

Reference



Cheetah

FACT SHEET

Status	Protected species in Namibia. Endangered under the United States Endangered Species Act. List on C.I.T.E.S. Appendix I
Description	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.
Size	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.
Specializations	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.
Habitat	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.
Range	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.
Behaviour	<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. Cheetahs do not pose a threat to humans.</p>



Reproduction	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).
Population	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.
Life Expectancy	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.
Diet	Small antelope, young of large antelope, warthog, hare, and game birds.
Natural History	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.
Survival Threats	Decline in prey, loss of habitat, poaching, and indiscriminate trapping and shooting threaten the survival of the cheetah throughout its range.
Legal Protection	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.
Conservation	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.
Captivity	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

Leopard

Appearance and body size	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.
Habitat	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.
Hunting styles and prey species	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.
Reproduction	Not seasonal; average litter size is 2 cubs every one and a half years. Gestation: 106 days.
Status	Widely dispersed throughout West Africa and southern Africa, scattered populations are found in North Africa, South Asia, the Far East and Arabia.

Lion

Appearance and body size	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.
Habitat	Wide habitat tolerance, but not found in forest areas. Anywhere with ample, medium to large size prey animals.
Hunting styles and prey species	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.
Reproduction	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.
Status	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

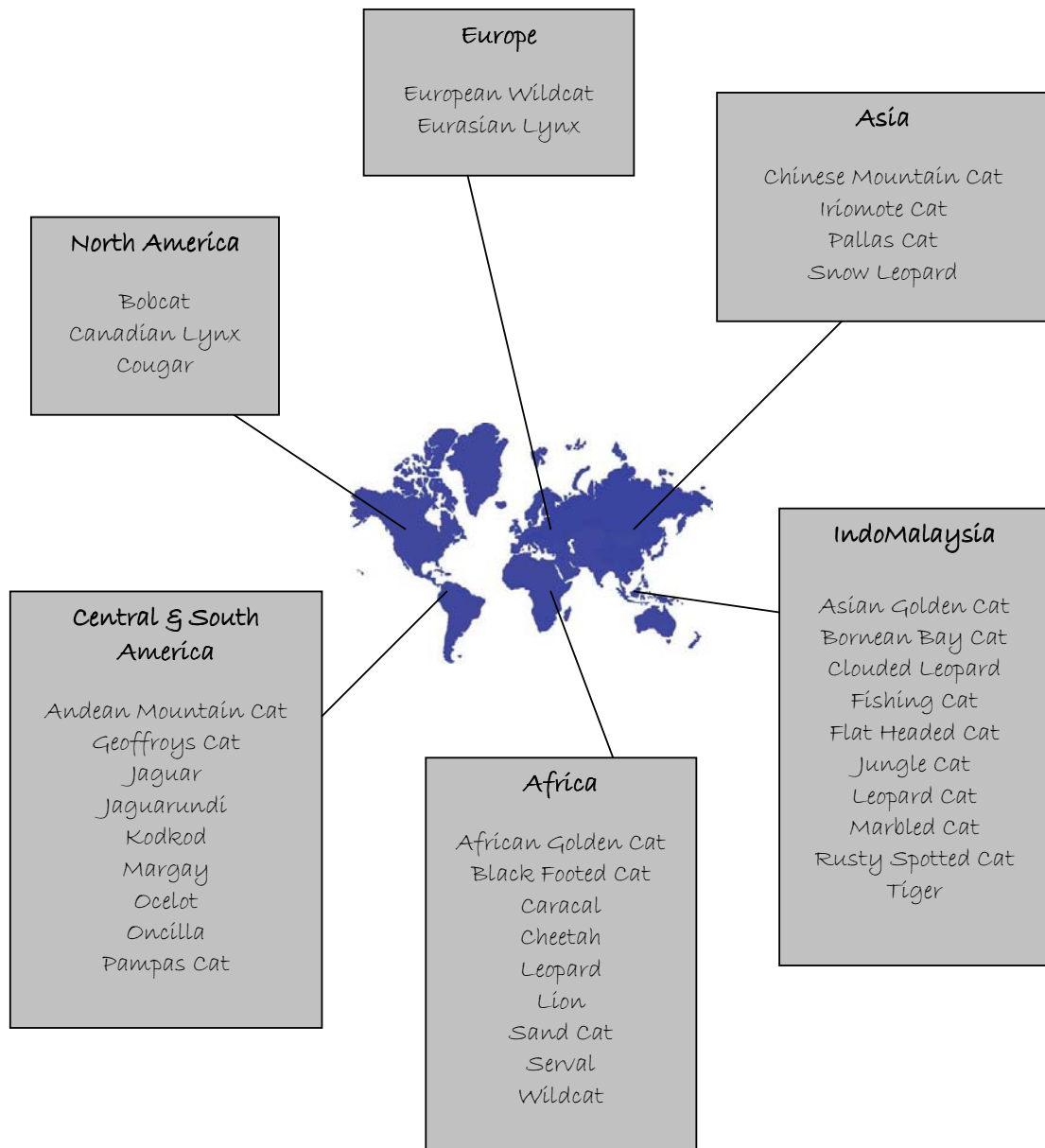
Appearance and body size	Robustly built. Males weigh an average of 17 kg and females average 11.5 kg. Colour varies from yellow-grey to reddish-brown. Characterized by short tails and long tufts on tips of ears. Shoulder height: ± 40 cm.
Habitat	Found in wide range of habitats. Found in open savannah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

Tiger

Appearance and body size	Largest of all the cats. Orange coat with black stripes. Weight: ± 200 kg. Shoulder height: ± 91 cm.
Habitat	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.
Hunting styles and prey species	Stalks prey and pounces from behind. Solitary, but sometimes come together for kill. Deer, wild pigs, guar and water buffalo.
Reproduction	Gestation: 103 days. Sexual maturity reached at three to four years. Average litter size is three cubs, weighing an average of 3 kg each.
Status	Endangered species. Found in India, Manchuria, China and Indonesia.

