

The red lechwe of Busanga Plain, Zambia — a conservation success

G. W. Howard and H. N. Chabwela

When the Kafue National Park was established in 1950 the northern boundary was drawn to include the Busanga Plain, where there was a small population of red lechwe, much reduced by hunting. The effect of the protection was striking: numbers began to increase immediately and by 1973 there were 2000 individuals. In 1985 the authors conducted censuses to establish how the antelopes had fared in the intervening years. Their findings reveal just how successful the conservation measures have been.

The red lechwe *Kobus lechwe lechwe* is the most widespread of the three subspecies of lechwe antelope in central-southern Africa. While the black lechwe *K. l. smithemani* is now confined to the Bangweulu Swamps, and the Kafue lechwe *K. l. kafuensis* to the central Kafue Flats, the red lechwe is still likely to be present in southern Zaire, Angola, Namibia (Caprivi Strip) and Botswana as well as central and western Zambia. However, in Zambia the red lechwe has declined in numbers and distribution in all populations except one, which is protected on the Busanga Plain in northern Kafue National Park (Figure 1a).

The Busanga Plain is a seasonally inundated floodplain of about 750 sq km, fed by several rivers and streams in the wet season, and drained by the Lufupa River, a tributary of the Kafue River. Inundation begins shortly after the onset of rains in November/December, the flood reaching its height from March to May, after which it recedes until a few isolated pools are left in the drying Lufupa River by the end of the dry season. Busanga Plain has been briefly described by Fraser Darling (1960), Moss (1974), Clarke (1975) and Mloszewski (1983) and, although small, is undoubtedly one of Zambia's significant wetland resources.

Kafue National Park was proclaimed in 1950, and its northern boundary was designed to include

The red lechwe of Busanga Plain

that part of Busanga Plain occupied by red lechwe. This population had been reduced by hunting to just over 100 animals at that time (Grimsdell and Bell, 1972), and it was hoped that the protection afforded by national park status would allow the lechwe to regain their former numbers. The Busanga red lechwe herd responded to this protection, and had increased to 1163 by July 1971 (Grimsdell and Bell, 1972) and to 'about 2000' in 1973 (Clarke and Loe, 1974), by which time it was becoming the largest concentration of this subspecies in Zambia.

Busanga Plain is one of the few wetland areas in Zambia that are untouched by development projects or human activity, and it was felt that the status of its lechwe population should be assessed to measure any changes since 1973. We carried out aerial surveys of the lechwe in 1985 in both the wet and dry seasons to determine their numbers and to verify their distribution at the extremes of the year (Howard and Chabwela, 1985). We flew a high-wing light aircraft (Cessna 172) over the entire plain, and made a total count by flying close to all lechwe. We counted groups of up to 30–40 lechwe by eye, and photographed larger accumulations and counted from the prints. We estimated the population to be 3400.

In the wet season (February) the lechwe were

fairly widespread over an area of approximately 250 sq km (Figure 1a). Most were in small groups around the edges of the flood and on raised places such as termite mounds and 'islands' bearing fig trees and palms. The remainder were standing in the water. No lechwe were seen in the north-western third of the plain nor in the western area along the Lushimba River. The permanent *Cyperus papyrus/Phragmites mauritianus* swamp at the northern end of the plain (Busanga Swamp) was also devoid of lechwe, but abounded in sitatunga. At the south-eastern extremity of the plain the lechwe decreased in density until they were replaced by puku. No waterbuck were seen on the entire Busanga Plain during the wet season survey; they were, however, present further south on the edges of the (then flooded) Lufupa River towards its confluence with the Ntemwa River.

The dry-season (October) distribution of lechwe (Figure 1b) covered a much smaller area of approximately 40 sq km in the central south-eastern part of the plain, with the animals concentrated around the waterholes and pools of the drying Lufupa River. One isolated group of 70 lechwe was situated on the northern boundary of the park where some pools remained in the upper Lufupa River. The southern edge of the dry-season distribution was slightly further south-east than that of the wet season, and here lechwe were in close association with puku. No waterbuck were seen on Busanga Plain itself, although they were in evidence further south as in the wet season.

