

Caracal (Felis caracal)

Current Status

The species was listed as CITES Appendix II (1979) with the Asian population listed as CITES Appendix I as of 1979 [CITES 1984]. The species is not listed on the Endangered Species List. The Turkmenian subspecies, *F.c. michaelis*, was listed as Rare by IUCN [Jackson 1989] as of 1978.

1. Distribution:

The species is distributed widely in C and S Africa: Algeria, Angola, Botswana, Burkina Faso, Chad, Djibouti, Egypt, Ethiopia, Gambia, Ghana, Kenya, Libya, Malawi, Mauritania, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Somalia, South Africa, Sudan, Tanzania, Tunisia, Uganda, Zaire, Zambia and Zimbabwe. Distributed sparsely in Asia: Afghanistan, NW and C India, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Pakistan, Qatar, Saudi Arabia, Syria, S Turkey, UAE, USSR (Transcaspian area), Yemen and the Yemen Democracy. Nine subspecies have been described:

- F.c. algirus* (Wagner 1841): N Africa
- F.c. caracal* (Schreber 1776): S. Africa
- F.c. damarensis* (Roberts 1926): SW Africa
- F.c. limpopoensis* (Roberts 1926): N Transvaal and Botswana
- F.c. lucani* (Rochebrune 1885): Coastal zone of SE Gabon
- F.c. michaelis* (Heptner 1945): Turkmenia
- F.c. nubicus* (Fischer 1829): Sudan-Ethiopia west to N Cameroon
- F.c. poecilotis* (Thomas & Hinton 1921): Nigeria and S Niger
- F.c. schmitzi* (Matschie 1921): Arabia and C India

2. Population:

- a. AFGHANISTAN: It may occur on the border with the USSR [IUCN/UNEP 1987].
- b. ALGERIA: It is considered to be unusual [Rosevear 1974]. One specimen has come from Ouarsenis taken in 1954 [Stuart 1984].
- c. ANGOLA: It has been recorded in the SW Angolan provinces of Iona and Mocamedes [Huntley 1973].
- d. BOTSWANA: It has a wide distribution but is uncommon and difficult to find [Smithers 1968]. Its distribution is discontinuous [Stuart 1984] but it can be considered to be secure [Stuart & Wilson 1988]. It can be found in SE Botswana near the border with South Africa and Namibia [IUCN/UNEP 1987].
- e. BURKINA FASO: It can be found in Fada n'Gourma Province. It may occur in the area of the border between Burkina Faso and Niger [IUCN/UNEP 1987].
- f. CAMEROON: It is present in N Cameroon [IUCN/UNEP 1987].
- g. CHAD: Very rare in many areas, with sightings around Lake Chad [Rosevear 1974] and in Fada, Borkou-Ennedi-Ti [IUCN/UNEP 1987].
- h. DJIBOUTI: No information
- i. EGYPT: No information

j. ETHIOPIA: Probably widely distributed, but restricted to the sub-desert regions [Harrison 1968; Stuart 1984]. It exists in the Awash Valley Area. It may exist in the S Ogaden area, but its continued survival is doubtful [Blower 1968].

k. GAMBIA: Very rare in many areas [Rosevear 1974] with one record from the vicinity of high forest (Doka Zone) [Anon 1970].

l. GHANA: Very rare in many areas [Rosevear 1974].

m. INDIA: Its range includes Baluchistan, Sind, and Kutch [Kotwal 1984]. It is also found in the drier parts of the Punjab, Rajasthan, Uttar Pradesh, and C India [Prater 1965]. It is found in the plains of N and NW India, is very rare [Taber et al. 1967], and exploited in the arid areas [Jackson 1989]. In Gujarat State, it exists in the thorn scrub jungle of Kachchh and has almost reached extinction in its natural habitat. The population may number no more than 10-15 individuals [Chavan 1987]. Its situation in Madhya Pradesh is endangered and precarious [Gupta et al. 1984]. In the Panna District of Madhya Pradesh, the presence of this species has been unconfirmed since 1981 [Pabla 1984]. In Rajasthan, they are known to occur locally in Sariska in Alwar, Ranthambore in Swaimadhopur, Pali and Doongargarh in Bikaner district. This is one of the rarest of the lesser cats of Rajasthan, localized to only a few sites: Sariska, Ranthambhor, Pali, Ajmer, and Doongargarh. Their number is estimated to be less than 50. It has been reported to be very common in grass birs around Jaipur including Kukas, and was caught by the shikaries-professional hunters, for training. However, there has been no sighting recently and its presence today has not been confirmed [Sharma & Sankhala 1984].

n. IRAN: It is reported widely in C and S Iran, primarily from the C desert [Harrington 1977]. It can be found on the SW flank of the Zagros Mountains and in NE Iran at the foot of Alburz Mountains. It may occur on the border with the USSR [IUCN/UNEP 1987].

o. IRAQ: In 1959, it was described as rare, but not endangered [Hatt 1959].

p. ISRAEL: It is quite common [Jackson 1989]. They are quite common south of the Tel Aviv-Jerusalem line with a few records north of this line [Mendelssohn 1989]. It is not uncommon in the Dead Sea area [Harrison 1968]. They have been seen feeding at an artificial feeding site at Sdr Boqer [Skinner 1979].

q. JORDAN: It is not uncommon in the Dead Sea area [Harrison 1968].

r. KENYA: It exists in the Nairobi National Park [Bourliere 1963], near the Tana River of Mount Kenya, and in N Kenya north of Nairobi. It may occur on the border with Uganda [IUCN/UNEP 1987].

s. KUWAIT: No information

t. LEBANNON: No information

u. LIBYA: No information

v. MALAWI: Records suggest that it should occur widely in this country [Ansell 1960; Smithers & Tello 1976]. Smithers considered it to be sparsely distributed in 1966.

