

CANNA

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There seem to be more than a dozen kinds of Canna in Auckland, garden plants mostly but with the occasional independent colony along old section boundaries, railway banks, suburban gullies and paddocks &c.

With two or perhaps three exceptions these plants are horticultural forms; their parentage is difficult to work out from the literature (Mukherjee and Khoshoo 1970, Rogers 1984) so in what follows I have resorted to nicknames rather than giving possibly incorrect varietal or hybrid determinations — see Table for descriptive notes.

Cannas play no special part in Auckland botany, at least under the present climate, but they are one of our distinctive subtropical species, also they have a rather interesting pollination mechanism.

Canna is the first name to appear in Linnaeus's "Species Plantarum" (1753). The word "canna" itself is from the Greek, referring to the reed Phragmites australis and its stems (canes). In works of earlier botanists several other names had been used — Arundo florida, i.e., flowering reed; Cannacorus, i.e. like a tall-caned Acorus. Parkinson's belief that "they are called [Canna] because the colour of the flowers, as well as the forme of the buds, are so like unto a Sea-Crabs ... claw" is a strange fancie.

Canna indica, known as Indian shot, was the first canna to reach Europe, coming from the New World like several other species subsequently introduced and interbred. According to Parkinson (1629), who noted two forms: "These plants grow naturally in the West Indies, from whence they were first sent into Spaine, and Portugall, where Clusius saith he saw them planted by the house sides, flowering in winter, ...".

Canna indica is a relatively small plant with scarlet and yellow particolored flowers, often naturalizing by seed a little down drives and shrubberies. The black spherical seeds are supposed to resemble musket shot; they are not as heavy as they look but are not light enough to float.

Healy and Edgar (1980) suggested that the earliest N.Z. collection of this species might be AK 94800, a single leaf collected by the Rev. G. Brown in 1876. The distinctive blue label of this sheet "Phytologic Museum of Melbourne Baron Ferd. von Mueller Ph. & M.D." should have directed attention more closely to the hand-written locality, which is New Ireland (now part of Papua New Guinea). Nor is the leaf Canna, the epidermis not having the characteristic differentiation into files of longitudinally-extended cells and files of transversely-extended ones (Tomlinson 1969). Oil cells in the mesophyll indicate a member of the ginger family.

The abundant production of capsules and seed in C. indica seems to come from the regular working of its self-pollination mechanism. A short while before the unfolding of the flower's showy parts (which are staminodia, not petals), the anther opens against the flattened top of the style and deposits pollen in a dry but coherent sheet. This sheet usually reaches right up to the stigma, which is a bilabiate band, viscid from the time the flower opens.

The pollen is protected from the rain by the style and would be positioned suitably for hummingbirds and insects. But in the garden lone plants set seed plentifully, so self-pollination would seem to be indicated. Darwin (1878) experimented for three generations and found selfed and outcrossed plants to be almost identical in vigour and

fertility.

Of the second good species, Canna iridiflora, I know only two colonies, the more accessible one being behind the bowling greens in Gribblehurst Park. It is a tall handsome plant with crimson-carmine gladiolus-like flowers pendent on the curved inflorescence branches. Self-pollination does not occur and no capsules are formed.

In the Auckland City Council nursery at Karri St there is a unique plant, spectacular in height and leaf size, useful perhaps for putting around factories, incinerators or wreckers' yards. It might be one of the early hybrids, created before the demand for neater larger-flowered forms, or it might be a species closely related to C. indica.

Similar to C. indica in having small to medium-sized flowers and fully-seeded capsules are several cannas known to me each from only a few places. Some of these plants are purple-tinged in their leaves, inflorescence branches and capsules. Their flowers are slightly larger than those of C. indica and with red predominant in their colouring. Canna "tall red" in this group occurs at the foot of the coastal slope in Hobson Bay and is apparently spreading slowly by seed.

Another kind of Canna I call C. "orange-pink" for its flower colours. The flowers and the plant itself are a good larger than in C. indica. There are a number of colonies in Mt Albert-Mt Eden, notably the one along the railway line (northern side only!) just east of Mt Albert station. Esler (1987 p. 556) has referred to it as "the free-seeding form" but although capsules appear in plenty only a few have the occasional seed. This sterility is suggestive of a hybrid origin (Khoshoo and Mukherjee 1970). I have not found seedlings but at home last autumn scarified seeds germinated outdoors in a couple of weeks.

