

Breeding and Breeding Potential in the Geranium Family in Australia[®]

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INTRODUCTION

Members of the geranium family are widely cultivated in Australia, and like the rest of the world, Australians largely confuse the two major genera, *Geranium* and *Pelargonium*. The confusion is an old one stemming from the 1753 lumping of both genera by Linnaeus into the single genus *Geranium*. When pelargoniums were later being introduced to Europe, the wrong name was applied and they were called geraniums (Hibberd, 2003). The confusion between *Geranium* and *Pelargonium* is so entrenched that most books on the subject preface their work with lengthy explanations of their use of the terms. Characteristics of three genera commonly cultivated in Australia are given in Table 1.

Table 1. Characteristics of Geraniaceae cultivated in Australia.

<i>Geranium</i>	<i>Pelargonium</i>	<i>Erodium</i>
Flowers radially symmetrical, corollas pink, magenta, blue, violet, or white	Flowers asymmetrical (symmetry bilateral), corollas red, pink, white, mauve, or rarely yellow; blue absent.	Flowers radially symmetrical, corollas pink, white, or lemon yellow
Seeds without an attached plume, dispersing explosively	Seeds with an attached plume, dispersed by wind	Seeds with an attached awn which aids in the “planting” of the seed
Mainly mound-forming hardy perennials, re-shooting from a central crown	Predominantly upright shrubs with thick fleshy or woody branched stems	Low dense clump or mound forming perennials with very short stems
Foliage rarely scented	Foliage frequently scented	Foliage rarely scented
Generally frost tolerant, most occurring in relatively cool and moist climates in the northern hemisphere	Frost sensitive, most occurring in relatively warm and dry climates in southern Africa	Frost sensitive, most occurring in relatively warm and dry climates in the Mediterranean
More than 400 species and over a 100 in cultivation, with hybrids and colour forms also available	Only a few of the 200 or more known species are in cultivation, but these few species have given rise to thousands of cultivars	Relatively few species and hybrids in cultivation

TRUE GERANIUMS IN AUSTRALIA

True geraniums hold a fascination for specialists and general gardeners alike, but the hot dry Australian summers do not suit the garden cultivation of many forms. Most can be grown well as potted specimens or in the garden for a relatively short period. In my own Perth garden a number do quite well if sheltered sunny conditions are selected (e.g., *G. incanum*, *G. sanguineum*, *G. ×cantabrigiense* 'Biokovo', *G. ×oxonianum* 'Claridge Druce', *G. maderense*, *G.* 'Brookside'). The history of true geraniums in Australia up to the mid 1990s is well covered by Trevor Nottle (Bath and Jones, 1994). Towards the end of the 1960s proprietors of several Australian nurseries including Viburnum Gardens, Woodbank Nursery, Lambley Nursery, Romantic Cottage Garden, Norgates Flower Farm, and Digger's Garden Club began importing geranium seeds for their mail-order businesses. Although some new forms were produced in Australia (notably *Geranium* 'Criss Canning' by David Glen at Lambley Nursery) most of the cultivars available here today are of European origin, and most are chance natural occurrences selected by discerning nurserymen.

A more recent introduction to Australia has been *G.* 'Gerwat'^{PBR}, RozanneTM cranesbill, a naturally occurring hybrid between *G. himalayense* and *G. wallachianum* 'Buxton's Variety' first found in Germany. Blooms of Bressington recognised the huge merits of this large flowering hybrid which blooms virtually constantly through the warmer months. Most true geraniums flower prolifically in spring with some flowers also occurring in autumn. *Geranium* RozanneTM cranesbill was released in Australia in the late 1990s but was then taken off the market while Blooms selected another agent. More recently Larkman Nurseries have been granted the licence and *G. Rozanne*TM cranesbill is again available. At about the same time a remarkably similar Dutch cultivar, *Geranium* 'Jolly Bee' appeared briefly in the Australian marketplace. Having grown these two geraniums side by side I am unable to tell the difference. *Geranium* RozanneTM cranesbill is well suited to sheltered sunny gardens and is also an outstanding plant for hanging baskets.

Although relatively little breeding of geraniums has been done in Australia there is still potential to work with species and cultivars best suited to our climate. Among these must be the South African geraniums such as *G. incanum*, *G. harveyi*, and *G. robustum*, and perhaps even our own annual *G. molle* and perennial *G. potentilloides* (syn. *G. pilosum*).

PELARGONIUMS IN AUSTRALIA

The genus *Pelargonium* contains well over 200 species (Miller, 1996) but only a handful of these have had a role in the origins of the several thousand cultivars available today. Major cultivated groups are well illustrated by Key (2000) and Feltwell (2001) and include the following:

- **Zonals** (*P. inquinans* × *P. zonale*). Thick-stemmed shrubs with softly hairy rounded leaves often marked with a horseshoe-shaped zone.
 - Fancy-leafed zonals: grown primarily for their handsome foliage.
 - Rosebud zonals and tulip forms: spontaneous mutations around 1850.
 - Cactus zonals: spontaneous mutations in the mid nineteenth century.

- Stellar zonals: bred by Ted Both in South Australia from a parent known as the Chinese cactus.
- Dwarf and miniature zonals.
- **Ivy-leaved** (*P. peltatum*): fleshy hairless ivy-shaped leaves and a trailing habit.
- **Regals** (*P. cucullatum* × *P. angulatum*): somewhat woody stems, stiff leaves with minute serrations and massed flowers resembling azaleas in spring.
- **Angels**: resembling small forms of regals these floriferous plants have mixed backgrounds.
- **Scented-leaf**: hybrids of early species which came to England, grown primarily for their foliage.
- **Species**: not common in cultivation but known well to collectors are *P. gibbosum*, *P. reniforme*, *P. fulgidum*, *P. echinatum*, and *P. tetragonum*. The tiny native tuberous *P. havlasae* is very rare.
- **Primary Hybrids**: striking and uncommon *P.* 'Ardens' and *P.* 'Splendide' are perhaps the best known.

Australia is recognised nationally as a source of many new pelargonium cultivars. Ted Both of Adelaide in South Australia developed the new Staph form of zonal pelargonium as well as many new cultivars in other genera. Other well known Australian pelargonium breeders are Marjorie Edwards of Geelong in Victoria, who developed a line of compact double-flowering zonals, and Cliff Blackman, also of Geelong, known best for his "Lara" series and his pursuit of a yellow pelargonium.

The genus pelargonium is already known for its drought tolerance, and holds an enviable share of the retail market place despite a degree of prejudice towards the "common" forms. In our current warming and drying climate, the future potential of breeding in pelargonium would seem to be in the lines begun by Cliff Blackman using very hardy parent types such as *P. gibbosum* and *P. echinatum*. The succulent stems and summer dormant habits of these species have great potential, as does the tuberous condition and summer dormancy of our native *P. havlasae*. The exquisite floral form and succulent stems of *P. tetragonum* must also be considered. No doubt there are numerous other species in southern Africa that would make worthy additions to a breeding program, but quarantine issues suggest that we perhaps first look at species already here in Australia.

LITERATURE CITED

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