- w. MAURITANIA: No information
- x. MOROCCO: Considered to be unusual [Rosevear 1974]. Specimens have come from Essaouira (Mogador) taken in 1915 and 1977 [Stuart 1984].
- y. MOZAMBIQUE: Distributed throughout, except for the coastal areas. Status is unknown, but likely to be similar to Zimbabwe [Visser 1978]. Stuart and Wilson [1988] consider it to be uncommon to rare. It occurs widely, although it may be absent from the NC area and in the vicinity of the lower Zambezi River. It may not be as rare as the few records indicate [Smithers & Tello 1976; Stuart & Wilson 1988].
- z. NAMIBIA: Overall it is quite common and increasing its range [Stuart 1986a]. Distributed throughout, including deserts [Visser 1978]; however, it is absent from most of the Namib Desert [Stuart & Wilson 1988]. Particularly plentiful in Damaraland and throughout the E sand-plain country [Shortridge 1934]. It is classified as a problem species in this territory, particularly in the S [Stuart 1984; Stuart & Wilson 1988].
- aa. NIGER: It occurs SSE of Niamey on the bank of the Niger River along the borders of Niger, Burkina Faso, and Benin, and in the Air Mountains [IUCN/UNEP 1987].
- bb. NIGERIA: Very rare in many areas [Rosevear 1974] with one sighting in the vicinity of high forest (Ado Ekiti) [Anon. 1970]. By 1974, deforestation had turned the Ado Ekiti primarily into open woodlands [Rosevear 1974]. In 1969, Howell considered it to be increasing in N Nigeria.
- cc. OMAN: It is widely distributed but in small numbers and seldom seen [Anon. 1984]. One specimen was caught in 1981 in an area to the south of Wadi Yalooni. A dead specimen was found in Wadi to the north of Jebel Harim in the Musandam in 1983. Its status in Oman is vulnerable if not endangered [Smith 1984].
- dd. PAKISTAN: The species is widespread and occasionally takes ibex fawns in Kirthar National Park and blackbuck fawns in Lal Suhanra [Anon. 1984]. In the Lyallpur Region of West Pakistan, there is no evidence of its occurrence now or in the earlier days of this century. It has been reported from Sind and may still exist in the Thal Desert [Taber et al. 1967]. It is exploited, but thought to be holding its own [Jackson 1989]. It has been considered rare and associated with arid sub-tropical scrub forest in N Baluchistan and tropical thorn forest in the E desert border regions [Roberts 1977]. There is no evidence of its existence in the N mountain regions, but in the lower and warmer latitudes, it is widespread and holding its own. There is a thriving population in the Kirthar National Park in Sind Province, and the Lal Suhanra Desert park in Cholistan, Punjab Province. It is considered to be scarce, but holding [Roberts 1984].
- ee. QATAR: No information
- ff. RWANDA: One specimen has been taken from Kigali [D. Meirte, pers. comm., cited in Stuart 1984].
- gg. SAUDI ARABIA: The species is common but not widespread [Gasperetti et al. 1987]. It has been reported from near Taif, near Khamis Mushayt and Wadi Khaytan [Gasperetti et al. 1985]. It probably occurs throughout the mountain ranges and hilly steppes, but it is unlikely that it penetrates into the great sand deserts of the interior [Harrison 1968]. They have also been sighted in Abha and near Khamis Mushayt [Nader 1984].

hh. SENEGAL: In 1969, they occurred throughout southern Senegal [Gaillard 1969].

ii. SOMALIA: It has been recorded from 16 locations, primarily in the S [Azzaroli & Simonetta 1966]. Harrison [1968] records some sightings in the N part of the country.

jj. SOUTH AFRICA: It is rated as vulnerable [IUCN 1978] and is hunted as a polutry raider wherever it is found. In the Stellenbosch Mountains they remain in the foothills at less than 600 m, primarily in pine scrub, plantations, or on the outskirts of developed agricultural land [Norton & Lawson 1985]. Overall it is quite common and increasing its range [Stuart 1986a]. Found throughout Kruger National Park but more often in wooded areas or near rocky surroundings [Pienaar 1964]. In Natal, they occur in the mountain region (Giant's Castle Game Reserve and Weza forestry area), Ngomi forestry area (Upland region), and Bulwar (also Upland region). They were introduced to Itala Nature Reserve in 1976 and have been sighted a number of times. The status of the species is very rare but safe [Rowe-Rowe 1978]. It occurs in all areas outside forests and the humid coastal areas. It is much persecuted but populations appear stable and largely unaffected [Visser 1978]. In the Transvaal, [Lynch 1975; Rautenbach 1978] but apparently absent from much of the grassland area in the S that is under crop production. In the Orange Free State, they are widespread in the S and SE section, but uncommon in the N [Stuart & Wilson 1988]. In the Cape Province, they are widespread and common [Stuart 1981; 1983]. The highest densities are reached in the S and W Cape, particularly along the coastal belt, the coastal mountain zone, and the adjacent interior [Stuart 1984]. They are also found in the evergreen forests of the S Cape [Stuart & Wilson 1988]. In the Bedford District, they occur in the N part as well as small adjoining areas of the districts of Tarkastad, Adelaide, and Somerset East. There has been an increase in caracal in the Bedford District, most probably because of the elimination of the black-backed jackal. Wherever the two species overlap, there does not seem to be a problem with caracal. Jackals have been known to eat caracal young in the den [Pringle & Pringle 1979].

kk. SUDAN: Probably widely distributed, but restricted to the sub-desert regions [Harrison 1968; Stuart 1984]. It may occur on the border with Uganda [IUCN/UNEP 1987].

ll. SYRIA: No information

mm. TANZANIA: Widely distributed with viable populations in the parks that cover 20% of the country [Anon. 1984]. However, there are no locality records for the S and W parts of the country [Kingdon 1977].

nn. TUNISIA: No information

oo. TURKEY: It is considered to be rare [Jackson 1989] and known from the southeast of the country [Harrison 1968].

pp. UGANDA: It is restricted to the drier areas north of the Victoria Nile [Kingdon 1977]. It may occur on the borders with Sudan and Kenya [IUCN/UNEP 1987].

qq. UNITED ARAB EMIRATES: No information

rr. UNITED SOVIET SOCIALISTS REPUBLIC: It has been reported in Turkmenia and from the vicinity of the Sea of Aral in Uzbekistan [Ognev 1935; Novikov 1962; Sapozhenkov 1962; Harrison 1968]. The subspecies *F.c. michaelis* is rare. It occurs in the Turkmen SSR along the foothills of the Kopet Dag, bordering the frontier with Iran, and the isolated Bolshoy Balkan massif, 50 km from the Caspian Sea near Krasnovodsk. Northwards, it has also been recorded in the Kara Kum Desert with a fairly large concentration. Its range has contracted in parts of W Turkmeniya and along the Murgab River in the extreme SE near the Afghan border where it is now rarely seen. There are records of this species from Uzbek SSR and from the SW corner of Kazakh SSR [IUCN 1978]. Numbers are unknown, but the rarity of the species is generally stressed [IUCN Cat Specialist Group Data Base Disk 1989].

ss. YEMEN: Reported near Aden [Gasperetti et al. 1985].

tt. YEMEN DEMOCRACY: No information

uu. ZAIRE: Known from the Katanga area [D. Meirte, pers. comm., cited in Stuart 1984].

vv. ZAMBIA: Ansell [1960] considered it to be uncommon, but distributed throughout most of the country. Smithers [1966] considered it to be widespread.

ww. ZIMBABWE: Reported to exist in all areas but seldom seen [Anon. 1984]. It is widely distributed but is nowhere common and in most places can be considered rare or even absent. It has been seen in Hwange National Park. It should be classified as rare or uncommon [Wilson 1984a]. It occurs widely but sparsely, except in the more settled areas [Smithers 1966]. It is widespread in the drier W parts of the country but occurs more sparsely in the E regions. Generally it is uncommon and even rare in some areas [Stuart & Wilson 1988].

