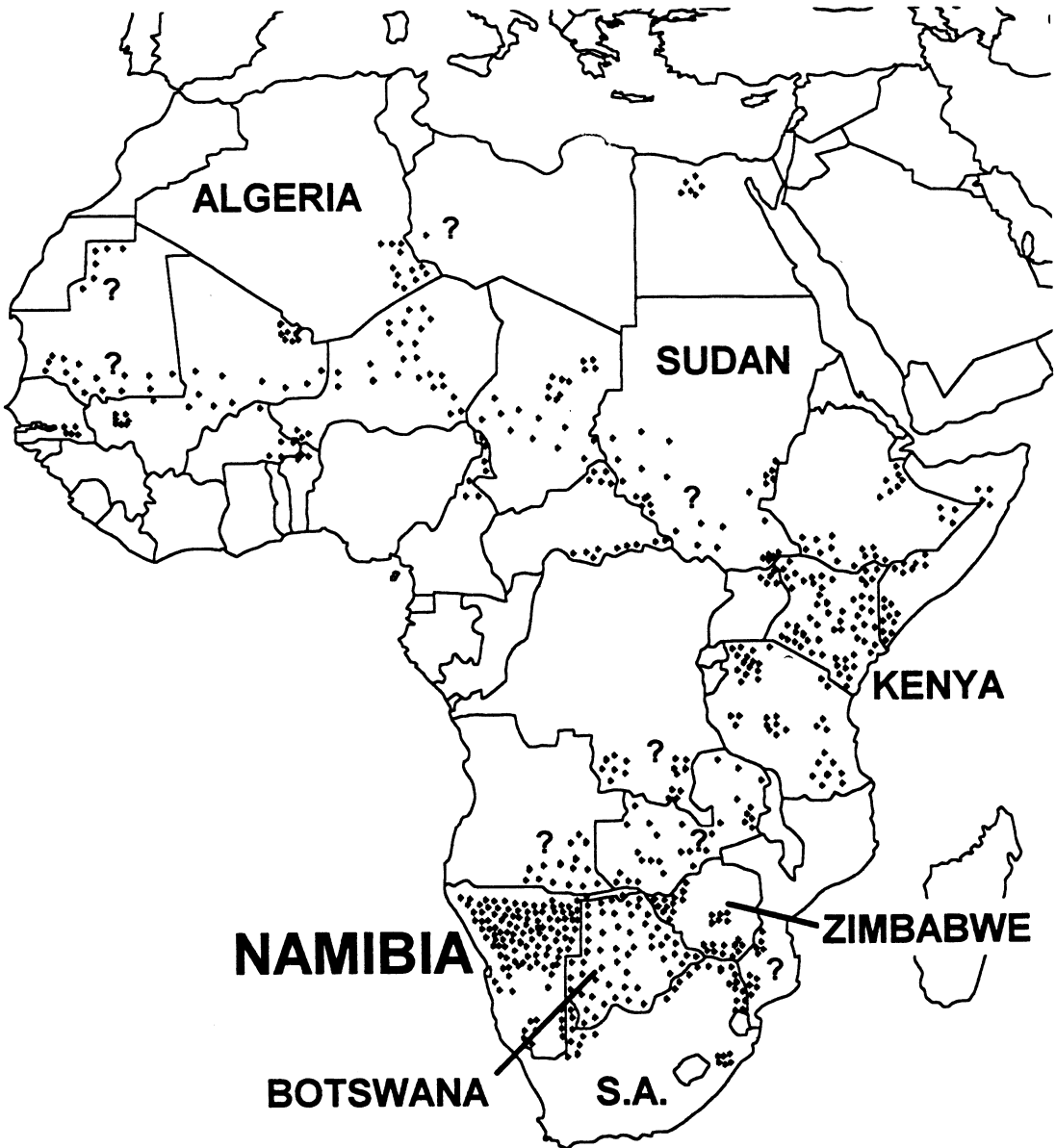


Figure 1: Cheetah distribution in Africa

eastern, and southern Africa. The two remaining strong-holds are Kenya and Tanzania in East Africa, and Namibia and Botswana in southern Africa.

There has not been a comprehensive survey of African cheetah since 1975, when Norman Myers calculated the African population of cheetah to be between 7 000 and 23 000 animals in 25 countries. The population of cheetah in Africa had decreased by half since the 1960's⁶². On the basis of his research, he estimated that there would be less than 10 000 cheetah by 1980. No new information is available to validate or refute this prediction, although there is a consensus that the cheetah population is declining throughout Africa.

Since 1991, and up-dated regularly, Cheetah Conservation Fund has made contact with researchers in range countries and has tried to keep communication open about cheetah populations in those countries^{42, 71}.

Until more recently, the cheetah has been generally considered to be an animal of open country and grasslands. This impression is probably due to the ease of sighting the cheetah in the shorter grass, and the long-term studies conducted on cheetah in East Africa¹⁴. However, cheetah use a wider variety of habitats and are often found in dense vegetation, i.e. the Kora Reserve in Kenya, Botswana's Okavango Delta, and the Namibian farmlands⁵⁴.

