

*The Complete Book of*  
SOUTHERN AFRICAN  
MAMMALS

*Compiled by Gus Mills and Lex Hes*





Rhinoceroses characteristically have three toes on each foot and belong to the Order Perissodactyla, the odd-toed ungulates. Also in this order are horses and tapirs.

## ORDER PERISSODACTYLA

The Perissodactyla are the odd-toed ungulates, encompassing three distinct families: the Rhinocerotidae (rhinos), Tapiridae (tapirs) and Equidae (horses).

The rhinos and tapirs retain three toes on each limb, while among the horses only the central toe remains. In the past the order comprised many more species than exist today. Extinct members of the rhino family commonly attained giant sizes, and developed a variety of horn-like structures on the snout. Among them was *Baluchitherium* which stood 5.5 metres high at the shoulder and is the largest land mammal that ever lived. Today's rhinos belong to three distinct subfamilies, which are only distantly related.

The African rhinos are represented by two species, the Asian one-horned rhinos by two species, and the Asian two-horned rhinos by a single species. The extinct woolly rhino, which occurred in Europe and northern Asia during the ice ages, was a member of the latter.

The four species of tapir that exist today are medium-sized browsers, occurring in the forests of South America as well as in southeast Asia. The equids were the pioneer occupants of the open grasslands that developed during the late Miocene period, and evolved high-crowned molars to feed on certain grass leaves. The domestic horse

is of Eurasian origin; there is one African and one Asian species of wild ass while the three species of zebra are all African.

All of the Perissodactyla are herbivores that rely on hindgut fermentation to extract energy from the cellulose component of plant cell walls and do not chew the cud. Microbial fermentation begins in a blind sac called the caecum, situated at the junction between the small and large intestine, and continues in the greatly enlarged and sacculated large intestine. Digestion is less complete than in ruminants, but in compensation the animals eat more per day relative to their body mass, and are better able to tolerate highly fibrous material.

Although represented by far fewer species than are the artiodactyls, perissodactyls can form a sizeable fraction of the community biomass of large herbivores in African ecosystems. The white rhinoceros is abundantly represented in fossil deposits from the Pleistocene era, while zebras are common through a wide range of ecosystems across the continent. From this ecological perspective, these hindgut fermenters are no less successful than the more speciose ruminants. The recent demise of rhinoceroses is due to their inability to cope with human hunters, rather than to maladaptiveness to environments.

NORMAN OWEN-SMITH

## White rhinoceros *Ceratotherium simum*

The white rhinoceros is a relict from an earlier era when very big mammals, or 'mega-herbivores', flourished throughout the world. The species was common and widely distributed throughout much of southern and East Africa in prehistoric times, and the reduction in its range in past and recent times is ascribed largely to human hunters (latterly those in quest of rhino horn). It is a relatively easy animal to hunt as it is short-sighted, readily encountered at waterpoints and easily approached from downwind.

The white rhino makes up about half the total biomass of large herbivores in KwaZulu-Natal's Hluhluwe-Umfolozi Park. It favours short grass, but its large size allows it to subsist on taller dry grass during the dry season. Feeding occupies about half the white rhino's time, and continues through both the day and night. In the heat of midday, animals lie up at shady sites on ridge crests. The grazing pressure the white rhino exerts can convert extensive areas of medium-tall grasslands into short grasslands. It usually drinks at dusk or shortly after nightfall. If forced to travel long distances to find water in the dry season, it drinks only every three to four days.

Dominant males occupy mutually exclusive territories, but share their territories with one or more subordinate males. Only the dominant male scent marks the territory, spraying his urine along boundaries and paths, and scattering his dung after defaecating at middens. Subordinate males bellow and shriek loudly when challenged. Large dung heaps mark territory boundaries. Generally only the dominant male consorts and mates with females.

A consorting male attempts to confine females within his territory boundaries, a process accompanied by loud bellows and snorts from the female and shrill squeals from the male. Copulation lasts 20 minutes or longer.

Outside its home territory a dominant male behaves like a subordinate. It travels to and from water without spray-urinating until regaining its own territory. Serious fights may develop when a male, returning from drinking, has its passage blocked by a neighbouring bull. Fights also occur over territory ownership, the defeated male sometimes remaining in the territory if it assumes subordinate status. Females with young move independently, but individuals with overlapping home ranges seem to know one another. Playful horn jousting develops when the animals meet, and may lead to vigorous chases which involve adult females as well as calves and subadults.