The northernmost limit of the wet-season distribution of lechwe was just outside the park boundary, but in an area of difficult accessibility around Busanga Swamp. The present position of the park boundary is therefore adequate for the protection of red lechwe—especially as the animals move southwards as the dry season progresses. In addition, the area outside the park occupied by the lechwe in February is also protected, being part of the Kasonso Busanga Game Management Area. This is a controlled hunting reserve used only in the dry season when the majority of the lechwe are well inside the park.

Grimsdell and Bell (1972) discussed the increase in Busanga lechwe numbers from 71 in October 234

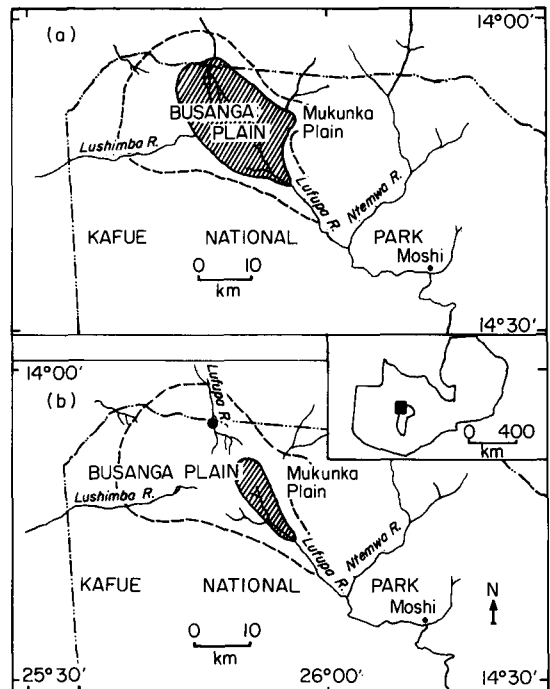


Figure 1. (a) Wet-season distribution of red lechwe on Busanga Plain, February 1985. (b) Dry-season distribution of red lechwe on Busanga Plain, October 1985.

1948 to 1163 in July 1971 and predicted that this trend would continue until the rate slowed down at some time in the future. Their prediction was correct: we recorded over three times their last count, and the rate of increase (14 per cent per year to 1971) has slowed down, although details of this will not become clear without future population estimates. It is likely that this increase in lechwe population density has occurred as a result of the protection given by the national park. There is now little (or no) illegal hunting of lechwe on Busanga, and so the population can be considered to be returning/returned to 'normal'. It is certainly now by far the largest single red lechwe population in Zambia.

Unlike the Kafue and black lechwe populations, the Busanga red lechwe share their habitat with a wide range of other ungulates. During the aerial surveys we recorded the following mammals on the Busanga Plain: elephant, zebra, bushpig, warthog, hippo, buffalo, sitatunga, eland, reedbuck, puku, roan antelope, wildebeest,

Oryx Vol 21 No 4, October 1987

hartebeest and oribi (the species and subspecies are listed in Table 1). A comparable list is given for Busanga Plain by Mloszewski (1983). The only mammalian predators we saw during our surveys were lions—we did not see the other recorded species (cheetah, leopard, hyaena, wild dog, jackal), probably because we were concentrating on lechwe: all these predators have been seen at Busanga from the ground in recent years. Two of the lions seen in the wet season were chasing lechwe through water at least 0.5 metre deep. One of the lions seen during the dry-season census was eating an adult male lechwe. Thus, lions can still be regarded as predators of Busanga lechwe, similar to the semi-aquatic lion predators of black lechwe reported by Grimsdell and Bell (1975) in the Bangweulu Swamps. Nile crocodiles were also seen in close association with lechwe during the dry season where the crocodiles were concentrated in the drying pools of the Lufupa River.

