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THE VERTEBRATES OF THE HLUHLUWE GAME RESERVE – CORRIDOR (STATE-LAND) – UMFOLOZI GAME RESERVE COMPLEX.

O. Bourquin, John Vincent and P.M. Hitchins
Natal Parks Board.

1. INTRODUCTION

With the shrinking of natural habitats in South Africa, the conservation areas in the form of game and nature reserves, forestry reserves and privately owned natural areas are becoming more important as reserves of biota which were once widespread over the sub-continent.

Some life-forms are confined to the relatively small conservation areas and would vanish but for the sanctuary offered them there.

North-eastern Zululand, in which the Hluhluwe-Corridor – Umfolozi complex (hereafter referred to as the Complex) lies, is particularly interesting from a biogeographical point of view, as lying on the boundary of tropical and non-tropical climatic conditions. Thus one finds, particularly among the smaller vertebrates, life forms which reach their limits of distribution in this area.

It is of ecological significance that the complex is completely surrounded by densely populated Bantu Reserves. The Bantu population directly and indirectly affects the vertebrate groups by destruction of aquatic and terrestrial habitats and by predation.

The following lists have been compiled from information which has mostly been gathered over a relatively short time, and there is no doubt that future collecting and observation will enrich these lists considerably.

2. DESCRIPTION OF THE AREA.

The Complex, situated as shown in fig. 1, has an area of about 96 000 ha. There are as yet no geological, pedological or vegetation maps available.

2.1 History

Early documented history of the area is limited to brief descriptive accounts to be found in the chronicles of some of the early hunters (Drummond 1875, Leslie 1875, Baldwin 1894). This information is supplemented by oral accounts to historians and others by old Zulus. A history of Umfolozi as it relates to management is to be found in Vincent (1970).

All evidence certainly points to the area, and Umfolozi Game Reserve and environs in particular, as having been rich in the large game species; there is no information whatever on the other vertebrate groups and on the small mammals.

During the latter half of the 19th Century, Zululand was a mecca for hunters intent on sport and on the profits to be derived from the sale of ivory and skins. During this time there was a significant decline in several species, most notably those such as eland and elephant both of which were

extinct at the time of the establishment of Hluhluwe and Umfolozi Game Reserves in 1897.

Protection of game in the reserves during the first couple of decades was scanty; Vaughan-Kirby (1916) provides an account of the protection and legislation at the time.

In 1918 a number of farms were opened up to the south of Umfolozi. The presence of the tsetse fly and the disease – nagana – carried by it was incompatible with cattle farming and there was a great deal of agitation for the destruction of game which acted as a reservoir for the disease. Accordingly, a series of game destruction campaigns was instigated by various authorities. These took place in 1922, 1929–30 and 1942–50.

Vast numbers of game were destroyed to little avail, and the tsetse fly was only finally eliminated by aerial spraying of insecticides. The following are the total figures of game destroyed in the latter two campaigns – no figures being available for the first:

1929–30	32 684
1942–50	70 332

More details of the species involved are to be found in Vincent (1970). The figures given are of course minimum ones which do not take into account the large numbers of animals which must have been wounded and not accounted for.

Between 1932 and 1952, Umfolozi Game Reserve was placed under the control of the Veterinary authorities, and during this time was on more than one occasion deproclaimed. The boundaries have been altered several times, the present ones having been finally settled as recently as 1962.

At present the southern, eastern and western boundaries of Umfolozi Game Reserve are fenced with a game-proof fence, and a similar fence has recently been erected along the Corridor boundaries as a veterinary requirement. Hluhluwe Game Reserve is inadequately fenced, although it is planned to remedy this in the near future.

The nagana game destruction campaigns appear to have had a very significant effect upon the distribution of large game, apart from the direct effect upon the numbers. It is presumed that, because of the decreased numbers of other species, the square-lipped rhinoceros in Umfolozi has been enabled to increase without competition. The present density of this species is probably having an effect on the dispersal of other grazing species. In fact, present management policies tend to favour the rhino. In 1959/60 the policy was to exclude all other grazing species from Umfolozi, although today they are present in fair numbers. Only in recent years has there been any very marked tendency for wildebeest to spread southwards, whereas prior to 1940 they were probably one of the most abundant species in and around Umfolozi.

