MAMMALS OF THE TRANSVAAL

by

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Family RHINOCEROTIDAE

1. Upper lip squared; nuchal hump prominent when head is raised ..... *Ceratotherium*

   Upper lip narrow, the tip prehensile; no such nuchal hump ..... *Diceros*

Ceratotherium Gray, 1867
Ceratotherium simum (Burchell, 1817)

Square-lipped (white) rhinoceros
Breëlip (wit) renoster

C. s. simum (Burchell, 1817)

DISTRIBUTION:

At the turn of the century the southern square-lipped rhinoceros was on the brink of extinction, with only an estimated 200 individuals surviving in the area of the present-day Umfolozi Provincial Game Reserve. It was through the dedicated efforts of early conservation champions like Kirby (1920), Lang (1923 and 1924), and later Mr Ian Player and the Natal Parks Board that it was saved from total extinction.

The square-lipped rhinoceros occurred throughout the bushveld areas of the Transvaal during historical times, with the exception of the Springbok Flats and the montane woodlands of the escarpment (Player and Feely, 1960). No evidence exists of its past occurrence on the grasslands of southern Transvaal. Kirby's (1920) claim that the last square-lipped rhinoceros was killed in the Transvaal in the Nwatimhiri bush during 1896, is now generally accepted. It was only 65 years later, with the advent of modern tranquilizing and immobilization drugs and techniques (Harthoorn and Player, 1964; Harthoorn, 1962), that the square-lipped rhinoceros could be reintroduced to some of its former haunts in the Transvaal. It was initally resettled in the Kruger National Park (Pienaar, 1970). When this and susequent reintroductions proved highly successful, other provincial, municipal and private game reserve were restocked throughout the former range in the Transvaal.

With rigorous protection this southern subspecies has increased in numbers throughout its natural range to the extent that it has been removed from the list of endangered mammals (Red Data Book, 1966). This should be regarded as a compliment to conservation agencies in South Africa, particularly the Natal Parks, Game and Fish Preservation Board.

HABITAT:

According to Player and Feely (1960), *C. simum* has four basic habitat requirements. As a grazer it has a marked preference for short grass. Water is essential since the square-lipped rhinoceros drinks daily, and in addition requires the means to wallow regularly, especially during summer. Adequate cover in the form of thicket is required for protection against adverse climatic conditions. Topography is the other habitat requirement; rather flat terrain is preferred, and steeply undulating country is never occupied.

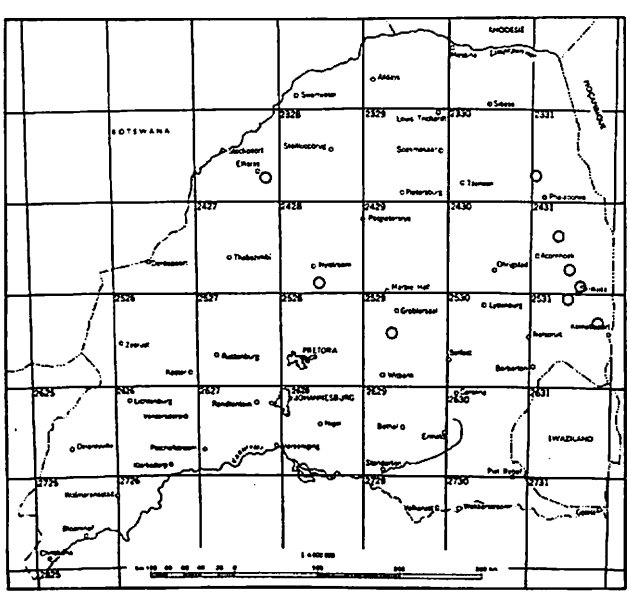


Fig. 153: The distribution of C. simum *in the Transvaal.*

HABITS:

The social structure, behaviour and territoriality of *C. simum* have been studied by Player and Feely (1960), Foster (1960), and Owen-Smith (1971; 1972).

The square-lipped rhinoceros cannot be termed a social animal in the true sense of the word. Of all mature males, about two-thirds are territorial and solitary, except for brief periods when they are consorting with oestrus females. Adult subsidiary bulls are also solitary. There is, however, a strong bond between females and their offspring, and such females accompanied by the most recently born and a previous calf consitute the commonest group. Several such units may temporarily congregate at good feeding areas or drinking points, where as many as 20 individuals may be observed together. Two immature bulls may also form a temporary association until they reach maturity.

