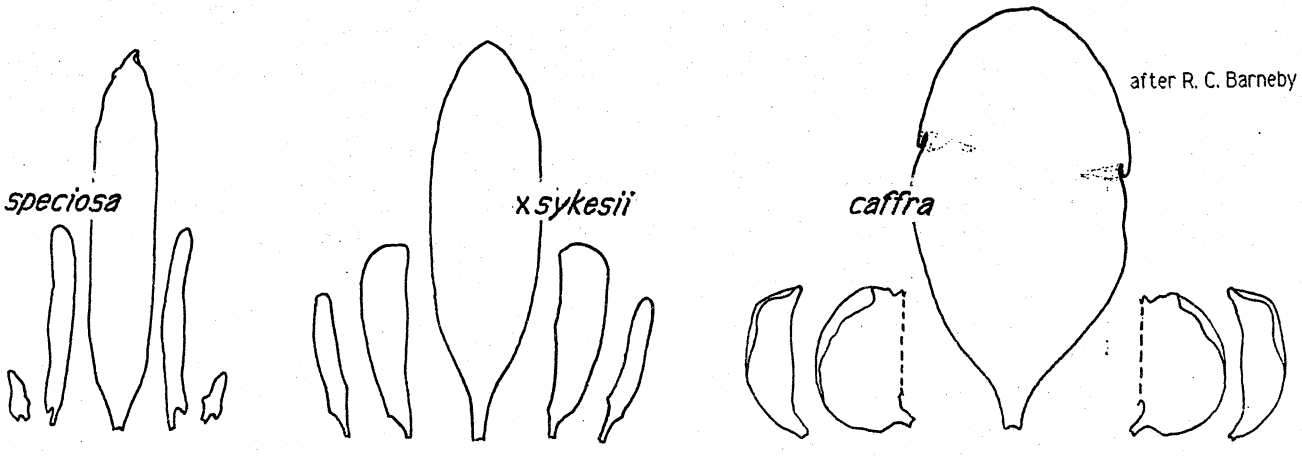
probably one of the former's parents. The multi-stemmed habit is characteristic and so are the leaves, which are larger than those of E. x orba, the leaflets being more elongate and notably heavier in texture, with the veinlets very prominent below.

Erythrina speciosa seems likely to be involved in the parentage not only of E. x orba but also of E. x sykesii, and the floral evidence for this is set out in the accompanying figure (standard, keel petals, wings x 1.2), the other putative parent of E. x sykesii being the South African E. caffra.

Albert Park was planted in the late 1870s, and I would suppose that E. speciosa is one of its original plants. The natural habitat of this Brazilian species is swampy ground, so it is a testimony to its vigour that it has persisted so long in a relatively dry site.

If we knew who supplied the Albert Park plants we would at least know who might have had the capacity to synthesize E. x sykesii. And of course we should now make the cross ourselves.



ACKNOWLEDGEMENT

Alan Esler told me of the correct identity of the Albert Park tree.

REFERENCE

Gardner, R.O. 1992 Coral trees (Erythrina, Papilionaceae) of Auckland. Auckland Bot.Soc.Jnl 47(1):32-35.

Some plants of Kawau Island

R.O. Gardner

In March of this year I spent a week investigating the south-western part of the island for the Department of Conservation. There is a Historic Reserve here of c. 170 ha., its focus being Sir George Grey's Mansion House and his garden and plantings on the valley sides around. Nearly all the rest of the Reserve is covered with dense tall self-sown pines (Pinus radiata and P. pinaster). The trees towards Mansion House

are generally older than those in the eastern half of the area, which have in large part sprung up after the area's abandonment as a farm some time in the '40s.

Because pine is now such a valuable commodity, D.O.C. asked particularly for a botanical assessment of the pine areas and an indication of what might happen if these were to be logged in the near future.

The ecological forces on Kawau are: those of the pines and their dense acidic litter; the appetites of the wallabies (still present in fair number, despite an exclosure fence along the northern boundary and some control hunting by D.O.C.); and the activities of the many weka, which are reputed to make life difficult for rats and mice and perhaps for some kinds of plant seedlings as well. Possums are present too but have been much reduced in number in the last few years; most of the old pohutukawa have recovered well and there is good regeneration of this species in some places, particularly between Lady's Bay and Dispute Cove.

FERNS

Deparia petersenii, Diplazium australe

These two members of the Athyriaceae, especially the former, are very common on dampish sites where the pines are relatively open. Their weedy tendencies are obvious and it seems unlikely to me that they are native plants, especially since they lack Maori names - would not these plants have been a common component of the damaged forest around pre-European settlements of northern New Zealand?

