

“OPERATION NOAH”

By LIEUT.-COLONEL R. A. CRITCHLEY, D.S.O., M.C.

President, The Game Preservation and Hunting Association of Northern Rhodesia

The decision to build a dam at Kariba involved the Federal Government and the governments of both Northern and Southern Rhodesia in a vast amount of planning. The resettlement of 50,000 Tonga tribesmen was undertaken at a cost of about £4 million. Plans for the development of three township areas on each side of the new lake are under way.

An imaginary boundary runs down the middle of the lake. On the Southern Rhodesian side two game reserves, Chizarira and Matuziadona, are already established and there is to be a national park. A game reserve will, it is hoped, be established on the Northern Rhodesian side.

On what is still dry land some 100,000 acres of rough bush land are being cleared at a cost of more than £1 million to make fishing grounds and harbour sites for when the lake is filled. Giant £18,000 bulldozers, pulling 8 ft. steel balls by means of battleship anchor chains, are clearing bush at the rate of 50 acres an hour. The baobab is the only tree that offers any resistance to this equipment. Tilapia fingerlings—*Melanopleura* and *Macrochir*—are being used to stock the lake at the rate of 10 tons a year. These fish are bred at the Northern Rhodesian Game and Fisheries Department ponds at Chilanga, near Lusaka. They are transported to the lake in a fish tanker three times a week, and on arrival are transferred by means of a pipe 9 inches in diameter into the four tanks of the Kariba Lake Fisheries Launch *Sampa*. Over 5 tons have already been put into the lake near the Sinyati Basin. This stocking of fish will be completed in 1963 and it is yet too early to say when commercial fishing will be possible, because a long period must be allowed for the fish to establish themselves and multiply. But it is estimated that eventually the annual harvest will exceed 9,000 tons.

In all this vast amount of planning, and in spite of representations by the respective game departments to their governments, the fate of the fauna of the Zambesi Valley had hardly been considered.

Early in December, 1958, the great dam wall was sealed with certain immediate consequences. The Zambesi, for 50 miles from the dam to its confluence with the Kafue river, was

reduced to a twentieth of its normal dry season flow, and was no longer a barrier to the passage of wild life from one side to the other. A cordon of game guard camps was immediately established on both banks to prevent the movement of men and animals. This was necessary because although both banks are infested with tsetse fly, it is only on the southern bank that the fly carries the trypanosomes affecting human beings with sleeping sickness. Thunderflashes were used to drive back the game.

Above the new dam hundreds of dead tiger fish—a fine Zambesi game fish—were found floating on the surface of the lake. These when examined by Rex Adams, Federal Fisheries officer, were found to have their stomachs full of large crickets. He concluded that the fish had died through eating too many of these crickets which the rising water had driven from their holes in the bank.

Soon wild animals marooned on the fast disappearing islands began to starve and drown. On the Southern Rhodesian side four game rangers under the leadership of R. Fothergill set about the herculean task of rescue. No move was made by the Northern Rhodesian Government. It was even thought that no rescue plan might be necessary if all the game could be driven to higher ground. An attempt to carry out this scheme proved a complete failure.

In February, 1959, the Press in the Rhodesias began to give prominence to the plight of the marooned animals and public opinion began to exert its pressure. Mr. Aitken Cade, Leader of the Opposition in the Southern Rhodesian Parliament and President of the Wild Life Protection Society, gave notice of a private motion that “in the opinion of this house the rescue methods adopted by the Government have been, and still are, inadequate”, but withdrew it when his Government greatly increased their aid. In Northern Rhodesia the Government decided on a reconnaissance of the islands to assess the extent of the marooned animal problem, and was considering an offer by the Game Preservation and Hunting Association to mobilize its members as rescue volunteers.

At the beginning of March it became increasingly doubtful if the Northern Rhodesian Government would mount a worthwhile rescue operation, so the Northern Rhodesian Game Preservation and Hunting Association decided to enlist, if possible, the help of the Fauna Preservation Society in London. Their appeal had an immediate response from the Society and a press conference was held in London on 19th March. Reay

Smithers, Director of the National Museums of Southern Rhodesia, flew back to London and attended the conference. As a result, the *Field* published a most critical leader entitled "Four Men versus the Scandal at Kariba Dam", and the plight of the animals in the flooded area was featured in many national and local newspapers in the two hemispheres.

The Appeal launched by the Fauna Preservation Society was for £10,000 to buy boats, outboard engines, camping and medical equipment. Subscriptions from the generous British public soon started to come in, and engines and boats were purchased. Volunteers at the rate of eight per month were organized, and in the middle of April serious rescue work on the Northern Rhodesian side began.

Although rescued animals from Northern Rhodesian islands have been, on occasions, released on the Southern Rhodesian side of the lake, "Operation Noah" is not a combined operation. Each rescue team deals with its own islands. Six game rangers, one veterinary officer and forty-eight Africans comprise the Southern Rhodesian team. They have a 37 ft. parent ship *Tuna* and three smaller boats powered by Mercury engines. An aircraft is made available for periodic reconnaissance. £17,500 has been allotted in the Estimates for next season's rescue work, which will begin with the onset of the "rains" in November, 1959. I understand another large parent ship is being purchased, and the African staff increased.

