

reddish, hairy midrib and petiole (Fig. 2). Lenticels are abundant on the twigs. The Minnehaha Ave tree is a female, bearing small, green flowers singly in the leaf axils. The sepals are prominent, petals are absent, and the large superior ovary is capped by short pistils.

Russell Fransham of Subtropicals, Matapouri, Northland, grows and distributes the Florida gooseberry, and is the likely source of the Woodlands Park tree, and of a tree at Te Takou Bay – a sample from which is in the Auckland Museum Herbarium (AK), labeled *Dovyalis hebecarpa* (T.J. Martin 155, 29

Jul 2002, AK 257844). All his plants are a single female clone, originally introduced to New Zealand by the late Phil and Georgie Gardner who had a subtropical garden at on the Waikare Inlet in the Bay of Islands (Fransham 2009).

Dovyalis hebecarpa has been collected at Mansion House Bay, Kawau Island, by Alan Esler in May 1971 (AK 216576). Another species of *Dovyalis*, *D. caffra*, the kei-apple from South Africa, is sometimes seen in Auckland. There are specimens of it in the Auckland Domain and at the Auckland Zoo.

References

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***Podocarpus elatus* and *P. macrophyllus* (Podocarpaceae) distinguished**

Rhys Gardner

Two foreign podocarps, *Podocarpus elatus* and *P. macrophyllus*, have a minor presence in Auckland's cultivated flora. The former, a forest-canopy tree from eastern Australia, is known from a number of our older parks etc., while the latter, which is from China and Japan, is of smaller size (at least in the generally offered bushy cultivars) and is seen mostly in modern amenity-plantings and suburban gardens.

Their fruits resemble those of totara (*P. totara*), having a smooth-surfaced, swollen and fleshy receptacle topped by a subglobose seed. They are much larger though and the receptacle eventually becomes very dark - hence the common name for *P. elatus*, plum pine. Whether rats might be eating most of a year's crop of fruit is not clear but certainly in places where both sexes are present a few seedlings can always be found (for example, *P. elatus* at St Kentigerns College, Remuera; *P. macrophyllus* near the eastern side of the New North Road to Dominion Road flyover).

The fruit of *P. elatus* is nearly sessile, but that of *P. macrophyllus* terminates a peduncle somewhat more than 1 cm long. The seed of the former is c. 1.5 cm in diameter, half as large again as that of the latter. There are also differences in the size and degree of clustering of the pollen-cones (Eckenwalder 2009). However, sterile material presents identification problems, and it does not take long to find that gardening books and cultivated-plant Floras give rather ineffectual advice. The following improvements and illustration (Fig. 1) are offered.

