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# *Dendrobium tetragonum*

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## **Dendrobium tetragonum** - by Jim Brydie

Once upon a time when I first started growing orchids (I had more hair then by the way) there was an Australian native orchid called *Den. tetragonum* that delighted my eyes from the first time I saw it. Most native *Dendrobium*s that I had seen up to that point had upright canes. There were others such as the pendent, pencil leaved *Den. teretifolium*, but they seemed so different that they didn't even look like *Dendrobium*s.

This *Dendrobium tetragonum* was obviously a *Dendrobium*, but so different. It has stems that are sharply square in cross section. Very narrow at the base, then gradually thickening to full size about halfway along. It grows anchored to a tree, gracefully arching out, away, and down, giving it a semi pendent habit with the leaves and flowers held out and away from its host. The flowers are relatively large and elegant too. Big, open, spidery shaped flowers, mostly pale yellow/green with a red edge around the segments, but there are other colours, and some forms are considerably larger than others.



The flowering season is unusual too, generally being sporadic over an extended period from around May to around October but some say it can flower occasionally at any time. It is very popular as a parent in crosses with other Australian native *Dendrobium*s because it passes on the characteristics of red edging to the flowers and the ability to flower over an extended period.

The more I learned about *Den. tetragonum* the more complicated it seemed. The flowers on plants from different areas varied substantially. Some had much larger flowers, some flowers were plain coloured, some had colour in the lip but no red edging, some had many more flowers per stem than others. However, I didn't understand the geographic areas that isolated the separate forms, I didn't grasp the extent of variations within each form, and I never managed to get past considering the whole group as just individual variations of "tetragonum". This article is my personal attempt to better understand the group.

*Tetragonum* taxonomy is a trifle contentious. I don't know exactly how far back groups we used to know as 'varieties', began to be proposed as separate species, but at least as far back as 1988 in his wonderful book "Native Orchids of Australia", David Jones included a supplement that separated the two northern forms as *Den. cacatua* and *Den. capitsyork*. In the later (2006) edition he separates the whole tetragonum group from *Dendrobium* to become a new genus "*Tetrabaculum*", and lists four species. That is *T. cacatua*, *T. capitsyork*, *T. melaleucaphyllum*, and *T. tetragonum*. These four species/varieties are certainly accepted generally as distinct from one another, but the proposal of a new genus and the elevation of the varieties to be species, does not appear to have been accepted.

In a paper published in 2011, its author P.B. Adams, has relooked at the group. I don't intend to reproduce all his argument here, but if I may be so bold as to paraphrase the "Introduction" of his paper, the essence of his opinion seems to be that field exploration and discovery work in remote parts of central Queensland by he and his associates between 1991 and 2009, has shown that there is considerable variation in the complex which does not fit within the previously recognised 4 varieties, including intermediate forms between *cacatua* and *gigantea*, and between *melaleucaphilum* and *tetragonum*. This newly discovered variability, and DNA studies of the group by Burke *et al.* (2008), do not support the establishment of the new genus *Tetrabaculum*, or the elevation of any of the *Den. tetragonum* 'varieties' to species status. The DNA studies indicate two distinct genetic strains, one encompassing the two northern varieties (*cacatua* and *gigantea*), and the other covering the southern varieties (*melaleucaphilum* and *tetragonum*).

Those with an appetite for more detail can refer to the full paper for themselves. I have listed the reference to it at the end of this article.

Mr. Adam's fieldwork leads to him proposing 2 additional forms/varieties of *Den. tetragonum*, but before we complicate the discussion any further, I think it best that we familiarise ourselves with the previously accepted four varieties. I will discuss them in the order of their distribution in the field, from south to north.

**1. *Dendrobium tetragonum* var. *tetragonum*.** This occurs roughly from about the Jervis Bay area south of Sydney to about Rockhampton in Qld, at altitudes ranging from sea level to about 1000m. It is widespread and fairly common in the right habitats. It occurs mostly in moist shady forests, particularly along valleys associated with streams.

### **main tetragonum habitats**



The flowers are the smallest flowers of the various varieties. They are star shaped, yellowish green with dark red marginal bands, usually less than 7cm in vertical height; labellum white with red purple markings

**2. *Dendrobium tetragonum* var. *melaleucaphilum*.** This variety appears to be closely allied to variety tetragonum. It occurs from the North Coast of NSW to central Qld near Rockhampton. It grows on trees in rainforest in sheltered locations, beside streams, and in swampy coastal areas, mostly on prickly paperbark trees. The flowers are about 6-8cm tall x about 2-4cm wide, yellowish green with reddish marks and occasionally with red marginal bands.

**3. *Dendrobium tetragonum* var. *cacatua*.** This is one of the larger forms and is allied to what we used to call variety gigantea. It occurs at an altitude of about 700m, only in central to northern Qld, from roughly Mackay to the Daintree area north of Cairns. The flowers are about 6-8cm tall x 4-6 wide, greenish yellow to pale yellow, and usually lack any red/brown colouring.

**4. *Dendrobium tetragonum* var. *giganteum*.** With the separation of var. cacatua, this leaves var. giganteum as what was defined as *Tetrabaculum capitisyork* by David Jones. Variety giganteum is another Qld only form. Its range overlaps the habitat of var. cacatua but it is found at lower elevations, usually below 700m. It is found from Mackay, to the Iron Range on the coast over 30km north of Cooktown, near the top of Cape York. It grows on trees in shady sites beside streams, but also in dense rainforest and in more open sites along rainforest margins. The flowers are large, up to 17cm tall but more usually about 10cm, x 6-8cm wide. Greenish yellow with prominent red blotches.

