

# A Review of *Dendrobium speciosum* Sm.

by S.C. Clemesha

## SUMMARY

In this paper the published varieties of *Dendrobium speciosum* are discussed and it is concluded that *D. speciosum* Sm. var. *speciosum*, *D. speciosum* Sm. var. *Hillii* Masters, *D. speciosum* Sm. var. *grandiflorum* F.M. Bail and *D. speciosum* Sm. var. *curvicaule* F.M. Bail, are distinctive varieties which have natural distributions that are separate from each other.

*D. speciosum* Sm. var. *pedunculatum* S.C. Clemesha is described as a new variety (= "var. compactum" - in part). *D. x gracillimum* (Rupp) Leaney is shown to be an illegitimate name and the hybrid is given a new name - *D. x gracilosum* S.C. Clemesha. *D. x gracillimum*, *D. speciosum* var. *gracillimum* and *D. speciosum* var. *nitidum* F.M. Bail. are reduced to synonyms of *D. x gracilosum*. *D. speciosum* Sm. var. *bancroftianum* Raichb.f. is not identified.

Three varieties of *D. speciosum* were described by F.M. Bailey from plants in cultivation in a bushhouse at Bowen Park. This park is near Brisbane General Hospital and it adjoins the Royal National Association Showground. In the late 1800's it was used by the Queensland Acclimatisation Society for horticultural purposes. Unfortunately, as discussed later in this paper, the origin of plants from there in at least one and possibly two cases was wrong.

*D. speciosum* extends from Victoria to North Queensland and a single clone in cultivation was reported to have been collected in New Guinea during World War II. (See details under *D. speciosum* var. *pedunculatum*.)

Most Plants I have studied were living ones in cultivation and this is the case except where otherwise stated. I have studied some in their natural habitat and a number of preserved specimens.

## *D. speciosum* Sm. var. *speciosum*

*D. speciosum* Sm., Exotic Bot. 1 (1804) 17, t. 10; R. Br., Prodr. Fl. Nov. Holl. (1810); Ldl., Gen. Spec. Orchid Pl. (1830) 87; Reichb.f., Beitr. Syst. Pf. Ion'. (1871) 48; Benth., Fl. Aust. 6 (1873) 279; F.M. Sail., Syn. Old. Fl. (1883) 509 and Old. Fl. 5 (1902) 1526; R.D. Fitzg., Aust. Orch. 2, pt. 4 (1891) and ined. plate no. 31; Williams, Orch. Grow. Man. 361 (1894); Veitch, Man. Orch. Pl. 74, 75 (1894); Kranzl., Pflanzenreich Haft 46 (1910) 270; Pescott, Orchids Vict. (1928) 15; Rupp, Guide Orchids N.S.W. (1930) 15 and Orchids N.S.W. (1944) 113; Macpherson and Rupp, N. Gid. Net. 4, no. 43 (1936) 25; Rupp and Hunt, A Review of the Genus *Dendrobium* in Australia, Proc. Linn. Soc. N.S.W. Vol. 72 p. 5-6 (Jan. 1948); Willis, H.-. Pl. Vict. 1 (1962) 419; Leaney, Aust. Pl. 1, no. 11 (1962) 32; Dockrill, Aust. Indig. Orch. 384-388 (1969) 1; Nicholls, Orch. of Austr. 109 Pl. 399-400 (1969); J. Rentoul, Austr. Orch. Rev. 40, 1, 19-21 (March 1975) and 40, 2, 95-101 (June 1975); Gregory, The Orchadian 6, 8, 184, - 186 (June 1980).

## Type Specimen:

The Type specimen is in I.E. Smith's herbarium of 20,000 specimens which is held in the herbarium of the Linnean Society in London. My two requests for information or photographs of it from them were not answered, but Mr L Pedley of the Queensland Herbarium very kindly sent me photographs of it which were taken from the Queensland Herbarium microfiche of Smith's herbarium. It is reproduced with permission of the Director of the Queensland Herbarium.

On the Type sheet is written:

"Port Jackson New South Wales"

In the general area around there the var. *speciosum* is the only one found and at the time it was described it was plentiful. FitzGerald in Australian Orchids, 2, 4 (1878) stated *Dendrobium speciosum*, about thirty years ago, was common on all the sandstone cliffs about Sydney, and on such outlying rocks as were large enough to afford safety from bushfires." Today it still exists in remote areas of the Sydney-Hawkesbury district.

Original Description:

A transcription of J.E. Smith's original description (1804) follows

**"DENDROBIUM speciosum Great Dendrobium**

**GYNANDRIA Diandria.**

"Nectary a lip without a spur. Petals 5; the 2 lower external ones forming a pouch with their base. Lid vertical. Flowers often reversed.