3. Habitat:

It is essentially an animal of dry regions. In Africa it inhabits woodlands, savannas, and acacia scrub, but does not enter thick tropical or evergreen coastal forests. It is absent from the more barren parts of the Sahara Desert, and in Arabia. It is more partial to arid, hilly steppes and mountain ranges than to sterile tracts of true sand desert. It is solitary and mainly nocturnal, but may also hunt during the day. It climbs well and will take to the trees when threatened. Its gait is similar to the cheetah and it can be considered the fastest feline of its size. It is a remarkable jumper and can jump into the air several feet high to knock flushed birds down with its paws. It was tamed and trained for bird hunting in India and Iran. Ten to a dozen pigeons at one time can usually be knocked down in a flock. They prey on birds up to the size of francolins and guinea fowl, also upon rodents, hyraxes, klipspringers, dik-diks, duikers and the fawns of impala, bush-buck and other antelope. They also may feed on young kudu and catch martial eagles roosting in trees at night. Lizards are taken, as well as snakes including cobra. A kill is often dragged up into the fork of a tree where it can be eaten without disturbance. Mating may be year-round with a birth peak in July and August in South Africa and from September to December in Zimbabwe. The female usually nests in a porcupine burrow, a holly tree, a rock crevice, or a dense patch of brush. At 4-5 weeks of age the young are very active and make a chirping, birdlike vocalization. They remain with the mother for about a year [Guiggsberg 1975].

In South Africa, caracals in the Stellenbosch Mountains move over a wide area and one settled in a range area of 65 km². They remain in the foothills at less than 600 m [Norton & Lawson 1985]. In Kruger National Park, they feed on small mammals, smaller antelope and their young, and birds. Rock hyrax and grey-footed squirrels are favorite items. Single cubs have been recorded during May, July, January and February [Pienaar 1964]. Normal prey includes steenbuck, impala lambs, duiker, Sharpe's grysbuck, and dassies [Pienaar 1969]. There is one case of a caracal killing a wild cat [Pienaar 1969]. Thirteen carnivora in the Park prey on impala, nine on duiker, eight on Sharpe's grysbuck, and nine on steenbuck [Pienaar 1969]. In Giant's Castle Game Reserve, they prey on mountain reedbuck *Redunca fulvorufula*. Here young have been found in September [Rowe-Rowe 1978]. In Mountain Zebra National Park, they prey on adult and juvenile springbok, gray duiker, springhaas, steenbok, black-backed jackal, African wildcat, and kori bustard. The most frequent food was Cape dassie, but mountain reedbuck was the greatest percentage of biomass. Mammals were 93.8% of prey, birds 5.3%, and reptiles 0.9%. Birds included greywing francolin and crowned guineafowl. No scats contained domestic livestock. Prey consumption of an adult is approximately 1-2 kg per day, 7,300 kg per annum (juveniles 500 g/day). Caracals were often seen in pairs with groups of more than two consisting of a female with cubs [Grobler 1981]. In Bedford District, prey consisted of dassie, domestic sheep and goats, steenbok, vaal rhebok, red hares and rodents. They avoided larger and stronger prey [Pringle & Pringle 1979]. Males and females hunt alone primarily and young are usually born in July and August in the eastern Transvaal. Litter number can range from 1-6 [Pringle & Pringle 1979]. They are solitary, and males and females come together only for mating. Gestation length is 79 days. Litters vary from one to five, but three is usual. Litters have been recorded in Cape Province, South Africa in all months of the year, but there is an increase in births between October and February. Kittens are weaned between 15-24 wk after birth and eat solid food at 3.5-8 wk of age. Kittens are born in burrows excavated by other species, in rock crevices, or among dense vegetation. They are primarily nocturnal, occasionally crepuscular, and rarely diurnal. They are territorial, using urine, droppings and scratching trees to mark boundaries. In Cape Province, mammal remains were found in over 90% of fecal samples. Birds are taken frequently; reptiles occasionally. In areas where hyrax occur, they form an important part of the diet. In parts of South Africa and S Namibia, they are the principal predators of sheep and goats. Scavenging has been recorded but is rare. [Stuart & Wilson 1988].

In the Negev Desert in Israel, home ranges are large (males 200 km² and females 100 km² [Stuart & Wilson 1988].

In Botswana, prey includes impala, hares, springhares, and lizards. Muridae occurred most often [Smithers 1971].

In India, the caracal inhabits stony, broken ground with jungle scrub. It is a creature of desert and scrub jungle where it preys on birds, rodents, antelope and small deer. In Rajasthan, they feed on hares, partridges and peafowl. It rears its young in porcupine burrows, in hollow trees, or crevices among rocks with an average litter of 2-4. In Rajasthan, cubs were found during October, December and May [Prater 1965; Sharma & Sankhala 1984]. Longevity is thought to be up to 15 years of age [Sharma & Sankhala 1984].

In Saudi Arabia, the usual habitat is heavily vegetated areas, generally associated with water. The normal diet of about 1 kg/day consists of small birds, mammals, reptiles, and amphibians. Two to three (rarely five) kittens are reared in the burrows of other animals or crevices, hollow trees, or caves [Gasperetti et al. 1985].

In Israel, they feed mainly on hares, but also on chukar and desert partridges *Ammoperdix heyi*, and occasionally also on hedgehogs and rodents. Several cases have been reported of them preying on gazelles. They also take dead poultry that have been thrown on garbage dumps and may scavenge for carcasses [Mendelssohn 1989].

In the U.S.S.R., the habitat is sandy desert and the principal prey consists of hares, desert rodents, and birds [IUCN 1978].

4. Principal Threats:

They are threatened by habitat destruction and persecution. The Indian caracal is now thought to be endangered, but not enough information is available to include it in the Red Data Book. Caracal N of the equator are scanty and often in a precarious situation, but S of the equator it is increasingly common. Subspecies are questionable, and pelts have a low value to furriers [Stuart 1986a]. The numbers of pelts reported in commercial trade were 904 in 1979 and 5895 in 1980 [McMahan 1983]. Of the CITES APPENDIX I trade, reported in 1979 was 1 skin, and in 1980, 6 skins and 2 trophies [McMahan 1982]. In 1979, CITES trade included 16 skins, 17 garments, and 5 trophies of unknown origin. In 1980, 184 skins, 1 garment, and 2 trophies were of unknown origin [McMahan 1982]. They may occasionally be taken by larger carnivores and martial and black eagles. They are primarily persecuted as stock raiders [Grobler et al. 1988]. In 1987, Switzerland entered a CITES reservation to import caracal, including Appendix I populations [Anon. 1987a]

a. AFGHANISTAN: No information

b. ALGERIA: No information

c. ANGOLA: The Angolan reserves suffer from a serious lack of staff, resources and support. The laws regarding hunting, protected species and protected areas need revision, but implementation is difficult because of current political difficulties within the country [IUCN/UNEP 1987].