Due to the shortage of large predators, with the exception of spotted hyena, the ungulate numbers have been enabled to increase almost unchecked. Today there are fairly significant

populations of cheetah and lion in the area, although it will be some years before they are able to cope with the annual increases of ungulate populations – if ever. In order to maintain the ungulate numbers at a level at which veld deterioration does not occur, a programme of game removal has been in force since 1959. For some years this was carried out by shooting only, but latterly the emphasis has been on capture of live animals for distribution elsewhere

2.2 Topography and Drainage.

The Complex occupies the foothills of the first escarpment rising from the coastal plain. The altitude ranges from 60m to 650m a.s.l. A great number of drainage lines incise the hilly topography, and flat areas are more or less confined to the floodplains of the larger rivers or streams. A more detailed description of the drainage systems is given preceding the list of fish.

2.3 Climate.

2.3.1 *Temperature.*

The Complex has hot wet summers and cooler dry winters. Freezing point is rarely experienced. Temperatures of over 38°C are commonly recorded during the summer, especially in the low-lying valleys.

2.3.2 *Winds.*

South and east winds are cool, the south and south-west winds bringing rain. North winds are generally dry and hot. Strong winds are usually experienced during the spring and early summer.

2.3.3 *Mists.*

Hill mists occur frequently on the higher hills during light-rain periods. Valley mists occur frequently in the northern section of Hluhluwe, and infrequently in the rest of the Complex.

2.3.4 *Dew.*

Heavy dews are experienced mainly during the autumn and winter.

2.3.5 *Frost.*

Frost occurs rarely, but may do a certain amount of damage to vegetation when it does.

2.3.6 *Hail.*

Hail occurs infrequently.

2.3.7 *Rainfall.*

The mean annual rainfall varies within the area, as does the distribution of rain. From two stations within the Complex it can be seen that the Umfolozi Reserve is drier than the northern section of the Hluhluwe Reserve. The mean annual rainfall over a seven year period in Umfolozi is 730mm and the mean annual figure in the Hluhluwe Reserve over a 35-year period is 985mm.

The wettest months are between October and January. Occasional heavy rains may fall during winter, but these are rare.

2.4 Vegetation

The Complex lies in Acocks Veld Type 10 i.e. Lowveld (Acocks, 1953). A large number of plant species occurs in the area, and the soil type often gives rise to characteristic vegetation formations (Henkel, 1937). The terminology in the following brief description of the vegetation follows C.S.A. (1956).

2.4.1 *Moist semi-diciduous forest.*

Extensive patches of this forest occur in the higher northern section of Hluhluwe Game Reserve. Smaller patches are found in the highlands on the NW boundary of Hluhluwe and again in the Corridor. In most cases the forest edges are sharply defined as a result of fires.

Characteristic trees are *Apodytes dimidiata, Calodendron capense, Croton sylvaticus, Protorhus longifolia, Combretum kraussii, and Rhus chirindensis.*

2.4.2 *Thicket.*

Thicket vegetation is usually found in lower-lying valleys and flat-lands, and is thought to represent an advanced stage of encroachment by species such as *Euclea divinorum.* Boundaries between true thicket and other vegetation types are difficult to delineate, especially where streambank or riparian vegetation is involved.

2.4.3 *Riparian forest.*

This forest is confined to drainage lines and the dominant species present depend on soil type, altitude and aspect. Trees such as *Ficus sycomorus* and *Acacia robusta* are characteristic.

2.4.4 *Woodland.*

Woodland is characterised by *Spirostachys africana* and is usually found on flat, low-lying areas.

2.4.5 *Savanna woodland.*

Savanna woodland occupies a large portion of the Umfolozi Reserve and smaller portions of the Corridor and the Hluhluwe Reserve. The woodlands are dominated by thorny tree species such as *Acacia nigrescens, Acacia tortilis, Acacia nilotica* and *Acacia karroo.*

2.4.6 *Tree savanna.*

Tree savanna is usually found at higher altitudes in the Complex, being especially prevalent in the Corridor At present, much of it is being encroached by woody species such as *Acacia karroo, Dichrostachys cinerea* and *Acacia caffra.*

Common grasses are *Themeda triandra, Eragrostis spp., Panicum spp., Digitaria spp., Hyparrhenia spp.,* and *Cymbopogon spp.*

Figure 2 indicates, very generally, three divisions, i. Forest, ii. Thicket and woodland, and iii. tree savanna.

3. FISH.

Several species of fish are recorded for the first time from this area, and one species, *Barbus argenteus,* has not previously been recorded south of the Pongola river.