As reported throughout Africa, cheetahs are not doing well in protected wildlife reserves due to increased competition from other, larger predators such as lion and hyenas^{44, 54, 59, 61, 67}. Therefore, a large percentage of the remaining, free-ranging cheetah populations are outside of protected reserves or conservation areas.

There has been limited information from North or West Africa in the form of personal correspondence with field researchers and the cheetah's future in these areas is questionable^{19, 26, 64, 71, 76}. Cheetahs continue to survive in small, pocketed groups in isolated areas throughout the Sahel. Most of these populations though can not be considered viable for long-term survival. Controlling factors are small populations, restricted habitats with a limited prey base, conflict with nomadic herders and wars that have supplied guns and ammunition's to the populace, which then poach all forms of wildlife for food and profit.

A few regional studies do exist: David Burney reported on cheetah in Kenya in 1980; P.H. Hamilton did a survey on the cheetah in Kenya in 1981; Norman Myers reported on the status of cheetah in Africa, 1981; Dieter Morsbach reported on the cheetah in Namibia, 1986; Marker-Kraus *et al.*, followed up on the Namibian cheetah in 1996; Vivian Wilson on the status of cheetah in Zimbabwe, 1985; and Christopher Stuart and Vivian Wilson on the status of cheetahs in southern Africa, 1988, and Paula Gross conducted surveys in several African countries from 1989-1996.

In East Africa both Burney and Hamilton found the cheetah adapting in the agriculture land in the Masai Mara region outside the national parks and were co-existing with the Narok Masai, whose stock they left alone^{12, 30}. In Southern Africa, it has been reported that cheetahs are killed regularly in farming areas due to their raiding of livestock and the attitudes of the farmers^{11, 45, 53, 54, 61, 82, 91}.

Hamilton predicted that cheetah prospects in Kenya in the 1981-2000 period looked reasonable in the vast arid and semi-arid rangelands (primarily in the north) which would be the last areas to be developed. Hamilton's premise seems to be that the cheetah is a "remarkably successful predator ... supremely adapted to surviving at low densities over large expanses of often waterless arid and semi-arid lands." Elsewhere the spread of commercial and group ranching is likely to bring the cheetah into greater conflicts with man. The spread of illegal and legal firearms is also likely to pose a threat so long as the cheetah's skin has any value³⁰.

Myers believes the cheetah is less adaptable. He says, "if its ecological circumstances start to experience persistent perturbation, the specialized nature of the species ecology and behaviour, and its genetic make-up, could leave it little able to adapt to the disruptive conditions imposed by human communities in emergent Africa"⁶².

In fact, the ability of the cheetah to adapt to a changing ecological system brought about principally by conversion of its preferred habitat to farmland is perhaps the critical question in estimating the population's survivability in Africa. In several studies over the last decade, the cheetah was reported to suffer declining numbers as land was developed and suitable habitat converted to farmland^{13, 30, 52, 54, 61, 62, 91, 93}. In Namibia, the population of cheetah was halved by farmers from 1975-1987⁶¹, and conflict with the farming community continues⁵⁴. In 1996, the Cheetah Conservation Fund hosted a Population and Habitat Viability Analysis Workshop (PHVA), for Namibian cheetah, in cooperation with the IUCN's Conservation and Breeding Specialist Group (SBSG), the Ministry of Environment and Tourism (MET) and local Namibia farmers. A working strategy was developed and formed the basis for MET's conservation strategy for cheetah⁶⁶. In 1997, a working group of MET and Namibian NGO's formed the Large Carnivore Management Forum. In 1998, a country-wide census for cheetah will commence.

Wild cheetahs in Africa need help. Suitable prey is becoming scarce and habitat is disappearing. They are suffering from the consequences of human encroachment, from competition with other large predators in game reserves, and not least, from the complication of a limited genetic make-up. The wild population continues to sustain the captive population⁴⁹.

HISTORY OF CAPTIVE CHEETAH

The similar experiences of the world's zoos have reaffirmed the traditional difficulties of breeding cheetah in captivity. Despite the capturing, rearing and public display of cheetah for thousands of years, one litter was reported in the 16th century by the son of Akbar the Great, an Indian mogul. The next documented captive reproduction did not occur until 1956⁵⁵.

The history of the captive population of cheetah as of 1955, when it became one of the major animals exhibited throughout the world, is presented in Table 1. From 1955 to 1994, the number of world zoos holding cheetah increased from 29 to 211, and the number of animals during this 40-year period increased from 33 to 1 218. Since 1955, 1 440 cheetah have been imported from the wild and there have been 2 517 births and 3 436 deaths⁵⁵.

Table 1: History of the Captive Cheetah Population⁵⁵.

	1955-64	1965-74	1975-84	1985-94	Total
No. of facilities	29-92	87-80	87-150	152-211	
No. of cheetahs	33-206	215-401	423-848	856-1218	
No. of imports	142	491	419	388	1440
No. of births	16	178	967	1356	2517
No. of deaths	121	382	1244	1689	3436

The captive population as of 31 December 1996, was 1 217 (608 males, 602 females, 7 unknown) animals in 240 facilities in 50 countries⁴⁹. Of the 1 217 animals, 27% were wild-caught and 73% captive born⁴⁹. The captive population is currently maintained by a combination of imports and captive breeding⁴⁹.