d. BOTSWANA: The National Parks face a lack of sufficient manpower, funds, equipment, and infrastructure. Poaching is the major problem in all parks and a lack of available research results. The National Tribal Grazing Land Policy allows fencing and grazing at the expense of wildlife. There is some poaching within the Gemsbok National Park/Mabuasehube Game Reserve [IUCN/UNEP 1987].

e. BURKINA FASO: In this country, there is reported to be over-exploitation of fauna, with insufficient hunting regulation, and practically no control, as guard lack sufficient equipment, transport, funds, and infrastructure. In Reserve Partielle De Faune De Kourtiagou, poaching, grazing and illicit timbering are continuing problems [IUCN/UNEP 1987].

f. CAMEROON: Local farming methods of shifting cultivation degrade habitat and reportedly facilitate trapping and hunting. Poaching by non-locals is also a problem. Poaching and bushfires are a major threat in Parc National de la Benoue [IUCN/UNEP 1987].

g. CHAD: Current security problems in Chad and habitat degradation threaten wildlife as well as a shortage of equipment and personnel. Poaching by military stationed at Fada has been a problem in Reserve de Faune de Fada Archei [IUCN/UNEP 1987].

h. DJIBOUTI: Forests are disappearing at an alarming rate due to human-induced degradation and climatic conditions [IUCN/UNEP 1987].

i. EGYPT: No information

j. ETHIOPIA: Protection of wildlife is limited by availability of land, complexity of land tenure, political unrest, finances to develop wildlife areas, and lack of trained personnel. A major problem is the general lack of awareness by Ethiopians of the value of conservation. Simen Mountain National Park may be threatened by a reported takeover by the Tigray People's Liberation Front [IUCN/UNEP 1987].

k. GAMBIA: No information

l. GHANA: Wildlife preservation is hampered by a shortage of trained personnel and field equipment, and by degradation of habitat in the increasing demand for fuel [IUCN/UNEP 1987].

m. INDIA: It suffers from nomadic tribal hunters in NW India who also supply the Kashmir trade. In Rajasthan, there has been an alarming decline because of a roaring trade in cat skins [Anon. 1984; Sharma & Sankhala 1984]. It is hunted in Sikar Bir, Sikar District; Daggi Malpura; Jaipur; and Doongargarh [Sharma & Sankhala 1984]. In Madhya Pradesh, development activities, including forest clearing, hydro-electric projects, irrigation, and mining have threatened and reduced available habitat and encouraged poaching [Gupta et al. 1984].

n. IRAN: No information

o. IRAQ: No information

p. ISRAEL: No information

q. JORDAN: No information

r. KENYA: The major obstacles to protection include a lack of planning documents, and deficiencies in manpower, scientific information, and finances. Poaching is a considerable problem in the country, both in and out of protected areas. Heavy encroachment and over-exploitation of forest areas occurs in many sites. Livestock grazing and poaching threaten wildlife at Kora National Reserve [IUCN/UNEP 1987].

s. KUWAIT: No information

t. LEBANON: No information

u. LIBYA: No information

v. MALAWI: The major threats to protected areas and wildlife are poaching, wildfire, and encroachment [IUCN/UNEP 1987].

w. MAURITANIA: No information

x. MOROCCO: No information

y. MOZAMBIQUE: The most serious threat to wildlife has been the guerilla war and almost every conservation area has been affected. This has led to increased hunting in and out of protected areas. In 1980, extreme shortages of equipment and manpower prevented any comprehensive wildlife program. Poaching and encroachment threaten Parque Nacional do Banhine as well as disturbances as a result of the war in Zimbabwe and internal disturbances in Mozambique. There is no staff for the park [IUCN/UNEP 1987].

z. NAMIBIA: The major threat to wildlife is the continued drought that has resulted in major areas of habitat degradation [IUCN/UNEP 1987]. It is classified as a problem animal because of predation on small stock [Stuart 1986a]. While the overall status is relatively stable, the range could decline with the increased use of control devices such as the coyote-getter and other poisons [Visser 1978].

aa. NIGER: Commercial and armed forces hunting is widespread. Poaching, illegal grazing, uncontrolled brush fires and encroachment threaten Park National de 'W'. In Reserve Naturelle Nationale de L'air et du Tenere, hunting is traditional and extensive exploitation threatens the park. The indiscriminate use of strychnine to kill predators threatens the cats [IUCN/UNEP 1987].

bb. NIGERIA: Although there have been advances in nature conservation for Nigeria in the savanna biome, little has been done in the last 20 yr for the wildlife in the southern rainforest where the majority of the animal species occur. Many protected areas are being degraded by excessive logging, farming, grazing and road-building. Hunting pressure is high, and only a few reserves contain a reasonable species diversity. Heavy poaching, cultivation, burning and the use of pesticides threatens Kainji Lake National Park. Severe poaching with modern weapons, forest clearance for human settlement, burning, and inefficient management threaten wildlife at Yankari Game Reserve [IUCN/UNEP 1987].

cc. OMAN: It is shot or killed whenever it is found by pastoralists in the Sultanate [Smith 1984].

dd. PAKISTAN: In Kirthar National Park and Lal Suhanra, park officials want to kill the cats because they take occasional fawns [Anon. 1984; Roberts 1984].

ee. QATAR: No information

ff. RWANDA: The major conservation problems in protected areas are competition for agricultural use, and poaching [IUCN/UNEP 1987].

gg. SAUDI ARABIA: The species is easily baited and trapped, making their continued existence precarious at best [Gasperetti et al. 1987].

hh. SENEGAL: The principal threats are persistent drought, mining exploration, dams and other water removal projects, and poaching. Although Senegal parks are among the most heavily guarded in the world, poaching is still a serious problem because of the large financial incentives [IUCN/UNEP 1987].

ii. SOMALIA: No information

jj. SOUTH AFRICA: Caracal are accused of surplus killing of domestic stock in areas where stock are kept in holding pens or against fencelines under intensive or extensive grazing conditions [Stuart 1988]. It is classified as a problem animal because of predation on small stock [Stuart 1986a; Stuart 1986b]. They may be preyed on by lions in Kruger National Park [Pienaar 1969]. While the overall status is relatively stable, the range could decline with the increased use of control devices such as the coyote-getter and other poisons [Visser 1978]. In 82% of the Cape Divisional Council districts, caracals are considered by farmers to be the principal wild predator of domestic wild stock [Stuart 1984]. In Bedford District, caracals became a problem after jackal-proof fences were erected to protect livestock. Caracals spread to farms where they had not been previously observed and began killing full-grown sheep and goats [Pringle & Pringle 1979]. The Boers believe that a rug of caracal skin will cure rheumatism [Kotwal 1984]. In Weza State Forest, Natal, poaching and fires threaten wildlife [IUCN/UNEP 1987].

