

Figure 1. Félicité: physical, showing locations of vegetation plots.

FÉLICITÉ

BY

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GEOLOGY, TOPOGRAPHY AND CLIMATE

Félicité, covering 268 ha, is the sixth largest of the granitic Seychelles Islands. At its highest point it reaches 231.5 m above sea level although most of the island is below 100 m (Table 1). Much of the island is high and rocky, made up of reddish-grey granites similar to those of Praslin (Braithwaite, 1984). In the north and east are two small low-lying “plateau” areas of more recent origin. The plateaux are made up of calcareous sediments, in part overlain by marsh and alluvial deposits.

Large parts of the upland area are rocky with poor conditions for soil creation and retention. In glacial and rocky areas, soils are restricted to pockets between boulders. However, lateritic red earth soils are present over at least half of the hill area (D.O.S., 1966). There are also small areas of alluvial soil associated with temporary stream beds. The plateaux (apart from marshy areas) are made up of Shioya soils.

There are no permanent water bodies on the island, although seasonal stream beds exist (all were dry at the time of survey), and there is a small marsh on the plateau at Petite Anse (grid ref. CL 743 222); this too was without standing water at the time of the survey. The nearest large inhabited island is La Digue, 3.2km from Félicité. Praslin is 8.6km away.

Few weather records exist for Félicité, but rainfall data for 1958 and 1959 suggest that the island is drier than low-altitude sites on Praslin or Silhouette; mean annual total rainfall for these years was 1,428 mm on Félicité (Table 2). Annual rainfall at Praslin Grande Anse in 1958 was 1,847.1 mm (compared to 1,491.0 mm on Félicité) and mean annual total rainfall for 1958-9 on Silhouette (La Passe) was 1,609.4 mm (Seychelles Meteorological Office, Unpublished data).

Table 1. Area of Félicité by altitude (calculated from map published by UK Directorate of Overseas Survey/Seychelles Government, 1980).

Altitude range (m. asl.)	Area (ha)	Percentage total area
200 - 250	7	2.6
150 - 200	41	15.3
100 - 150	45	16.8
50 - 100	82	30.6
10 - 50	58	21.6
0 - 10	35	13.1

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Table 2. Félicité: monthly rainfall (mm), 1958-1959.
(Data: National Meteorological Services, Seychelles, unpublished data).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1958	177.0	84.3	101.1	41.7	309.9	387.1	53.3	32.3	21.8	48.8	113.3	120.4	1491.0
1959	269.5	46.5	84.1	112.8	57.7	22.6	22.6	42.2	206.3	112.0	191.8	196.9	1365.0
mean	223.3	65.4	92.6	77.3	183.8	204.9	38.0	37.3	114.1	80.4	152.6	158.7	1428.0

HISTORY

Early records of Félicité suggest that it was a rather dry barren island. The Marion Dufresne expedition of 1768 (prior to settlement of the Seychelles) visited the island, although records were restricted to the exploitable resources. It was noted that the island was not as well wooded as La Digue, and that timber was poorer (Lionnet, 1984). In 1787, the island was said to be well wooded with bwa-d-nat *Mimusops sechellarum* and takamaka *Calophyllum inophyllum* (the latter on the coast only), with endemic giant tortoises on the hill, but lacking any fresh water in the dry season (Malavois, 1787 in Fauvel, 1909). Following the permanent settlement of the Seychelles, Félicité became a private estate. In the nineteenth century, the estate was abandoned and annexed by the colonial government (in Mauritius) before 1866. Timber from the island was used by the colonial government (Newton, 1867).

When the island was visited by Edward Newton in 1866, rats and cats had already been introduced (Newton, 1867). Although there was still “very considerable forest” on the south west side of the island, Newton found only two species of land bird, the Seychelles sunbird *Nectarinia dussumieri* and feral chickens *Gallus gallus*. In contrast, the nearby island of Marianne (still predator-free) had 12 species of Seychelles endemic birds. At that time, Félicité was leased to small farmers, with the government retaining control of forest reserves over part of the island for the protection of timber and water supplies. In 1895 a 30-year lease was given to Harold Baty, who extended the existing coconut plantations. In 1898, Harold Baty wrote (in a letter to the Administrator of Seychelles) that the island produced 30,000 coconuts per month and that he had introduced “valuable plants” to the island including cloves *Syzygium aromaticum*, rubber *Hevea brasiliensis*, bamboo (probably *Bambusa vulgaris*), raffia *Raphia farinifera*, vacoa *Pandanus utilis* and pepper *Piper nigrum*. He added that experiments with coffee (*Coffea liberica*) had been unsuccessful (letter of 23/10/1898 in Seychelles Archive).

In 1908, Félicité was reputed to support 100–150 acres (60.8 ha) of native forest, dominated by *Mimusops sechellarum* and *Intsia bijuga*, with over 1,000 trees reaching 18 inches (46 cm) in diameter (Anon. 1908). In 1910, the lessees applied for the right to fell some of the forest trees remaining on the island and were granted the use of 130 acres (52.6 ha) of forest land, the government reserving the right to purchase all timber felled. This area was later planted with coconuts by the lessee.

In 1921-24 the government itself felled takamaka trees on approximately 100 acres (40.5 ha). In 1923, representatives of the lessee illegally cut timber (*Mimusops* and *Intsia*) within the government reserve, some being removed to Grande Soeur Island

(which was managed by the same lessee, the Society des Iles Soeurs) and some sent to Mauritius. The trees were regarded as valuable as they were “getting extremely scarce”.

In 1927, the lessee Louis Bessin applied for, and received, permission to fell most of the forest trees remaining in the reserve areas. An area of 29 acres (11.7 ha) at Glacis Rouillé was to be left untouched. In addition, he introduced herds of free-roaming cattle and goats. In 1934, the Director of Agriculture, Mr P. R. Dupont, visited Félicité and found that the forest reserve had been exhausted and, with the exception of a few hundred trees left standing, was only fit for firewood. Undercropping had inhibited natural regeneration and encouraged erosion, and even trees bordering streams had been felled. He suggested replanting with *Albizzia* (probably *Paraserianthes falcataria*), sangdragon *Pterocarpus indicus*, bois de table *Heritiera littoralis* and agati *Adenanthera pavonina*, which had little commercial value but would survive on the dry island. It is unclear whether these suggestions were acted upon.

By 1959, coconuts were planted throughout the island although some takamaka *Calophyllum inophyllum*, kapisen *Northea hornei*, gayac and bwa-d-nat survived (Swabey, 1961). Although goats appear to have become extinct on the island (as elsewhere in the granitic islands), it appears that the free-ranging cattle introduced in the 1930s persisted until the late 1980s, when they were culled (island manager, *pers. comm.*). In 1984, there were 33 animals (Racey & Nicoll, 1984).

Currently the island is managed as a small and exclusive resort with a staff of around ten permanent inhabitants. Settlement is now restricted to the plateau area to the north east of the island and many of the buildings dating from the plantation period are now abandoned. Some coconuts are still harvested from the palms (particularly around the settlement), and plateau vegetation is managed, but the majority of the former plantation has been abandoned.

