

## Fungi (by Petra White)

Along the foreshore growing on driftwood we found a collection of a tiny black fungus. A sample was collected and later identified by Landcare scientist Peter Johnston from its characteristics in culture as *Nemania maritima*, a species described by Ju and

Rogers (2002) and supposedly confined to mangrove wood. This is the first time the species has been recorded in New Zealand and has previously only been reported from Taiwan.

### Reference

Ju, Y.M.; Rogers, J.D. (2002): The genus *Nemania* (Xylariaceae), *Nova Hedwigia* **74**: 75-120.

### Fungi

\* = exotic

(L) = previously recorded as present by Landcare Research

<i>Agaricus</i> sp.	<i>Gloeoporus dichrous</i> (L)	<i>Porostereum fulvum</i> (L)
<i>Aleurodiscus ochraceoflavus</i>	<i>Glomerella cingulata</i> (L)	<i>Pycnoporus coccineus</i>
<i>Amanita muscaria</i> * (Lyn Hume pers. comm.)	<i>Hymenochaete villosa</i> (L)	<i>Rosellinia radiciperda</i> (L)
<i>Amanita</i> sp. (black cap under <i>Kunzea</i> )	<i>Hyphodontia barba-jobi</i> (L)	<i>Schizopora radula</i> (L)
<i>Antrodia vaillantii</i> (L)	<i>Hysterangium neotunicatum</i>	<i>Scleroderma</i> sp.
<i>Antrodiella zonata</i>	<i>Lanzia</i> sp. (L)	<i>Septoria passifloricola</i> (L)
<i>Asbolisia</i> sp. (L)	<i>Lycoperdon perlatum</i> (L)	<i>Stereum hirsutum</i> (L)
<i>Biscogniauxia capnodes</i> var. <i>rumpens</i>	<i>Meliolina leptospermi</i> (L)	<i>Stereum illudens</i>
<i>Chaetomium trigonosporum</i> (L)	<i>Nemania maritima</i> (on driftwood)	<i>Stereum ostrea</i> (L)
<i>Coltricia cinnamomea</i> (L)	<i>Nemania</i> sp. (on pine wood)	<i>Stereum vellereum</i> (L)
<i>Coltricia strigosa</i> (L)	<i>Phellinus wahlbergii</i>	<i>Suillus granulatus</i> *
<i>Cyclomyces tabacinus</i>	<i>Phlebia livida</i> (L)	<i>Thelephora terrestris</i> *
<i>Echinochaete russiceps</i> (L)	<i>Plectania rhytidia</i> (L)	<i>Trametes versicolor</i>
<i>Eutypella</i> sp. (L)	<i>Pleurotus australis</i> (L)	<i>Trametes zonata</i> (L)
<i>Ganoderma</i> ?cf. <i>applanatum</i>	<i>Pleurotus djamor</i>	<i>Tremella fuciformis</i> (L)
	<i>Podospora anserina</i> (L)	<i>Trichoglossum hirsutum</i>
	<i>Polyporus arcularius</i> (L)	<i>Wentomyces meliolioides</i>
	<i>Polyporus citreus</i> (L)	

## Field Trip: New Caledonia. 30/11/03 – 11/12/03

Mike Wilcox

Sixteen people from the Auckland Botanical Society visited New Caledonia from 30 November to 11 December 2003. Our objective was to see some of the famous and curious plants of the Territory, and to gain an appreciation of the main features of the flora on acidic (schist), ultramafic (peridotite), and calcareous (coral limestone) substrates. Specialists in the group were able to pursue their particular interests, and there were good opportunities for photography. The weather was mostly fine and pleasant. We concentrated on plants, but there was much to interest the general naturalist and zoologist as well, with many beautiful butterflies, a rich forest birdlife and very plentiful lizards (skinks).

The members of the group were Jessica Beever, Ross Beever, Ewen Cameron, Colleen Crampton, Pam Dale, Geoff Davidson, Anne Fraser, Graeme Hambly, Peter Johnston, Helen Preston-Jones, Jill Rapson, Juliet Richmond, Alison Wesley, Barbara White, Mike Wilcox (Leader) and Maureen Young.

### Central West Coast

**Sunday 30 November:** Auckland to Tontouta (Aircalin SB 411). We had three minibuses awaiting us which were to be our reliable transport for the next nine days. By way of introduction, the journey north from Tontouta to La Foa is notable mainly for the dry open rangeland of *Heteropogon contortus* (Poaceae), extensive woodland of niaouli *Melaleuca quinquenervia* (Myrtaceae), thickets of ironwood *Casuarina collina* (Casuarinaceae) and *Acacia spirorbis* (Fabaceae: Mimosoideae), and hedgerows of the introduced thorny tree *Pithecellobium dulce* (Fabaceae: Mimosoideae). *Furcraea foetida* (Agavaceae) was also much in evidence. Five colourful ornamental flowering trees were commonly seen in the towns – *Bauhinia monandra* (Fabaceae: Caesalpinioideae), *Cassia javanica* (Fabaceae: Caesalpinioideae), *Delonix regia* (Fabaceae: Caesalpinioideae), *Samanea saman* (Fabaceae: Caesalpinioideae), and *Spathodea spathulata* (Bignoniaceae). At one spot near Boulouparis was a small lake infested with water hyacinth (*Eichhornia crassipes*).