Geography

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**.

Ecosystems

A PLACE FOR PREDATORS

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.

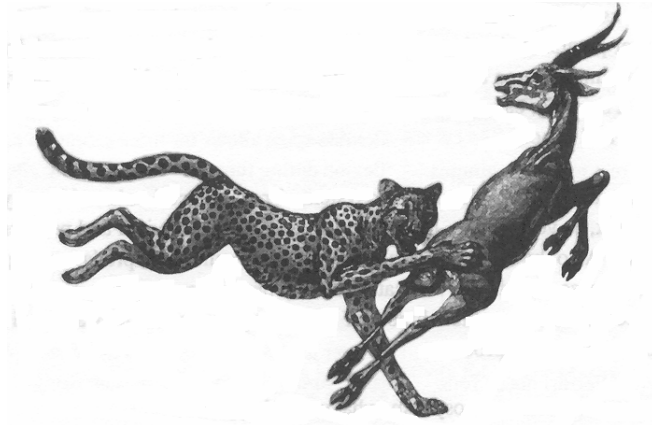


Lion at kill



Ecosystems where Cheetahs or other predators are not present

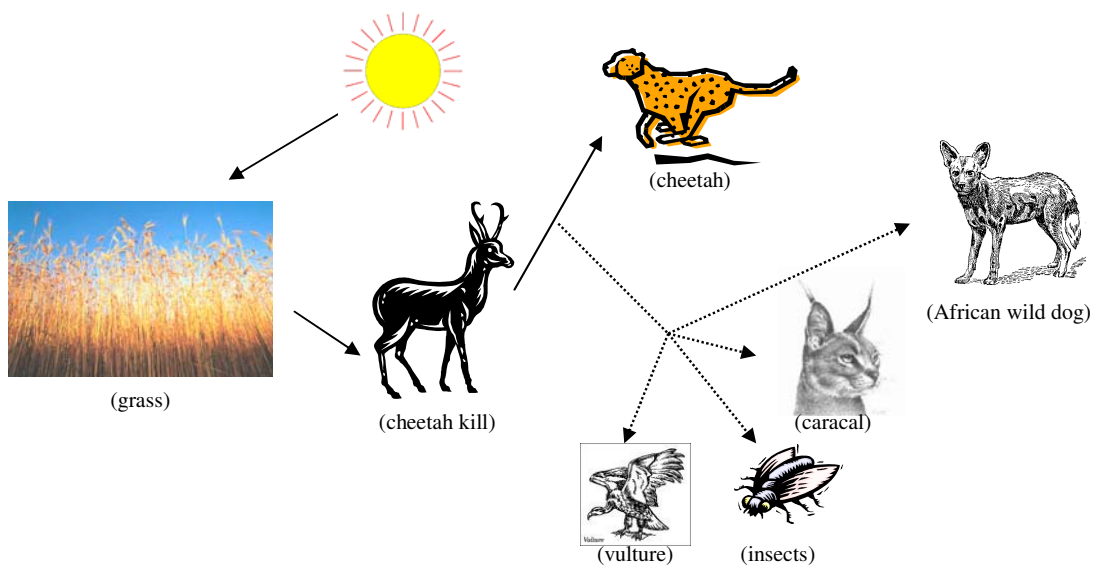
Cheetahs and other predators help limit the growth of prey populations and prevent overgrazing of ranges. While human hunters can sometimes replace predators in the control of antelope populations, they generally do not remove the injured, sick, or older animals. Predators play an important role in maintaining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



Why does a cheetah lack genetic diversity?

A SINGULAR SPECIES

The cheetah, *Acinonyx jubatus*, is the sole member of its genus. Twenty thousand years ago, cheetahs roamed throughout the savannahs and plains of four continents: Africa, Asia, Europe, and North America.

About 10,000 years ago - because of climate changes - all but one species of the cheetah, *A. jubatus*, became extinct. With the drastic reduction in their numbers, close relatives were forced to breed, and the cheetah became genetically inbred, meaning all cheetahs are closely related. Inbreeding occurs when members of the same family or close relatives breed only among themselves. For example, when you look around, you see different hair colours, eye colours, and heights. If you took blood from everybody in the room, and looked at the proteins in the blood, you would see proteins also vary between each person, just like hair colour. When you look at the proteins in the blood of cheetahs, they are very similar; it looks as if they are identical twins of one another, meaning they are closely related.