"Flowers reversed. Cluster solitary, many-flowered. Lip three-lobed. Leaves radical, coriaceous.

"Grows on rocks and trees in New South Wales, where the natives call it Wer-ga-derra. It is a fine species of

a new genus formed by Or Swartz, with great judgment, out of the Epidendrum of authors, another species of which is my *E. Barringtoniae*, Ic. Pict. Plantarum, t, 16; but in that the flowers are not, as in this, reversed.

"The stem is short and thick. Leaves almost entirely radical, from 6 to 12 inches long, very tough and rigid, oblong, entire. Cluster solitary, on a scaly stalk, simple, consisting of a great number of alternate stalked flowers, of which our plate can admit but a few of the lowermost. From their greenish colour I should expect them to be fragrant at night. The 5 petals are oblong; the 2 lowermost (or in this reversed species the uppermost) forming a pouch, or short spur, round the base of the lip, which itself has no spur. The lip is 3-lobed, concave, green spotted with red. Column crowned by the vertical moveable cap or lid. Capsule obovate."

Both the description and plate that accompanies it are barely recognisable but in the latter the labellum is large compared to the other tepals as is usual for the Type variety.

#### **Plant Habit:**

The stems in this variety are thick at the base (up to 8cm in diameter) and they taper upwards. They are shorter than those of most varieties and many stems are 30cm or less tall, but they do grow to about 45 or more cm tall. Some are stained with reddish pigment, especially in winter, while others are devoid of this. The stems may be straight but often they are slightly curved and in large clumps, some curve into half circles. The leaves are flat or quite concave on the upper surface.

#### **Flowers:**

Normally about 20 to 60 or more flowers are produced and they vary from under 2.5cm to 4cm or more long. On the New South Wales south coast large-flowered plants occur in some areas close to where small-flowered plants occur. A study of individual clones in cultivation for a number of years has shown that the size of flowers of individual plants is consistent and varies little from year to year. The flowers of var. *speciosum* are more spaced than in other varieties as is shown on the Type specimen. Some are less so than others and an occasional one is rather full. Plants in cultivation vary little in this regard from year to year also.

In the northern parts of its distribution near Cessnock and at Bulahdelah, the flowers of this variety that I have seen growing in cultivated collections are white but further south they are mostly cream or yellow. Some plants are consistent from year to year in flower colour but I was given a piece of a plant with deep yellow flowers and for me the following year it flowered very pale and did not significantly deepen with age. In yellow specimens the labellum usually is paler.

#### **Labellum:**

The labellum often is proportionately larger than other varieties especially in larger flowers where it is over a third the length of the other tepals. A study of plants in cultivation has shown that in this and all the other varieties, the markings on the labellum vary from flower to flower on the same raceme. The markings on one side of the central ridge do not match those on the opposite side. The overall impression of heavily or lightly marked is consistent from year to year.

There is great variation in all varieties in the degree of labellum markings.

#### **Abnormal Specimens:**

The only abnormal specimens of *D. speciosum* I know of were found by Mr W. Upton in the central coast area of New South Wales and their flowers are consistent each year. Both grow in populations of normal plants and I have seen coloured transparencies of them.

One plant has flowers which entirely lack labellum side lobes. Otherwise the flowers are normal.

The other is a plant which carries normal purple anthocyanins in its pseudobulbs but the labella of the flowers lack any purple markings whatsoever. Ted Gregory in *The Orchadian* loc. cit. reports having a clone of a north Queensland plant of *D. speciosum* that has pure white flowers.

I have observed two plants of *D. ruppianum* forma *magnificum* and one of *D. ruppianum* forma *ruppianum* which also have flowers which entirely lack labellum markings though purple anthocyanins are present in the plants.

#### **Distribution:**

*D. speciosum* var. *speciosum* occurs from Paterson and Bulahdelah, New South Wales, south to Victoria. Most plants grow on rocks in open forest, but in some rainforest areas they grow on trees, e.g. Clyde Mountain and the Illawarra district. North of Paterson and Bulahdelah this variety is replaced by var. *hillii*. The change-over seems to be abrupt and clear. I have examined herbarium specimens of both varieties from Bulahdelah and both were as distinct and clear as any examples of the two varieties I have seen. That is true also of a Paterson herbarium specimen of *D. speciosum* var. *speciosum*. I have examined specimens labelled "-var. *speciosum*" from northern New South Wales and Queensland. In all cases the specimens

represented other varieties.

Small flowered specimens of var. *speciosum* are sometimes mistaken for var. *hillii* but they differ in having spaced flowers, which have labella that are much larger than those of var. *hillii*.

