



Encyclopedia of Endangered Species

Edited by Mary Emanoil
In Association with IUCN-The World Conservation Union



The World Conservation Union



SPECIES SURVIVAL COMMISSION



DETROIT • WASHINGTON, D. C. • LONDON

Northern white rhinoceros

Ceratotherium simum cottoni

Phylum	Chordata
Class	Mammalia
Order	Perissodactyla
Family	Rhinocerotidae
Status	Endangered, IUCN
	Endangered, USFWS
	Appendix I, CITES
Range	Zaire

Description and Biology

The northern white rhinoceros is also called the northern square-lipped rhinoceros. This rhinoceros derives its common name from the Afrikaans word "weit," which means "wide." A mistranslation rendered "weit" as "white" and thus its other common name "white rhinoceros."

The northern white rhinoceros is one of two races of white rhinoceroses in Africa. The southern white rhinoceros is found in South Africa, Botswana, Zimbabwe, Namibia, Swaziland, Kenya, Mozambique, and Zambia. In 1986, they numbered less than 4,000 in the wild. The northern white rhinoceros is found only in Zaire and number only 33 individuals.

As its alternate name indicates, the northern white rhinoceros has a large, square-shaped mouth that is well-suited for grazing on short grass. This large animal stands 5.5-6 ft (1.7-1.8 m) at the shoulder, with a body length of 12-13 ft (3.7-4 m). It has a 20-28 in (50-70 cm) tail and weighs 5,000-8,000 lb (2,270-3,600 kg). This gray-colored rhino has short legs, broad ears, and two horns; it has a highly developed sense of smell but very poor vision. They are agile creatures and have been known to gallop as fast as 25 mph (40 kph).

Much of the northern white rhino's activity depends on the climate: during cool weather, the rhinos feed and rest throughout the day and night; during hot weather, they rest during the day and feed at morning and evening, even at night. In the heat of the day, they wallow in mud to keep cool—at times searching for water away from feeding areas. These waterholes are often shared with buffalos and warthogs. When no water is available, they roll in dust to keep cool and to keep insects away. Home range varies widely with habitat from less than one square mile (2.6 sq km) to almost 40 sq mi (100 sq km); the female's range is larger than that of the male.

The male is solitary, associating with the female only during the breeding season. The males are also very territorial, with the dominant males defending their territories against other males with displays of strength such as wrestling with horns and charging each other. Average feeding territory is about 0.75 sq mi (2 sq km). Socially inferior males are sometimes allowed to feed with dominant males if they make submissive gestures and sounds.

Females have larger territories than males, averaging about 4 sq mi (10 sq km). A female's feeding area may overlap several male territories. Females are sexually mature at seven years of age, and mating



Northern white rhino.

can take place throughout the year, with peaks in February and June. Courtship activity is cautious and may take five to twenty days before females allow males to mount them. After a gestation period of around 16 months, a single calf is born. When the offspring is two years old, it is chased away by the mother, who is usually ready to deliver another calf. The juveniles form a subadult group and often play and wrestle together. Dominant males appear to tolerate the subadults in their territory.

Habitat and Current Distribution

The northern white rhinoceros is restricted to Zaire. In 1993 the population consisted of 33 animals living in the Garamba National Park.

Preferred habitat is open grassland and savanna with access to water.

History and Conservation Measures

The northern white rhinoceros is one of the most endangered animals in Africa. In 1980, they numbered 821 individuals and just six years later, there were only 17 left in Zaire. Its decline was attributed to hunting and poaching for its horns.

The remaining population of white rhinos in Zaire became the focus of intensive conservation efforts and by 1993, the numbers increased to 33 individuals. Breeding of captive stock is critical to preserving such a reduced population, as is the continued upgrading of its protected habitat. Continued rehabilitation of Garamba National Park is recommended, along with a monitoring program for its population of white rhinos.