The saving of the white rhino from extinction is one of the great success stories of conservation: the few score individuals surviving in the Umfolozi Reserve at the turn of the century increased under protection to reach 2 000 animals by 1970, and perceived overgrazing led to the launch of a programme to translocate surplus animals. White rhinos have been successfully re-established in the Kruger and Pilanesberg national parks, in smaller reserves and on private land. Though the total population has increased to more than 6 000, the species remains threatened by poachers catering for the continuing illegal trade in rhino horns.

NORMAN OWEN-SMITH

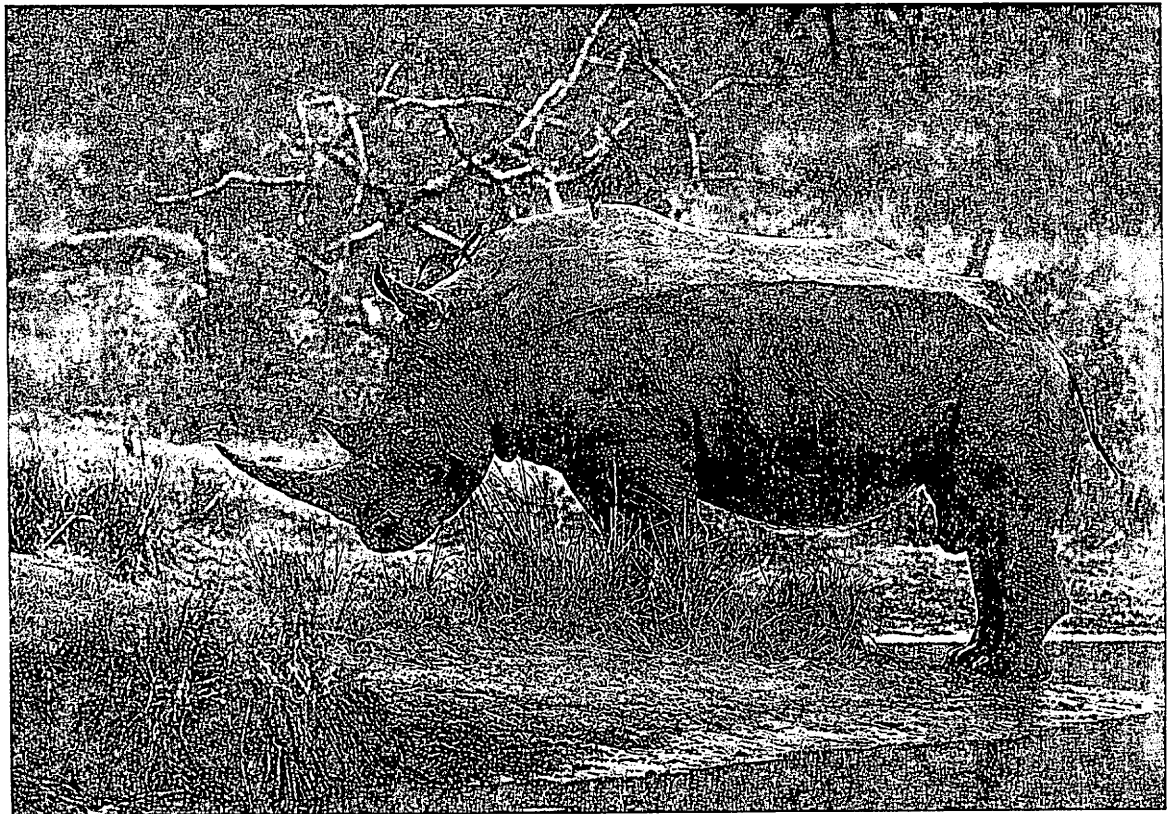


A white rhino female with exceptionally long hairs gently nuzzles her nearly year-old calf.



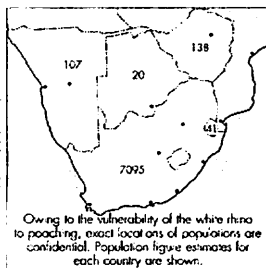
INSPER 1953:111

Two young white rhinos in the grass-covered rolling hills of northern KwaZulu-Natal. Unlike the black rhino, the white rhino is a grazer whose wide mouth facilitates maximal food intake.



INSPER 1953:111

The white rhino needs water both to wallow in and to drink. A creature of habit, it beats a regular path to its watering point and only leaves its territory when water is not available.



Source: IUCN SSC Africa 1994b

#### DISTRIBUTION AND STATUS

Formerly widely distributed through bushveld areas of South Africa into Namibia, Botswana and Zimbabwe; exterminated by human hunting in later 19th century, except in Kwa-Zulu-Natal's Umfolozi region. Reintroduced into parts of former range, but still suffers from poaching. Northern subspecies persists only as a remnant of perhaps 20 animals in Zaïre.