#### ***D. speciosum* Sm. var. *hillii* Masters**

*D. speciosum* Sm. var. *hillii* Masters, Gard. Chron. 7, (January 27, 1877) p. 112, 114; F.M. Bail., Syri. Old. Fl. (1883) 509 & Old. Fl. 5 (1902) 1526; Kent in Veitch, Man. Orchid Pl. 1 (1888) 74, t. facing 74; R.D. Fitzg. in Moore & Betche, H.-. Fl. N.S.W. (1893) 384; R.D. Fitzg., ined. plate no. 92; Williams, Orch. Grow. Man. (1894) 361; Rupp, Orch. N.S.W. (1944) 114.

Syn. *Dendrobium hillii* Hook.; Curtis's Bot. Mag. 87 (1861) t. 5261 (illegitimately published); F. Muell., Fragm. Phyt. Aust. 3 (1862) 39 (illegitimately published); non F. Muell. 1859 now *Sarcochilus hillii* (F. Muell.) F. Muell.

#### **Type Specimen:**

The Type specimen of *D. hillii* Hook. is held at Kew. Mr J. Wood of the Kew Herbarium kindly sent me a photograph of it. It is reproduced with permission of the Controller of Her Majesty's Stationery Office and the Director of the Royal Botanic Gardens, Kew.

The flowers are 21 mm long and are a good match for specimens of this variety commonly seen. They are densely packed on the raceme.

The Type specimen was taken from a cultivated plant that was sent from Brisbane by Mr Walter Hill, superintendent and botanist of the Botanic Gardens Brisbane.

Masters's description has been overlooked by recent Australian authors. His name is not stated in the article but Dr M.T. Masters, the then editor of The Gardners Chronicle, uses the word "we" to indicate his magazine's articles and this is used to begin his description. A transcription of this follows.

#### **Original Description:**

"We are glad of the opportunity of figuring the magnificent Australian *Dendrobium speciosum* var. *hillii*, for its merits are less known than they deserve to be. Few more glorious sights have met our eyes than that which greeted us on opening a package lately from the Hon. and Rev. J.T. Boscawen - Our page will only allow us to give a portion of one spike, but it may suffice to give an idea of its massiveness and beauty. The variety *hillii*, figured in the Botanical Magazine 5261, differs from the old *speciosum* in its narrower and longer sepals and petals, as pointed out by Baron von Muller. The stems also are more elongated. The plant is a native of tropical Australia, Queensland, but the species extends into the cooler southern latitudes of New South Wales and Victoria.

The flowers are of a creamy white colour, and have a pleasant fragrance. Compared with its Indian allies the present plant requires but little heat, and it usually flowers freely every year from the same bulb. Sometimes it flowers twice in the year and last year Mr Boscawen's plant flowered a third time from the same pseudobulb - a very unusual occurrence. Nothing could be finer and more healthy than the foliage which accompanied these magnificent spikes. Mr Boscawen's plan of culture, however, is very simple. After flowering the plant is allowed to rest for a month or six weeks; it is then placed in an intermediate house and copiously watered every day till the pseudobulbs are formed, when it is placed out-of-doors or in an orchard-house in the sun."

In the above description Masters refers to Hooker's description and therefore Hooker's type is the type of the variety and not Mr Boscawen's plant. This latter may not have been preserved. Clearly, however, both descriptions and plants represent var. *hillii* and there seems no detectable difference between the two.

The plate accompanying the original description is a good example of the variety. The flowers are dense, the tepals are the usual shape and width - they are not very curved - and the labellum is the usual size in proportion to them (over 1/3 the length of the other tepals). The stated flower colour is the normal one for this variety.

The author of *D. hillii* Hook. is Sir William Jackson Hooker whose name is indicated by "Hook." or "Hk." Rupp, loc. cit., Nicholls, Lc., Dockrill, l.c., and E.G. Gordon (in 6th World Orchid Conference Commemorative Brochure p. 40) all gave "Hook.f." or "Hk.f." as the author of *D. hillii* but this is incorrect since it represents his son, Sir Joseph Dalton Hooker.

Hooker loc. cit., Masters l.c., Veitch l.c., and Mueller l.c., all stated that var. *hillii* had longer narrower tepals than the type variety while Bailey, l.c., stated that the flowers were larger. In Australia it is more usual for flowers of var. *hillii* to have shorter, narrower tepals than the Type variety but in England in cultivation Hooker's and others' statements could have been true.

**Plant Habit:**

Plants of *D. speciosum* var. *hillii* have stems which usually are much taller than those of var. *speciosum* - up to about 1 metre or more tall and up to 3-4cm or more thick. They usually are straight and taper little throughout.

Under hard conditions in the wild they can be as short as 20cm but they are still straight and little tapered; so they remain distinguishable from those of the Type variety.