Firstly, the leaf blades of *P. elatus* are generally

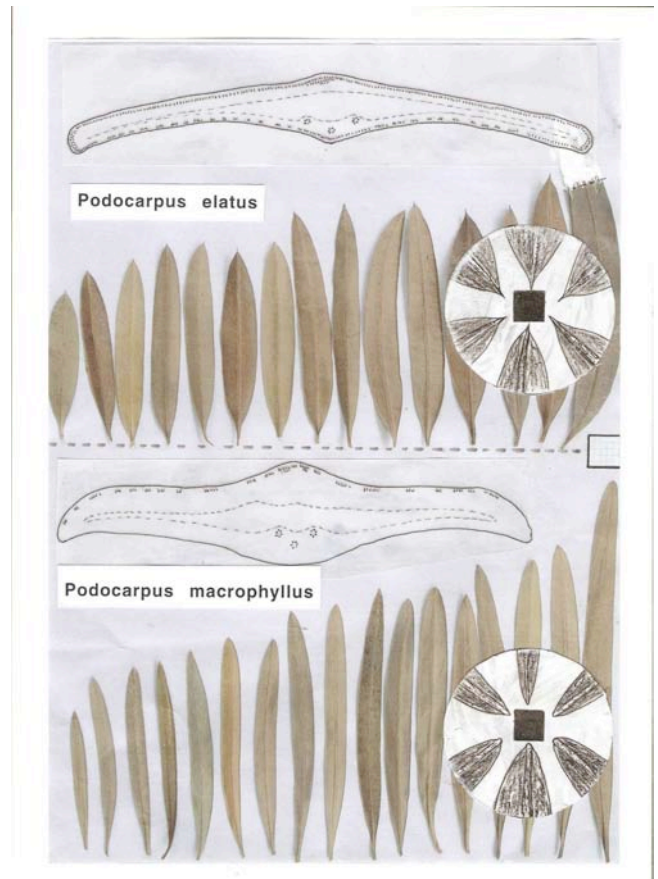


Fig. 1: Leaves of *Podocarpus elatus* and *P. macrophyllus*. Leaves: selections from specimens in AK. Scale (middle right) 1 cm². Leaf apices: selections from specimens in AK. Scale (central, dark) 1 cm². Leaf in transverse section, after Gray (1958: figs 3, 5). Each c. 8 mm wide. Dashed lines: vascular and associated tissue, including 3 resin canals towards undersurface. Hypodermal fibres as short vertical lines.

broader, taper more abruptly into the petiole, and are somewhat thinner. An even better feature, though hardly drawn out by the literature, is that *P. elatus* tends to have a spiny leaf apex and *P. macrophyllus* a bluntly rounded one.

Other features sometimes useful in the genus, such as the prominence of the midrib and the size and shape of the apical bud, do not work for these two species. But the leaves, despite their rather uniform exterior, have much information to offer internally, and this was fully drawn on in the classic "anatomical method" revisionary work of American botanist Netta E. Gray (1913-1970).

Gray (1958) described an absolute and readily-appreciated distinction between the two species in the

distribution of the hypodermal fibres, the layer of thick-walled cells immediately inside the epidermis. In *P. elatus* the hypodermis is continuous below the upper epidermis and discontinuous above the lower epidermis (where the fibres occur just between the longitudinal rows of stomata). In *P. macrophyllus* the upper layer of fibres is discontinuous and the lower layer is lacking.

Such a distinction might possibly be seen in the way in which the leaves of the two species decay, but is not obvious in the dried leaf itself - the fibres are perhaps not large or stiff enough to make a difference to the way in which the tissues shrink around them. Fortunately, botanical hand-sectioning is not yet an utterly forgotten craft.

References

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A fern propagation report (2005-2009)

John Rugis

Introduction

I've been experimenting with fern propagation for nearly four years with some success. The beginnings of this interest can be traced back to six months before that when we relocated to our present bush clad section in Maraetai, South Auckland. Even in my then botanically uninformed state, the presence of ferns and their influence on me was undeniable. Subsequent count revealed that there were already twenty fern species present on the property!

Overview and Background

In my particular experience, the task of fern propagation has consisted of

- 1) identification,
- 2) location,
- 3) collection,
- 4) propagation.

As an identification study guide and reference manual, I have found the book *New Zealand Ferns* (Brownsey & Smith-Dobsworth 1989) indispensable. Historical accounts, such as contained in Field (1890) and Dobbie (1921), provide additional background and interesting insight into past, as well as possible present, species distributions. Locating ferns in the wild is often not easy.

"One word of warning, O trustful reader; when you see a species marked 'abundant,' do not be too sanguine, I have searched for some so described for 40 years, and never found them."
H.B. Dobbie, Auckland, 1916.

Fortunately, now at least travel throughout New Zealand is much easier than it was in Dobbie's time. I

have personally observed *Blechnum nigrum* in the Hunua Ranges, *Sticherus flabellatus* on Great Barrier Island, *Loxosoma cunninghamii* in the Coromandel peninsula, and an extensive stand of *Ptisana salicina* in Taranaki.

For me, propagation from spore was chosen as the method of choice because it is by far the least disruptive to existing populations. However, this method imposes an often frustrating timing constraint on collection. Each year, the "window of opportunity" for collecting mature spore can range from as long as a number of months (*Cyathea*), to several weeks (*Leptopteris*), through to seemingly almost non-existent (*Hymenophyllum*).

I collect only small cuttings consisting of one to perhaps six pinnae, cleanly cut, with care taken not to otherwise damage the parent plant. Note - the land owner's permission should be obtained before any spores are collected.

Propagation Method

Noteworthy accounts of propagation methods are given by Field (1890) and Dobbie (1921, 1951). My approach has been to glean the principles from the past but update to present materials and technology.

I place cuttings in folded white A4 paper (Fig. 1) for spore release, which often occurs within 24 hours. Most species are left at room temperature for this and unforced desiccation of the sample occurs. However, for green spore species, anything other than very slight drying can kill the spore. For these species, the paper packet is placed in a plastic zip bag and additionally sometimes in a refrigerator. After spore is