

VAMPIRE BAT

CARD 9

GROUP 1: MAMMALS

ORDER
Chiroptera

FAMILY
Desmodontidae

GENUS & SPECIES
Desmodus rotundus



Although it's not the bloodthirsty terror portrayed in horror movies, this ordinary-looking little bat really does feed exclusively on the blood of other animals.

KEY FACTS



SIZES
Length: Body, 2 3/4 in.
Wingspan: 8 in.
Weight: 1 oz.



BREEDING
Sexual maturity: 9 months.
Mating season: All year.
Gestation: 6-8 months.
No. of young: 1.



LIFESTYLE
Habit: Nocturnal. Lives in colonies of 6-2,000, but which usually number 100.
Diet: Blood of domestic animals, particularly cows, pigs, horses.
Lifespan: 9 years in the wild; nearly 20 years in captivity.



RELATED SPECIES
There are two other species of true vampire bat, *Diademus youngi* and *Diphylla ecaudata*.



Range of the vampire bat.

DISTRIBUTION

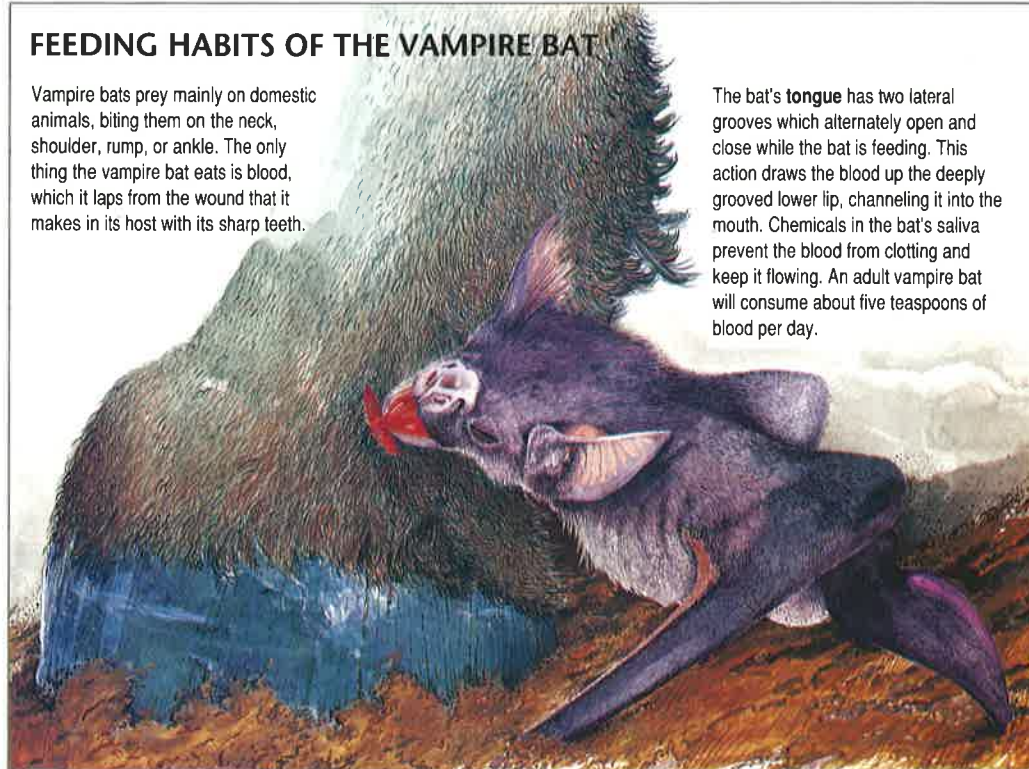
Central and South America, in tropical and subtropical regions from Mexico to northern Chile and Argentina.

CONSERVATION

Considered a serious pest in areas where cattle and horses are kept because they transmit rabies and other diseases. Vampire bats are not currently endangered.

FEEDING HABITS OF THE VAMPIRE BAT

Vampire bats prey mainly on domestic animals, biting them on the neck, shoulder, rump, or ankle. The only thing the vampire bat eats is blood, which it laps from the wound that it makes in its host with its sharp teeth.



