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Educators,

This lesson is designed to introduce students to the concept of Human-Wildlife Conflict and stimulate discussion about ways to minimize conflict and ways to co-exist with wildlife. Included is a power point presentation, "Understanding Human-Wildlife Conflict and Correct Identification of Livestock Loss" that you can modify to fit the grade level you are presenting to. I suggest this lesson for grade 4 and above. Also included is an interactive activity – Kill ID- demonstrating one of the Cheetah Conservation Fund (CCF) efforts to minimize human-wildlife conflict in Namibia.

I have attached the goats I have made as examples and for your use. The grey area on the goats represents the areas consumed by the predators- similar to the shaded areas in the chart's "parts eaten" column. I have also attached a blank goat for those with better art skills than myself, or if you want to add local predators in your area to the activity- such as cougar and coyote.

I hope you and your students enjoy the lesson and please let me know if you have suggestions on how to improve or how you used the lesson. Also we are always looking for pictures for CCF's Facebook page, so if you have some pictures of your students having fun with the activity, please share!

Your partner in education,

Stephanie Bradley  
Education Manager  
Cheetah Conservation Fund  
[ccfeducation@iway.na](mailto:ccfeducation@iway.na)

**Do you protect your possessions from thieves?**






















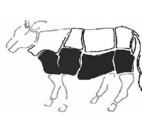















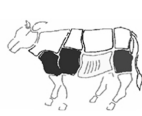






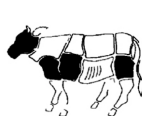
