Since the drainage systems in the Complex represent a variety of fish habitats, the main characteristics of the permanent and semi-permanent waters, as shown on Fig. 3, will be discussed. Collecting sites are marked on the map.

Classification and nomenclature follow Jubb (1967).

The Umfolozi System.

The two main rivers of this system, the Black Umfolozi and the White Umfolozi, flow through and meet in the Umfolozi Game Reserve. Both are mature rivers with wide, flat beds. They are relatively shallow, and the beds are mainly sandy, particularly that of the White Umfolozi, which has few rocky outcrops. The Black Umfolozi has numerous outcrops and has proportionately more deeper pools and muddy substrates. It is of a more permanent nature than the White Umfolozi.

Flash floods occur in both rivers, the water level then rising and dropping very rapidly. A great deal of silt is carried by both rivers. When in flood, they may overflow and fill such semi-permanent pans as uDadethu and eMqisweni in Umfolozi Game Reserve.

The iNyalazi System.

The iNyalazi river rises in the Corridor, and flows only after heavy rain. Nevertheless, some pools generally persist through the dry season, thus forming centres of distribution for fish in the headwaters.

The iHluhluwe System. .

The iHluhluwe river flows through Hluhluwe Game Reserve, and a portion of the Corridor, its main tributaries in the reserve being the iNzimane and aManzibomvu rivers.

The main river is narrow, and may be described as a chain of deep, elongated pools, separated by rocky beds or sandbanks. In the dry season it ceases to flow in the lower reaches, but the pools persist. Much vegetation lines the banks, overhanging the water in many places. The bed is rocky or muddy, and sandy beds are relatively rare.

The aManzibomvu is seasonal in nature, the only water remaining in the dry season being a few pools, whilst the iNzimane resembles the iHluhluwe in structure and permanence.

Class: Elasmobranchii.

Family: CARCHARINIDAE.

Carcharinus leucas Müller & Henle — Zambezi River Shark / Zambezi rivier haai

A shark was seen swimming upstream in the flooded White Umfolozi river at Site 3 in March 1969. It is assumed that this was a Zambezi river shark.

Class: Actinopterygii.

Family: MORMYRIDAE.

Gnathonemus macrolepidotus (Peters) — Bull-dog / Oopbek-snawelvis

The cheetah became extinct in Zululand in the 1920's. However since 1965 a programme of reintroduction has been carried out and a total of 64 has been released in Hluhluwe and Umfolozi. Many of these animals have settled down; some have bred, but others have wandered out of the reserves, some to be destroyed, as far afield as Mkuzi Game Reserve, Vryheid and Kwambonambi.

Felis libyca Forster — African Wild Cat, Vaalboskat, imBodla

This species has not as yet been reliably recorded, but unsubstantiated reports point to its presence in the Complex.

Order: Tubulidentata
Family: ORYCTEROPODIDAE

Orycteropus afer (Pallas) — Ant-bear, Aardvark, iSambane

See Fig. 35.

The ant-bear is widely distributed and quite common throughout the area. Being nocturnal, however, it is infrequently encountered.

Order: Proboscidea.
Family: ELEPHANTIDAE

Loxodonta africana (Blumenbach) — Elephant, Olifant, iNdlovu

The elephant was formerly widely distributed and certainly occurred in Umfolozi, and presumably also in Hluhluwe and the Corridor. Some years ago a single tooth was found in the forests in the north of Hluhluwe. The last elephant recorded in the area was at the turn of the century, but since the establishment of the reserves in 1897 the species has not occurred.

Order: Perissodactyla.
Family: RHINOCEROTIDAE.

Diceros bicornis (L.) — Black Rhinoceros, Swartrenoster, uBhejane

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See Fig. 36.

This species occurs throughout the area but is more highly concentrated in Hluhluwe Game Reserve, particularly where the habitat is suitable as a result of secondary development of woody vegetation (Hitchins, 1969). This is the case in the northern parts of Hluhluwe and along the Hluhluwe river. From evidence available, Hluhluwe Game Reserve probably has the highest density of this species in Africa. In spite of this, conditions have to be ideal for the animals to be readily seen: under cold or exceptionally dry conditions they retire to thicker bush.

Breeding: One calf is produced at a time and there is no evidence of any seasonal breeding peak.

Status: Safe, the latest estimate of numbers (1970) being about 200 in Hluhluwe, 50 in the Corridor, and 40 in Umfolozi (Hitchins, 1968c).