The bat's tongue has two lateral grooves which alternately open and close while the bat is feeding. This action draws the blood up the deeply grooved lower lip, channeling it into the mouth. Chemicals in the bat's saliva prevent the blood from clotting and keep it flowing. An adult vampire bat will consume about five teaspoons of blood per day.

Despite the vampire bat's tiny size—its body is no larger than that of a mouse—this blood-sucking bat is a threat to cattle in its native Latin America. When it drinks the blood of domestic animals, it can infect them with the deadly rabies disease.

HABITS

Vampire bats are active only during the darkest periods of the night. It is the time when they are most likely to avoid being caught by such nocturnal predators as owls. Also, the domestic animals on which the bats feed are often sleeping, and so are easier to approach undetected.

During the day, vampire bats roost in colonies, hanging upside down in caves and hollow trees. They will some-

times move from one daytime roost to another which is closer to their prey. This kind of activity indicates that vampire bats learn from experience where their prey can be found.

Vampire bats also use rivers as navigational tools as they move from one part of their range to another. The rivers are easier to follow than wooded routes, and cattle often graze in pastures near water.

DID YOU KNOW?

- Vampire bats once preyed on wild animals, but now feed mainly on domestic animals.
- Vampire bats have been known to feed on sleeping humans.
- In a year, a colony of 100

vampire bats consumes a quantity of blood equivalent to the amount in 25 cows.

- Vampire bats bite more calves than cows, probably because the youngsters sleep for much longer periods.

FOOD & FEEDING

The vampire bat feeds on the blood of animals. Cows, pigs, and horses are its favorite hosts. The bat will usually choose to feed on the most docile or isolated animal in the resting herd. Using its chisel-like incisor teeth, the bat makes a small cut in the animal's skin. It usually chooses a fleshy area, like the shoulder or neck, where the blood vessels are closer to the skin's surface.

The bat then drinks the blood that flows from the wound. Chemicals in the bat's saliva keep the blood flowing for the 2-3 minutes that the bat feeds. Often two or three bats will feed from the same wound.

In most instances, the host animal suffers no ill effects from the loss of blood, although if too many bats feed on the same animal, it may be severely weakened.

BREEDING

The vampire bat's ability to reproduce is limited by its need to remain light enough to fly. It gives birth to a single offspring after an unusually long gestation period of six to eight months.

Born blind, the young bat is

carried by its mother for the first few days of its life. Its eyes open after a week, and it takes its first flight when it is three weeks old. The young bat is sexually mature at nine months and breeds at any time of the year.



Left: Vampire bats mate year-round. Mating takes place while roosting upside down in the security of a cave. A single young is then born some 6-8 months later.



Left: Barely larger than a sparrow, the vampire bat is a fearsome sight. Its wedge-shaped incisor teeth are used for slashing open the skin of its prey.

Right: A bat drinks the blood of a female pig. When larger prey is not available, vampire bats will attack turkeys and chickens.



VAMPIRE BAT & MAN

The vampire bat can transmit rabies to livestock and man. To control the vampire bats, cattle have been injected with anticoagulants, substances that do not harm the cows but will cause internal bleed-

ing in the feeding bats. Anticoagulants have also been smeared on the bats themselves. When they return to their roost site, other bats in the colony groom them and ingest the fatal drug.

Right: Vampire bats feed almost exclusively on livestock, biting their victims in places such as the ear, where the blood vessels run close to the surface.



POLAR BEAR

CARD 10

GROUP 1: MAMMALS



CLASS
Carnivora

ORDER
Ursidae

FAMILY
Ursus maritimus



M. Newman/Frank Lane Agency

The huge polar bear is one of the largest land carnivores in the world. Its coat, which varies in color from pure white to shades of yellow, blends in well with its snow-covered environment.

KEY FACTS



SIZES
Height: 5 ft. to shoulder.
Standing height: 8-11 ft.
Foot size: 12 in. long, 10 in. wide.
Weight: Males, 880-990 lb.;
females, 660-770 lb.



BREEDING
Sexual maturity: 3-5 years.
Mating season: March-June.
Gestation: About 7-8 months.
Litter size: Usually 2.



