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Abstract: The present range and distribution of the cheetah in Iran is a response to a wide range of factors, including security, food acquisition and breeding. These are the key forces driving Asiatic cheetahs towards largely unpopulated true desert, which certainly does not support high densities of ungulates. Their range and numbers have been reduced to their lowest within 30 years. It is difficult at this stage to explain things easily without quantification of the ecological, political, social and cultural factors involved. The cheetahs retreat to unsuitable habitats may be a temporary insurance against extinction but it is important to protect the area now.

# The environmental limitations and future of the Asiatic cheetah in Iran

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## 1. Introduction

Iran is a developing country with a large population. which has increased by 50% in the past 20 years. The country is now facing the imminent extinction of many native flora and fauna species because of rapid alteration of their natural environment, coupled with poor management and over-exploitation. Two decades of exploitation have destroyed much of its natural resources. The estimated rate of desertification is about two million ha. per year. National parks and other protected areas have been the most hard-hit areas. with the maximum destruction occurring between 1978 and 1990. In addition to direct killing and shooting of wildlife, particularly game animals and migratory waterfowl, the major cause of the rapid decline in the wildlife resources of Iran has been habitat disturbance. About 96% of the natural habitat of the country has now been altered. Another major cause of wildlife loss has been the commercial exploitation of certain wildlife species, e.g. gazelles, leopards, falcons, bustards, partridges, waterfowl and crocodiles. These wildlife species have been over-harvested from the wild mainly for export, without any concern for conservation and replenishment measures, resulting in a drastic fall in their populations. Under such pressure, some species may already be extinct and some brought to the verge of extinction, among them the Asiatic cheetah *Acinonyx venaticus*. The small population of the Asiatic cheetah in Iran is the only one remaining in the world. One young female is held in a government captive facility in Tehran, but there is no specimen in any zoo.

There is little doubt that cheetah numbers have declined in the past 20 years, but lack of reliable estimates precludes any calculation of the rate of decline. The increase in the human population has led to extensive loss of habitat and conversion of land which itself would have caused a decline in cheetah numbers. The Iranian wildlife authorities have been aware of the problem, but there have been no specific

cheetah conservation programmes, and only legal protection has been provided. Nevertheless, the cheetah has persisted in some protected areas. although these areas have lacked protection on the ground.

Collecting country-wide data and information on these subjects is difficult, and there are currently no quantitative data. The cheetah's main prey species, dorcas gazelle *Gazella dorcas* and goitred gazelle *Gazella subgutturosa*, *formerly had a geographic distribution similar to that of the cheetah, but they have suffered a substantial reduction in both range and number in the past 20 years. It is possible that the current distribution of cheetah parallels the present distribution of gazelles, if habitat loss and persecution are primarily responsible for the cheetah's decline. The relative reasons and importance of habitat loss and reduction in ungulate biomass and number of cheetah may tier from region to region.*

The position of the cheetah in Iran is indeterminate. While reduced in numbers, the cheetah is now apparently extending its range. The species is presently distributed throughout the plateau region to a varying degree. but information is scant. Early records, which consist of occasional sightings in well-known habitats, provide little insight into the abundance of cheetahs

The cheetah population in Iran never approached the densities seen in Africa. Nevertheless, in view of the vastness of the plateau region, it is probable that about 200 cheetahs existed before the Islamic revolution in 1978. During the revolution, a decrease in cheetah numbers became apparent, due in part to pursuit of cheetahs by well-armed hunters, but probably in a larger measure due to the slaughter of gazelles and other prey species. In the absence of any conservation work or protective measures for six years from 1979 to 1985, the cheetah was all but eradicated from some of its habitat by the mid-1980s. Since then, Iran's desert and semidesert have displayed overwhelming evidence of accelerated degradation of ecosystems. If nothing is done to arrest the decline in the number of cheetahs, there is no doubt that this flagship species will be extinct in the near future.

The desert habitat has improved since 1990. This has resulted in an increase in the herbivore population which had dropped to almost zero in some areas. But the rate of increase is slow. While poaching of cheetahs is prohibited, protection is not enough

to ensure its survival. To save the cheetah, its food must be saved, i.e. gazelles first and foremost. Existing protection measures are not sufficient to permit wildlife populations to increase to sustainable levels, and protection needs to be backed up by improvement of habitats.

The study indicated that the relative reasons and importance of habitat loss and reduction in ungulate biomass and number of cheetah differs from region to region in Iran. In Yazd and southern Khorasan, mining activities are causing considerable problems for cheetahs. In Kennan, Fars, Isfahan. and Semnan provinces, spreading agriculture and industries have reduced habitat available for cheetahs, while in the central and northern edge of the desert. the northern and eastern region of Khosh Yeilagh Protected Area, Golestan National Park and the northern part of Khorasan. Increasing use of firearms and increasing numbers of livestock must have been important in lowering ungulate densities and causing trouble for cheetahs.

Baluchistan province, including eastern Yazd and Kennan provinces up to the border with Pakistan and Macran region have been, and still are, centres of drug smuggling and armed disputes, run by outlaws. Here not only wild life, but very often humans, become the targets of killers. Increased human and livestock populations, combined with poor agricultural practices, have reduced wildlife habitats, and there is widespread and uncontrolled hunting throughout the desert.

Greater use of vehicles and modern guns by hunters has the potential to remove animals from major habitats, and is an active threat to wildlife. Today, nearly one million hunting gun licenses are issued, with an annual quota of 300 bullets provided by the State. As a result, populations of most wildlife species, game and nongame, protected and unprotected have been reduced to a minimum. These problems have been obvious in Iran for sometime, but nobody cared and no reliable censuses have been taken of major wildlife species to assess their status. As a result, most species are not labelled with the IUCN categories of Extinct, Endangered or Vulnerable. It would be reasonable to say that the status of most major species in Iran falls into the category of Data Deficient. The perception of threat currently focuses on the cheetah, leopard, bear, gazelles, wild sheep, wild goat, wild ass and deer.

Despite all this, there is firm evidence of the continued survival of a small population of the Asiatic cheetah in Iran.

## **2. Methods**

From July to December 1997, a preliminary study was carried out to obtain basic information on the cheetah in Iran, evaluating past and recent status, location of populations, and conservation measures taken.

### **2.1. Field work**

The areas surrounding Garmsar, Damghan, Semnan, the Khar-Touran NP and Khosh-Yeilagh PA in the north, and areas surrounding the Kalmand PA, Bafgh, and Mahreez region in the south were surveyed from August to December 1997, mainly to gather more evidence of the presence/absence of cheetahs and possible conflict with humans in the areas, and to assess the threats posed to long-term survival of the cheetah. Much of the information about cheetah habitats was obtained from interviews with hunters and villagers who had either previously encountered the animal in the wild or killed it. Habitat assessment mainly in terms of the cheetah's wild prey, was carried out.

