

Dendrobium speciosum

A Review of the Species

By
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SUMMARY

In this paper *Dendrobium speciosum* Sm. var. *bancroftianum* Reichb.f and *D. jonesii* Rendle subsp. *bancroftianum* (Reichb.f) M. Clements et D.Jones are reduced to synonyms of *D. X gracillimum* (Rupp) Leaney.

D. ruppianum A.Hawkes forma *magnificum* (Dockr.) Dockr. is given a new combination and status as *D. jonesii* subsp. *magnificum*.

D. speciosum Sm. var. *nitidum* EM.Bail. and *D. X. nitidum* (EM.Bail.) M.Clements et D.Jones are reduced to synonyms of *D. X. gracillimum*.

D. speciosum Sm. var. *hillii* Masters, *D. speciosum* Sm. var. *grandiflorum* EM.Bail., *D. speciosum* Sm. var. *capricornicum* S.C.Clemesha, *D. speciosum* Sm. var. *curvicaule* EM.Bail. and *D. speciosum* Sm. var. *pedunculatum* S.C.Clemesha are raised to sub species rank

D. kestevenii Rupp var. *coloratum* Rupp is shown to be a normal example of *D. X delicatum* (EM.Bail.) EM.Bail. and not a backcross with *D. kingianum* Bidw. ex Lindley.

INTRODUCTION

The authors of this paper have made an intensive and thorough study of *Dendrobium speciosum* over the last 15 years. We have travelled all over the habitat of this species and examined literally thousands of plants and their flowers - both in situ and cultivation.

We have also examined and documented herbarium specimens as well as the essential Type specimens and their photographs.

We reject the recently published Mark Clements and David Jones treatment of this species (Clements, 1989) and believe many of the name changes show a poor and unconventional understanding of the concept of a species.

It unfortunately becomes obvious their research into this variable taxon has been rushed and incomplete as some vital Type specimens and/or their photographs were not studied despite their availability.

It is very important that their errors are corrected before publication of the orchid volume of *Flora of Australia*, otherwise they may be repeated at a later date.

D. speciosum Sm. var. *bancroftianum* Reichb.f.

Clements & Jones give this a new combination and status as *D. jonesii* subsp. *bancroftianum*. Obviously they did not examine the Type specimen or the photograph of it published in *The Orchadian* Vol.6, No.12, 271-272 (June 1981).

The slender parallel sections of pseudobulbs and hand painted line drawings of flowers do not even match the most extreme example of *D. jonesii*. The Type sheet has a handwritten copy of the original description with minor variations;

"This is distinctive variety. Its flowers are much like those of the genuine plant but the petals are a trifle longer hence more antennate and the lip is lightest sulphur with a very few minute atoms of purple at base and the callus at the base is (orange) and darker yellow. The stem is even more slender than is *D. hillii* Hk. Leaves are very narrow in width. It was sent by Dr. Bancroft from Brisbane to his friend. Den. *speciosum* (Concolor) *Bancroftianum*."

The words in brackets have been crossed out. The Type photographs of *D. speciosum* var. *bancroftianum* match *D. X gracillimum* well and both *D. speciosum* var. *bancroftianum* and *D. jonesii* subsp. *bancroftianum* should be regarded as synonyms of it.

The large flowered form of *D. jonesii* formerly called *D. ruppianum* forma *magnificum* therefore is unnamed. The following combination is to rectify this situation:

***D. jonesii* Rendle subsp. *Magnificum* (Dockr.) D.P.Banks et S.C.Clemesha Comb.nov.et stat.nov.**

Basionym: *D. fusiforme* (EM. Bail.) EM. Bail. var *fusiforme* forma *magnifica* Dockr., N.Qd.Nat. 24, no.114

(1956)24.

Type: Bellenden Ker, North Queensland. Oct. 1951 J.&K.Wilkie (NSW!)

Synonym: *D. ruppianum* A.D. Hawkes var. *ruppianum* forma *magnificum* (Dockr.) Dockr., Aust. P1.3 (1965) 223-225.

