

## RESEARCH FACILITIES IN SEYCHELLES\*

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### ABSTRACT

Details about the faunal and floral elements of the Island as well as the facilities available for field investigations for visiting Scientists are discussed.

THE only organisation in Seychelles which at present offers research facilities of any kind is the International Council for Bird Preservation, whose field station at Cousin Island is open to visiting scientists.

The island is 67 acres in extent, two miles off the north western end of Praslin Island. About half its area is occupied by a granite hill 225 feet high : the rest of the island is mostly coconut plantation, now in a run-down condition, but still producing about 10,000 nuts per month. At the foot of the hill, particularly on the southern side, is a swamp which is freshwater inland but brackish nearer the sea.

The vegetation at sea level, under the coconut palms, is a mixture of *Pisonia grandis* and *Morinda citrifolia* trees, with other species in scattered clumps ; the ground flora is dominated by *Achyranthes aspera* and *Asystasia* sp., with numerous *Carica papaya* plants, some of enormous size. There are extensive areas of the fern *Nephrolepis* and the 'air plant' *Kalanchoe pinnata* where the canopy is interrupted. The soil is of Jemo type, formed by the deposition of guano over many years into an acid peat formed under the stands of *Pisonia* which must have been the island's principal vegetation in the distant past (Fosberg, *Atoll Res. Bull.*, in press). As a by-product of this process there has developed a hardpan layer of phosphatic rock about 1.3 m thick over most of the lowland.

On the hill a large part of the slopes is bare granite rock, varying in slope from nearly level to vertical, with spectacular weathering effects. In gullies and ledges on the north side, and among boulders over most of the south side, there is dense ground cover of *Nephrolepis* and *Asystasia*, with occasional clumps of trees, including *Pandanus*, *Euphorbia*, and *Ficus* spp.

The vegetation of the swamp is principally *Avicennia* and *Thespesia*, with a canopy of *Canavalia cathartica* creeper, and *Nephrolepis* and some *Acrostichum aureum* below, especially beside the old drainage ditches. The beach crests are usually lined with *Scaevola* hedges or tall *Casuarina* ; rarely their place is taken by *Suriana*, *Cordia*, or *Guettarda*.

The fauna of Cousin is remarkable chiefly for the number and variety of breeding birds. Sea birds are of course by far the most numerous group, including large

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numbers of tree-nesting terns *Gygis alba* and *Anous tenuirostris* (Fairy and Lesser Noddy), and White-tailed Tropic birds *Phaethon lepturus*. On the hill is a breeding colony of about 10,000 pairs of Wedge-tailed Shearwaters *Puffinus pacificus chlororhynchus*, and a few hundred pairs of Audubon's (Dusky) Shearwater *P. lherminieri*. Also among the rocks of the hill are the breeding places of Common Noddies *Anous stolidus* and Bridled Terns *Sterna anaethetus*.

The land birds include one species which is all but unique to Cousin\*, the Seychelles Brush Warbler *Bebrornis seychellensis*, about 35 pairs; the Seychelles Fody *Foudia sechellarum* is abundant on Cousin (now estimated as about 1,000 birds) but extinct elsewhere except Cousine and Frigate; the Seychelles Turtle Dove *Streptopelia picturata rostrata* survives on Cousin as a phenotype at least, though it is extinct by interbreeding with an introduced subspecies, *S. p. picturata* from Madagascar, elsewhere in Seychelles. Hybrids have been seen on Cousin. The Seychelles Sunbird *Nectarinia dussumieri* is not common but breeds successfully on the island, as does the 'Seychelles' Moorhen *Gallinula chloropus? sechellarum*. Other endemic birds occurring on Cousin include the Kestrel *Falco araea*, the Dutch Pigeon *Alectroenas pulcherrima*, the Green-backed Heron *Butorides striatus atricapillus*, and rarely the Dimorphic Little Egret *Egretta garzetta dimorpha*, the last probably a vagrant from its breeding grounds at Aldabra. The only introduced birds breeding on Cousin are the Barred Ground Dove *Geopelia striata* and the Madagascar Fody *Foudia madagascariensis*. Introduced Barn Owls *Tytoalba* sp. occur infrequently, and have bred, but they are exterminated when found, as they should be elsewhere in Seychelles.

The invertebrate fauna has never been studied in any detail. Crabs are numerous, both on land and on the beaches, including two common Ocypodids and two or three species of hermit crab in the plantation and on the hill; there is a large population of the giant millipede *Scaphiostreptus madecassus*; and there is at least one rare spider, known from few other islands. A study of the arthropods, especially the insects, of Cousin is urgently needed, to complete knowledge of the diet of various bird species.

The Amphibian fauna comprises at least one of the endemic cecilians *Hypogeophis* spp., and probably also a tree-frog, which has been heard but not yet seen.

The reptile fauna is large, and will repay further study, both from the ecological point of view and from the application of the results to bird conservation. Under the seabird colonies and elsewhere, the small endemic skink *Mabuya sechellensis* and the larger *M. wrightii* are abundant, both scavengers but the latter also a predator on eggs and young birds. A third skink *Scelotes gardineri* is locally common on the hill. The large grey gecko *Aeluronyx sechellensis* and the smaller bright green gecko (*gen. et sp. indet.*) are common in trees, and on the ground at night. There are no snakes. In the swamp the Black Terrapin *Pelusios subniger* is common; and in an enclosure on the island are five giant tortoises *Testudo gigantea*, now thought to be of Seychelles and not Aldabran origin. Turtles *Chelonia mydas* and *Eretmochelys imbricata* breed on the beaches in small numbers.

The only breeding mammal on the island is the Indian Mountain Hare, which was introduced in 1920 and survives in small numbers. It has no visible effect

\* One surviving descendant has been seen this year of Six warblers transported to Cousine by a labourer from Cousin in 1960.

on the vegetation. There are no rats or cats, and the two dogs kept on the estate are males. Fruit bats occasionally cross from Praslin, but they are mobbed by sea-birds, and do not usually stay long.

The coral reef round the island has never been collected or surveyed, and may be assumed to be untouched. It is fully protected by law, except for *bona fide* scientific research.

Cousin Island thus forms a useful example of a small tropical oceanic granitic island, which has never been intensively cultivated, now completely protected from further exploitation and degradation. Facilities for scientific work exist on the island in a simple form, and more are being developed as funds permit. Accommodation is available for two or even three workers at a time, and transport to other islands in the group can be arranged. The island's policy is administered by a committee of ICBP in London, and serious research workers should contact this committee through its secretary Miss Phyllis Barclay-Smith, at the Bird Room, British Museum (Natural History), London. They should give details of their qualifications and their proposed course of study; they will have to find their own grants.

2. *Other sites.* Although no facilities are offered at present, there are of course other sites of great interest in Seychelles, where research would be valuable. A Marine National Park is to be established near the mouth of Victoria Harbour, and research facilities are to be incorporated in the development, but this will not take place for a number of years. The Vallee de Mai on Praslin is one of the most important botanical sites in the world, and workers interested in this field might contact the Department of Forestry for information. I would draw the attention of botanists also to the forest reserves on Mahe and particularly to those on Silhouette, where little research has ever been done. None of these sites provides any facilities except the most important of all—their continued existence, which is to be ensured by the conservation policies of the Government of Seychelles.

3. A bibliography of scientific and other works about Seychelles is to be published shortly by the Smithsonian Institution. The author is J. F. G. Lionnet, MBE, until recently Director of Agriculture.

#### REFERENCES

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