#### HABITAT

Savanna bushveld, from dry shrub savanna in Namibia and Botswana to areas of mesic savanna in parts of Zimbabwe. Absent from open grassland regions.

#### FIELD CHARACTERISTICS

The third largest land mammal: adult males weigh up to 2 000 kg, females 1 800 kg. Shoulder height 1.8 m. Skin almost hairless, grey in colour. Two horns (an amalgam of hair-like fibres), longer in females than in males, with a record length of 1.58 m. Mouth wide and square-shaped, hump on neck. Penis of male points backwards; testes abdominally situated.

#### SOUNDS

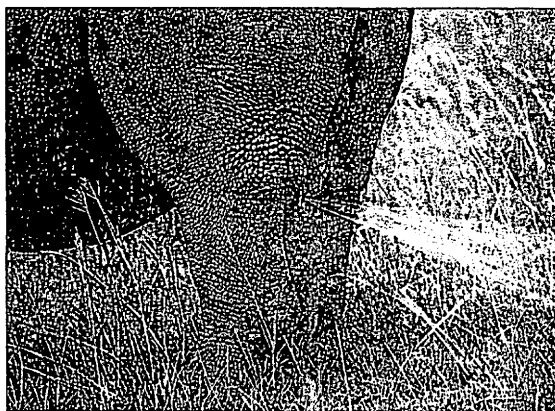
Sounds include deep bellows, shrill squeals and various panting and snorting noises. No alarm call.

#### FOOD AND FEEDING METHODS

Strictly a grazer, favouring short grass but consuming taller grass when short grass is unavailable. Grass plucked with the lips, the wide mouth enabling the animal to achieve an adequate intake.

#### BREEDING BIOLOGY

Non-seasonal breeder, but most calves are conceived in the wet season and born early in the dry season. Gestation 16 months. Single offspring



NOCE (19-94)B5 (A B F 1)

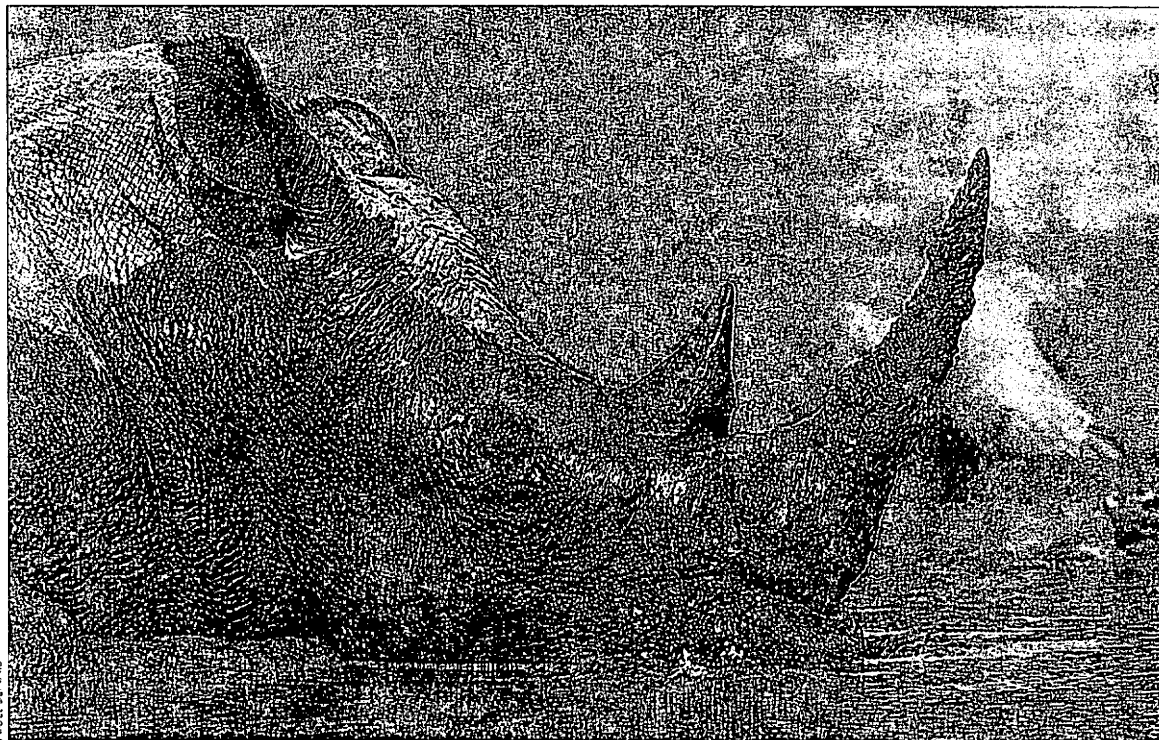
The male white rhinoceros is territorial. Bulls mark out their territories by defecating at latrines and by means of powerful backwards squirts of urine onto scrape marks made by the hindfeet.