The proximity of the three species of *Kobus* (lechwe, puku and waterbuck) is interesting and deserves further study. The lechwe and puku overlap in distribution but only in part, whereas the waterbuck are absent from the lechwe habitat but are found in puku areas south of Busanga

Table 1. Scientific names* of animals mentioned in the text

Buffalo	<i>Syncerus caffer</i>
Bushpig	<i>Potamochoerus porcus</i>
Cheetah	<i>Acinonyx jubatus</i>
Eland	<i>Tragelaphus oryx livingstonei</i>
Elephant	<i>Loxodonta africana</i>
Hartebeest	<i>Alcelaphus lichtensteini</i>
Hippo	<i>Hippopotamus amphibius</i>
Hyaena	<i>Crocuta crocuta</i>
Jackal	<i>Canis adustus</i>
Leopard	<i>Panthera pardus</i>
Lion	<i>Panthera leo</i>
Nile crocodile	<i>Crocodylus niloticus</i>
Oribi	<i>Ourebia ourebi</i>
Puku	<i>Kobus vardoni vardoni</i>
Red lechwe	<i>Kobus leche leche</i>
Reedbuck	<i>Redunca arundinum occidentalis</i>
Roan antelope	<i>Hippotragus equinus</i>
Sitatunga	<i>Tragelaphus spekei selousi</i>
Warthog	<i>Phacochoerus aethiopicus</i>
Waterbuck	<i>Kobus ellipsiprymnus krawshayi</i>
Wild dog	<i>Lycyaon pictus</i>
Zebra	<i>Equus burchelli</i>

*Subspecies after Ansell (1978).

The red lechwe of Busanga Plain

Plain. These three species of *Kobus* are the most abundant of Zambia's wetland antelopes and should be further examined as possible indicators of the condition of floodplain, swamp and riverine habitats.

There is a clear need to continue surveys and censuses of the Busanga Plain red lechwe population, to supplement aerial work with ground studies and to work towards a realistic estimate of the carrying capacity of this important wetland—both for lechwe and for the other species of animals that share it. The decision to include Busanga Plain within the Kafue National Park was indeed a wise one. It has resulted in the successful conservation of this antelope population and its associated ungulates and predators.

Acknowledgments

The Director of the National Parks and Wildlife Service of Zambia is acknowledged for permission and encouragement to carry out these surveys. Funds were provided by the Research and Grants Committee and the Kafue Basin Research Committee of the University of Zambia.

References

- Ansell, W.H.F. 1978. *The Mammals of Zambia*. National Parks and Wildlife Service, Chilanga, Zambia.
- Clarke, J.E. 1975. The status of wetland conservation, Zambia. In *Proceedings of the Fifth International Conference on the Conservation of Wetlands and Waterfowl*, pp. 166–169. IUCN, Gland.
- Clarke, J.E. and Loe, I. 1974. *A Guide to the National Parks of Zambia*. Anglo American Corporation, Lusaka.
- Fraser Darling, F. 1960. *Wildlife in an African Territory*. Oxford University Press, Oxford.
- Grimsdell, J.J.R. and Bell, R.H.V. 1972. Population growth of Red Lechwe, *Kobus leche leche* Gray, in the Busanga Plain, Zambia. *E. Afr. Wildl. J.* **10**, 117–122.
- Grimsdell, J.J.R. and Bell, R.H.V. 1975. Black lechwe research project final report. *Animal Productivity Research Report ARI, NCSR/TR31*. National Council for Scientific Research, Lusaka.
- Howard, G.W. and Chabwela, H.N. 1985. *Red Lechwe of Busanga Plain, 1985*. Report to the Director, National Parks and Wildlife Service, Chilanga, Zambia.
- Mloszewski, M.J. 1983. *The Behaviour and Ecology of the African Buffalo*. Cambridge University Press, Cambridge.
- Moss, P.F.N.deV. 1974. *Kafue National Park, Zambia: Visitors Guide*. National Parks and Wildlife Service, Chilanga, Zambia.
- G. W. Howard, *Kafue Basin Research Project, University of Zambia, PO Box 32379, Lusaka, Zambia.*
- H. N. Chabwela, *National Parks and Wildlife Service, Private Bag 1, Chilanga, Zambia.*