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The  
*Dendrobium bigibbum*  
Complex

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## The *Dendrobium bigibbum* Complex - Jim Brydie

This surely has to be Australia's most beautiful native orchid, but at the same time, *Den. bigibbum* has been the centre of a confusing hotpot among taxonomists for a long, long time.

*Den. bigibbum* is a member of a small group of about 3 to 6 closely related *Dendrobium* species in section *Phalaenantha*. The section gets its name for the fancied resemblance of their flowers to butterflies. The reason I say 'about 3 to 6 species' is because the number depends on whether you regard some as separate species, or just as variations of *Den. bigibbum*.

For many years the understanding was that there was one species (known at the time as *Den. phalaenopsis*) that occurred in eastern Indonesia on the islands near Timor, and that everything that occurred on the Australian mainland, was *Den. bigibbum*. However, work by Steve Clemesha in 1978 proposed that *Den. phalaenopsis* was the same as *Den. bigibbum* and he proposed the name *Den. bigibbum* ssp *laratensis* for the Indonesian form.

Later, in 1989, after studying herbarium specimens in Europe, Mark Clements (one of Australia's most eminent taxonomists) said that he believed that the type specimen being used to define *Den. phalaenopsis* had actually been collected in Queensland (which would make it a *Den. bigibbum*), but that *Den. phalaenopsis* and *Den. bigibbum* were none-the-less valid and separate species.

In his opinion, at the time, *Den. phalaenopsis* occurred mainly on the eastern side of the Great Dividing Range in northern Australia, and that *Den. bigibbum* was found on the drier, western side of the range as well as the Torres Strait islands and PNG. Clements also considered that the species, known for many years as *Den. bigibbum* variety *compactum*, was a third, separate, Australian species, and gave it the name *Dendrobium lithocola*. The suggested changes left the Indonesian species without a name, and he therefore formally described it as *Den. striaenopsis*.

That meant that the bigibbum complex now comprised 4 separate but very closely related species. (*Den. bigibbum*, *Den. phalaenopsis*, *Den. lithocola*, and *Den. striaenopsis*)

Four populations are still 'sort of' where we stand today but there are a few more twists in the story, with which we need to grapple. In 2006, in his magnificent new edition of "Native Orchids of Australia", among many other name changes, David Jones proposed a new genus name "*Vappodes*" for the *Phalaenantha* group, which made *Dendrobium bigibbum* into *Vappodes bigibba*, and *Den. phalaenopsis* into *Vappodes phalaenopsis*. I think this is a fantastic book, but the use of many proposed new names like "*Vappodes*" makes it difficult for hobby growers to use it without constant reference back to the index against the older names with which they are more familiar. Luckily for us, it seems hard to get a majority of taxonomists to agree on much at all, so these changes are not widely accepted (...yet?). This leaves us with much confusing variation among names for the same species.

Also in 2006, in the new edition of "Dendrobium and its Relatives", Lavarack, Harris, and Stocker also recognise 4 separate populations, but they still regard the three Australian populations as varieties of *Dendrobium bigibbum*, and the Indonesian one as *Dendrobium striaenopsis*. This is the nomenclature I favour, and their descriptions follow :

