



Wildlife Conservation in Uganda in Relation to Economic Development

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Uganda shares in no small way in the wildlife resources for which East Africa is justly famous. Early British workers in East African game conservation were men of unusual character. They had the rough and hardy spirit of the settlers, yet that fine sense of esthetics which is the mark of intellectuals. It was not easy to convince a distant government of the need for increased funds to protect lions which raided the settlers' livestock and ate railroad workers on the Uganda Railway, truculent and stupid great rhinos which charged everything within smelling distance, including railroad locomotives, or elephants which terrorized

native villages by night. And when the British government gradually realized the high importance of game preserves and national parks, the Africans remained understandably unconvinced. Their crops and livestock were in constant jeopardy, and the antelopes and other vegetarians were a traditional source of food to many tribes. The advent of World War II did not help. Britain at war was in no position to spend large sums of money to protect leopards and hyenas in distant Africa, and hunting safaris and tourists were simply not abroad during those years to provide direct revenues. That wildlife has declined rapidly in recent years has

been amply documented. "Everyone, including myself, who was in East Africa a mere 30 years ago, can testify to the striking diminution of its large wildlife since then" (Huxley, 1961).

A Tragic Loss

The disappearance of Africa's wild animals would be a tragic loss of a great source of interest and pleasure. On the Eurasian continent populations of man increased slowly but relentlessly over many centuries as civilizations emerged. Gradually the primeval habitats and their creatures disappeared, but so slowly as not to be noticeable within one generation or even five. It

is difficult to know what to regret in the loss of the wild conditions, since no one can remember what the wild conditions were, except in a few fringe areas, such as parts of Siberia and Himalayas. Certainly, wild Europe is gone and has been for a long time. In North America white men brought an advanced technology with which to wreak destruction to an extent they could never themselves have predicted. But in the time they have been here, especially since the beginning of the Industrial Revolution, destruction of wild areas and their inhabitants has progressed at such a rate as to be witnessed with awe by recent generations. Noticeable changes take place within any one person's lifetime, and one has only to read the journals of Audubon and others of his time to realize the magnitude of that change within a century and a half. We know what to regret, and we are feverishly trying to preserve what is left. The history of the two northern continents can contribute much to an understanding of the problem of conservation in Africa, where there is yet much to preserve. The destruction of habitats is proceeding rapidly, but has not gone quite so far as in North America. We cannot, of course, preserve the whole of Africa in a wild state, nor should we; yet development for cities and agriculture is not out of harmony with preservation of samples of that vast treasury of wild creatures with which man has evolved to his present state in the last million years. Africa is the earth's last continent on which large primeval herds of mammals still commonly exist. The wild vegetarians and associated large predators, such as leopards and lions, are our closest approximation to the earth's Pleistocene faunal communities.

Uganda's wildlife is rich and varied, although, in general, large ungulate herds such as are known in the Serengeti Plains of Tanzania and parts of Kenya do not constitute a dominant element in its fauna. The great elephant herds whose ivory once brought Uganda its fame are still a reality. On a trip into Murchison Falls National Park with my family in August, 1962, I encountered a herd of about two hundred. This was no fleeting guess, as portions of the herd crossed and recrossed the road, holding up passage of the car for an hour and a half.



Elephants today are restricted to the two older national parks in the west and the slopes of the Ruwenzori. In both national parks they appear to be thriving under protection, and the Ruwenzori are essentially inaccessible at the present. Elephants are highly adaptable, and can survive well in a variety of habitats—bamboo, veldt, forest, or savannah.

The Unadaptable Rhino

In contrast to elephants, rhinoceroses are singularly unadaptable, and perhaps obsolescent as a group. Two species occur in Africa, the black rhinoceros, *Diceros bicornis*, and the white rhinoceros, *Ceratotherium simum*. Both species are represented in Uganda. In the last half century both species have suffered heavily throughout their ranges. Grzimek (1967) estimates about 2000 white rhinoceroses in all of Africa, some of them in South Africa, but a fair share distributed between the Congo, the Sudan, and Uganda. Political instability in the Congo and public and governmental apathy in the Sudan toward conservation leaves Uganda in the position of being the only hope at present of saving the Central African white rhinoceros. The original range of the white rhinoceros in Uganda included only the West Nile District, being limited in eastward distribution apparently by inability to cross the Albert Nile (Bere, 1962). A few, however, have been introduced into Murchison Falls National Park in order to establish a population under protection.