FLORA AND VEGETATION

Flora

A total of 187 plant species were recorded on Félicité, including 11 ferns, one gymnosperm (cultivated), and 175 angiosperms (Appendix 1). Of the angiosperms, 86 (49.1%) were introduced, 73 (41.7%) native and 23 of these (13.1% of total) endemic. Compared to other islands on the survey, the proportion of the total flora made up of introduced species was small while the proportion of Seychelles endemics was high (for the total Seychelles flora, around 54% is introduced and 9% endemic: Procter, 1984). The high proportion of endemic species reflects Félicité’s topography and history. For much of the nineteenth and twentieth centuries, parts of the island were protected as forest reserves (see above). The size of the island and inaccessibility of some areas allowed a number of endemic species to survive the expansion of agriculture on the island. One endemic species, coco-de-mer *Lodoicea maldivica*, was introduced to Félicité (its natural range appears restricted to Praslin, Curieuse, and nearby islets). However, the Félicité coco-de-mer population includes mature fruiting palms and young plants suggesting that it is established on the island.

Of the introduced plants established on Félicité, 13 are invasive weedy species. Among the most successful alien plants on Félicité were cocoplum *Chrysobalanus icaco* and cinnamon *Cinnamomum verum*, which are the most widespread and invasive woody weed species on the smaller islands of the granitic Seychelles (Hill, 2001).

A small proportion of the total flora (around 23 species, 13.1%) consisted of ornamental species (most of recent introduction) confined to the landscaped areas around the hotel buildings. Twelve species recorded in previous botanical collections on Félicité were not recorded in the current survey. Most of these species were probably still present on the island but were not discovered in the short time of the survey. One previous record is doubtful, however: bwa bannan *Gastonia crassa* was recorded by Procter (1974), who did not record *G. sechellarum* from Félicité. In his revision of the genus Friedmann (1994) records *G. sechellarum sechellarum* but not *G. crassa* from Félicité. When not in flower, these *Gastonia* species can be difficult to differentiate. The addition of 12 species brings the flora of Félicité to 199 species, 26 of which are endemic.

Vegetation

The extent of major vegetation types on Félicité is shown in Table 3, and Figure 2. The vegetation is dominated by hill woodland rich in native species, scrub (mainly the introduced cocoplum *Chrysobalanus icaco*) and glacis (bare rock with a number of endemic species but heavily invaded by *Chrysobalanus icaco* in many places). Coconut plantations and fruit tree orchards are now largely abandoned and overgrown with the exception of coconut groves around the inhabited area. Invasive coconut regrowth occurs particularly along the coastal strip.

The 10 vegetation plots completed were carried out in hill woodland/scrub (glacis was avoided). Only 1,000 m² of the island fell within the vegetation plots (0.04% of the total island area, 0.08% of Félicité's upland forest). Fifty-two species were recorded (0.052 species m⁻²), of which the majority were native or endemic (28 species, 53.8% of total species, were native or endemic).

In the tree layer, 12 species were recorded, nine of which (75%) were native or endemic. Fifty-three individual trees were recorded, giving a mean density of 530 trees ha⁻¹. Almost half of all trees recorded belonged to the two most abundant species, both native; takamaka *Calophyllum inophyllum* (15 trees, 28.3% of all trees) and bwa dir rouz *Canthium bibracteatum* (11 trees, 20.8% of all trees). Introduced species made up only a small proportion of the canopy layer (only 17%), the commonest being cashew *Anacardium occidentale*. All tree species recorded showed signs of natural regeneration, and were represented in the shrub and/or herb layer.

In the shrub layer the most widespread species were *Canthium bibracteatum* (represented in nine of 10 plots), *Chrysobalanus icaco* (in eight plots), *Cocos nucifera* (in eight plots) and *Allophylus pervillei* (in six plots). Of these species, *Cocos* was the most dominant locally; in plots where it occurred, *Cocos* formed on average 17.9% of shrub layer coverage (compared to *Canthium*, 9.5%; *Chrysobalanus*, 9.8%; and *Allophylus*, 10.3%).

Table 3. Extent of major vegetation types, Félicité.

Vegetation type		Area (ha)
Hill > 10 m asl	Woodland (predominantly native)	126.3
	Coconut plantation	1.3
	Scrub (Introduced)	30.3
	Bare rock	29.3
Plateau < 10 m asl	Woodland (predominantly native)	4.3
	Coconut plantation	0.9
	Coconut with regeneration	5.2
	Freshwater marsh	0.2
	Beach crest vegetation	1.7
	Grassland/garden	1.7
	Bare rock	20.7

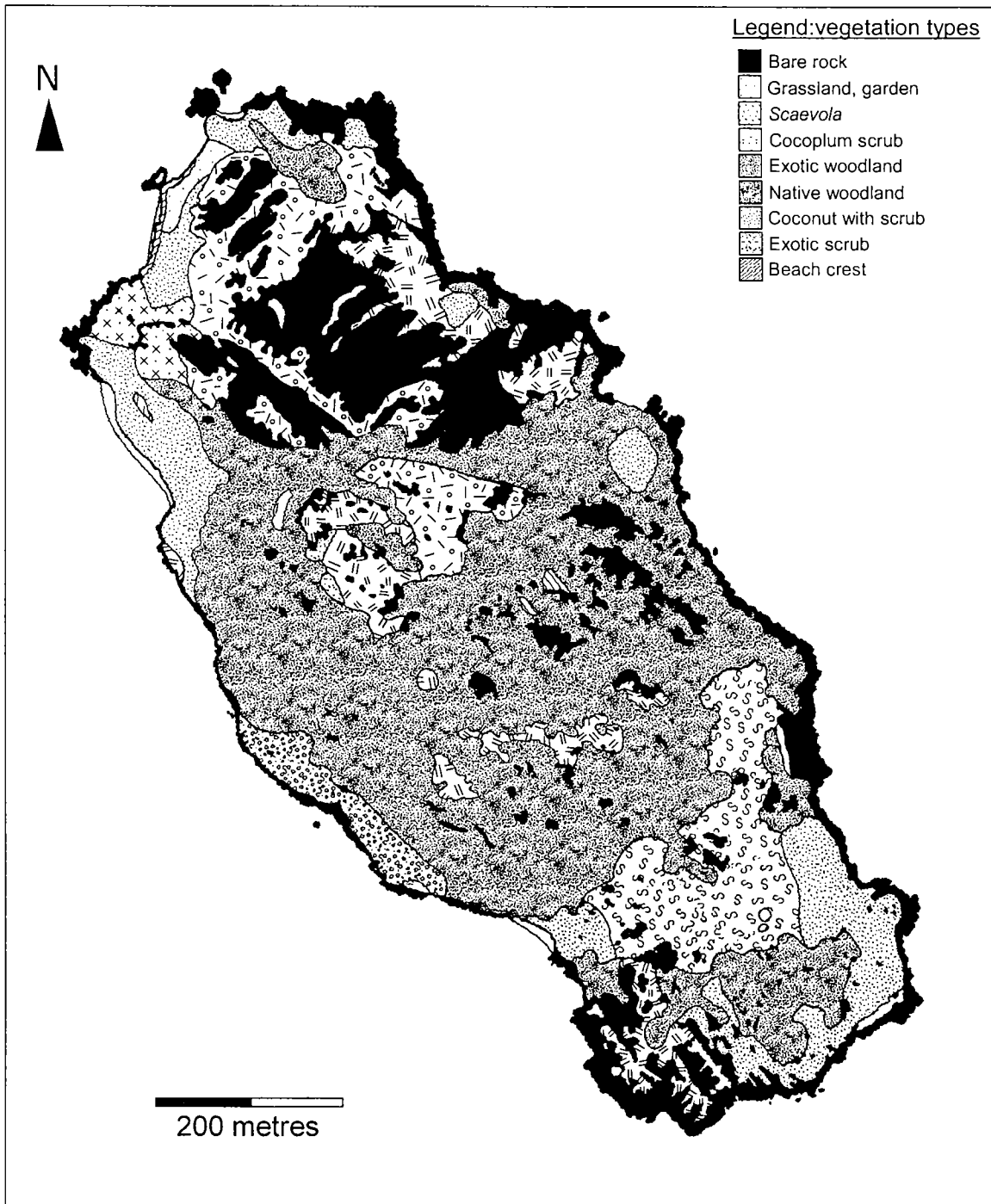


Figure 2. Félicité vegetation.