The Mt Albert station plants differ from those in Gribblehurst Park and Fowlds Park in having purple coloration, slightly larger flower size and a greater degree of seed formation.

Our most familiar cannas are probably the large-flowered kinds for whose flowers the word "showy" is inevitably used; more precisely, the petaloid parts are relatively broad, imbricated then recurved, with undulate margins.

There are compact-statured forms with massed flowers, often seen in park plantings. Flower colours here include pink, yellow and orange. C. "coral pink" in the Table is of this group.

Much more common in home gardens are the two tall cannas which I nickname C. "green yellow" and C. "purple orange" for the colouring of their leaves and flowers respectively. (There are also less common red and yellow-red variants of the latter). The former has the reflexed (true) petals of the hybrid line C. x orchoides while the latter probably belongs to C. x generalis, at least as keyed in most Floras.

Neither kind ever makes seed, which suggests that they might be triploids (Khoshoo and Mukherjee 1970). A difference though in the pollination mechanism seems likely to be responsible for a difference in the number of ripe-looking capsules each form bears.

C. "green yellow" flower buds have the inner edge of the labellum rolled against the anther and no pollen gets shed onto the style; the very infrequent capsules seen are presumably the result of a cross-pollination stimulus.

In C. "purple orange" the interference by the labellum is less pronounced and often pollen reaches the style; small capsules and a few full-sized ones may develop, but never any seed.

Table : Characters of some Auckland cannas

	height to infl. top m	leaf lamina length x breadth cm	degree of lam- ina purpling m most obvious only on midrib & margins	predominant flower colours	perianth length x max. width, width of largest member cm	degree of capsule purpling	formation of seed ()rarely
<u>Canna indica</u> Monte Cecilia	1.2	40 x 15	-	scartlet, yellow	5 x 4, 1.1	-	+
<u>C. ?sp.</u> Karri St 5576	2.5	75 x 40	-	orange-scarlet	6 x 5, 0.8	-	+
<u>C. iridiflora</u> Gribblehurst Park 5658	2.5	85 x 40	-	crimson-carmine	7 x 8, 2.6	-	-
<u>C. "tall red"</u> near 65 King Edward St 5586	2.5	55 x 20	m	red, yellow	6 x 4, 1.4	-	+
<u>C. "medium red"</u> near 1A Onslow Ave 5652	2	50 x 20	+	scarlet	7 x 4, 1.4	+	(+)
<u>C. "short red"</u> 118 Sandringham Rd	2	50 x 20	+	red, yellow	6 x 5, 1.4	+	+
<u>C. "orange-pink"</u> Lloyd Ave 5646 Fowlds Park 5661	2 2	60 x 20 75 x 30	m -	pale orange fading to pink	8.5 x 6, 1.9 8 x 9, 2.2	+	(+) (+)
<u>C. "coral pink"</u> Auck. Domain 5648	1	40 x 20	-	coral pink, yellow	8 x 10, 4.5	-	+
<u>C. "green yellow"</u> 5/7 Ward Ice 5597	2	50 x 20	-	yellow	9 x 9, 4.5	-	-
<u>C. "purple orange"</u> 5/7 Ward Ice 5650	2	50 x 25	+	orange	8 x 12, 5	+	-

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A LOWLAND SITE FOR LIBERTIA PULCHELLA

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Although it is recorded in Flora of N.Z. Vol. II that Libertia pulchella (L. micrantha) was found on the banks of the Kerikeri River below the falls (A. Cunningham), I think it is generally accepted to be a plant of the higher country. In "the N.Z. species of Libertia" (L.B. Moore) the distribution is given as "A common plant on the floor of upland forests in high rainfall areas, descending to sea-level in Fiordland". Therefore, the banks of the Mahurangi River above Warkworth, at an altitude of c. 30 metres, seem to be an unlikely site for this plant, especially as invasive weeds are a problem.

Since 1960 Frank Hudson has known of a small population of L. pulchella at an area known as "the falls" on the right branch of the Mahurangi River. However, a gorse bush and a grove of Dicksonia squarrosa have overwhelmed the site, and for the last 10 years it has been presumed that this population was extinct.

On 29 October 1989 L. pulchella was once again found at the falls. Whereas it was previously found upstream from the Falls Road bridge, this new site is downstream from the bridge. About a dozen plants were flaunting their starry white flowers, and the same number, or more, were without flowers. L. grandiflora grows nearby.

The land around the falls has recently been given as a scenic reserve to the Department of Conservation, and is fenced.

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