### **2.2. Interviews and literature**

Presence of cheetahs for each area was tallied using various published and file documents as sources of information for the past 30 years. In addition to these sources, several wardens, agriculturists, state wildlife officials and local hunters provided valuable information about the current presence/absence of cheetahs. The files of the Department of the Environment also provided valuable information.

### **2.3. Knowledge of people and officials**

Little information could be gathered from junior wildlife officials or wildlife experts, since the former had been in the field without training for only the past couple of years, and the latter had not been in the field as far as the cheetah is concerned for the past 20 years. The knowledge of senior staff, some of whom had grown up in the

areas, was valuable. There were. also some notable exceptions, whose detailed and critical observations

provided valuable data. Some older sport hunters with a profound interest in and knowledge of wildlife were a very great help.

### 3. Historic distribution of the cheetah in Iran

Until about 100 years ago, the Asiatic cheetah was widely distributed throughout much of Asia. The distribution stretched from Palestine to Iran, and to the Arabian peninsula and eastward through Afghanistan to the Indian subcontinent. But over the years a combination of habitat conversion and killing eliminated the species from much of its range. At the turn of the century the only population that was known to have any long-term survival prospects was in Iran.

About 35 years ago, cheetah distribution still extended from the Kavir NP in the north-east through the Khar-Touran NP to the Khosh-Yeilagh PA and the Miandasht PA in the western part of Khorasan province and down through the Mootah PA to the Bahram-e-Gour PA in the southern part of Fars province. The southern zone of the desert that contained cheetahs extended from Fars province in the west to the northern part of Bandar-Abbas and into the southern Karman and the eastern Yazd. The distribution area was about 400,000 km<sup>2</sup>. Much of this area consists of vast expanses of desert, arid mountain ranges, or heavily dissected terrain (Map 4).

In the 1970s, about 200 cheetah were estimated to survive in seven reserves of varying size within the desert region known as the Kavir. They were Bahram-e-Gour Protected Area, Kalmand Protected Area. K&r-Markazi National Park Khar-Touran National Park and Protected Area. Khosh-Yeilagh Protected Area and Wildlife Refuge, Miandasht Wildlife Refuge and Mootah Protected Area. Their size and location are found in Table 1 and Map 2.

**Table 1. See also [Map 2](#).**

Name (Map 2 location)	Area (ha)	Province	Date establ.
Bahram-e-Gour PA (9)	385,000	Fars	1973
Kalmand PA (7)	300,000	Kerman	?

Kavir-Markazi NP (1)	609,000	Central State	1964
Khar-Touran NP & PA (6)	431,000	Semnan	1973
Khosh-Yeilagh PA & WR (3)	154,000	Semnan	1963
Miandasht WR (5)	52,000	Khorasan	1974
Mooteh PA (10)	159,000	Isfahan	1964

#### 4. Current range of the cheetah in Iran

Recent information indicates that the current range of the cheetah in Iran covers about 200,000 km<sup>2</sup>. Much of this terrain consists of vast expanses of desert, arid mountain ranges, and heavily dissected terrain, largely unpopulated except for herdsmen. Adding to the difficulty of conserving cheetahs over the plateau region is their apparent tendency to occupy foothills and mountains to the exclusion of plains in the main areas.

The last stronghold of the cheetah appears to be the Kavir NP, through the south of Garmsar, Damghan, Semnan, Shahroud and the Khar-Touran NP into the Tabas and Nayband regions in the southern part of Khorasan province. The area inhabited by cheetahs amounts to about 130,000 km<sup>2</sup>. However, the species range is not limited to these areas, but extends into the Bafgh, Ardakan and the Kalmand PA to the south, and into the Naian, Khor and Beeyabanak in the east of Isfahan province, amounting to about 70,000 km<sup>2</sup>. The species presence in these areas is known because they have been sighted.

The above presents a general picture of cheetah range. There is an urgent need for surveys to determine the whereabouts of viable populations. This applies particularly to the remaining unfragmented area in the centre of the desert, and other areas across the frontiers in Pakistan and Turkmenistan.

#### 5. Preliminary description of cheetah populations in Iran (Map 1).

- 5.1. Population A

Circumstantial evidence indicates definite dispersal of cheetahs from the Khosh-Yeilagh and Miandasht PAs towards southern Khorasan unprotected zone, where cheetahs were thought to be scarce in the past. The cheetahs

began to disperse as early as 1980, presumably to obtain food, shelter, and mates, and to avoid enemies -- rather than to occupy new territory for its own sake. It is not clear which corridors they used.

It is not yet known whether the dispersed cheetahs have established themselves in the new territory. There is no data available about their breeding or whether any young have been able to survive. It is also not known if cheetah numbers and the rate of increase are suitably adjusted to the new environment. These cheetahs might be able to adapt and establish themselves for some time, but in the absence of protective measures they may die out. There are no other data on the population status, but this survey indicates that there are at least 15 to 20 cheetahs in southern Khorasan. Groups of 5-8 cheetahs are reported to have been hunting mainly wild sheep *Ovis orientalis* in areas of rolling hills. ([Map 1](#): PA)

## **5.2. Population B**

The second population surviving in unprotected areas is in the Bafgh region of Yazd province. Records of cheetahs from the area go back to the 1970s. Much of this region consists of arid mountain ranges, largely unpopulated. There were reports that cheetahs hunted wild sheep in this dissected terrain. Population estimates are very difficult, but probably 10 to 15 cheetahs still survive in the region, including Kalmand PA. ([Map 1](#): PB)

## **5.3. Population C**

In the unprotected area of eastern Isfahan, the terrain consists of vast expanses of desert, unpopulated except for herdsman grazing their goats and camels. In the past, most reports corresponded with the known areas of gazelle populations, which are very low at present. On the other hand, livestock numbers have increased. Poison has been put in camel carcasses by herdsmen in an attempt to kill cheetahs. The region might support 5-10 cheetahs, widely scattered throughout the region. ([Map 1](#): PC)

## **5.4. Population D**



In Kavir NP cheetah reports are frequent in this vast desert and dissected arid mountains. The population estimate is 10-15, and the range corresponds well with the area of gazelle populations. ([Map 1](#): PD)

### 5.5. Population E

In Garmsar, Damghan and Semnan unprotected areas in the northern part of the plateau, the current population number is 5-10 cheetahs, mainly concentrated near human areas, which consist mainly of agricultural farmlands. There is reason to be cautious about the future of this population. ([Map 1](#): PE)

