

ostralegus occidentalis and wheatears *Oenanthe oenanthe* have bred successfully in the Park (they have very rarely nested in captivity before).

Snowy owls *Nyctea scandiaca* and Lesser kestrels *Falco n. naumanni* have produced chicks, while an experiment in breeding goshawks *Accipter gentilis* in captivity in order to send young birds to Holland for release to reinforce the depleted wild population, shows promise. Eggs were produced and incubated in 1965 but the pair had not been together long enough for them to be fertile.

However great the temptation to sell rare animals, it should be resisted while there is the

chance of using them to re-establish vanishing wild populations. This should be one of the primary functions of a wildlife park for it can and should be used as a reservoir from which young animals can be taken for release under properly organised and controlled conditions.

The moral grounds for keeping animals in captivity may be scant but can be fully justified in the light of the foregoing.

REFERENCE

WAYRE, P. (1966): Use of glass in outdoor small mammal exhibits. *Int. Zoo. Yb.*, 6: 136-137.

Creation of a zoo in Tanzania - Saanane Island Game Reserve

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INTRODUCTION

Generally the East African child is not brought up in the bush but comes from village or settlement areas. Wildlife, other than the scavenging hyaena, is usually pushed away from his environment by agricultural and pastoral activities. Unless he lives near the borders of a game reserve or National Park, or on the fringe of the inhospitable tsetse bush, he seldom comes into contact with the wild animals of his country. Moreover, despite the rapid development of Tanzania in recent years, few settlements have the amenity of electricity as yet. Without this power, the worlds of Peter Scott, Bernhard Grzimek, David Attenborough, Armand Denis and Walt Disney cannot be brought to a large proportion of the young people of the country. In this situation a zoo can fill a very important educational need, teaching young people about the variety, interest and significance of the wildlife of their country.

Mwanza, one of the largest towns of Tanzania, is the administrative centre of a prosperous cotton growing region which covers some 19,000 square miles. The town lies on the southern shore

of Lake Victoria. It is only 90 miles away from the famous Serengeti National Park which contains spectacular numbers and varieties of game. However, only a few of the children from the town or region have visited the Park and many have never seen a wild animal until the recent opening of the Saanane Island Game Reserve Zoo.

This particular wind of change was brought about largely by His Excellency Mr J. S. Malecela, Tanzania's representative at the United Nations who, in his late capacity as Regional Commissioner, decided that Mwanza should have a zoo.

The choice of location was left to the Game Division. The picturesque and rocky 95-acre 'Saanane Island' in Lake Victoria was selected and gazetted as a game reserve (Government Notice 567/64). The island lies only half a mile off the mainland at Mwanza township. The selection of the island was not only because it was picturesque. Many a shipwrecked sailor cast upon some island has found to his cost that he was literally in a cage without bars. The same, it was realised, would apply to the animals which were

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to stock Saanane. Moreover, since bars cost money, the island's watery shore-line was a free gift of nature. This was of immense advantage as a zoo had not been budgeted for as a township amenity.

CONSTRUCTION AND DEVELOPMENT

Work started on the island in March 1964 and Saanane quickly grew. The residents of Mwanza were captured with enthusiasm and assisted in the development with donations. Some gave money, others cement, a garage owner offered to build a pier on the island at cost price and then contributed the structure to the project. A Cotton Co-operative Union presented a water pump and other machinery, and a far-sighted local businessman invested in a boat and arranged ferry services to the island. The National Tourist Board gave a generous cash donation.