The breeding programmes of our world's zoos, though, are not self-sustaining. Data indicates that a high proportion of cheetah propagation has occurred in a handful of the zoos with a majority of these facilities having only limited success; and half of the successful breeding facilities have had only a single breeding pair, or a single male or female. The captive population has had a low effective breeding size (N_e), 17 % in 1994⁵⁵. The fecundity of wild-caught versus captive-born animals is higher than captive-born animals and both are low, 17 % and 9 %, respectively.

STATUS OF THE CAPTIVE SOUTH AFRICAN CHEETAH POPULATION

As of 31 December 1996, the southern African cheetah population represented 30 % of the captive world population⁵¹. South Africa has the only recognized breeding facilities in Africa. The progress achieved in acquisitions and breeding, as well as the incidence of mortality and sales for the South African captive cheetah population from 1970 to 1996 are presented in Table 2.

The number of facilities holding cheetah has varied between 4 in 1970 to 11 in 1996. A summary of the numbers of imports and captive births from 1970 to 1996 is presented in Table 2. In total, 244 animals have been imported from the wild into South Africa, 29 % have come from South Africa and 71 % have come from Namibia. There have been 772 captive births in 254 litters, 497

Table 2: History of the South African captive cheetah population⁵¹.

	1970-75	1976-80	1981-85	1986-90	1991-96	Total
No. imported	29	26	31	82	76	244
No. of births	37	184	127	133	291	772
No. of deaths	23	88	78	111	197	497
No. of exports	0	29	49	83	116	277
No. of sales	0	5	16	17	57	95
No. of facilities	4	5	9	12	11	
No. alive at end of period	46	143	204	166	221	

deaths occurred and 277 animals were exported out of the country's recognized South African population. Within South Africa, 95 animals were transferred, primarily due to the creation of the new Hoedspruit cheetah breeding facility⁵¹.

Examination of Table 2 shows that the majority of the increase in the captive population prior to 1985, when the population reached 204 animals, can be attributed to captive births. Prior to 1985, deaths and exports remained relatively low in comparison to births. From 1986 to 1996 deaths and exports increased to off set the population growth from births during those same years. Therefore, from 1986 to 1996 the captive population increased primarily due to imports, as during this time 65 % of the total wild-caught animals (primarily from Namibia) were imported into South African facilities. As of 31 December 1996, the population was 262 (124.138) animals in 12 facilities, of which 30 % were wild caught and 70 % were captive born⁵¹.

REGIONAL BREEDING PROGRAMMES AND GLOBAL CAPTIVE MANAGEMENT

Regional breeding success is important to monitor as the need for cooperation increases in order to facilitate movement of animals within the regions. The success of the individual regions is important in relation to the number of animals actually living in the population. In 1996, 30 % of the world's captive population was in southern Africa, of which 41 % were wild-caught animals⁴⁹. By comparison, 26 % percent of the 1996 population was in North America and 2 % of these were wild-caught animals. A larger percentage of the North American facilities were reproductively successful in part due to the American Zoo Association's (AZA) Species Survival Plan (SSP) cooperative management programme which was developed in 1984.

Internationally, 14 facilities (15 %) have had continuous breeding success and have produced 63% of all cubs born in captivity⁵⁵. Thus, a relatively small number of cheetahs have made a disproportionately large contribution to the captive population gene pool, for example eight males have sired 21 % of all cubs born and 12 females have produced 24 % of all cubs born⁵⁵. Several of these breeding animals are from breeding facilities in South Africa and they have produced 28% of the captive births in the world⁵⁵.

There is a substantial need to continue enhancing captive management to ensure optimal captive breeding. The implementation of management programmes such as the African Preservation Programme (APP) within the Pan African Association of Zoos, Aquariums, and Botanical Gardens (PAAZAB) are designed to facilitate cooperative management to the benefit of the population as a whole. As free-ranging populations of cheetah continue to decline, and a large amount of genetic diversity of the wild population is lost, the captive and wild populations should be managed in cooperation. In the future, in the absence of further imports from the wild, the size of the world's captive population could be expected to decline, unless there is continued improvement in captive breeding efficiency. This trend, coupled with the continuing decline of the wild population, leaves the species extremely vulnerable.

CONSERVATION

No one knows what constitutes a minimum viable population for wild cheetah. Unquestionably, the larger the population and the more broadly it is dispersed, the better placed it will be to avoid genetic failings and to endure localized epidemic mortality or widespread episodic catastrophe.

An important factor that must be taken into account, when considering the long-term conservation of the cheetah, is its lack of genetic variation. In 1981 an extensive genetic and physiological analysis of captive and free-ranging cheetah revealed that the cheetah appears to be unique among felids and other mammals in having an extreme paucity of genetic variation⁶⁸. The combined genetic, reproductive, and morphological data places the cheetah in a status similar to deliberately inbred mice or livestock, and prompted the hypothesis, that in its recent natural history (perhaps dating back 10 000 years), the species had probably suffered a demographic contraction or population bottleneck necessarily followed by inbreeding^{55, 69, 70, 88}. The consequences of this lack of genetic variation include reproductive abnormalities^{89, 90}, high infant mortality, morphological abnormalities, and a weakened immune system^{32, 38, 48, 56, 69}, making the species more susceptible to ecological and environmental changes.