- *Den. bigibbum* variety *bigibbum* "occurs at low altitudes on the Cape York peninsular, the Torres Strait islands, and in southern New Guinea. It grows in hot conditions with an extremely dry winter, in open forests and on rocks. The pseudobulbs may reach 120cm (over a metre) but are usually 40 – 60 cm. The inflorescences can carry up to 20 flowers, about 3 to 5cm diameter. They usually have a white spot in the lip."
- *Den. bigibbum* variety *superbum* (the one others call *Den. phalaenopsis*) "occurs on the southern part of the Cape York peninsular in open forests and dry scrubs often near beaches. It is an epiphyte (trees) or lithophyte (rocks) in areas with a hot climate and extremely seasonal rainfall. The pseudobulbs are similar to the variety *bigibbum* but often a little longer and stouter. The inflorescences are similar but the flowers are larger, at 3 to 7cm across. They are less reflexed than var *bigibbum*, and they lack the white spot on the lip."
- *Den. bigibbum* variety *compactum* "occurs in a small area near the coast of the wet tropics in northern Queensland. It grows almost exclusively on rocks at an altitude of 250m. This area gets a little more rain in winter, but there is still a rather drier period in winter and spring. The pseudobulbs are commonly only 10 to 15cm long and 1 to 2cm thick. The flowers are similar to variety *superbum* but the inflorescence is shorter."
- *Den. striaenopsis* "has been recorded only from the island of Larat in the Tanimbar group south west of Irian Jaya. It grows on limestone cliffs, and on trees, just above sea level, in a hot seasonal climate. The pseudobulbs are long and slender, up to a metre long, and about 1cm thick. The inflorescences are long and arching and carry up to 30 flowers. The flowers are 4 to 7 cm across. Colour varies from deep purple, to white, and bicoloured flowers with purple and white." (JB Many typical flowers exhibit darker pinkish striations on a paler pink background. Hence the name *Den. striaenopsis*)



*Den. bigibbum* var *bigibbum* – Garrie Bromley



**bigibbum var bigibbum**



**variety superbum**



**variety compactum**



**Den straienopsis**

For the pictures above, I selected rather good clones of each type, and as you can see, in select clones there is sometimes little difference between the flowers. Plants from the wild will exhibit a much wider range of variation, especially in characteristics like the folding back (reflexing) of the tips of the petals on variety bigibbum. In addition, although the white lip spot is distinctive in this picture of variety bigibbum, it varies dramatically and can be almost invisible in some cases. As you might imagine, all this makes it extremely hard to distinguish types when benched.

Probably an even bigger problem for us hobby growers (and even the judges) however, is that man has hybridised and line bred the different forms of *Den. bigibbum* between the varieties, and with just about every other compatible species and hybrid, about one thousand times. This breeding includes many where a parent is named as *Den. phalaenopsis*, which is still a name accepted by the RHS hybrid registration board. Most of what we just call hardcane dendrobiums these days, are at least 75% bigibbum/phalaenopsis, sometime 90-95%, and look just like huge bigibbums on steroids. Some look more modest and might even just look like a very good bigibbum, despite the fact they may even contain genes from a number of other species from Australia, New Guinea, and the Pacific Islands. Sometimes they are benched or sold as a bigibbum of one type or another, sometimes they themselves are used as 'bigibbum' parents in creating what are purported to be select forms of bigibbum. I am not saying that this applies to all line bred bigibbums, just that it is impossible to tell.

Ian Chalmers, the Registrar of Judges at the OSNSW, recently wrote:

*"Plants of the varieties of Dendrobium bigibbum exhibited are difficult to differentiate. It would be a brave person to be certain at monthly meetings or shows.*

*... yes Den. phalaenopsis is recognised (by the RHS as a separate species). However, unless we have the providence proving the origins of the plant, it is better to treat them all as Dendrobium bigibbum complex. The RHS register has two problems - 1. The registered parent is what the breeder thought it was at the time.*

*2. There has been a history of name changes between phalaenopsis and bigibbum alternating over the years. So, who knows what was really used?*

*None of this is simple. The more research I do the less comfortable I am at differentiating between the cultivated varieties of bigibbum and between the species and the hybrids."*

Just the same, no matter what they really are, these are all gorgeous orchids, and very popular. At our last Kuringai meeting, when discussing his lovely bigibbum, which was selected Best Species of the Evening, Garrie Bromley gave us a few tips on growing them. He said he grows his plant in an enclosed but unheated glasshouse but it can be grown in a shadehouse provided it is under a roof and can be given no water at all during its winter rest period. After the flowers finish at this time of year, Garrie says they should be hung up high where there is good light and air movement, and should be given no water at all until the new growths are well under way in spring. Something like the culture regime we have been taught for *Catasetums* in recent years.