The Northern Rhodesian Government team consisted last season (April–September, 1959) of one game ranger, two European assistants, and fifteen Africans. They had one 18 ft. boat powered by two Mercury engines and one dinghy. The Government has now voted £30,000 to provide more boats and an increased European and African staff for the next two years.

The Game Preservation and Hunting Association's team, which augments the Government team, consisted of thirty-two volunteers, with three 18 ft. steel boats, powered by Mercury engines. Now, with money subscribed in the United Kingdom, a 45 ft. all-metal parent ship, powered by two Perkins diesel engines and costing £6,200, has been ordered. She will be ready by October, 1959, in good time for next season's rescue operations.* A parent ship is vital for the smooth running of

* On the point of publication, the following details were received of the new vessel, the first since the Ark to be built especially for animal rescue work. She will be named *Erica* as a compliment to Mrs. Erica Critchley, than whom nobody has done more to arouse public opinion to the desperate plight of wild animals in

each operation. It can transport supplies of food and fuel, men and equipment, and tow the smaller boats to the scene of the rescue. Lack of wireless communications was also a great difficulty last season but this has now been remedied by the generous loan of six walkie-talkie sets from Marconi's, of Marconi House, Chelmsford.

The height of the water is now (September, 1959) approximately 1,475 feet. The maximum level of 1,590 feet will be reached in 1964, or possibly earlier if there are heavy rainy seasons.

It is likely that “Operation Noah” will last, at least, until 1962 and during this time about 500 islands, many of which will terminate in more than one peak, will have to be cleared. Approximately 150 islands have submerged so far. The bulk of the islands lie between Kariba and the Kota Kota hills some 60 miles upstream. Last season grass hut camps were built at Simamba, 8 miles from Kariba, and at Chipepo. For next season's operations camps are being built 50 miles apart along the lake shore. On the northern side of the lake Taed Edelmann, Polish-born game ranger, with a distinguished flying record in the last war, ably directs operations. He has had two years' experience of the area, an invaluable asset which overcomes the difficulty of finding the way in this maze of islands and water.

Rescue operations vary. There may be an island which must be quickly cleared, near the camp. The little flotilla of three boats set off early in the morning with their load of African beaters and game nets. On arrival at the island the beaters scare off the bigger animals such as kudu and waterbuck, whilst the boats circle around outside ready to shepherd them towards the mainland. This done, nets are put up and the smaller animals, such as impala, duiker or perhaps a warthog are caught in them or in the shallow water round the island. If all goes well the rescue party is back in camp before dark, tired but satisfied.

But often the scene of operations is 20 miles away and a decision must be made whether to camp out on the island for the night or to risk a difficult return journey in the dark, possibly

Northern Rhodesia. *Erica* is being built by C. B. R. Bentall Ltd., in Salisbury, to the design of Commander Collumbell, managing director of the firm.

Length 45 ft. Beam 12 ft. Weight 9½ tons. All steel welded construction. Range without refuelling, 450 miles. Power: Two 65 h.p. Perkins diesel engines. There are four sleeping bunks, but the vessel can be operated by one man. Her chief function will be that of a parent ship from which boats can operate, but 180 sq. feet aft, which can also be used for stores, has been specially prepared for rescued animals. A searchlight with half a mile range has been fitted.—EDITOR.

reaching the main camp just before midnight. Next season, with a parent ship anchored close by and wireless communication to the main camp, these long time-wasting journeys will no longer be necessary.

A RESCUE OPERATION

We went to an island, in the Simamba area, which was known to hold a herd of twenty to thirty impala. The island was about 300 yards long by 80 yards across, very stony and rising to about 35 feet above the water at one end. The vegetation had been grazed and browsed fairly heavily but was not eaten right out. About 100 yards of game nets which we had brought with us were erected across the waist of the island and several attempts were made to drive the impala into them. These were unsuccessful as the impala refused to face the nets, one duiker ram only being caught. The nets were then moved and set up at an acute angle with the shore line and the impala driven into the funnel so formed. This was immediately successful, seven animals being caught. These were bound, ear tagged and off-loaded on to the mainland. Several more drives resulted in a total of sixteen impala being netted the first day. We returned to the island the following morning, again lifted the nets and set them up in a similar position but very close to the high end of the island where the impala had sought refuge. The rest of the herd were rounded up with comparative ease, only the very last animals taking to the water. Thus the entire herd of twenty-six animals was removed and some valuable lessons in the siting and erection of the nets learned.

When we first landed on this island three kudu cows together with a calf between two and three months old immediately took to the water and swam 100 yards to an adjacent island. During the course of the driving another calf only two or three weeks old was found and captured. The four kudu were driven off the second island to a third, the bigger calf being captured in the water. During the night the mother of the baby returned to the first island in search of her calf and was driven off again in the morning. From the third island the kudu were again driven off into the water and attempts were made to shepherd them in the right direction. They returned to the island and took off again, this time in the direction of the mainland, but by the time the boat got round the island through the trees they had disappeared. They were swimming strongly and doubtless reached the mainland only a quarter of a mile away.