Although the species tolerates a broad range of habitat types, its essential requirements for long-

term survival is for suitable prey and the reduction of conflict with humans and other large predators. These components are essential to its conservation.

CURRENT STATUS - COUNTRY BY COUNTRY

1. Afghanistan

Population: No information at this time. Possibly still a few animals in the south-west above Baluchistan, Pakistan and the Iranian border region. There is no protection for cheetah.

2. Algeria

Population: Still to be found in a few areas of south-east Algeria, between $3\frac{1}{2}^{\circ}\text{E}$ and the Libyan border and between $27\frac{1}{2}^{\circ}\text{N}$ and $20\frac{1}{2}^{\circ}\text{N}$, with possible concentrations in Tassili N'Ajjer Range, Tassili Attoqgar, and Tassili Teffedest. Females with two cubs are seen regularly by tribesmen complaining that cheetah attack their camels. Rainfall was good from 1987-1990 in these areas, and there were increasing populations of Dorcas gazelle and Barbary sheep for cheetah to prey upon¹⁹. It is thought that the majority of the remaining Algerian cheetahs are living in Tassili nr'Azger, because this plateau is far more rich in water and vegetation⁷¹. It is difficult to see the last Algerian cheetahs: native people know their presence only through their traces⁷¹. This country could be a very important area for saving the North African cheetah.

Principal Threats: Restricted habitat, effects of drought on prey, and conflict with nomadic herders.

3. Angola (Not a party to CITES)

Population: No recent information due to the long-standing civil war. Estimate of 500 with a range of 200-1000 animals⁶². Range was confined to the drier, arid areas in the central and southern parts of the country. In 1975 cheetah were reported in the following parks and protected areas: Iona National Park (14 500 km²), Bicuar National Park (7 900 km²), Cameia National Park (14 450 km²), Luando National Park (8 280 km²), Quicama National Park⁹³. The cheetah was declared protected game in 1957, but legislation is difficult to enforce, and the military community is exempt from these provisions of the law⁶².

Principal Threats: Large-scale poaching which has helped support the long civil war, cultivation and over-grazing of cattle in the arid areas will contribute to the elimination of cheetah habitat.

4. Benin

Population: Thought to be extinct outside of the tri-country national park in the north of Benin, the Park National du W, which adjoins Niger, Burkina Faso and Benin. In this park, a very small population of 2 or 3 pairs may exist^{26, 23}. A few cheetah exist in and around the Pendjari complex of protected areas in northwestern Benin²³.

Principal Threat: Insufficient numbers of cheetah to sustain a viable population and lack of habitat.

5. Botswana:

Population: Estimates vary between 1 000 and 1 500^{11, 27, 52, 53}. Cheetahs have a wide distribution throughout Botswana, but are absent from areas of dense human settlement in the extreme south. In the northern districts of Ngami West, Ngami East, and Tutume areas, the cheetah is found throughout and is often in conflict with communal farmers who graze livestock and the commercial farmers of the Botswana Livestock Development Corporation¹¹. Freehold lands make up a small percentage of the overall land base in Botswana, but appear to harbour relatively large cheetah populations⁵³. This is especially true in the commercial farming areas of Ghanzi district and the Tuli Block and communal livestock areas in the south central Ghanzi district^{45, 53}. Cheetahs have been reported in the following protected parks and reserves: Chobe National Park (11 000 km²), Moremi Wildlife Reserve (3 880 km²), Nxai Pan National Park (2 100 km²), Makgadikgadi Pans Game Reserve (3 900 km²), Kalahari Game Reserve (24 800 km²). Cheetahs have been protected game since 1968 but can be shot for livestock defense even before any damage has been noted. Recent quotas set by CITES in 1992 allows for five animals for export.

Principal Threats: Livestock farming and poaching.

6. Burkina Faso

Population: Extremely low; estimated at 100⁶². Perhaps only found, now, in the complex of national parks and protected areas and the tri-country national park in the eastern point of the country that borders Niger and Benin where 2 or 3 pairs exist^{23, 26}. A few cheetahs exist in the Singou Fauna Reserve and the adjacent proposed Arlin National Park²³. Cheetahs may now be extinct in the vicinity of Kabore Tambi National Park and the Natinga Game Ranch in southern Burkina Faso²³. The

cheetah is totally protected but enforcement is likely to be inadequate.

Principal Threats: The country is under growing invasion by large numbers of nomads from the north, which has increased the pressure on the cheetah's range. Loss of habitat, poaching and insufficient numbers of cheetah to sustain a viable population.

7. Cameroon

Population: Population very small. In 1975, small populations of cheetah were still found in Benoue National Park^{62, 93}. Between 1974 and 1976, a census was carried out in Bouba Nr'dijida National Park, which resulted in finding no cheetah⁶².

Principal Threats: Decline of prey species, poaching and environmental degradation⁶².

8. Central African Republic

Population: Still found in the south-eastern area of the country, bordering Sudan and in the southern middle of the country, bordering Democratic Republic of Congo^{71, 85}. A small population still existed in Saint Floris National Park bordering Chad and the hunting domains in the north^{9, 71, 93}.

Principal Threats: Extensive poaching and limited prey species.