LIFESTYLE
Habit: Solitary, but sometimes
come together to feed.
Diet: Mainly seal fat and skin;
carriion; vegetation in summer.



RELATED SPECIES
The polar bear is the largest of
the bear family, which includes
the North American Grizzly bear
and Kodiak bear.



Range of the polar bear.

DISTRIBUTION

Southern edge of the arctic ice cap.

CONSERVATION

Conservation projects and regulated hunting exist in all countries where polar bears are found. After declining to about 5,000, the present world population is put at 40,000. Future depends on the protection of the arctic environments.

HOW A POLAR BEAR MOVES OVER ICE

On smooth, slippery slopes, a polar bear may slide on its belly, legs outstretched, and descend in a cloud of powdery snow.



When walking over the ice, polar bears appear bow-legged and pigeon-toed—both adaptations which enable these massive animals to maintain their balance without slipping.





Eric & David Hosking

Polar bears are well suited for life on the icy tundra. They are immensely strong and active—the soles of their feet are covered with fur, which gives them stability on slippery, frozen ground.



T. Ulrich/Oxford Scientific Films

FOOD & HUNTING

Polar bears feed mainly on seals. They wait for them to come to the water surface to breathe, or stalk them while they rest on the ice. The seal is killed by a crushing blow to its thin skull. Polar bears eat everything—they cannot afford to leave anything edible behind. In the late summer and early autumn, polar bears will patrol

the coastal areas looking for whale and walrus carcasses. Sometimes ten to twenty bears may be found feeding together. At this time of year, their diet is more varied, including such land mammals as lemmings, arctic foxes, and eider ducks. Like most bears, polar bears also eat vegetation.

Right: Solitary polar bears will often come together to feed on carcasses.

Below: Strong swimmers, polar bears have been seen swimming 50 miles from ice or land.



H. Miles/Nature Photographers Ltd

HABITS

Polar bears are found throughout the polar region, but they spend most of their time along the southern edge of the icecap on coastal land near open water. They are solitary animals and are active at all times of the year.

Polar bears are also excellent swimmers. They cruise through the water at speeds of up to six miles per hour, using their front legs to propel them, with their hind legs trailing behind. With their eyes open and nostrils closed, they can dive underwater as well, remaining submerged for two minutes. When they emerge, they immediately shake the water from their coats before it freezes.



A. Woller/The Image Bank



J.E. Swedberg/Ardea London

Left: A polar bear is no bigger than a rat when it is born.

Below: Two large cubs snuggle up to their mother for warmth. Two is the usual litter size of polar bears.

BREEDING

Springtime is the mating season for polar bears, with most activity taking place in April. Males seek available females; most females breed every third year after separating from their young.

In October and November, the bears dig dens in the snow or tundra. The dens are usually located on south-facing slopes of hills where northerly winds pile up large amounts of snow.

The dens are used for giving birth. Young are born in November or December and weigh only 16-32 ounces. They are hairless, blind, and deaf. They first emerge from the den in March or April. They will remain with their mother into the third spring of their lives.

DID YOU KNOW?

- Polar bears have a very acute sense of smell; they can smell carrion, such as a dead whale, from 20 miles away, and can sniff out seal dens that are covered with snow.
- The black nose of a polar bear on the snow can be seen from six miles away on a clear

day through binoculars. It has been said that, when stalking seals, the polar bear will cover its nose with a paw to escape detection.

- The temperature inside a polar bear's den can be 40 degrees warmer than the outside air temperature.



B&C Alexander

BLUE WHALE

CARD 11

GROUP 1: MAMMALS

ORDER
Cetacea

FAMILY
Balaenopteridae

GENUS & SPECIES
Balaenoptera musculus



F. Gohier/Ardea London

The blue whale is the largest mammal ever to have lived on earth. Ironically, it feeds on some of the smallest ocean life—plankton.

KEY FACTS



SIZES
Length: Average 85 ft., but can reach 100 ft.
Weight: 175,000-285,000 lb.