kk. SUDAN: Current political changes in the country have made jurisdiction over wildlife and reserves unclear. Poaching is at an extremely high level, although, soldiers may be protecting resources within particular areas for their own use. However, reserves have never received much protection and have suffered from encroachment, cultivation and livestock hunting. Many of the protected areas have lost most of their wildlife [IUCN/UNEP 1987]. Armed rebels live off the land in many areas and shoot any game or other wildlife encountered. Government troops also kill wildlife for sport and food. It is reported, however, that wildlife conservation forces in the Equatorial region are able to keep poaching in this region to a minimum. There has also been considerable trade in skins and live animals. The biggest single threat is desertification, particularly in the north [IUCN/UNEP 1987].

ll. SYRIA: No information

mm. TANZANIA: Although nature conservation is a major land use in Tanzania with over 25% of the country in reserves, poaching has increased fueled by the 1973 hunting ban and the increased availability of automatic weapons. Habitat destruction due to over-exploitation and invasion by cultivation is also a threat [IUCN/UNEP 1987]. The deteriorating economic situation is leading to less field work and anti-poaching patrols [Anon. 1984]. There is less information on caracal status now than there was previously as field work is reduced, remote outpost staff are withdrawn, foot and vehicular patrols are reduced, and there is a decline of activity at the Serengeti Research Centre [Rodgers 1984].

nn. TUNISIA: No information

oo. TURKEY: No information

pp. UGANDA: Tourism collapsed following the military coup in 1972 and poaching by a well armed military led to the decline of many species. However, most rangers remained at their posts and the national parks organization remained intact. The major difficulty today is a lack of funds. About 8% of Uganda is in the reserves system and there is little natural forest remaining outside the reserves. Even that within the reserves has been partially destroyed. In Kidepo Valley National Park, incursion of poaching parties over the border from the E, W and particularly the NW have been reported [IUCN/UNEP 1987].

qq. UNITED ARAB EMIRATES: No information

rr. UNITED SOVIET SOCIALISTS REPUBLIC: No information

ss. YEMEN: No information

tt. YEMEN DEMOCRACY: No information

uu. ZAIRE: Although poaching has been reduced, some skin trade still operates and funds are needed for equipment and transport in protected areas [IUCN/UNEP 1987].

vv. ZAMBIA: The greatest threat to the parks system is poaching, which has recently been brought under control. Other threats include a lack of national land use plans, poor staffing levels and transport facilities. Wildlife in over one-half of the game management areas is assessed to be reasonable, although uncontrolled human settlement in some areas continues to be a problem [IUCN/UNEP 1987].

ww. ZIMBABWE: While the overall status is relatively stable, the range could decline with the increased use of control devices such as the coyote-getter and other poisons [Visser 1978].

5. Conservation Measures Taken:

a. AFGHANISTAN:

(1) Legislation and enforcement: This country became a signatory to CITES in 1986 [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

b. ALGERIA:

(1) Legislation and enforcement: This country became a signatory to CITES in 1984 [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

c. ANGOLA:

(1) Legislation and enforcement: Angola is not a signatory to CITES [TRAFFIC 1989]. In 1977, the Ministry of Agriculture supported creation of the National Directorate of Nature Conservation which provides for conservation areas. However, in many cases these do not conform to international standards. Protected areas are established under individual laws [IUCN/UNEP 1987].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

d. BOTSWANA:

(1) Legislation and enforcement: Botswana became a signatory to CITES in 1978 [McMahan 1982]. Protected areas are declared under the Fauna Conservation Proclamation of 1961. Hunting may be allowed under permit in some parks and on some species. Tribal lands are administered by local authorities and it is not possible to create national parks in these areas [IUCN/UNEP 1987].

(2) Occurrence in protected areas: It can be found in Gemsbok National Park/Mabuasehube Game Reserve [IUCN/UNEP 1987]

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

e. BURKINA FASO:

(1) Legislation and enforcement: Burkina Faso is not a signatory to CITES [TRAFFIC 1989]. An ordinance of 1968 sets hunting rules and designates protected areas, although certain provisions of the law have never been applied [IUCN/UNEP 1987].

(2) Occurrence in protected areas: It exists in Reserve Partielle De Faune De Kourtilagou in Fada n'Gourma Province [IUCN/UNEP 1987].

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

f. CAMEROON:

(1) Legislation and enforcement: This country became a signatory to CITES in 1981 [TRAFFIC 1989]. Legislation as of 1978 and 1983 designates National Parks for the propagation, protection, conservation and management of wildlife. Faunal reserves are intended to provide absolute protection [IUCN/UNEP 1987].

(2) Occurrence in protected areas: It is probably present in Park National de la Benoue in north Cameroon [IUCN/UNEP 1987; PADU 1988].

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: Species lists have been drawn up at Park National de la Benoue by UNDP/FAO [IUCN/UNEP 1987].

g. CHAD:

(1) Legislation and enforcement: This country became a signatory to CITES in 1989 [TRAFFIC 1989]. Legislation enacted in 1963 regulates hunting and the protection of nature [IUCN/UNEP 1987].

(2) Occurrence in protected areas: It exists at Reserve de Faune de Fada Archei in Fada, Borkou-Ennedi-Ti [IUCN/UNEP 1987].

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: There appears to be a firm commitment to nature conservation at all levels with renewed management effort within some protected areas, and an increase in anti-poaching efforts [IUCN/UNEP 1987].

(5) Research: A preliminary survey was carried out by Gillet and d'Elzies [1964] at Reserve de Faune de Fada Archei.

h. DJIBOUTI:

(1) Legislation and enforcement: Djibouti is not a signatory to CITES [TRAFFIC 1989]. Legislation was enacted in 1972 relating to the protection of natural resources [IUCN/UNEP 1987].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

i. EGYPT:

(1) Legislation and enforcement: Egypt became a signatory to CITES in 1978 [McMahan 1982].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

j. ETHIOPIA:

(1) Legislation and enforcement: This country became a signatory to CITES in 1989 [TRAFFIC 1989]. The Wildlife Conservation Regulations were enacted in 1972 and ammended in 1974 to regulate hunting and exploitation of preserved areas [IUCN/UNEP 1987].

(2) Occurrence in protected areas: It can be found in the Awash National Park and Awash West Wildlife Reserve [Blower 1968]; at Nechisar National Park between Abbaya Lake and Chamo Lake on the border between Gemu and Sidamo provinces; and at Simen Mountain National Park in the western Simen Mountains [IUCN/UNEP 1987].