### 5.6. Population F

The Khar-Tooran NP and PA may possess the highest cheetah density in Iran. Cheetah reports are frequent here, but are of varying degrees of credibility. The population estimate for this vast expanse of desert terrain is 15 to 20 cheetahs. ([Map 1](#): PF)

## 6. Location records for cheetah in Iran over the past 20 years

**For many years past, there have been reports of cheetahs in and around the desert and steppes of Iran from hunters, wildlife wardens, miners and farmers. The sighting of eight animals was reported during the Islamic Revolution of 1978. Some cheetahs might have been poached or captured and quite a few may have succumbed when chased by people in four-wheel drive cars.**

□ Ten cheetahs were sighted in Kavir NP between 1978 and 1985: one female with one cub aged about eight months; a female with two cubs of about eight months; one dead cheetah, unknown sex; and four male cheetahs. All were sighted in the months of October and November in an area of about 1,540 km<sup>2</sup>. The locations were in rolling hills of the Chashmceh Ghaleeh, Tangeh Shah; Chashmech Ein-ul-Rashid and the Plateau of Shakar-Ab, near a spring. During the same years, there were sightings of many wolves and over 1,000 gazelles in the same area. The concentration appears to have been due to the presence of livestock in other parts of the national park and the presence of

military with heavy weapons exercising elsewhere. Today, the same area supports no more than 30 gazelles and only two cheetahs (Asghar-Toufighi enforcement personnel, Kavir NP, pers. comm.).

- Female cheetah with two cubs killed by a hunter, Mansour-Farhang, in the Shahre-Kurd region, in the steppes of the Zagros mountains. The hunter was seriously injured by the mother cheetah when he attempted to capture the cubs. (Hunting and Nature magazine No. 47, August 1997) (*editors' note: this report probably refers to a leopard, as cheetah generally do not attack people KN*).
- Cheetah reported from the Haftad Gholleha PA in Markazi province (Ghybolah Davoodi, Wildlife surveyor, pers. comm.)
- Cheetah reported from the Bandar Abbas region.
- Cheetah seen in August 1997 in Kavir NP (Mansour Ataroodi, Tehran Capital Territory Deputy in charge of Wildlife, pers. comm.)
- Tracks of two cheetahs found around the carcass of a young camel, which had been killed by a car in 1995 near Meesri Farm, Beeyabanak district in eastern Isfahan province. (Zandeh Moghadam, Isfahan Province Deputy in charge of Wildlife, pers. comm.).
- Cheetah sighted in the Choopanan area, east of Nayan in eastern Isfahan 1997 (Zandeh Moghadam, pers. comm)
- Cheetah seen in the Mooteh PA in the area of salt Batoak in 1997 (Zandeh Moghadam, pers. comm.).
- Male cheetah was killed in 1991 by a revolutionary guard in the suburbs of the city of Samnan (Mansoori, pers. comm.).
- Farmers from Zearag area, 15 km south of the city of Semnan and at the edge of northern boundary of the KharTouran NP, reported that, due to drought, gazelles came out of the park to feed on crops, followed by cheetahs in search of prey. In encounters with shepherd dogs and village watchdogs, cheetahs killed six females and two **puppies and fed on them in 1994 (M.R.L. pers. comm.).** (*Editor's note: leopard?*)
- The game warden of the Golestan NP saw a cheetah kill his chained puppy dog in the Dasht area, within the park in 1992 (Shokraee, pers. comm.). One cheetah was sighted in the Bahkadeh valley in the Golestan NP in 1990 (Karegar, former park manager, pers. comm.).

## 7. Population estimates ([Figure 5](#))

From August 1981 to September 1997, personnel of the range provinces of the Department of the Environment reported deaths and sighting of 54 cheetahs in widely separated localities. The data indicated a maximum 57 and minimum 54 animals.

Population estimates are very difficult to achieve, but it appears that the total population certainly exceeds 50 individuals, and probably does not exceed 100, or an average density of 1/2000 km<sup>2</sup>.

The total number of cheetahs in national parks and protected areas was 23: 12 in Khar-Touran NP, seven in Kavir NP, one in Parvar PA, one in Bahram-e-Gour PA, and two in Khabar PA.

The number of cheetahs outside protected areas seems to be higher compared to than inside protected areas. In the area between Kavir NP and Khar-Touran NP, there were nine cheetahs: 10 cheetahs in the south-central province of Yazd, and 10 in southern Khorasan.

Data with supporting documents of the death of cheetahs in the past 14 years showed that the total number killed was 12, which might represent one-fifth of the total population in the country. There were five cheetahs killed in three years in the Bafgh region, and three in southern Khorasan. Deaths reported from protected areas were: two in the Kavir NP and two, most probably, in the Khar-Touran NP. This high death rate must be halted urgently, given the low population of cheetahs.

These accounts may have included some duplication, but in view of the topography and the difficulty it imposes on sighting the count quite likely represents the minimum population.

## **8. Threats to the cheetah in Iran**

Much concern has been generated regarding the plight of the cheetah all over the country, but little effort has been made to do something to halt the high death rate. According to information based on reports by wildlife officials, many deaths are not reported by shepherds and villagers and are not noted by officials and therefore go unrecorded. Conflict and friendships between officials of the Department of the Environment and universities and influential rural hunters in the provinces have also allowed illegal activities to go undetected, adding to the cheetah's problems.

The six protected areas known to have cheetahs now have a low number of herbivores, a low level of protection and high pressure from livestock grazing. The number of the cheetahs in some of these sites (Khar-Touran, Kavir-Markazi, Parvar and Bahram-e-gour) varies because some of them may visit other zones for a time and then return to the original habitat. Outside protected areas, cheetahs break up into smaller units and individuals move independently in unprotected zones near human habitation, thereby becoming vulnerable to direct persecution by humans, either shepherds or local hunters, because they become dependent on livestock. They also become an easy target for people in four-wheel drive vehicles and motorbike riders, who chase cheetahs, which may be captured, scared out of the area, or, in most instances, die of exhaustion.

There is no report of any sighting or any sign of cheetah from Miandasht, Khosh-Yeilagh or Mooteh protected areas in recent years, although cheetah deaths and illegal hunting have been reported, some of which have been highlighted in the press (see news clipping attached to this report).

Human/cheetah conflict in unprotected zones of the country where there are gazelles, which live close to human habitations and cultivation is serious, because there are gazelles feeding on crops and cheetahs searching for prey in the same vicinity. Systematic research and educational programmes must form the basis for improved management of gazelles. The project must include a study to ascertain the present status of the many cheetah conflicts near human habitation. It would then be essential to work out ways and means of reducing these conflicts, which result in much damage and destruction of wildlife and cultivation.

However, the main threats to the cheetah population are poaching and habitat destruction.