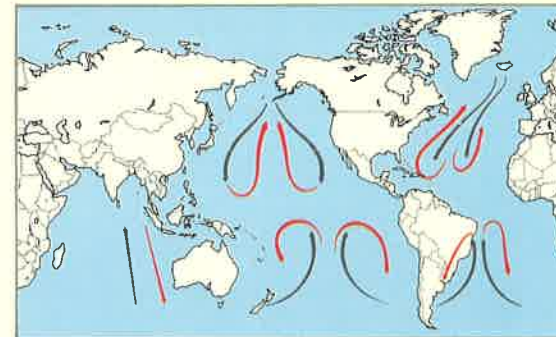
BREEDING
Sexual maturity: Males at a length of 74 ft. Females at 75 ft.
Mating: Most females breed only once every three summers.
Gestation: 11-12 months.
No. of young: Single calf.



LIFESTYLE
Call: Low-frequency moan.
Produces ultrasonic chirps and whistles when feeding.
Habit: Social and migratory.
Diet: Plankton, krill.
Lifespan: 80 years.



RELATED SPECIES
Pygmy blue whales (*B.m. breviceauda*) are thought to live in the southern Indian Ocean.



■ Summer feeding routes ■ Winter feeding routes

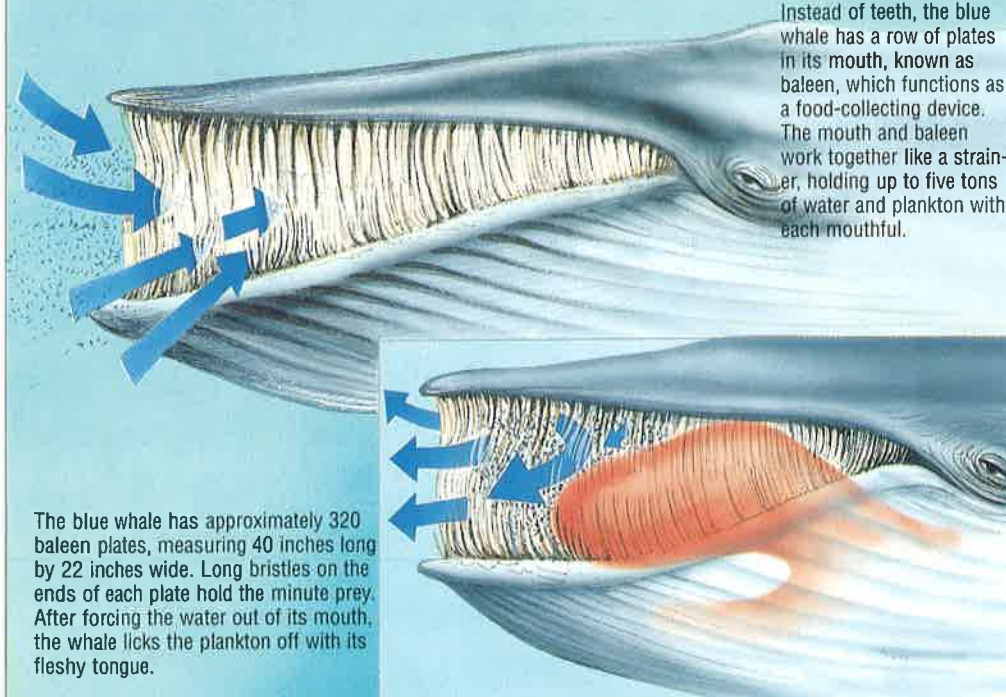
DISTRIBUTION

Limited, scattered areas all around the world; based mainly in Arctic and Antarctic waters.

CONSERVATION

Since 1986, commercial whaling has largely ceased, and blue whales now show signs of breeding success. Still, it will take a century of protection before they are out of danger of extinction.

THE BLUE WHALE'S FEEDING SYSTEM



Instead of teeth, the blue whale has a row of plates in its mouth, known as baleen, which functions as a food-collecting device. The mouth and baleen work together like a strainer, holding up to five tons of water and plankton with each mouthful.

The blue whale has approximately 320 baleen plates, measuring 40 inches long by 22 inches wide. Long bristles on the ends of each plate hold the minute prey. After forcing the water out of its mouth, the whale licks the plankton off with its fleshy tongue.