The most successful fern under the pines is Cyathea dealbata, which forms dense tall stands along the valley bottoms; upslope it tends to occur in groves of lower stature, along gullies and in other damp places wherever the litter is relatively thin.

Other terrestrial ferns, though obviously unpalatable, are relatively local and very much less vigorous. In approximate order of abundance they are: Hypolepis ambigua, Pteris tremula, Histiopteris incisa, Paesia scaberula, Asplenium oblongifolium and Pteridium esculentum.

GYMNOSPERMS

Araucaria bidwillii bunya-bunya pine.

This has naturalized in the overgrown plantation on the eastern slopes of Mansion House Valley, so providing what is apparently a first record for New Zealand. The seedlings have a tuberous taproot.

A. heterophylla, Norfolk Island pine, naturalizes slightly more abundantly, with young plants occurring both on the coastal and landward-facing slopes around Momona Point, above Mansion House.

A. columnaris, Cook's Island pine, a native of New Caledonia, seems to be represented by five medium-sized individuals on the slope above Mansion House Bay. The species is very similar to A. heterophylla but has a distinctive columnar habit and (at least in New Zealand), slightly less robust branchlets. These are much healthier looking than the two in Auckland's Western Park, and might be considered to be naturalizations from a no longer extant parent tree; however seedling plants are absent from the scrub here.

Thuja plicata Western red cedar

Seedlings of what is probably this species occur on the northwestern side of Mansion House valley, in the scrub of kanuka, pines and Tasmanian blackwood that has developed after pine-felling here thirteen

years ago. I am not completely certain of the identity of these plants, not having located the parent. If correct this would provide a second N.Z. record, the first being a collection of Ewen Cameron's from Ngongataha (AK).

MONOCOTS

Agapanthus praecox (formerly A. orientalis) agapanthus

This makes a dense cover in several places in the pines around Mansion House Valley, particularly towards the coastal slopes. Sporadic plants are seen here and elsewhere in the Reserve, but I would judge that spread by seed is relatively ineffective.

Asparagus asparagoides smilax

This is abundant through the pines of the Reserve. Flora III NZ describes the plant as being summer-green, but on Kawau in March only new shoots were to be found.

I consider that urgent attention should be given to finding a biological control for this and other members of the genus weedy to N.Z.

Crocosmia x crocosmiflora montbretia

A few plants grow at Mansion House along the creeklet, around the pond, and in the shrubberies. In view of montbretia's poisonous nature and strong capacity to spread by dispersal of corms, it is surprising that it is by no means a common roadside ditch and valley-bottom weed; to the contrary, I was able to find it only on garden debris at the rubbish-dump site. Possibly it has only recently arrived on Kawau, perhaps in the soil of plants brought from the mainland.

Furcraea foetida Mauritius hemp

This plant is abundant in the pines around Mansion House valley and on the coastal slopes from there north to the point past Two House Bay. Since it disperses only by heavy bulbils it is probably still expanding its upslope range. Both spiny and non-spiny forms are present and the dense colony of spiny plants at the south end of Mansion House Valley has among it not only young silver tree ferns but also a good regeneration of palatable natives such as hangehange. I notice that the common name is not given in Flora III NZ, perhaps because the genus is native to the New World and not Mauritius.

Hedychium gardnerianum Kahili ginger

There are clumps of this around Mansion House and other habitations, but the degraded areas close by are generally without the species, nor is it to be found along the stream banks of the Reserve. Perhaps a combination of low seed dispersal rate, intolerance of acidity, and some slight palatability to wallabies, may explain the species' lack of success.

DICOTS

Clerodendrum sp., either glorybower (C. trichotomum) or Cashmere bouquet (C. bungei)

I saw two small colonies of this shrub, at the cemetery and on the track close to the Sunny Bay settlement. Probably it is unpalatable, the crushed leaves having a heavy repellent odour. The new shoots are purple-tomentose.

Presumably it is cultivated somewhere on the island; I could not find it at Mansion House. Flora IV NZ notes that these species have a

strongly rhizomatous habit, and that the former " is a garden escape which tends to naturalize". It was just too late in the season to see whether or not seed is formed by the Kawau plant, but I satisfied myself that the shorter stems were seedlings rather than suckers.

Eucalyptus robusta swamp mahogany

Several old trees occur near the bend in the main road as it rises up from the end of Mansion House Valley. The radiata pine here is fairly open and exposed to the sea on the southeast; boneseed (Chrysanthemoides monilifera) makes a light understorey among which are found numerous young plants (seedlings to poles) of E. robusta. This is a first record for New Zealand.

