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A mixed herd of adult male, immature male and female White-eared Kob.

Wildlife migration in Boma National Park

by John Fryxell

A large herd of elephants in Boma National Park.



Albert Brink

The dramatic variations in the availability of water and grass in the Boma area of Southern Sudan mean that the huge herds of White-eared Kob have to migrate each year over a vast area in order to survive.

At the end of the last century early European explorers and settlers coming to East Africa commented at length on the concentrations of wild game that dominated so much of the range. Large herds of grazing ungulates moved with the seasons in search of favourable pastures, unrestricted by fences or extensive human habitation. Westernisation and development have taken their toll, however, and the open rangelands have steadily shrunk. No longer can we marvel at the sight of tens of thousands of springbok moving *en masse* across the Kalahari, or the annual passage of great elephant herds along their circuit from Mount Kenya, north to Maralal and the Mathews Range. Most of the great migrations are a vision out of the past.

In only a few places do the herds of the past live on, and in fewer still do large herds migrate over vast areas as they have for centuries. The grasslands at the base of the Boma Plateau in the Southern Sudan is one place where such a spectacle can still be seen. Many of the species living in the Boma ecosystem are migratory, but the most spectacular is the White-eared Kob. Numbering close to a million animals, this medium-sized antelope is one of the largest ungulate populations in the world, rivalling the vast herds of wildebeeste in the Serengeti.

Like many migratory species, the White-eared Kob is obliged to move with the seasons. During the rains, from May until August, much of the grasslands are inaccessible to wildlife because of surface flooding. Black cotton soils seal after the onset of rains and water pools on the surface. The slight gradient of the terrain also results in a very slow water movement toward the River Nile to the west. Thus, most of the vast grasslands are unavailable as pasture for six months of the year. Kob spend this wet period to the south, in a region that has better draining soils and receives less rainfall than the rest of the plains.

During the wet season, surface inundation produces fantastic rates of growth by robust grass species such as *Hyparrhenia*. Over a period of about five months, these grasses often reach heights of 12 to 15 feet. Such levels of vegetative production rank amongst the highest in the world. During the dry season, though, most of these grasses quickly dry out and fuel massive fires that sweep across the landscape, and the unlimited water supplies of the wet season rapidly dwindle. These seasonal changes in the availability of the crucial resources required by wildlife species occurs on a vast scale. Any species that, like the White-eared Kob, chooses to live in such a variable habitat must be capable of migration in order to survive.



In late September or early October, the kob begin their annual movement north into the open grasslands between the Kongkong and Akobo Rivers. When the rains have ceased, the ground rapidly dries out. The extraordinary grass growth that has occurred during the rains withers and becomes dormant. As a consequence the nutritional value of these grasses rapidly declines. The kob are surrounded by an ocean of grass, but it is all virtually useless as food. So, they are forced into the only areas that continue to produce good quality forage during the harsh dry season: the margin of a series of ephemeral swamps that dry up slowly as the dry season progresses.

The concentrations of kob along the main watercourse during the dry season are truly spectacular. It is not uncommon to find several thousand individuals per square kilometre. To put it another way, it is as though kob were evenly spaced every 80 feet, over a vast area. Obviously at those densities food quickly becomes in rather short supply. Though the kob move as they evenly mow the grass to a short sward, they increasingly suffer from chronic undernutrition. Many individuals, particularly youngsters and old adults, fail to survive the rigours of the dry season. There is a precarious existence. In some years there is food for all, but often death takes a terrible toll.

When the rains begin again in May, the kob mass into large groups and begin the slow journey back to the south. As the rains gather in intensity a carpet of green springs up, removing the nutritional burden from the stressed population.

While the kob are one of the most

spectacular sights in the Boma ecosystem, there is much more to attract the well-prepared visitor. More than 15 other ungulate species use the area for at least part of the year. There are substantial herds of tiang (a close relative of the topi), eland, zebra, Mongalla Gazelle, Lelwel Hartbeest and reedbeek. Lesser numbers of giraffe, Beisa Oryx, Roan Antelope, Lesser Kudu, Grant's Gazelle, buffalo, oribi, Bush Duiker, dik-dik, elephant and hippo occur as well.

The birdlife is also most varied. In addition to savannah and woodland species common to East Africa, there are many water birds associated with the northern swamps, including the rare Shoebill Stork. The close proximity of the Boma escarpment to the Ethiopian Highlands results in the presence of many bird species



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...Boma N.P.

rarely seen in the rest of East Africa.

The great diversity of wildlife species undoubtedly results from the wide variety of habitats that comprise the Boma ecosystem. While much of the region is made up of open and lightly wooded grasslands, the areas to the east are a mosaic of *Acacia*, *Combretum*, and *Balanites* woodlands. Along the main water courses and in the far south there are large areas of thicket-forming shrub species such as *Zizyphus* and *Acacia senegal*. Close to the Boma escarpment one finds low montane forest, with a multitude of broadleaf tree species. Thus the ecosystem is able to support wildlife species that rely on swampy vegetation, both tall and shorter grasses, and browse in both thicket and forest.

While there is the usual contingent of large predators—lion, leopard, cheetah and hyena—their numbers are surprisingly low. This is partially explained by the migratory lifestyle of the majority of prey species. Most predators are strongly territorial in behaviour; that is they need to remain in central areas from which they go on hunting forays. Thus predators are limited in numbers by the amount of prey they have available throughout the year. An occasional surplus of migrant prey cannot sustain an increase in predator numbers.

