

AN EARLY REPORT OF THE FLORA AND FAUNA OF THE ALDABRA GROUP

by E.P. Diamond¹

Introduction

Among the records in the National Archives of Mauritius at Port Louis is a copy of the earliest known detailed report on the flora and fauna of the Aldabra group, made by Sergt. F. Rivers of the Seychelles Constabulary. It was sent by the Civil Commissioner for the Seychelles to his superior, the Governor of Mauritius on December 30, 1878. The original was forwarded to London and a copy kept in the Seychelles National Archives and another in the Mauritius Archives. A third copy is to be found in the Günther Papers in the British Museum (Natural History) although I have not seen it. A later letter in the Mauritius Archives suggests that another, more detailed report by Rivers may have been made and sent to the Royal Society sometime in February 1879, though I have been unable to trace it. The importance of this report to the study of the changes on the Aldabra group lies in its early date and the apparently knowledgeable and careful observation of the reporter.

The report is dated 11 December 1878 and is signed by F. Rivers who is said, in a covering letter, to be of Canadian extraction and to have been a seaman before settling in Seychelles. The report is English with creole names given for most of the plants and animals. I have written the English common name, if there is one, in parentheses after the creole one and, with the first reference of each species, have included the scientific name as well. There may be some confusion in the use of creole names, which will be discussed in the conclusion. Detailed information about anchorages and geological formation of the islands will not be included in this paper but can be found in the report itself.

Astove

Rivers arrived on Astove on 10 October 1878. He reported that he could find no traces of visits by fishermen and whalers, though there was a well in the southeast which had been dug by a shipwrecked crew 'some years ago'.

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Atoll Res. Bull. No. 255: 1-10, 1981.

Coconuts and Other Vegetation

Rivers reported that the island had no trees except a few stunted 'mangliers' (mangroves of any species) and was covered with bush. He mentioned two individual coconut trees, planted in recent years, and implied that few if any others had yet been planted.

Fish

Rivers reported that fish 'are not found in quantity', but that the most common were; 'varvaras' (*Lutjanus bohar*), 'capitaines rouges' (*Lethrinus kallopterus* or *L. nebulosus*), 'carangues' (*Alectis indicus* or *Caranx sp.*) and 'vielles' (*Plectroponus maculatus* or a serranid). [These and all other translations of creole fish names are taken from J.L.B. Smith and Mary Smith *Fishes of the Seychelles*, 1969.]

Turtles

In Seychelles creole, a green turtle is a 'torti' while a Hawksbill turtle is called a 'caret'. When translating 'torti' into English, Seychellois often use only the word 'turtle' without the 'green'. Thus when Rivers uses the word turtle alone he means only green turtles, which is made clear by the context in the full report.

'Turtles' (green turtle, *Chelonia mydas*) were said to be very abundant, although it was not the breeding season and Rivers estimated that his ship, probably a small schooner, could take a complete cargo of turtles in three days. He reported finding 12 young turtles in the belly of a 'varvara'. Frigate birds (*Fregata sp.*) and 'aigrette' (egrets) were also said to prey on young turtles but no evidence was given.

Birds

Aquatic birds were said to be few with frigates and 'aigrette' present in small numbers. 'Corbijeaux' (whimbrel, *Numenius phaeopus*) and 'allouettes' (small waders and shore birds) were said to be plentiful. Of the land birds, a 'ralle' (rail, probably *Dryolimnys cuvieri*) was mentioned, also the 'crow of Madagascar' (pied crow, *Corvus albus*) a small species of 'colibri' (sunbird, probably *Nectarinia sovimanga*) and a 'cardinal' (*Foudia sp.* with red plumage). A 'merle' (bulbul, *Hypsipetes sp.*) and a 'pigeon hollandais' (*Alectroenas sp.*) were said to be present and 'smaller and paler than those found at Seychelles'.

Other animals

Land crabs were said to be plentiful and 'cypaye' (coconut crab, *Birgus latro*) was mentioned by name.

Discussion

Trees and other vegetation

Rivers describes the island as covered in bush with a few stunted mangroves, which coincides with the description of Bayne *et al.* (1970b) generally, although a large number of planted coconuts had changed the appearance of the island by 1968. It is interesting to note, however, that Rivers did not mention *Casuarina* woodland described by Bayne *et al.* on the western rim of the island. Fosberg and Renvoize (1970) record a

report of its presence in 1919, suggesting that these *Casuarina* were introduced between 1878 and 1919.