A Sharp's steinbok doe with a lamb about two or three months old were both caught in the water and transported ashore. A klipspringer was noosed in a rock cranny and captured.

In another part of the lake, Taed Edelmann made three attempts to rescue three cow elephants with two small calves. Thunderflashes were used to try and frighten them off, but were of no avail. The calves were caught and taken to the mainland, but had to be taken back again as they could not fend for themselves and their mothers refused to leave the island. During further attempts, one cow elephant had to be shot in self-defence. The island was then left for a week. Another visit revealed that the cows had departed, leaving the two calves dead. Examination of the calves showed that they had been badly knocked about. Did their mothers kill them before they left ?

One day the rescue team reached an island which seemed to be covered with water to a depth of about 2 feet. We thought we were too late because, as we approached, we found carcasses of twenty-five drowned impala floating nearby. We stayed on our side of the vanished island and Taed Edelmann went round to the other side to make sure that nothing living was left. Soon he returned to say he had seen two more impala. The rescuers splashed “ ashore ”, the beaters formed line and in the middle of the flooded bush we found two small mounds with sodden earth each about 10 feet by 15 feet in area. On these were clustered five antbears, four impala, a bushbuck doe and her calf, two hares, two mongooses and some francolin. In the trees above a party of marabou storks were patiently waiting for their meal. After an hour's chase in the mud and slush all the animals were caught and taken to the mainland.

When animals are captured it has been found that their temperatures rise considerably—perhaps impala are affected most of all. If released on dry land after their boat journey they tend to lie exhausted for a few moments before slowly moving off into the bush. They are therefore put into the water a few yards from the shore. This immersion brings down their body temperature and on reaching terra firma they shake the water from their coats and bound off into the trees in a jaunty manner.

A number of rescued animals have been put into crates and transported by truck to Livingstone Game Park, a distance of over 200 miles. They have travelled remarkably well with only the occasional casualty. Treatment of the animal before it is crated varies according to its condition. A tranquilizer such as

largactyl may be necessary and intravenous injection of calcium glutinate to " pep it " up is often given, and sometimes a subcutaneous injection of sulphamethazine is used to ward off pneumonia due to shock. It is hoped that Dr. A. M. Harthoorn, who has done much experimental work in Uganda in the immobilization, tranquilization and movement of animals, will shortly visit Kariba to give us the benefit of his advice. Particularly valuable will be his knowledge of the Cap-Chur gun and cross bow, and the correct dosage to be used in the immobilizing dart which these weapons fire.

As in human individuals, so the swimming capability of different animals of the same species varies. Leopard, waterbuck, bushbuck and kudu seem to be the best swimmers. A waterbuck doe has been seen swimming to the shore with her offspring on her back, and male kudu sometimes support the weight of their huge horns by resting their heads on the female's back. Impala will avoid taking to the water if possible.

As a result of observations the following distances are given as a rough guide to the swimming capabilities of animals :—

Leopard, Waterbuck, Bushbuck	1½ miles
Kudu	1 mile
Zebra	600 yards
Warthog	500 "
Baboon and Aardvark	400 "
Impala	300 "
Vervet Monkey	200 "
Dassie	25 "
Night ape and squirrel	10 "

Most of the birds marooned on the islands will die as the waters continue to rise. Guineafowl, francolin and the smaller birds will not leave their habitat in time, and finally they are too weak from hunger and exhaustion to reach the mainland. The result so far of Kariba rescue operations are shown below.

What of the future ? " Operation Noah " is likely to continue until 1963, and it is possible that areas richer in wild life than any so far encountered will be immersed. The lake has still another 100 feet to rise, another 100 miles to stretch.

There is no doubt that public opinion, and the efforts of the Fauna Preservation Society, have been a major factor in persuading both the Northern and Southern Rhodesian Governments to treat " Operation Noah " seriously. Without this help and the support of the Press there was always a danger of animal rescue at Kariba being regarded as mere sentimental nonsense.

The public of the Federation was never so game conscious as it is now, and the tragedy of Kariba may help in the future to focus public attention on the many other game conservation problems which are waiting to be solved in this part of Africa.

PRINCIPAL ANIMALS SAVED BY KARIBA RESCUE OPERATIONS UP TO 31ST JULY, 1959

<i>Species.</i>	<i>Northern Rhodesia.</i>	<i>Southern Rhodesia.</i>	<i>Total.</i>
Aardvark	10	25	35
Bushbuck	58	110	168
Bushpig	—	21	21
Dassie	6	62	68
Duiker	229	80	309
Genets	—	33	33
Greater Kudu	69	43	112
Hare	4	27	31
Impala	158	311	469
Klipspringer	3	10	13
Mongoose	20	13	33
Monkeys	—	74	74
Porcupine	3	23	26
Sable Antelope	—	12	12
Steinbok	92	144	236
Warthog	18	142	160
Waterbuck	36	37	73
Zebra	1	—	1

[Note.—By the end of October, 1959, £9,500 subscribed in England had been sent to Colonel Critchley’s Kariba rescue fund.—Ed.]