Sumatran rhinoceros

Dicerorhinus sumatrensis

Phylum	Chordata
Class	Mammalia
Order	Perissodactyla
Family	Rhinocerotidae
Status	Endangered, IUCN Endangered, USFWS Appendix I, CITES
Range	India (ex?); Kalimantan, Sumatra (Indonesia); Kampuchea (ex?); Laos (?); Malaysia; Myanmar; Thailand; Vietnam

Description and Biology

The Sumatran rhinoceros is the smallest rhino and, as its alternate name, hairy rhinoceros, implies, the hairiest. It averages 8-10 ft (2.4-3 m) long, stands 3.5-5 ft (1.1-1.5 m) tall at the shoulder, weighs 1,760-2,400 lb (800-1,100 kg), and its dark grayish brown skin is sparsely covered with long, bristly hairs. It has two horns, but one is small and knobby. The Sumatran rhino has an acute hearing but very poor vision. It swims well and spends a lot of time in water and in mud wallows. Wallowing is thought to cool the animal and provide some protection from biting insects. The Sumatran rhino has a prehensile upper lip which it uses to grasp food and draw it into its mouth. Diet includes leaves and twigs from trees and bushes and a variety of fruits. This species seems particularly fond of wild mangoes, figs, and bamboo and eats up to 110 lb (50 kg) of food daily. It feeds before dawn and after sunset and moves primarily at night. Its home range averages just under 12 sq mi (30 sq km) and usually includes a salt lick where the male lingers to encounter females. Tigers and wild dogs prey on young or sick rhinos.

Both males and females are territorial and both are solitary. Adult males and females generally come

together only for mating. The gestation period is often reported to be between seven and eight months, but it is more likely to be at least 13 months. A single calf is well developed at birth but remains with the mother for over a year.

Habitat and Current Distribution

The Sumatran rhinoceros presently survives in pockets in Myanmar, Thailand, the Malay Peninsula, Sumatra, and Borneo. The total population is thought to be 500 animals in the wild and about 24 in captivity.

This species occupies a wide variety of habitats with water as the common denominator. It survives in lowland tropical rainforest, lowland swamps, and mountain forests, as well as along forest margins and in secondary growth areas.

History and Conservation Measures

Although estimates of earlier population are unavailable, the Sumatran rhinoceros once had a much wider distribution than it presently has and can be assumed to have had a much larger population. Like other rhinos, it has been a victim of overhunting for



Sumatran rhinoceros.

its horn (thought to have aphrodisiac and medicinal properties) and of habitat destruction. Even with legal protection it remains a target of poachers. This species probably suffers from a higher level of poaching for its horn than any other species of Asian rhinoceros. As suitable habitat is cleared for logging or agricultural uses, rhino populations become smaller and more fragmented, making them more susceptible to disease or natural disasters.

Conservation efforts for this species are guided by several specific objectives including: development of populations of at least 700-1,000 rhinos in each

major region of its current range; preservation, management, and, where possible, expansion of all existing populations that have the potential to increase to 100 or more animals; location or establishment of additional viable populations, especially on the mainland and Borneo; development of a captive population of 150 rhinos distributed in zoos in Southeast Asia, North America, and Europe; continuation of efforts to close down the trade in rhino products. An intensive international cooperative program for the conservation of the Sumatran rhino has been started while there is still time to reverse the rapid decline of this species.

Black rhinoceros

Diceros bicornis

Phylum	Chordata
Class	Mammalia
Order	Perissodactyla
Family	Rhinocerotidae
Status	Endangered, IUCN Endangered, USFWS Appendix I, CITES
Range	Angola; Botswana; Cameroon; Central African Republic (ex?); Chad (ex?); Congo (ex?); Ethiopia (ex?); Kenya; Malawi (ex?); Mozambique; Namibia; Nigeria (ex?); Rwanda; South Africa; Sudan (ex?); Swaziland; Tanzania; Zambia; Zimbabwe

Description and Biology

One of the two species of rhinoceros found in Africa, the black rhinoceros is actually not black, but gray. Despite its huge size, shoulder height 4.5-5.25 ft (1.4-1.6 m), body length 9-12 ft (2.8-3.7 m), weight 2,000-4,000 lb (900-1,800 kg), the rhino can move fairly quickly when it decides to charge. It has poor vision but a highly developed sense of smell, its sinus passages being larger than its brain. A reputation for aggression comes from the high-speed charges it makes upon scenting danger. Of its two horns, the front one is longer and can measure up to 53 in (135 cm). It browses on branches, leaves, and bark, using its prehensile upper lip to grasp branches. Home range varies widely with habitat and climatic conditions from 1-35 sq mi (2.6-90 sq km). Non-human predators include lions, hyenas, and sometimes wild dogs.

Breeding is possible throughout the year, but most births occur during the rainy season. Males and females associate only during breeding season, at which time they are together constantly. The female reaches sexual maturity between five and eight years

of age. A single young is born after a 15-18 month gestation, weighing around 88 lb (40 kg). It nurses for up to two years and remains dependent for another year.