The Hotel Banu at La Foa had some interesting trees, including the calabash tree *Crescentia cujete* (Bignoniaceae) with its large green fruit. Accommodation at Refuge de Farino and Hotel Banu (La Foa), with dinner together at Chez Marie & Tomas, Farino.

**Monday 1 December:** We awoke in our bush-clad setting at Farino to the sound of a magnificent dawn (4.15 am) chorus of bird song. Some we recognised were the shining cuckoo (*Chrysococcyx lucidus*) and the local version of our grey warbler, the yellow-sided warbler (*Gerygone flavolateralis*). The morning was spent botanising in the vicinity of the Refuge de Farino where there is a rich forest on schist substrate, with many trees and ferns. One of the commonest trees here, at least on the forest margins, is the introduced rose apple *Syzygium jambos* (Myrtaceae). It is abundantly naturalised, and bore tasty fruit. *Alstonia plumosa* (Apocynaceae), with long, dangling pods, was common on the forest margins.



**Figure 1. *Cycas seemannii*, Turtle Beach.**

In the afternoon we visited Turtle Beach Park near Bourail. This site has a spectacular remnant stand of tall *Araucaria columnaris*, with a thriving population of *Cycas seemannii* in the understorey (Figure 1). The rock here is calcareous (coral limestone); with a coastal flora not unlike that of the coral limestone islands (Loyalty Islands, Isle of Pines). Plants

identified here were *Casuarina equisetifolia* (Casuarinaceae), *Eugenia bullata* (Myrtaceae), *Excoecaria agallocha* (Euphorbiaceae), *Guettarda speciosa* (Rubiaceae), *Hibiscus tiliaceus* (Malvaceae), *Ipomoea pes-caprae* (Convolvulaceae), *Morinda citrifolia* (Rubiaceae), *Ochrosia elliptica* (Apocynaceae), *Pandanus tectorius* (Pandanaceae), *Pemphis acidula* (Lythraceae), *Pouteria sericea* (Sapotaceae), *Scaevola sericea* syn. *S. taccada* (Goodeniaceae) and *Tetragonia tetragonioides* (Aizoaceae). A dominant grass under the araucaria trees was Guinea grass (*Panicum maximum*), preventing regeneration. *Pittosporum pancheri* also grows here.

The coastal hills are completely dominated by one introduced species - *Leucaena leucocephala* - which forms very extensive dense thickets. Two other weeds were recorded: *Solanum torvum* and, and a clambering vine, the elephant creeper *Argyria nervosa* (Convolvulaceae). We concluded the day with a visit to the New Zealand World War II cemetery at Bourail, a picturesque, peaceful, well-kept shrine. Accommodation at Refuge de Farino.

### **Plateau de Dogny**

**Tuesday 2 December:** Our goal today was to reach the Plateau de Dogny, an elevated plateau behind Sarraméa, on acidic (schist) rock. The track begins beside the derelict Hotel Evasion (Figure 2). In this vicinity are numerous planted trees of the local kauri (*Agathis moorei*), but we were not to see this in the wild. The lower slopes were formerly a plantation estate, now overgrown and abandoned. Here were numerous candlenut trees (*Aleurites moluccana*), rain tree (*Samanea saman*), mango (*Mangifera indica*), *Elaeocarpus angustifolius*, weeds such as *Rubus rosifolius*, *Hyptis pectinata*, *Lantana camara*, *Ricinus communis*, *Senna septemtrionalis*, *Bauhinia monandra*, and *Psidium cattleianum*, and old coffee (*Coffea arabica*) plantations which are now regenerating into a sea of seedlings and saplings. Candlenut is quite a feature of the Farino-Sarraméa district and is commonly seen in the forests near the roads, looking quite natural, but evidently an ancient introduction. I found here the rush *Juncus usitatus*, which is not listed in the checklist (Jaffré *et al.* 2001), though the Flora of New South Wales records it from New Caledonia. Giant fig trees (*Ficus prolixa*) were also a feature of the lower elevation forest. The understorey in the evergreen rainforest (forêt dense humide) from c. 300-500 m was dominated by ferns (Figure 3) and a species of *Psychotria* (Rubiaceae). Also common was the juvenile form of *Codiaeum peltatum* (Euphorbiaceae) with attractive, narrow leaves. At c. 500 m we encountered for the first time *Amborella trichopoda* (Amborellaceae), one of the feature species of the Plateau de Dogny. It was in fruit. There was also *Zygogynum pancheri* (Winteraceae). A large, woody liane was in flower, looking a bit like a *Tecomanthe* (Bignoniaceae), or so we thought. It

turned out to be *Oxera subverticillata* (Lamiaceae). *Meryta balansae* (Araliaceae) was frequently seen, and the forests had an abundance of ferns.