This subspecies flowers later than *D. jonesii* subsp. *jonesii* and its flowers are larger with wider sepals. Clones with albanistic labellums are frequently encountered above 1000 meters altitude on locations such as the Atherton Tableland (M. Harrison pers.comm.).

Specimens with normal purple labellum markings are more frequently encountered in cultivation.

***D. speciosum* Sm. var. *nitidum* F.M.Bail.**

The sole basis for Clements & Jones raising this taxon to hybrid status as *D. X nitidum* seems to be that Bailey gave the Type locale as Cairns and the habitat 'Tropical Queensland' in *Queensland Flora*.

The Type was taken from a plant cultivated in the bushhouse at Bowen Park. Its collector was unknown. Unfortunately many of the stated collection localities of other plants at Bowen Park have obviously been incorrect.

Clements & Jones give the likely parentage of this hybrid as *D. gracilicaule* x *D. speciosum* subsp. *pedunculatum* (as *D. pedunculatum*). If the hybrid really came from North Queensland, which we doubt, it would be a hybrid between *D. gracilicaule* and *D. speciosum* subsp. *curvicaule*; as *D. speciosum* subsp. *pedunculatum* grows in drier habitats from which *D. gracilicaule* is absent.

Clements & Jones chose as a Neotype a specimen with a handwritten comment by Bailey;

"This seems only to differ from the specimens I described my *Dendrobium speciosum* var. *nitidum* from in its yellow blooms and in the normal form the white or yellow colour is not constant and the dots upon the leaf which may be a disease."

This comment makes it obvious that this specimen is not what Bailey considered to be the Type. Clements & Jones state it is the only specimen with Bailey's handwriting on it. This is incorrect. Another specimen has a handwritten label by Bailey. Dr.R.W.Johnson from the Queensland Herbarium has told us that this could be the Type. Attached to this is a handwritten note by H.M.R.Rupp stating:

"I cannot distinguish between these specimens of *D. speciosum* var *nitidum* (except the Tamborine Mountain plant)* and the N.S.W. form named by me in 1929 - *D. speciosum* var. *gracillimum* and I believe them to be identical. If this be so, the varietal name *gracillimum* must disappear. I did not consider var. *nitidum* when describing the N.S.W. form because (1) I had been shewn (sic) a form supposed to be *nitidum* which is quite different from the Q'land Herbarium specimens, (2) EM. Bailey gives for *nitidum* the locality 'Tropical Queensland'. Although var. *gracillimum* differs from the type *nitidum* in Queensland Flora in often having fewer flowers, coloured cream or yellow (as well as sometimes being white), the whole character of the two agrees so closely that it does not seem worthwhile maintaining varietal separation. Weston N.S.W. 9-11-31 H.M.R. Rupp".

* The Tamborine Mountain plant Rupp refers to is a clone of *D. X delicatum* with slender pseudobulbs. It was collected by Mrs. Hilda Curtis in September 1924 and thus was not seen by EM. Bailey who died in 1915. Mrs Curtis gave a division of this plant to Murray Corrigan stating it was *D. speciosum* var. *nitidum* and had been identified by the Queensland Govt. botanist (possibly C.T.White).

Mrs Curtis' plant is illustrated in Nicholls' *Orchids of Australia* (plate 401) as *D. speciosum* var. *nitidum*. The present authors have cultivated this clone for over 10 years.

D. speciosum var. *nitidum* was published earlier than *D. speciosum* var. *gracillimum* and this is why Rupp stated the latter name should disappear. *D. speciosum* var. *bancroftianum* is earlier than both so is the correct name for this hybrid at varietal rank, whilst *D. X gracillimum* is the correct name at specific level.

There is no evidence to suggest that *D. speciosum* var. *nitidum* is anything but a hybrid between *D. gracilicaule* and *D. speciosum* subsp. *hillii*. It is important to note the specimen Clements & Jones chose as the Neotype has leaves reminiscent of *D. speciosum* subsp. *hillii*; long and somewhat oblong.