**Flowers:**

The flowers vary in size from 1.5 to 3.0cm long. They are usually much more crowded and much more numerous than in other varieties, particularly var. *speciosum*.

Mostly the flowers are white or pale cream. Some become yellow soon after opening but in New South Wales this is not common. A division of one plant was given to me by a friend. His piece flowered a cream colour in the spring of 1980 while mine flowered yellow. The reverse occurred with a clone that was sent from Brisbane and had unusually narrow sepals and petals which curved a little more than those of other specimens of var. *hillii* I have seen.

**Labellum:**

The labellum is the same shape as in the Type variety and in var. *grandiflorum* but is much smaller and as with other varieties it is variably barred and spotted with purple but on the whole to a much lesser degree. It is not unusual for labella of var. *hillii* to have few markings on the apical half.

**Distribution:**

This is the only variety of *D. speciosum* occurring in northern N.S.W. and extreme southern Queensland.

Except for a solitary record by Rupp (from a cultivated plant from Mangrove Mountain near Gosford) I have not been able to find any evidence of the existence of var. *hillii* south of the Hunter River. I have examined the Mangrove Mountain specimen. It appears to be var. *hillii* but its flowers are somewhat less crowded than usual.

It is replaced by var. *grandiflorum* between Brisbane and Nambour in Queensland. A specimen labelled var. *hillii* from the Bunya Mountains that is in the N.S.W. National Herbarium is var. *grandiflorum*

I have seen no evidence of intermediates between var. *hillii* and other varieties.

Throughout its range, var. *hillii* is fairly constant. One cultivated specimen I have seen west of Coffs Harbour, N.S.W has large flowers 3cm long but otherwise is typical.

A characteristic of var. *hillii* and var. *grandiflorum* is the production of aerial roots. These occur to a lesser extent in other varieties.

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

*D. speciosum* Sm. var. *grandiflorum* F. M. Bail., Botany Bull. Dep. Agric. Qld. 14 (1986) 12; Dockrill, Austr. Indig. Orchids (1969) 386. *D. speciosum* var. *hillii* Masters forme *grandiflorum* (F.M. Bail.) F.M. Bail., Old. Fl. 5 (1902) 1526. *D. speciosum* forme *grandiflorum* (F.M. Sail.) Kranzl., Pflanzenreich Haft 45 (1910) 271.

**Type Material:**

The Type material of this variety is in the Queensland Herbarium and Dr R Johnson, the Director, kindly sent me photographs of it. It is with his permission that two of them are reproduced here. It can be seen from these that the flowers have long, curved sepals and petals and short labella only about 1/5 to 1/4 the length of the other tepals and this is common in this variety.

With the specimens is a drawing of an outline of a leaf and the stem. The stem section is straight and parallel as is common for this variety and var. *hillii* and the leaf is broadly lanceolate, showing no unusual characteristics.

From Bailey's description and comment on the Type sheet ("a beautiful yellow . . .") it is evident that he was very impressed with the Type plant. This strongly suggests he had not seen it before and evidently it was not commonly cultivated in Brisbane in the 1890's. Today it is still much less commonly cultivated there than the more local var. *hillii*.

**Original Description:**

A transcription of the original description of this variety follows:

"This variety has the strong, more vigorous habit than *D. speciosum* var. *hillii*; the leaves often over 1 ft' long

(30cm) and near 1/2 ft. (15cm) broad. The distinction however, is mostly in the flowers, which are of deep yellow from first expanding until they decay; the segments are 1 1/2 inch long (3.8cm), the outer ones 3 lines (6mm), the inner ones 1 1/2 lines (3mm) broad. Labellum very obtuse and barred throughout with purple.

"Hab.: Eumundi, and plant now (September) flowering at Bowen Park."

Though the Type material is ample and in good order and the description clear, with measurements given, this variety has not readily been recognized. The reason is the undue emphasis placed on the description of the habit. People have looked out for an extra large plant.

#### **Plant Habit:**

The habit of this variety is usually not large. Some plants flower at only 30cm tall, while most are taller and quite slender. Over all, the habit of this variety is less massive than that of var. *hillii* though the two varieties cannot usually be separated by vegetative characteristics alone.

#### **Flowers:**

The flowers of this variety are much less crowded than in var. *hillii* but they are much closer together than in var. *speciosum*. When racemes of the latter and var. *grandiflorum* are compared, those of var. *speciosum* often appear quite sparse beside var. *grandiflorum*. Because of the fullness of the racemes, their being as long as those of the two more southern varieties and their attractive colour it is seldom that a plant of another variety can match this one in beauty.

