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There's Ptyxis at the bottom of the garden: leaf-folding and its taxonomic value

Rhys Gardner

The new leaves of flowering plants are arranged in the bud in various ways. The term 'ptyxis' refers to the rolling or folding of the individual leaves, and 'vernation' (not further mentioned here) to the way in which the leaves are packed together.

Ptyxis, like other vegetative features such the presence of stipules, tomentum or exudates, is best observed in living plants, just as the buds expand, and can very helpful in suggesting what family or even genus an unknown plant might belong to. A *Pittosporum* in bud, for example, might be mistaken for a *Myrsine*, *Pouteria* or *Pseudowintera* but never for an *Alseuosmia*, and *Mida salicifolia* for *Nestegis lanceolata* but never for *Beilschmiedia tawa*.

Cullen (1978) surveyed ptyxis across the angiosperms, the most extensive such investigation since that of Linnaeus in his "Principia Botanica". Cullen notes that the different modes may not be clear-cut (in which case one can hyphenate them), since leaves may go through intermediate modes when expanding. Those of *Pittosporum*, for example, often go from supervolute to revolute. Nor is it uncommon

for the upper part of the blade to be rolled or folded slightly differently to the basal part.

Cullen refers to some New Zealand taxa: *Celmisia* has both conduplicate- and revolute-leaved species; *Hoheria*, unusually for Malvaceae, has involute leaves. Of particular interest to us is the use of ptyxis as basis for what was the earliest subdivision of *Nothofagus*; this is further discussed by Philipson & Philipson (1979) in a well-illustrated article.

The main kinds of ptyxis (terms mostly after Cullen; see also Stearn (1973), and Bell (1991)) are shown in Figure 1.

Examples from our dicot flora are:
flat (*Avicennia*, *Brachyglottis repanda*),
curved (*Beilschmiedia tarairi*, *Nothofagus menziesii*),
conduplicate (*Carpodetus*, *Sophora*, *Vitex* leaflets),
involute (*Alseuosmia*, *Ixerba*, *Macropiper*),
revolute (*Brachyglottis perdicioides*, *Muehlenbeckia*, *Nothofagus fusca*, *N. solandri*),
supervolute (*Myrsine*, *Pittosporum*, *Plagianthus regius*),
circinate (*Drosera*).