INVERTEBRATES

Pitfall Trapping

Pitfall trap assemblages were similar in size (number of individuals) to the overall mean for the season. The mean number of individuals per five traps was 72, compared to the mean for the season (all islands): 68.2 individuals per five traps. However, the major part of each assemblage was made up of ants; mean assemblage size excluding ants was 8.6 individuals (compared to the seasonal mean of all islands: 15.12). Abundance of invertebrates other than ants was relatively low.

Assemblages were dominated by the introduced crazy ant *Anoplolepis gracilipes*. This species, introduced to the Seychelles in the early 1960s, occupied 60% of the area of Félicité in 1994. It is a domestic and agricultural pest with effects on natural ecosystems that are difficult to gauge (Haines *et al.*, 1994). Of 720 individual invertebrates caught, 567 (78.8%) were *A. gracilipes* (Fig. 3). Of the total assemblage 86.8% was made up of ants, 3.2% earwigs (Dermaptera), 3.1% snails, and 2.9% flies (Diptera), mainly larvae. *A. gracilipes* has a major effect on the composition of ground invertebrate communities and, at high densities, may cause changes in the vegetation composition of islands (Hill, in prep).

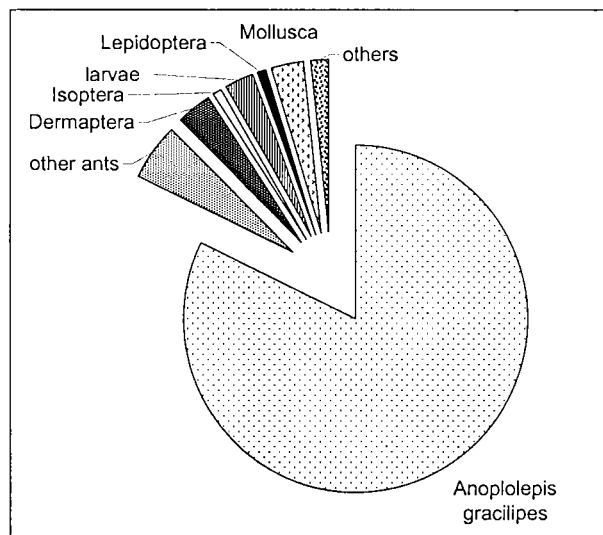


Figure 3. Taxonomic composition of pitfall assemblages from Félicité. Only invertebrates of body length > 2 mm included. 'Others' group includes Blattodea, Diptera (adults), Hemiptera, Myriapoda and Orthoptera.

Leaf-insect Counts

Leaf-insect counts were carried out for 11 tree and shrub species (Table 4). The highest leaf counts were for the introduced *Citrus* due to high levels of infestation of mealy bugs and scale insects (both tended by ants) on these species. The endemic *Erythroxylum sechellarum* also had particularly high values for invertebrate densities.

Table 4. Density of invertebrates on foliage, Félicité.

Species	No. leaves counted	Mean insects leaf ⁻¹	Mean insects m ⁻²
Introduced species			
<i>Anacardium occidentale</i>	150	0.207	31.92
<i>Chrysobalanus icaco</i>	100	0.030	8.75
<i>Citrus</i> sp.	200	0.290	198.21
<i>Mangifera indica</i>	150	0.033	5.76
Native species			
<i>Allophylus pervillei</i>	150	0.093	29.13
<i>Calophyllum inophyllum</i>	500	0.232	26.37
<i>Canthium bibracteatum</i>	450	0.033	15.42
<i>Erythroxylum sechellarum</i>	50	0.060	27.84
<i>Memecylon elaeagni</i>	100	0	0
<i>Paragenipa wrightii</i>	50	0.420	63.09
?Status unknown			
<i>Morinda citrifolia</i>	50	0.200	26.41

Malaise Trapping and Other Methods

Two malaise traps were in place for three nights each in hill woodland habitats. Malaise trap assemblages were large (179 and 185 individual invertebrates) and included members of nine invertebrate orders. The dominant orders were the Lepidoptera (48.4% of all individuals), Hymenoptera (19.8%) and Diptera (17.3%). The majority of taxa collected have yet to be identified to species level. A number of other invertebrate species were identified and are shown in Table 5.

Table 5. Invertebrate species identified, Félicité.

Order	Family	Species	Notes
Mollusca:			
Gastropoda	Achatinidae	<i>Achatina fulica</i> (Bowditch, 1822)	Introduced species, abundant
		<i>Achatina pantera</i> Ferrusac, 1822	Introduced species, abundant
	Subulinidae	<i>Subulina octona</i> Bruguière, 1792	
Crustacea:			
Decapoda	Coenobitidae	<i>Coenobita brevipennis</i> Dana, 1852	
	Gecarcinidae	<i>Cardisoma carnifex</i> (Herbst, 1784)	Occasional, plateau
	Ocypodidae	<i>Ocypode ceratophthalmus</i> (Pallas, 1772) <i>Ocypode cordimana</i> Desmarest, 1825	On beach and beach crest
Myriapoda	Trigoniulidae	? <i>Spiromanes braueri</i> (Attems, 1900)	In pitfall traps
Insects:			
Odonata	Anisoptera	<i>Diplacodes trivialis</i> (Rambur, 1842)	Observed flying over glacia
Lepidoptera	Nymphalidae	<i>Melanitis leda africana</i> (Linnaeus, 1758)	In hill woodland
		<i>Hypolimnas misippus</i> (Linnaeus, 1764)	
	Lycaenidae	<i>Leptotes pirithous</i> Linnaeus, 1767 <i>Zizeeria knysna</i> (Trimen, 1862)	In grassland, mainly on plateau
Coleoptera	Hesperiidae	<i>Borbo</i> sp.	
	Buprestidae	<i>Belionota prasina</i> Thunberg, 1789	Caught in Malaise trap, hill woodland
	Rhipiceridae	<i>Callirhipis philiberti</i> Fairemaire, 1891	Endemic. Caught in Malaise trap, hill woodland
Hymenoptera	Anthophoridae	<i>Xylocopa caffra</i> (Linnaeus, 1767)	
	Apidae	<i>Apis mellifera adansonii</i> Latreille, 1804	
	Formicidae	<i>Anoplolepis gracilipes</i> (Smith, 1857)	Abundant on vegetation and in leaf litter. In pitfall traps
		<i>Cardiocondyla emeryi</i> Forel, 1881	In pitfall traps
		<i>Monomorium ?floricola</i> (Jerdon, 1851)	In pitfall traps
		<i>Odontomachus troglodytes</i> Santschi, 1914	In pitfall traps
	<i>Tapinoma melanocephala</i> (Fabricius, 1793)	Occasional, in pitfall traps	
<i>Technomyrmex albipes</i> (Smith, 1861)	Abundant on vegetation and in leaf litter. In pitfall traps		
Phasmatodea	Vespidae	<i>Polistes olivaceus</i> (de Geer, 1773)	
	Phasmatidae	<i>Carausius sechellensis</i> (Bolivar, 1895)	Collected in sweep samples

VERTEBRATES

Reptiles

A total of eight species (six lizards, one tortoise and one snake) was observed (Table 6), but there are probably further species present that were not recorded. At least two of these (Aldabra giant tortoise and Brahminy blind snake) are introduced species. Giant tortoises, presumably a species of the granitic Seychelles, were present in the late eighteenth century but became extinct before 1875 (Bour, 1984). Neither of the Seychelles' two endemic snakes (Nussbaum, 1984a) was observed although they are likely to occur here given the island's size and relatively undisturbed nature.