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Although blue whales feed in deep water, they are still mammals, and must come to the surface to breathe. They exhale air in a cloud of pressurized steam that rises straight up for about 20 feet.



F. Gohier/Ardea London

HABITAT

Like other marine mammals, blue whales are descended from early land animals. Millions of years ago, the richness of life in the sea lured them to the water; aquatic life gradually changed their physical characteristics.

Today, they spend most of

their time in the Arctic and Antarctic oceans, where plankton is plentiful. In winter, the whales migrate to the warm waters of the tropics. But food in the tropics is scarce, so the whales depend heavily on their thick layer of blubber for nourishment.

DID YOU KNOW?

- The biggest blue whale ever recorded was 102 feet long. The heaviest one recorded weighed 390,000 pounds.
- Blue whales are also called

sulphur-bottom whales by sailors because their bodies become covered with algae, which is greenish-yellow in color, like sulphur.

BREEDING

Blue whales form close ties with one another and are often seen in groups of two or four. Mating takes place in the warm waters of the tropics, where the young are born. The mother gives birth to a single calf with the assistance of other females, who help her deliver the calf and then nudge the newborn to the

surface, where it takes its first breath of air. At birth, the calf measures about 23 feet long and weighs 16,000 pounds. The baby is suckled in the water, drinking more than 160 gallons of milk a day. At 7 months old, it is able to catch its own food.

Below: *Mother and calf on their way to Arctic feeding grounds.*



R. Koher/Oxford Scientific Films Ltd.

FOOD & HUNTING

In the Antarctic, blue whales feed on vast quantities of a plankton called *krill*. In Arctic waters, they feed on only three species of *crustacean* (shelled) plankton.

Icy water contains more oxygen and carbon dioxide than warm water, which makes it rich in marine life. Plankton is up to 20 times more abundant in the Arctic and Antarctic than it is in the warmer waters of the tropics.

In spite of its bulk, the blue whale can reach speeds of 10 to 15 knots; however, it catches most of its food by diving. It can dive to depths of 1,650 feet and lie submerged for up to two hours. Rising from the depths, the whale feeds by collecting a large amount of seawater in its mouth, and then straining out the plankton (see back page).

Above right: *Whales come to the surface to breathe. The spout of pressurized steam that rises into the air is one way to recognize their presence.*



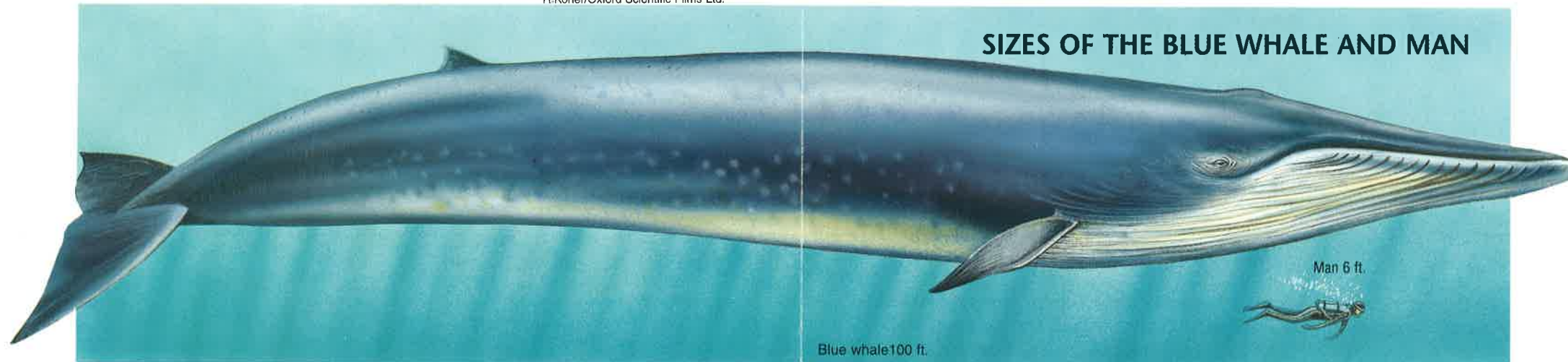
F. Gohier/Ardea London

WHALE & MAN

Because of its great size, the blue whale was a prime target for the whaling industry. Its body was a source of oil, and the baleen was used to make women's corsets.