**Figure 2. Track to Plateau de Dogny, Sarramea (Ross Beaver).**

From c. 800-1000 m, another outstanding New Caledonian endemic tree was encountered in abundance. It was *Austrotaxus spicata* (Taxaceae), the only Southern Hemisphere representative of the yew family. It looked very like *Podocarpus* and grew scattered in the understorey or in small groves, mostly < 5 m tall. Also at this altitude occurs *Pittosporum heckelii*. Those few of us who reached the plateau itself (1100 m) reported heavy misty conditions and open ground covered in short shrubs and sedges, with *Lycopodium clavatum*, *L. volubile*, *Dracophyllum* and *Babingtonia pinifolia* (Myrtaceae) being common. Accommodation at Refuge de Farino.



**Figure 3. Studying ferns, Plateau de Dogny (Ross Beaver).**

### Mont Mou

**Wednesday 3 December:** This was undoubtedly one of our most arduous days, physically and botanically. It was also one of our most rewarding. We set out from Farino and met up with our local guide Irène Létochart, together with Didier Amarnier, Arnaud Mouly and Giselle Quintane, at the foot of Mont Mou. To get here you take a side road from the main highway off the Col des Pirogues. And so, the climb up Mont Mou. At first there was a secondary forest on acidic substrate, with such plants as *Casearia silvana* (Salicaceae), *Cryptocarya macrocarpa* (Lauraceae),

*Semecarpus atra* (Anacardiaceae), *Meryta balansae* (Araliaceae), *Geitonoplesium cymosum* (Hemerocallidaceae), *Campynemanthe neocaledonica* (Campynemataceae), *Schefflera elegantissim* (Araliaceae), and juvenile *Codiaeum peltatum* (Euphorbiaceae) which soon gave way to very extensive maquis minier shrubland on ultramafic substrate. Our pace slowed and the group started to straggle as we became immersed for the first time in the ultramafic flora. One of the first indicators of a sudden change in geology was the appearance of *Gymnostoma*.

Maquis minier shrubland dominated the lower and middle slopes and ridges, with a profusion of shrubs (Figure 4). Some of those identified were *Babingtonia leratii* (Myrtaceae), *Beaupreopsis paniculata* (Proteaceae), *Cunonia macrophylla* (Cunoniaceae), *Geissois pruinosa* (Proteaceae), *Dracophyllum verticillatum*, *D. ramosum* (Ericaceae), *Grevillea exul* (Proteaceae), *Grevillea gillvrayi* (Proteaceae), *Myodocarpus crassifolius* (Araliaceae), *Myodocarpus lanceolatus* (Araliaceae), *Normandia neocaledonica* (Rubiaceae), *Stenocarpus umbellatus* (Proteaceae), *Scaevola balansae* (Goodeniaceae), *Styphelia albicans* (Ericaceae) and *Xyris pancheri* (Xyridaceae). Abundant ferns were *Pteridium esculentum* and *Gleichenia dicarpa*. One of the most striking features of the maquis vegetation was the prevalence of monocaulous treelets – small unbranched trees with the leaves densely clustered at the branch ends.

At c. 600-700 m we encountered numerous magnificent flowering specimens of *Xeronema moorei* (Figure 5). The summit ridge at 1100-1150 m was characterised by stands of *Nothofagus baumanniae* (Figure 6). This species has thick, large obovate leaves, and was difficult to recognise as a “southern beech”. It is confined to just three ultramafic mountains. The top of the Mont Mou is “cloud” forest, with mosses, liverworts and filmy ferns in evidence. A particularly striking fern was *Crepidomanes pallidum*, a curious glaucous plant growing on banks near the summit. Just below the summit we found several plants of *Hachetta austrocaledonica* (Balanophoraceae). It is a bright orange yellow colour, and a root parasite. One of the outstanding features of the Mont Mou summit forest is the ensemble of conifers. There are two tall, emergent araucarias here, *Araucaria laubenfelsii* and *Araucaria humboldtensis*. In addition, there are several interesting podocarps, namely *Acropyle pancheri*, *Dacrydium lycopodioides*, *Falcatifolium taxoides*, *Podocarpus longefolius*, *Prumnopitys ferruginoides*, and *Retrophyllum comptonii*. Accompanying the conifers was a very rich assemblage of other trees and shrubs such as *Apiopetalum velutinum* (Araliaceae), *Metrosideros microphylla* (Myrtaceae) [in fl.], *Metrosideros oreomyrtus* (Myrtaceae) [this is often an epiphytic tree, like New Zealand’s *M. robusta*], and *Stasburgeria robusta* (Strasburgeriaceae). *Pittosporum pronyense*,

*Hibbertia baudouinii*, *Dracophyllum verticillatum*, *Styphelia macrocarpa* var. *breviloba* and *Styphelia dammarifolia* are also found here.

*dolichandra*, *M. porphyrea*. *Carpolepis laurifolia* is also found here.



**Figure 4. Ascent of Mont Mou, lower maquis (Ross Beever).**

As well as podocarps, Mont Mou is also a rich site for *Metrosideros*, the seven species recorded from here being, *M. microphylla*, *M. nitida*, *M. oreomyrtus*, *M. punctata*, and of section *Mearnsia*, *M. brevistylis*, *M.*



**Figure 5. *Xeronema moorei*, Mont Mou (Ross Beever).**



**Figure 6. *Nothofagus baumanniae*, Mont Mou (Ross Beever).**

We proceeded to Païta to the lovely garden of Daniel and Irène Létocart, and admired the many native plants they are growing. Some that caught my eye were *Syzygium acre* with leaves nearly a metre long, *Callitris sulcata*, a local rare endemic tree found on the rocky banks of the Tontouta River, *Podocarpus lucienii*, with large leaves, *Libocedrus yateensis*, and the very rare palm, *Pritchardiopsis jeanneneyi*. We then headed via Païta and Dumbea to our chalet accommodation at the Auberge de Monts Koghis (500 m), featuring a cheese fondue dinner.