Ceratotherium simum (Burchell) — Square-lipped Rhinoceros, Witrenoster, uMkhombe

See Fig. 37.

Until recently this species was on the I.U.C.N.'s list of endangered species but it was removed as a result of the intensive conservation measures involving rigid protection and, since 1961, translocation to zoos in all parts of the world and to game areas throughout southern Africa. (Player, 1967, Anon. 1968, Col. J. Vincent, 1969). Although this rhinoceros was previously confined largely to the area south of the Black Umfolozi river, it has now extended its range northwards even into the broken and hilly country in the north of Hluhluwe. On the other hand, range extension southwards – apparently a natural phenomenon – has been curtailed by the erection of the southern and western Umfolozi boundary fences; these also bisect the favoured habitats.

Breeding: There is no marked seasonal breeding peak, and one calf is produced at intervals of about three years (Pienaar, pers. comm.).

Status: The population is increasing at the rate of about 10% per annum (John Vincent, 1969) and the latest census (1971) revealed 2002 animals.

Family: EQUIDAE.

Equus burchelli Gray — Burchell's Zebra, Bontkwagga, iDube

See Fig. 38.

Common throughout the area, preferring the more open savanna and grassland, but frequently encountered even in the forests.

A certain degree of local movement takes place, particularly after fires when zebra move onto the newly burnt grass – often within minutes – and remain there through most of the summer. The period of maximum dispersal is during the winter.

The typical social group of this species consists of a stallion, from one to three adult mares, and one or more young animals. It is not uncommon to see several such groups together, giving the appearance of a herd.

Records indicate that the zebra was the commonest species in Umfolozi prior to 1930, and indeed it included large areas within its range, particularly south of the reserve. Today it is not as common in Umfolozi as it is in the Corridor and Hluhluwe. This may be explained by the fact that they were almost completely eliminated in Umfolozi during the anti-nagana shooting campaigns. In 1929/30 some 15 000 were shot in the