Antarctic whalers slaughtered 30,000 blue whales from 1930 to 1931. The population has since recovered, but there are probably fewer than 10,000 alive today; they are now protected.

SIZES OF THE BLUE WHALE AND MAN



MANDRILL

CARD 12

GROUP 1: MAMMALS

ORDER
Primates

FAMILY
Cercopithecidae

GENUS & SPECIES
Mandrillus sphinx



The ferocious appearance of the mandrill is misleading. By nature, it is quite peaceable and social. The brilliant coloring of the male's face distinguishes it from the plainer female.

KEY FACTS



SIZES
Height: Males, 28-38 in.
Tail length: 2-3 in.
Weight: Up to 120 lb. Females are half the size and weight of males.



BREEDING
Sexual maturity: At least 4 years.
Breeding season: Females come into estrus every 33 days.
Gestation: About 30 weeks.
No. of young: 1.



LIFESTYLE
Calls: 3 calls: for contact, alarm, and banding together.
Habit: Sociable, diurnal.
Diet: Plants, fruits, roots, seeds, insects, small mammals.
Lifespan: Up to 46 years.



RELATED SPECIES
There are seven species of baboon. Closely related to the mandrill is the drill, *Papio leucophaeus*.



Range of the mandrill.

DISTRIBUTION

Forested areas of west-central Africa, southern Cameroon, Gabon, and the Congo.

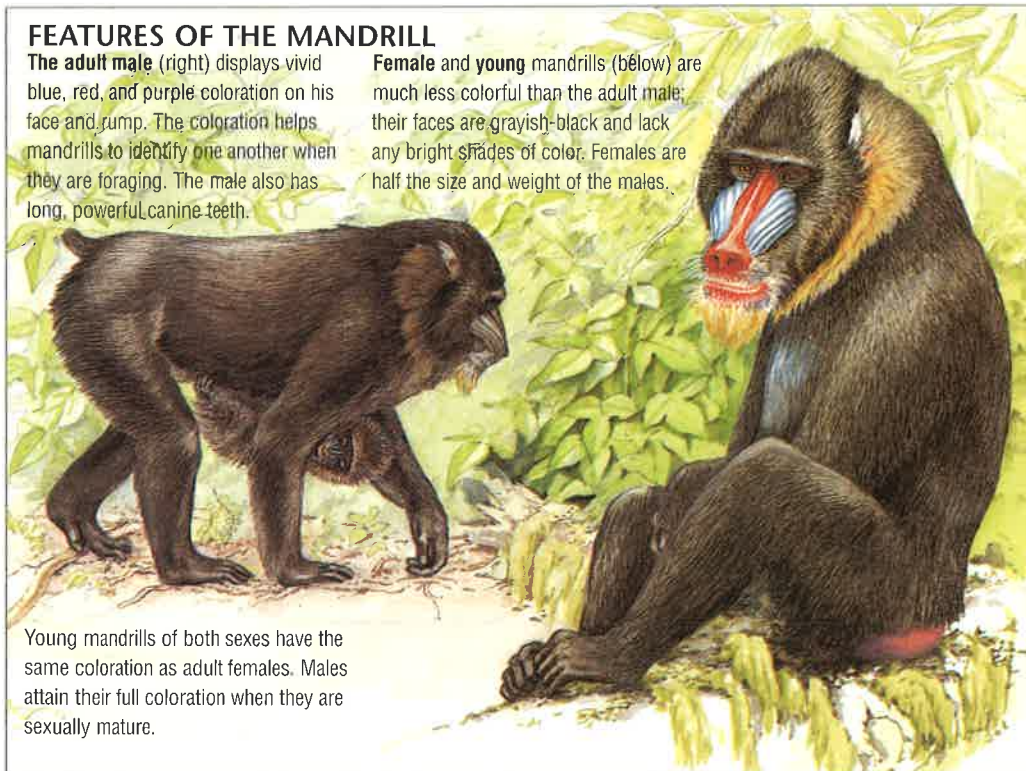
CONSERVATION

Now an endangered species. Decline caused by habitat loss, excessive hunting for food, and sale to zoos. There is a great need for forest reserves to be established for its protection.