The hearing and eyesight of the square-lipped rhinoceros are poorly developed, but the sense of smell is acute. This animal drinks water regularly, and is particularly fond of wallowing in mud, especially during summer. Sand baths are taken throughout the year. Apparently white rhinos are active during both day and night. However, during particularly warm days, animals are apt to rest in the shade. During cold and windy days they retreat to the protection of thickets. Grazing is most often observed during early mornings and late afternoons. I have, however, come across grazing animals at night. Water is drunk during both night and day.

Female-calf units utilize home ranges of 10-15 square kilometres, favouring different sections during different periods. These home ranges are unique and independent, and overlap extensively with those of other female-calf units. The home range patterns of adolescent groups are not as yet fully understood. However, it seems that such groups confine themselves to fixed home ranges of four to ten square kilometres, although some individuals move about erratically (Owen-Smith, 1972).

Owen-Smith (1971, 1972) pays particular attention to territoriality in bulls. Only dominant bulls maintain territories of one to two square kilometres, which are mutually exclusive. Subsidiary bulls are allowed within these territories, provided they acknowledge their subordination to the resident bull when challenged. A territory is marked by the dungheaps of the territorial bull, although other individuals may also use these heaps, However, only territory owners scatter their droppings, presumably to enhance the olfactory impact thereof. Territorial bulls further mark their territories by spraying their urine over ground and vegetation they disturbed just prior to urination. A territory is maintained also through direct encounters with rivals, mostly through ritualized agonistic behaviour. A territorial bull does not so much defend his territorial domain, as maintaining his dominance within that space. For that reason owners are reluctant to leave their territories, since in doing so they lose their dominant status. When they do leave, for instance to drink water or to explore, dominance behaviour such as spray-urination and the scattering of faeces is discontinued.

Females wander through several territories at will. However, oestrus females are retained within his territory by the owner by means of herding behaviour for several days, until he has successfully mated her. Owen-Smith (*op. cit.*) convincingly argue that territories serve primarily to provide owners with exclusive participation in reproduction.

FOOD:
Almost exclusively a grazer, preferring *Urochloa, Panicum* and *Digitaria* species. Rooigras, *Themeda triandra,* is not preferred except when regenerating after a veld fire (Player and Feely, 1960). This animal has a marked preference for shorter grass stands, while it will also take small shrubs and creepers during droughts (Foster, 1960).

BREEDING:
Reproduction is not seasonally restricted. However, according to Owen Smith (1972), the onset of oestrus appears to be stimulated by a flush of green grass. This results in a mating peak during spring, and a calving peak during autumn after a gestation period of slightly less than 16 months. Interval between births is two years or more (Pienaar, 1960). Normally a single calf is born per female, and only occasionally twins.

MEASUREMENTS AND MASS:
The Transvaal Meuseum possesses no specimens from the Transvaal province. Foster (1960), and Player and Feely (1960) provide some data.

RECORDS OF OCCURRENCE:
Sight records from Charleston, Huwi, Letaba Ranch, Loskopdam Priv. Nat. Res., Othawa, Rissik Priv. Nat. Res., TenBosch Estates, Timbavati Priv. Nat. Res. See Pienaar (1963 and 1970) for an account of the square-lipped rhinoceros' current status in the Kruger National Park.

Diceros Gray, 1821
Diceros bicornis (Linnaeus, 1758)

Hooked-lipped (black) rhinoceros
Haaklip (swart) renoster

D. b. bicornis (Linnaeus, 1758)

TAXONOMIC NOTES:
Following Joubert (1970), the present-day Transvaal population is assigned to the nominate race. The animals currently in the Kruger National Park, originated from the Natal population. Joubert (*op. cit.*) shows that the Natal and S.W.A. populations do not differ at subspecies level, and assigns both populations to *D. b. bicornis.*

DISTRIBUTION:
The black rhinoceros occurred throughout the bushveld regions of the Transvaal during historical times (du Plessis, 1969). Indiscriminate slaughter by hunters during the latter half of the century, however, reduced their numbers dramatically, so that only a few individuals were known to occur in the remote eastern Transvaal lowveld (Pienaar, 1963) and the Lydenburg district (Sclater, 1900). According to Pienaar (*op. cit.*), the last animal in the Transvaal was seen in 1936 in the Nwatimhiri bush near Skukuza in the Kruger National Park. During 1971, 20 animals from the Natal game reserves were successfully resettled in the Kruger National Park (Hitchins, Keep and Rochat, 1972).