D. speciosum var. *nitidum* and *D. X nitidum* should be regarded as synonyms of *D. X gracillimum*.

***Dendrobium speciosum* Sm, Exotic Bot.1:7,t.10 (1804) and its subspecies.**

Dendrobium speciosum is one of Australia's most spectacular plants and has been widely cultivated and studied by orchid growers and botanists for over 100 years.

This name has been accepted as either one variable taxon or as one falling into six varieties which on the whole are distinct. Intermediate forms are sometimes encountered where the distributions of some varieties overlap.

As each variety basically has a separate distribution, the present authors consider they should be raised to subspecies status.

We therefore make the following new combinations;

Dendrobium speciosum Sm. subsp. *speciosum* Sm.
Dendrobium speciosum Sm. subsp. *hillii* (Masters) D.P. Banks et S.C. Clemesha
Dendrobium speciosum Sm. subsp. *grandiflorum* (EM. Bail.) D.P. Banks et S.C. Clemesha
Dendrobium speciosum Sm. subsp. *capricornicum* (S.C. Clemesha) D.P. Banks et S.C. Clemesha
Dendrobium speciosum Sm. subsp. *curvicaule* (EM. Bail.) D.P. Banks et S.C. Clemesha
Dendrobium speciosum Sm. subsp. *pedunculatum* (S.C. Clemesha) D.P. Banks et S.C. Clemesha

***Dendrobium speciosum* Sm. subsp. *speciosum* Sm.**

This subspecies is well known in New South Wales as the "Rock Lily". An unfortunate common name as it is not always confined to rocks and is certainly not a lily.

It is one of our most impressive orchids and a plant commonly cultivated in pots, on trees and in rockeries by orchid growers and gardeners for its impressive spring floral display.

The Type specimen was collected at Port Jackson, New South Wales where it is now almost extinct.

It is generally a lithophyte on sandstone in open sclerophyll forest however in some localities, ie Kangaroo Valley, it forms part of the rainforest flora as an epiphyte.

Cane length varies considerably. Those from exposed, drier locations (eg, Mt. White, Fiddletown) are commonly shorter, with erect litter/rain collecting leaves - whilst those from forested areas (eg. Wattagan Range) are taller with larger leaves. This trait is genetic and maintained in cultivation. Compact forms exist within all six subspecies.

Three unusual forms are in cultivation;

- 1) Albanistic form. A clone from Peat's Ridge known as 'Purity' which carries normal anthocyanins in its pseudobulbs but the labellum lacks any purple markings.
- 2) Semi-Varigated form. From Mt. White, this plant consistently produces dark and very light green striped leaves.
- 3) Spotted form. The original habitat of this clone from Mangrove Mt. was destroyed early 1980s due to flooding for the dam. This desirable clone exhibits deep cream flowers with distinctive deep purple spots and striations through the sepals. The labellum is darker than most clones. It has maintained this characteristic over successive flowering seasons, and its dominance and impact on future hybrids is unknown. We also know of a handful of similar clones (two from the same location) however the degree of spotting is variable and inconsistent from year to year.

Dendrobium speciosum has evolved to survive a wide range of temperature fluctuations and periodical stress from drought and bushfires. Most adult clumps reshoot after fire from dormant eyes located on older pseudobulbs, protected in the middle of the plant.

Colonies within the Bouddi National Park grow on sandstone cliffs overlooking the Pacific Ocean and obviously tolerate salt-spray. Populations on limestone at Jenolan Caves Frequently get blanketed with snow several times each winter with no harmful effects on the plants.

This subspecies is distributed from Genoa and Cann River, eastern Victoria northwards to Alum Mountain (coast) and Munghorn Gap' near Mudgee (inland) in New South Wales. It is interesting to note that Munghorn Gap is some 200 km. from the coast.