### **8.1 Habitat and prey base destruction**

The problem of the cheetah provides yet another compelling argument for ending the practices leading to the desertification that has been sweeping

much of the region, and which is turning large areas into degraded environments of no economic or wildlife value. The areas it inhabits represent the few unfragmented desert habitats left in Iran, which still support some wildlife species. Much of the area is between 100-600 metres in altitude and is characterised by ranges of low hills, with a derelict look burned by the sun. A desolate scene is inevitable, the product of aridity, for rainfall is only 180 mm. a year, much of it falling between December and April. The dry season extends from June to October. The vegetation belongs to the deserts and steppes of Central Asia. Here and there are stunted acacias, which have been cut and left to die. Some sandy flats are abandoned fields where an itinerant settler coaxed a crop before giving up the soil to the winds.

Herds of black-haired goats, thin, bony creatures, scour the terrain, leaving only thorny and ill-tasting plants in their wake. Had humans not misused this land, we would be walking through woodland, with wild asses standing in the broad-crowned shade of acacias, and cheetahs stalking unsuspecting gazelles. The woodlands are gone now, the rivers dry except after a downpour, and only a few of the cheetahs, gazelles and wild asses remain in isolated populations throughout the desert.

## **8.2. Poaching**

In the past, hunters killed cheetahs for trophies, trade and fun. Today, poaching is the most serious threat facing the cheetah, given the small number of animals. In each population there may be only 1-15 animals. Given the uncertain sex ratio, poaching of any animal could easily undermine the long-term survival of the species. The problem is further compounded by the fact that there are many guns and rifles freely available for anyone wishing to poach, a legacy of the long war with Iraq. Besides, hunting is a traditional way of life for many Iranians. Most of them do not realize the importance of the cheetah in the scheme of things.

## **Mining**

The cheetah area is rich in commercially and industrially important minerals which are being exploited by the Department of Mines. The most important- and also the biggest operations are the coal mines in the Nayband region of southern Khorasan province, which has the largest population of cheetahs outside the protected areas and where there are already cheetah casualties.

The second largest mining operation is for iron ore in Bafgh in Yazd province. This region also contains a large population of cheetahs outside protected areas, the largest in the southern part of the country.

The third largest mining operation is for copper in the Zarand region of Kerman province, an area within the range of the cheetah.

Mining itself is not a direct threat to cheetahs, but construction of motorable roads makes cheetah areas accessible to people -- including poachers. Fortunately, the mines belong to the Government, and so it is possible to seek its cooperation for conservation of the cheetahs.

#### **8.4. Livestock grazing**

Livestock grazing without consideration for the capacity of the range and the season has been one of the primary agents of destruction of nature throughout Asia, and Iran is no exception. The number of livestock in Iran is three times more than the range can support.

Rangelands in Iran are estimated to cover 90 million ha. The rangelands are divided into three categories according to herbage yield:

12	million	ha.	summer	ranges
60	million	ha.	winter	ranges
18 million ha. desert and sub-desert ranges.				

At present much of the area is relatively unproductive due to the pattern of grazing domestic animals. The rangelands produce only 10 million metric tonnes of herbage annually, which can feed 50 million livestock, but at the present time, 150 million head of livestock are grazing there.

Almost all rural people resident within cheetah habitat have goats and sheep. The problem was a major hindrance to conservation of wildlife in the past. However, livestock grazing has become a widespread commercial venture, and overgrazing is common. The protected areas are also the most obvious choice of the grazers because they are productive. Most rural people do not realise the damage caused by their actions. However, there are legal possibilities of working out a solution between the Department of the Environment and the Department of Forest and Range Management to control livestock grazing in protected areas, or at least in the core areas or in particular national parks. If the departments are willing to do so.

### **8.5. Inbreeding depression**

Given the small population and fragmented distribution cheetahs in Iran may already suffer from loss of genetic diversity through random loss of rare genes and increased inbreeding. An immediate effect of the depletion of genetic variability is increasing homozygosity of the individuals in the population. This can lead to lower birth rates, birth defects, higher mortality, and vulnerability to disease and parasites. Inbreeding depression does not necessarily mean the end of the population if corridors to link sub-populations can be established and maintained, and cheetahs are given the opportunity to recover quickly over a few generations. Viability can be assured, even at a lower level of genetic variance.

### **8.6. Other issues**

The existing protection principles for wildlife resources follow conventional strategies that do not recognize participation of local communities in the planning and management of wildlife habitats. The Wildlife Act assumes that the entire responsibility for protection and management of wildlife should be borne by the government alone.

This clearly shows the concept of isolating the people from any protection and management of their natural heritage. Such a conventional approach is contributing to the destruction of wildlife resources, as well as natural habitats.

Though wildlife conservation receives high priority in principle, the budget allocation and its utilization, and project performance in successive plan periods, reveal weak implementational capability by the concerned agencies. Often the enforcement of existing wildlife laws seems minimal or almost non-existent.

The Department of the Environment itself suffers from a lack of sufficient and trained staff, insufficient training opportunities, inadequate funds; and institutional bottlenecks.

Furthermore, current conservation efforts are limited by the lack of popular awareness about the importance of a healthy environment. Commercial interest in wildlife trade has further accelerated the rate of exploitation. The growth rate in exports indicates the urgency of addressing the issue. The products are taken directly from the wild without any knowledge of the existing population or the allowable maximum sustainable yield and without undertaking any measures for replenishment or allowing sufficient time for natural regeneration. This is largely responsible for the rapid depletion of wildlife populations that has led to unprecedented local extinctions.

In Iran, there is a dearth of in-depth information relating to the ecological and behavioural characteristics of the wildlife species we wish to conserve. There are not even any reliable current estimates of the fauna<sup>1</sup> diversity, respective populations and distribution patterns, or knowledge of which species are threatened, endangered or already extinct. Research on ecological and behavioral characteristics, status, distribution and zoological aspects of wildlife is still not even in the planning stage.

## **9. Recommendations**

The cheetah is an indicator species of the health of its environment because it occupies the peak of an ecological pyramid dependent on abundant prey, which itself depends on vegetation and the organisms which make nature work. Most of the known habitat of the species has been degraded and needs restoration and enrichment. Few data have been collected on major wildlife



species, even in protected areas. Such data are necessary if an effective management plan is to be drawn up. Therefore, management of the desert ecosystem is essential to ensure that the full spectrum of wild nature is maintained or, where necessary, restored.

Insufficient data are available on the natural history of the cheetah in Iran: its population characteristics, distribution and migration patterns and other movement to make detailed recommendations on future management. No reliable information is available on births and deaths in order to ascertain if cheetah populations are growing or decreasing.