**Typical pictures of the 4 varieties (but bear in mind there are many variations)**



**var. *tetragonum***  
5 or 6cm tall?

**var. *melaleucaphilum***  
(6-8cm?)

**var. *cacatua***  
(6-8cm)

**var. *gigantea***  
10-15cm?

So, now that you have all that straight, let's look at the two additional taxonomic forms proposed by Mr. Adams. Both are native to central Queensland, but their ranges do not overlap. He defines one new form as a sub species at the equivalent level to each of the two genetic strains of north and south, and the other as a third 'variety' of the southern genetic strain. However, I have no idea whether this structure will be accepted by other specialists.

He names the first new form '**subspecies cataractarum**', so named because its occurrence is restricted to creeks with waterfalls. It has yellow-green flowers, usually with red-purple-brown on sepal margins. The labellum is pale cream with red/purple markings and the midlobe (the end section) is quite wide and flat. It occurs spasmodically between Marlborough in the south, and Clairview in the north. (Both being in an area roughly halfway between Rockhampton and Mackay). The flowers are about 11cm tall x 4.5cm wide.

The second new form he names '**variety serpentis**'. Named in reference to the Rainbow Serpent, believed by the local indigenous people to inhabit the gorges of the Blackdown Tableland. The flowers open green, but later turn yellow. The **subsp cataractarum** var. **serpentis** petals and sepals have few or no red-purple markings. The lip is cream but has substantial red-purple markings. The flower buds have a marked twist in the outer half and the flowers are about 7-8cm tall x 4cm wide. The plants are found in the Blackdown Tableland, south of Rockhampton. Mr. Adams says the nearest other variety of tetragonum is var melaleucaphilum about 250kms away in the Beserker range.

Whether Mr. Adams proposals will be accepted or tested by others is yet to be determined but it seems to me that there is more variation in the tetragonum species complex than we might have come to previously accept.

**Culture:** This lovely orchid seems much better suited on a mount than in a pot. It will grow potted, but if you do, it tries to grow upright but doesn't have the required strength at the base of the canes. It looks rather untidy unless you stake the canes upright, and that can become a tedious task after a while, so why bother. Mounted on a cork slab or a nice





piece of treefern, it establishes well and displays the plant and flowers beautifully.

**Hybrids** : Within the huge genus *Dendrobium*, *Den. tetragonum* is a member of the *Dendrocoryne* group that includes *kingianum*, *speciosum*, and other related species from the east coast of Australia. As a result, the vast majority of first-generation hybrids with *tetragonum* are within this group, and there are some famous and desirable orchids among them. The very first registered *Den. tetragonum* hybrid was with *Den. kingianum* back in 1928. It was named Den Ellen. There are white ones as well as pink ones but the latter is the more common. Den Ellen generally looks like a slightly large starry *Den. kingianum* but you often get that darker pink blotching pattern that we still see coming through generations later in *tetragonum* hybrids. For some reason, many *tetragonum* hybrids may also flower twice a year although some growers report that the second flowering sometimes lacks some of the main season colour.

Some of the primary hybrids were so successful that they are still hugely popular today. Hybrids like Den. Hilda Poxon (with *Den. speciosum*), Den. Star of Gold (with *Den. falcorostrum*), and even the one with the name of our own society, Den Ku-Ring-Gai (with *Den. X delicatum*). All wonderful orchids that make a fantastic display, and as you would expect with such variable species, these have been remade many times with different clones or varieties for very different results. All nice, just different each time.



Den Ellen

Hilda Poxon 'Neville'

Hilda Poxon

Star of Gold 'Howrah'

Ku-Ring-Gai 'Ann

Brown'

While the pure *Dendrocoryne* hybrids make up the majority of its progeny, *tetragonum* has also been used as a parent with a few other *Dendrobium* groups, like the unusual *Latourea* group from PNG, and much more famously, with *Den bigibbum* (creating Den Peewee) and *Den. bigibbum*'s close relative *Den. phalaenopsis* (creating Den. Suzanne).

Den Peewee which was made by Cannons nursery in Grafton back in 1979, was the start of what we came to call the 'hot/cool' *Dendrobium*s because of the mix of species between the predominantly warm growing hardcanes, and the mostly cold growing *Dendrocoryne* group. Den. Peewee, and its back crosses to *Den. tetragonum* (Rosella) and to *Den. bigibbum* (Den. Elegant Nancy) have become the core of a huge group of very popular 'hot/cool' that grow in a shadehouse in Sydney provided it isn't in an extreme temperature zone. There are some very beautiful orchids in this group.



Den Peewee

Den. Rosella

Den. Elegant Nancy

Den. Elegant Heart Teresa

Den. Hanna Lucille

There are many other wonderful lines we could look at but where do you stop, so think I will come back to those another day. However you look at it though, *Den. tetragonum* and its progeny are a particularly attractive group.

**References** : 1. Native Orchids of Australia – David Jones

2. Paper by P.B. Adams see website [http://www.rbg.vic.gov.au/documents/Muelleria\\_29%281%29,\\_Adams.pdf](http://www.rbg.vic.gov.au/documents/Muelleria_29%281%29,_Adams.pdf)

3. Taxonomy Research & Information Network website [keys.trin.org.au/key-server/data/08090a09-0d0e.../Tetrabaculum.htm](http://keys.trin.org.au/key-server/data/08090a09-0d0e.../Tetrabaculum.htm)

4. Orchidwiz, Google images