FEATURES OF THE MANDRILL

The adult male (right) displays vivid blue, red, and purple coloration on his face and rump. The coloration helps mandrills to identify one another when they are foraging. The male also has long, powerful canine teeth.

Female and young mandrills (below) are much less colorful than the adult male; their faces are grayish-black and lack any bright shades of color. Females are half the size and weight of the males.



Young mandrills of both sexes have the same coloration as adult females. Males attain their full coloration when they are sexually mature.

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Active by day in the dense rainforests of western and central Africa, the mandrill is one of the largest of the ground-dwelling baboons. Only the adult males have the brilliant coloration that has made the species so well-known.

HABITS

Like other species of baboon, mandrills are very sociable animals, living in groups that may number from 15 to 200 members. Each group contains at least one adult male, five or more adult females, and their young. Some males live alone, which indicates the likelihood of rivalry between adult males for the leadership of the group. Mandrills spend most of the

day foraging in the forest for food. While foraging, the animals keep in verbal contact with one another by making grunting and crowing sounds. They also alert each other to possible predators, such as leopards or snakes. At intervals during the day, the group will rest. Adults groom each other while the young ones play.

FOOD & FEEDING

Mandrills eat fruits, leaves, roots, seeds, insects, eggs, and small animals. Led by the adult males, they begin foraging for food after daybreak. They find much of their food on the ground under stones and among vegetation.

Fruit trees are another source of food for the mandrill. Large groups of mandrills, together with other species of monkey, will converge on the trees and feed on the fruit. Within their home range, mandrills are alert to the seasonal sources of food.

The mandrill is adept at foraging for food because its fingers work in a coordinated fashion. The mandrill can dig, sort, prepare food, and transfer it to its mouth.

Right: Social activities such as grooming help maintain the stability of the group.

Below: Foraging mandrills communicate through a series of grunts and crowing calls.



BREEDING

The dominant male has access to all of the females in his harem, and he is most likely to father any offspring. He mates randomly with the females when they are in *estrus*. During estrus, the female's sex organs become swollen, indicating that she is ready for mating.

A single young is born seven to eight months later. It suckles the mother's milk and travels everywhere with her, clinging tightly to her chest. Gradually, the young mandrill will begin to explore its surroundings.

Female mandrills usually remain in the group into which they were born, but as the young males reach maturity, they most often must leave the group.



Left: A female mandrill suckles her offspring. Within hours of its birth, the young mandrill can cling tightly to its mother's chest. As the young grow older, they play together, which is how they learn the skills they will need to survive in later life.

DID YOU KNOW?

- The mandrill is the largest of all monkeys.
- The mandrill's reputation for ferocity is exaggerated. When a mandrill bares its teeth, it is not threatening to attack, but rather displaying submissive behavior.
- Mandrills sometimes feed on items that other monkeys have dropped from the trees.
- Mandrills walk on their fingers and toes so that the palms of their hands and the soles of their feet do not touch the ground.
- A group of mandrills typically roams more than five miles a day while foraging for food. Their actual range may cover as much as 20 square miles.

AMERICAN BISON

CARD 13

GROUP 1: MAMMALS

ORDER
Artiodactyla

FAMILY
Bovidae

GENUS & SPECIES
Bison bison



The bison once ranged freely over much of North America, and massed in herds by the millions for its annual migrations. Today, only 75,000 bison remain, confined to a few scattered reserves.

KEY FACTS



SIZES
Height: 5-6 ft.
Length: Head and body, 7-11 ft.
Tail: 20-24 in.
Weight: Males, up to 2,200 lb.



BREEDING
Sexual maturity: Females, 2-4 years. Males, much later.
Breeding season: July-September.
Gestation: 270-300 days.
No. of young: 1.



LIFESTYLE
Habit: Sociable and migratory.
Diet: Mainly grass.
Lifespan: 20 years in the wild, up to 40 years in captivity.



