

Crocodiles

M. C. DOWNES, Animal Ecologist

The Wildlife Ecology Section was formed in January 1968 when Mr Max Downes was appointed first Animal Ecologist. The Wildlife Laboratory is at 8-Mile, Port Moresby (next to the Moitaka Cattle Station) and there are subsidiary field stations for crocodile research at Lake Murray and for deer research at Wando. Both of these research stations are in the Western District of Papua.

The Section is concerned with all forms of wildlife, though its activities are at present focused on two main items—crocodiles and deer.

IN recent years there has been a serious decline in the income obtained from the sale of crocodile skins in Papua and New Guinea. Although there were more people than ever hunting crocodiles, the total sales dropped from \$1,000,000 in 1965-1966 to \$500,000 two years later. The growth of young crocodiles was just not keeping pace with the slaughter.

For many people in Papua, this meant that their major source of income was vanishing. The request to the House of Assembly to do something about the situation came from the crocodile hunters themselves.

The House asked the Wildlife Ecology Section to study the problem and suggest what sort of law would best help the crocodile hunters. After a lot of work, the Section came to the conclusion that the best way to increase the crocodile population would be to reduce the heavy killing of the breeding crocodiles. If many more of these could be saved, they would breed each year and produce more young crocodiles.

The House of Assembly accepted this recommendation and passed a law forbidding the sale of large crocodiles (exceeding 20 in. width which corresponds to a length of 8 to 9 ft). The law does not say that big crocodiles must not be killed; it says that the skins of big crocodiles must not be sold. The control of the situation, therefore, revolves around the traders as much as the hunters, and those engaged in these activities must have a licence to do so, whether they are hunters, buyers, buyers' agents, or exporters. Details of licences are given at the end of this article. This law does not apply in the East and West Sepik and Madang Districts, but it is an

offence to send skins over 20 in. in width from other parts of the Territory into these districts.

Many people are puzzled by the fact that it is the big crocodiles, not the small ones, which are protected. A female salt water crocodile may be as much as 15 years old before she starts to look after the eggs she lays. She lays about 30 to 60 eggs per year. Not many of these eggs ever develop into adult crocodiles. Throughout the fifteen years, natural enemies as well as crocodile hunters prevent the crocodile population increasing. And when at last crocodiles do reach adulthood and start to breed, they are just the size the hunters want.

In other words, most young crocodiles are going to die before they reach breeding age anyway, whether hunters kill them or not. Birds like eating crocodile eggs, and wild pigs and big crocodiles like eating young crocodiles. But when the crocodile reaches adult size and it is contributing to the future crocodile population, then its chief enemy is man. So laws were needed to protect the crocodiles.

For some people, crocodiles are killed for food and for traditional purposes. It is not intended to prevent these practices, so the laws concentrate on the sale of skins, not on the killing of the reptiles.

The inevitable effect of the law is to reduce the income of hunters and traders, but this is only a temporary setback. There are two other alternatives: either a complete ban on hunting for 5 to 10 years to restore the population balance, or no ban at all, resulting in practically all crocodiles disappearing within five years.

Crocodile Farming

To many people it seems that the solution to the problem of dwindling crocodile population is "crocodile farming". It seems easy enough. Just catch some adult crocodiles and keep them in ponds—with a good fence around to stop the crocodiles getting out or any crocodile enemies getting in. In due course they will produce eggs and these can be looked after so carefully that practically all of them, instead of just a few, reach adulthood and they themselves start to breed. Sell as many as you can and make your fortune.

It sounds easy—but is it? Instead of finding their own food, these crocodiles would have to be fed. Fences would have to be very strong, and staff would be needed to feed the animals, check the supply of water to the pens and maintain the fences. There is not enough evidence yet to say whether this would be a

paying proposition, but experience overseas suggests that it would not be. Even starting with eggs found in nests in the swamps is not at all hopeful.

The best commercial proposition seems to be the rearing of small crocodiles 12 to 18 in. in length captured in the wild and kept in small enclosed ponds until they are big enough to sell. This would take two or three years. Such animals would still need daily attention, and a cheap source of protein food would be needed to ensure good growth. Fish, prawn heads, or abattoir offal would be suitable food.

It is debatable whether this kind of farming would be an economic proposition but the Gauwi Local Government Council in the East Sepik District is experimenting. Pens have been constructed at Pagwi and some crocodiles have been installed.



Plate 1.—Young crocodiles in pens being fed pieces of shark

(Photo: D.I.E.S.)