The study of biological inheritance is called 'genetic research.' Genes, which are composed of DNA, store the information that an individual inherits from his or her parents. Genes in one animal vary from the same genes in another animal of the same species. By looking at the amount of variation existing in genes, scientists, called "geneticists," can begin to understand the relationships of animals within population, and how infectious diseases may affect that population. Also, by comparing the amount of variation between different species, geneticists can help us understand the evolutionary process.



When geneticists looked at the amount of variation within the genes of the cheetah, they found that cheetahs exhibit much lower levels of variation than other mammals. In most species, related individuals share about 80 percent of the same genes. With cheetahs, this figure rises to approximately 99 percent. The genetic inbreeding in cheetahs has led to low survivorship (a large number of animals dying), poor sperm quality, and greater susceptibility to disease. Inbred animals suffer from a lack of genetic diversity. This means cheetahs lack the ability to adjust to sudden changes in the environment, such as disease epidemics, and have unusually high susceptibility to certain viruses. For example, if a virus gets into a healthy population of leopards, not every animal dies; just some do, because leopards are genetically diverse. But if every animal is genetically the same, like the cheetah, and one gets infected, all of them may become infected and die off. Because of their lack of genetic diversity, a deadly virus could wipe out all of the world's wild cheetahs instead of just the susceptible animals. It depends on a species' genetic differences.



Evolution eliminates traits in organisms that are least suited for survival. Some of the decline in the cheetah's genetic diversity is accounted for by its specialization through natural selection. The decrease in genetic diversity resulting from natural selection has benefited the species' survival as it has made the cheetah better adapted to its environment. However, the effects of this occurrence are small when compared to the effects of the inbreeding that occurred 10,000 years ago from a population bottleneck.

To increase genetic diversity in captivity, zoos take great care to make sure that only unrelated animals mate. Scientists are working on ways to enhance breeding through artificial insemination and in vitro fertilization (IVF). Because of genetic inbreeding, male cheetahs have poor sperm quality. Abnormal sperm cannot swim properly, reducing the chance of fertilizing eggs and producing offspring. Artificial insemination (A-I) is a laboratory technique in which scientists place sperm in the reproductive tract of a female. This means the sperm have less distance to swim before reaching the eggs. Mating between male and female animals does not take place. Artificial insemination has produced cheetah cubs in the United States. Using these technologies, A-I and IVF, semen and eggs can be collected from wild Namibian cheetahs for use in captive breeding programs. Because Namibia has the largest population of cheetahs, the genes represented in this population are important to captive cheetah survival worldwide.



Cheetah's History

A RACE FOR SURVIVAL

Cheetahs have existed on earth for at least 3.5 – 4 million years - long before any of the other big cats alive today. About 20,000 years ago, cheetahs were common throughout Africa, Asia, Europe, and North America. Through the dating of fossil remains, it appears that the cheetah originated in the United States of America in the present-day states of Nevada, Texas, and Wyoming. Approximately 10,000 years ago, at the end of a time called the Pleistocene Epoch, also known as the Great Ice Age (a geographical time period from approximately 2 million to 10,000 years ago), the world's environment underwent drastic changes in climate. Over a few thousand years, 75 percent of the mammal species in North America and Europe died. When mammals began to die, so did all the cheetahs in North America and Europe and most of those in Asia and Africa. Cheetahs may have migrated to a more suitable environment as ice covered a large part of the northern hemisphere and sea levels fell.

The cheetah survived the mass extinction of the Pleistocene Epoch, but its numbers were greatly reduced. Brothers were left to reproduce with sisters and parents with siblings, who led to the founding of the next generation and inbreeding. This occurrence - a severe reduction in population - is called a "bottleneck." Every cheetah alive today appears to be so inbred that genetically they are as closely related as twins (two offspring, or individuals born at the same time).

Cheetahs have been kept in captivity since 3,000 BC when Sumerians, people who lived in present-day Iraq, began taming cheetahs for pets. In Egypt, during the time of the pharaohs, the cheetah was considered a goddess named "Mafdet." Pharaohs kept cheetahs as close companions, which symbolized protection by Mafdet. Symbols of the cheetah are found on ritual and magic knives, statues, and in paintings on royal tombs. The ancient Egyptians believed that the cheetah would carry the Pharaoh's soul to the after-world. The cheetah was admired for its speed, hunting ability, and beauty, and was honoured as a symbol of royalty and prestige.



As early as the fifth century, cheetahs were used by Italian nobles to hunt for sport. Adult cheetahs were caught in the wild, and tamed within a few months of capture. With their heads covered by a hood so they could not see the prey, cheetahs were led to the hunting area on a leash, in a cart, or on the back of a horse, sitting on a pillow behind the rider. The cheetah was taken near the prey, and the hood was removed. It then sprinted after the prey, and after catching it, the trainer rewarded the cheetah with a piece of meat. Cheetahs were commonly known as "hunting leopards," as people often confused the cheetah and the leopard. The use of this term may account for some of the confusion between the differences in the two cats: the cheetah and the leopard are two distinct species.

