SPECIES LISTS ADDITIONS

E.K. Cameron

1. Lake Ototoa (see Mackinder 1984)

Glossostigma submersum in Tanner et al 1986
Lilaeopsis lacustris in Tanner et al 1986.

2. Great Barrier (see Bartlett & Gardner 1983)

Austrofestuca littoralis Cameron, 23 March 1986, AKU 19604
Juncus sarophorus Dumbell, 14 August 1986, AKU 19343.

REFERENCES

Bartlett, J.K. & R.O. Gardner. 1983. Flora of Great Barrier Island. Auck. Bot. Soc. Bulletin No. 14.

Mackinder, J. 1984. Some botanical notes on Lake Ototoa, South Head, Kaipara. Auck. Bot. Soc. Newsletter 39(2): 25-29.

Tanner, C.C., J.S. Clayton & L.M. Harper. 1986. Observations on aquatic macrophytes in 26 northern New Zealand lakes. N.Z. Jl. Bot. 24(4): 539-551.

Received 27 April 1987.

ROOT GRAFTING IN PURIRI

R.E. Beever

On a recent visit to Twin Kauri Scenic Reserve near Tairua, I noticed an old stump near the entrance stile. The horizontal cut surface was eroded and partially covered with Paesia scaberula and juvenile Blechnum filiforme, and two young putaputaweta (Carpodetus serratus) had even established in a pocket of rotting wood. Despite its age, which I would guess to be at least 50 years, the stump was nevertheless easily recognisable as being that of puriri (Vitex lucens). What particularly caught my eye however was the bark which, in contrast to the top surface of the stump, looked surprisingly fresh. On scratching it I found that it was indeed still alive! I suggest that the explanation for this curiosity is that the stump is connected to adjacent trees by natural root grafts. Any or all of three nearby puriris are probably involved. At 950 to 1000 mm d.b.h. these are of similar size to the stump tree (700 mm diameter at knee height) and all three are within 5-7 m of the

stump. The canopies of two of the trees almost overtop the stump and large roots are visible on the forest floor.

Beddie (1941, T.R.S.N.Z. 71: 199-203) records many examples of natural root grafting based on direct observation. He lists puriri in his category of species where grafting is strongly suspected but definite proof is lacking. My observations offer some further support for the existence of the phenomenon in this species.

NOTES ON REWAREWA (KNIGHTIA EXCELSA)

R.O. Gardner

Cheeseman's description (1890) of rewarewa pollination by the tui and similar birds is well known. He mentions the "strong and very peculiar" and "unpleasant" odour of the flowers without further description or explanation. One does not need, however to dwell in the Danjanzen jungles to be able to recognize the smell of sour milk, so characteristic of bat-pollinated flowers. Associated features are the dark red flesh-like nature of the perianth and the copious thin nectar. Bats and other small furry animals are known pollinators for Australian Proteaceae and New Zealand bats have yielded rewarewa pollen in capture experiments (see Godley 1979).

Other facts about the course of pollination (leaving the role of the tui aside) are harder to come by. The perianth opens first both at base and apex, at the latter exposing the very tip of the club-shaped end of the style. Kirk (1899) implied that only this tip is stigmatic and that cross-pollination occurred at this early stage. Cheeseman was vague about the exact location of the stigma, but believed that it became receptive late, after the covering of its own pollen had been removed.

The stigma seems to be correctly described in Laing and Blackwell (1964) as "depressed in a small cup at the top of the style." One might guess that the pollen and nectar-soaked chests of bat or bird would come into contact with the stigma at the early stage, as the animal pushed towards the nectar exposed at the flower base.

Nor is it certain that cross-pollination is absolutely necessary. More or less isolated trees around Auckland city produce rather few fruit, but Godley (1979) has observed a lone tree in Dunedin that regularly fruits and produces godd seed. More observations should be made within the natural range of the species.

Another part of rewarewa biology that should be better known concerns its root system. Like many Austalian members of this family rewarewa develops so-called "proteoid" roots, aggregations of short fine laterals on the main roots. These fuzzy-looking rootlets are well seen on seedlings growing in a clay soil, if the plant is dug up carefully and washed.

Proteoid roots were discovered only in the 1960s. They are believed to facilitate phosporus-uptake from deficient soils. Their presence on rewarewa could explain why young plants in gumland scrub are (often by a considerable margin) faster-growing than the similar-aged manuka around.