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

k. GAMBIA:

(1) Legislation and enforcement: Gambia became a signatory to CITES in 1977 [McMahan 1982]. The Wildlife Conservation Act was passed in 1977 and provided for the conservation and rational management of wildlife. It outlawed hunting and enacted a ban on trading and export of animal products [IUCN/UNEP 1987].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

1. GHANA:

(1) Legislation and enforcement: Ghana became a signatory to CITES in 1976 [McMahan 1982]. Wildlife is protected and regulated under the Wild Animals Preservation Act of 1961 and other appropriate legislation of 1971-1983 [IUCN/UNEP 1987].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

m. INDIA:

(1) Legislation and enforcement: It is listed as Schedule I in the Wildlife Protection Act of 1972 [Panwar & Gopal 1984]. India became a signatory to CITES in 1976 [McMahan 1982].

(2) Occurrence in protected areas: It has been sighted in the Sariska sancutary in Rajasthan [Reichholf, 1981 in litt., cited in Stuart 1984].

(3) Occurrence in secure and nonsecure habitats outside protected areas: In Rajasthan, skins have been recovered in Pali (5). Sightings have been made at Ajabgarh; Buja, Sariska; Pali; Tehla, Sariska; Bodal, Ranthambhor; and Semli, Ranthambhor [Sharma & Sankhala 1984].

(4) Regulation of harvesting: No information

(5) Research: Proposals have been made on translocating caracal from Israel to India. Some opposition to the plan has been expressed [Anon. 1986]. This species is part of the research undertaken by the Zoological Survey of India [Gupta et al. 1984].

n. IRAN:

(1) Legislation and enforcement: Iran became a signatory to CITES in 1976 [McMahan 1982].

(2) Occurrence in protected areas: It has been reported in the Kavir National Park [Harrington 1977; PADU 1988]. It also exists in Arjan Protected Area on the southwest flank of the Zagros Mountains and Touran Protected Area in northeast Iran at the foot of the Alburz Mountains [PADU 1988].

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: A research station exists at Shiraz and serves Arjan Protected Area on the southwest flank of the Zagros Mountains. A research station has been proposed for Touran Protected Area in northeast Iran at the foot of the Alburz Mountains [PADU 1988].

o. IRAQ:

(1) Legislation and enforcement: Iraq is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

p. ISRAEL:

(1) Legislation and enforcement: Israel became a signatory to CITES in 1980 [McMahan 1982].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: Research has been carried out by Y. Wisebein in the northern Arava depression [Mendelssohn 1989].

q. JORDAN:

(1) Legislation and enforcement: Jordan became a signatory to CITES in 1979 [McMahan 1982].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

r. KENYA:

(1) Legislation and enforcement: Kenya became a signatory to CITES in 1979 [McMahan 1982]. The Wildlife Conservation and Management Act was enacted in 1976. The Wildlife Planning Unit was created in 1979 to develop management plans for protected areas [IUCN/UNEP 1987].

(2) Occurrence in protected areas: It exists in the Nairobi National Park [Bourliere 1963]; in Kora National Reserve on the Tana River east of Mount Kenya; and in Marsabit National Reserve in northern Kenya, north of Nairobi [IUCN/UNEP 1987].

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: Ecological studies have been carried out at Kora by the Royal Geographic Society in association with the National Museums of Kenya. A camp exists operated by the George Adamson Trust [IUCN/UNEP 1987].

s. KUWAIT:

(1) Legislation and enforcement: Kuwait is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

t. LEBANON:

(1) Legislation and enforcement: Lebanon is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

u. LIBYA:

(1) Legislation and enforcement: Libya is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

v. MALAWI:

(1) Legislation and enforcement: This country became a signatory to CITES in 1982 [TRAFFIC 1989]. Natural Resources are protected under the National Park Act of 1969 and the Game Act of 1954. A Department of National Parks and Wildlife was established in 1973 [IUCN/UNEP 1987].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

w. MAURITANIA:

(1) Legislation and enforcement: Mauritania is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

x. MOROCCO:

(1) Legislation and enforcement: This country became a signatory to CITES in 1976 [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

y. MOZAMBIQUE:

(1) Legislation and enforcement: This country became a signatory to CITES in 1981 [TRAFFIC 1989]. Protected areas were established in 1955 and hunting was banned in 1974. However, hunting by village co-operatives under a quota system has been authorized since 1979 [IUCN/UNEP 1987].

(2) Occurrence in protected areas: The species occurs in Parque Nacional do Banhine in the Gaza Province, northeast of the Limpopo River [IUCN/UNEP 1987].

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: A review of wildlife and protected areas was carried out by Tello [1986].

z. NAMIBIA:

(1) Legislation and enforcement: Namibia is not a signatory to CITES [TRAFFIC 1989]. The species is classified as "vermin" in all Provinces and receives no legal protection [Visser 1978; Stuart & Wilson 1988]. Protected areas were declared under the Nature Conservation Ordinance of 1975 [IUCN/UNEP 1987].

(2) Occurrence in protected areas: The species occurs in Waterberg Plateau Park in central Namibia, east of Otjiwarongo [IUCN/UNEP 1987].

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: CITES exports in 1980 included 4564 skins to Great Britain [McMahan 1982].

(5) Research: No information

aa. NIGER:

(1) Legislation and enforcement: Niger became a signatory to CITES in 1975 [McMahan 1982]. Despite the fact that all hunting has been banned in Niger, hunting is widely practiced in the absence of law enforcement [IUCN/UNEP 1987].

(2) Occurrence in protected areas: The species occurs in Parc National de 'W' SSE of Niamey on the bank of the Niger River extending to the borders of Niger, Burkina Faso, and Benin; and in Reserve Naturelle Nationale de L'air et du Tenere in the Air Mountains [IUCN/UNEP 1987].

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: A wildlife census was carried out by WWF and the Government of Niger in 1980 and 1982 [IUCN/UNEP 1987].

bb. NIGERIA:

(1) Legislation and enforcement: Nigeria became a signatory to CITES in 1975 [McMahan 1982]. Protection is based on Regional Game Laws enacted 1916, 1928 and 1963, and modified later. Since these laws were formulated when there was an abundance of wildlife, hunting for sport was included in the wildlife policy. They have reformed these laws and they are now being replaced by the Endangered Species Decree [IUCN/UNEP 1987].

(2) Occurrence in protected areas: The species occurs in Kainji Lake National Park N of Lagos; and in Yankari Game Reserve in Bauchi State, NE Nigeria [IUCN/UNEP 1987]. In 1969, it was increasing in the Borgu Game Reserve in N Nigeria [Howell 1969].

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: In Kainji Lake National Park, the Borgu section has been intensively studied and a research institute is located in New Bussa [IUCN/UNEP 1987].

cc. OMAN:

(1) Legislation and enforcement: Oman is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

dd. PAKISTAN:

(1) Legislation and enforcement: Pakistan became a signatory to CITES in 1976 [McMahan 1982]. In 1987, Pakistan extended an export ban on all wild mammals except for certain hunting trophies until August 1989 [Anon. 1989].

(2) Occurrence in protected areas: Found in Kirthar National Park and Lal Suhanra [Anon. 1984; Roberts 1984; PADU 1988].