### **Monts Koghis**

**Thursday 4 December:** This was the only day of the expedition with somewhat difficult weather. A low cloud with misty rain enveloped Monts Koghis. An early walk near the auberge revealed some nice examples of New Caledonia's only pitcher plant, *Nepenthes vieillardii* and the beautiful orchid, *Spathoglottis unguiculata*. However, we eventually chanced the misty weather and set off as a group at 11 am for a bush walk, starting with some magnificent forest containing the local endemic *Sloanea koghiensis* and a few nice examples of *Agathis lanceolata*. *Cryptocarya macrocarpa* was a common sub-canopy tree, and *Pittosporum sylvaticum* is another Koghi local endemic. We followed the track to the Cascades, at first in bush, but opening out into interesting maquis

with splendid populations of *Drosera neocaledonicus* on banks. Some of the most prominent flowering shrubs were *Grevillea exul* subsp. *rubiginosa* and *Hibbertia comptonii* (Dilleniaceae). *Cunonia macrophylla* was particularly common, though it was not yet in flower. One solitary specimen of *Araucaria muelleri* was spotted in the bush (there were more high up on the main ridge c. 1000 m of Mt Moné), and soon after we reached our target area (along the track to Mt Moné) to search for *Parasitaxus ustus*. Very quickly we found the host plant, *Falcatifolium taxoides*, in a dense, mixed forest close to the maquis at c. 600 m, and then without too much searching, several nice examples of *Parasitaxus*, one of the true wonders of the plant world. Of further interest in this forest was the abundance of ferns. That evenings accommodation was at the Auberge de Monts Koghis.

**Friday 5 December:** The day started with a pre-breakfast bush walk on Monts Koghis, looking at the bush, and with the fern *Dipteris conjugata* as our principal target. A small population was duly located, immersed in a sea of *Dicranopteris linearis*, with extensive *Melaleuca quinquenervia* above. We stopped to see the giant Max Leclercq houp tree (*Montrouzieria cauliflora*), said to be 2000 years old, and with a present diameter of 1.60 m as measured by Jill Rapson. Another big tree here was a 1.36 dbh specimen of bois bleu (*Hernandia cordigera*).

We all enjoyed Monts Koghis - pleasant accommodation, fine food (including a famous fondue meal), and convenient botanising.

We visited the Tjibaou cultural centre, where as well as the various Kanak exhibits, there was an opportunity to see mangrove vegetation at close range. The dominant mangrove in the inlets around Nouméa is *Rhizophora mucronata*, with also *Avicennia marina*. The Tjibaou centre is constructed of the euphorbiaceous African timber, iroko, (*Chlorophora excelsa* syn. *Milicia excelsa*), chosen for its durability, strength, weatherability, and resistance to cyclones. We arrived at last in Nouméa at the Hotel Le Lagon at Anse Vata - our base for the next four days. There was even botany to be had while swimming at Anse Vata beach, where the seawrack (*Halophila ovalis*) was found growing on the bottom of the sea.

### Grand Massif du Sud

**Saturday 6 December:** Today's main event was a visit to La Chute de Madeleine Botanical Reserve on the Madeleine River, Plaine des Lacs. This is all maquis minier country on the southern ultramafic massif. Irène and Daniel Létocart very kindly joined us for the whole day as our botanical guides (Figs. 7 & 8). The Létocarts are very knowledgeable about the New Caledonian flora, have contributed many fine photographs to the Endemia web site, and have the small tree *Pittosporum letocartiorum* Veillon & Tirel

named after them. Daniel is also an expert on the local birds.



Figure 7. Chute de Madeleine (Alison Wesley).



Figure 8. Jessica Beever & Irene Letocart, Chute de Madeleine.

We had an intensive morning coming to grips with the amazing flora of this reserve. Firstly, there are some remarkable conifers here. *Dacrydium araucarioides* abounds on the ironstone (cuirasse) terrain. On the banks of the Madeleine River grow two rheophytic podocarps - *Dacrydium guillauminii* which is a local endemic here, and *Retrophyllum minus* (syn. *Nageia minor*, *Decussocarpus minor*) which occurs fairly widely in creek beds and lake shores. A third rheophytic conifer, *Podocarpus novae-caledoniae*, is fairly common on the banks of streams. *Neocallitropsis pancheri* (Cupressaceae) is a truly odd-looking conifer here. It is plentiful enough, but the trees are fairly small. Daniel Létocart mentioned that this tree was much exploited in the past for its aromatic heartwood. *Agathis ovata* also occurs here.

Several ferns were noted, including *Pteridium esculentum*, *Lindsaea nervosa*, *Sphenomeris deltoidea*, *Schizaea dichotoma*, *Schizaea laevigatum*, and *Stromatopteris moniliformis*.