The individual flowers range from about 3 to 5cm in length. The lower sepals are a little shorter than the dorsal and they are more curved than in var. *hillii* and var. *speciosum*. The sepals and petals vary from very pale to deep yellow. The colour deepens with maturity. I know of no specimens of var. *grandiflorum* with white flowers, except for some from near Rockhampton that are discussed later.

#### **Labellum:**

The labellum is a very pale sulphur colour and it bears, to a varying degree, numerous transverse purple lines - many more than in var. *hillii*. It is obtuse, as stated in the original description, and much larger than that of var. *hillii*. This is particularly evident when flowers of the two, which are about the same size, are compared. The labellum is very short when compared to the other tepals, as the pressed specimens show.

#### **Relationship to Other Varieties:**

I have not seen any evidence of intermediate specimens between var. *hillii* and var. *grandiflorum*. The change from one variety to the other seems as abrupt as that between var. *speciosum* and var. *hillii*.

In Old. Flora, l.c., Bailey reduced var. *grandiflorum* to a form of var. *hillii*. As described above, there is considerable morphological difference between the two.

The flowers of var. *grandiflorum* resemble var. *speciosum* but they differ in being more closely packed, having more curved lateral sepals and a shorter labellum. The plant habit also is different. These two varieties are isolated from each other as var. *hillii* grows in between their respective ranges.

#### **Distribution:**

I have seen cultivated plants of this variety from eight localities from Kenilworth to near Miriam Vale. Through its range it is the only variety that is found.

#### **A Dwarf Race:**

At the Byfield Range, near Rockhampton and inland at least to the Carnarvon Range, plants of *D. speciosum* grow which have short stems about 14cm tall. From what I have seen of them they do not flower unless grown in strong sunlight in cultivation or in the wild. If growing in shade, the plants produce slender stems which are still quite short.

Two Rockhampton orchid growers have told me that around there the flowers of the plants are white. I have seen flowers of two clones only of these short growing plants. Both were from the same locality about midway between Rockhampton and the Carnarvon Range. One specimen was a living plant in cultivation. The raceme was 30cm long and bore over 70 flowers and was an impressive sight on such a small plant. The individual flowers were 2.3cm long but were typical var. *grandiflorum* in shape and colour. The tepals were very thick in texture. The other specimen I have seen is a herbarium specimen at the National Herbarium of New South Wales. Its floral segments are only 1.8cm long but again have the shape of var. *grandiflorum*.

I can only conclude that these plants are a dwarf race of var. *grandiflorum* but need to see more material before I can be sure of this.

#### **Intermediates:**

I have seen living plants in cultivation from three localities between Miriam Vale and Rockhampton which have a habit about intermediate between that of var. *grandiflorum* and the Rockhampton, etc. race. I have not seen flowers of these plants.

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

*D. speciosum* Sm. var. *nitidum* F.M. Bail., Proc. R. Soc. Old. 1 (1884) 10 and Syn. Old. Fl. Suppl. 1 (1886) 52 and Old. Fj. 5 (1902) 1526; Rupp & Hunt, A Review of the Genus *Dendrobium* (Orchidaceae) in Australia Proc. Linn. Soc. N.S.W. Vol. 72 parts 5-6 (January 1948); W.H. Nicholls, Orchids of Australia 109 pi. 401 (1969); Dockrill, Austr. Indig. Orch. 388 (1969).

**Type Specimens:**

Two specimens of this variety with F.M. Bailey's handwriting on them are in the Queensland Herbarium. Dr R.W. Johnson, the Director of the Herbarium, kindly sent me photographs of these and the information on them and it is with his permission that they are reproduced here.

He stated that one of these (the one from which all flowers have fallen) could be the Type but no date or locality is stated. The sheet has a handwritten label by F.M. Bailey which states: - "*Dendrobium speciosum* var. *nitidum*". -Collector unknown- is typed on it. The absence of a comment by Bailey strongly suggests this specimen is the Type.

A handwritten note by Rupp is attached to the sheet. It states: - "I cannot distinguish between these specimens of *D. speciosum* var. *nitidum* (except the Tamborine Mtn 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 shown a form supposed to be *nitidum* which is quite different from the Q'land. Herbarium specimens, (2) F.M. 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. H.M.R. Rupp

Weston, N.S.W., 9.11.31. The second specimen of *D. speciosum* var. *nitidum* labelled by F.M. Bailey contains the date 14/9/1894 and "A Plant at Queensland Acclimat. Soc. garden Bowen Park Brisbane" handwritten by C.T. White. There is also a note handwritten by F.M. Bailey which states: - "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."

In Old. Flora Bailey described the leaves of var. *nitidum* as "prominently pitted on the upper face" so it would seem to be this plant he was referring to.