Taxonomy: North Central African Republic listed as *A.j. soemmeringii*, there is no listing for southern Central African Republic.

9. Chad

Population: Possibly a small population still exists in the Tibesti Highlands where prey species still are abundant, and there may also be a small population in Ennedi mountains⁷¹. As of 1975, there was a small population of cheetah in the Zakouma National Park⁹³.

Principal Threats: Changing climate conditions have reduced the carrying capacity of the land and have over-burdened the sensitive environment⁶². Currently, the many years of war have armed the general population, which puts all wildlife in danger of poaching for food and profit.

10. Democratic Republic of the Congo (Zaire)

Population: No current information. Estimated at 300 and could decline below 100 by 1980⁶². Small populations found in parts of Shaba, Kasai and Kwango Provinces in the southern and southeastern part of country⁶². Kundelungu National Park (7 600 km²) and Upemba National Park (10 000 km²) did contain a few cheetah⁶².

Principal Threats: Agricultural development, poaching and loss of habitat.

Taxonomy: There is no listing for the Northern Congo population.

11. Egypt

Population: Cheetah tracks have been seen and at least five animals were seen around the Sitra water source in the Qattara Depression in the western and northwest parts of the country, and north of Qara Oasis. It is believed there is still a small population that remains there^{3, 24, 78}. In 1994, tourism was banned in Marsa Matruh Province (where the Qattara depression is situated) for five years to protect wildlife from poaching⁷¹. A proposed cheetah-gazelle sanctuary in northwest Qattara has been prepared⁷⁸. The cheetah is totally protected, although enforcement is likely to be inadequate.

Principal Threats: Restricted habitat, possible conflict with nomadic herdsman, and insufficient numbers of cheetah to sustain a population.

12. Ethiopia

Population: In 1975 the population was estimated to be 1 000 animals and it was believed that the populations could decline to 300 animals by 1980⁶². The cheetah was widely distributed from Addes to Djibouti in eastern Ethiopia. Also widely distributed through the southern parts of the country, between 200-1500 m elevation, absent from the low lands of the Ogaden in the east, and no sightings in the north since 1937⁹⁴. A small population was known to be in the Danakil Reserve⁶². In 1995, cheetahs were sited near Dolo⁴⁰. Two cheetahs were seen in the dry desert scrub on a rocky plateau, 100 km from Dolo, by American oil company employees. This area has a fairly large antelope prey population⁴⁰. Other cheetah sightings have recently been in the Afder Zone, in and around the CherriHi/El Kere area, and in the Dolo region skins and live cheetah are offered for sale⁴⁰. One cheetah from the Dolo region is in captivity at the Royal Palace as of 1996⁴⁰. Cheetahs are protected against hunting and capture although legislation is difficult to enforce.

Principal Threats: Civil war, habitat loss, extensive poaching, decline of prey, and fur trade.

13. Gambia

Population: Reported that cheetah may wander into Gambia from Senegal⁶.

14. Iran

Population: Estimates of 100-200³⁹ and less than 100⁷. Under the reign of the Shah of Iran the population was estimated at 400-450^{7, 28, 37}. As of 1998 cheetah are still to be found in very small groups in a variety of areas of this large country. A recent survey has been conducted by Hormoz Asadi showing six areas in the country where cheetah still exist.

1. Evidence indicates definite dispersal of cheetah from the Koshe-Yeilagh and Miandasht protected areas towards the southern Khorasan. The survey indicates that there are at least 15 to 20 cheetah in southern Khorasan and groups of 5-8 cheetah have been reported to be hunting wild sheep.
2. Cheetahs are surviving in the unprotected areas in Bafgh region of Yazd province. Much of this region consists of arid mountains and population estimates are still 10 to 15 animals including the Kalmand protected area.
3. A population is in the unprotected area of eastern Isfahan where the terrain consists of vast expanses of desert, unpopulated except for herdsmen grazing goats and camels. Here livestock numbers have increased and the past gazelle population has decreased, but this region may still support 5-10 cheetah that are widely scattered.
4. A population is found in Kavir National Park and reports are frequent in this vast desert with arid mountains. The population corresponds with a gazelle population and there may still be 10 to 15 cheetahs here.
5. A population exists in the Garmsar, Damghan and Semnan unprotected areas in the northern part of the plateau. Here, 5 to 10 cheetahs are in conflict with growing agriculture and human populations.
6. A population is found in the Khar Touran National Park and protected area, which may possess the highest cheetah density in Iran. Cheetah reports are frequent in this vast expanse of desert where there may be 15 to 20 cheetahs still alive⁷.

Principal Threats: Loss of habitat, poaching, limited numbers of prey species. Direct persecution by humans, either shepherds or local hunters. They are easy targets for people in four-wheel drive vehicles and motorbike riders who chase cheetah if they see them, causing them to die of exhaustion or leave the area.