In addition to land reptiles, at least one marine turtle appears to nest on the island. A single hawksbill *Eretmochelys imbricata* (L.) was observed on the beach at Grand'Anse.

Table 6. Reptiles observed on Félicité.

Status: E =endemic, I = introduced, N = native (in central Seychelles).

Family	Species		Status
Gekkonidae	<i>Ailuronyx seychellensis</i> (Dumeril & Bibron, 1836)	bronze-eyed gecko	E
	<i>Phelsuma sundbergi</i> Rendahl, 1939	day gecko	E
	<i>Phelsuma</i> sp. (? <i>P. astriata</i> Tornier, 1901)	day gecko	E
	<i>Urocotyledon inexpectata</i> (Steiner, 1893)	sucker-tail gecko	E
Scincidae	<i>Mabuya sechellensis</i> (Dumeril & Bibron, 1836)	Seychelles skink	E
	<i>Janetaescincus braueri</i> (Boettger, 1896) or <i>Pamelaescincus gardineri</i> Boulenger, 1909	burrowing skink	E
	<i>Geochelone gigantea</i> (Schweigger, 1812)	Aldabra giant tortoise	I
Typhlopidae	<i>Rhamphotyphlops braminus</i> (Daudin, 1803) Robb, 1966	Brahminy blind snake	I

Birds

Extensive surveys of the island were carried out for two endemic species, Seychelles scops owl *Otus insularis* and Seychelles black paradise flycatcher *Terpsiphone corvina*. The available map of Félicité (Directorate of Overseas Survey UK/Seychelles Government, 1980) is plotted on a 100 m x 100 m grid. Forty-one of these squares were selected randomly representing 13% of the island's area. Where the random squares consisted exclusively of glacia, or were coastal with less than 50% land, they were excluded and other squares were selected.

Both sexes of Seychelles black paradise flycatcher respond well to the playback of male song and individuals frequently approach to within a few metres of the recorder. Male song was played continuously for five minutes in each of the 41 randomly selected squares (11-17 November 1999, 0830h-1600h) and any response noted. In addition, we also noted the presence of any other bird species detected during the five minutes of playback.

Scops owls also respond well to playback of conspecific calls, often approaching to within a few metres of the recorder. Scops owl calls were played at c.200 m intervals at seven points for 10 minutes along a transect on 12 November (1820-2030h).

No flycatchers were observed in any of the random squares in response to the playback and, furthermore, none were observed in the extensive coverage of island during the sampling. The Seychelles sunbird *Nectarina dussumieri* was the most common species observed in the random squares occurring in 31 squares (76%), followed by the blue pigeon *Alectroenas pulcherrima* found in 22 squares (54%) and the common mynah *Acridotheres tristis* found in 10 squares (24%) (Table 7). In six squares (15%), no birds were detected. There was no response to the scops owl playback.

Table 7. Bird species recorded during the sampling of 41 random squares (each 100 m x 100 m) on Félicité 8th-14th November 1999. Percentages given in parentheses.

Species		No. squares species recorded
<i>Nectarina dussumieri</i>	Seychelles sunbird	31 (76)
<i>Alectroenas pulcherrima</i>	Seychelles blue pigeon	22 (54)
<i>Acridotheres tristis</i>	common mynah	10 (24)
<i>Streptopelia picturata</i>	Madagascar turtle dove	4 (10)
<i>Foudia madagascariensis</i>	Madagascar fody	2 (5)
<i>Geopelia striata</i>	barred ground dove	1 (2)
<i>Butorides striatus</i>	green-backed heron	1 (2)

Few endemic land bird species have ever been recorded on Félicité (Table 8). In 1866, only one endemic species was recorded (Newton, 1867). Diamond (1984) suggests that up to six endemic species may have occurred here although one of the species he lists as present (Seychelles bulbul *Hypsipetes crassirostris*) was not recorded in the current survey and Shah *et al.* (1998) suggest that it has never been recorded on Félicité.

Reports of the Seychelles scops owl (Diamond and Feare, 1980) have not been confirmed, and it is possible that the records were of barn owl *Tyto alba*. The Seychelles kestrel *Falco araea* was reported by Shah *et al.* (1998), but was not observed in the current extensive survey; it seems likely that the species is again extinct on the island. There are various records of the black paradise flycatcher on the island from 1936 to the 1980s (Collar and Stuart, 1985), but recent records probably refer to vagrants from La Digue (Diamond, 1984).

Table 8. The current and prior status of endemic land-birds of the inner Granitics on Félicité. Current status based on observations from visit to the island 8-14th November. Prior status based on Shah *et al.* (1998).

Species		Current status	Prior Status
<i>Falco araea</i>	Seychelles kestrel	Absent	2
<i>Alectroenas pulcherrima</i>	Seychelles blue pigeon	Common	2
<i>Coracopsis nigra barklyi</i>	Seychelles black parrot	Absent	1
<i>Otus insularis</i>	Seychelles scops owl	Absent	3
<i>Collocalia elaphra</i>	Seychelles swiftlet	Absent	3
<i>Hypsipetes crassirostris</i>	Seychelles bulbul	Absent	1
<i>Copsychus sechellarum</i>	Seychelles magpie-robin	Absent	1
<i>Acrocephalus sechellensis</i>	Seychelles warbler	Absent	1
<i>Terpsiphone corvina</i>	Seychelles black paradise flycatcher	Absent	3
<i>Nectarinia dussumieri</i>	Seychelles sunbird	Very common	2
<i>Zosterops modestus</i>	Seychelles white-eye	Absent	1
<i>Foudia sechellarum</i>	Seychelles fody	Absent	1

Prior status: 1 = never recorded; 2 = present; 3 = bred or present in the past but not recorded in recent years.

Three species of seabird were observed; two of these (white-tailed tropicbird *Phaeton lepturus* and fairy tern *Gygis alba*) may breed on Félicité. A third species (a frigate bird *Fregata* sp.) was observed flying over the island.

Mammals

Four mammal species were observed in the course of fieldwork, one endemic (the Seychelles fruit bat *Pteropus seychellensis*) and three introduced (domestic dog *Canis familiaris*, domestic and feral cats *Felis catus* and ship rats *Rattus rattus*). The large herd of feral cattle (*Bos taurus*) previously recorded on Félicité (Racey & Nicoll, 1984) was exterminated in the late 1980s or early 1990s.

Rodent trapping was carried out with two traplines, one on the plateau and one running through hill glacia/cocoplum scrub habitat. A total of 112 trap-nights were carried out and 31 individual rats caught, giving a capture rate of 27.68 rats per 100 trap-nights (unadjusted) or 33.33 per 100 trap-nights (adjusted to account for the effects of closed traps: Cunningham and Moors, 1996). This rate of trapping was slightly lower than average for the season (overall mean for all islands in season is 33.64 rats per 100 trap-nights unadjusted). *Rattus rattus* is a widespread species in Seychelles that can have a significant impact on bird populations as it is a proficient climber (Racey and Nicoll, 1984).