In the N.S.W. National Herbarium there is one specimen labelled *D. speciosum* var. *nitidum*. I have examined this specimen. Mr D.F. Blaxell has redetermined it as *D. x gracillimum*. The specimen consists of one rather small raceme. On the specimen in Dean's handwriting is written "Dendrobium *nitidum* R.D.F. 9185 Locality (Q) R.D. Fitzgerald's garden Hunter's Hill 9 - 1885".

The specimen also has a note by Rupp attached to it: - "it seems probable that the plant from which this was taken was identified by F.M. Bailey himself. There is no doubt that it is very close to if not identical with *D. gracillimum*, Rupp but see Rupp in Vict. Net. for March 1945 - *D. gracillimum* Stat. nov."

Rupp and Hunt in A Review of the Genus *Dendrobium* (1948) state: - "Unfortunately there are no certified specimens of var. *nitidum* in existence."

**Original Description:**

"Stems strong and numerous, forming large masses like var. *hillii*, from 1-1/2 to 2 ft. high (45-60cm) of a nearly even diameter of about 1/2 inch (1.3cm), usually smooth and shining, fluted, nearly free from torn bases of old leaves; leaves 3 to 5 lanceolate, 6-7 inches long (15-17cm), 1-1/2 to 2 inches broad (3.3-5cm), coriaceous, the upper surface usually shining. Racemes 6-8 inches long (15-17cm), bearing from 24 to 30 flowers, at first yellowish green, afterwards pure white, pedicels over 1 inch (2.5cm) long, spur short, outer segments 6 to 7 lines long (13-15mm), and about 2 lines broad (4.5mm); the inner segments or petals about the same length, but narrower than the outer. Labellum short, the lateral lobes marked with transverse purplish lines, the middle lobe apiculate, the longitudinal plates yellow. Hab. Cairns. Collector unknown.

"Described from plant blooming at Bowen Park. This form differs from others chiefly in its short, dense raceme and glossy foliage."

The original description of *D. speciosum* var. *nitidum* is followed by that of *D. speciosum* var. *delicatum* and in this mention is made of the stems swelling at the base and the flowers distant. These points would seem

to be a comparison with var. nitidum.

The description of var. nitidum fits *D. x gracillimum* well. I had reached this conclusion before I became aware of the existence of the specimens.

*D. speciosum* var. *nitidum* F.M. Bail. was named earlier than *D. speciosum* var. *gracillimum* Rupp and both represent the same taxon. The latter name therefore is illegitimate as is *D. x gracillimum*, (Rupp) Leaney (more often used as *D. gracillimum* (Rupp) Rupp) because it is based on it.

*D. speciosum* var. *bancroftianum* was published earlier than var. nitidum but its identity remains uncertain. The part of its description concerning its stems fits this hybrid; so to avoid the possibility of the need for a future name change I am not giving var. nitidum a new status but am giving the hybrid a new name.

*D. x gracilosum* S.C. Clemesha hybr. nov.

Planta inter *D. gracilicaule* F. Muell. at *D. speciosum* Sm. intermedia omnibus partibus. aules 20-60cm x 0.91-1.3cm d lametro quasi equo omnino. Folia 3-5, 8-20cm x 24cm, oblonga usque ad obovate anguste. Racemi 10~ 25cm long!, floribus 12 minimum. Sepalum dorsale 12- x 3-4mm, oblongo-obtusum, sepalis lateralibus similis zed latioribus. Petala breviora aliquantum quam sepalum dorsale at dimidia latitudine. Labellum 6-10mm longum, trilobatum, lobis lateralibus erectis, lobe medio latiore quam longiore at maculato rubello. Columna 3 x 2cm.

Plant intermediate between *D. gracilicaule* F. Muell. and *D. speciosum* Sm. in all its parts. Stems 20-60cm x 0.91-1.3cm of a near even diameter throughout. Leaves 3-5, 8-20 x 24cm, oblong to narrow-obovate. Racemes 10-25cm long with 12 or more flowers. Dorsal sepal 12- x 3-4cm, oblong obtuse. Lower sepals similar but broader. Petals slightly shorter than the dorsal and half its width. Labellum 6-10mm long, 3-lobed; side lobes erect; mid-lobe broader than long and marked with reddish spots. Column 3 x 2cm.

### Type

From a cultivated plant collected with appropriate authority at Moleton, north-west of Coffs Harbour, by S.C. Clemesha in September, 1978. It grew in a locality where *D. speciosum* var. *hillii* and *D. gracilicaule* were plentiful. The plant flowered in cultivation at Coffs Harbour in September, 1980. The Type specimen is in the N.S.W. National Herbarium.

The name "gracilosum" is a composite of the specific epithets of the parents of the hybrid.

### Origin of Bailey's Specimens:

Apart from Bailey's reports in his descriptions, *D. x gracilosum* has not been recorded from anywhere in the tropics.

