

Turtles and an Iguana in Fiji

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At least four species of sea turtle nest in the Fiji Islands. In January 1970 Dr Bustard, aided by a grant from the FPS, visited the eastern group in order to assess the populations. He found, as had been feared, that the turtles were reduced to very low numbers, largely through killing for food; his main recommendation for restoring them is the enforcement of the very good legislation that already exists but which is openly flouted. He also investigated the status of the unique Fijian iguana and urges the need to establish at least one national park to save it—and that quickly.

Four, perhaps five, of the world's seven species of turtle nest in the Fiji Islands (of which there are about 300). This is a very rich turtle fauna, especially as two species are extremely local. The four are the green *Chelonia mydas*, hawksbill *Eretmochelys imbricata*, leathery *Dermochelys coriacea*, and a 'loggerhead' turtle. This may be the loggerhead *Caretta caretta*, or the Pacific Ridley *Lepidochelys olivacea*, the two species being often confused; or it may be that both are present.

In May 1969, on my way back to Australia from the IUCN Marine Turtle Specialists' meeting in Switzerland, I made a brief stop in Fiji to find out something about the status of sea turtles there. I had attended the meeting as the official Australian delegate, but had also covered the whole South Pacific, and the Fijian Ministry of Natural Resources had informed me that, although no information was available on the current status of turtle stocks in Fiji, 'from all accounts it would appear that the turtle population is fairly large'. Protective legislation under the Fisheries Act is excellent on paper. Turtle eggs are totally protected: 'no person shall at any time dig up, use, take or destroy turtle eggs of any species'; all turtles of less than eighteen inches in shell length are also protected, which eliminates the curio trade in small stuffed turtles; there is a close season for all turtles: 'No person during the months of January, February, November and December in any year shall in any way molest or take or kill any turtle of any size', and the export of turtle flesh is banned, thus preventing exploitation to satisfy a western gourmet trade. The Government takes the legislation seriously; about the time of my visit a Fijian was fined \$20 (about £10) for taking a turtle out of season, and two further prosecutions have been made since. But turtle meat has long been a delicacy among the Fijian people. It is served in hotels and restaurants, and the demand is increasing with the rapid development of tourism. A correspondent told me, 'Now, as the turtles come up to lay they are killed and eaten by the Fijians as fast as they come up. In some parts of Fiji, the mongoose eat the eggs before they hatch, and the young turtles are also eaten by the mongoose before getting to the sea. It is only in the outlying areas that they really survive.'

During my first visit to Fiji I learned that the leathery turtle was nesting there and requested the Government to give total protection to this world-endangered species. (I am glad to say that legislation to effect this is being gazetted.)