***Dendrobium speciosum* Sm. subsp. *hillii* (Masters) D.P. Banks et S.C. Clemesha. Comb.nov.et. stat.nov.**

Basionym: *D. speciosum* Sm. var. *hillii* Masters, Gard. Chron.7, (January 27,1877) p.112, 114. (Holotype Kew)
Synonyms: *D. hillii* Hook., Curtis's Bot. Mag. 87 (186 1) t. 5261 (illegitimately published) non. E Muell. 1859 (now *Sarcochilus hillii* (E Muell.) E Muell.)
D. tarberi M.Clements et D.Jones, Cat. Austr. Orch. 62, (1989)

In giving this plant specific rank, Clements and Jones claim that *D. speciosum* subsp. *speciosum* lacks aerial roots whilst subsp. *hillii* (As *D. tarberi*) and subsp. *grandiflorum* (as *D. rex*) always have them.

This is incorrect. We have observed aerial roots on clones of *D. speciosum* subsp. *speciosum* from the following localities; Munghorn Gap, Cessnock, Paterson, Mangrove Mountain, Arcadia, Wedderburn Gorge and parts of the Kangaroo Valley. Other clones from these localities lack them.

The degree in which clones of *D. speciosum* subsp. *hillii* produce aerial or litter collecting roots varies greatly.

In some clones production is great; eg, Tamborine Mountain and the Numinbah Valley in south-eastern Queensland and Mt. Warning, Allyn River and Ellenborough Falls in New South Wales. Whilst in other clones it is only slight to non-existent; eg, Wyberba, Tenterfield and Dorrigo. There is a great deal of variation within different clones from the same locality, eg, Toowoomba, Coramba and Comboyne.

Variations also occur within populations of *D. speciosum* subsp. *grandiflorum* and we also have a couple of clones of *D. speciosum* subsp. *curvicaule* from the Eungella Range which produce aerial roots.

D. speciosum subsp. *hillii* differs from *D. speciosum* subsp. *speciosum* in having more slender pseudobulbs that are of near even diameter throughout. Flowers are smaller, more numerous with a proportionally smaller labellum. Flower colour is generally cream to white, however pale yellow clones exist. An albino form from near Toowoomba is in cultivation.

In areas where the two subspecies ranges meet, intermediate characteristics are evident. eg, plants of subsp. *speciosum* from near Cessnock have more numerous flowers than is usual for this subspecies from further south. Isolated clones of subsp. *hillii* from Mangrove Mountain and the northern Wattagan Range have more spaced flowers than is usual for this subspecies.

A dwarf race is encountered as a lithophyte in the 'Granite Belt' of the NSW/Qld border, centred on the Girraween National Park. The tapered pseudobulbs are up to 30cm. tall commonly less. The flowers are identical to those of subsp. *hillii* but are much more widely spaced on the inflorescence. The reduced size and number of flowers is probably the result of a colder and drier habitat. A similar form occurs at the Warrumbungle Mountains, near Coonabarabran.

D. speciosum subsp. *hillii* is distributed from Peat's Ridge, on the central coast of New South Wales (where it may now be extinct due to habitat destruction) northwards to Southeastern Queensland. The exact northern limit is unknown as intermediates occur with subsp. *grandiflorum*, however it would roughly be from around Crows Nest to the Mt. Glorious area.

***D. speciosum* Sm. subsp. *grandiflorum* (F.M. Bail.) D.P. Banks et S.C. Clemesha. Comb.nov.et. stat.nov.**

Basionym: *D. speciosum* Sm. var. *grandiflorum* EM. Bail., Botany Bull. Dep. Agric. Qld. 14 (1896) 12

Synonyms: *D. speciosum* Sm. var. *hillii* Masters forma *grandiflorum* (EM. Bail.) EM. Bail., Qld. F1.5 (1902) 1526.

Type: Bowen Park Bush House ex cult. Eumundi (Bri!)

D. speciosum Sm. forma *grandiflorum* (EM. Bail.) Kranzl., Pflanzenreich Heft 45 (1910) 271.

D. rex M. Clements et D. Jones, Cat. Austr. Orch. 60(1989).

Of *D. speciosum* forma *grandiflorum* (EM.Bail.) Kranzl., M.A.Clements in his Preliminary Checklist of Australian Orchidaceae gives the reference to this as *D. speciosum* forma *grandiflorum* (Bailey) H.G. Reichb., Beitr. Syst. Pfl. 271(1871).