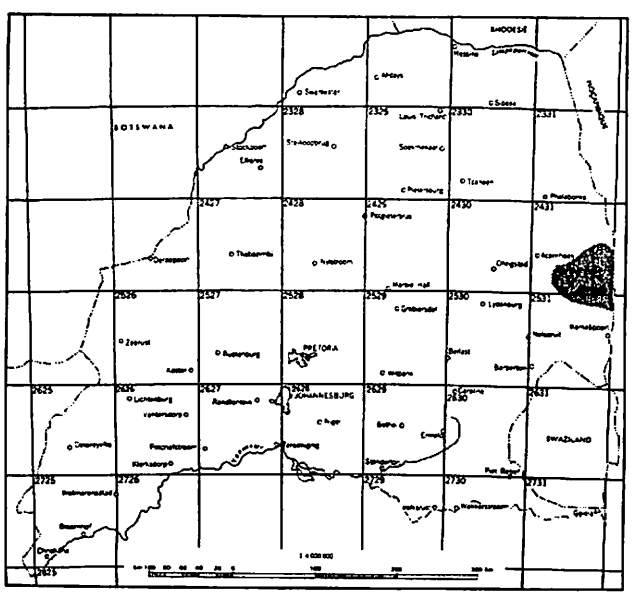


Fig. 154: The distribution of **D. bicornis** *in the Transvaal.*

HABITAT:
The black rhinoceros apparently has a wide habitat tolerance. However, some form of woody vegetation, preferably shrubs or herbs, is a habitat requirement. According to Ritchie (1963) it occurs in rain forests, savanna plains, or semi-deserts, but not in areas with a hot humid atmosphere. Since the black rhinoceros is rather sedentary in habits, and requires to drink water daily; a permanent water source within walking distance of its regular haunts is another important habitat requirement. Hitchins, Keep and Rochat (1972) found that during warm weather, individuals utilize available shade on relatively cooler hilltops as midday resting areas.

HABITS:
The literature dealing with the black rhinoceros is exhaustive. However, recently Schenkel and Schenkel-Hulliger (1969), and Joubert (1971) have published extensive studies on *D. bicornis,* also reviewing relevant literature.

The black rhinoceros is primarily a solitary animal. The biggest groups to be regularly observed consist of two or three animals. These can either be a cow accompanied by her calf, or a bull accompanying a receptive cow. Immature animals sometimes form temporary relationships. Adult bulls are solitary, except when consorting with oestrus females.

The black rhinoceros is not territorial. However, it is sedentary in habits and occupies home ranges for prolonged periods. Home ranges may overlap. The size of a home range depends on the quality of the habitat, but may be as big as 150 square kilometres. Joubert (1971) considers all individuals frequenting a particular home range to constitute a family group. He regards animals sharing the same waterhole as a clan.

The black rhinoceros drinks water daily, or at least once every two days. It is very fond of wallowing, especially in rainwater pans. Rubbing against rocks and tree trunks and dust bathing are also frequently enjoyed. The black rhinoceros is a creature of habit, and repeatedly travels the same well-used paths to and from water. Animals defeacate in the same spots. Such dung heaps are used communally, and are scattered throughout the home range. Only adult bulls exhibit ritualized defeacation and urination. The faeces are broken up and scattered, whereas the urine is sprayed backwards over bushes or rocks. Although this type of behaviour is normally associated with territoriality, the black rhinoceros has not been observed to exhibit any typical territorial behaviour.

Observations indicate two activity peaks within a 24-hour day.

nimals feed during the early mornings, and then again during the te afternoons. During the hotter parts of the day, they rest and sleep the shade. Indications are that the black rhinoceros is inactive uring the night.

Goddard (1966) studied mating behaviour. He found that the ack rhinoceros is polygamous and polyandrous. When a cow mes into oestrus, she becomes intolerant of her calf and will soon ject it. Bulls compete, and the successful competitor forms a ansient mating bond with the receptive cow. During this period the nsorting bull is very pugnacious. Precopulatory behaviour is ncomplicated. During this time the bull frequently tests the cow's ine, and displays flehmen in the testing of the hormonal contents. uring courtship, prolonged mountings without intromission occur. opulation is prolonged. After mating, the pair remains attached for short while before parting.

OOD:
he black rhinoceros is almost totally a browser. Goddard (1968) and 1970), Joubert (1971) and Mitchell (1966) provide extensive lists of herbs, shrubs and trees utilized during the various seasons. Goddard (1968) suggests that leguminose flora may be the key to optimum black rhinoceros habitat.

