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BL MITCHELL

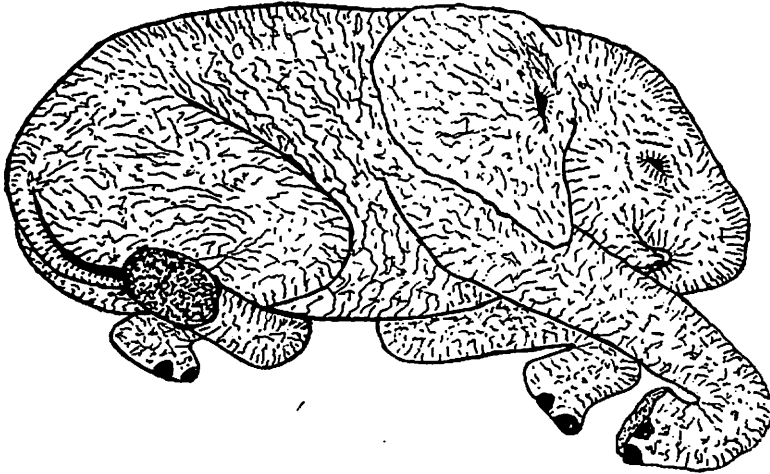


FIG. 1

Nearly full-term foetus of elephant (*Loxodonta africana*) showing position in the uterus.

## REFERENCE

PERRY, J. S. . . . . 1953 The reproduction of the African elephant, *Loxodonta africana*. *Phil. Tr. Roy. Soc. Lond.*, 237, 643: 93-149.

[Lönnerberg (*K. svenska Vetensk. Akad. Handl.*, 58, 2: 80-83 and Pl. 9) described and figured an elephant foetus from the northeastern Congo which, on ear shape, he ascribed to Lydekker's race *cottoni* (syn. of *L. a. cyclotis* Matschie). The difference between the ears of Lönnerberg's and Edelman's specimen is clear from comparison of their respective illustrations. — Ed.]

## BLACK-BACKED JACKAL AT LIVINGSTONE

The purpose of this note is to record the origin of a Black-backed Jackal (*Canis mesomelas*) at Livingstone, as the species is not known to be indigenous to Zambia.

In December, 1963 I brought a pair, raised in captivity, from Bulawayo as exhibits for Livingstone Game Park. During 1964 both jackals escaped but continued to live in the area. The female was later killed in a snare, but at the time of writing (September, 1965) the other is still at large in the vicinity of Livingstone Game Park, and has reverted to the wild state.—D. HADLEY

THE SURVIVAL OF AN ARCHAIC VERTEBRATE  
(*DICEROS BICORNIS*) IN CENTRAL AFRICA

During the normal process of evolution more primitive forms of life are constantly being replaced by more efficient types better adapted to take advantage of the resources of the habitat.

The black rhinoceros (*D. bicornis*) is almost entirely a browser, feeding on a variety of shrubs and herbs and including little grass in its diet. In the Luangwa Valley (South) Game Reserve the habitat has been heavily damaged by an excess of elephants. In spite of this rhino are present in large numbers, and maintain good condition throughout the year, in contrast to the elephant which tend to lose condition badly during the dry season. Rhino are clearly not in competition with elephant over their food supply in

spite of the fact that the elephant has a greater range of food plants than any other ungulate. Important food plants of rhino in the valley are *Securinega virosa*, the herbs *Hygrophylla auriculata* and *Disperma* sp., and the fruits of *Kigelia pinnata*. *Securinega* is eaten by elephants, but is evidently not a preferred food, for the plant is holding its own and not being eliminated as are many other species of trees and shrubs. This is supported by the fact that there are many records from the Kafue National Park of rhino feeding on this plant, but not a single record of any other animal doing so. In Luangwa *Securinega* is also eaten by giraffe, which was observed on the left bank of the river, outside the game reserve, in an area undamaged by elephant. However, as giraffe and rhino feed at different levels they are not really in competition for this plant. The "sausage" fruits of *Kigelia pinnata* are tough and unpalatable. Baboons chew them without making very much impression, whilst hippo have been recorded as eating them. The Sun Squirrel *Heliosciurus gambianus* eats a small quantity of the immature fruit growing on the tree (see p. 189 above). But the sausages are not consumed in quantity by any animal other than rhino. *Kigelia* is one of the few species of tree which is actually increasing under the heavy impact of elephants. The various herbs mentioned above are abundant in the valley but are apparently not heavily used by any other animal. Thus in the Luangwa Valley the rhino has a variety of food plants reserved almost exclusively for its own use.

Were rhino in competition with elephant for food in the Luangwa Valley it is certain that they would not have survived against such a vigorous, efficient and faster breeding adversary.

In the Kafue National Park the habitat has not been degraded by overstocking of elephant or any other animal, and a considerable range of rhino food plants has been recorded. *Securinega virosa* is again one of the important foods, confirming that its use in Luangwa is of primary importance, and not used simply as a result of more favoured plants having been eradicated. Other important plants are *Euphorbia candelabrum* and *E. nyikae*, which species, again, are not consumed by any other animals. Thus if the Kafue National Park were ever degraded by overstocking the rhino would presumably still continue there, in similar manner to its survival in the Luangwa Valley.

On the other hand, some of the *Euphorbia* spp. are fire tender and may be restricted to their present habitats amongst rocks or on anthills by excessive burning, thereby reducing the carrying capacity for rhino. While large specimens of *E. candelabrum* are not easily damaged by fire, this does not necessarily hold for seedlings. Effective fire protection in nature is afforded by heavy grazing, so that a high stocking of ungulates, buffalo in particular, should favour the rhino population as the elephants have done in Luangwa.

Thus, in the two contrasting habitats of the plateau and the valley, the archaic rhino is not only able to survive in the presence of other large mammals but appears to flourish in conditions of heavy ungulate concentration.—B. L. MITCHELL

#### OCCURRENCE OF REEDBUCK, ORIBI AND HARTEBEEST IN THE MIDDLE ZAMBEZI VALLEY

Reedbuck (*Redunca arundinum*), oribi (*Ourebia ourebi*) and hartebeest (*Alcelaphus lichtensteini*) have not hitherto been recorded in the middle Zambezi valley (Ansell, 1960). The following sightings are therefore of interest.

On 9th October, 1964 I saw a single male reedbuck two miles east of the Mafuta stream and about a mile and a half from the Zambezi river, 15° 45' South 29° 11' East, about 1250 feet above sea level. The country here borders on low hills at the foot of the Zambezi escarpment, with vegetation consisting of *Acacia* woodland with scattered patches of grass and thicket. At the time of sighting the habitat had been burnt.

On 11th August, 1965 I saw a single male oribi in the delta of the Mushika stream about a mile from the Zambezi, 15° 35' South, 29° 45' East, and some 1200 feet above