This is an impossibility as Reichenbach died in 1889 - *D. speciosum* var. *grandiflorum*, on which it was based, was not published until 1896.

Of subsp. *grandiflorum* Clements & Jones state (as *D. rex*) "Plants of this species are rather large and similar in habit to those found in *D. tarberi* (*D. speciosum* subsp. *hillii*). *D. rex* consistently has erect, cylindrical or slightly fusiform pseudobulbs". They also state that compared to *D. speciosum* subsp. *hillii* (as *D. tarberi*) this species has large, stellate, bright yellow, sometimes cream-coloured flowers with labella heavily marked with deep mauve-blue blotches.

D. speciosum subsp. *grandiflorum* like most orchids has horticulturally good and poor forms. Unfortunately most are not so wonderful as Clements & Jones description. Plant habit is variable - not all are large. Those from rainforest localities are large and identical to many plants of subsp. *hillii* out of flower. From drier localities lithophytic plants are much shorter, usually below 50cm. eg, Kroombit Tops, Calliope, Miriam Vale and the western cliffs of Bunya Mountains. Some have stems which are tapered, and others we have observed at the Bunya Mountains are strongly curved.

Flowers mostly are not stellate but remain partly closed - rather like a crabs claw. Some clones open more widely than others and all open more in warm weather or in a glasshouse.

Flower colour is also variable. The majority of clones open a deep creamy-yellow and mature over the next 4 or 5 days to various shades of buttercup yellow. At the extreme north of its range, ie Kroombit Tops and Mt. Larcom, its most spectacular and deeply coloured forms are found - bright yellow maturing to deep gold. These superior clones are highly valued in enthusiasts' collections.

In the extreme south of its range, eg Mt. Mee, Mt. Glorious and Mt. Binga (near Blackbutt), flowers range from pale yellow through to deep cream and white and variable in size. It is difficult to say where subsp. *hillii* stops and subsp. *grandiflorum* starts.

Intermediate forms occur because there are no geological or physical barriers between the two subspecies.

Dendrobium speciosum appears to be absent from the Glasshouse Mountains, as this location is on the border of the two subspecies. We suspect it never grew there, as suitable niches exist where it would be almost impossible for it to be removed.

The labella of flowers are stated to be heavily marked with deep mauve blue blotches. A minority are. Most are lightly to heavily marked. This characteristic is variable within all *D. speciosum* subspecies and on the whole are not

heavier than the others.

In *D. speciosum* subsp. *grandiflorum* the degree of aerial root production again is variable. Lithophytic clones from its northern distribution range eg, Mt. Larcom and Calliope do not produce any at all: Variable populations occur at Kroombit Tops, Kalpowar and the Bunya Mountains.

Generally epiphytic clones produce the greater number of aerial roots whilst they are commonly absent on lithophytic clones. This trait is maintained in cultivation. Extensive aerial root production is particularly evident throughout southern populations. eg, Amamoor Creek, Imbil and Jimna.

In its typical form, *D. speciosum* subsp. *grandiflorum* is roughly distributed from the imaginary line between Caboolture, Crows Nest and the Bunya Mountains, northwards along the ranges to Mt. Larcom north of Gladstone where it is now under serious threat due to overcollecting.

***D. speciosum* Sm. subsp. *capricornicum* (S.C. Clemesha) D.P. Banks et S.C. Clemesha. Comb.nov.et stat.nov.**

Basionym: *D. speciosum* Sm. var. *capricornicum* S.C. Clemesha, Orchadian 7 (5): 103-6, f.2,3,4 & 6 (1982)

Type: Mt. Jim Crow, about 8 km inland from Yeppoon (holo Bri!)

Clements and Jones state the holotype is at NSW. This is incorrect. The holotype is at Brisbane and a specimen from the same plant collected the following year is in the NSW National Herbarium.

Of subsp. *capricornicum*, Clements & Jones state "The description of habitat and habit of plant, are consistent with those described for *D. curvicaule*." (ie *D. speciosum* subsp. *curvicaule*.)