**Do you protect your livestock from predators?**

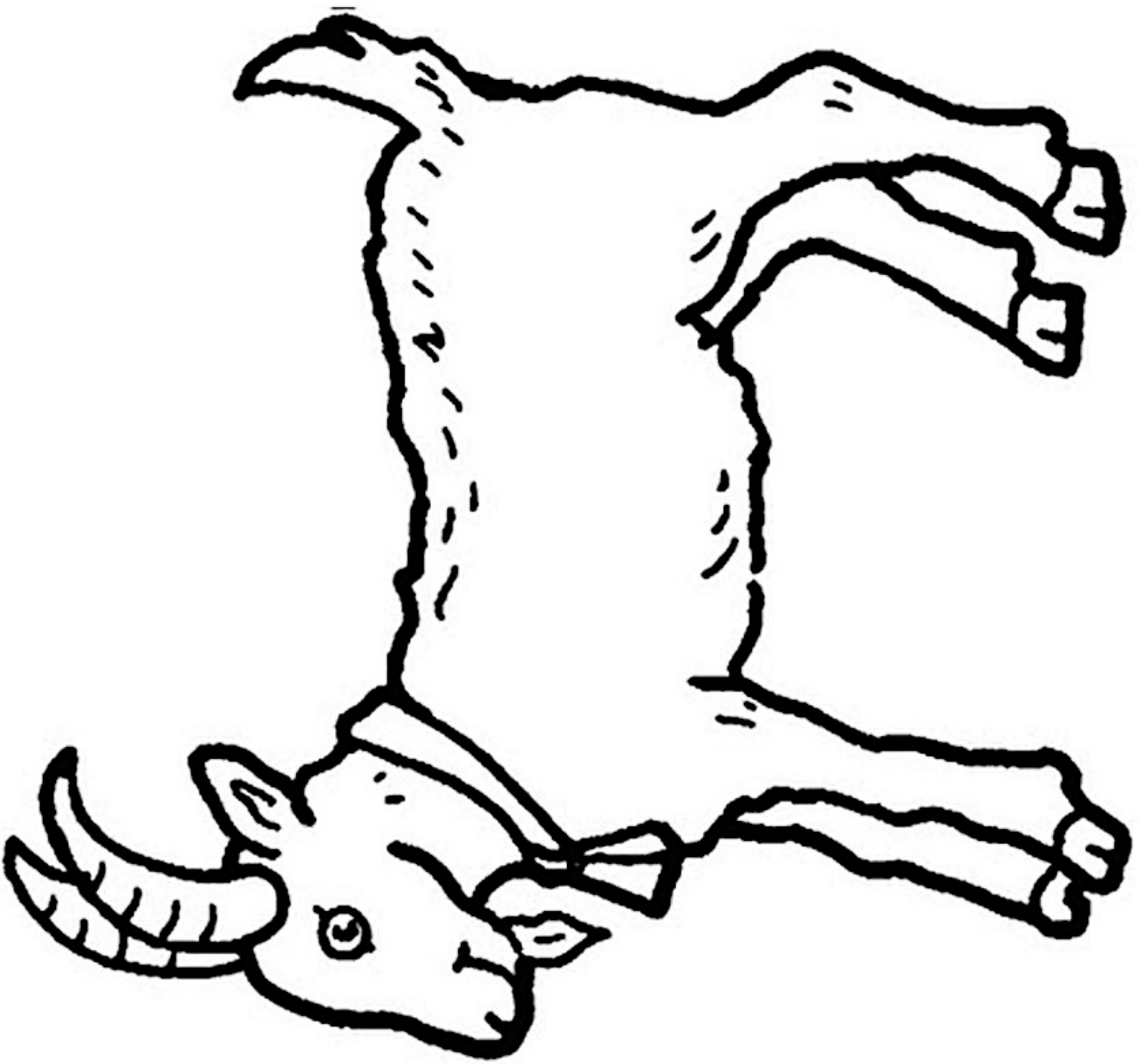


**If you found money in the street, would you pick it up?**



**If the cheetah finds unguarded livestock will he catch it?**

		Species	Tracks Front/Back	Prey Location	Prey Size	Claw Marks	Stomach	Fang Location	 <b>Bite Width</b>	Parts Eaten	Bones	Other Evidence	Highlighted cells indicate exclusive traits	
													cm	mm
A		Domestic Dog Hond		Anywhere	0-400kg	None			36-58mm 3 fingers			Wool, fur, skin & remains scattered. No marks on throat	1	10
B		Caracal Rooikat	 5.5 cm		10-25kg				29-32mm 1½ fingers			Wool, fur pulled out & scattered. Does not eat skin or guts. Red hair on prey skin.	2	20
C		Black-Backed Jackal Rooi Jakkals	 3.5 cm	Anywhere	0-50kg	None			19-21mm ¾-1 finger			Face & ears chewed or torn. Front legs of larger prey may be separated from carcass Meat taken leaving skin flap	3	30
D		Cheetah Jagluiperd	 7-8 cm		Over 10kg				36-39mm 2 fingers			Does not eat skin or guts	4	40
E		Leopard Luiperd	 12 cm		Over 10kg				40-46mm 3 fingers			Wool, fur pulled out & scattered. Does not eat skin or guts	5	50
F		Brown Hyaena Bruin Hiëna	 7 cm		0-50kg	None			47-58mm 3 fingers			Wool, fur, skin and remains scattered Bites on rump. Only crushed bones, wool, hooves, blood and guts remain	6	60
G		Spotted Hyaena Gevlekte Hiëna	 8 cm	Anywhere	0-400kg	None			47-58mm 3 fingers			Messy carcass remains. With a large clan, no evidence remains	7	70
H		Lion Leeu	 11 cm	Anywhere	All sizes	Claw marks on belly	Fully eaten	 Bite	75mm 4 fingers			Massive tissue damage	8	80
I		African Wild Dog Wilde Hond	 6-6.5 cm	Anywhere	0-400kg	None	Fully eaten		27-30mm 2 fingers		No remains	Messy carcass remains. With a large clan, no evidence remains	9	90
													10	100