DISCUSSION

Félicité is a relatively large high island supporting a large area of predominantly native woodland. In recent history, native woodland has been more extensive but clearance for timber and coconut plantation in the twentieth century reduced the area of this habitat. Many endemic and native plant species survived the enlargement of plantations (Swabey, 1961) and the economic decline of coconut plantations, as elsewhere in the granitic islands, has already allowed partial recovery of semi-natural woodland. On the plateaux, coconut plantations are still actively managed for production.

While the upland forest retains a “natural” appearance, the composition appears to be very different from that recorded in the early twentieth century. The dominant species recorded in vegetation plots in the current survey (takamaka and *Canthium bibracteatum*) were native but the two species regularly recorded in the early twentieth century (*Intsia bijuga* and *Mimusops sechellarum*) were not recorded in the tree layer of plots. *Intsia* was recorded in the shrub layer of one plot, *Mimusops* was not observed although probably still present on the island.

In addition to the native species recorded, the upland woodland contains a number of introduced plant species, the establishment of which has probably been favoured by previous woodland clearance including cinnamon and cocoplum. Takamaka is a long-lived shade-bearing tree (Friedmann, 1986) that may compete effectively with invasive introduced species. However, takamaka is threatened throughout the granitic islands by the current outbreak of takamaka vascular wilt disease (Ivory *et al.*, 1996). The disease is not yet present on Félicité although it occurs on neighbouring islands, including Praslin and La Digue (Hill *et al.*, submitted), and it seems that, with time, it will reach most

islands in the archipelago that have takamaka. If and when it invades Félicité, tree death and the subsequent opening of the forest canopy are likely to encourage the spread of a number of trees and shrubs, largely invasive alien species.

The invasive alien crazy ant *Anoplolepis gracilipes* is widespread on the island. Unfortunately it was not possible to compare the current extent or severity of the crazy ant infestation with that recorded by previous workers (see Haines *et al.*, 1994), but it seems unlikely that the infestation has progressed beyond the 60% of the island recorded in the 1990s. *Anoplolepis* undoubtedly affects the invertebrate communities of islands where it is present although, on (relatively) complex islands such as Félicité, ant-free areas are likely to occur and it would seem unlikely that the presence of ants would drive any invertebrate species to extinction.

The early introduction of alien mammals probably accounts for the small number of endemic vertebrates recorded on the island.

CONSERVATION RECOMMENDATIONS

Félicité has great potential for conservation. Compared to the other small- and medium-sized islands considered in the island assessment process, it is relatively large with large areas of semi-natural woodland. Its existing biodiversity value for groups other than birds is high: it supports a large number of endemic plants, and some of the invertebrate species identified are also endemic. The limited traffic to and from the island would reduce the potential for reintroduction of alien species (once eradicated) and the island's small human population has a relatively limited effect on the island environment.

Few endemic birds have been recorded on Félicité but this is probably the result of the early introduction of rats and cats. It seems highly likely that a number of endemic species occurred in the past and rehabilitation would allow the introduction of several bird species.

The predominance of native tree species, which support a large number of invertebrates, suggest that several endemic bird species which feed primarily on insects among foliage could survive on the island in the absence of predators. Examples include Seychelles warbler, white-eye, and black paradise flycatcher. Because of the large size of the island, more than one of these species could be considered for introduction. However, the continued spread of takamaka wilt disease between islands threatens the island's takamaka and, if the disease were introduced, would necessitate extensive habitat rehabilitation work (including replanting of other native trees) before reintroductions could occur.

Seychelles magpie-robins feed primarily on invertebrates on the ground. Initial pitfall trap data suggest that invertebrate densities, excluding ants, at the time of sampling were relatively low so the island would not be ideal for introduction of the species. While these pitfall data were from a limited number of sites (10) and trapping was carried out at the end of a particularly dry season, it is certainly the case that hill habitats tend to have lower densities of ground invertebrates than do plateaux. The plateau area of Félicité is small and heavily modified and a large area of the island is made up of glacis, which is of little value to magpie-robins. Although the island is large, population densities of magpie-robins on Félicité would be lower than those on islands with large plateaux. Therefore,

the island should not be considered a priority for introduction of magpie-robins and further study of potential food supply would certainly be necessary if the reintroduction of magpie-robins was considered desirable.

In order for the conservation potential of the island to be realised, the following major actions would be needed:

- Eradication of alien mammals (rats and cats);
- Removal of invasive alien plants, and coconuts (cocoplum and cinnamon are among the most troublesome alien weeds present but there are also large numbers of fruit trees including citrus and mango);
- Further research, especially on food supply for Seychelles magpie-robin;
- Monitoring of crazy ant population density and extent of infestation; and
- Monitoring of takamaka wilt disease.

Appendix 1. Plant species recorded from Félicité (excluding seagrasses)

Taxonomy of dicotyledons as given by Friedmann (1994). Of monocotyledons, as in Robertson (1989). Families arranged in alphabetical order.

Status: E = Endemic; N = Native; I = Introduced.

Abundance: A = Abundant (>1000 individuals observed); C = Common (100 – 1000 individuals observed); F = Frequent (10 – 100 individuals observed); Occasional (3 – 10 individuals observed); R = Rare (1 or 2 individuals observed).

Habitats: Cu = Cultivated area (includes garden weeds and ornamentals); PG = Plateau grassland (includes coconut plantation); PW = Plateau woodland; HW = Hill Woodland; HSc = Hill Scrub; HG = Hill Grassland (includes coconut plantation); Gl = Glacis; BC = Beach Crest; Ma = Marsh.

Previous records from ¹Procter, 1974; ²Averyanov & Kudriavtzeva, 1987; ³Robertson, 1989; ⁴Carlström 1996a.

	Species	Status	Abund.	Habitats	Notes
PTERIDOPHYTA					
Adiantaceae					
1	<i>Acrostichum aureum</i> L.	N	C	Ma	
2	<i>Pellaea ?doniana</i> Hooker	N	C	HW, Gl	
Davalliaceae					
3	<i>Davallia denticulata</i> (Burm.) Mett.	N	C	HW	
4	<i>Nephrolepis biserrata</i> (Sw.) Schott	N	A	HW	
Gleicheniaceae					
5	<i>Dicranopteris linearis</i> Burm.	N	F	Gl	
Lomariopsidaceae					
6	? <i>Bolbitis bipinnatifida</i> (Mett. Ex Kuhn) Ching	?N	R	PSc	
Lycopodiaceae					
7	<i>Lycopodium cernuum</i> L.	?N	R	Gl	
Parkeriaceae					
8	<i>Ceratopteris cornuta</i> (Pal.) Lepr.	N	F	Ma	
Polypodiaceae					
9	<i>Phymatosorus scolopendria</i> (Burm. f.)	N	A	HW, PW	
Psilotaceae					
10	<i>Psilotum nudum</i> Sw.	N	O	HW	
Selaginellaceae					
11	<i>Selaginella</i> sp.	N	O	HW	
GYMNOSPERMAE					
12	<i>Cycas thuarsii</i> Gaud.	I	R	Cu	Only in gardens
ANGIOSPERMAE: Dicotyledons					
Acanthaceae					
13	<i>Asystasia</i> sp. B (<i>sensu</i> Friedmann)	?I	A	PG, HW, Gl	
14	<i>Justicia gendarussa</i> Burm. f.	?I	R	PG	
Anacardiaceae					
15	<i>Anacardium occidentale</i> L.	I	A	Gl, HSc, HW	
16	<i>Mangifera indica</i> L.	I	A	HW	
17	<i>Spondias cytherea</i> Sonn.	I	R	PG	
Annonaceae					
18	<i>Annona muricata</i> L.	I	O	HW	