A photograph of *D. speciosum* subsp. *curvicaule* was published in the Australian Orchid Review (Spring 1988) p.21 and labelled *D. speciosum* var. *capricornicum*. It is doubtful that this plant was collected near Yeppoon. Possibly Clements & Jones mistook this to represent subsp. *capricornicum*, as it is rarely encountered in cultivation and frequently mislabelled.

One of the authors was recently shown two clones of 'capricornicum' in the collection of Gerry Walsh, the result of a trade with a nursery in Queensland. One clone upon flowering proved to be a typical tall growing subsp. *curvicaule*, whilst the alleged 'Mt. Jim Crow' plant is obviously a mislabelled subsp. *pedunculatum*.

There are two distinct populations of this strictly lithophytic subspecies. We will refer to them as the coastal (typical) and inland forms. Both forms require high light intensities for optimum flowering.

Typical examples of this subspecies are found only in a comparatively localised area on volcanic plugs and ranges (eg, Bouldercombe and the Berserker Range.) near Rockhampton, Qld. Here the pseudobulbs and short, thick lanceolate leaves are rather pale in appearance. These leaves are very hard and snap easily if bent. The inflorescences have a long peduncle and white to cream flowers, which are produced from May to July with fairly short but tapered sepals. The individual flowers are not particularly horticulturally attractive however the long spike on such a compact plant is impressive.

These coastal populations were never common due to lack of suitable habitats, and are now threatened by indiscriminate collecting and fires.

This subspecies is quite distinctive from the type locality, however the inland relic populations from the Blackdown Tableland and Carnarvon Gorge have obvious ancestral links with subsp. *grandiflorum* (not subsp. *curvicaule*) and could be classified as intermediate forms. Aerial roots are absent in this subspecies.

Specimens from the Blackdown Tableland and Carnarvon Gorge differ from the Type population in having yellow to deep cream flowers, a short peduncle and spring flowering. The pseudobulbs are darker and more robust than the coastal plants. New growths are stained with dark purple pigment and mature to a dark green. All of these habitats are widely separated from each other by areas of dry plains.

Jones in *Native Orchids of Australia* states that 'those from inland regions flower earlier'. This is incorrect as the coastal forms flower six to ten weeks before the inland populations.

As the name suggests, this subspecies is located on and near the Tropic of Capricorn in central Queensland from the coast to 420 km inland. Despite the close proximity (70 km) between the type locality (Mt. Jim Crow) and the northern point for subsp. *grandiflorum* (Mt. Larcom), the changeover is clearcut with no intermediate forms occurring.

***D. speciosum* Sm. subsp. *curvicaule* (F.M. Bail.) D.P. Banks et S.C.Clemesha. Comb.nov.et stat.nov.**

Basionym: *D. speciosum* Sm. var. *curvicaule* EM. Bail., Botanical Bull. 14, (1896) 12. Type, Ex Cult. Bowen Park bush house. Locality unknown.

Synonym: *D. curvicaule* (EM. Bail.) M. Clements et D. Jones, Cat. Austr. Orch. 51 (1989)

Bailey gave the habitat as "Lady Elliot Island from whence Mr. Soutter received the plants now (September)

flowering in the bushhouse, Bowen Park."

Lady Elliot Island is a true coral cay that has no suitable *D. speciosum* habitats and is adjacent to the coast where subsp. *grandiflorum* occurs. The natural flora of the island was destroyed by phosphate miners who literally lowered the island about 5 metres. After the miners left goats were introduced and they prevented any flora regeneration until they died out in the early 1960s. Following this many trees were planted and the island no longer is the desolate denuded land it was. The forests of coral cays are fairly dry and *D. speciosum* is not known from any of the cays found north of Lady Elliot Island.

D. speciosum subsp. *curvicaule* was named because the Type plant had curved stems. This was an unfortunate choice of name as this can occur in all subspecies of *D. speciosum* except subsp. *Pedunculatum*. Plants of subsp. *grandiflorum* observed in situ at the Bunya Mountains were curved into a full halfcircle.