Several sedges were common: *Chorizandra cymbaria*, *Costularia fragilis*, *Costularia xyridioides*, *Schoenus brevifolius* and *Tricostularia guillauminii*.

There is a rich flora of shrubs. Some of the ones we got to recognise were *Agatea deplanchei* (Violaceae),

*Alphitonia neocaledonica* (Rhamnaceae), *Amyema scandens* (Loranthaceae) parasitic on *Dacrydium araucarioides* (fl.), *Babingtonia leratii* (Myrtaceae) [by now an old friend as it occurs everywhere] (fl.), *Becariella sebertii* (Sapotaceae), *Bikkia campanulata* (Rubiaceae), *Cloezia artensis* (Myrtaceae), *Boronella verticillata* (Rutaceae)(fl.), *Casearia silvana* (Salicaceae), *Cloezia buxifolia* (Myrtaceae), *Codia discolor* (Cunoniaceae), *Coelospermum balansanum* (Rubiaceae), *Cordylina neocaledonica* (Asparagaceae), *Dianella stipitata*, *Dubouzetia* (Elaeocarpaceae), *Dracophyllum ramosum* (Ericaceae), *Eriaxis rigida* (Orchidaceae), *Eugenia stricta* (Myrtaceae), *Exocarpos pseudocasuarina* (Santalaceae), *Flagellaria indica* (Flagellariaceae), *Garcinia amplexicaulis* (Clusiaceae), *Gardenia aubryi* (Rubiaceae), *Geniostoma celastrineum* (Loganiaceae), *Grevillea exul* subsp. *rubiginosa* (Proteaceae), *Grevillea gillvrayi* (Proteaceae), *Gymnostoma deplancheanum* (Casuarinaceae), *Hibbertia scabra* (Dilleniaceae), *Ilex sebertii* (Aquifoliaceae), *Lomandra insularis* (Asparagaceae), *Megastylis gigas* (Orchidaceae), *Melaleuca gnidioides* (Myrtaceae), *Melodinus balansae* (Apocynaceae), *Montrouziera sphaeroidea* (Clusiaceae), *Myodocarpus fraxinifolius*, *M. lanceolatus* (Araliaceae), *Normandia neocaledonica* (Rubiaceae), *Pancheria alaternoides* (Cunoniaceae), *Pancheria hirsuta* (Cunoniaceae), *Parsonsia populifolia* (Apocynaceae), *Pteritygia marginata* (Celastraceae), *Scaevola beckii* (Goodeniaceae), *Schizaea dichotoma* (Schizaeaceae), *Polyscias (Tieghemopanax) pancheri* (Araliaceae), *Solmsia calophylla* (Thymeleaceae), *Stenocarpus umbelliferus* (Proteaceae), *Storckiella pancheri* (Fabaceae:Caesalpinioideae), *Styphelia albicans* (Ericaceae), *Styphelia cymbulae* (Ericaceae), *Styphelia longistylis* (Ericaceae), *Tarenna hexamera* (syn. *T. leiloba*) (Rubiaceae), *Tristaniopsis glauca* (Myrtaceae), *Tristaniopsis guillainii* (Myrtaceae), *Uromyrtus marginata* (Myrtaceae), and *Xanthostemon auraniticus* (Myrtaceae).

One plant that perhaps deserves singling out for special mention is *Melaleuca brongniartii*, which is a dominant shrub on the ironstone sites, especially near the river, accompanied by *Cloezia aquarum* (Myrtaceae), *Homalium kanaliense* (Salicaceae) and *Pancheria communis* (Cunoniaceae). Also near the river was the monocot *Eriocaulon pancheri* (Eriocaulaceae).

After lunch under the umbrella-like crown of an *Agathis ovata* tree, we explored some more sites in the Plaine des Lacs, particularly at Lac en Huit where we saw a strange lakeside population of dwarf *Retrophyllum minor*, fruiting abundantly. There were nice flowering examples of *Storckiella pancheri* here also. Towards Prony we encountered impressive populations of *Arillastrum gummiferum*, with many trees in full flower. Our timing was fortunate as this tree generally flowers only every seven years.

The old prison site at Prony is in a most picturesque setting on the shore in a sheltered bay. *Araucaria columnaris* grows naturally here though is not abundant. A fine, large coastal leguminous tree seen was *Serianthes sachetae*.

On the return trip back to Nouméa, via Plum and Mont Dore, we paused briefly to view the scattered populations of *Araucaria luxurians* near the sea between Baie de Pirogues and Plum. On the Plaine de Champs de Bataille were some plantations of *Pinus caribaea*.