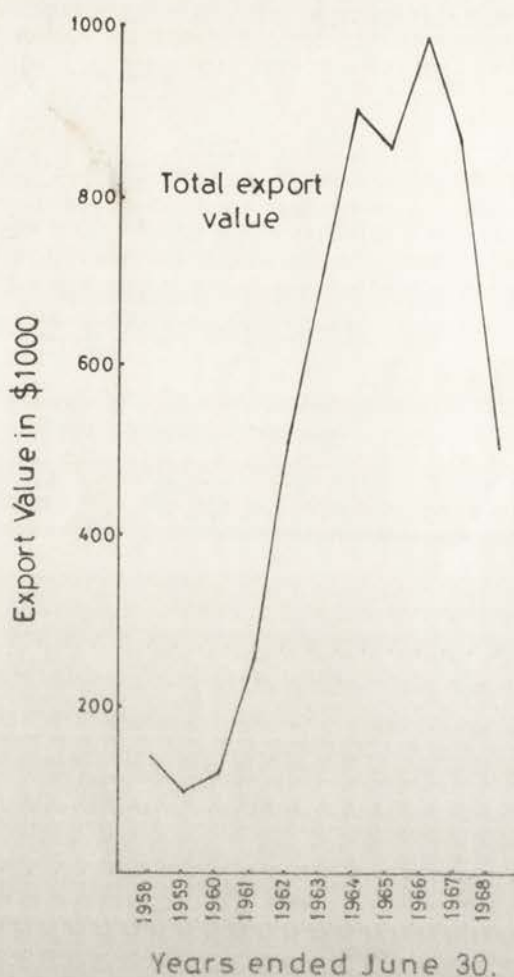


Figure 1.—Value of crocodile skins exported from the Territory of Papua and New Guinea 1958-1968

The construction and maintenance of the pens is very simple. The fences are made of native materials, 3 ft high with a 1 ft horizontal overhang on the inside to prevent small crocodiles climbing out. The pen area is about 20 ft x 25 ft and is half in shade and half in sun. The pond water is about 10 ft x 10 ft and 1 ft deep. The pond should be filled up daily and emptied and cleaned out each month.

Only crocodiles about the same size should be kept in the same pen. Crocodiles more than one foot different in size should be housed separately with animals the same size.

The number which can be accommodated in any pen depends on the care with which the water is changed and the way they are fed.

The Gauwi Local Government Council is to be commended for its enterprise in initiating this experimental work.

Crocodile Hunter's Licence

1. A Crocodile Hunter's Licence costing \$5 per year is required to hunt crocodiles for selling skins as a business.
2. Persons who have lived more than seven years in the Territory do not require a Crocodile Hunter's Licence.
3. Only persons who have lived more than two years in the Territory are allowed to hunt crocodiles for selling skins as a business. "Hunting" includes any method of catching such as shooting, netting or hooking.

Crocodile Buyer's Licence

1. Every person who buys crocodiles or crocodile skins must possess a Crocodile Buyer's Licence costing \$10 per year. The buyer must have lived more than two years in the Territory to obtain a licence.
2. The crocodile buyer must keep a record of crocodile skins bought, giving details of the size and the kind of skin (freshwater or saltwater). Every three months he must send this information to the Department of Agriculture, Stock and Fisheries. For this he must fill in a special form obtainable from the District Rural Development Office.
3. The crocodile buyer must never have in his possession any crocodile skins which are bigger than 20 in. in width. This applies to all of the Territory of Papua and New Guinea except the East and West Sepik and Madang Districts.
4. A person who buys crocodile skins on behalf of someone else must have his own personal Buyer's Licence.

Crocodile Exporter's Licence

1. Persons who export crocodile skins must have a Crocodile Exporter's Licence costing \$100 per year.
2. A permit to export crocodile skins showing the size of each skin in the consignment must be obtained from the Department of Agriculture, Stock and Fisheries before crocodile skins can be exported.
3. If an exporter or his agent personally buys skins within the Territory he must also have a Crocodile Buyer's Licence.
4. A crocodile exporter or his agent must not have in his possession any skin greater than 20 in. in width except in the East and West Sepik and Madang Districts.

Exempt Districts

These laws do not apply to crocodiles caught in the East Sepik, West Sepik and Madang Districts, where crocodiles exceeding 20 in. in width may be sold and exported. BUT skins must not be transported from other parts of the Territory into these districts.



Plate II.—Pens may be constructed of timber and wire, or bush materials. The overhang prevents the crocodiles escaping