The first zoos in European history were built for the private entertainment of monarchy and nobility, such as that of Henry II in the Tower of London where the animals were kept in close confinement (except for a Polar bear which was let out on a chain in the Thames to feed on salmon and other fish in the river). Since the Middle Ages, however, the world has changed and, fortunately for captive animals, for the better. Hagenbeck, founder of Hamburg Zoo, revolutionised zoo husbandry with the introduction of large, moated, barless enclosures and his ideas were followed up by the Zoological Society of London with the creation of Whipsnade Park with its huge paddocks for herds of antelope, deer, bison, gazelles and other wild animals. More recently, as *Yearbook* readers will know, other zoos such as San Diego, Basle, Frankfurt, West and East Berlin, London, Chester, New York, Washington, Milwaukee, and many others, have all instituted their own modern ideas of zoo architecture and animal husbandry. Zoos all over the world, aware both of their responsibilities towards their animals and the change in public opinion, are undertaking research into the varied needs of the animals they exhibit so as to try and ensure that they are kept in a relatively natural environment.

Mwanza, the latest in the field, had no intention of being left behind. It was decided that most of the animals would live in complete freedom in the island glades and that visitors would be restricted

to a set series of paths. Certain species, of course, would have to be confined and it was decided to house these at point of entry to the island.

When construction work started it was found that all sand for mixing with cement had to be transported from the mainland by boat, and then carried to the building sites. As these buildings were to be constructed in rocky outcrops, the use of wheel-barrows was not immediately practical and for this reason three local donkeys were purchased as pack animals.

A pierhead was constructed below an enormous kopje which had a flat-topped 15-m boulder jutting out towards the shore line. Steps were built to the top of this natural viewpoint and pens were radiated from it to form an immediate focus of attraction to visitors as they set foot on the island. Similar boulders were linked up by rock walls to form irregular pens which blended in with the natural rock formation. A cave which was found amongst the rocks lent itself to the construction of an otter pen. A large pond was built inside the enclosure and a natural home was created for these playful and delightful creatures, by cascading water over the mouth of the cave down a slope into the pool. A rhinoceros pen was constructed in the form of a double enclosure with a dividing gate for safety. Huge, flat-topped boulders surrounding the pen create an amphitheatre effect.

Buffalo were provided with a two-acre paddock extending to the shores of the lake so that the animals could graze along the shore and also wade out to obtain lush water grasses. It was also necessary to provide an enclosure for small mammals. Dikdik and duiker, for example, are shy and retiring and if given complete freedom would seldom, if ever, be seen by visitors.

Free-flight aviaries were constructed amongst the other enclosures. The piped water supply made possible the construction of a large waterfowl aviary. This was designed to include a long pond set well back into the slope of the kopje, allowing for observation at eye level. A separate aviary was constructed for parrots and an additional aviary was built for other birds, immediately below the observation rock at the pier head. The aviary was attached to the rock-face to enable intimate overhead viewing and large, growing trees were transplanted inside to provide roosts and shade.

INTRODUCTION OF THE ANIMALS

Apart from capital construction works, the cost of providing specimens for a new zoo is generally a large financial item. Saanane had advantages not generally available. Firstly, the island was the home of some 39 species of indigenous birds and of otters, monkeys and lizards. Secondly, the Serengeti was nearby, with its vast resources of wildlife available to supplement this nucleus.

Few visitors to zoos realise that there may be a trail of bleached bones behind the well-fed and sleek-looking animals they observe. Boyle (1963) drew attention to the heavy mortality associated with the capture of game animals. A catching programme was therefore arranged by the Veterinary and Game Divisions of the Government of Tanzania in conjunction with an East African trapping company, Carr Hartley and Sons. Catching operations were mostly undertaken in the Grumeti controlled area (Government Notice 306/59) adjacent to the Serengeti, and observations on capture, management and mortality were made (McCulloch and Achard, 1965). The initial year's work included the capture of zebra, rhinoceros, eland, buffalo, wildebeest, topi, giraffe and ostrich. It is expected that the full investigation will take several years to complete.

It was found that eland *Taurotragus oryx*, wildebeest *Connochaetes*, giraffe *Giraffa camelopardalis*, and buffalo *Syncerus caffer*, withstood a prolonged chase. Zebra *Equus burchelli boehmi* however, were unable to survive excessive physical exertion and similar stress in topi *Damaliscus korrigum* caused undesirable side-effects. Rhinoceroses *Diceros bicornis* were caught successfully, but the capture of ostriches *Struthio camelus* was accompanied by heavy mortality.