In fact, at present the most common predator in the Boma ecosystem is undoubtedly man. There are three predominant tribes that live in the Boma region: the Murle, living around the Pibor and Kongkong Rivers and on the Boma Plateau; the Anuak, living along the Akobo River; and the Taposa, who inhabit the dry bush country in the south. All actively hunt wildlife when the migrations bring the herds close to settlements and grazing areas. In the Sudan, subsistence hunting on common wildlife species is permitted by law. In recent years, however, there has been an



The number of large predators in the park is low partly because of the migratory lifestyle of their prey species.

increased use of firearms, many of which filtered into the country from Uganda at the close of Amin's regime. In the past it seems clear that wildlife populations were in equilibrium with hunting tribes, being partially protected by annual migration out of reach of people for at least part of the year. With the increased use of firearms,

however, there is a very real possibility of over-exploitation and decimation of wildlife populations in Boma, unless there is adequate control.

Perhaps even more worrying is the increasing conflict between domestic stock and wildlife for the seasonally limited pasture and water supplies in the Boma

region. White-eared Kob, in particular, are directly threatened by large numbers of cattle brought into the northern swamps each year. These refuge areas are of great value to both people and wildlife. They represent the difference between decimation and continued existence in a drought year. In the competition for scarce resources domestic stock usually win out, if only because wild species are naturally unwilling to live in close contact with people that are hunters as well as pastoralists.

With this in mind, Boma National Park was declared in 1980 by the Sudan Government. This 18,000-square-kilometre reserve lies in the triangle formed by the Kanger-Kongkong River, the Akobo River, and the Boma escarpment. It covers most of the crucial habitat areas needed by wildlife species, particularly in the dry season, when the potential for human exploitation and food scarcity for wildlife is at its height.

Most of the development costs of the newly-declared park are being donated through the Frankfurt Zoological Society. They have provided large amounts of equipment, vehicles and building supplies for the gargantuan job of creating a viable park in perhaps the least developed area of Africa. Phil Snyder, of long experience working in the Aberdares and Mount Kenya National Parks in Kenya, was appointed warden at Boma in 1981. With the help of his assistants, Tim Tear and Aloise Pscheidt, he is tackling the difficult task of controlling the influx of people and their cattle, and the hunting of wildlife, and slowly opening up the virgin park for tourist access.

In order to plan development activities and park policy, a broad knowledge of the ecology of the area is required. A regular aerial monitoring programme has been established, to determine the movements and numbers of the most important species. The New York Zoological Society has sponsored my research programme on the population ecology of the White-eared Kob. In addition, Dr Conrad Aveling, working with the Frankfurt Zoological Society, has begun studies of the vegetation and environmental monitoring.

BOMA—HOW TO GET THERE

As a preliminary caution, only the adequately prepared traveller should consider a visit to Boma National Park at present.* There are no tourist facilities available in the park. Access is most difficult at the best of times, and there is no existing system of roads or game-viewing tracks. A dependable 4-wheel drive vehicle is a necessity. Access is easiest from January to April, when most of the area is dry. It is usually impossible to move around at all from July to September. Visitors must arrange their own supplies of fuel to be sent to the Sudan ahead of time as there are no gas stations. Access is either from Kapoeta, in the south, or Pibor Post, to the west.

Visitors from Kenya will be required to arrange their immigration and customs clearance in Kapoeta or Juba on their arrival in the country. The Sudan maintains an embassy in Nairobi where visas may be obtained.

The Ministry of Wildlife

* Since this article was written, Boma National Park has been temporarily closed to visitors. People wishing to go there should first check with the Sudanese embassy in their country that it is open again. Editor.

Conservation and Tourism in Juba will provide passes for visiting the park and any other reserves in the Southern Sudan at a minimal fee. Visitors must obtain clearance from the Wildlife Offices in Bor or Kapoeta as well, before they enter the park. Upon entering the park all visitors are required to contact the Park Headquarters close to the Boma Plateau.

Visitors to the Sudan are frequently required to have police permits in order to travel between towns. Also, any person wishing to take photographs must obtain a photographic permit from the Ministry of Culture and Information, Juba.

There are a number of safari companies in Juba that may be able to arrange a photographic safari to Boma. However, the costs are usually rather steep. Sudan Airways is the only airline flying to Juba. Alternatively one may book a charter flight.

Health conditions are somewhat poor. Visitors are advised to obtain full vaccinations against cholera, tetanus, typhoid and yellow fever. Prophylaxis against malaria is recommended at all seasons.

The problems in creating a national park are immense. How can the needs of wildlife species be protected without unjustly restricting local people? Many people rely on wildlife for an important part of their nutritional requirements. How can they be allowed access to adequate supplies of meat in controlled hunting areas outside the park, yet close to their home areas? Both wildlife and domestic stock need water and good pasture in the dry season. How can these potentially conflicting needs be reconciled? Long experience elsewhere in Africa has shown that conservation succeeds best when

there is an incentive for local people to cooperate in the effort out of self-interest, not because of coercion. With a bit of luck the conservation efforts in Boma National Park will benefit from the experiences of others, and a strong and viable conservation and development programme will result. That is the only sure way to guarantee future generations will still be able to marvel at the spectacle of masses of kob migrating across vast areas of the Boma Plains. More than ever it is obvious that in order to preserve an invaluable vision of the past, we require a dynamic vision of the future. 