No data are available on the feeding habits of the cheetah in Iran, but anecdotal reports indicate that they take gazelles and hares *Lepus capensis*. Cheetahs are also reported to kill wild sheep and, possibly even wild goats *Capra aegagrus* in areas of rolling hills and mountains.

The following measures are required:

### 9.1. Habitat

Detailed surveys of habitats and species distribution patterns should be undertaken to assess the extent to which the full range of biological diversity is represented within protected areas; to identify priority areas rich in species for conservation; and to examine the management status of a number of conservation areas in which cheetahs occur in Iran with respect to both the conservation of the species and provision for local people.

Aerial surveys of desert regions should be undertaken where dangerous terrain makes it inadvisable to use vehicles, with a view to locating wildlife concentrations and suitable areas for management of desert species.

Cheetah reserves for inclusion in the protected area system should be established. Areas within Khorasan, Yazd and Damghan provinces should receive special attention.

Livestock grazing in protected areas must be eliminated and controlled outside them to protect fragile desert habitat.

## **9.2. Law enforcement**

Illegal hunting and poaching must be brought under control, for which a considerable increase in personnel, equipment and training is required. National and international cooperation is necessary. A moratorium on hunting should be considered for some parts of the country.

A wildlife school to train wildlife officers and wardens is needed to upgrade the quality, as well as the number, of personnel of the Department of Environment in order to reduce and control the number of illicit cheetah killings and captures, and improvement of general wildlife law enforcement.

## **9.3. Captive studies**

Systematic study of the cheetah in captivity in Pardisan Park in Tehran should be carried out in a proper environment to provide data to assist management in the wild.

## **9.4. Education and public awareness**

Public awareness and ecodvelopment programmes are needed with cooperation between the Department of Environment, media, and local communities in cheetah range. People need to be convinced that the cheetah is not a danger to humans, and that improved husbandry can limit cheetah predation on livestock.

Imams should condemn killing of cheetahs and gazelles during Friday prayers.

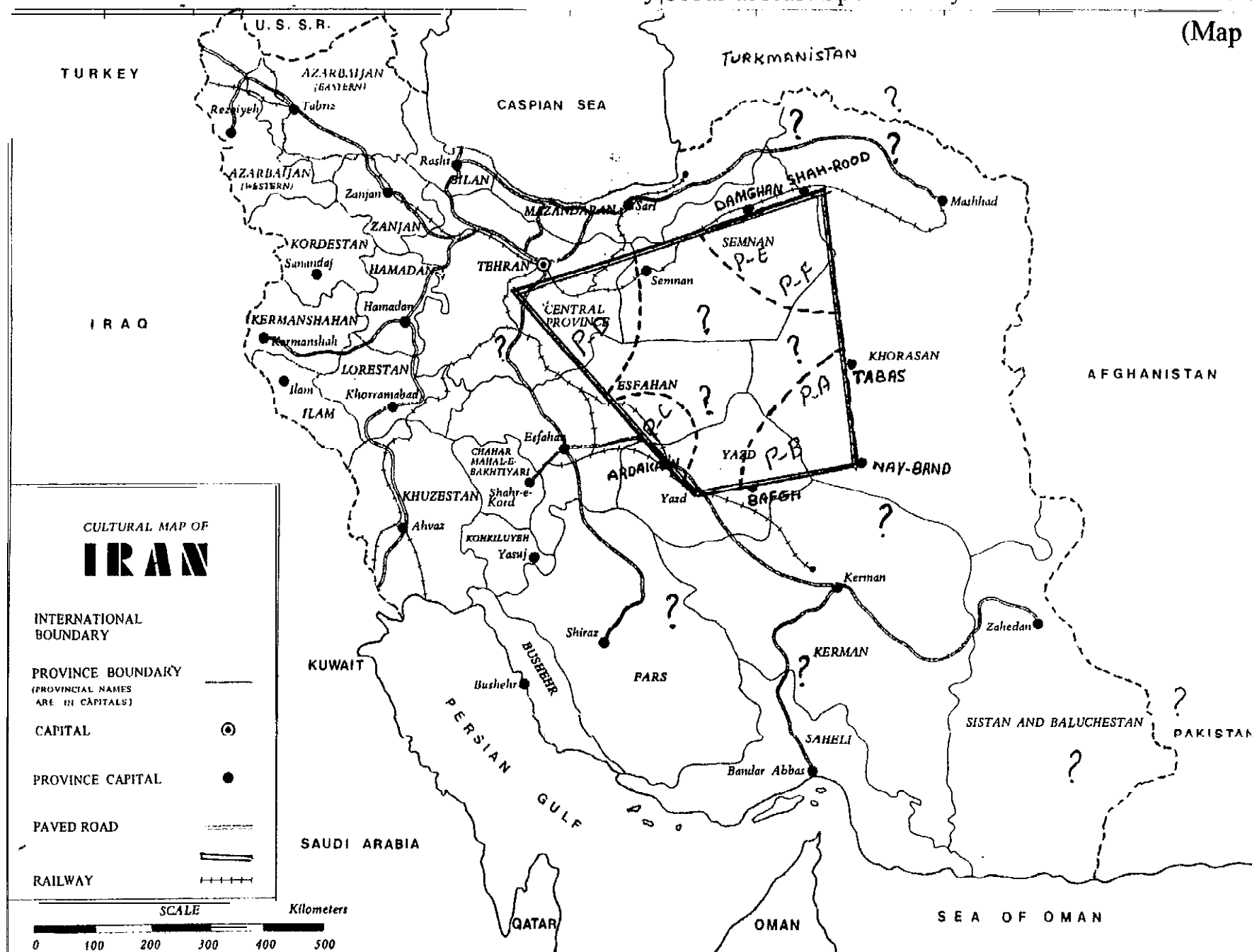
## **10. Conclusion**

The present range and distribution of the cheetah in Iran is a response to a wide range of factors, including security, food acquisition and breeding. These are the key forces driving Asiatic cheetahs towards largely unpopulated true