**Sunday 7 December:** Two of the team, Pam Dale and Helen Preston-Jones, returned home to New Zealand at this point. This was our final major outing on the Grande Terre. In the morning we visited the Parc Provincial de la Rivière Bleue. At the headquarters we much enjoyed looking over the displays at the new visitor centre. It is very well done, covering all aspects of the local natural history. Cyclone Erica struck the park on 14 March 2003, damaging the bridge across to the Rivière Bleue cutting off vehicular access to the best rainforest areas and the giant kaori tree (*Agathis lanceolata*). We had to confine ourselves to the Rivière Blanche where the vegetation was mostly maquis minier, but we did not reach the Fôret les Electriques. However we did get to view tall trees of *Araucaria bernieri* high up on the slopes, and witnessed a mass flowering of the candelabra tree (*Cerberiopsis candelabra*). This tree is monocarpic, so dies after flowering. There were many fine examples of *Pancheria hirsuta* in flower, and also *Grevillea gillvrayi*, *Geissois pruinosa*, *Babingtonia leratii* and *Myodocarpus fraxinifolius*. Out our lunch spot in a patch of gallery forest beside a dry stream were numerous specimens of the palm, *Actinokentia divaricata*.

Without going into any detail, we observed the many and various plantings of native *Araucaria* and *Agathis* species towards the entrance to the Park, and briefly inspected the Araucariaceae arboretum, noting the very coarse-leaved *Araucaria muelleri* and *A. rulei*.

Our final site for the day was the Col de Yaté (300 m), where there is an extensive population of *Agathis ovata* on ironstone. We also saw a few *Araucaria rulei* high up on a ridge, numerous *Dacrydium araucarioides*, and the type plant and locality of the newly-described narrow-leaved maquis podocarp, *Podocarpus beecherae* (de Laubenfels 2003). Other plants of note here were *Melaleuca dawsonii* (formerly *Callistemon suberosum*), with curious whorled leaves, looking like a proteaceous species (Craven & Dawson 1998), the native bamboo (*Greslania rivularis*), *Pittosporum hematommallum*, and the fern *Stromatopteris moniliformis*.

#### Nouméa

**Monday 8 December:** Nouméa. Shopping in the city, and attending to the plant specimen export

arrangements, courtesy of the D. R. N. (Direction des Ressources Naturelles), Province Sud. Ross Beaver photographed *Syzygium longifolium* in flower at the Museum. This species (formerly *Jambos longifolia*) has red cauliflorous flowers and long pendant branches.

We visited the IRD (Institut de Recherche pour le développement) at Anse Vata, just across the road from the Hotel Le Lagon. Here we all had the chance to meet Tanguy Jaffré of Laboratoire de Botanique et d'Écologie Végétale Appliquée, the noted ecologist of New Caledonian vegetation and an authority on the ultramafic flora. He was most helpful, showing us the various poster displays of botanical interest, and assisting with identification of plants. We had a valuable opportunity to do some herbarium browsing (holdings of c. 60 000 specimens), and for our professional botanists to make contact with this important research centre (Figure 9).



Figure 9. IRD Herbarium Noumea (Ross Beaver).

Late in the day (or early at night!) we visited a headland along the coast a short distance from the Hotel Le Lagon, known as Ouen-Toro. It is of Tertiary sediments and supports a rare example of dry sclerophyll forest - a type of vegetation that is much depleted and endangered in western New Caledonia (Gillespie & Jaffré 2003). Ouen-Toro is much modified, but does contain a few of the typical trees and shrubs of the dry sclerophyll forest such as *Acacia spirorbis*, *Casearia silvana*, *Melodinus scandens*, *Cleistanthus stipitatus*, *Leucaena leucocephala*, *Pittosporum cherrieri*, *Premna serratifolia*, *Carissa ovata*, *Malaisia scandens*, *Rhamnella vitiense*, *Sarcomelicope leiocarpa*, *Santalum austrocaledonicum*, *Arytera collina*, *Hybanthus caledonicus* and *Gardenia urvillei*.

## Maré, Loyalty Islands

**Tuesday 9 December:** Nouméa to Maré in the Loyalty Group. Maré is the southernmost of the Loyalty Islands, with an area of 65 000 ha. The highest point is 129 m above sea level. It is a very sparsely populated low, flat, raised coral Miocene limestone island covered in "makatea" tropical rainforest. We stayed in comfort at the Nengone Hotel set in coconut trees (*Cocos nucifera*) located right on the shore in the south-western corner. The proprietor, Henri Fairbanks, was most helpful and courteous. The reef is only about 80 m out from the shore, and within its shelter the erect calcified green alga, *Halimeda cylindracea*, was abundant. Pin colonnaire (*Araucaria columnaris*) grows splendidly close to the sea in both directions from the hotel and is a magnificent natural feature of the island. It was by far the most extensive and impressive coniferous population we saw on the whole trip. Wherever we saw it – cultivated at Farino, at Turtle Beach, at Prony, and here at Maré – the trees had the characteristic bend in the trunk, and the large male catkins had recently fallen to the ground and could be found in abundance.