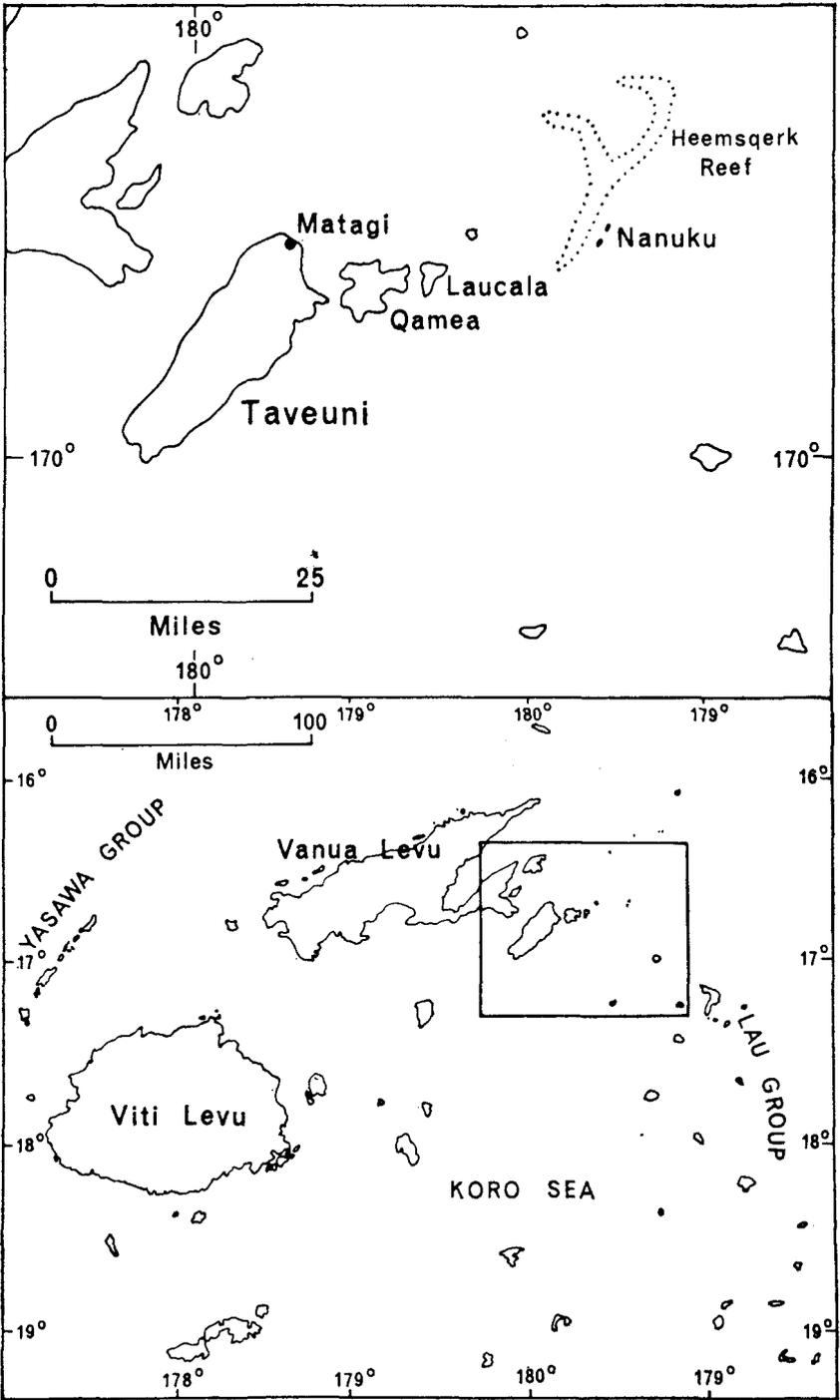
The purpose of my second visit was to investigate the status of sea turtles in the outlying islands where there are no mongoose. Based on Taveuni I visited the outlying islands by launch, and in this way collected information about turtle-nesting on Taveuni, Laucala, Qamea, Matagi, and the cays of Heemsqerck Reef, Nanuku Levu and Nanuku Lailai (Lailai being Fijian for small).

Present Numbers

Turtle nesting on Taveuni is now a very rare occurrence. I visited beaches in two parts of the island where green turtles used to nest according to two reliable long-term residents who had watched them ashore. They can be seen feeding in the passage between Taveuni and the large island of Vanua Levu but do not nest in the vicinity. On Laucala only the hawksbill and the green are known to nest, the latter rarely. Hawksbill nestings are now much less common than formerly and only a handful appeared to have nested during the summer of 1969–70. On Qamea no nesting of any significance takes place, and on Matagi only the hawksbill nests, and that sporadically: about one nesting a week last summer. Matagi is 280 acres, and has a perimeter of several miles, but only certain areas are suitable. During my two visits to the island, each of several days duration, no turtles nested.

Having been told by Fijians on Matagi and Laucala, and residents in Taveuni that the Nanuku cays were the only good nesting places now, I went there at what should have been the height of the nesting season. I spent the night of January 12th ashore on Nanuku Levu and found evidence of only six previous nests, mostly of green turtles, probably made over the previous two or three weeks. No turtles nested that night despite excellent conditions including a very high night tide. The vegetation of the high beach platform was dense, indicating little use by turtles in recent years. (Where nesting is extensive green turtles damage the fringing vegetation extensively.)

