species present are: *Corokia cotoneaster, Myrsine divaricata, Coprosma propinqua, Coprosma rigida, Aristotelia fruticosa, Melicytus* sp. aff. *alpinus* (1.5 m tall) and *Rubus cissoides*. It is unlikely that a population known from a single plant will have survived, but in view of the species' endangered status a thorough search of the forest margins of the valley over a more extensive area would be worthwhile.

REFERENCE

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GERMINATING MATAI SEEDS : AN INADVERTENT EXPERIMENT

COLIN BURROWS

Studying the germination habits of seeds is a bit like gold prospecting. A lot of hard, grinding work can be got through while achieving low returns. However, sometimes one strikes it lucky and a nugget turns up. Here I want to describe a chance discovery made about the germination of seeds of matai (*Prumnopitys taxifolia*).

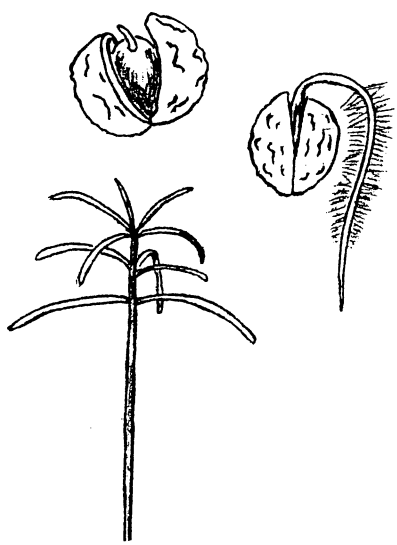
In mid-April 1988 I collected freshly-fallen matai seeds, still with the fleshy outer tissues present, from the ground under a big matai tree at Ahuriri Valley, Western Banks Peninsula. That was a very good year for matai seeding in lowland sites throughout Banks Peninsula. I had hoped to get the seeds ready for a controlled experiment in petri dishes in a glasshouse at the University of Canterbury. However my time was taken up with teaching and field trips so I washed the seeds (605 in all) in tap water and put them in a plastic bag under a bench in a shade-house. No direct sunlight reached them and otherwise the light intensity was low. Though open to the air they remained moist and cool. They lay there, forgotten, I must confess, until in spring I remembered them again. In mid-September, with the thought of starting a proper trial, I removed the bag and tipped out the contents, a rather soggy mess of seeds plus the rotted remains of the fleshy tissues. To my surprise 30 of the seeds were already well germinated and the hard inner coats of others had begun to split.

I planted the germinated seeds out in small soil trays and, on the grounds of not interfering too much with a good thing, returned the remaining seeds to the bag and put it back under the shade-house table. I monitored them at intervals from then on, ensuring that they stayed moist. By mid-December 1988 a total of 188 seeds (31%) had germinated.

No more seeds germinated over the summer 1988-89, but in September 1989 a further 130 germinated and 6 more by early December that year (22.5%). Total germination over the two years, thus, was a little over 50%. None of the remaining seeds germinated and, on examination in October 1990, it was found that all were empty, or the contents were shrivelled. At the beginning of the monitoring in 1988 five seeds (not counted among the 605) were found to have holes in them and the contents absent. We now know (ex J.S. Dugdale, Landcare, Auckland) that this damage is caused by the larva of a moth *Heterocrossa iophaea* which eats a large proportion of the matai seed crop on the tree. Some seedlings were found to be eaten in the plastic bag, during the September 1989 monitoring. This was probably due to hoppers (e.g. *Orchestia* sp. (Crustacea : Amphipoda)) species of which are very abundant both in the forests of Banks Peninsula and in Christchurch gardens.

From the germination results it seems that, after a seed year, if the conditions remain moist, matai seeds could last for about 18 months on the ground, with some germination in the spring in each of two years. At present large numbers of matai seeds on the ground in Banks Peninsula forests are eaten by ship rats (*Rattus rattus*), however, so the potential seed population will be substantially diminished. Drought conditions might also affect the seed populations, so tests of the effects of drying on seeds are needed.

By now the largest matai plants from the 1988 and 1989 germination episodes, grown for one year in crowded trays, then singly in pots or plastic bags, in soil with no added fertiliser, are more than 50 cm tall. Treated more kindly they could have been bigger.



Stages in the emergence of young matai seedlings