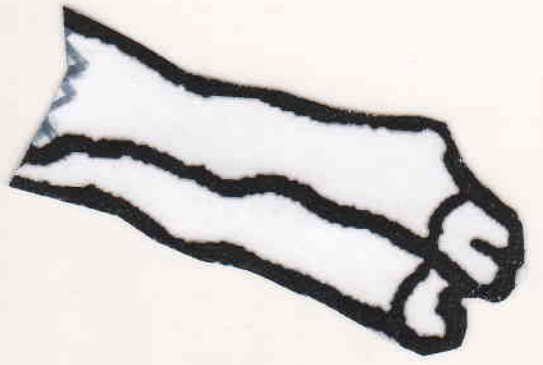
Domestic  
Dog



Caracal



Jackal



Cheetah





Leopard





Brown  
Hyena



Spotted  
Hyena



Lion





African  
Wild dog

# Cheetah

## FACT SHEET

<b>Status</b>	Protected species in Namibia. Endangered under the United States Endangered Species Act. List on C.I.T.E.S. Appendix I
<b>Description</b>	The cheetah has a slender, long-legged body with blunt semi-retractable claws. Its coat is tan with small, round, black spots, and the fur is coarse and short. The cheetah has a small head with high-set eyes. Black "tear marks," which run from the corner of its eyes down the sides of the nose to its mouth, keep the sun out of its eyes and aid in hunting.
<b>Size</b>	Adult body length 112-135 cm; tail length 66-84 cm; shoulder height 73+ cm; weight 34-54 kg. The male is slightly larger than the female.
<b>Specializations</b>	The cheetah's flexible spine, oversized liver, enlarged heart, wide nostrils, increased lung capacity, and thin muscular body make this cat the swiftest hunter in Africa. Covering 7-8 meters in a stride, with only one foot touching the ground at a time, the cheetah can reach a speed of 110 km/h in seconds. At two points in the stride, no feet touch the ground.
<b>Habitat</b>	Cheetahs thrive in areas with vast expanses of land where prey is abundant. In Namibia cheetahs have been found in a variety of habitats, including grasslands, savannahs, dense vegetation, and mountainous terrain. Ninety-five percent live on commercial farms.
<b>Range</b>	Once found throughout Asia and Africa, the species is now only scattered in Iran and various countries in sub-Saharan Africa. Home ranges in Namibia for males can be up to 1500 square km and for females, 1200-1500 square km.
<b>Behaviour</b>	<p>Cheetahs have a unique, well-structured social order. Females live alone except when they are raising cubs. The females raise the cubs on their own. The first 18 months of a cub's life are important - cubs learn many lessons because survival depends on knowing how to hunt wild prey species and avoid other predators such as the leopards, lions, hyenas, and baboons. At 18 months, the mother leaves the cubs, which then form a sibling group, staying together for another 6 months. At about 2 years, the female siblings leave the group, and the young males remain together for life. Males live alone or in coalitions made up of brothers from the same litter. Some coalitions maintain territories in order to find females with which they will mate. Territories are often located in areas where there is a rich supply of wild game and/or water. Fierce fights between male coalitions, resulting in serious injury or death, can occur when defending territories.</p> <p>Cheetahs hunt in the late morning and early evening. They capture their prey by stalking - until the prey is within 10-30 meters - before chasing. The prey is suffocated when a cheetah bites the underside of the throat. Chases last about 20 seconds, and rarely longer than 1 minute. About half of the chases are successful. In Namibia, cheetahs use play-trees (trees with sloping trunks and large horizontal limbs, usually camelthorns) to observe their surroundings and mark the area. Cheetahs make chirping sounds, and hiss or spit when angered or threatened. They purr very loudly when content. <b>Cheetahs do not pose a threat to humans.</b></p>