	Species	Status	Abund.	Habitats	Notes
Apocynaceae					
19	<i>Catharanthus roseus</i> (L.) G. Don.	I	C	Gl	
20	<i>Ochrosia oppositifolia</i> (L.) K. Schum.	N	F	HW	
21	<i>Plumeria obtusa</i> L.	I	R	Cu	Only in gardens
22	<i>Plumeria rubra</i> L.	I	O	Cu	Only in gardens
23	<i>Tabernaemontana coffeoides</i> Boj. ex. A. DC.	N	C	HW, HSc	
24	<i>Thevetia peruviana</i> K. Schum.	I	O	Cu	Only in gardens
Araliaceae					
	<i>Gastonia crassa</i> (Hemsl.) F. Friedmann	E	-	-	Previous record ¹ ; in error for <i>G. sechellarum</i> ?
25	<i>Gastonia sechellarum</i> (Baker) Harms.	E	C	HW, HSc	
26	<i>Polyscias</i> sp.	I	O	Cu	Only in gardens
Asclepiadaceae					
27	<i>Sarcostemma viminale</i> (L.) Alton	N	O	Gl	
Bignoniaceae					
28	<i>Tabebuia pallida</i> (Lindl.) Miers.	I	C	PW	
Bombacaceae					
29	<i>Ceiba pentandra</i> (L.) Gaertn.	I	R	Cu	Only in gardens
Boraginaceae					
30	<i>Cordia subcordata</i> Lam.	N	F	BC	
31	<i>Tournefortia argentea</i> L. f	N	R	BC	
Brexiaceae					
32	<i>Brexia madagascariensis</i> (Lam.) Ker Gawl. subsp. <i>microcarpa</i> (Tul.) F. Friedmann	E (ss)	O	HW	
Cactaceae					
33	<i>Opuntia vulgaris</i> Mill.	I	R	PG, Gl	
34	<i>Rhipsalis baccifera</i> (J. Mill.) Stearn	N	R	Gl	
Caesalpiniaceae					
35	<i>Caesalpinia bonduc</i> (L.) Roxb.	N	R	HW	
36	<i>Caesalpinia pulcherimma</i> (L.) Sw.	I	R	Cu	Only in gardens
37	<i>Intsia bijuga</i> (Colebr.) O. Kuntze	N	F	HSc, HW	
38	<i>Senna occidentalis</i> (L.) Link	I	R	PG	
39	<i>Tamarindus indica</i> L.	I	F	PG, HW	
Capparaceae					
	<i>Cleome viscosa</i> L.	I	-	-	Previous record ³
Caricaceae					
40	<i>Carica papaya</i> L.	I	O	Cu, PG, HW	
Casuarinaceae					
41	<i>Casuarina equisetifolia</i> J. R. & G. Foster	I	F	Gl	
Chrysobalanaceae					
42	<i>Chrysobalanus icaco</i> L.	I	A	HW, HSc, Gl	
Combretaceae					
43	<i>Terminalia catappa</i> L.	?N	A	BC, HW	
Compositae					
44	<i>Coreopsis lanceolata</i> L.	I	R	Cu	Only in gardens
45	<i>Elephantopus mollis</i> H. B. K.	I	F	HW	
46	<i>Emilia sonchifolia</i> (L.) Wight	I	F	PG	
47	<i>Melanthera biflora</i> (L.) Wild	?N	O	PG	
48	<i>Vernonia cinerea</i> (L.) Less.	I	A	PG	
Convulvulaceae					
49	<i>Ipomoea batatas</i> (L.) Lam.	I	O	Cu	Only in gardens

	Species	Status	Abund.	Habitats	Notes
50	<i>Ipomoea obscura</i> (L.) Ker Gawl.	I	F	PG, HW	
51	<i>Ipomoea macrantha</i> Roem. & Schultes	N	C	HW	
52	<i>Ipomoea mauritiana</i> Jacq.	?I	C	HW, HG	
53	<i>Ipomoea pes-caprae</i> (L.) R. Br.	N	A	BC	
Crassulaceae					
54	<i>Kalanchoe pinnata</i> (Lam.) Pers.	I	C	HW	
Ebenaceae					
55	<i>Diospyros sechellarum</i> (Hiern.) Kosterm.	E	C	HW, HSc	
Erythroxylaceae					
56	<i>Erythroxylum sechellarum</i> O. E. Schulz	E	C	HW, HSc	
Euphorbiaceae					
57	<i>Acalypha hispida</i> Burm. f.	I	R	Cu	Only in gardens
58	<i>Acalypha wilkesiana</i> Muell. Arg.	I	F	Cu	Only in gardens
59	<i>Euphorbia hirta</i> L.	I	A	PG	
60	<i>Euphorbia pyrifolia</i> Lam.	N	C	GI	
61	<i>Euphorbia thymifolia</i> L.	I	O	BC, PG	
	<i>Excoecaria benthamiana</i> Hemsl.	E	-	-	Previous record ⁴
62	<i>Jatropha curcas</i> L.	I	R	PG	
63	<i>Jatropha pandurifolia</i> L.	I	R	Cu	Only in gardens
64	<i>Manihot esculenta</i> Crantz	I	O	Cu, HW	
65	<i>Pedilanthus tithymaloides</i> (L.) Poit.	I	O	PG, Cu	
66	<i>Phyllanthus acidus</i> (L.) Skeels	I	R	Cu	Only in gardens
67	<i>Phyllanthus</i> sp.	I	C	PG, GI	
Flacourtiaceae					
	<i>Aphloia theiformis</i> (Vahl.) Benn	E	-	-	Previous record ⁴
	ssp. <i>madagascariensis</i> (Clos.) H. Perr.	(var.)			
	var. <i>sechellensis</i> (Clos.) Friedmann				
68	<i>Ludia mauritiana</i> Gmel. var. <i>sechellensis</i> F. Friedmann	E	A	HW	
		(var.)			
Goodeniaceae					
69	<i>Scaevola sericea</i> Vahl.	N	C	BC	
Guttiferae					
70	<i>Calophyllum inophyllum</i> L.	N	A	HW, BC	
Hernandiaceae					
71	<i>Hernandia nymphaeifolia</i> (Presl) Kubitzki	N	F	BC	
Labiatae					
72	<i>Plectranthus amboinicus</i> (Lour.) Spreng.	?I	C	GI	
Lauraceae					
73	<i>Cinnamomum verum</i> Presl.	I	O	HW	
Lecythidaceae					
74	<i>Barringtonia asiatica</i> (L.) Kurtz	N	O	BC	
Loganiaceae					
75	<i>Strychnos spinosa</i> Lam.	I	C	HSc, PG, HW	
Malvaceae					
76	<i>Hibiscus rosa-sinensis</i> L.	I	O	Cu	Only in gardens
77	<i>Hibiscus tiliaceus</i> L.	N	F	BC	
78	<i>Sida acuta</i> Burm. f.	I	F	PG	
79	<i>Sida cordifolia</i> L.	?N	R	GI	
80	<i>Thespesia populnea</i> (L.) Soland. ex Correa	N	F	BC	
Melastomataceae					
81	<i>Memecylon elaeagni</i> Blume	E	A	HSc, HW	