Its parent species are found in the highlands of north Queensland but there *D. gracilicaule* is much less plentiful than in the south. In my experience *D. x gracilosum* only occurs as occasional plants where *D. gracilicaule* is abundant and some plants of *D. speciosum* var. *hillii* are present. The area of north Queensland where hybrids between *D. speciosum* and *D. gracilicaule* could occur naturally is not very large but it none-the-less could; though it would involve a different variety of *D. speciosum*. I have crossed north Queensland plants of both species artificially and they set seed readily which, when flaked, germinated freely.

It seems likely that Bailey's plants of *D. x gracilosum* were not from the tropics at all. The collector was unknown, so one wonders how the locality could be known.

A plant of *D. x gracilosum* in my collection and others I have seen in other collections have fine pin-hole-like dots on their leaves and it is likely that these are the same type of dots to which Bailey referred. I do not know what causes them, but suspect it is insects. I have seen pitting on leaves of *D. speciosum* var. *hillii* also, but not of this type.

### Confusion with *D. x delicatum*:

Rupp mentions a "Tamborine Mountain Plant". This specimen was collected by Miss Hilda Geissmann (Mrs Curtis) from Tamborine Mountains area (rare) in September 1924. It was not seen by F.M. Bailey since he had died in 1915.

Nicholls in "Orchids of Australia" illustrated this clone. Mrs Curtis had cultivated the plant and sent him a specimen. The plate is dated 1934. In the late 1960's she gave a piece of the plant to Mr M. Corrigan of Sydney, as *D. speciosum* var. *nitidum* from Tamborine Mountain. Mr Corrigan gave me a piece of the plant, which flowers each spring. It is *D. x delicatum*. It has loose-flowered racemes - as is usual for it. The white flowers have faint pink shading outside.

*D. x gracilosum* and *D. x delicatum* are very easy to distinguish when fresh but are much more difficult from

dried specimens - consequently the error in identification is understandable.

Confusion with Another Variety.

Dockrill in Austr. Indig. Orch. (page 388) concludes that var. *nitidum* probably represents a poorly grown plant of the Type variety that has grown under grossly unfavourable conditions.

The Type variety of *D. speciosum* occurs only in central and southern N.S.W. and Victoria but at the time Dockrill wrote this, this was not clear.

Smell flowers of North Queensland plants of *D. speciosum* do match *D. x gracilosum* in size and commonly they are white so it is easy to see how Dockrill come to his conclusion.

*D. speciosum* stems, however, do not flower when they are as slender as Bailey described and they never are 45-60cm high and only 1.3cm in diameter. If they are as slender as that, they are from plants in deep shade and such stems are well under 45cm tall and they will not flower even if the plant is moved into better light. I have studied many shade-grown plants with Dockrill's statement in mind. Some plants of *D. speciosum* from shade have tall, slender stems but if one puts a ruler to them and measures them, they are always well over 1.3cm in diameter if the plant is in flowering condition.

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

*D. speciosum* Sm. var. *bancroftianum* Reichb.f., Gard. Chron. 15 (1881) 782; F.M. Bail., Contrib. Old. Fl. 11 (Oct. 1896); Kranzlin, Pflanz. Haft 45 (1910) 271.

*D. speciosum* Sm. var. *hillii* Masters forma *bancroftianum* (Reichb.f.) F.M. Bail., Contrib. Old. Fl. 11 (Oct. 1896).

**Type Specimen:**

The Type specimen of this variety, if it exists, is in the Vienna Herbarium. My first request for a photograph of it was not answered so I then sent specimens of var. *hillii* and var. *grandiflorum* to compare with it. No reply has been received since these were sent.

**Original Description:**

"This is an interesting variety. Its flowers are much like those of the genuine plant, but the petals are a trifle longer, hence more antennate; the lip is of the lightest sulphur colour, with a few minute atoms of purple at the base, and the keel running from the base to the middle is dark yellow, and a similar darker yellow line runs from the middle lip through the middle of the anterior lacinia. The stem is even more slender than that of *Dendrobium hillii*, Hook., and that alone affords a good mark for distinction. It was sent from Brisbane by Or Bancroft, whose name it justly may bear. It flowered in the garden of his friend, Mr Thomas Christy, who earns to many thanks just now for the publication of his 'New Commercial Plants and Drugs'."

Bailey in Qld. Flora reduced this variety to a form of var. *hillii*.

The first part of his description differs from the original description. It is: "Plant with the robust habit of *D. speciosum* var. *hillii*, but segments of flower longer and narrower."

Reichenbach compares it to var. *speciosum* not var. *hillii*.