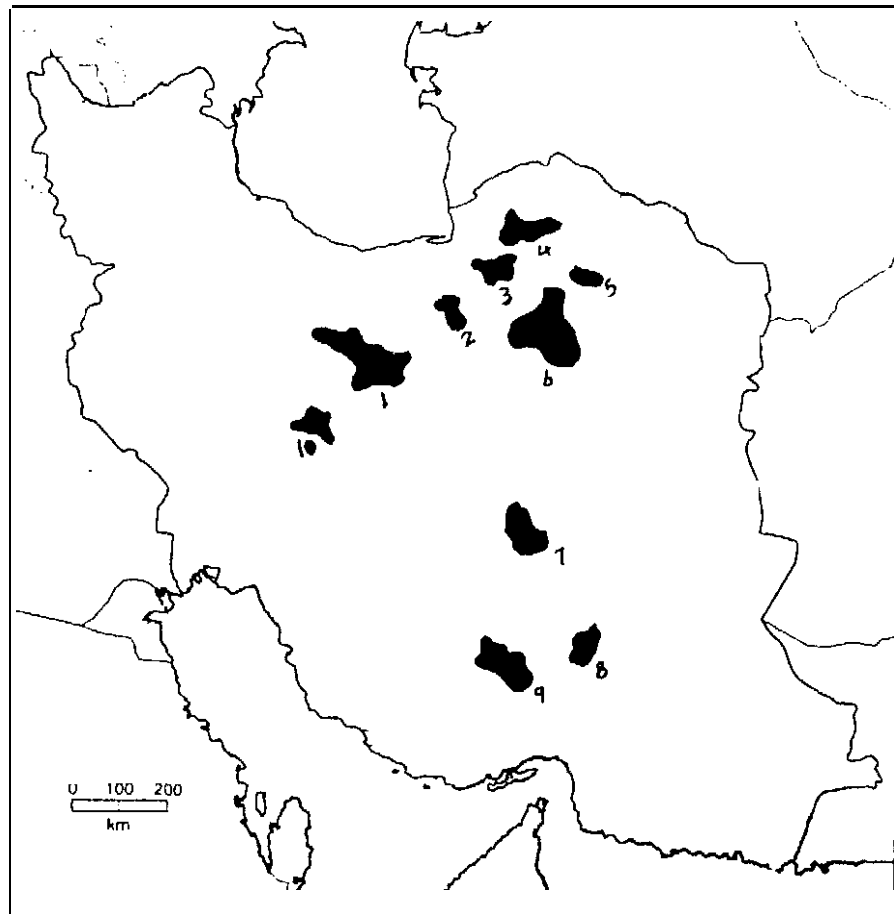
desert, which certainly does not support high densities of ungulates. Their range and numbers have been reduced to their lowest within 30 years. It is difficult at this stage to explain things easily without quantification of the ecological, political, social and cultural factors involved. The cheetahs retreat to unsuitable habitats may be a temporary insurance against extinction but it is important to protect the area now.

In sum, the cheetah is surviving in Iran. with limited protection, because the habitat it occupies over much of the plateau acts to some extent as a natural refuge. If this were not the case, the species most certainly would have become extinct in Iran by the 1980s. However. this natural protection should not be taken for granted. Given increased protection. extensive research programmer in reserves, and through the management efforts outlined above, all taken together, there would be reason for cautious optimism with respect to the future of the cheetah in Iran.

(Map 1







- 1 - Kavir National Park
- 2 - Parvar Protected Area
- 3 - Khosh-Yeylagh Wild life Refuge
- 4 - Golestan Nation Park
- 5 - Main-dasht wild life Refuge
- 6 - Khar-touran National Park
- 7 - Kalmand Protected Area
- 8 - Khabr-o-Roshan Wild life Refuge
- 9 - Bahrahm-Gour Protected Area
- 10 - Mootch Protected Area

(Map 2)  
Locations of the Main Protected Areas Important for Cheetah  
Conservation

TURKMENISTAN

1.96



340

124

360

280

2K<sup>3</sup>

No	location	Area	Date	Number of Cheetah	Age	Sex	Time	Remarks
1	Kaviar Markazi	National park	95.5.28	Two	Adult	1-female UN	4 pm	The female had Tumor Captured Treated and Release
2	Kaviar Markazi	National park	86.2.3	One	Adult	UN	?	Sighted near water
3	Kaviar Markazi	National park	90.9.9	One	Adult	UN	13 pm	Sighted near water
4	Kaviar Markazi	National park	91.5.28	One	Adult	female	?	Sighted near water
5	Damghan	Free zone	91.4.20	Three			6.30 pm	
6	Damghan	Free zone	91.4.21	Three	One Adult Two cubs	Females	11 am	
7	Damghan	Free zone	97.8.15	Two	Adult	?	?	
8	Kerman	P. area	89.12.14	Two	Adult	UN	?	
9	Yazd Province	Free zone	94.3.1	Three	One female	UN	?	One female + 2 cubs Ardakan Area - Yazd

sub total=18



No	location	Area	Date	umber of Cheetah	Age	Sex	Time	Remarks
10	Yazd Province	Free zone	97.8.15	One	Adult	UN	?	Bafgh Area - Yazd
11	Semnan Province	P. area	85.11.1	One	7 months	Female	?	Naz-Kooh Area Weight = 12 kilogram Khar-Touran N.P
12	Semnan Province	P.A	96.8.12	Three	One Adul 2-cubs	Female	?	Cheshmeh-Ab Area Khar-Touran - National Park
13	Semnan Province	P. area	94.9.4	one	Adult	UN	7.30 pm	Chah-Mahei area Khar-Touran - National park
14	Semnan Province	P. area	94.8.6	One	Adult	UN	11 am	Chesmeh-Sang Khar-Touran - National park
15	Semnan Province	P. area	85.6.29	Two	Adult	UN	?	Cheshmeh-Shoor Khar-Touran - National park

1

sub total=9

No	location	Area	Date	Number Cheetah	of Age	Time	Mortality	Remark
1	Southern Khoorasan	Free zone	85.8.25	One	Adult	?	killed	By car of coal mine
2	Southern Khoorasan	Free zone	89.2.20	One	Adult	?	Death	60 km, North west of Tabas
3	Southern Khoorasan	Free zone	89.2.10	One	Adult	?	Death	Dorounch
4	Kaviar-Markazi	National park	86.11.16	One	Adult	?		Cheashmeh Bead
5	Kaviar-Markazi	National park	86.11.12	One	Adult	?		?
6	Yazd Province	Free zone	94.9.12	Three	5 months	?	2 cubs killed 1 Captured	Bafgh
7	Yazd Province	Free zone	97.8.9	Two	Adult	?	killed	Not Reported
8	Semnan Province	?	?	One	Adult	?	Poached	Not Reported
9	Semnan Province	?	?	One	Adult	?	Poached	Not Reported
				total = 12				

killed, Hunted, Captured, Poached

Cheetahs

Sources = Files Dept of

(Figure - 2)