15. Kenya:

Population: Estimation of 1 200 animals³⁰. Species still occurs throughout the country, except in forests, montane moorland, swamps, and areas of dense human settlement and cultivation. Cheetahs are absent in western Kenya, the more densely populated parts of Central Province, and most parts of the coastal strip. Its distribution coincides with the distribution of Thomson's gazelle, Grant's gazelle, and gerenuk. Cheetah occur throughout most of the arid northern and north eastern parts of Kenya. Although this area is vast and mostly unpatrolled and poaching is on the increase³⁰. Populations of cheetahs are found in the following national parks and reserves: Nairobi National Park (114 km²), Tsavo National Park (20 821 km²), Amboseli National Park (329 km²), Meru National Park (870 km²), Samburu-Isiolo Reserve (504 km²), Kora Reserve (1500 km²), Masai Mara Reserve (1 510 km²), Marsabit Reserve (2 088 km²), Tana River Reserve (165 km²). All hunting of cheetah is completely banned. Exports of live cheetah stopped in the 1960's.

Principal Threats: Poaching, habitat loss, competition with agriculture and farming development.

16. Libya (Not a party to CITES)

Population: Cheetahs may still live around Fezzan oasis, SE of the country⁷¹. Little information is available. Formerly found across the south of the country, but last seen in 1980, possibly still exist in the south west corner where the country borders Algeria, in the Tassili National Park¹⁹. Until 1969 still found sparsely throughout the country except for the south and southeast⁷⁹.

Principal Threats: Unknown; lack of information, presumed lack of prey species and habitat loss.

17. Mali (Not a party to CITES)

Population: Estimated to be 200 to 500⁶², believed to be much less than this currently⁷¹. Probably a small population still exists in the north west of the country bordering Mauritania and in the south part of Adghagh nquote Ifoga chain, where cheetah have been reported in late 1970's⁷¹. In 1990 skins were found for sale in Tibuta, north Mali⁴⁶. There were a few cheetahs in Gurma National Park in the 1970's⁷¹.

Principal Threats: Decline of prey, poaching, environmental desiccation and reduction of habitat due to drought conditions.

18. Malawi

Population: Estimated at 50⁶². Absent in southern part of the country. A small population still exists in the western parks and a few individuals around Chipero area south of Kasungu Park. Animals seen to be coming and going from Zambia into parks with very few resident individuals in Malawi parks. There have been sightings of individual cheetah in Nyika National Park (3 134 km²), Vwaza Marsh Game Reserve (986 km²), and Kasungu National Park (2 316 km²)²⁷.

Principal Threats: Human population growth, loss of habitat and poaching.

19. Mauritania (not a party to CITES)

Population: Estimated at 100 to 500⁶². Possible small population and isolated individuals still exists in Aouker Plateau, Mauritania Adghagh, at the NE of Banc drquote Arguim National Park, in the northwest of the country (thought to be extinct due to the disappearance of their main prey, the Mhorr gazelle and decrease of dorcas gazelle) and Tidjika. No cheetahs exist in conservation areas⁷¹.

Principal Threats: Decline of prey, poaching, environmental desiccation and reduction of habitat.

Taxonomy: Northern Mauritania are *A.j. venaticus* and in the south, *A.j. hecki*.

20. Mozambique

Population: Estimated at 100⁶². Once widely distributed, now relic populations perhaps survive in parts of Gaza and Inhambane Provinces and south of the Zambezi River, and in the southern regions of Tete Province⁹³. The Tete Region is believed to be absent of cheetah now⁸². The Gorongosa National Park (3 770 km²) had a small population of cheetah⁹³.

Principal Threats: Poaching due to civil war situation, lack of enforced protection.

21. Namibia

Population: Estimated at 2 000-3 000 animals^{54, 61}. Still widely spread throughout the country, although only small populations are found in the southern part of the country due to smallstock farming, jackal-proof fences and eradication of predators. Ninety-five percent of the population is on commercial farmlands to the north of the Tropic of Capricorn. Apart from farmlands, very small numbers of animals still occur in communal farming areas of Damaraland, Hereroland, Bushmanland, and Kaokoland. Individual animals are seen in Kavango and Caprivi. Only two conservation areas have populations of cheetah Etosha and the Namib/Naukluft, but only 1.4-4 % of the population lives in proclaimed conservation areas^{52, 61, 82}. Possibly less than 100 animals live in the two conservation areas, Etosha National Park (22 270 km²) because high predator competition, and Namib/Naukluft National Park (49 768 km²), because of low prey density. Although protected game, cheetahs can be killed if livestock is threatened. In January 1992, at the CITES meeting a quota of 150 animals was given to Namibia for live export and trophy hunting¹⁶.

Principal Threats: Live capture and shooting by livestock farmers and game farmers. Cheetahs are easily trapped, in large numbers, on farms that have "cheetah play trees". The trapping is indiscriminate. These animals are then shot as there is little export market for live animals. The majority of the current world's captive population of cheetah has originated from Namibia⁵³.

22. Niger

Population: Estimated at 50 to 406². Still found in the Niger Sahel running from Mali to Chad with concentrations of 10 to 15 pairs in the L'Air Tenere Reserve in the northwest central park of the country. A few remain in the Termit Area. In Niger's Park W (the entire tri-country park is over 11 000 km² of which Niger's portion is about 2 200 km²) in the extreme south west of the country bordering Benin and Burkina Faso there are still cheetah^{25, 26, 64, 65}. In a study between 1993 and 1995, 22 cheetah were seen in this park in eight sightings with an estimation of at least nine cheetahs living in the park⁸⁶. Small populations of cheetahs have been recorded in Reserve Naturelle Nationale de L'Air et du Tenere (20 or 30 animals) (77 360 km²).