Marine Fauna

Bayne *et al.* do not mention fish but agree with Rivers that Astove is a major breeding ground for green turtles. The presence of young turtles in a fish's stomach implies that there had been laying two to 2½ months before (late July or early August). Hawksbill turtles (*Eretmochelys imbricata*) are not mentioned by Rivers and are said to be rare by Bayne *et al.*

Land fauna other than birds

Giant tortoises (*Geochelone gigantea*) reported by Rothschild on Astove in 1915 were not recorded by Rivers in 1878. This is perhaps a reflection of the low numbers of the population at that date, seen also on Aldabra (see Aldabra section). Both Rivers and Bayne *et al.* agree on the abundance of coconut crabs.

Birds

Bayne *et al.* agree with Rivers report of the small number of seabirds on Astove. They do not mention the frigates but these may have been wanderers from Cosmoledo or Aldabra. It is with his account of landbirds that Rivers differs markedly from all later reporters (summarised by Benson 1970b). The rail, pied crow and small sunbird are consistent with other reports but the 'merle', the 'pigeon hollandais' and the cardinal are not. The word 'merle' is used in Seychelles to mean a bulbul. It might possibly be applied to a medium sized thrush-like bird of another genus but there is no bird known from Astove to fit this description. Moreover Rivers was apparently a careful observer familiar with Seychelles species. The 'pigeon hollandais' is so called after the Dutch flag with distinct bands of red, white and blue. It is even less likely to be mistaken for any other species. As another *Alectroenas* appears to have become extinct at an early date on Farquahar (Stoddart and Benson 1970), it is possible that the same thing occurred on Astove, between 1878 and Dupont's visit in 1907. It is however to note that Dupont reported seeing a *Streptopelia picturata* in 1907 which no other observer has ever recorded. The 'cardinal' which, as its name implies, must have red plumage at some stage of its life cycle is the Seychelles creole name for *Foudia madagascariensis*. Rivers' cardinal must therefore have been a *Foudia sp.* (see under Aldabra discussion).

Cosmoledo

On his arrival in the Cosmoledo group Rivers reported that it was frequently visited by fishermen and whalers as indicated by turtle remains on the beaches. A hut and 'turtle park' (enclosure in the sea for keeping turtles fresh before shipment) on Menai Island had been recently burnt and destroyed. A hut on Wizard Island which had been built from the wreckage of the *Merry Monarch* had also been burnt. There were also signs of the felling of mangroves.

Trees and other vegetation

Rivers reported that some parts of the island would be suitable for growing various palms. What he describes as the 'remnants of an old grove of coconut trees' existed on Menai and those still standing were bearing fruit abundantly. He believed palms took longer to mature on Cosmoledo than on other islands because of the 'great sterility of the islands'. Menai was described as 'almost covered' with mangroves, some of about 40 or 50 feet in height and 2 or 3 feet in diameter.

Fish

Fish were abundant and he estimated that 8 men could salt or dry 8000 lbs of fish a month. In Rivers' opinion, the capture of this quantity would not exhaust the supply as no small fish were taken. The most common species were 'captaines rouges', 'varvaras', 'caranges', 'vielles', 'mulletts' (*Mulloidichthys flavilineatus*, a Mugilidae or *Polyremus kuru*, 'croissants' (specific name unknown), 'chirugiens' (surgeon fish, *Acanthuridae*), 'lions' (*Holocentridae*) and 'raies' of different kinds (rays, *Stoasodon marinari*, *Dasyatis uarnak*, *Taenuira melanospila* or *Torpedo fuscomaculata*).

Turtles and Crustacea

Both turtles (green turtles) and 'caret' (hawksbill turtles) were abundant though the late October, early November of Rivers' visit was 'not yet the season'. Crabs were said to abound in the marshes.

Birds

Birds of all kinds were plentiful. 'Fregates' (frigates), booby 'of three different species' (*Sula spp.*) 'paille en queue' (tropic-birds, (*Phaethon lepturus* or *P. rubricauda*), 'cordonniers' (lesser noddies, *Anous tenuirostris*), 'fouquets' (wedgetailed shearwaters, *Puffinus pacificus*), 'goelettes' (sooty tern, *Sterna fuscata*), and 'fanchins' (bridled terns, *Sterna anaethetus*) were listed. Rivers says that the same land birds were found on Cosmoledo as on Astove, but in greater numbers, and that there was also a 'tourtorelle rouge' (turtle dove, *Streptopelia picturata*).