The flowers of subsp. *curvicaule* differ from the southern subspecies by having proportionately shorter, broader sepals and petals and a well displayed labellum.

The sepal shape differs from that of subsp. *capricornicum* in being less tapered. The labellum of the latter is shorter in proportion to the rest of the flower.

Clements & Jones treated subsp. *capricornicum* as a synonym of subsp. *curvicaule* (as *D. curvicaule*).

It would seem they failed to compare the photographs of it that accompany the original description. Whilst the similarity exists, they differ in sepal shape, flowering season is entirely different and their habitats are separated by dry plains.

However specimens of subsp. *curvicaule* from Cape Hillsborough have somewhat tapered sepals like the southern subspecies. This again shows similarity of some specimens to other subspecies which is why they cannot be considered to be specifically distinct.

D. speciosum subsp. *curvicaule* has two different growth forms. Generally clones from the Eungella Range, Mt. Jukes, Tinaroo Dam, and near Ingham, etc have pseudobulbs thickest at the base, tapering slightly to a narrower apex.

Those from Mt. Lewis, eastern Mt. Windsor Tableland, near Inisfail and Mt. Amos, etc have pseudobulbs with a bulbous base tapering immediately to a narrow neck, broadening near the middle, then gradually tapering again to a slightly narrower apex. The pseudobulbs are somewhat flattened.

This form would seem to be the Type form as Bailey's original description begins with "stems curved, some almost into a half-circle, compressed; 9-12 inches long (22-30 cm), the broad diameter often obtaining 1-1/2 inches (3.8 cm)".

Clements & Jones appear to include this flattened stemmed form in *D. speciosum* subsp. *pedunculatum* (as *D. pedunculatum*).

We consider that though the stem habit of the two differ, the flowers of both are generally the same, differing mainly in size. Both are variable so are best treated within the one subspecies.

The most spectacular forms of subsp. *curvicaule* come from the Eungella Range west of Mackay. The best of these have large, well shaped, deep cream flowers with very heavy texture. Some fine clones are now in cultivation, and selfings of these will ensure their popularity. We have also seen a clone with deep purple striations on all segments.

Dendrobium speciosum subsp. *curvicaule* is distributed from the Dipperu National Park (south-west of Sarina) northwards along the coast and ranges to Mt. Amos, south of Cooktown. It also occurs on Hinchinbrook Island. Along its range it occurs both as an epiphyte and lithophyte.

***D. speciosum* Sm. subsp. *pedunculatum* (S.C. Clemesha) D.P. Banks et S.C. Clemesha. Comb.nov.et stat.nov.**

Basionym: *D. speciosum* Sm. var. *pedunculatum* (S.C. Clemesha Orchadian, 6(11): 261-262 (1981)

Type: cult. Coffs Harbour, 26 Aug, 1980 S. Clemesha ex Bones Knob via Atherton, B. Gray (Holo Bri!) (Iso NSW!).

Synonym: *D. pedunculatum* (S.C. Clemesha) D. Jones et M. Clements Cat. Austr. Orch. 58(1989)

Jones and Clements state the Holotype is in NSW and the Isotype is in the Queensland Herbarium at Brisbane. That is not so. It is the other way around.

D. speciosum subsp. *pedunculatum* differs from its closest relative, *D. speciosum* subsp. *curvicaule* in its dwarf habit, purple anthocyanins in developing growths and inflorescences and long peduncle.

The peduncle length is very variable. In the Type plant it is twice the length of the rhachis and all the flowers are crowded at the apex. In a clone from the Herberton Range the peduncle is the same length as the rhachis and flowers are more spaced.

This subspecies is generally more reluctant to flower off older pseudobulbs than its relatives. One spike per mature growth is the norm, two are sometimes produced on robust specimens.

In some localities, such as Mt. Lewis, subsp. *pedunculatum* and subsp. *curvicaule* both are found and intermediates are known.

Flowers of some clones of subsp. *pedunculatum* can be very difficult to distinguish from subsp. *curvicaule* if both

are picked from the plants and mixed together. Thus clones exist which are difficult to segregate into their respective subspecies.