Russian princes in the 11th and 12th centuries also hunted with cheetahs. During the Renaissance (the time period from the 14th through the 16th centuries), every Italian family of nobility and many French nobles



kept cheetahs for hunting. The Crusaders observed cheetahs being used to hunt gazelles in Syria and Palestine during this time. Marco Polo, the famous Italian explorer, brought back accounts of the hundreds of cheetahs kept by Kublai Khan, the Founder of the Mongol dynasty in China, during the 13th century. Akbar, a Mongolian ruler of the 16th century, was said to have owned 9,000 cheetahs during his 49-year reign. He kept detailed records of his collection, which showed the birth of only one litter. Unfortunately, cheetahs do not reproduce well in captivity, and cubs suffer high mortality - none of Akbar's cubs lived. It was not until 1956 that the first cheetahs were born and raised in captivity. Because of the continuous wild capture of the Asian species of cheetahs for royalty and their failure to breed in captivity, the Asiatic cheetahs were sharply reduced, and cheetahs had to be exported from Africa to supply hunting cheetahs at Court. In India, the cheetah was considered a prerequisite for royalty - in 1952 it was declared extinct. The Asian cheetah, which was distributed widely throughout the continent in eleven countries, is now nearly extinct. Today only 200 cheetahs are found in Asia, in the country of Iran.

The number of cheetahs has decreased from 100,000 at end of the 19th century to approximately 12,500 today. The cheetah has suffered from inbreeding, high infant mortality, loss of habitat, a reduction in its prey base, conflicts with livestock farming, and a reduced ability to survive in parks and reserves due to the presence of larger predators. Despite all these problems, the cheetah is the oldest of the big cats, and has survived the longest. If we can provide a habitat and a rich prey-base for cheetahs on the livestock farmlands of southern Africa, the cheetah's race will be one of survival, not extinction.



"A Cheetah Ready for the Hunt"
For centuries, Southwest Asian royalty trained cheetahs to hunt. The cats (like falcons) were fitted with leather hoods en route to hunting to minimize distraction. The cloak was for warmth.

Discussing

CHEETAH SPEED

If a human and a cheetah were to run the 100 meter sprint in the Olympics, who would win?

The cheetah is the fastest land mammal on earth and can easily outrun the world's fastest human sprinter. It can reach speeds of up to 110 km/h in seconds; however, it can only maintain this speed for 400-500 meters before it must stop and rest for up to 30 minutes.

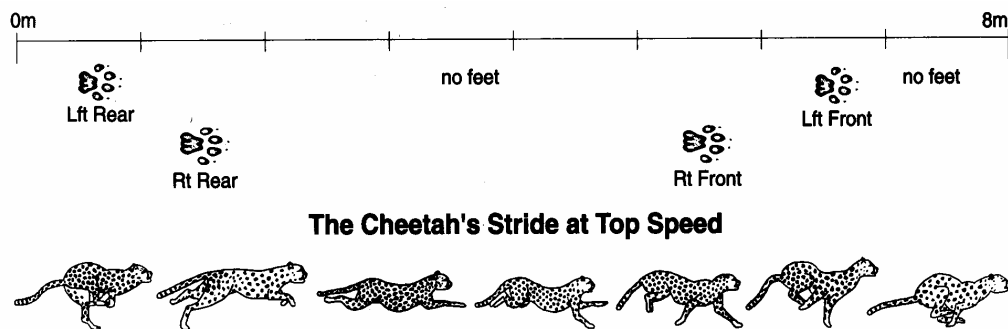
Without rest its body would overheat just like the engine of a car. While its speed is impressive, the cheetah's ability to accelerate is overwhelming. The cheetah can go from a complete standstill - or 0 km/h - to nearly 80 km/h in three seconds. It can actually out perform a sports car - a Ferrari needs four seconds to reach that speed!!

But how does the cheetah achieve this amazing speed?

The key to the cheetah's success is its increased stride length and stride frequency. A stride is one cycle of sequential footsteps, and the stride distance is measured between where one foot leaves the ground and the place where it touches the ground again. At top speed, the cheetah covers 7-8 meters in a single stride, and completes four strides per second.

The unique body structure -long legs, flexible spine, semi-retractable claws, and long tail- allows the cheetah to achieve this incredible speed. Its slender, long, light body creates less wind resistance when it runs. The cheetah's shoulder blades are not attached to its collar bone, allowing the shoulders to move freely and help increase the length of the stride. Its flexible spine allows for more extension and flexion during running. This helps the cheetah increase its stride length because its front and rear legs stretch farther apart when its body is fully extended, and its hips and shoulders move closer together when its feet are crossing. The cheetah's hip bones pivot during its stride for greater length. The tail helps the cheetah make sharp turns when running by stabilizing its body and acting as a rudder. Its claws, which are semi-retractable, grip the ground for traction during chases.

Even the cheetah's heart, lungs, and liver have evolved for speed. Enlarged nostrils and sinuses increase the amount of air exchanged. The cheetah has large lungs to move oxygen into its system quickly and a big heart that increases its respiratory rate, enabling the blood to move from the lungs to the muscles rapidly so the cheetah does not get tired while running. During a chase, the cheetahs breath at a rate of 60 to 150 breaths per minute.



Conflicts with humans

CHEETAHS & FARMERS

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Cheetahs are considered "top predators" - relatively large animals that are strictly meat eaters and are usually not preyed on by other animals. Cheetahs need a lot of room to find food and mates and to raise their young. In Namibia, a male cheetah's range is 800 km² to 1,500 km² and a female's 1,500 km² to 3,000 km². Because they need so much space, many predators are having trouble surviving as land is converted for human use.