Here was a grand opportunity to gain familiarity with the tropical Pacific shore vegetation (Figs. 10 & 11). We found Whistler (1992) to be a valuable field guide to many of the plants. Common beach shrubs and small trees on the coast itself or in the coastal thickets and forest were *Hibiscus tiliaceus* (Malvaceae), *Scaevola sericea* (Goodeniaceae), *Excoecaria agallocha* (Euphorbiaceae), *Argusia argentea* (Boraginaceae), *Guettarda speciosa* (Rubiaceae), *Pandanus tectorius* (Pandanaeae), *Acropogon bullatus* (Malvaceae), *Sophora tomentosa* (Fabaceae:Faboideae), *Calophyllum inophyllum* (Clusiaceae), *Morinda citrifolia* (Rubiaceae), *Acacia simplex* (Fabaceae: Mimosoideae), *Myoporum tenuifolium* (Scrophulariaceae), *Ochrosia elliptica* (Apocynaceae), *Delarbrea paradoxa* (Araliaceae), and *Macaranga vedeliana* (Euphorbiaceae). A common scrambler or liane was *Derris trifoliata* (Fabaceae: Faboideae). On the sides of the low limestone cliffs could be found *Bikkia tetrandra* (Rubiaceae), a shrub with large, white flowers, with the low shrub *Pemphis acidula* (Lythraceae) dominant on the rock faces, and the yellow-flowered erect shrub *Suriana maritima* (Surianaceae) common at the back of sandy beaches. Some smaller shore or strand plants observed were *Triumfetta procumbens* (Malvaceae), *Cassytha filiformis* (Lauraceae), *Ipomoea pes-caprae* (Convolvulaceae), *Vigna marina* (Fabaceae: Faboideae), *Canavalia sericea* (Fabaceae: Faboideae), *Lotus australis* (Fabaceae: Faboideae), *Wikstroemia indica* (Thymeleaceae), *Sesuvium portulacastrum* (Aizoaceae), *Clerodendrum inerme* (Verbenaceae), *Dendrolobium umbellatum* (Fabaceae:Faboideae), New Zealand spinach *Tetragonia tetragonioides* (Aizoaceae), *Crinum asiaticum* (Amaryllidaceae), and *Microsorium scolopendria* (Polypodiaceae), *Abutilon julianae* (Malvaceae) and *Grewia crenata* (Malvaceae).



**Figure 10. Mare Island (Ross Beever).**

The interior of the island comprises dense thickets (fourrés) and the roadsides are weedy, some prominent invaders being *Furcraea foetida* (Asparagaceae), *Ricinus communis* (Euphorbiaceae), *Psidium guajava* (Myrtaceae), *Arundo donax* (Poaceae), *Plantago lanceolata* (Plantaginaceae), *Lantana camara* (Verbenaceae), *Schinus terebinthifolius* (Anacardiaceae), *Ipomoea cairica* (Convolvulaceae), *Phyla nodiflora* (Verbenaceae), *Clerodendron speciosissimum* (Verbenaceae), Mexican daisy *Tithonia diversifolia* (Asteraceae), blood berry *Rivina humilis* (Phytolaccaceae), *Stachytarpheta urticaefolia* (Verbenaceae), *Verbena officinalis* (Verbenaceae), and Mexican poppy *Argemone subfusiformis* (Papaveraceae).



**Figure 11. Nengone, Mare Island (Ross Beever).**

Grasses and sedges were quite prominent, and we identified *Imperata cylindrica*, *Mariscus javanicus*, *Cenchrus echinatus*, *Panicum maximum*, and buffalo grass *Stenotaphrum secundatum*. Some cultivated trees seen in gardens were *Duranta erecta*, *Fagraea berteriana*, *Intsia bijuga* and *Terminalia catappa*.

There were some nice local dishes on the menu, such as roussette (flying fox) and coconut crab, which the local people catch at night, using a fresh, split coconut on a stick, as bait.

**Wednesday 10 December:** At Maré we further explored the makatea forest and shore vegetation, this time heading towards the raised (86 m) Cap Wabao and Baie de Pedé. Again we observed the dense growth of *Araucaria columnaris* close to the shore, with abundant seedling and sapling regeneration. Further inland, dense broadleaved forest dominates, with a canopy height of c. 20-22 m, with a sprinkling of magnificent emergent 40 m+ *Araucaria*, but without the regeneration. We struggled to identify the trees in the makatea forest, but some typical representatives are:

<i>Acalypha grandis</i>	Euphorbiaceae
<i>Adenanthera pavonina</i>	Fabaceae:Mimosoideae
<i>Aglaia elaeagnoides</i>	Meliaceae
<i>Baloghia inophylla</i>	Euphorbiaceae
<i>Cassine curtispindula</i>	Celastraceae
<i>Citronella sarmentosa</i>	Icacinaeae
<i>Claoxylon insulanum</i>	Euphorbiaceae
<i>Croton insularis</i>	Euphorbiaceae
<i>Delarbrea paradoxa</i>	Araliaceae
<i>Diospyros calciphila</i>	Ebenaceae
<i>Diospyros fasciculosa</i>	Ebenaceae
<i>Diospyros olen</i>	Ebenaceae
<i>Euroschinus obtusifolius</i>	Anacardiaceae
<i>Ficus microcarpa</i>	Moraceae
<i>Ficus prolixa</i>	Moraceae
<i>Glochidion billardierei</i>	Euphorbiaceae
<i>Macaranga vedeliana</i>	Euphorbiaceae
<i>Olea paniculata</i>	Oleaceae
<i>Pichonia balansana</i>	Sapotaceae
<i>Pittosporum obovatum</i>	Pittosporaceae
<i>Pipturus argenteus</i>	Urticaceae
<i>Pouteria (Planchonella) lifuana</i>	Sapotaceae
<i>Santalum austrocaledonicum</i>	Santalaceae
<i>Schefflera toto</i>	Araliaceae
<i>Serianthes sachetae</i>	Fabaceae:Mimosoideae
<i>Syzygium densiflorum</i>	Myrtaceae
<i>Syzygium pseudopinnatum</i>	Myrtaceae
<i>Xylosma lifuanum</i>	Salicaceae

A general account and species list of New Caledonia's flora of calcareous substrates has been given by Morat, Jaffré and Veillon (2001). We returned to Nouméa in the early evening, staying once again at Hotel Le Lagon.