Other animals

Rivers reported a few goats on Menai but suggested that they did not do well there, as many skeletons were found in the bushes. He suggested that the reason may have been the scarcity of rain on the island on the year of his visit.

Discussion

Coconuts and other vegetation

The present vegetation of the group as described in Bayne et al. (1970a) is more varied than Rivers' brief description suggests, no doubt partly as a result of introductions since 1878. However, it is the plants already present in his time which are most interesting. The 'old grove of coconuts' of 1878 was reported in 1822 by Capt. Moresby (cited in Bayne et al. 1970a). Moresby also reported trees resembling *Casuarinas* which Rivers did not mention, though he records them on other islands.

Land fauna

Rivers did not report seeing giant tortoises, but the reasons may have been the same as on Astove (see Astove discussion). The goats which Rivers thought were doing poorly still remained, though in small numbers, in 1901 and had gone from Menai by 1968, though they were still on North-east Island in 1961 (Bayne *et al.* 1970a).

Sea birds

Rivers reported 3 different species of sulids as did Bayne *et al.* (1970a) in 1968. One species was undoubtedly *Sula sula*. It is however very easy to mistake immature white boobies (*Sula dactylatra*) for mature brown boobies (*Sula leucogaster*). The only evidence for the presence of *Sula leucogaster* is a skin in the National museum of Kenya in Nairobi. This skin has been misidentified and in fact is *Sula dactylatra* (A.W. Diamond pers. comm.). It is, of course, remotely possible that Rivers knew his boobies well and did in fact see a third species, perhaps *Sula abbotti* known from Assumption at about that date, collection by Abbott in 1893 (Stoddart, Benson and Peake 1970).

Rivers reported only 'cordonnier' or lesser noddies (*Anous tenuirostris*) while Bayne *et al.* saw only common noddy (*A. stolidus*) which in creole is called 'maqua'. It is possible that Rivers missed seeing common noddies which nest only on small islets around the lagoon (A.W. Diamond pers. comm.), but the fact that Bayne *et al.* (1970a) saw no lesser noddies, suggests that he may have mistaken the two very similar species. However, since neither party was on the island for more than a few days, the two species might both occur, possibly at different seasons.

The fact that wedgetailed shearwaters reported by Rivers were not seen by or reported to Bayne *et al.* (1970a) suggests that they may have become extinct since 1878. The young birds and eggs are commonly eaten by Seychellois fishermen who would therefore be aware if they were still extant; the same habit would account for their extinction. The extinction may also be the result of the rats, which were present by 1901 (cited by Bayne *et al.*), if not earlier.

Land birds

Rivers records the land birds as the same as Astove *i.e.* a rail, pied crow, sunbird, bulbul, cardinal and 'Pigeon hollandais', as well as a turtle dove. The first three and the turtle dove were also reported by Dupont in 1907 (Benson 1970a). The pied crow and the sunbird still exist and Benson suggests that further investigation of remoter parts of the atoll may reveal a relict populations of the rail and turtle dove. For the possibilities of the extinction of the bulbul 'cardinal' and 'pigeon hollandais', see the discussions on Aldabra and Astove.

Assumption Island

Rivers next went to Assumption where the extensive mining for guano had not begun. He said, in fact, that there was nothing to indicate that it had even been visited recently.

Coconuts and other vegetation

The island was covered with bushes of 'bois amanthe' (*Pemphis acidula*) and other shrubs on which were found a small liane used for dying, called 'orseille' which was common in Madagascar. There were also a few stunted 'affouche' (*Ficus sp.*) and 'bois de natte' as well as mangroves. Rivers mentioned one coconut tree as marking the landing, but gave no idea how many others there might have been. The 'affouche' was apparently the preferred food of the goats on the island who would eat even its bark.

Fish and turtles

Rivers reported that fish were found on the reefs but not in quantity, the most common being 'carangues' and 'varavaras'. The green turtles were said to be numerous and also 'better and fatter' than those of other islands. Hawksbills, however, were not numerous.

Birds

Aquatic birds were found, but not in large numbers and no names were given. Of the land birds, Rivers said 'pigeon hollandais' is not found but the rest were 'like the other islands'.