With the development of agricultural farms in southern Africa, most of the large predators were eradicated. Today, of the large carnivores, only cheetahs and leopards are found on many livestock farmlands, and some farmers are still waging a war against these species because of their fear and misconceptions. Ninety-five percent of Namibia's, South Africa's, Botswana's and Zimbabwe's cheetahs live on commercial farmlands. The species' adaptation to farmland is due to the absence of other large predators and the increased water availability, which attracts wild prey populations. However, the cheetah's attraction to livestock and agricultural land poses a direct threat to the species' survival. Local declines in the cheetah population continue as farmers indiscriminately capture and remove cheetahs as vermin or "livestock killing" animals.

Loss of livestock and wild game to cheetahs is an emotional issue. Farmers perceive cheetahs as having an excessive economic impact on their livestock and wild game; however, research indicates that less livestock is taken by cheetahs than is thought. Farmers who employ effective livestock management practices and/or own farms with abundant wild game suffer minimal or no livestock loss to cheetahs. Unfortunately, a majority of the farmers have done little to reduce their predator problems in a non-lethal manner.

Cheetahs prefer wild game to livestock, but if cheetahs are unable to find or catch wild game they may take livestock. When the cheetah's natural prey populations decline, due to loss of habitat and/or increased livestock on lands, it may turn to catching goats, sheep, and calves. Livestock are easier prey than are wild animals because the domestic animals are much slower and not as capable of escaping a predator's attack.

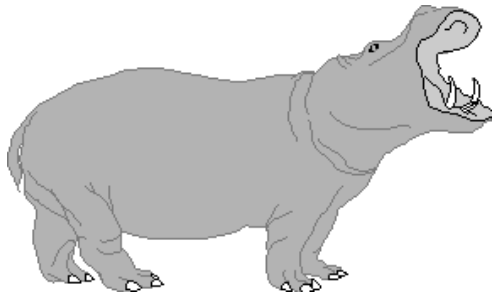
Indiscriminate capture by farmers may force some cheetahs to prey on domesticated animals because the cheetahs' ability to capture wild prey has been reduced. For example, juvenile cheetahs are poor hunters, and they rely on their mother to teach them to capture wild game. If they are separated from their mother (when farmers indiscriminately capture cheetahs, a mother may be separated from the juveniles), the young cheetahs may not be able to hunt wild prey and could turn to livestock as a food source.

Cheetahs are territorial animals. Male cheetahs will fight, sometimes to the death, to protect their territories. If a farmer has a cheetah on his/her property that does not kill livestock, it is better to keep the animal on the farmland. By removing cheetahs, farmers create vacuums in an area causing other cheetahs to fight for possession of the territory. Where previously only one cheetah had lived, two or three may now come to fill its place. Furthermore, a "problem" animal may replace the one that was trapped.

Social groupings among male cheetahs are also important to hunting behaviour. Male cheetahs from the same litter live in coalitions for their whole life, which increases breeding and hunting success. If any are live-trapped and removed from the coalition, those remaining may begin to hunt livestock because of the reduction in their coalition number.

A dilemma:

WHY DO SPECIES BECOME ENDANGERED?



Habitat loss

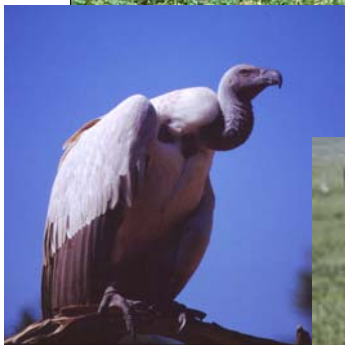
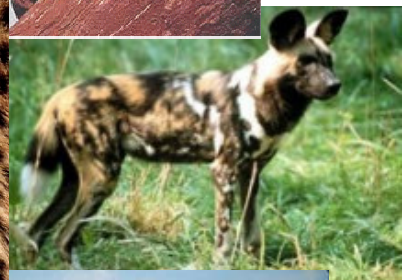
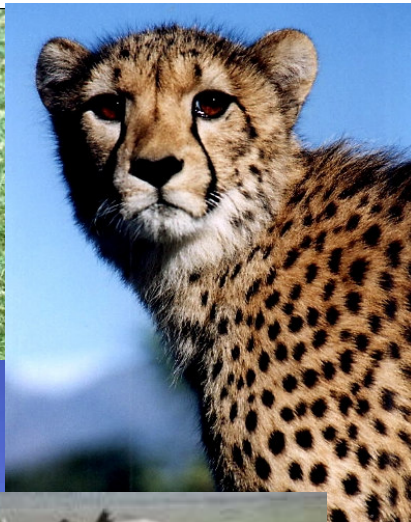
Introduced species