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

ee. QATAR:

(1) Legislation and enforcement: Qatar is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

ff. RWANDA:

(1) Legislation and enforcement: This country became a signatory to CITES in 1981 [TRAFFIC 1989]. Current protection legislation was enacted in 1973. Protection was classified as total or controlled. The main purpose of legislation was to assure promotion of tourism [IUCN/UNEP 1987].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

gg. SAUDI ARABIA:

(1) Legislation and enforcement: Saudi Arabia is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

hh. SENEGAL:

(1) Legislation and enforcement: Senegal became a signatory to CITES in 1977 [McMahan 1982]. A Forest Code, the Code of Hunting, and the Protection of Nature (1967) form the principal legislation in force [IUCN/UNEP 1987].

(2) Occurrence in protected areas: They were conspicuous in Niokolohoba National Park in 1969 [Gaillard 1969].

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

ii. SOMALIA:

(1) Legislation and enforcement: This country became a signatory to CITES in 1986 [TRAFFIC 1989]. The Law on Fauna (Hunting) and Forest Conservation was enacted in 1969 and amended in 1970. However, this present law is obsolete and not fully workable [IUCN/UNEP 1987].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

jj. SOUTH AFRICA:

(1) Legislation and enforcement: Protection legislation includes the National Parks Act (1926, the Financial Relations Consolidations and Amendment Act (1945), the National States Consolidation Act (1971), the Forest Act (1968), and the Mountain Catchment Areas Act (1970) [IUCN/UNEP 1987]. Excellent protection is afforded in Natal Parks Board Reserves and Department of Forestry areas [Rowe-Rowe 1978]. The species is classified as "vermin" in all Provinces [Visser 1978; Stuart & Wilson 1988]. South Africa became a signatory to CITES in 1975 [McMahan 1982].

(2) Occurrence in protected areas: Found throughout Kruger National Park [Pienaar 1964]. Found in Giant's Castle Game Reserve and Itala Nature Reserve in Natal [Rowe-Rowe 1978] and in Portion of Weza State Forest [IUCN/UNEP 1987]. Also found in Mountain Zebra National Park 27 km SW of Cradock in Cape Province and the Kalahari Gemsbok National Park [Grobler 1981]. Sighted recently in Zululand in the Mkuzi Game Reserve [Stuart & Wilson 1988]. In Cape Province they also occur in Sederberg Mountain Catchment Area; Gamka Mountain National Park; Table Mountain Reserve; Silvermine Nature Reserve; Hawequas Mountain Catchment Area; Matroosberg Mountain Catchment Area; Groot Winterhoek Mountain Catchment Area; Langerberg East Mountain Catchment Area; Riviersonderend Mountain Catchment Area; Walker Bay State Forest; Knysna Indigenous Forests; Tsitsikamma Indigenous Forest; Storms River Nature Reserve; Otterford State Park; Suurberg State Forest; East London Coast State Forest; and Paarl Mountain Nature Reserve where only a few exist. In the Transvaal, it is found in Nelshoogte/Berlin State Forests, Ceylon State Forest, Morgenzon State Forest, and Uitsoek State Forest [IUCN/UNEP 1987].

(3) Occurrence in secure and nonsecure habitats outside protected areas: Found in the Weza forestry area and the Ngomi forestry region [Rowe-Rowe 1978]. Occurs in the Cradock, Uitenhage, Bredasdorp and Swellendam Districts, Cape Province [Bateman 1961].

(4) Regulation of harvesting: CITES exports in 1979 included 348 skins to the UK and 200 skins to FR Germany. In 1980, exports included 506 skins to the UK, 401 skins to FR Germany, and 220 skins to Hong Kong [McMahan 1982].

(5) Research: Research was carried out by Norton & Lawson [1985] on caracals in the Stellenbosch area, Cape Province. Feeding behaviour was examined by Grobler [1981] in Mountain Zebra National Park. An annotated checklist of the mammals of Gamka Mountain National Park has been published. Hawequas Mountain Catchment Area, Matroosberg Mountain Catchment Area, Groot Winterhoek Mountain Catchment Area, Langerberg East Mountain Catchment Area, Riviersonderend Mountain Catchment Area; and Sederberg Mountain Catchment Area are served by the Jonkershoek Forestry Research Station, Stellenbosch. Knysna Indigenous Forests area contains Saasveld Forestry Research Station, George, which also serves Tsitsikamma Indigenous Forest. Research in Nelshoogte/Berlin State Forests and Uitsoek State Forest is conducted from D.R. de Wet Research Station, Sabie [IUCN/UNEP 1987].

kk. SUDAN:

(1) Legislation and enforcement: This country became a signatory to CITES in 1983 [TRAFFIC 1989]. Wildlife is protected under the Preservation of Wild Animals Ordinance of 1935, the National Parks, Sanctuaries, and Game Regulations of 1935, and the Wildlife Conservation and Parks Act of 1975 of the Southern Regional Government. There are wide variations of protection by law in the northern and southern parts of the country [IUCN/UNEP 1987].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

ll. SYRIA:

(1) Legislation and enforcement: Syria is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

mm. TANZANIA:

(1) Legislation and enforcement: Tanzania became a signatory to CITES in 1980 [McMahan 1982]. The Wildlife Conservation Act of 1974 set up protected areas and provides for the protection of wildlife. The Ngorongoro area is protected and operated by a separate authority, the Ngorongoro Conservation Area Authority [IUCN/UNEP 1987].

(2) Occurrence in protected areas: They have been sighted in Serengeti National Park in the open plains as well as the Ngorongoro Crater [Bourliere 1963; Geertsema 1976].

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

nn. TUNISIA:

(1) Legislation and enforcement: Tunisia became a signatory to CITES in 1975 [McMahan 1982].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

oo. TURKEY:

(1) Legislation and enforcement: Turkey is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

pp. UGANDA:

(1) Legislation and enforcement: Uganda is not a signatory to CITES [TRAFFIC 1989]. The National Parks Act of 1952 and the Game Preservation and Control Act were enacted to protect wildlife an habitat. Hunting was banned for 5 yr in 1979 due to decreasing animal populations [IUCN/UNEP 1987].

(2) Occurrence in protected areas: The species occurs in Kidepo Valley National Park in the NE corner of Uganda, along the Sudan border, and near the Kenya border [IUCN/UNEP 1987].

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

qq. UNITED ARAB EMIRATES:

(1) Legislation and enforcement: The United Arab Emirates became a signatory to CITES in 1975 [McMahan 1982] and withdrew from CITES in 1988 [Anon. 1987b].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

rr. UNITED SOVIET SOCIALISTS REPUBLIC:

(1) Legislation and enforcement: Listed in the RED Book of Rare and Vanishing Animals of the USSR [PADU 1988]. Hunting is forbidden by law in Turkmen SSR [IUCN 1978]. The USSR became a signatory to CITES in 1976 [McMahan 1982].