Other animals

Goats had been left on the island by passing ships and Rivers thought that there were 500 to 600 of them. He described them as being of 2 or 3 different species all in 'fine condition'.

Discussion

It seems likely that Rivers spent only a short time at Assumption, for he describes it in less detail than the other islands. By the time of later reports, mining had started or was about to start and subsequently destroyed the natural vegetation to a great extent.

Fish and turtles

The green turtle population which Rivers described as numerous has been reduced drastically on Assumption (Stoddart, Benson and Peake 1970).

Birds

Rivers describes the island birds as being the same as the other islands *i.e.* Cosmoledo and Astove, except for the absence of the 'pigeon hollandais'. Since he had previously said that there were turtle doves on Cosmoledo and not on Astove, his remark is ambiguous. The fact that Nicoll in 1906 and Fryer in 1908 both recorded the presence of the turtle dove (Stoddart *et al.* 1970) suggests that he intended to include it on his list. It is clear that he meant to include the sunbird, pied crow, 'cardinal', rail and bulbul. The sunbird still existed on Assumption in 1968 and probably the pied crow as well (Stoddart *et al.* 1970). A rail (*Dryolimnas abbotti*) became extinct between 1908 and 1937 (Stoddart *et al.* 1970). As in the case of Astove and Cosmoledo, neither the bulbul nor the 'cardinal' were recorded by any other visitors to the island. This omission is more striking on Assumption because Abbott collected there, though not in the other islands, in 1893, and yet failed to find either species. However, both

species are susceptible to rats which may have been the cause of their extinction. It is unfortunate that Rivers did not list the seabirds in detail, so that we cannot know whether he saw *Sula abbotti* which Abbott collected 15 years later.

Aldabra

Rivers appears to have spent more time on Aldabra than on the other islands. He gave details of place names and geography of the island and reported that it was frequently visited. Although he speaks of 'fishermen that have been there for a long time fishing', he makes no suggestion that there was a permanent settlement.

Coconuts and other vegetation

Coconuts and maize were grown on the small islands in the lagoon. Michel was said to have about 20 grown coconut trees while La Poste on Ile Picard was distinguished by the presence of a coconut tree. Two or three stunted takamaka trees (*Calophyllum inophyllum*) were the landmark for the well at Takamaka. Mangroves were growing on all the islands with the largest being 4 to 5 feet in diameter. The trees were, according to Rivers, commonly 2 to 3 feet in diameter and 40 to 50 feet high. Mangrove timber was said to be good for building because it was straight and long lasting. Cedar Island had some 'filao' (*Casuarina*) while 'vacoa Maron' (*Pandanus sp.*) occurred on all the islands in quantity. The 'bois tanguin' of Madagascar (*Euphorbia ? abbotti?*) was present as well as some 'bois de natte' and 'affouche', though Rivers did not specify where these trees occurred.

Fish, turtles and other marine fauna

Rivers reported that the fish were of the same species and in the same numbers as they were on Cosmoledo. As well as these species there were 'Licorne' (unicorn fish, *Axinurus thynnoides*) similar to the one at Mauritius. Green turtles were as abundant as on Cosmoledo, but hawksbill was far more numerous and 'generally of better quality'. The reefs were said to be full of shells, with 'pearl oysters' in quantity, but Rivers was prevented from looking for them by bad weather.

Birds

Rivers lists 'serins' (see discussion), 'cardinal' (*Foudia eminentissima* or *F. madagascariensis*, see discussion), pigeon hollandais, hawks (*Falco sp.* probably *F. newtoni*), crows (*Corvus albus*), sunbirds, turtle doves, rails, 'toulouse' (coucal, *Centropus toulou*), bulbuls (*Hypsipetes madagascariensis*), 'corbijeaux of two species, 'one white and almost as large as a goose' [sacred ibis, *Threskiornis aethiopica*]', the other the same as in Seychelles, (whimbrel), flamingoes (*Phoenicopterus ruber* or *P. minor*), 'veuve' and 'pie' (see discussion). Rivers reported that there were 'almost all kinds of aquatic birds in quantity, but lists only 'allouettes' (small shorebirds and waders) and 'cavalier' (crab plover *Dromas ardeola*).