**Thursday 11 December:** Return to Auckland, Aircalin, SB 410.

### Summary

It is difficult to summarise the highlights of what was a veritable feast of new and spectacular plants, interesting places, and helpful local people. However, in order of magnificence and delight, my two dozen "glad-we-did-not-miss" plants of the expedition are as follows:



- 1 *Araucaria columnaris* (Araucariaceae), Maré Island. Magnificent, tall trees on the edge of the sea.
- 2 *Geissois pruinosa* (Cunoniaceae), abundant cauliflorous red flowers.
- 3 *Storckiella pancheri* (Fabaceae:Caesalpinioideae), yellow flowers, Lac en Huit.
- 4 *Xeronema moorei* (Xeronemataceae), Mt Mou, in full flower.
- 5 *Austrotaxus spicata* (Taxaceae), Plateau de Dogny, the only Taxaceae representative in the southern hemisphere.
- 6 *Argusia argentea* (Boraginaceae), Maré Island, a fine coastal tree, in flower and fruit.
- 7 *Bikkia tetrandra* (Rubiaceae), Maré Island, large white flowers.
- 8 *Arillastrum gummiferum* (Myrtaceae), Prony, in full flower - a rare event.
- 9 *Parasitaxus ustus* (Podocarpaceae), Mts Koghis, a delightful find.
- 10 *Sloanea koghienis* (Elaeocarpaceae), Mts Koghis, great buttresses and bullate leaves.
- 11 *Amborella trichopoda* (Amborellaceae), Plateau de Dogny, the world's most ancestral dicot.
- 12 *Megastylis gigas* (Orchidaceae), Mt Mou, a large white-flowered ground orchid.
- 13 *Pancheria hirsuta* (Cunoniaceae), Parc Provincial Rivière Bleue, a slender, prominent maquis shrub.
- 14 *Cerberiopsis candelabra* (Apocynaceae), Parc Provincial Rivière Bleue, in spectacular flower.
- 15 *Retrophyllum minor* (Podocarpaceae), La Chute de la Madeleine and Lac en Huit, a famous rheophytic podocarp.
- 16 *Dicksonia thysopteroides* (Cyatheaceae), Plateau de Dogny, with peculiar fertile fronds.
- 17 *Metrosideros microphylla* (Myrtaceae), Mt Mou, with brilliant red flowers.
- 18 *Agathis ovata* (Araucariaceae), Col de Yaté, a strange umbrella-shaped tree growing on ironstone.
- 19 *Hachettea austrocaledonica* (Balanophoraceae), Mt Mou, a yellow root parasite.
- 20 *Beaupreopsis paniculata* (Proteaceae), Mt Mou, a striking maquis shrub.
- 21 *Apiopetalum velutinum* (Araliaceae), Mt Mou, a spectacular shrub.
- 22 *Myodocarpus crassifolius* (Araliaceae), Mt Mou, Mts Koghis.
- 23 *Grevillea exul* subsp. *rubiginosa* (Proteaceae, Mt Mou, Mts Koghis, in full flower during our visit.
- 24 *Cycas seemannii* (syn. *C. celebica*), Turtle Beach, Bourail - the only place we saw it.

#### Acknowledgements

Sincere thanks to Irène and Daniel Létocart for guidance in the field on Mont Mou, la Chute de Madeleine, and the Prony district; to Tanguy Jaffré for our visit to the herbarium; and to D. R. N. (Direction des Ressources Naturelles), Province Sud for the permit to collect specimens.

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## Birds observed during Bot Soc trip in New Caledonia

Ewen K Cameron

Although the plants took all the time we could commit to them, I couldn't help but note a few birds during the 30 Nov – 11 Dec 2003 Auckland Bot Soc trip to New Caledonia (for the general trip report see Wilcox 2004). The observations were also limited by obtaining a bird reference (Doughty et al. 1999) after the trip. Areas visited were the southern part of Grande Terre

(the main island), and Maré Island of the Loyalty Group. Unless otherwise stated comments only apply to Grande Terre. For a fuller bird account of southern Grande Terre, compiled 30 Sep – 3 Oct 1998, see the account by Jan Vermeulen: ([http://www.birdtours.co.uk/tripreports/new\\_cal/newcal4/newcal1.htm](http://www.birdtours.co.uk/tripreports/new_cal/newcal4/newcal1.htm)).

#### A. Birds different from New Zealand species

\* = introduced species to New Caledonia. Scientific name supplied where there could be confusion as to which bird species is being referred to.

whistling kite – frequent, open country;

kagu – a flightless endemic, only seen in a small cage at La Fao;