Pollution

Population growth

Over-consumption

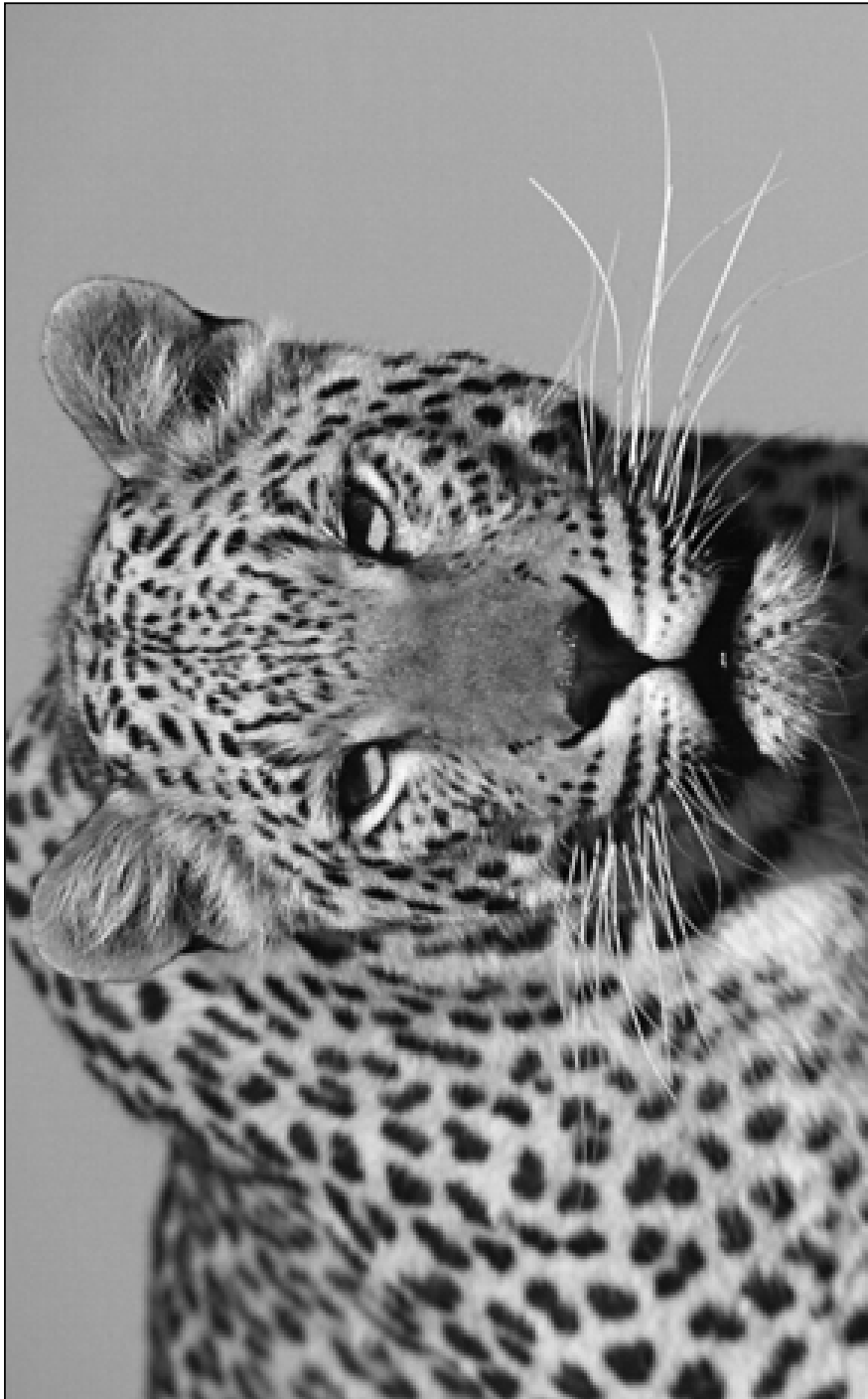
Some examples of endangered animals...



Cats

PHOTOGRAPHS











Clubs & Classes

CONSERVATION ACTIVITIES

Learning Outcomes

Learners will go beyond simply 'knowing' about the cheetah and instead will take ACTION to help save the cheetah and its habitat for future generations.

Ideas for conservation activities:

- 1) Start an environmental club at your school. Meet weekly to discuss and plan environmental and conservation activities for your school and community.
- 2) Collect newspaper articles about wildlife conservation issues in your community and host a community discussion of problems and definite solutions.
- 3) Write letters to students at other schools or to students in other countries asking them about the wildlife in their area. Ask about what their government has done to help protect wild species. Share with the learners your favourite animals and why you think protecting them is important.
- 4) Host an essay contest at your school (using a conservation issue as the topic) and give prizes for the best essay.
- 5) Host a cheetah and/or wildlife art contest and give prizes for the winners.
- 6) Write letters to government officials or non-governmental organizations (like the Cheetah Conservation Fund) telling them about your concerns and perspectives on conservation. Ask what you can do to help.
- 7) Organize a Conservation Fair and create projects, songs and artwork to educate others about conservation issues around the world. Present the problems facing wildlife and their habitats and come up with your own solutions to the problems.
- 8) Read conservation/wildlife/environmental facts every morning at your school's morning assembly to better educate the learners at your school.
- 9) Prepare songs and have them ready to perform for any school event (awards ceremonies, sports activities, farewell parties, etc.)
- 10) Coordinate and plan activities for your entire school on Arbour Day and Earth Day. Plan in advance and raise funds, if necessary.
- 11) Plant trees on a regular basis
- 12) Become involved in your school's science and agriculture classes and hold regular discussions and forums on conservation issues.