Ficus rubiginosa rusty fig

Together with the two oldish clean-trunked Moreton Bay figs (E. macrophylla) that grow by the road close to the Mansion House kiosk there are several similar-sized individuals of rusty fig. There is also an c. 5 m tall rusty fig on the drain edge by the workshop-hostel building and a similar plant at the southern end of the lawn. These smaller trees may be recent plantings, but I did find a seedling on the base of one of the garden's Canary Island palms. As the Kawau pines age suitable micro-habitats for figs will form on their boles and stumps.

Hydrocotyle tripartita

No Aucklander who has a mossy clay lawn will be surprised to learn that this adventive is very successful in the Kawau pine forests, occurring on those mesic sites where the pine needles are not so deep as to smother it. Commonly associated species are Callitriche muelleri and Hypericum japonicum. Drier shallowly littered sites have Acaena novae-zelandiae, Microlaena stipoides, Oplismenus imbecillus, Veronica plebeia and Lagenifera lanata. Calla lily (Zantedeschia aethiopica) is very common, especially towards the damper valley bottoms; it can cope with deep litter.

Impatiens balsamina garden balsam

A colony of white-, pink- and lavender-flowered individuals was thriving at the rubbish dump site on the edge of a pile of old garden debris, with seedlings on damp clay nearby.

Passiflora antioquiensis vanilla banana passionfruit

I saw this plant at several places, in degraded scrub at the coast and also on a recently-windthrown large old pine. It is immediately distinctive by its long-pedicelled flowers and the glabrous fruit, which has short lumpy longitudinal ridges. Flora IV NZ records this species only as "wild on a roadside bank east of Kawakawa". I think it is probably a recent arrival to Kawau, perhaps from some local garden.

The common passionfruit, P. edulis, has also naturalized in a few places.

Racosperma melanoxylon Tasmanian blackwood

More or less throughout the Reserve there are numerous old plantings and wildings of all ages. Seedlings occur plentifully near adults on dry pine-dominated sites but seldom grow on, the older plants usually being found only in kanuka-pine scrub. It is notable that except on the dry exposed headlands this species is more successful at naturalizing than the other common wattle here, R. mearnsii. Kawau seems to be somewhat too dry for the best growth of Tasmanian blackwood, or at least for the particular provenance introduced here (in Australia the species

ranges from c. lat. 16° southwards); perhaps not too dry though to prevent the eventual selection here of a weedy strain of the species.

Racosperma longifolia, the Sydney golden wattle, and Paraserianthes lophantha, brush wattle, are also present but only in low numbers.

Salvia repens creeping sage

According to Flora IV NZ this South African species occurs only on Kawau and the Coromandel Peninsula, "mostly in old pastures". It also occurs at Takatu Point (AK). I collected it on Kawau near the coppermine east of Dispute Cove, where there were a few plants on the rocky face of the coastal slope a metre or so above the sea.

Senna septemtrionalis buttercup bush

This plant occurs sporadically throughout the pines of the Reserve, often in open ridge sites away from the coast. Adults are usually accompanied by younger plants but there are no dense or extensive infestations. No doubt though the species would become much more common after disturbance.

Syzygium australe brush cherry

There are old trees on the Mansion House lawn and numerous wild individuals on the slope above to the west, which with its many old pines and other conifers has obviously been man-made forest ever since Grey's time. But the greatest infestation occurs towards the head of the next valley northwards, where there are two old trees (c. 14 m tall, 80 cm basal diam.) at the old dairy site; for hundred metres around, the pines have a brush cherry understorey, thickest and tallest near the parents. The fruits are spread I suppose by tui and native pigeon, and young plants are fairly common throughout the pines of the Reserve. Even though the species is not especially shade-tolerant and therefore not likely to invade direstly into undisturbed forest, it would at least find itself at home in canopy gaps and along creek edges (its Australian habitat). It could become a great nuisance in Northland's pine forests, especially since it has a strong capacity for resprouting after being crushed or cut back.

ACKNOWLEDGEMENTS

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Mosses of the Noises Islands, Hauraki Gulf

Jessica E. Beever

The Noises, a small group of islands and islets in the inner Hauraki Gulf, lie just 25 km from Auckland's city centre at 36° 41'S 174° 58'E. The underlying rock structure of the group is argillite and greywacke of the Waipapa Group (Mayer, 1968). Two larger islands, Motuhoropapa and Otata, together comprise an area of 28 hectares, and rise to heights of 50 m and 61 m respectively. Their vascular plant vegetation and flora have been documented by Mason & Trevarthen (1950), Atkinson (1960) and Mason et al (1960). A list of six mosses collected on Otata were