Land animals

Rivers reported that 'by all appearances there is [sic] plenty of tortoises on these islands'. However, though he saw 'traces' of them,

he never saw a tortoise, nor did he, or any of the fishermen he spoke to, ever see a dead carcass or shell, though the fishermen sometimes captured the animals for food. Rivers said that the largest tortoises were from Ile Picard but that they were commonly caught on the plains at Cinq Cases. He felt that, as it was the dry season when he was there, the tortoises were 'hidden in holes' or shady places. When it rained, they were said to come out and be more easily caught. On Grand Ile 'some years ago' pigs were released which destroyed many young tortoises, but the pigs were believed to have died out because they were all males. There were numbers of 'flying foxes' (Fruit bats, *Pteropus seychellensis*), and land crabs 'of every description' were abundant. A few goats were found on Ile Picard and had been let loose on other islands. There were also 'large locusts of the Madagascar species'.

Discussion

Coconuts and other vegetation

It is apparent that on Aldabra in Rivers' day, as on other islands, coconut trees were not so widespread as they are today. If, as Fosberg (1971) suggests *Casuarina* is an introduced plant on the atoll, it was present by 1878. Takamaka trees are still mainly restricted to the area called after them. The largest mangroves described by Rivers are larger than any now present on the atoll, but Rivers may have been inaccurate in his estimation of proportions as his diameter seems excessive (A.W. Diamond, pers. comm.).

Birds

Rivers reported 'cardinal' and 'serin' for Aldabra, but 'cardinal' only for Astove, Cosmoledo and Assumption. 'Cardinal' is present Seychelles creole for the introduced *Foudia madagascariensis*. By implication, it must be used for a bird which has red plumage at some stage. It is never, for example, used for *F. seychellensis*, which is never red. 'Serin' on the other hand is used today for females of both species of *Foudia*. However, when white-eyes were still common in Seychelles, it was used at different times for *Zosterops modesta* and *Z. mayottensis*. Rivers probably knew one of the Seychelles white-eyes. It seems strange therefore, that he did not report white-eyes on Astove or Cosmoledo where they were recorded after 1878 (Benson 1970a, 1970b), especially since he did record 'cardinal' on these islands as well as on Assumption. No other observer has recorded *Foudia* from these islands and it might be suggested that Rivers mistook white-eyes for female *Foudia*. This mistake is however, most unlikely, since, if he did not know a white-eye he would have called a female *Foudia* a 'serin'. Therefore, the birds on Astove, Cosmoledo, and Assumption must have been *Foudia* with red plumage. *Foudia eminentissima* on Aldabra is in breeding dress in November and December when Rivers was there and it is likely that *Foudia* on other islands in the neighbourhood would have similar breeding seasons. (September - March, according to Benson and Penny, 1971). The fody on Astove, Cosmoledo and Assumption may have been *Foudia eminentissima* a subspecies of which appears on the Comores and in Madagascar as well as on Aldabra, (Benson 1967). The reason for its extinction on Astove and Cosmoledo is not known but it is reported on Aldabra to be very susceptible to rats (*Rattus rattus*, Frith 1976),

as is *Foudia seychellensis* (Diamond and Feare, in press).

Rivers mentioned a bird like a 'veuve' which is in Seychelles creole, a paradise flycatcher (*Tersiphone corvina*). However, he notes that it is not the same species, as both male and female have long tails and are black. This bird is clearly the Aldabra drongo (*Dicrurus aldabranus*). Rivers also reported hearing a 'pie' which he did not see, though he implied that fishermen had done so. 'Pie' or 'pie chanteuse' is creole for the magpie robin (*Copsychus seychellarum*), the 'pie' implying a black and white colouring and the 'chanteuse' a song. Although the fishermen probably both saw and heard this bird, Rivers only heard it. It need not therefore have been a magpie robin, which is, at present, restricted to Seychelles, but there seems no other likely candidate either resident or migrant. It does not sound like the Aldabra warbler at all. (Diamond, pers. comm.). As the magpie robin was introduced to Alphonse at a later date, it is possible that Rivers heard a bird that had been introduced to Aldabra, but this is unlikely. All the other birds listed by Rivers still occur on Aldabra.