<b>Reproduction</b>	Sexual maturity occurs at 20-23 months. The gestation period is about 95 days, and the average litter size is 4-5 cubs. Cubs are smoky-grey in colour with long hair, called a mantle, running along their backs; they are up to 30 cm long and weigh 250-300 grams at birth. The mantle has several purposes: it is thought to camouflage the cub in dead grass, hiding it from predators, and to work as a mimicry defence, causing the cub to resemble a honey badger (ratel).
<b>Population</b>	Only 12,500 cheetahs remain in 25 African countries, and 200 cats survive in Iran. Namibia has the world's largest number of cheetahs, yet only 2,400 remain the wild.
<b>Life Expectancy</b>	Studies have not been conducted in the wild on longevity; 8-12 years is average in captivity. Cub mortality is high for the species in both the wild and captivity. On average 30 percent of all cubs born in captivity die within one month of birth, and in Tanzania's Serengeti National Park, about 90 percent die before reaching 3 months of age.
<b>Diet</b>	Small antelope, young of large antelope, warthog, hare, and game birds.
<b>Natural History</b>	Cheetahs have been kept in captivity for some 5,000 years. However, they breed poorly, and the captive population has been maintained through wild collection. Cheetahs suffer from a lack of genetic diversity, making them more susceptible to disease and decreasing reproduction. The many parks and reserves of Africa offer protection for only a small amount of cheetahs. In these parks, lion and hyena numbers increase, and the cheetahs cannot compete with these large predators which kill cheetah cubs and steal their prey. Evolution has favoured speed and not strength for this species.
<b>Survival Threats</b>	Decline in prey, loss of habitat, poaching, and indiscriminate trapping and shooting threaten the survival of the cheetah throughout its range.
<b>Legal Protection</b>	As a protected species in Namibia, people are allowed to remove cheetahs only if they pose a threat to livestock or human life. Unfortunately, some farmers will capture cheetahs indiscriminately (the "problem" animals may not be singled out), often removing or killing those that have not taken any livestock. Limited international trade in live animals and skins is permitted from Namibia, Zimbabwe, and Botswana. Illegal trade in other parts of Africa and indiscriminate capture and removal in southern Africa continue to threaten the survival of this species.
<b>Conservation</b>	To help this sleek hunter of the African wild win its race against extinction, we must (1) help protect its habitat and insure a place for it on Namibian farmlands, (2) aid in the conservation of the wild prey base, (3) halt the indiscriminate capture and removal of the cheetah, (4) improve livestock management, and (5) educate everyone about the need to conserve biological diversity, and the predators' unique role in a healthy ecosystem.
<b>Captivity</b>	CHEETAHS ARE WILD ANIMALS. Capture of wild cheetahs threatens the survival of the species in two ways. First, the removal of individuals reduces the species' genetic diversity in the wild. And secondly, cheetahs do not breed well in captivity. The Asian cheetah is nearly extinct because of its capture for private use. Special dietary requirements, special needs, and unpredictable behaviour make this a poor pet. Wild instincts remain intact even with tamed and captive raised animals.

## Other Big Cats

# FACT SHEETS

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### Leopard

<b>Appearance and body size</b>	The leopard is the largest spotted cat, and its coat is handsomely marked with rosettes over most of the body. Males weigh an average of 60kg, and females 32 kg. Leopards have retractable claws. Leopards have large heads and powerful jaws. Shoulder height: 70 cm.
<b>Habitat</b>	Very adaptable - generally mountainous and rocky areas as well as forests, they also occur in semi-desert. Quite independent of water supplies, they rely on prey to meet moisture requirements.
<b>Hunting styles and prey species</b>	Kills after careful and short chase (less than 30m) and suffocating prey, or biting the head or neck. Mainly nocturnal in behaviour. Hunts a variety of prey, including steenbok, duiker, warthogs and baboons. Larger mammals such as kudu, hartebeest, as well as smaller mammals such as hares and birds are also hunted.
<b>Reproduction</b>	Not seasonal; average litter size is 2 cubs every one and a half years. Gestation: 106 days.
<b>Status</b>	Widely dispersed throughout West Africa and southern Africa, scattered populations are found in North Africa, South Asia, the Far East and Arabia.

### Lion

<b>Appearance and body size</b>	Tawny, sandy colour, males are usually maned. Largest African carnivore. Males average 190 kg, while females average 126 kg. Tail sometimes black on tips, white under parts. Related females found with attendant males in a pride.
<b>Habitat</b>	Wide habitat tolerance, but not found in forest areas. Anywhere with ample, medium to large size prey animals.
<b>Hunting styles and prey species</b>	Both nocturnal and diurnal behaviour. Wide range of mammals, mice to buffalo, as well as carrion. Mainly larger sized mammals such as wildebeest and kudu. Lions are expert stalkers and the chases are short (100 - 200m). Prey brought down by jumping on their backs and killed by strangulation. Females usually do the hunting, although the males eat first, then the females and lastly the juveniles.
<b>Reproduction</b>	Males do not get the opportunity to mate until about five years of age. Females reproduce at about 43 months. Gestation: 110 days. Litters average three cubs, weighing an average of 1.5 kg each at birth.
<b>Status</b>	Extinct in Europe and North Africa. A few exist in Asia, including North West India. Found mainly in game parks and protected areas in Southern Africa, East Africa and the Kalahari Desert.