RELATED SPECIES
 Closest relative is the European bison, or wisent, *Bison bonasus*, found chiefly in eastern Europe.



Range of the American bison.

DISTRIBUTION

Formerly inhabited the prairies of western Canada and the United States. Today, found mainly in parks and reserves scattered throughout North America.

CONSERVATION

Today, the population totals around 75,000, most of which is the plains bison, *B.b. bison*. The wood bison, *B.b. athabasca*, remains endangered.

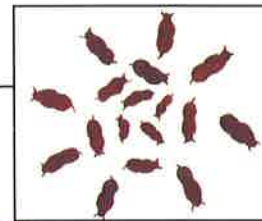
FEATURES OF THE AMERICAN BISON

Coat: Thick, heavy mantle on head and forequarters keeps the bison warm in winter. This is shed in spring for a cooler summer coat.

Defensive wall: When danger is near, bulls form a protective shield around females, who in turn protect the young.

Horns: Used in defense against rival bulls and predators.

Eyesight: Poor. The bison relies on its sharp senses of smell and hearing.



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The American bison is usually referred to by its more common name, buffalo. It is not only found on the open prairies—there is also a subspecies, the wood bison, which lives in the woods and mountains of North America.

FOOD & FEEDING

The bison feeds mainly on grass and other succulent vegetation. Methodical grazers, a herd can cover up to two miles a day in search of fresh grass. Food is chewed and swallowed, then regurgitated and chewed again. This method of digestion is known as *ruminating*, but is commonly known as chewing cud.

In addition to its daily forages, the bison also makes seasonal journeys in search of fresh pastures. Before its numbers were reduced, the bison migrated in vast herds, moving north in spring and south in fall.

Today, although its range is far more limited, bison in Alberta, Canada, still migrate 150 miles each spring and fall.

Left: The bison's sleepy gaze belies its awesome strength.

BREEDING

For most of the year, females and young males live together in small herds. Mature bulls either live alone or band together in small bachelor groups. In the mating season from July to September, the bulls fight over those females that are ready to mate. In her prime, a female will calve every other year.

Rival males attempt to warn one another off by stamping the ground and bellowing loudly. If neither bull backs down, they will charge each other, butting their heads together in a contest of strength. The winner will mate with the female and stand guard over her for several days.

Calves weigh about 65 pounds at birth, and are able to stand within a few hours.



Above: Rival bulls meet in fierce combat to compete for a mate.



Right: The female guards her young calf, ready to chase away any marauding wolf or coyote.

BISON AND MAN

When North America was first settled, the bison ranged over a third of the continent. Several hundred years later, it was nearly extinct.

The wholesale slaughter of the bison began at the end of

the 18th century at the hands of European settlers. Unlike the Plains Indians, who killed only as many as they could use, American settlers shot bison by the thousands for their meat, skin, for farmland,

and for sport, quickly wiping out entire herds.

In 1905, the American Bison Society was formed to preserve the few remaining bison. Today, they are considered safe from extinction.

HABITS

Bison live in small herds of approximately 50 animals. The herd provides defense against predators, such as wolves and coyotes. Although the bison's senses of smell and hearing are sharp, its vision is poor. Since bison often do not recognize danger until it is too late to flee, the females will surround their young and the bulls will

in turn surround the females, shielding them from their attackers.

Bison spend most of the day grazing in small groups. But where the grazing is particularly good, and during the two annual migrations, hundreds of bison may gather together to feed. They also take frequent mud or dust baths to keep clean.

The bison is adapted to withstand great extremes in temperature in its range, which once extended from Canada to Mexico. It grows a dark, warm, shaggy coat, which it sheds each spring. It is replaced by a shorter, lighter, summer coat.

Right: A bull takes advantage of a rough tree trunk by scratching to remove fleas.



DID YOU KNOW?

- It is estimated that there were once between 40 and 60 million bison in North America.
- Some North American Indian tribes relied almost entirely on bison for their food and clothing.
- In the United States, the bison is more often called the buffalo, although it is not closely related to the true buffalo found in Africa. Zoologists prefer the term bison.
- The only place in the United States where the bison has never been driven out of its range is Yellowstone National Park.