stays with mother for 2-3 years, until next calf is born. Females first give birth at about 8 years, males reach maturity at 10-12 years.

males may share a territory. Females have overlapping home ranges, encompassing several male territories. Females usually single, accompanied by a calf, but may join subadults in groups numbering 3-10 animals. Territory holder joins a female for 5-10 days prior to mating, attempting to confine her to his territory.

#### SOCIAL SYSTEM

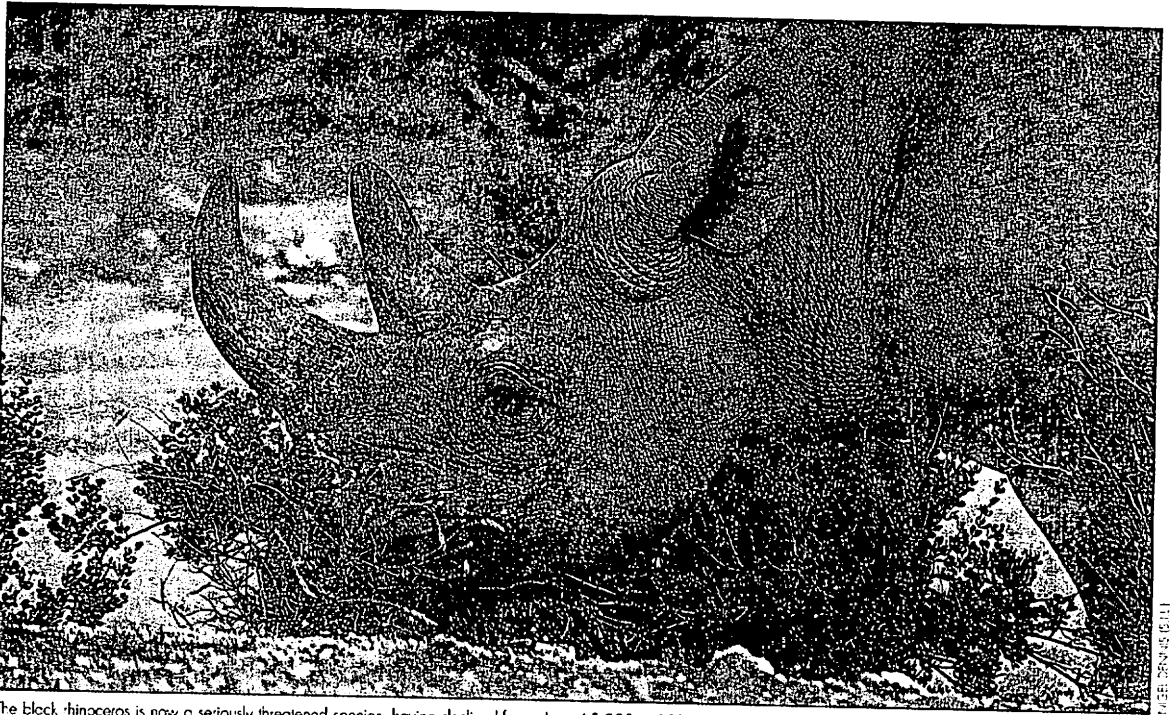
Males territorial, with dominant male occupying mutually exclusive area of 2-5 km<sup>2</sup>, but one or more subordinate



NOCE (19-94)B5

Rhinoceroses, like other pachyderms, enjoy bathing in mud wallows, an activity which keeps them cool and protects them against external skin parasites.

# Black rhinoceros *Diceros bicornis*



The black rhinoceros is now a seriously threatened species, having declined from about 65 000 in 1970 to just over 2 400 in 1995.