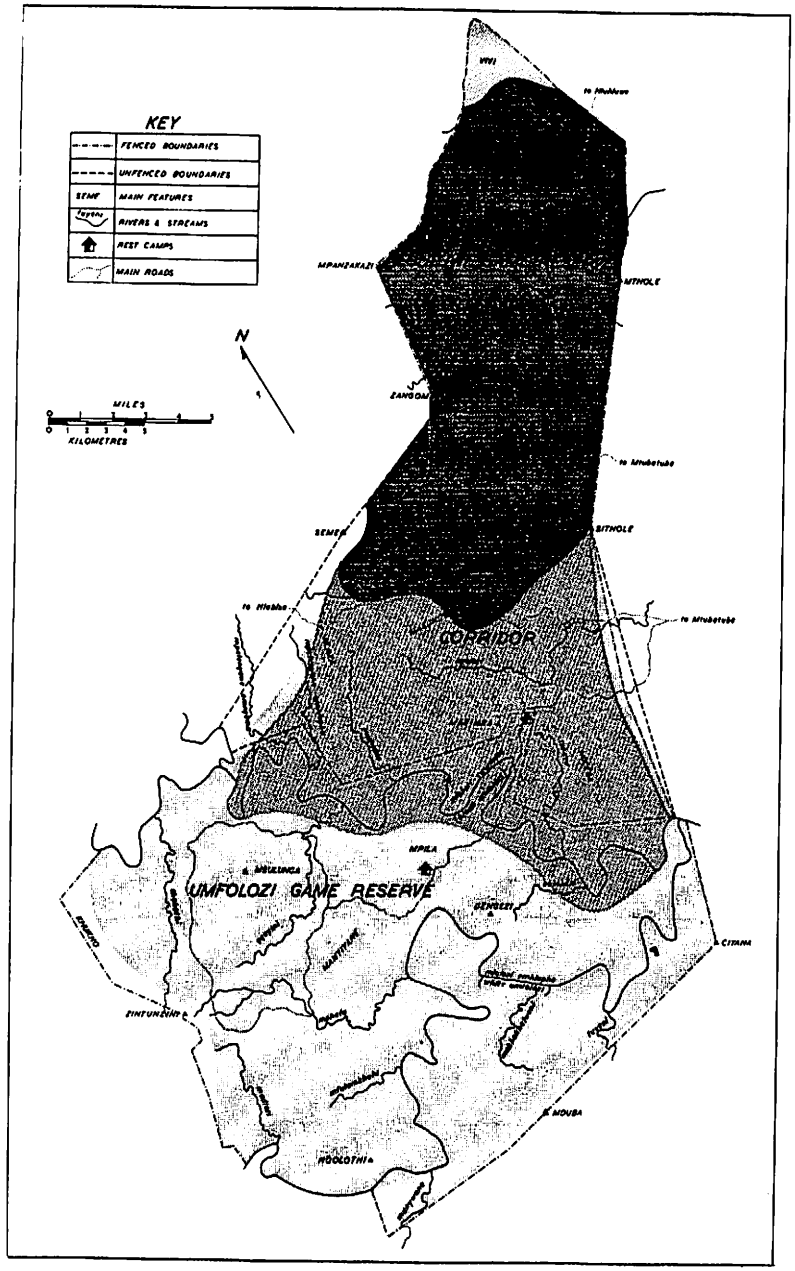

Fig. 36.
Diceros bicornis.

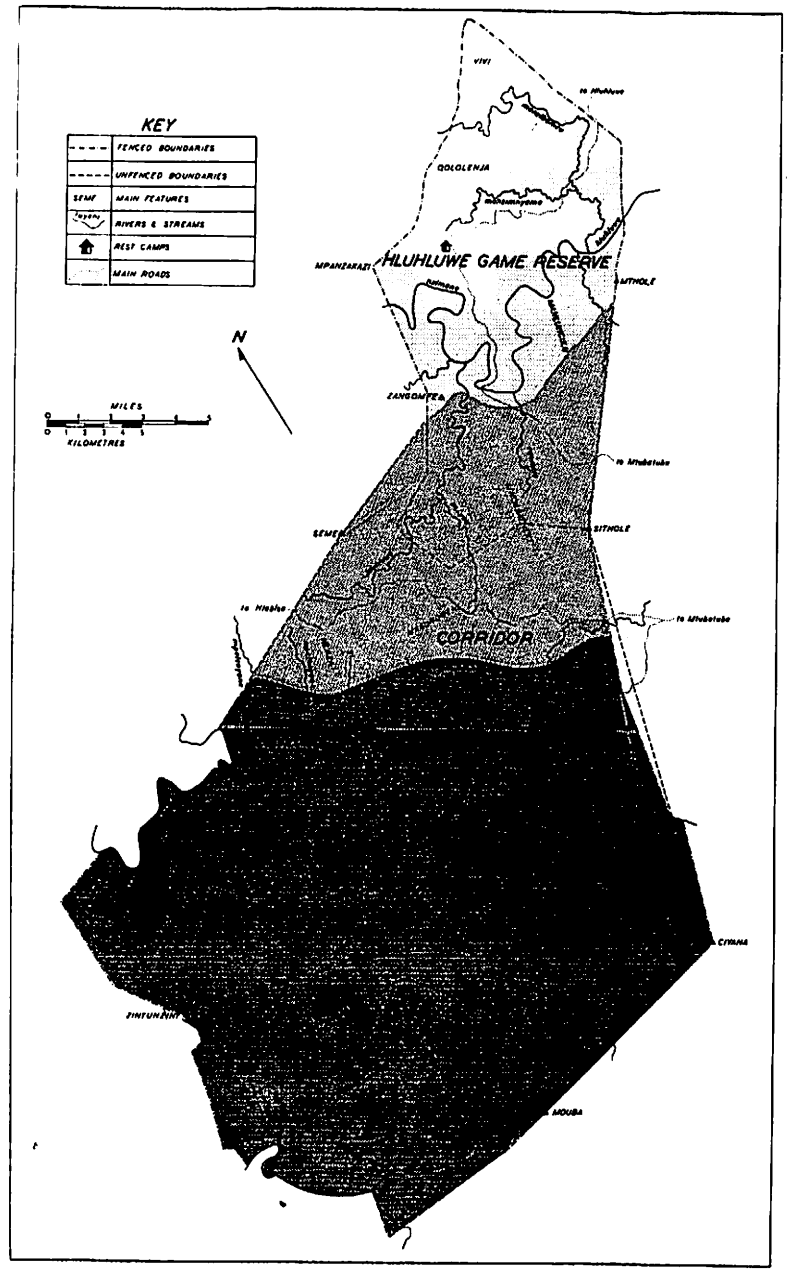

Fig. 37.
Ceratotherium simum.