Principal Threats: Poaching, lack of prey species, conflict with livestock.

Taxonomy: *A.j. venaticus* in northern Niger and *A.j. hecki* in southern Niger.

23. Pakistan (Possibly extinct)

Population: Information collected suggests that there are no more cheetahs in northern Baluchistan from Quetta westward. This was thought to be the last area claiming cheetah in Pakistan². Possibly some still exist in southwest Baluchistan on the Iranian border. It is very difficult for Pakistan officials to get information from these semi-autonomous areas. Specimens of hides were collected in the early 1970's^{1, 2, 8, 58}. There is a current proposal to conduct a survey in Baluchistan and the Nushki desert region close to Iran for the potential occurrence of the cheetah⁶⁷.

Principal Threats: Loss of habitat, competition with livestock and poaching.

24. Senegal

Population: No current information. Possibly still a few animals in Parc National Du Niokolo-Koba (8 000 km²)²⁶

Principal Threats: Lack of habitat.

25. Somalia

Population: Only proof of existence is from cubs being sold by locals in the Kismajo area³³. The situation for cheetah in the country is at a critical point. They have been on the decline since the 1970's, in the north the records are old and not current and in the south of the country the civil war has caused an impact on the species⁴. Estimated at 300⁶². A traveller reported seeing eight animals in one day's travel in the south of the country along the main road from Kenya, suggesting some numbers still occur in this region¹⁰. Formerly found throughout the entire country, reduced by half to two thirds as of 1975⁶². Previously found along the Ethiopian border in the north west and central areas of Somalia⁹⁴. Live cheetahs and skins for sale in Djibouti market place and thought to come from Somalia⁸¹.

Principal Threats: Civil war, agriculture expansion caused reduction of prey, and poaching for skins and live trade. Due to Shifta bandits and civil war, enforcement is inadequate.

26. South Africa

Population: Estimated at 500-800^{27, 52}. Individuals occur sporadically in the northern parts of the Northern Cape Province. In the Kalahari Gemsbok National Park there is a small population of ca. 50 animals. A small population is found on the extensive commercial farmlands in North-west Province, Northern Province and Mpumalanga, to the southern border of the Kruger National Park and along the Zimbabwe and Botswana borders. They were exterminated in KwaZulu-Natal by the 1930's. Since 1965, 64 animals from Namibia were reintroduced to Hluhluwe-Umfolozi Park, 33 into Mkuzi Game Reserves, 18 into Eastern Shores, 13 into Itala, and 14 into Ndumu^{79, 77} and more than 10 into Phinda Resource Reserve. Other reserves contain isolated groups too small to be considered as viable populations. The population in the Kruger National Park is ca. 250 animals. Many cheetahs are imported to South Africa from Namibia for zoos, parks and private facilities, as well as for trophy hunting in small camps. South Africa does have several successful captive breeding facilities⁵¹. Only two parks hold large enough populations: Kruger National Park (19 485 km²) and the Kalahari Gemsbok National Park (9 591 km²). The cheetah was taken off the South African endangered species list in 1989. Permits are issued to control problem animals through shooting and live capture. Trophy hunting is allowed, but there is no legal export of the trophy.

Principal Threats: Livestock farming, small populations in unconnected conservation areas, and the believed success of captive breeding programmes in South Africa, which has eliminated the need to put much effort into the conservation of the remaining wild populations.

27. Sudan

Population: Recent reports indicate that cheetah are mainly distributed in southern Sudan³¹. Estimates of 1 200 animals, which could have declined by half by 1980⁶². Recent information in the north indicates that cheetah skins are used to make slippers and these are in great demand by rich Sudanese^{46, 76}. Populations may still be present where adequate prey and livestock exist in semi-arid areas below the true desert in the central middle of the country⁷⁶. Widely distributed throughout the south, as of 1982³⁵. Recent information is lacking from the south of the country due to the long civil war. The population there could be greatly affected by the eight years of war. All wildlife has been severely affected by the availability of guns and ammunition⁷⁶. Were very rare or non-existent in all parks and reserves⁶². Sightings of 10 animals in the southern reserve, Southern National Park^b (23 000 km²), sightings also made in Boma National Park^b (22 800 km²), Boro Game Reserve^b (1 500 km²), Meshra Game Reserve^b (4 500 km²), Badingile Game Reserve^b (8 400 km²), Ashana Game Reserve (900 km²), Chelkou Game Reserve (5,500 km²), Kidepo Game Reserve (1 400 km²), Numatina Game Reserve (2 100 km²), and Shambe Game Reserve (620 km²)³⁵. The cheetah has been a protected species since 1972. Effective 1 January 1989 Wildlife Conservation and National Park forces of Sudan issued a 3-year notice banning the hunting and capture of mammals, birds and reptiles in the Republic of Sudan.

Principal Threats: Poaching, loss of prey, indirect affects of the long civil war in the south of the country.

^b Proposed; not yet gazetted (1998)

28. Tanzania

Population: Estimated at 1 000, with a range of 500-1500⁶². Found in the grasslands of Masailand and a few localized areas of woodlands. Populations do exist in the Serengeti/Ngorongoro Conservation Area (25 000 km²), possibly as many as 500^{14,44}, however, the population suffers due to competition with lions and hyenas. There have been sightings in Mikumi National Park (3 230 km²), Tarangire National Park (2 600 km²), Katavi National Park (2 250 km²), and Ruaha National Park (10 200 km²)^{15,27}.