The black rhinoceros, *Diceros bicornis*, seems so far to have survived somewhat better than the white, possibly because of its greater original range, which was continuous over most

of East Africa. In Uganda it is at present found in Karamoja, Acholi, and (a few) Lango. Its westward distribution is impeded by rivers, as it is not known to have crossed the Nile into Bunyoro from Lango and Acholi, nor crossed the Kagera into Ankole from Tanzania, where it is common (Bere, 1962). The species is well represented in the northern part of Murchison Falls National Park.

Although neither species suffers from natural depredation, the reproductive capacity is too low in both cases to tolerate heavy human depredations. Bere (1962) gives the following information for the black rhino: "The gestation period is twelve or thirteen months and rhinos breed every three years or so. Only one calf is born at a time; it reaches maturity in six or seven years." Yet depredations are common over many parts of East Africa. With the decline of rhinoceroses in India and southeast Asia, African rhinos have become a source of rhinoceros horn, which is ground to a powder and sold in India and China where it is believed to be an aphrodisiac (hardly needed there even if it were true). A local conservationist in Nairobi once told Alan Moorehead that rhino horn sells for £4 per pound in Mombasa, and that the two horns from a good mature specimen might weigh 10 pounds (Moorehead, 1957). Most of the rhinoceros poaching for horn probably takes place in Kenya and Tanganyika; to what extent poaching for horn occurs in Uganda is not clear. More often illegal hunting of rhino is probably to drive them off grazing land or for meat. Nevertheless, rhino are fast disappearing in Kenya and horn hunting can be expected to exert its influence in Uganda soon if it has not already done so. Both black and white rhinoceroses badly need protection in Uganda, and this need will become intensified as settlement of new land takes place and as the nation's human population increases.

A Hippopotamus Problem

In contrast to rhinoceroses, hippopotamus populations are burgeoning, at least in the national parks. This is especially true in Queen Elizabeth. Overgrazing has resulted in severe erosion and in deterioration of range flora for themselves and other herbi-



vorous species. In an investigation of the hippopotamus problem in Queen Elizabeth National Park, Petrides and Swank (1958) found that in one study area there were seven elephants, ten buffaloes, eight waterbucks, seven wart hogs, 1.5 Uganda kob, 1.3 bushbucks, and over 40 hippos to the square mile. They further found that an adult hippopotamus, weighing between 2500 and 4000 pounds, would eat over 400 pounds of grasses in a night's grazing. They reported that in many places the park grass communities were degraded, and even annual weeds were struggling to survive. "Thorn scrub was invading the grasslands. Much bare ground was evident. Dust storms occurred with each high wind. Gullies up to 50 feet deep were eroded in some slopes and advancing uphill at rates of over 50 feet per year." One must actually observe these animals first hand in order to grasp the efficiency with which these animals consume ("encompass" is a more appropriate word) their food. One night in Murchison Falls National Park, I was attracted to the window of the lodge by the approach of a steady grinding sound. Looking out into the night I saw dimly a huge form resembling a petroleum storage tank moving slowly past the window. Soon it turned around and passed in the opposite direction. Never once did the grinding or the movement stop; the hippopotamus, like some great machine, methodically moved up and down the length of the grassy area behind the lodge, never stopping to rest, constantly grinding up food in the largest mouth of any animal on earth.

Research is at present under way to develop a process by which hippopotamus meat can be processed for export

without refrigeration. Such a process, if perfected, would provide a means of making the harvesting of excess hippos profitable. A small local industry could thus be supported.