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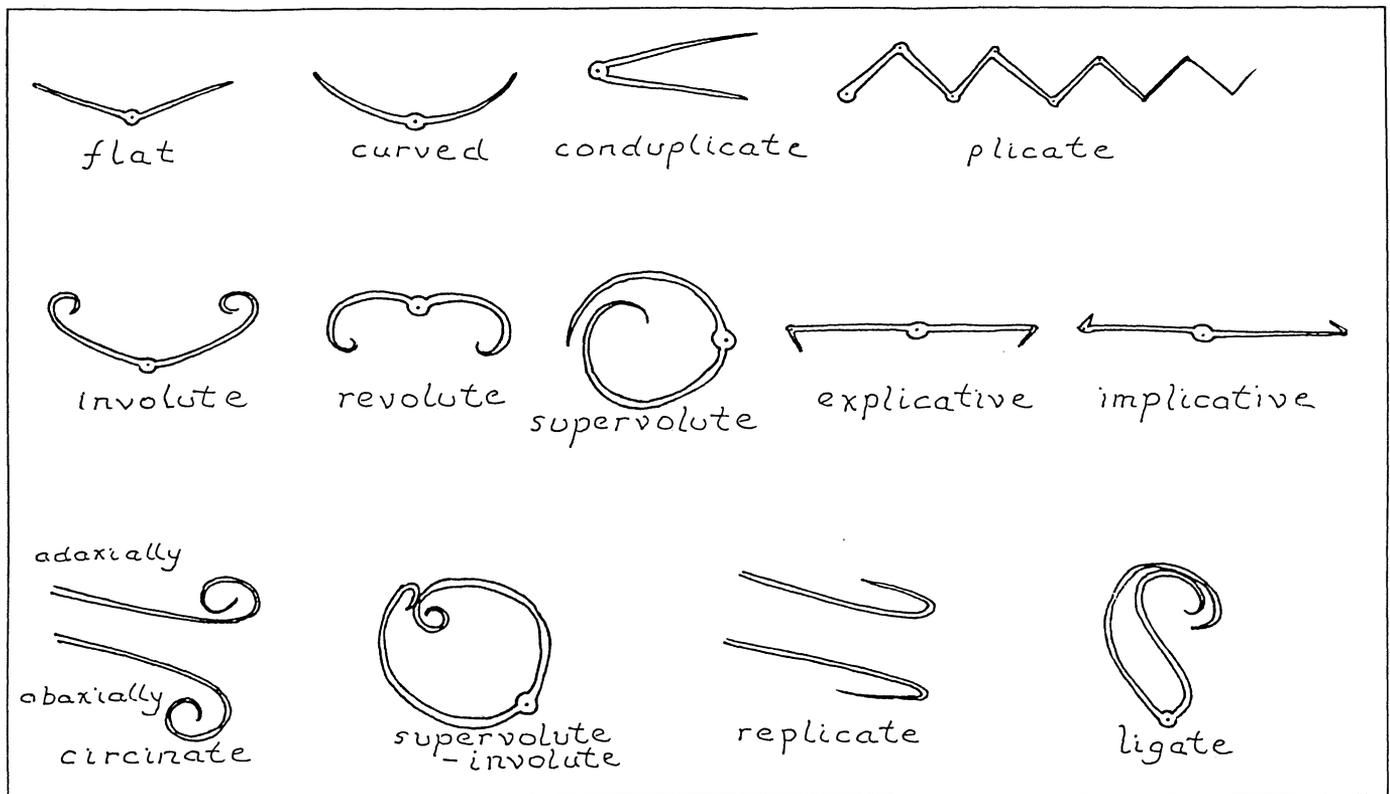


Fig. 1 Main kinds of ptyxis, leaf in t.s. (but l.s. in 'circinate', 'replicate').



Puhinui Reserve at Wiri on the Manukau Harbour ABS Field trip 6 May 1998

Sandra Jones & Mike Wilcox

In the Newsheet advertising this field trip, our leader (Rhys Gardner) described the reserve as consisting of coastal scrub, open spaces and salt marsh, with an expanse of old cabbage trees a feature of the Puhinui Stream which forms the southern boundary. An additional lure for thirty-nine BotSoccers was the hope that we might see a number of locally uncommon species such as *Chenopodium glaucum*, *Mimulus repens* and *Nertera scapanioides*.

This very extensive piece of land (199 ha) was purchased by the Manukau City Council in 1991. The land was originally part of the Clendon Grant, and farmed by McLaughlin from 1845. It later became known as Thurlow's Farm. It occupies the southern portion of the Puhinui Peninsula between the tidal Puhinui Stream and the Manukau Harbour. Wiri Mountain and McLaughlin's Mountain (Matukurua) are nearby. The Council's intention, according to the February 2000 Draft Management

Plan, is to "deliver quality leisure opportunities for the people of Manukau while protecting and enhancing Puhinui Reserve and its outstanding environmental landscape and heritage values". The "Reserve will be a passive reserve which is managed through grazing, rather than a farm reserve." Aucklanders will recall that the Sweetwaters Music Festival was held here in January 1999. Approval in principle was given in 1993 for the development of an ethno-botanic garden on the reserve. However, at February 2000, the garden has not yet been established.

As usual on our field trips, we didn't progress far or fast enough to cover the whole reserve. From Price Road, we followed the northern boundary across pasture and beside a swampy water course to the Harbour foreshore. From there we turned south and followed the coast for some distance before stopping for lunch while we watched a couple of shower squalls come to us across the harbour. We