Vocabulary

GLOSSARY

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ACCELERATION – the rate at which speed is increased.

ADAPTATION - changes in a structure, behaviour, body form or function, which help an animal or plant exist or survive in its environment. For example, the cheetah's claws do not fully retract so that they have better traction while running. The cheetah is the only cat species whose claws do not fully retract.

BEHAVIOUR – the manner of behaving (to act, react, function, perform) in a particular way.

BIOLOGICAL DIVERSITY (BIODIVERSITY) - the full variety of life on earth and all the processes and interactions that sustain it.

BINOCULAR VISION - eyes both looking forward. Aids in judging distances and depth perception.

BOTTLENECK - a severe population reduction, often resulting in inbreeding of the remaining animals.

BREED – (v) to produce offspring, to give birth

BUSH ENCROACHMENT - thick scrub growth that takes over areas of land, making them unsuitable for farming or grazing; caused by poor land-use practices.

CAMOUFLAGE - the colour or patterns of an animal's coat, its smell, or a noise that help it blend into or hide in the natural surroundings from predators or prey.

CAPTIVITY – the state or period of being confined or restrained.

CAPTIVE ANIMAL - any wild animal that lives inside a zoo or animal park or is kept as a pet.

CARNIVORE - a meat-eating animal.

CARRYING CAPACITY - a wildlife management term for the amount of living matter that can be supported by an area. It is usually expressed as a number indicating the population of any organism a designated area can support. The carrying capacity of an area can vary throughout the year and from year to year depending on conditions within the species habitat, such as food sources or climate.

CHEETAH - a long-legged, swift-running, slender, spotted African wild cat.

CHEETAH CONSERVATION FUND (CCF) - a registered Namibian Trust established in 1990 to conduct conservation research and education programs on the cheetah throughout its range. CCF strives to: (1) identify important components of farmland ecosystems that are necessary to sustain healthy cheetah populations; (2) develop conservation management plans that are beneficial to both cheetahs and farmers, thereby ensuring the species' survival on livestock farms; and (3) promote farm management practices that reduce livestock losses from predators.

C.I.T.E.S. - Convention on International Trade in Endangered Species of Wild Fauna and Flora. A treaty that monitors international trade in animals and plants. Over 115 countries have signed the treaty. Namibia, Botswana, Zimbabwe and South Africa are member nations, or "parties," to C.I.T.E.S.



CONFLICT – a battle, struggle, clash or disagreement

CONSERVATION - the act of protecting and preserving the environment and wild species.

CONSERVE - to make use of natural resources wisely and well, so as not to overuse them.

CONSUMPTIVE USE - any use of a plant or animal that involves an activity resulting in the loss of an individual organism. Examples include hunting, fishing, and trapping as well as indirect impacts such as habitat loss.

CUB – the name of some young carnivorous animals such as cheetahs, leopards and lions.

CULTIVATE – to promote the growth of, to improve and repair

DEPLETABLE RESOURCE - a natural resource, such as rainforests and soil, that takes thousands of years to be renewed.

DEPREDAATION - in relation to wildlife damage, the act of destroying people's crops or domesticated animals.

DESERT – a dry region rendered barren due especially to low rainfall.

DISTRIBUTION – to divide and dispense out in portions

DIURNAL - animal that is active during the day.

DIVERSITY – the way in which things are different

DNA - Deoxyribonucleic Acid. A chemical found in the chromosomes of every cell. DNA is organized into genes, which form the genetic code. An individual receives half of his or her DNA from the mother through her egg and half from the father's sperm.

ECOLOGY - the study of the relationships between animals, plants, and the environment.

ECOSYSTEM - a system of plants, animals, and other organisms together with the nonliving components of their environment.

ENDANGERED SPECIES - a group of animals or plants in immediate danger of disappearing (becoming extinct) from the earth due to changes in their environment, loss of habitat, commercial trade and/or inability to adapt. Protective measures must be taken immediately or the species will become extinct. The cheetah is an endangered species.

ENDOSKELETON – an internal supportive skeleton; characteristic of vertebrates

ENVIRONMENT - all the physical, chemical, and biological factors that affect or make up an organism's surroundings.

EVOLVE – to be part or subject to a natural process of change and evolution

EXOSKELETON – an external, protective skeleton or supportive structure; characteristic of invertebrates such as insects.



EXTINCT - no longer found on the earth, no longer living, gone forever.

FACTOR – an item, thing or part that actively contributes to a result

FELIDAE - the scientific name for the family of animals that includes all cats.

FOOD CHAIN - the relationship between species where one species relies on another for its food. Herbivores are at the bottom of the chain and are preyed upon by animals called predators.

GAME ANIMAL -legal designation for animals that may be hunted under regulation.

GENE - a unit of DNA responsible for determining a specific heritable trait (for example, brown hair). Mammalian DNA contains about 100,000 genes.

GENERATION – the single stage of descent/ancestry; offspring having common parents

GENETIC DIVERSITY - the variety of genes in an organism or in a population.

GEOGRAPHICAL RANGE (also called RANGE) - the area where an individual species of plant or animal population lives.

HABITAT - the place where a species lives, the environment where a plant or animal naturally occurs.

HABITAT DESTRUCTION - changing an animal's natural habitat so that it can no longer survive there.