Other game animals found in either or both of the two western national parks (Queen Elizabeth and Murchison Falls) are wart hog, forest hog, buffalo, lion, leopard, spotted hyaena, Nile crocodile, giraffe, and a number of antelopes including, among others, Uganda kob, defassa waterbuck, bush buck, sitatunga, Jackson's hartebeest, and oribi. Most of them are in satisfactory state under protection, although the number of giraffe is small (a few hundred in Murchison Falls National Park, northern section). Zebra, giraffe, common eland, roan antelope, beisa oryx, and dikdik are among the animals found in Karamoja; these will find protection under the recently established Kidepo Park in that region. In addition, a few mountain gorillas are known in the Kigezi District, and Schweinfurth's chimpanzee is found in a few forest areas of Queen Elizabeth National Park (Bere, 1962).

Protecting The Habitat

Protection of any kind of animal life means protection of the whole habitat in which the species lives. A complete ecological study therefore is needed for each species needing further protection at the moment, and a biological survey ought to be made of each major region of the country, so as to determine the most promising reserve areas and to map whatever seasonal movement may take place among important herds.

Two developed national parks at present exist in western Uganda, and a third has recently been established in Karamoja. Queen Elizabeth, in Toro, just south of the Ruwenzori, includes the lands around Lake George and the Uganda side of Lake Edward. Forests and savannah predominate, though a prairie-like condition exists over the crater country in the northern section of the park. The total area is 767 square miles, and features a safari lodge, motor tracks throughout much of the area, and regularly scheduled daily launch trips along Kazinga Channel joining the two lakes. Bird life abounds in the channel and on the lake shores, and buffalo, waterbuck, elephant, and hippopotami are abundant. Other kinds

of wildlife, such as lions, leopards, wart hogs, forest hogs, bush pigs, and kob, are present in sufficient numbers to provide a rich opportunity for an exciting tourist vacation.

Murchison Falls National Park, covering 1100 square miles of savannah (and veldt?), lies in Bunyoro and Acholi, and is bisected by the lower Victoria Nile. It boasts the greatest herds of elephant in all of Africa, with tusks of superb size and prime quality. Historic Murchison Falls lies in the park and can be approached either by automobile from above or by launch from the Nile's famous crocodile-infested waters below (a worthy trip for the photography-minded tourist). Paraa Lodge, overlooking the Nile, provides a splendid view of this great river, and hippopotami, lions, and leopards are known to frequent the lodge area at night.

Park System Expansion

The newly independent African government of Uganda, alert to the values and importance of wildlife conservation, has recently established Kidepo Park in Karamoja. Expansion of the parks system into Kigezi, West Nile, Mt. Elgon, and other parts of Uganda for the protection of other floral and faunal communities is not yet contemplated to my current knowledge. Huxley (1961) has recommended that "the boundaries to the Queen Elizabeth National Park be redefined so as to include as much as possible of the Ruwenzori Massif."

The importance of the tourist trade to Uganda should not be overlooked. Because of its climate, scenery, wildlife, and hospitality, it is an ideal tourist country. Travel and accommodations costs within the country are low, and service is polite and efficient. The tourist industry benefits Uganda by providing support for local businesses as well as a source of foreign money. Uganda is at present little known, yet by 1960 "about 7,500 visitors arrived in East Africa with Uganda as their first stop and an additional unknown number visited Kenya and Tanganyika first" (International Bank for Reconstruction and Development, 1961). By that year Uganda was receiving about one-half million pounds annually in foreign tourist money. Mathews (1962), speaking for all of East Africa, believes that "about 80% of the 60,000 visitors

Personnel concerned with the protection of game are divided between two agencies, the Uganda National Parks and the Game Section of the Game and Fisheries Department. The first agency, of course, is directly responsible for protection and maintenance of the parks, and the second, with controlling illegal hunting throughout the country, scientific studies of the game resources, protection of animals in the game reserves, and regulation of licensed hunting.