The practice of tranquillising and transporting newly-caught animals in tight-fitting individual crates was discarded. It was considered that the bulk transportation of naturally gregarious species was safer and more humane. Most of the animals caught by the team were therefore brought to Mwanza in groups. They were held in pens on the mainland for six weeks of observation and treatment. During this period the animals largely lost their fear of man and were remarkably tame when they were released on the island.

Stocking the island could not depend on the slow rate of animals being made available by scientific investigations and therefore many people

were approached—naturalists, nature lovers and professional trappers—to contribute stock to Saanane.

The zoo was officially opened on 5 September 1964 by H.E. Mr J. S. Malecela. Since then a large variety of animals has been exhibited. At the opening, the centre of attraction was a three-year-old elephant *Loxodonta africana* which had been presented by Mr Steyn, a professional trapper from Arusha. The elephant was named 'Usa' after its home district on the slopes of Mount Meru. Usa was joined by another male calf, captured near Ikoma, and named 'Machapa', as the local inhabitants of the area, the Waikoma, have a strong tie with a single elephant tusk, which has been in their tribe for generations and is considered to be a form of talisman. The tusk is named Machapa and although its significance is somewhat lost today, it is still revered. Permission to name the elephant after the illustrious tusk was granted by the elders. The two calves formed an immediate friendship. A marauding herd of confirmed sugar plantation raiders in Karagwe District was frightened away from the crops by capturing their calves, instead of by the more conventional method of shooting to kill. Two small female calves were brought to the island as the result. They joined in the ritual established by Usa and Machapa of bathing in the lake at least twice a day. The elephants often swim well out beyond their depth and submerge with only the tips of their trunks showing like periscopes. This has become a performance which they and visitors enjoy immensely. They are completely at home on the island and feed along the lake shore and on the tropical foliage which covers much of Saanane.

Two male ostriches were captured. They had to be kept in padded pens at the quarantine station as they became frantic with fear when approached. When released in the two-acre paddock on Saanane, one bird immediately ran into the lake and started to swim to the far shore. It was a remarkable sight as it proved to be extremely buoyant and only the legs disappeared beneath the surface. On this occasion the Saanane dinghy, powered by a medium outboard engine, was sent in pursuit. The ostrich, however, outmanoeuvred the boat and could not be caught, though it was finally 'driven' back to the paddock. Half an hour later it repeated the process and was

again shepherded back safely. Since then the same bird has on more than one occasion taken to the water but it has always returned of its own accord. Occasionally (particularly before an approaching storm) the ostriches 'display'. They begin by stampeding madly round the paddock and then turn rapidly in tight circles with outspread wings. For reasons unknown this display can stimulate the other inhabitants (waterbuck, buffalo and a rhino) to join in the excitement.

The rhinoceros, a male two-year-old, came from a part of Tarime District where poaching was rife. He was removed in a general scheme of rhinoceros capture and translocation. A few days after capture he demonstrated his extremely placid nature and friendliness to human beings. He also developed symptoms of trypanosomiasis. By the time he was cured of this illness (it is frequently fatal), he was completely tame. However, this is by no means extraordinary since even mature rhinoceroses become tame in captivity in a surprisingly short time.

Six zebras *Equus burchelli boehmi* were among the first animals to be taken to Saanane. After quarantine they were reasonably tame but unfortunately when they were released they became shy of humans and on seeing anyone would rush to a secluded spot to remain out of sight. This was most disheartening as it defeated the object of having them in the zoo. About a month after the zebra had been released, eight eland *Taurotragus oryx* passed their quarantine period and were brought onto the island. Eland are extremely shy in the wild but become tame very rapidly in captivity. However, as we did not wish to repeat the experience with the zebra, they were held in the two-acre paddock for a further period of two months. When they were released they had no fear of visitors and made no attempt to hide or disappear from sight. This lack of fear on the part of the eland encouraged the zebra to join them. Three White-bearded gnu *Connochaetus taurinus albojubatus* were then released and these automatically joined this group. Eland, zebra and wildebeest now run together as a compact herd. Another taming influence was the herd of pack donkeys. At night and during off-duty periods, these donkeys grazed freely with the zebra, eland and wildebeest and, by doing so, they instilled sufficient confidence in the other animals to allow people to approach very close.