HERBIVORE - an animal that eats only plants.

HOME RANGE - the area where an animal roams during its normal activities; different than an animal's territory.

HUNT – to search through an area, as for game or prey

INBREEDING - occurs when close relatives (father and daughter, or brothers and sisters) mate. After several generations of inbreeding, animals may exhibit poor reproductive traits, ill health, and short life spans.

INTERSPECIFIC COMPETITION - competition between two different species for habitat, food, and other resources shared in common.

INSTINCT – the innate part of behaviour that is not learned

LEOPARD – a large feline mammal that lives in Africa and Asia. An aggressive, large cat that has spots that are brown in the middle with black spots surrounding it.

LIFE CYCLE - the continuous sequence of changes undergone by an organism from one primary form to the development of the same form again.

LION – a large carnivorous feline mammal of Africa that has tawny colour and males have a heavy mane.

LITTER - all the offspring of an animal produced at one birth.



LIVESTOCK – domestic animals such as cattle, goats, horses or sheep that are raised for home use or for profit.

MAMMAL - an animal that has hair on its body and is warm-blooded; most species bear live young instead of laying eggs. The young get milk from their mother's body until they are old enough to eat other food on their own.

MIGRATE – to move from countries or regions to settle in another

NOCTURNAL - an animal that is active at night.

NONCONSUMPTIVE USE - any use that does not directly kill an individual plant or animal, such as hiking or photographing.

NONGAME - all wildlife species that are not commonly hunted, killed, or consumed.

NUTRITION – the process of nourishing or being nourished; a living organism assimilates food and uses it for growth.

OFFSPRING – the progeny (children) of a person, animal or plant

OMNIVORE - an animal that eats plant material as well as meat.

ORGANISM - any life form, plant or animal, made of mutually dependent parts that maintain vital biological processes.

OVERGRAZE - grazing too much or allowing too many animals to graze on one area, thus damaging the soil and the future growth of plants and animals.

OVERSTOCK - putting too many animals in an area; exceeding the area's carrying capacity.

POACHING - the illegal catching or killing of animals, or the illegal collecting of plants.

POPULATION - the total number of individuals of a species that share the same geographic area.

PREDATION - the act of hunting and killing other animals for food.

PREDATOR - an animal that hunts and kills other animals for food.

PREFER – to select in preference of another; to value more highly; to like better

PREHISTORIC – belonging to the era before recorded history

PREY - an animal hunted by another for food; food for a predator.

PROTECT – to keep from harm, attack or injury; to guard

RAINFOREST – a dense evergreen forest in a tropical region with an annual rainfall of at least 100 inches.

RARE - a species not currently in danger of extinction, but of concern because of its low numbers.



REGION – a large and undefined portion of the earth’s surface

RESERVE - an area of land set aside to conserve and protect animals and plants.

SAVANNAH - grassland with scattered trees or groups of trees.

SCAVENGER - an animal that feeds on dead animal flesh or other decaying organic matter.

SEMI-RETRACTABLE CLAWS - claws that can only be partially drawn back into sheaths.

SHELTER – something that provides cover of protection from the weather.

SLENDER – having little width in proportion to the height or length; thin

SPECIES - a group of animals or plants of the same kind that reproduce young like themselves. All organisms of the same kind. The leopard and cheetah are two different species of cats.

SPEED – the rate or a measure of the rate of motion.

SPOOR - the track or scent of an animal.

SPRINT – a short race at top speed.

STEWARDSHIP - the concept of responsible caretaking of the environment; based on the premise that we do not own resources, but are managers of resources and are responsible to future generations for their condition.

STRIDE – a ‘step’; a single movement of the four legs of an animal completed when the legs return to their original position.

SURVIVAL – something that survives, endures or lives.

SUSCEPTIBLE – especially sensitive, highly impressionable.

SUSTAINABLE USE - the use of a plant, animal, or other life form in a way and at a rate that does not lead to the long-term decline of biological diversity, therefore maintaining the species' potential to meet the needs of present and future generations.

TERRITORY - the area of land in which an animal lives and defends as its home. Animals may have fierce fights over territorial land.

THREAT – an intention to inflict pain, injury, evil or harm on a person or thing.

THREATENED SPECIES - a species decreasing in numbers and range. Such animals and plants face serious problems and may become endangered if we do not help.

TIGER – a large carnivorous animal, cat, of Asia; has a tawny orange coat with black stripes.

UNIQUE – being the only one of its kind; something special.



VEGETATION – the plants of an area or region.

VULNERABLE SPECIES - a species that is limited in numbers or area but is not yet threatened or endangered.

WARM-BLOODED - animal whose body temperature remains relatively constant. Animal that derives the heat energy it needs from the food it eats.

WETLAND – a lowland area such as a marsh or swamp that is saturated by moisture; especially thought of as a natural habitat of some wildlife.

WILDLIFE - the natural fauna and flora of an area. Animals that are not tamed or domesticated.

WILDLIFE CONSERVATION - the wise use of our world's natural resources, including minerals, plants, and animals, to prevent destruction of these resources and species extinction.

WILDLIFE MANAGEMENT - the application of scientific knowledge and technical skills to protect, conserve, limit, enhance, or extend the value of wildlife and its habitat.