The snorting and puffing of a charging black rhinoceros is one of the classic sounds of the African bush, guaranteed to raise adrenalin levels of anyone on foot, especially if there are no climbable trees handy! But despite their fearsome reputation they are not all homicidal maniacs. In most cases charges are bluffs intended to scare away intruders. Nevertheless, the animal should always be treated with respect when encountered in the bush. Individual black rhinos are idiosyncratic, with their own characters, just like humans – some are placid and unaggressive, whereas others are more inclined to charge. The biggest danger is if one accidentally surprises an animal at close range in thick bush. While not possessing great eyesight, its senses of hearing and smell are acute. The black rhino is also much shyer than the white rhino. When not surprised, the black rhino can be very inquisitive, slowly moving towards the source of noises in which it is interested. Generally, if the wind changes direction and it smells humans it will move off. After being 'spooked' the black rhino tends to run further than the white rhino and prefers to take cover in thick bush.

During the day the animal keeps cool by lying up in the shade of thick bush, under big shady trees, in pans or on breezy ridge tops. The black rhino does most of its feeding at night, and comes into open areas more readily during this cooler period.

The species is also known as the hook-lipped rhino because of its mobile pointed upper lip, which it uses like an elephant's trunk to grab and pull food into its mouth. Unlike the white rhino, which is a grazer, the black rhino is a browser, eating trees, shrubs and herbaceous plants.

The decrease in black rhino numbers in the wild, from about 65 000 in 1970 to just over 2 400 in 1995, represents one of the fastest declines of any large mammal in recorded history. However, total numbers in Africa have remained relatively stable since 1992, with increases in South Africa and Namibia cancelling out declines in other countries.

Decreases early this century were largely a result of loss of habitat caused by the clearing of land for settlement and through hunting. However, in the

past three decades poaching has been the main culprit. Contrary to popular belief the main use of rhino horn is not as an aphrodisiac, but rather as a traditional Eastern medicine (used for reducing fever), and for making carved dagger handles in Yemen. More recently it appears that rhino horn may be being stockpiled in some areas as a speculative investment.

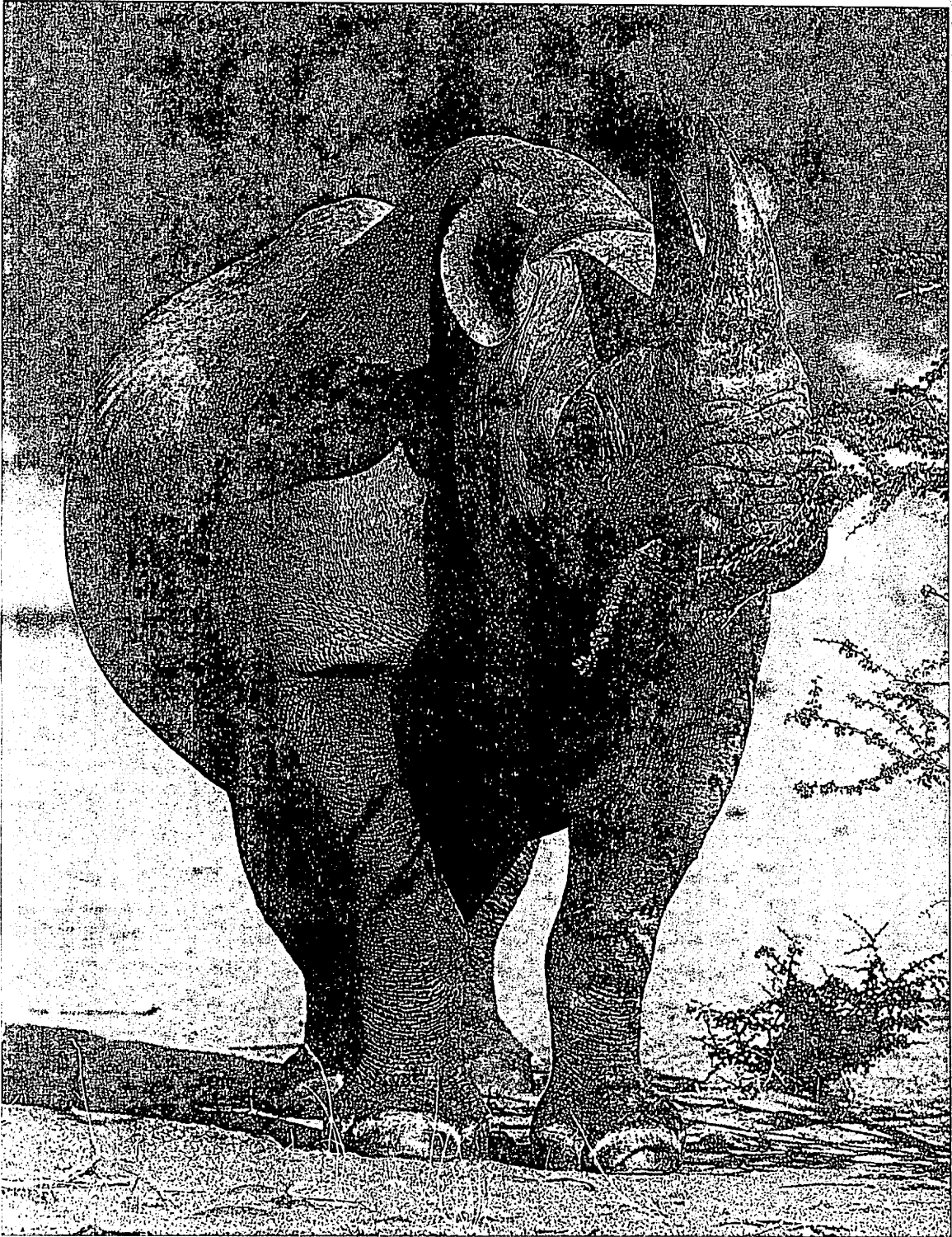
Today, most black rhinos occur in smaller, more intensively managed populations with better security, and have been all but wiped out in the vast, underprotected open areas they used to roam in large numbers. Many of these populations have been re-established on both state and private land: from only two in 1960, South Africa now has 15 black rhino populations on state land and seven on private land. In several countries the rhinos are being managed below carrying capacity to ensure optimum population growth rates. When densities build up, animals are translocated to other areas. This requires good monitoring, and many rhinos have had their ears notched to make it easier for conservationists and game scouts to recognize individuals.