Principal Threats: Poaching, predation and competition with other large predators.

29. Uganda

Population: Estimated less than 200⁶². No current information available. Small numbers are thought to be found in the north east sector of the country and a few may still found in Kidepo National Park (1 400 km²)⁹³.

Principal Threats: Poaching and loss of habitat.

30. Western Sahara (Possibly extinct) (Not a party to CITES)

Population: Presumed extinct. Last individual caught in 1976 and given to the zoo of Beni Abbes Scientific Research Centre⁷¹. A possible population may still live in the upper lands of East Tiris (south east of the country), a region of abundant vegetation⁷¹.

31. Zambia

Population: Although cheetah records are very scant, the species distribution in the last three decades is encouraging⁷⁵. The species is uncommon in many areas, however, as of 1969 cheetahs were still widely distributed in various parts of the country, but in low densities⁵. Populations were concentrated in the flood plains and along dry river beds. It was thought that the majority of the suitable habitats would disappear by the 1980's^{5,62}. Recently cheetah occur in relatively low numbers in Kufe National Park (22 400 km²), South Luangwa National Park and Sioma Ngwezi National Park. In Lower Zambezi National Park, one or two have been sighted by tour operators at Jeki plain since 1990⁷⁵. Experimental re-introduction of three male cheetah into the Lower Zambezi took place in 1994⁷⁵.

Principal Threats: Poaching, loss of habitat, and expanding human population.

32. Zimbabwe:

Population: Estimated at 500-1 000^{52,82,91}. A 1991 Department of National Parks and Wildlife Management (DNPWLM) report estimated cheetah numbers using a computer model. This model predicted there were over 600 cheetah within the Parks and Wildlife Estates, nearly 200 in communal lands, 400 on alienated land and nearly 200 on other state land, resulting in a total of 1391 cheetah throughout Zimbabwe. These estimates should be treated with caution, however, as they are not based on actual data⁹⁵. Farmers on private and commercial land in southern Zimbabwe have indicated an increase in the cheetah population and are concerned over the loss of valuable game and livestock to cheetah. According to a 1997 report from the Ministry of Environment and Tourism DNPWLM, the amount of commercial ranchland with permanently resident cheetah populations has more than doubled in the last decade, with an estimate of 5 000 animals. Cheetah are largely absent from the northeast part of the country. Two main populations are found in the southern commercial farming areas and in the northwest conservation areas. These two areas account for about 400 animals. The remainder of about 100 animals is distributed over the middle Zambezi Valley, the Midlands and Gonarezhou⁹¹. Over 50 % of the population occur on privately owned farmland⁹⁵. Less than 200 animals are thought to be in the conservation areas including Hwange National Park (14 650 km²), Matetsi Safari Area (2 920 km²), Kazuma National Park (313 km²) and Zambezi National Park (564 km²). Occasional sightings are reported in Matobo National Park (432 km²) and 10-20 animals are in the National Park and Safari area around Lake Kariba Valley. Small numbers occur in the Mana Pools National Park (2 196 km²) and the lower Zambezi area, unknown number in the Gonarezhou National Park (5 053 km²)⁹¹. Cheetahs are on the sixth schedule of the Parks and Wildlife Act and are also specially protected, which means that it is illegal to kill a cheetah under any circumstance without a Section 37 permit. This includes trophy hunting a cheetah, killing one as a problem animal or live capture. The Government opened trophy hunting on the cheetah in 1990, which is monitored by "hunting returns". Quotas set at the January 1992 CITES meeting allows for the export of 50 animals¹⁶.

Principal Threats: Conflict with farmers and livestock and illegal killing of cheetah.

CONCLUSION

During the past 25 years, the world's cheetah population has declined by over 50 %, from ca. 30 000 animals, to less than 15 000, whereas the human population has doubled during this time. The majority of the remaining cheetah populations are found outside protected reserves and are increasingly in conflict with humans. This is due to conflict experienced with lions and hyenas, by cheetahs in game reserves. As human populations increase, the reduction of prey species available to cheetah and the loss of habitat are the biggest threats facing the cheetah today. Another major problem facing the species is its lack of success in captivity, as the captive population is not self-sustaining but maintained by the wild population of cheetah, which is under increasing pressure.

In order for the cheetah to survive into the 21st century, some simple and yet economically hard decisions will have to be made. The survival of the cheetah depends on the ability of range countries discussed in this paper to develop a Global Master Plan for the cheetah in its remaining ranges of Africa. A Global Master Plan will hopefully be developed with the assistance of the IUCN SSC's Conservation and Breeding Strategy Group (CBSG) during the next year.

Having been revered by humans for over 5 000 years, the cheetah is now facing extinction caused by human factors. In order to ensure this species' survival, we have to look critically at the political, social and economic issues facing wildlife conservation in Africa today. Countries like Namibia, Botswana and Zimbabwe, which have key remaining populations, urgently need to set the example with integrated conservation management programs to ensure the survival of the cheetah.

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