Land animals

It is obvious from Rivers description that the tortoise population of the islands was much lower in 1878 than at present (see summary in Stoddart 1971). Rivers report merely confirms the findings of other reporters that population levels were very low at the end of the nineteenth century. It must be noted that for early visitors, travel was much more difficult than today, with no outboard motors and well cut paths. Tortoises in remoter areas would not have been found because these areas were not explored. Rivers record of goats appears to be the earliest. It is however, possible that goats as well as pigs have introduced and extirpated more than once. (Stoddart 1971)

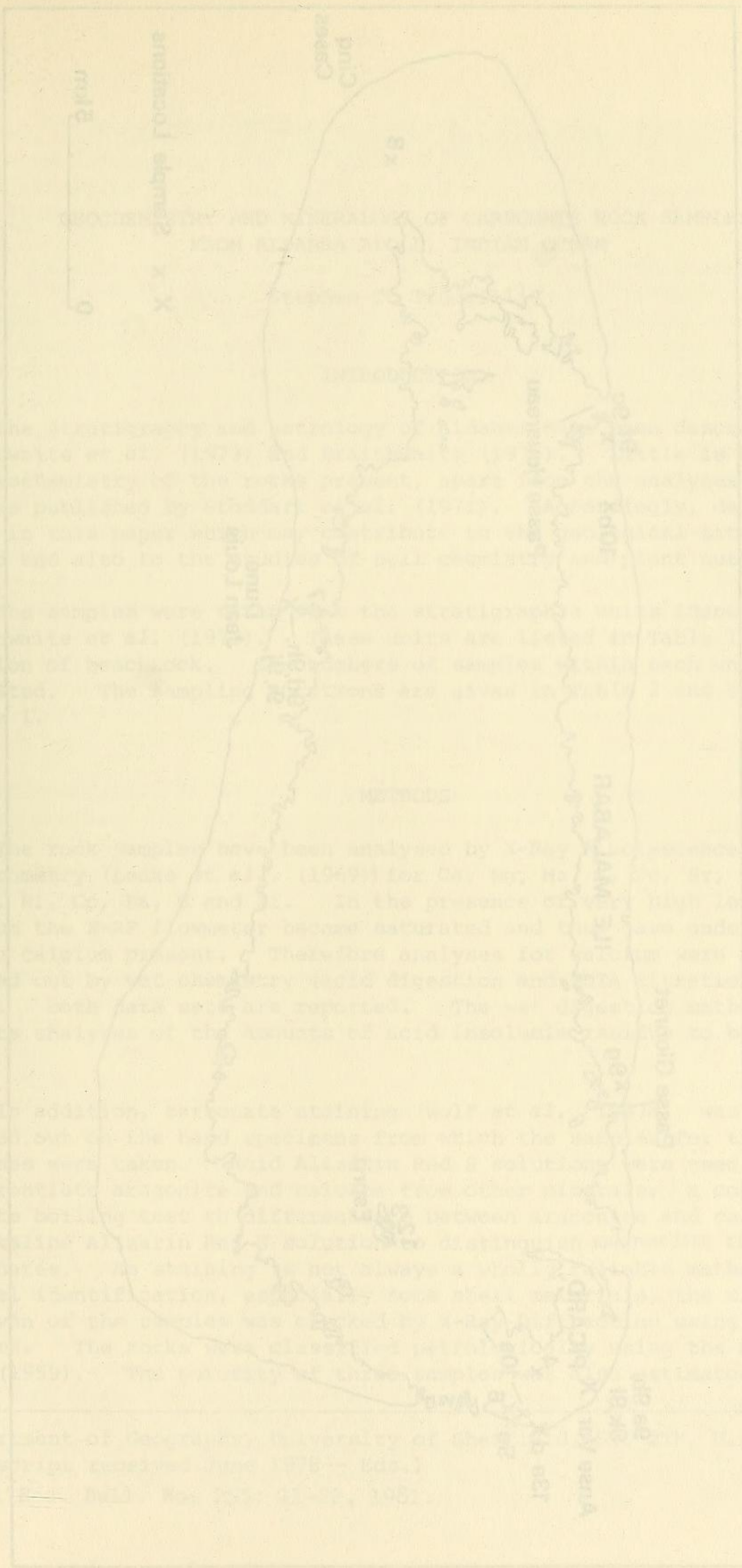
Fish and other marine fauna

Though Aldabra is still a major breeding ground of green turtles, it is impossible to compare present day population levels with Rivers unquantified remarks. It is certain however that the population has declined on Aldabra, although the hawksbill population may not have done so. (J. Frazier 1971.) The hawksbill shell of 'better quality' was the famous Aldabra 'blonde' shell. The pearl oyster and the unicorn fish still occur.

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 Manuscript received June 1975 - 605.1
 Acta Geol. Sin. 1976, 51: 1-10, 1981.