Habitat and Current Distribution

The black rhino is found today in Africa in the southwestern desert, in south-central and eastern Africa, and north of the rain forest belt in Cameroon, Chad, and the Central African Republic. Population is estimated at 2000 individuals.

Habitat includes open, arid scrub and savanna or dense thickets and mountain forests.

History and Conservation Measures

The black rhinoceros once ranged widely throughout the savannas of Africa, only avoiding the equatorial forest belt and some of the most arid desert regions. In 1970, an estimated population of 65,000 was distributed over most of its original range. It has now been wiped out in West Africa and severely reduced throughout the rest of Africa. The direct



Black rhinoceros.

cause of this species' decline is the demand for its horn. Rhino horn has been ground and used as an aphrodisiac in India and for medicinal potions in many places in Asia. It has also been used to make handles for the traditional *jambia* daggers worn by men in Yemen. Increased income from oil wealth in the Gulf made it possible for more Yemeni men to afford the expensive daggers, increasing the demand for rhino horn.

Although legal restrictions to trade have been instituted under the CITES treaty in most countries that are major consumers of rhino products, trade has

not yet been halted everywhere and poaching continues, especially in Zimbabwe. One desperate effort to alleviate the slaughter of poaching was instituted in Namibia in 1989; "Operation Bicornis" involved tranquilizing rhinos and removing their horns to make them unattractive to poachers.

In the long term, it will be necessary to make the continued existence of the rhino commercially advantageous to the local people. Non-consumptive uses of the animals, such as tourism and photographic safaris, must be developed to make the black rhino more valuable alive than dead.

Javan rhinoceros

Rhinoceros sondaicus

Phylum	Chordata
Class	Mammalia
Order	Perissodactyla
Family	Rhinocerotidae
Status	Endangered, IUCN Endangered, USFWS Appendix I, CITES
Range	Java (Indonesia); Kampuchea; Laos; Myanmar (ex [?]); Thailand (ex [?]); Vietnam

Description and Biology

The rarest large mammal in the world, the Javan rhinoceros has a single horn and tough gray skin that falls into folds at the shoulder, back, and rump. Head and body length is 10-10.5 ft (3-3.2 m), height at the shoulder is 5.5-7.5 ft (1.5-1.75 m), and weight averages 3,000-4,400 lb (1,360-2,000 kg). The female is larger than the male and often lacks a horn or has only a small knob. This rhino has an acute sense of smell, but very poor eyesight. A prehensile upper lip is used to grasp food, including shoots, twigs, young foliage, and fallen fruit, and bring it to the animal's mouth.

The Javan rhino likes to submerge itself in water with only its face above the surface. Mud wallowing is also a frequent activity. This species is generally solitary except during mating season or when caring for its young. Females seem to be receptive every 46-48 days, and males may compete violently for access to females. After a gestation period assumed to be about 16 months, a single calf is born. The calf is well developed at birth and nurses for one to two years. Young or sick rhinos are preyed upon by tigers.

Habitat and Current Distribution

The Javan rhino is now found primarily in the Ujung Kulon National Park, western Java, where only 50-60 animals survive. Scattered remnant populations may remain in southern Laos, Kampuchea, and southern Vietnam, but further study is necessary to assess the true status of any populations that may still exist in these areas.

This species prefers dense rain forests in low-lying areas with plentiful water and mud wallows. The wooded floodplains of large rivers are also favored sites.

History and Conservation Measures

The Javan rhinoceros was once widespread from India and China south to the islands of Java and Sumatra. As recently as 150 years ago three distinct subspecies existed—*R. s. inermis* in eastern India, Bangladesh, Assam, and Burma; *R. s. annamiticus* in Vietnam, Laos, Cambodia, and eastern Thailand; and *R. s. sondaicus* in southern Burma, Malay Peninsula, Sumatra, and western Java. Of these, the first is almost certainly extinct and the others survive only in

scattered remnant populations in Indochina and west Java. The Javan rhinoceros, like other rhino species, has declined due to habitat destruction and hunting for its horn and other body parts, which are thought to have medicinal value. Despite legal protection (the Javan rhino has been protected in Indonesia since 1931), a thriving black market for rhino products continues to make poaching a threat to this species, even in reserves.