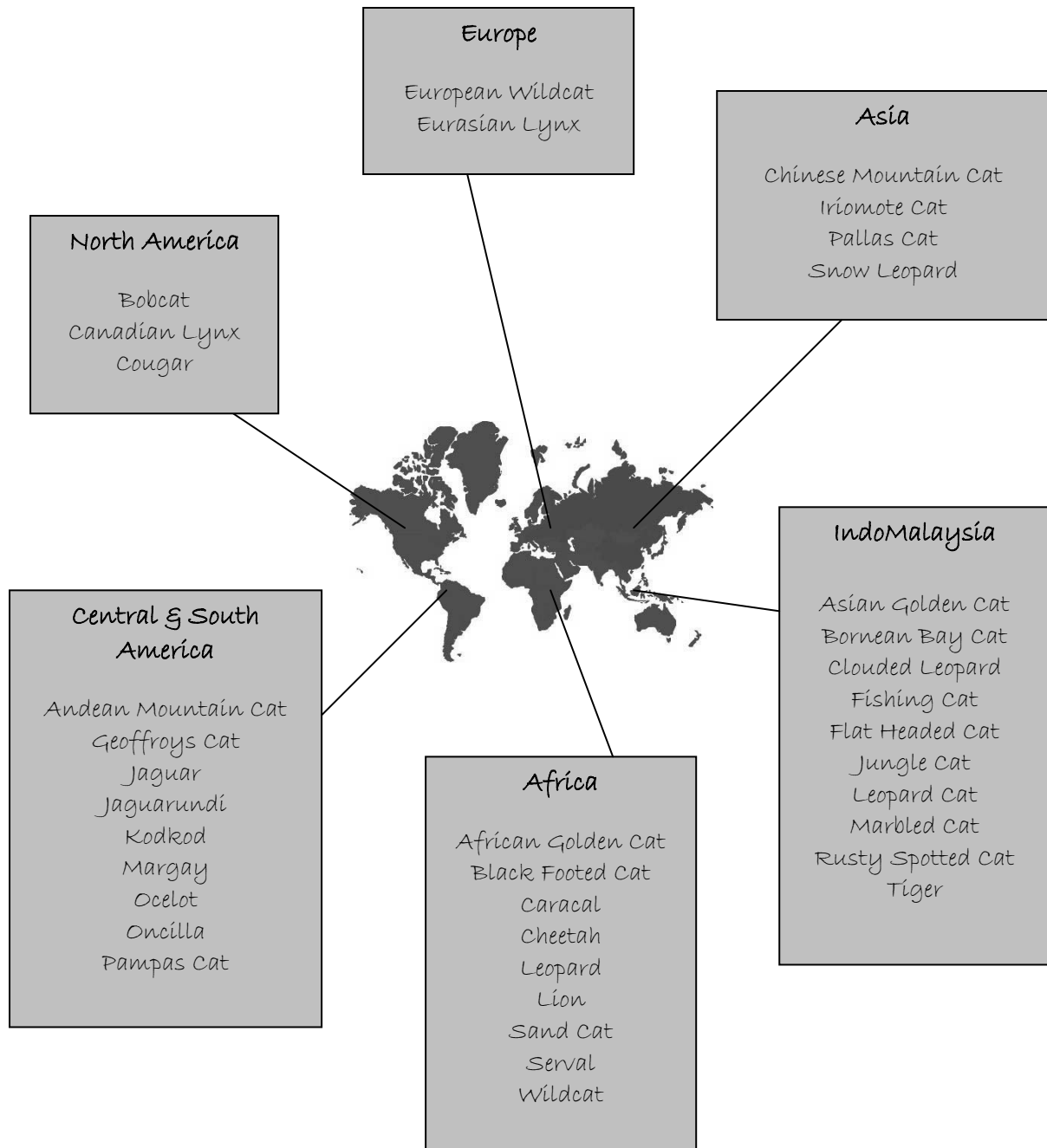
## Caracal

<b>Appearance and body size</b>	Robustly built. Males weigh an average of 17 kg and females average 11.5 kg. Colour varies from yellow-grey to reddish-brown. Characterized by short tails and long tufts on tips of ears. Shoulder height: $\pm 40$ cm.
<b>Habitat</b>	Found in wide range of habitats. Found in open savannah woodland, semi-arid areas, but absent from forest areas.
<b>Hunting styles and prey species</b>	Live predominantly on small and medium sized prey, including young of larger antelope, and birds, which they pounce on in flight.
<b>Reproduction</b>	Litters produced throughout the year. Gestation: 79 days. Litter size averages two. Sexual maturity for both sexes: $\pm 14$ months.
<b>Status</b>	Large populations in Africa, Asia, Turkistan, North West India and Arabia.

## Tiger

<b>Appearance and body size</b>	Largest of all the cats. Orange coat with black stripes. Weight: $\pm 200$ kg. Shoulder height: $\pm 91$ cm.
<b>Habitat</b>	Unlike the cheetah and lion, tigers are not found in open habitats. They prefer tropical rain forests, snow-covered coniferous/deciduous forests, as mangrove swamps and drier forest types. Require cover and access to water.
<b>Hunting styles and prey species</b>	Stalks prey and pounces from behind. Solitary, but sometimes come together for kill. Deer, wild pigs, guar and water buffalo.
<b>Reproduction</b>	Gestation: 103 days. Sexual maturity reached at three to four years. Average litter size is three cubs, weighing an average of 3 kg each.
<b>Status</b>	Endangered species. Found in India, Manchuria, China and Indonesia.

# CATS OF THE WORLD



There are 37 cat species!

## Conservation Efforts

# CHEETAH CONSERVATION FUND

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### CHEETAH CONSERVATION FUND - NAMIBIA