	Species	Status	Abund.	Habitats	Notes
	Meliaceae				
82	<i>Xylocarpus moluccensis</i> (Lam.) Roem.	N	F	BC	
	Mimosaceae				
83	<i>Adenanthera pavonina</i> L.	I	C	HW	
84	<i>Mimosa pudica</i> L.	I	A	PG, HSc	
	Moraceae				
85	<i>Artocarpus altilis</i> (Parkins.) Fosb.	I	F	PG	
86	<i>Artocarpus heterophyllus</i> Lam.	I	R	PG	
	<i>Ficus bojeri</i> Baker	N	-	-	Previous record ¹
87	<i>Ficus lutea</i> Vahl.	N	C	HW, GI, PG	
88	<i>Ficus reflexa</i> Thunb. ssp. <i>seychellensis</i> (Baker) Berg	E (ss)	C	HW, GI, PG	
89	<i>Ficus rubra</i> Vahl.	N	F	GI, HW	
	Moringaceae				
90	<i>Moringa oleifera</i> Lam.	I	F	PG, HW	
	Myrtaceae				
91	<i>Psidium guajava</i> L.	I	O	PG, HSc	
92	<i>Syzygium samarangense</i> (Bl.) Merr. et Perry	I	R	Cu	
93	<i>Syzygium wrightii</i> (Baker) A. J. Scott	E	F	GI, HW	
	Nyctaginaceae				
94	<i>Bougainvillea</i> sp. cultivars	I	O	Cu	Only in gardens
	Onagraceae				
	<i>Ludwigia erecta</i> (L.) Hara	I	-	-	Previous record ³
95	<i>Ludwigia octovalvis</i> (Jacquin) Raven	?I	F	Ma	
	Oxalidaceae				
96	<i>Averrhoa bilimbi</i> L.	I	O	HW	
	Papilionaceae				
97	<i>Abrus precatorius</i> L.	?N	A	HW, HSc	
98	<i>Canavalia cathartica</i> Thouars.	N	F	BC, PG	
99	<i>Dendrolobium umbellatum</i> (L.) Benth.	N	O	BC	
100	<i>Desmodium incanum</i> DC.	I	A	PG, HSc	
101	<i>Desmodium triflorum</i> (L.) DC.	I	C	PG	
102	<i>Gliricidia sepium</i> (Jacq.) Walp.	I	F	PG, HW	
103	<i>Indigofera tinctoria</i> L.	I	C	PG	
104	<i>Mucuna gigantea</i> (Willd.) DC.	N	O	HW	
105	<i>Teramnus labialis</i> (L.) Spreng.	I	C	PG, HSc	
106	<i>Vigna marina</i> (Burm.) Merr.	N	O	BC, PG	
	Passifloraceae				
107	<i>Passiflora foetida</i> L.	I	F	HW	
108	<i>Passiflora suberosa</i> L.	I	A	PG, HSc, HW	
	Portulacaceae				
109	<i>Portulaca oleracea</i> L.	?N	R	PG	
	Rhamnaceae				
110	<i>Colubrina asiatica</i> (L.) Brogn.	N	F	BC, HW	
	Rubiaceae				
111	<i>Canthium bibractatum</i> (Baker) Hiem.	N	A	HW, HSc	
112	<i>Mitracarpus hirtus</i> (L.) DC.	I	F	GI	
113	<i>Morinda citrifolia</i> L.	?I	C	HW, GI	
114	<i>Paragenipa wrightii</i> (Baker) F. Friedmann	E	C	HW, GI	
	<i>Pentodon pentandrus</i> (Schumach. & Thonn.)	I	-	-	Previous record ³
115	<i>Tarenna sechellensis</i> (Baker) Summerh.	E	C	HW	
	Rutaceae				
116	<i>Citrus</i> spp.	I	A	HW, Cu	

Species	Status	Abund.	Habitats	Notes
Sapindaceae				
117 <i>Allophylus pervillei</i> Blume	N	A	HW	
118 <i>Dodonea viscosa</i> Jacq.	N	O	HSc	
Sapotaceae				
<i>Minusops sechellarum</i> (Oliv.) Hemsl.	E	-	-	Previous record ¹
119 <i>Northea hornei</i> (M. M. Hartog) Pierre	E	R	HW	
Scrophulariaceae				
120 <i>Striga asiatica</i> (L.) O. Kuntze	?I	C	HG, HSc	
Sterculiaceae				
121 <i>Heritiera littoralis</i> Ait.	N	R	HW	
Tiliaceae				
122 <i>Triumfetta rhomboidea</i> Jacq.	I	O	Gl	
Turneraceae				
123 <i>Turnera angustifolia</i> Miller	I	C	PG, HSc	
Umbelliferae				
124 <i>Centella asiatica</i> (L.) Urb.	?I	C	Ma	
Verbenaceae				
125 <i>Premna serratifolia</i> L.	N	A	HW, Gl	
126 <i>Stachytarpheta jamaicensis</i> (L.) Vahl.	I	A	PG	
127 <i>Stachytarpheta urticifolia</i> (Salisb.) Sims.	I	C	HW	
128 <i>Vitex trifolia</i> L.	I	R	PG	
ANGIOSPERMAE: Monotyledons				
Agavaceae				
129 <i>Agave sisalana</i> (Perr. ex Engelm.) Drum. & Prain	I	C	HW	
130 <i>Furcraea foetida</i> (L.) Haw.	I	C	Gl, HSc	
Amaryllidaceae				
131 <i>Crinum ?asiaticum</i> L.	?I	O	Cu	Only in gardens
132 <i>Hymenocallis littoralis</i> (Jacq.) Salisb.	?I	C	Cu, HW	
Araceae				
133 <i>Colocasia esculenta</i> (L.) Schott	I	F	Ma	
134 <i>Dieffenbachia sequine</i> (Jacq.) Schott	I	R	Cu	Only in gardens
135 <i>Epipremnum pinnatum</i> (L.) Engel. cv. aureum	I	R	Cu	Only in gardens
136 <i>Protarum sechellarum</i> Engl.	E	O	HW	
Bromeliaceae				
137 <i>Ananas comosus</i> (L.) Merr.	I	F	Gl	
Commelinaceae				
138 <i>Commelina</i> sp.	?I	C	Gl	
139 <i>Tradescantia spathacea</i> Swartz.	I	F	Cu	Only in gardens
Cyperaceae				
140 <i>Cyperus halpan</i> L.	?	O	Ma, Gl	
<i>Cyperus iria</i> L.	?	-	-	Previous record ²
141 <i>Cyperus ?difformis</i> L.	?	O	HW	
142 <i>Eleocharis</i> sp.	N	C	Ma	
143 <i>Fimbristylis ?complanata</i> (Retz.) Link	?	C	Gl	
144 <i>Fimbristylis cymosa</i> R. Br.	?	A	PG	
145 <i>Fimbristylis ?dichotoma</i> (L.) Vahl	?	O	Gl	
146 <i>Fimbristylis</i> sp. (glacis sedge)	?	O	Gl	
147 <i>Kyllinga polyphylla</i> Willd. ex Kunth	N	C	HSc	
<i>Kyllinga tenuifolia</i> Steud.	?			Previous record ²
148 <i>Lophoschoenus hornei</i> (C. B. Cl.) Stapf.	E	C	Gl	
149 <i>Mariscus dubius</i> (Rottb.) Fischer	N	A	BC, PG, HSc	