(2) Occurrence in protected areas: The species exists in Repetek Zapovednik in the Chardzhou oblast' of the Turkmenskay SSR on the E edge of the Kara Kum Desert [PADU 1988]. It occurs in the 87,640 ha Badkhyz Nature Reserve in Turkmen SSR [IUCN 1978].

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: Several research stations exist at Repetek Zapovednik in the Chardzhou oblast' of the Turkmenskay SSR on the E edge of the Kara Kum Desert [PADU 1988].

ss. YEMEN:

(1) Legislation and enforcement: Yemen is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

tt. YEMEN DEMOCRACY:

(1) Legislation and enforcement: The Yemen Democracy is not a signatory to CITES [TRAFFIC 1989].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas: No information

(4) Regulation of harvesting: No information

(5) Research: No information

uu. ZAIRE:

(1) Legislation and enforcement: Zaire became a signatory to CITES in 1976 [McMahan 1982]. Protection is afforded by a law passed in 1969 that established the Institute Zairois pour la conservation de la nature [IUCN/UNEP 1987].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

vv. ZAMBIA:

(1) Legislation and enforcement: This country became a signatory to CITES in 1981 [TRAFFIC 1989]. The National Parks and Wildlife Act was enacted to preserve wildlife and habitat [IUCN/UNEP 1987].

(2) Occurrence in protected areas: No information

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: No information

ww. ZIMBABWE:

(1) Legislation and enforcement: This country became a signatory to CITES in 1981 [TRAFFIC 1989]. Protective legislation includes the Parks and Wildlife Act of 1975 and the Parks and Wildlife Regulations of 1981 [IUCN/UNEP 1987]. The species is classified as "vermin" in all Provinces [Visser 1978].

(2) Occurrence in protected areas: It occurs in Hwange National Park [Wilson 1984a].

(3) Occurrence in secure and nonsecure habitats outside protected areas:
No information

(4) Regulation of harvesting: No information

(5) Research: Captive breeding and research have been carried out at the Chipangali Wildlife Orphanage [Wilson 1984b].

6. Captive Propagation and research:

In Zimbabwe, good breeding groups of caracals exist at the Chipangali Wildlife Trust [Wilson 1984b]. Several reports on management, breeding and development have been published [Gowda 1967; Cade 1968; Kawata et al. 1975; Jones 1977; Povey & Davis 1977; Hemmer 1979; Law & Boyle 1981; Grobler 1982; Stuart & Stuart 1985]. Other studies have looked at melanism [Ulmer 1941]; genetics [Wurster-Hill 1973; Robinson 1978; 1979; Collier & O'Brien 1985; Newman et al. 1985]; vocalization [Peters 1984; 1987; Peters & Wozencraft 1989]; nutritional requirements [Scott 1968; Morris et al. 1974; Dierenfeld 1988; Lindburg 1988]; captive status surveys [Kawata 1982; Eaton 1984a; 1984b; Dvornich 1985]; and behavior [Mellen 1989].

7. Studbook and ISIS status:

Fairly common in zoos and breed well. ISIS listed the following animals in 1988:

Subspecies	males.females. unknown	% CB	% WB	Births last 12 mo.	Died less than 30 d
Generic	37.39.2	82	8	9 0	
F.c. caracal	2.3.0	80	20	0 0	
F.c. damarensis	2.2.1	100	0	1 0	
F.c. poecilotis	3.1.0	75	25	0 0	

8. Education:

In Botswana, there is an education unit within the Department of Wildlife and National Parks that is responsible for public awareness, interpretation of wildlife regulation, and information services through public meetings and school programs. A Wildlife Training Center was established at Maun to train game scouts in conservation and management, and is associated with the Maun Wildlife Education Park. The Kalahari Conservation Society, established in 1982, aids in conservation issues, research and education [IUCN/UNEP 1987].

In Cameroon, the Association of the Friends of Nature, initiated in 1973, carries out educational programs in schools to train a new generation of people sensitive to environmental problems. They also organize trips to parks, educate villagers in non-destructive management principles, and launch campaigns to save protected areas. There is also a wildlife training college at Garoua (Ecole de Formation de Specialistes de Faune), created in 1969 to train those involved in protected area management [IUCN/UNEP 1987].

In Ethiopia, a main responsibility of the Wildlife Conservation Organization, Natural Resources Conservation and Development Main Department, is public education and to increase the role of the people in development, protection, rational utilization and management of the forest and wildlife. A mobile education unit was provided in January 1984 by IUCN/WWF. A rural conservation education scheme was scheduled for 1984 [IUCN/UNEP 1987].

In Gambia, a big effort is being put into public education of an awareness of the importance of nature conservation. As part of this effort, photographs, films, and various publications are used, as well as organized visits to the Abuko Nature Reserve, the only reserve open to the general public [IUCN/UNEP 1987].

Throughout Kenya the Wildlife Club of Kenya is active in educational programs [IUCN/UNEP 1987]. However, the conservation of wildlife and maintenance of national parks is totally tourist oriented. Therefore, the average Kenyan's attitude to wildlife ranges from indifference to hostility, the parks being seen as playgrounds for rich foreigners. Kenyans are discouraged from visiting the parks by prohibitively high fees [Rudnai 1984].

In Nigeria, the Federal Forestry Research Institute of Nigeria was created to handle research and training, and has established a school at New Bussa that provides training in wildlife management. The University of Ibadan offers undergraduate and postgraduate training in wildlife and fisheries management [IUCN/UNEP 1987].

In Senegal, conservation education has been organized by the National Parks Directorate since 1976 in conjunction with IUCN/WWF. There are seven Amis de la Nature Clubs and a mobile education unit [IUCN/UNEP 1987].

In Sudan, wildlife education was begun in 1979 when the first Wildlife Club was established. In 1982, the African Wildlife Foundation supplied an advisor, a vehicle, and equipment to expand the program, and over a dozen Wildlife Clubs have now been established. The Sudan Wildlife Society was founded, in the north, in 1982 [IUCN/UNEP 1987].

In Tanzania, The College of African Wildlife Management at Mweka has trained technical staff from many African countries and is widely recognized as the pioneering training institution of its type in the world. The training program is directed towards middle-level managers with the majority of graduates achieving posts of assistant and senior field officers. There is no long-term secure funding arrangement for the college. In 1982, the Malihai Wildlife Clubs of Tanzania were set up under IUCN/WWF project 1779 to educate school children. A museum is located at Arusha and a magazine is produced [IUCN/UNEP 1987].

In Zambia, IUCN/WWF projects have been contributing to the encouragement of conservation awareness: the Chongololo Clubs for younger children have been set up in 950 places; and there are 145 Conservation Clubs for older students. There is a mobile education unit and a natural resource center planned that would include a library [IUCN/UNEP 1987].

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