From - 1985-1997

The Environment

No	location	A r e a	Date	Number of Cheetah	Age	Sex	Time	Remarks
16	Semnan Province	P. area	90.3.22	Three	Adult	UN	?	Dasht-e-Jeard near village Khar-Touran - National park
17	Semnan Province	Free zone	94.11.11	Two	Adult	UN	?	kai - kai Area of shah road
18	Semnan Province	P. area	94.9.30	One	Adult	UN	?	Cheshmeh-Lal area Parvar. P area
19	Fars Province	P. area	89.11.22	One	Adult	UN	?	Bahram - Gour P. area
20	Souther Khoorasan	Free zone	87.12.14	Five	Adults	UN	?	Nayband area
21	Souther Khoorasan	Free zone	89.2.16	Five	Adults	UN	?	60 km North-west of Tabas

sub total=17

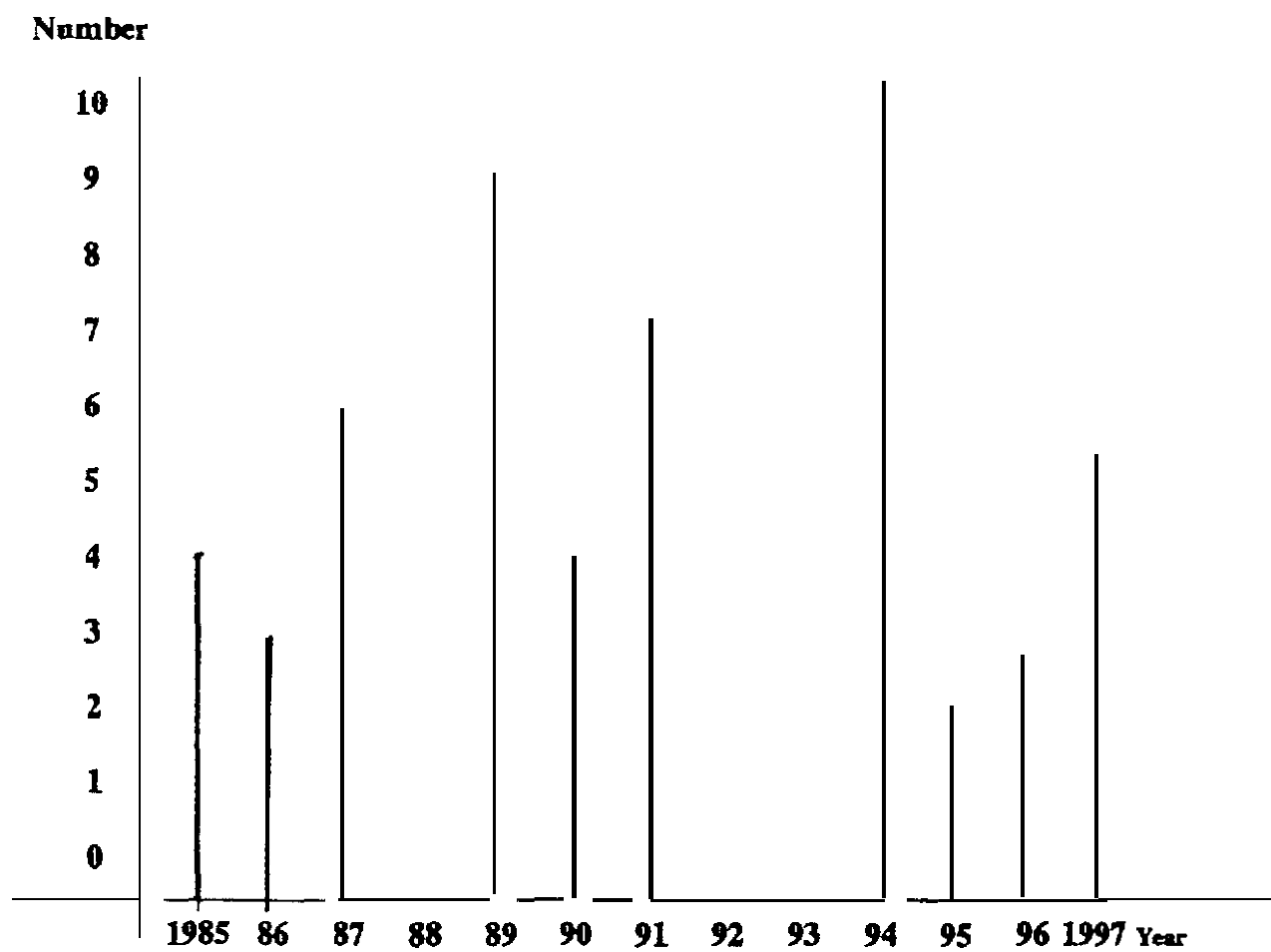
Total=44

P.A: Protected Area

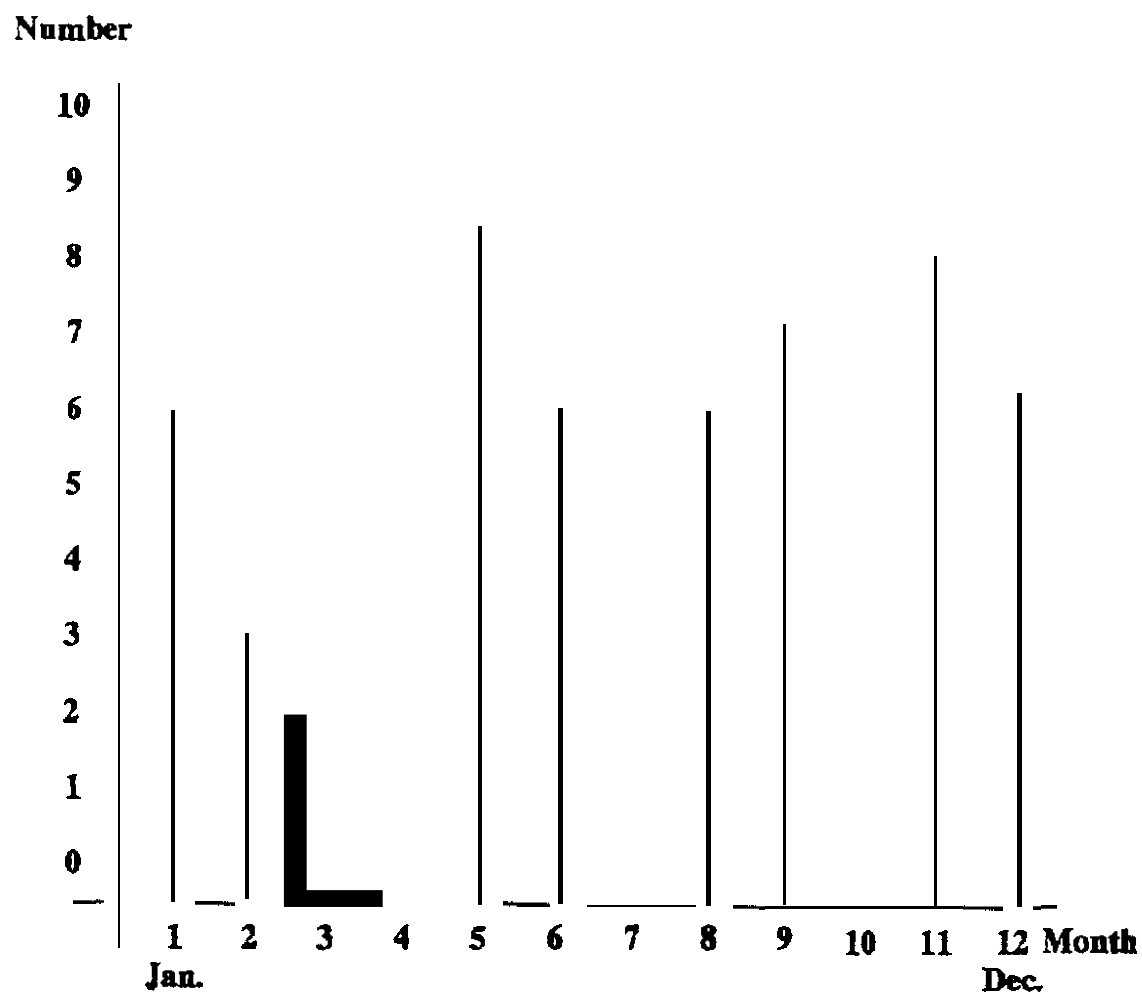
UN: Unknown

Figure 1

Number of live cheetahs  
Sighted from 1985 to 1997



**Number of Cheetahs sighted each year (Figure 3)**



**Number of Cheetahs sighted each month (Figure 4)**

conservation status, actual numbers and an estimated population of Asiatic cheetah in Iran. No other population estimates are available for cheetahs in this region. (Figure no. 5)

	recent actual number	regional estimate	population trend	status catagories
<b>Live / Mortality</b>				
<b>1- Northern</b>				
<b><u>Population</u></b>		<b>38</b>		
A: Kavir N.P.	5/2		d	(I)
B: Khar-Touran N.P.	11/0		d	(I)
C: Parvar P.A.	1/0		df	(IK)
D: Golestan N.P.	0/0		df	(IK)
E: Damghan F.A.	8/0		d	(I)
F: Shahrood F.A.	2/2		d	(I)
<b>2- Southern</b>				
<b><u>Population</u></b>		<b>20</b>		
A: Kalmand P.A.	0/0		d	(IK)
B: Khabr P.A.	2/0		df	(IK)
C : Yazd F.A.	4 /5		d	(I)
D: Haji-Abad F.A.	0/0		dff	(IK)
E: Eastern Kerman F.A.	0/0		dff	(IK)
<b>3-Eastern</b>				
<b><u>Population</u></b>		<b>20</b>		
A: southern Khorasan F.A.	10/3		d	(I)
B: Balouchestan F.A.	0/0		dff	(IK)
<b>4-Western</b>				
<b><u>Population</u></b>		<b>8</b>		
A: Bahram-gour P.A.	1/0		dff	(IK)
B: Mooteh P.A.	0/0		dff	(IK)
C: Eastern Isfahan F.A.	0/0		dff	(IK)
	<b><u>Total</u></b>			
	<b>44/12</b>	<b>- 59 + 86</b>		

Catagories of threat from this report, status follow catagories described in IUCN red list of threatened animals (groombridge 1993).

d : declining	IK: insufficient known
f: fragmented	N.P: National Park
ff: highly fragmented	P.A: Protected Area
I : indeterminate	F.A: Free-Area

## Wildlife

## Tales of Endangered Species

## The Iranian Cheetah

**T**hree cubs less than five months old were observed near starvation in the lair near Bafgh, an unprotected area in the south-central region of Iran, on September 1995.

Difficulty in finding prey and obtaining food apparently were the reasons the cubs were abandoned by their mother. The cubs, being relatively small, needed their mother to hunt for food to raise them to adulthood.

With wild prey becoming scarce, their mother must travel long distances to hunt for wild animals, sometimes rabbits, sheep or goats.

Slow to kill and eat, the female wildcat nonetheless found her prey but was soon sighted by a herdsman who chased it away or shot it.