BREEDING:
A single calf per cow is born at a time. Parturition occurs any time of the year. The gestation period is between 450-545 days (15-18 months), with intervals between births of 27 months or more (Dittrich, 1967; Goddard, 1967; Greed, 1967).

MEASUREMENTS AND MASS:
The Transvaal Museum possesses no material from this Province. Wilson and Edwards (1965) give data on a adult cow and her full-term foetus.

RECORDS OF OCCURRENCE:
Kruger National Park (Hitchins, Keep and Rochat, 1972).

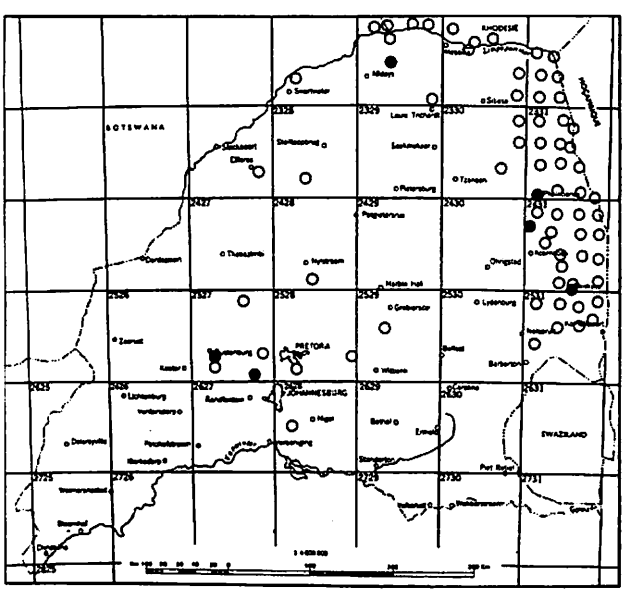
Family EQUIDAE

quus Linnaeus, 1758
quus burchelli Gray, 1824

Burchell's zebra
Bontsebra

. *b. antiquorum* H. Smith, 1841

ISTRIBUTION:
Du Plessis (1969) presents evidence that Burchell's zebra occurred roughout the Transvaal during historical times. During recent mes it has been eradicated in the more densely populated areas, specially on the highveld. Naturally occurring free ranging herds re today only found in the conservation areas of the more remote istricts to the north and east, notably the Kruger National Park. urchell's zebra has been successfully reintroduced to many private nd Provincial nature reserves, especially in the central and outhern Transvaal.



ig. 155: The distribution of **E. burchelli** *in the Transvaal.*

ABITAT:
As a grazer, Burchell's zebra has a preference for open flat country uch as grassy plains or lightly wooded areas. It requires to drink vater daily, which must therefore be within easy reach.

HABITS:
Klingel (1967, 1968, 1972a and b) and Smuts (1974) conducted detailed studies on free-ranging zebra herds, and their findings are briefly summarized here.-

The Burchell's zebra is normally found in association with the blue wildebeest (*Connochaetes taurinus*). It is fond of sand bathing by rolling on its back in loose sand near drinking places. This animal is most active during the day, and prefers to spend the night on open plains with short grass stands.

Burchell's zebra live in coherent special groups. The most important group typically consists of a dominant stallion, leading several mares and their offspring. Such a family group is a fairly stable unit. The females tend to remain in such a group for their entire life, whereas the dominant stallion is only replaced by a rival when it is too sick or old to repulse the rival's challenge. Subadult stallions leave the family group at the age of approximately four years, and join stallion herds consisting of subdominant adult stallions and subadults. Young mares of approximately three years old are separated from their family units by bachelor suitors when these mares first come into oestrus. In this way subdominant adult stallions of c. six to seven years can start their own family groups, rather than attempt to replace a dominant stallion heading a family group. There is a stable order of dominance amongst the mares of a family unit, as well as amongst subadult members of bachelor groups. All adult stallions in a bachelor group seem to be of equal rank.

The Burchell's zebra is not territorial, and all social groups move freely over relatively large overlapping home ranges. The size of the home depends on the quality of the habitat. A nearby permanent water source is essential, since this animal drinks regularly. Although not territorial, it displays marking behaviour which is normally associated with territoriality. This takes the form of especially stallions defeacating or urinating onto the faeces and/or urine of conspecifics. Klingel (1972) suggests that this animal is more highly evolved than the Grevy's zebra and the wild ass, in that it has abandoned territoriality and thus became unrestricted in its movements. Unlike the Grevy's zebra and the wild ass, entire family units of the Burchell's zebra remain intact throughout the year, which enhances the reproductive potential of this animal.