Namibia is home to a quarter of the world's cheetahs, making this the world's largest population of cheetah. If we want to save the species we need to save this population because 95% of Namibia's cheetahs do not live in protected environments. Instead, cheetahs are found on the farmlands where there had been human and predator conflict. Dr. Laurie Marker is the co-founder of the Cheetah Conservation Fund (CCF) that was established in 1990. The CCF has research, conservation and education programmes that work to ensure the long term survival of the cheetah. CCF also works with the farmer in trying to provide the cheetah with a safe habitat by reducing farmer/predator conflict.

The cheetah is not naturally a threat to livestock due to its adaptations for running and hunting. Other predators which hunt habitually at night are livestock threats and are to blame for livestock losses on the farmland. However, the farmer does not always see them and it is the predator that hunts by day, the cheetah, which has in the past received the blame. One solution to the farmer's problem is to find a way to reduce predation on the livestock without killing the predator. In order to accomplish this, CCF initiated a programme, Non-Lethal Predator Control, in 1998, using a specific breed of livestock guarding dog, the Anatolian Shepherd. This dog has been used in Turkey for over 5000 years as livestock protection against bears and wolves. The dogs have been specifically bred for this purpose and do not need to be trained. CCF breeds the Anatolians at their home farm and gives the puppies to various farmers and institutions in Namibia to protect livestock. Through intimidation techniques, this large dog will deter predators from attacking livestock, reducing livestock loss and removing the reason for shooting the predators.

CCF is also involved in the relocation of cheetah from farms where farmers have trapped them and do not want them on their land. Any cheetah received by CCF will undergo medical assessment and, if healthy, will be re-released on appropriate land. If the cheetah is a proven livestock threat, then the individual will be released into a game park or nature reserve so that it won't come in contact with any livestock.