The baby cubs were then left to hunger and thirst. They left the lair weighing less than four kilograms, alert and severely dehydrated. They reached the outskirts of the city to drink water. This was behavior common among inexperienced cubs. The cubs were then sighted by mobs, attacked and two of them killed. One female survived because it did all it could to avoid its attackers.

Perhaps the most glittering lesson to be learned from this episode is the human degradation and unthinkable cruelty hunters and poachers in Iran heap on these rare animals.

You may be surprised to know that wildlife officials in Iran were aware that the animals that were killed were legally protected as they took possession of the female cub that was left unhurt. The animal referred to is the *Acinonyx jubatus* or the Asiatic cheetah. The ones found in Iran (their exact number is unknown), are the only ones confirmed to exist in the world. The species once roamed through Asia. They were found throughout the entire continent, from Palestine (Bait-ul-Moqaddas) to Saudi Arabia. Today they have practically disappeared from their natural habitats, except in the deserts of western Asia and particularly in Iran where they are known simply as Iranian cheetahs.

Iranian cheetahs feed on gazelles and goats and sheep which have increasingly been difficult to obtain because of their having been put in their respective places in forest ranges.

In recent years cheetahs have increasingly been the victims of "recreational killing," i.e., they are run over by motorbikes as they are surprised in desert roads, chased by four-wheel drive cars, or just shot on impulse by irresponsible hunters. But the most obvious reasons for their disappearance may be traced to indiscriminate hunting and habitat loss. This has been the case for other cheetahs as well in the past 20 years.

The female cheetah weighs approximately 50 kilograms and measures 30 inches from the shoulder. Her feet are just four inches long by three inches wide.

Her most distinguishing characteristic ~~are~~ the black tear-fines that emanate from the inner side of her eyes down to her lips. Her round face holds genetic memories of wild cheetahs, the killer of gazelles, but there is a softness in her eyes and a laxness in her temper. Her back arches and she rears up when she sights a possible prey which she pins between her forepaws.

The female Iranian cheetah that survived its killer in 1995 is now in the Pardisan Natural Park in Tehran where she is provided constantly with food and does not need to learn difficult skills of hunting live prey. But it seems the difference between live prey and dead "donkey" meat to the cheetah is great. Evidences indicate that she is overeager to hunt live prey and works hard to become a good hunter.

The only difference between man and the cheetah as hunters of live prey is the sense of loss that is felt when rare Iranian cheetah cubs, such as those from Bafgh, were killed in 1995.

(Condensed from a report of Mr. Hormoz Asadi, a conservation biologist of the International Union for the Conservation of Nature.)