Later on two Grevy's zebra *Equus grevyi* were obtained as a gift from the Kenya Game Department. The animals kept very much to themselves until the mare unfortunately died. The stallion soon attached itself to the donkeys. Whereas previously it had been too shy to accept any form of supplementary feed, it soon learned to follow their example by stealing food from the food store. Today it is nearly as tame as the donkeys.

Birds are always a delight to watch and when completely free are an even greater source of pleasure. Saanane is naturally rich in indigenous birds (see page 239). There is a thriving colony of Golden-backed weavers *Ploceus jacksoni* near the pierhead, with their beautiful nests hanging from a stand of papyrus. Fish eagles *Circus vocifer* are numerous and their raucous screams can be heard all over the island. Cordon bleus, firefinches, weavers, stonechats and doves have long since realised that with the creation of the zoo the daily search for food is no longer any problem.

The Red-billed oxpeckers *Buphagus erythrorhynchus*, often referred to as rhino birds, make an interesting community. These birds have a long tradition of association with rhinoceroses and other large game. They feed on the parasites inhabiting the host and give warning of approaching danger—particularly man. As Saanane was a tick-free island to begin with, all animals are freed of parasites before they are introduced to the island. Nevertheless, a large flock of oxpeckers was attracted to the island by the presence of the animals. It is interesting to note that they continue to comb the rhinoceroses and eland for non-existent ticks and still fly into the air with warning screams at the approach of a visitor or keeper.

It is commonly believed that parrots will not talk unless kept without other birds in the company of people. The four African Grey parrots *Psittacus erithacus* on Saanane refute this. They were obtained as fledglings from the Congo. No attempt was made to train them to talk but despite living in a communal aviary they have acquired a fairly large vocabulary.

A complete list of indigenous and introduced species on Saanane Island is given at the end of this paper.

There is a saying that few zoos reach a stage of completed development. It is difficult to imagine

Saanane even remotely approaching this point as endless possibilities exist for expansion. The interest in wildlife aroused by the creation of the zoo has exceeded all expectation. Apart from acting as a recreational outlet for tourists and residents of Mwanza, it has proved to have great educational advantages: school parties from distant districts visiting the zoo are now a common sight. And as with all other countries of the world, it is only if the young people of today are educated about the importance of wild animals and plants, that the wildlife conservation of the future will succeed.

SUMMARY

A zoo was established in Tanzania. It was sited on the island of Saanane which lies off Mwanza in Lake Victoria. Generous contributions from various people and organisations enabled rapid progress to be made in the first year. Some 27 species of mammals and reptiles and 24 species of birds were introduced. Some of the specimens were freed in the island glades. Enclosures for elephants, rhinoceroses and utility pens with stables were built. One large mammal and one small mammal paddock were fenced. Three free-flight aviaries, one otter pen and a porcupine pen were constructed. A piped water system was laid to all enclosures and pens. Staff houses, an office, a food store, a landing jetty for visitors and a second jetty for off-loading food, building materials and other supplies were erected. The zoo has proved to be an amenity of great recreational and cultural value.