In South Africa black rhinos can now be bought on auction if suitable habitat is provided and the property has a carrying capacity of at least 10 animals. By contrast, animals on private land in Kenya, Zimbabwe and to some extent Namibia and Swaziland remain the property of the state and are looked after and managed for the state on a custodianship basis.

Black rhino conservation is not cheap, and there is a strong correlation between expenditure and success. It has been estimated that protecting and managing black rhino populations can cost as much as US\$1 000–1 200 per square kilometre a year. Unfortunately, African conservation departments have for a number of years faced declining budgets in real terms, which poses a potential threat to the quality of conservation on state land in the long term unless alternative ways can be found to generate additional revenue.

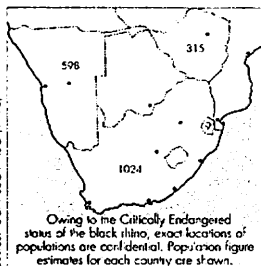
Sadly, as long as the demand for horn remains high, all five species of rhinos worldwide (two African and three Asian species) remain under threat of extinction.

RICHARD H. EMSLIE



ROBERT DICKSON/ASA BENTLEY

The black rhinoceros is a browser, using its prehensile upper lips to pluck leaves and twigs off the ends of branches of trees and bushes.



#### DISTRIBUTION AND STATUS

Four recognized black rhino subspecies occur, totalling 2 410 animals at the last count in 1995. Most black rhino occur in South Africa, Namibia, Kenya and Zimbabwe.

*D.b. minor*: Most numerous. Occurs from southern Tanzania down through Zimbabwe to northern and eastern South Africa where most of its numbers are. Only a few remain in Botswana, Mozambique and Zambia. Small numbers also re-introduced to Swaziland and Malawi.

*D.b. bicornis*: Namibia is home to 95% of this larger, more arid-adapted subspecies. Ranges from 'desert' country in Kunene province of Namibia, to some small re-established populations in southwestern South Africa.

*D.b. michaeli*: Stronghold in Kenya,

with other important populations in Ngorongoro (Tanzania) and a translocated population in Addo Elephant NP, South Africa.

*D.b. longipes*: Only a few remain scattered through parts of Cameroon. Numbers continue to decrease.

Listed as *Threatened - Critically Endangered* in the IUCN Red List; however, regionally its status varies from *Critically Endangered* to *Conservation Dependent*.

#### HABITAT

Exists in a wide range of habitats from desert to moist, dense vegetation. In the historical past was even recorded on the slopes of Table Mountain. Has a much wider historical distribution than the white rhino. Small thorn trees and *tamboti* thickets especially favoured. Riverine and drainage line habitats and nutrient-rich termite-mound bush clumps provide important dry-season habitat. In southern Africa the higher densities are found in sweetveld and valley bushveld.