The following day I examined Nanuku Lailai, a small sand cay without vegetation close to Nanuku Levu. Here the coarse sand provided clear evidence of nesting, particularly by hawksbills. I counted twenty nests which I estimated were made over a period of about three weeks (based on appearance when checked on a subsequent visit), of which eighteen were hawksbill and two green turtles. When eight days later I revisited Nanuku Lailai, although no one else had visited the cay in the interval (no tracks other than our own in the coarse sand), only two fresh nests were found, both hawksbill. Nesting was extremely poor considering the attractive features of both Nanuku Levu and Lailai to green and hawksbill turtles respectively. If Nanuku Levu were situated at a similar latitude on the Great Barrier Reef I would expect an average of 40–50 green turtles to nest *each night* from November to February inclusive.



FIJI ISLANDS. The top map is an enlargement of the area in the square on the lower map.

The Poaching

The cause of the decline is poaching, which is rife despite the excellent legislation for which the Fijians, who are well aware of its existence, have little respect. On all the inhabited islands I visited, Fijians who had never seen me before readily admitted that they ate both turtles and eggs whenever possible—they like the flesh of both hawksbill and green turtle and take the nesting turtles whenever they can, despite the close season. They are well aware of the fortnightly nesting cycle and say that most turtles nest at the time of the full moon plus one day either side and at the mid period between full moons. On these nights throughout the close season many Fijians are out looking for turtles. If they miss one they take the eggs, note the beach, and make a point of being there to collect the turtle when it lays again about a fortnight later. Thus, little nesting now takes place, and the remnants of the breeding population are being killed and their eggs taken. Undoubtedly this situation has existed in some degree for hundreds of years, but the increase in population, combined with greater mobility (for example, possession of outboard motors) has allowed high levels of predation on nesting grounds previously visited only rarely. Nanuku Levu is Fijian-owned but uninhabited and used to grow coconuts. One land-owner only gave me permission to go ashore and look for turtles on condition that one of them came with me in the launch to collect eggs, which are totally protected the year round, and (hopefully) turtles. I was openly solicited in the middle of the close season when in the company of two Europeans who like myself were complete strangers to the Fijians! (This situation has been brought to the attention of the Senior Fisheries Officer, Mr. A. E. Adams, who is most interested in conservation, well aware of the sea turtle potential, and is acting to strengthen enforcement.)

What Should be Done?

No Fijians in the outer islands had any idea of conservation or resource management, and the best hope of persuading them that rational as opposed to total exploitation is in their own interests is by education in the schools. Presumably food has never been at a premium; until recently turtles were numerous, and crawfish 'in berry' are eaten whenever obtained. However, to save the turtles now needs speedy and effective action. If the present legislation could be enforced the problem would rapidly be solved, but if this is not possible, then the cays of Heemsqerck reef and other important uninhabited turtle nesting areas should be declared strict turtle sanctuaries at all times of the year.

Turtles and Tourism

The loss of the turtles would be much more serious than just the loss of a food resource. In Australia we have found that sea turtles are just as integral a part of the mystique of coral islands as white sandy beaches, palm trees and clear blue water. Undoubtedly this has been a factor promoting their rigid conservation in Queensland and the Great Barrier Reef, where all visitors want to see turtles laying their eggs—

every summer literally thousands of people see the nesting process at Heron Island alone. When swimming, snorkeling, water-skiing or boating, they want (and expect) to see turtles swimming lazily over the reefs during the day, and this requires substantial turtle populations. In Fiji tourism is fast becoming the most important source of income, and already the 'calling of the turtles' is becoming known as something to try and see in Fiji. Properly managed the maze of islands which make up the Fiji group can absorb much greater numbers of tourists, but this will only be achieved—and sustained—if the natural unspoilt setting can be maintained. Wise conservation action is needed now to ensure the future of this lucrative industry.