SPECIES INDIGENOUS TO SAANANE ISLAND

MAMMALS. Vervet monkey *Cercopithecus aethiops*. Spot-necked otter *Lutra maculicollis*.
 BIRDS. African darter *Anhinga rufa*, Long-tailed cormorant *Phalacrocorax africanus*, White-necked cormorant *P. carbo*, Night heron *Nycticorax nycticorax*, Hammerkop *Scopus umbretta*, Black kite *Milvus migrans*, Fish eagle *Circus vocifer*, African jacana *Actophilornis africanus*, Grey-headed gull *Larus cirrocephalus*, Gull-billed tern *Gelochelidon nilotica* African snipe *Capella nigripennis*, Laughing dove *Streptopelia senegalensis*, Speckled pigeon *Columba guinea*, White-browed coucal *Centropus superciliosus*, White-rumped swift *Apus caffer*, White-bellied turaco *Corythaixoides leucogaster*, Speckled mouse bird *Colius striatus*, Grey-headed kingfisher *Halcyon leucocephala*, Malachite kingfisher *Corythornis cristata*, Pied kingfisher *Ceryle rudis*, Pied crow *Corvus albus*, White-collared raven *Corvus albicollis*, Blue-capped cordon-bleu *Uraeginthus cyanocephalus*, Red-cheeked cordon-bleu *U. bengalus*, Red-billed fire finch *Lagonostica*

senegala, Green-winged waxbill *Ptyilia melba*, African Pied wagtail *Motacilla aguimp*, Golden pipit *Tmetothylacus tenellus*, Scarlet-chested sunbird *Chalcomitra senegalensis*, Green-headed sunbird *Cyanomitra verticalis*, Golden-backed weaver *Ploceus jacksoni*, Vieillot's black weaver *Melanopteryx nigerrimus*, Yellow-collared weaver *Ploceus capitalis*, Yellow-vented bulbul *Pycnonotus xanthopygos*, Red-billed oxpecker *Buphagus erythorhynchus*, Redwing starling *Oxyechognathus morio*, cliff-chat *Thamnolaea cinnamomeiventris*.

REPTILES. Agama lizard *Agama agama*, Monitor lizard (sp unknown).

SPECIES INTRODUCED TO SAANANE ISLAND

MAMMALS. Thick-tailed galago *Galago crassicaudatus*, Patas monkey *Erythrocebus patas*, East African Crested porcupine *Hystrix galeata*, African elephant *Loxodonta africana*, domestic ass *Equus asinus*, Grant's zebra *Equus burchelli boehmi*, Grevy's zebra *Equus grevyi*, Black rhinoceros *Diceros bicornis*, warthog *Phacochoerus aethiopicus*, giraffe *Giraffa camelopardalis*, bushbuck *Tragelaphus scriptus*, eland *Taurotragus oryx*, Cape buffalo *Syncerus c. caffer*, Grey duiker *Sylvicapra grimmia*, waterbuck *Kobus defassa*, reedbuck *Redunca redunca*, White-bearded gnu *Connochaetes taurinus albojubatus*, Kirk's dikdik *Madoqua kirkii*, impala *Aepyceros melampus*, Thomson's gazelle *Gazella thomsoni*.

BIRDS. Ostrich *Struthio camelus massaicus*, Wood ibis *Ibis ibis*, Chinese goose *Anser cygnoides*, Egyptian goose *Alopochen aegyptiacus*, Mandarin duck *Aix galericulata*, Yellow-billed duck *Anas undulata*, Secretary bird *Sagittarius serpentarius*, Helmeted guineafowl *Numida mitrata*, Vulturine guineafowl *Acryllium vulturinum*, South African Crowned crane *Balearica pavonina regulorum*, Emerald-spotted wood dove *Turtur chalcospilos*, Green pigeon *Treron australis*, Laughing dove *Streptopelia senegalensis*, Cape dove *Oena capensis*, African Grey parrot *Psittacus erithacus*, Alexandrine parrakeet *Psittacula eupatria nipalensis*, Hartlaub's turaco *Tauraco hartlaubii*, Bronze mannikin *Spermestes cucullatus*, Grey-headed social weaver *Pseudonigrity arnaudi*, Grey-headed sparrow *Passer griseus*, Purple grenadier *Granatina ianthinogaster*.

REPTILES. Nile crocodile *Crocodylus niloticus*, chameleon *Chamaeleon chamaeleon*, Leopard tortoise *Testudo pardalis*, Hinge-backed tortoise (unspecified), Water tortoise (unspecified).

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