#### FIELD CHARACTERISTICS

Smaller than the white rhino; females weigh up to 800 kg and males up to 1 200 kg. Pointed upper lip clearly distinguishes it from wide-mouthed,

'square-lipped' white rhino. Has a much smaller head, usually held high compared to the white rhino's. Has a saddle on the back, whereas white rhino has an obvious fin-like hump two-thirds of the way along its back. The ears are more rounded and trumpet-like compared to the white rhino's elongated and 'rectangular' shaped ears. Colour of animal depends in part on the colour of the soil in which it has rolled. It can run at up to 55 km/h. Black rhino dung is sometimes deposited on white rhino dung middens. It is orangish in colour and contains fragments of leaves and sticks. In contrast to elephant dung the twigs in a black rhino's dung have a neat, pruned appearance.

#### SOUNDS

Best known for an explosive snort when charging. Among other sounds the calves also make an enchanting meowing noise which seems incongruous for such a big animal.

#### FOOD AND FEEDING METHODS

Browser; eats trees, bushes and herbs, but will eat grass when under nutritional stress. Hooked upper lip is used to grab hold of branches and pull them into the mouth; these are then sheared

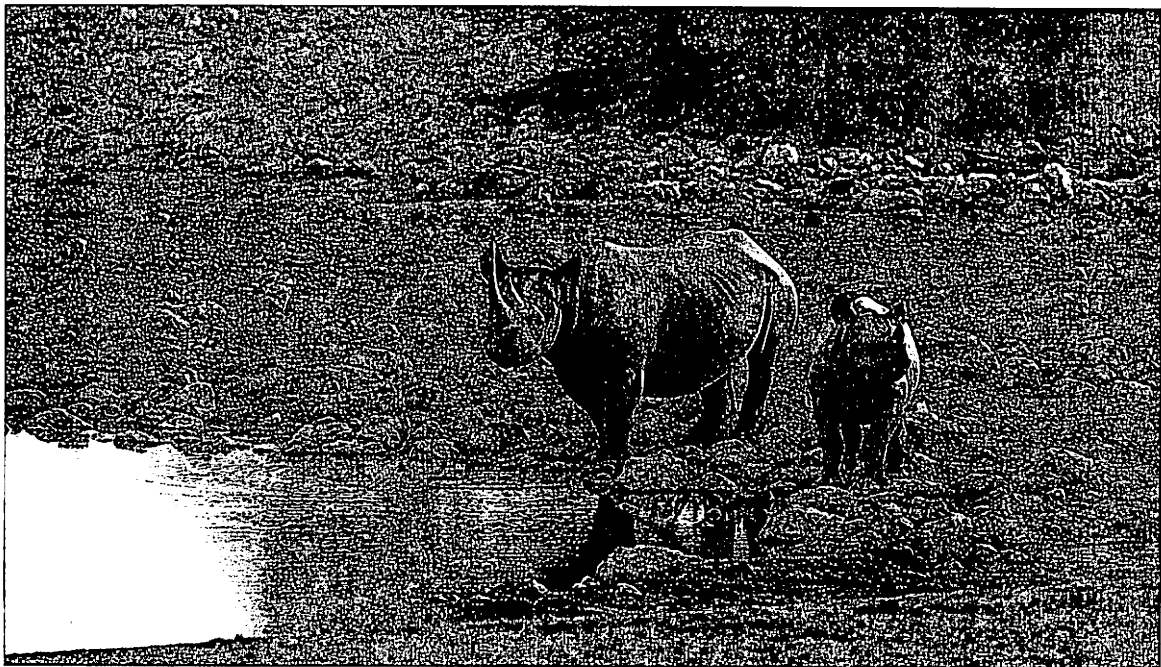
off using the molars and crunched up, thorns and all. Less destructive than elephants, which tend to shred ends of branches like a 'toothbrush'. Characteristic 'pruning' of woody vegetation has enabled ecologists to successfully study feeding patterns.

#### BREEDING BIOLOGY

Cows mate at any time of year. Mating can be quite violent, with males sometimes horning the females. Age at first calving usually about 6.5 years. Under optimal conditions can achieve an inter-calving interval of around 27 months.

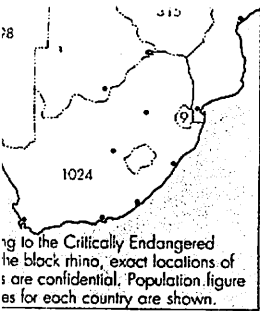
#### SOCIAL SYSTEM

Males may set up territories whose sizes are largely determined by food and water availability; they may kill young bulls who stray into their territories. When densities reach or exceed carrying capacity, mortalities due to fighting generally increase. Usual group is a cow and calf or a cow and an older and younger calf. They tend to recognize animals living in the same area by smell. Cow/calf groups sometimes meet up for brief periods before splitting again. Bulls are usually solitary but will spend time with a female in oestrus.