The Fiji Iguana

The Fiji iguana *Brachylophus fasciatus* is one of the most distinctive land animals, world-renowned because outside the Americas the iguana family is only known in Fiji, Tonga and Madagascar. Oceanic islands are not rich in vertebrate animal life, and this iguana is an attractive animal. About two feet long when adult, the females are bright green and the males banded in green and brown. Rare throughout almost all its range, it is listed in the IUCN Reptile Red Data Book, which says that, although 'not uncommon as recently as 1915, it must now be considered rare, if not extinct, on many of the islands' and gives the reasons for its decline as: 'mongoose devour both eggs and young . . . persecuted by the Fijians . . . many were killed by the Fijians who climbed the coconut palms to control the rhinoceros beetles . . . the Fijians kill it whenever they see it. Forest clearance is also greatly reducing the potential habitat'. Since the iguana is known to eat cockroaches and beetles it probably eats the rhinoceros beetles, so it seems remarkably short-sighted to allow the beetle control workers to kill a valuable indigenous form of control. The iguana should be actively encouraged in the coconut crowns; if it were not now so rare the rhinoceros-beetle problem might never have reached its present proportions!

Here is a real challenge to an independent Fiji—a chance to educate its people towards an understanding of their own native animals. Certainly to explain to them that these are revenue-earners from tourists. (When I addressed the Fiji Society, which advises the Government on the need for legislation affecting wildlife, there was not a single Fijian in the audience.)

Both the introduced mongoose and cane toads *Bufo marinus* have been blamed for the disappearance of the Fijian iguana. But there are no mongooses on Taveuni and cane toads have been common for at least 20 years, yet in the last two to three years the iguana has decreased alarmingly. For two years now Mr. R. Douglas of Qacavulo Estate has seen and heard of none, despite extensive bush felling by his men who report sightings to him. Before that it was not uncommon; working in the bush one would see several every hour. The decrease on Taveuni is not due to insecticides and cannot at present be readily explained. At the same time a formerly abundant species of skink has also virtually

disappeared; this could be caused by magpies, introduced to eat the rhinoceros beetles, eating the eggs and/or hatchlings. The iguana occurs even on small islands provided they are forest clad, such as Matagi (228 acres), which is privately owned and half of which has not been cleared; even there it is not at all common. Rewards, equivalent to a day's wage for each specimen (to be subsequently released again) resulted in only one seen and captured in over a week.

On Laucala iguanas are either extremely rare or absent. On Qamea, where they are seen during felling operations, they are reported to be not uncommon. On Kanacia island in the Lau Group, where there are no mongooses or cane toads, iguanas are present. In the suburbs of Suva, where it used to be common, it is now much less numerous. Wherever it occurs real estate development and forest clearance, in addition to introduced predators, pose real threats to the iguana.

A Government ordinance, recently gazetted, provides for the setting up of national parks. Several should be declared urgently (all will be invaluable to tourism in the future) and one of them should take in an area of important habitat for the Fijian iguana. The island of Kandavu appears to be one of its last remaining strongholds, and a suitable area there should be gazetted a national park without delay. Legislation should also close the export loophole. At present it is not even necessary to have an export permit to take iguanas out of Fiji, and this showy animal could rapidly become a popular exhibit in zoological gardens, depleting the natural populations still further.

The Fiji Museum has recently become interested in the iguana. From a single individual at the time of my first visit they had increased their collection to five by January 1970, and their display aroused considerable interest, especially when the only female laid five eggs. In late January the eggs were developing well (though unfortunately none hatched) and the female was about to deposit a second clutch. Such activities deserve every encouragement; hopefully, they will give Fijians an increased awareness of, and interest in, their fauna.

I have concentrated on sea turtles and the iguana, which are large and showy with tourist potential. Steps should be taken to conserve them first, before it is too late. But this does not mean that the other reptiles and the native frogs are doing well. They are not.

Australia is becoming increasingly active in the South Pacific, and I am sure that a request from the Government of Fiji to the Australian Government for a marine turtle specialist to advise them on turtle resource management and for an expert to help in the setting up of national parks would result in help being provided.

Acknowledgments

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