CCF also does research into behaviour, disease, mortality, territory size, etc. in the wild. The more information gathered about the wild cheetah, the more programmes that can be developed for their protection. This information has been gathered by radio-collaring released individuals so that they can be tracked and their movements and behaviour monitored.

CCF runs education programmes for schools, institutions, and farmers, educating the public on the nature of the cheetah. They work with the farmers on improving farm practices to better protect the livestock. In addition to the introduction of the Anatolian Shepherd, CCF encourages simple farming techniques to reduce predation on livestock, such as keeping young animals near the homestead until they are large enough to avoid becoming prey.

For more information please visit our website: [www.cheetah.org](http://www.cheetah.org).

## Ecosystems

# A PLACE FOR PREDATORS

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Imagine a cheetah sprinting after a steenbok, a bird of prey diving out of the sky after a mouse, an ant colony feeding on a beetle. All of these animals catch, kill, and eat other animals: they are predators. There are different degrees of predation. Some animals, such as the cheetah, leopard, and lion, are strict predators, called carnivores, and eat only meat. Other animals, such as the jackal, are omnivores. They catch prey when they can, but also eat fruits, nuts, and other plants. Animals can be both predators and prey. The cheetah hunts small antelope, the young of large antelope, hare, warthogs, and game birds; however, the cheetah, especially when it's young, can also become a prey species to other predators, such as the hyena, lion, leopard, and baboon.

Predators are an important part of a healthy ecosystem. Predators cull vulnerable prey, such as the old, injured, sick, or very young, leaving more food for the survival and prosperity of healthy prey animals. Also, by controlling the size of prey populations, predators help slow down the spread of disease. Predators will catch healthy prey when they can, but catching sick or injured animals helps in natural selection and the establishment of healthier prey populations as the fittest animals are left to survive and reproduce.

If carnivores were removed from an ecosystem, what would happen?

1. Antelope herds would grow and grow.
2. Only bad weather such as a drought, or disease such as rabies, would slow down the herd growth.
3. Large antelope herds would overgraze their food source, and as the food disappeared, the whole herd would begin to starve.

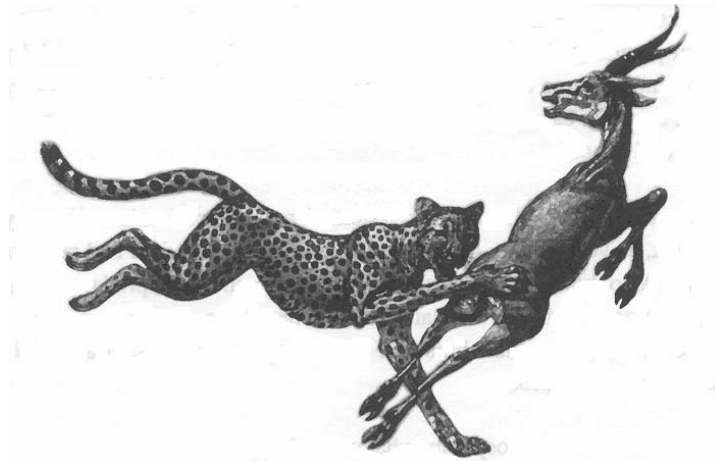


*Lion at kill*



## Ecosystems where Cheetahs or other predators are not present

Cheetahs and other predators help limit the growth of prey populations and prevent overgrazing of ranges. While human hunters can sometimes replace predators in the control of antelope populations, they generally do not remove the injured, sick, or older animals. Predators play an important role in maintaining healthy prey populations.



## Ecosystems where cheetahs are present

The cheetah is a valuable member of its community. In addition to its role as a predator, cheetahs feed other animals, such as vultures, jackals, beetles, and other scavengers. After a cheetah kills an animal it usually begins eating at the hind quarters, which provide the greatest amount of meat. Because the cheetah is not an aggressive carnivore, larger predators, as well as jackals and vultures, can scare the cheetah off its kill.

By leaving the remains of a carcass, the cheetah feeds other animals in the ecosystem.