The black rhinoceros is a solitary animal, with the only stable association being that between mother and calf.





## DISTRIBUTION AND STATUS

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Colour: Most numerous. Occurs from southern Tanzania down through southern to northern and eastern Africa where most of its population are. Only a few remain in Mozambique and Zambia. Numbers also re-introduced to Malawi and Malawi.

Climate: Namibia is home to the largest, more arid-adapted population. Ranges from 'desert' southern province of Namibia, to re-established populations in eastern South Africa.

Conservation: Stronghold in Kenya,

Ngorongoro (Tanzania) and a translocated population in Addo Elephant NP, South Africa.

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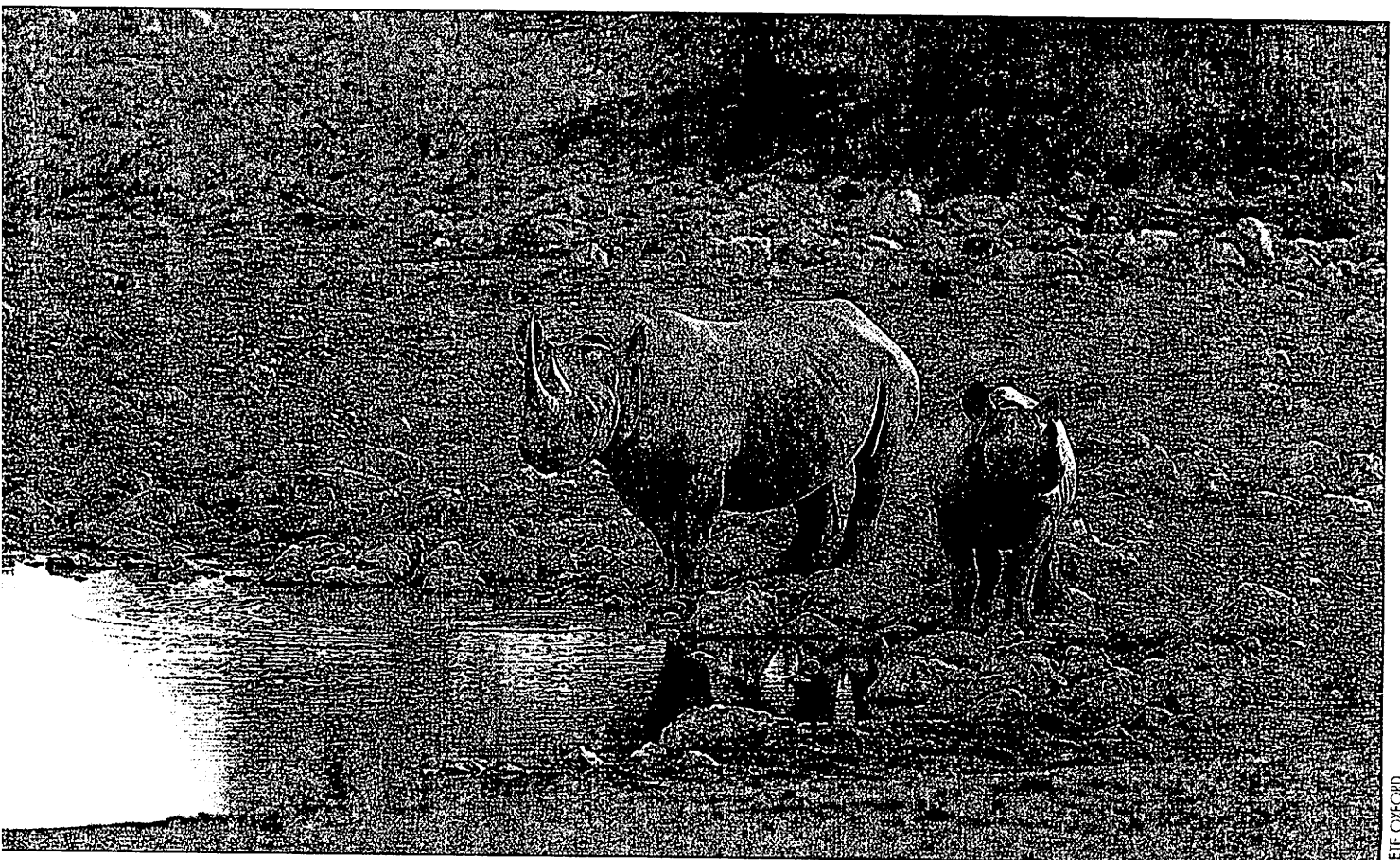
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