In the national parks there are three categories of personnel: warden, cadet warden, and ranger. Practical field knowledge through life in the outdoors is the only qualification for a ranger; Cambridge School Certificate is required for cadet warden; and three years' experience as cadet warden plus 1-year diploma course in wildlife conservation overseas qualifies a candidate for up-grading to warden. As of August, 1962, there were three cadet warden posts available, of which one had been filled (Trimmer, personal conversation).

A detailed map of the Lake George area in the Lake Edward region. The map shows the lake and its surrounding areas, including the Murchison Falls Nat. Park, the Nile River, and the Victoria Nile. Neighboring countries are labeled: Sudan, Congo, Kenya, Tanzania (Tanganyika), and Ruanda Urundi. The map also shows the locations of Murchison Falls, George, and the Victoria Nile. The map is a black and white line drawing with some shaded areas representing parks or reserves.

Some idea of the extent of illegal hunting can be gained by the following figures: fewer than 10,000 head of game are killed legally by resident and visiting hunters each year throughout East Africa; yet in Uganda alone over 250,000 head per year are killed illegally, chiefly by use of wire snares (Mathews, 1962). Part of this hunting is for ivory, part for meat. Originally illegal hunting was chiefly a matter of traditional tribal meat hunts, and at first there was a tendency to be lenient on grounds that tribal tradition should be treated with tolerance. It is now clear, however, that much of the illegal hunting is highly organized. The waste is enormous, as many of the animals caught by snare are not recovered, but wander off to die slowly, often becoming highly dangerous in the meantime. Organized

The Changing Attitude

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though many schools at present cannot afford transportation costs for their pupils, a few near the park have been able to do so. Interest in wildlife so engendered, however, is not long lasting, as pupils by and large have little enthusiasm for topics not directly leading to school certificate examination.

Because conservation is built upon a science of ecology, it is evident that a widespread general understanding among Ugandans of some basic principles of synecology is necessary if sound public policy with regard to wildlife resources is to have popular support. Further, much research needs to be undertaken in wildlife biology, and unless greater interest in wildlife is stimulated in secondary schools, it is going to be a low-prestige field. The implica-

tions for such a status for the future of conservation and its contribution to the economy of Uganda are obvious, and should not be overlooked by those responsible for the planning of curricula in Uganda.

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XI International Botanical Congress Proposed Commemorative Stamps

The XI International Botanical Congress will meet at the University of Washington, in Seattle, August 24 - September 2, 1969. It will be the second time that the Congress has been held in this country; the first was held at Cornell University in 1926. To commemorate the occasion, it has been recommended that this country issues in full color, with accuracy and beauty, a selection of flower stamps to which all may point with pride.

Five stamp designs are proposed—one chosen as typical for each quadrant of the country plus a fifth depicting the Seal of the Congress.

Among other requirements, the Post Office Department strives to honor proposals that represent the greatest segment of our population. Hence, strong public endorsement is essential to success.

Persons and organizations interested in giving support to this endeavor are invited to contact Dr. William L. Stern, Chairman, Commemorative Stamp Committee, XI International Botanical Congress, Department of Botany, University of Maryland, College Park, Maryland 20740.

The examples selected for the four quadrants are:



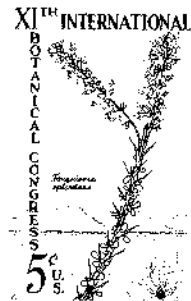
Northeastern United States The showy Ladyslipper (*Cypripedium reginae*) is a well-known orchid, native of woodland bogs.



Southeastern United States The Franklinia Tree (*Franklinia alata*), discovered by Bartram in western Georgia, named for Franklin, and although now lost as a member of our native flora, is widely cultivated for its showy flowers.



Northwestern United States The Douglas Fir (*Pseudotsuga menziesii*), perhaps the best known and most important timber tree in America, and while not important for its flowers, is distinguished by its unusual cones.



Southwestern United States The Ocotillo, known also as Coachwhip and Vine-Cactus (*Fouquieria splendens*), is a showy desert shrub with scarlet flowers borne in great profusion.