Ujung Kulon National Park was set aside specifically for the conservation of the Javan rhinoceros. However, the population is limited by the carrying

capacity of the area and is so small that it is highly vulnerable to disease, poaching, and natural disasters. In 1981-1982 an unknown disease killed at least five rhinos (10 percent of the population) in the park. Conservation priorities for this species include preserving remnant wild populations; locating and/or establishing other wild populations; developing a captive propagation program to breed animals for reintroduction in the wild; and continuing efforts to eliminate the trade in rhino products. No Javan rhinos are currently in captivity. The population of the Javan rhino is now at a critically low level, and its future is uncertain despite ongoing conservation efforts.

Great Indian rhinoceros

Rhinoceros unicornis

Phylum	Chordata
Class	Mammalia
Order	Perissodactyla
Family	Rhinocerotidae
Status	Endangered, IUCN Endangered, USFWS Appendix I, CITES
Range	Bangladesh; Bhutan; India; Nepal; Pakistan

Description and Biology

This rhino, also known as the greater one-horned rhinoceros, has a single horn that can grow as long as 21 in (53 cm). It is believed that this rhino provided the impetus for the legend of the unicorn in medieval Europe.

The great Indian rhinoceros has gray-brown skin that falls in folds, resembling pieces of armor. Short, powerful legs support a body that can weigh 4,000-8,000 lb (1,800-3,600 kg). This rhino measures 5-6 ft (1.5-1.8 m) at the shoulder and averages 11-13 ft (3.4-4 m) long. Despite its formidable size, it generally tends to run away from disturbance rather than attack, although female rhinos have been known to charge and kill humans who have gotten too close to their calves.

Like other rhinos, the great Indian rhino has a highly developed sense of smell but very poor vision. Rhinos mark their territory by urinating and defecating. Both sexes defecate at a communal dung heap, and reportedly males can determine the availability of sexually receptive females by smelling the heap. The great Indian rhino is active at night, early morning, and late afternoon. Although groups are rare except for mothers and calves, these rhinos are often found together in mud wallows during the heat

of the day. They eat by grabbing food with their prehensile upper lip. Diet is composed mainly of grasses and shoots, supplemented by fruit, leaves, and cultivated crops.

Home range varies with habitat from 0.75-3 sq mi (2-8 sq km), with dominant males controlling prime territory and the breeding females within it. Dominance is established and maintained with physical superiority: in a clash with challengers, the size of one's tusks—sharp, lower tusks that are used to bite opponents—and physical size are determining factors. Courtship of females sometimes involves a chase and ends when the female is physically exhausted. After a gestation period of 15-16 months, one young is born. The infant is 3.1-4 ft (96-122 cm) long, 1.8-2.2 ft (56-67 cm) high at the shoulder, and weighs about 145 lb (66 kg). The calf is nursed for about a year and chased away from the mother when she is about to deliver her next calf, which is about three years later.

Habitat and Current Distribution

Restricted mainly to reserves in Assam, west Bengal, and Nepal, population of this rhino is estimated at 1,960. This is considered the highest number of great Indian rhinos in the past 30 years.



Great Indian rhino.

This rhino prefers a habitat of tall, swampy grassland and likes to be near water, where it wallows in mud with other rhinos.

History and Conservation Measures

The range of the one-horned rhinoceros once extended across the floodplains of South Asia's great rivers: the Ganges, Indus, and Brahmaputra. This rhino existed across the entire northern part of the Indian subcontinent from Pakistan to the Indian-Burmese border and included parts of Nepal and Bhutan. It may also have existed in Burma, southern China, and Indochina. As grasslands were converted to agriculture, prime habitat was lost and the rhino became more vulnerable to hunting. The horn and other parts of this rhino are highly valued for their supposed medical properties, and the great Indian rhinoceros has been hunted almost to the point of extinction. During the mid-1980s, a kilogram of powdered horn cost \$20,000-\$30,000 in east Asia.

At the beginning of the twentieth century, these rhinos numbered less than 100 individuals. In the early 1900s conservation efforts were begun to save this rhino, and the remaining habitat for the few animals who survived was turned into reserves. There has been some success and animals have been translocated to establish new populations in historic habitat.

Because loss of habitat and poaching still threaten the rhino, continued conservation efforts are essential. Conservation objectives include: the maintenance of a wild population of at least 2,000 rhinos in at least six major sanctuaries in the current range of the species; translocation of animals to create new sanctuaries and populations; continued anti-poaching efforts; maintenance of a captive population capable of long-term viability to guard against any unforeseen extinction of the wild population; and reduction in the demand for rhino products in eastern Asia by encouraging the use of substitutes.