We have observed and cultivated a number of clones of subsp. *curvicaule* which flower on stems no taller than mature plants of subsp. *pedunculatum*. This has led to small growing plants of subsp. *curvicaule* being confused with subsp. *pedunculatum*.

This attractive lithophytic subspecies is endemic to north-eastern Queensland, growing on the western slopes of the Evelyn, Atherton and Windsor Tablelands.

***D. kestevenii* Rupp. var. *coloratum* Rupp.**

Clements on page 55 of his Catalogue of Australian Orchidaceae (1989) states: "Appears to be closer to *D. kingianum* than *D. speciosum* and possibly originates from a backcross of *D. X kestevenii* to *D. kingianum*."

Ted Gregory has an attractive and distinctive plant he calls *D. kestevenii* var. *coloratum* that looks like a backcross. It does not match the Type specimen of *D. kestevenii* var. *coloratum*. As the photograph shows this differs little from Type of *D. kestevenii*.

The present authors consider *D. kestevenii* and *D. kestevenii* var. *coloratum*, which we both have in cultivation, to be synonymous with *D. X delicatum*.

CULTIVATION

All of the six subspecies of *Dendrobium speciosum* are easily cultivated as long as their basic requirements are met. Larger specimens can be attached to suitable garden trees which do not shed their bark or incorporated in a rockery. As our plants are grown in containers, we will focus our attention on this style of culture.

1) **Potting mix:** It is essential that this allows for free drainage whilst still retaining some moisture. A combination of medium/ large pine bark and river gravel is a popular mix that gives good results. Chunks of foam can be added to larger pots to reduce the overall weight.

2) **Pots:** Squat black plastic pots are preferred up to 165mm pot size. After which, squat terracotta pots and dishes are used. You may have to add a few more drainage holes as 'wet feet' will lead to rot problems. Smaller terracotta pots and saucers can be used for dwarf plants from drier climates such as subsp. *pedunculatum*, subsp. *capricornicum* and the 'granite belt' form of subsp. *hillii*.

3) **Housing:** We grow our plants on benches one metre off the ground in a bushhouse under 30% shadecloth. Seedlings will grow and mature faster under 70% shade. For optimum flowering it is imperative that the plants receive light for most of the day without obstructions such as buildings and dense trees. Fresh air circulation is a must.

4) **Watering:** For plants grown in a bushhouse, supplementary watering is appreciated by the plants during dry spells. Copious water and half strength organic fertiliser can be applied during active growth, usually after flowering.

5) **Repotting:** Seedlings can be potted-on throughout the year except mid-winter. Active root growth appears to recommence after the spring equinox. Mature plants are best repotted and/or divided after flowering, once they have outgrown their pots or disintegration of the potting mix has occurred.

6) **Propagation:** Mature plants can be divided into pieces of no less than four pseudobulbs. Leafless backbulbs (with all roots cut back to 1 cm) will strike readily if placed upright on moist sphagnum moss. Even single bulbs will commonly shoot from dormant or blind eyes. This is beneficial when propagating rare or selected clones. Plants raised from seed can take up to 10 years to reach maturity. If the young seedlings suffer no setbacks this can be reduced with good culture.

LINE BREEDING AND CONSERVATION

We have been involved with line breeding of *Dendrobium speciosum* and other plant species for over a decade, in an effort to produce superior clones and help reduce the strain on the ever-decreasing wild populations.

Being such an attractive and conspicuous plant, many accessible clumps have been removed - some unfortunately from national parks.

It is important to not only concentrate on proliferating horticulturally attractive clones from known localities, but to also focus our attention on forms with restricted and threatened populations, eg; the coastal form of subsp. *capricornicum*.

All growers should try to keep their plants, and localities, correctly labelled and documented. Thereby if the species becomes extinct from that locality, seedlings descended from an original inhabitant may be reintroduced into the wild.

CONCLUSION

The present authors feel the Clements & Jones treatment of *D. speciosum* will cause total confusion if followed.

It can be seen that their research into this orchid has not been thorough enough and their attempt to replace long established names with unnecessary new ones is undesirable.

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