	Species	Status	Abund.	Habitats	Notes
	<i>Mariscus paniceus</i> (Rottb.) Vahl.	N	-	-	Previous record ³
150	<i>Mariscus pennatus</i> (Lam.) Domin.	N	O	Ma	
151	<i>Pycreus polystachyos</i> (Rottb.) P. Beauv.	?	C	Ma	
152	<i>Thoracostachyum floribundum</i> (Nees) C.B.Cl.	E	F	HW	
Flagellariaceae					
153	<i>Flagellaria indica</i> L.	N	C	HW	
Gramineae					
154	<i>Brachiara umbellata</i> (Trin.) W. D. Clayton	N	A	PG, HW, HSc	
155	<i>Cymbopogon</i> sp.	I	O	Cu	Only in gardens
156	<i>Dactyloctenium ?ctenoides</i> (Steud.) Bosser	?	C	BC	
157	<i>Digitaria didactyla</i> Willd.	N	O	BC	
158	<i>Digitaria</i> sp.	?	O	PG	
159	<i>Enteropogon sechellensis</i> (Baker) Dur. & Schinz	N	C	Gl, PG	
160	<i>Eragrostis tenella</i> (L.) P. Beauv.	?	C	BC, PG	
161	<i>Eragrostis ?tenella</i> var. <i>insularis</i> Hubb.	?	C	BC, PG	
162	<i>Heteropogon contortus</i> (L.) P. Beauv.	?	A	Gl	
163	<i>Ischaenum heterotrichum</i> Hack.	?	A	PG	
164	<i>Oplismenus compositus</i> (L.) P. Beauv.	N	A	HW, HSc	
165	<i>Panicum brevifolium</i> L.	N	A	HW	
166	<i>Panicum maximum</i> L.	?	C	PG, HG	
167	<i>Paspalum</i> sp.	?	C	Gl	
168	<i>Pennisetum polystachyon</i> (L.) Schult.	?	C	Gl	
169	<i>Saccharum officinarum</i> L.	I	O	Cu	Only in gardens
170	<i>Sporobolus ?virginicus</i> (L.) Kunth.	N	O	BC	
171	<i>Stenotaphrum dimidiatum</i> (L.) Brogn.	N	A	PG, HW	
Hypoxidaceae					
172	<i>Hypoxidia rhizophylla</i> (Baker) Dur. & Schinz	E	O	Gl	
Liliaceae					
173	<i>Dracaena reflexa</i> Lam. var. <i>angustifolia</i> Baker	N	A	HW, Gl	
Lemnaceae					
	<i>Lemna perpusilla</i> Torrey	?	-	-	Previous record ²
Musaceae					
174	<i>Musa</i> sp. (<i>M. ?sapientum</i>)	I	F	HW, Cu	
Orchidaceae					
175	<i>Cynorkis ?sechellarum</i> Aver.	E	F	HW	
176	<i>Oeoniella aphrodite</i> Schltr.	N	F	HW	
177	<i>Vanilla phalaenopsis</i> Reichb. f.	E	A	HW	
178	<i>Vanilla planifolia</i> Andrews	I	C	HW	
Palmae					
179	<i>Cocos nucifera</i> L.	N	A	PG, BC, HW	
180	<i>Deckenia nobilis</i> Wendl.	E	C	HW	
181	<i>Lodoicea maldivica</i> (Gmel.) Pers	E	O	HW	
182	<i>Phoenicophorium borsigianum</i> (K. Koch) Stuntz	E	F	HW	
183	<i>Phoenix dactylifera</i> L.	I	R	Cu	One old palm, in garden
Pandaneaceae					
184	<i>Pandanus balfourii</i> Mart.	E	C	Gl, BC	
185	<i>Pandanus multispicatus</i> Balf. f.	E	O	Gl	
186	<i>Pandanus sechellarum</i>	E	F	HW	
187	<i>Pandanus utilis</i>	I	O	PG	

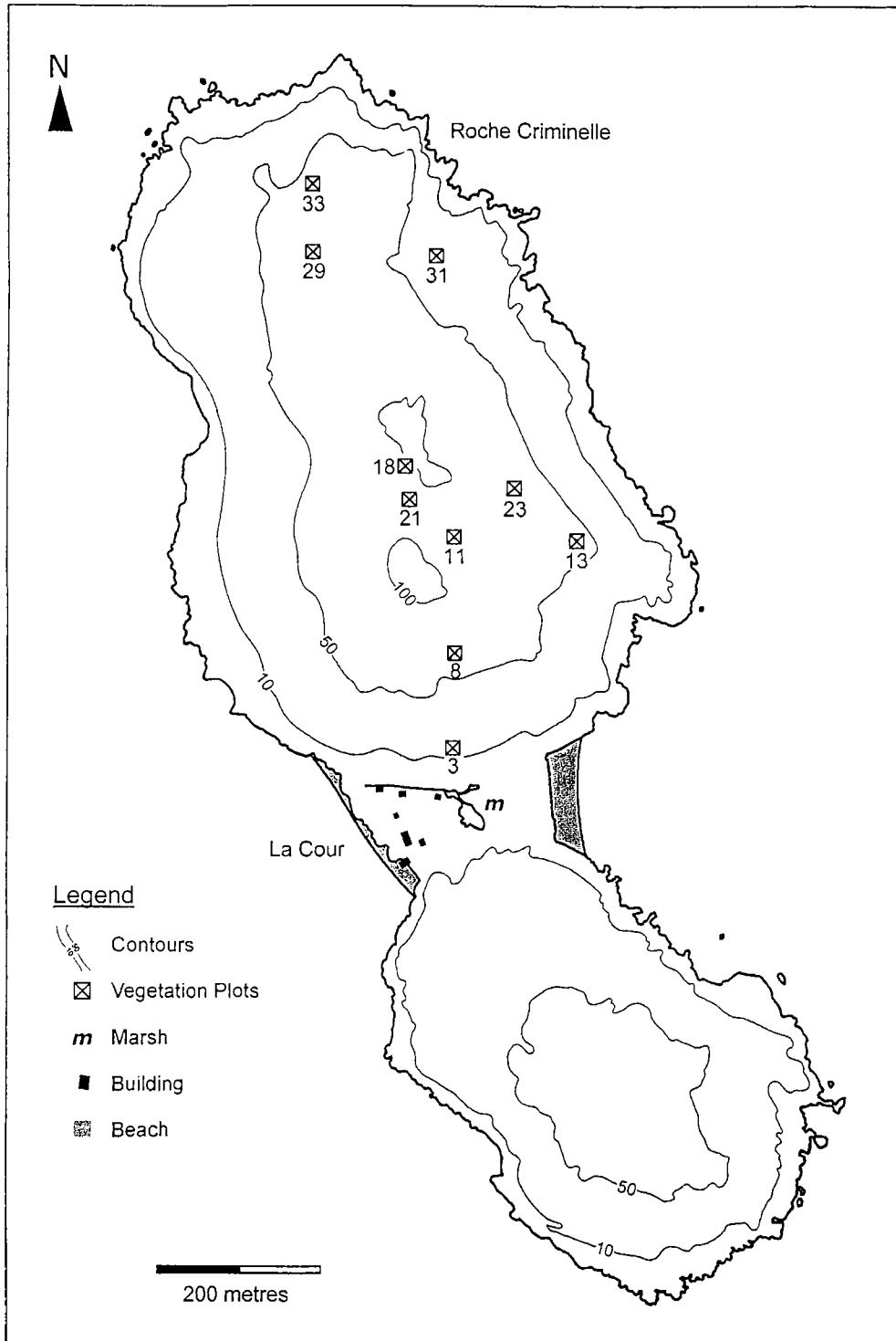


Figure 1. Grande Soeur: Physical, showing location of vegetation plots.