Bailey in Bot. Bull. 14, 12 (1896) stated: "The only specimens I have seen which might belong to the above (var. *bancroftianum*) were flowering in the Bowen Park bushhouse, and Mr Soutter informed me the plants were received from Mt Dryander."

In Qld. Flora l.c. (1902) he gave the habitat as "supposed to be a northern form".

The only specimens of *D. speciosum* which ever have tepals longer and narrower than those of var. *speciosum* are var. *hillii* and var. *grandiflorum*. The labellum evidently was not heavily marked and this is suggestive of var. *hillii*.

Reichenbach emphasised slender form in his description. Kranzlin, l.c., identified var. *bancroftianum* with *D. x delicatum*. Since Reichenbach gave no measurements, this possibility cannot be overlooked. *D. x gracilosum* also has much more slender stems than var. *hillii*. If Reichenbach's understanding of var. *speciosum* and var. *hillii* was not good it is possible that var. *bancroftianum* could represent the same taxon as one of the above mentioned hybrids.

The identity of var. *bancroftianum* will remain uncertain until the Type specimen of it is examined.

***D. speciosum* var. *curvicaule* F.M. Bail.**

*D. speciosum* var. *curvicaule* F.M. Bail., Bot. Bull. 14, (1896) 12; Old. Fl. 5 (1902) 1526; Rupp & Hunt, A

Review of the Genus *Dendrobium* in Australia, Proc. Linn. Soc. N.S.W. Vol. 72 P. 5-6 (1948); Dockrill, Austr. Indig. Orch. 388 (1969).

#### **Type Specimen:**

In the Queensland Herbarium there is only one specimen of this variety which has F.M. Bailey's handwriting on it. It contains no date or stated locality and the collector is unknown. Probably it is the Type or at least a specimen from the same plant.

Dr R Johnson, the Director of the Queensland Herbarium, kindly sent me a photograph of this specimen which is reproduced here with his permission.

The specimen contains little material - a half moon structure is a floral bud and another is near it. These and the one flower do show that the flowers had short broad segments. These were described in the original description. A transcription of this follows.

#### **Original Description.**

"Stems curved, some almost into a half-circle, compressed, 9-12 inches long (22-30cm), the broad diameter often obtaining 1-1/2 inches (3.8cm). Leaves very coriaceous, oblong, the end somewhat pointed, about 5 inches long (12.7cm), 2 inches (5cm) broad, often concave. Peduncle with raceme 9 or 10 inches (22 or 25.5cm) long, bearing numerous cream-coloured flowers; bracts of the peduncle exceeding 1 inch (2.5cm) long, cymbiform, quite coriaceous. Pedicels 1 inch (2.5cm) long. Sepals 6 or 7 inches long (in error for lines) (13-15mm), 3 lines broad, (6mm) thick, linear curving outwards. Petals linear, about as long as the sepals, thick, glossy, curving outward, 1 to 1-1/2 lines broad (2-3mm). Labellum failing away from the column more than any of the other forms of this species. in its natural position about 2/3 the length of the other segments, of thick coriaceous substance like the other parts of the flower, lateral lobes longer than broad, middle lobe broad as long, slightly apiculate. Disk bearing a thick ridge, all parts of the labellum marked with thick purple bars and the base of the column and disk stained with an orange colour. Column short, spur broad, anther small, pollen-masses light-coloured.

"Hab. Lady Elliot's Island, from whence Mr Soutter received the plants now (September) flowering in the bushhouse, Bowen Park. The present with var. *fusiforme* and var. *delicatum* being in general appearance so different from other forms of this species, will likely in cultivated collections receive specific rank."

In the Queensland Flora, l.c., the error regarding lines and inches is corrected but another is made. This is: "Labellum the lateral lobes embracing the very short column, the column (in error for labellum) in its natural position about 2/3 the length of the other segments".

#### **Type Locality:**

Lady Elliot Island is a true coral cay that is ringed entirely with beaches. When the island's position was fixed in 1816 it was stated to be "covered with grass and trees---. Eighty years later most of the flora was destroyed when the island was dug over for its phosphate-rich guano. All the high parts of the island were removed in this mining. It was lowered about 5 metres. After the miners left, goats were introduced to the island and they stopped any regrowth of flora until they died out in the early 1960's. The island now is recovering and one tourist pamphlet described it as "an unspoilt, totally natural coral island".

It is now very low lying and flat and it has no rocky outcrops. Guano forms a hard rock and possibly *D. speciosum* grew on this. It is obvious from the habit described that var. *curvicaule* was a rock growing plant.

It has not to my knowledge been found on other islands (all cays) of the Bunker and Capricorn groups, although some of these have guano rock deposits which have not been mined. Mr N. Anderson has searched islands of the Capricorn group extensively to see epiphytic orchids growing in their natural state, but he found none and concluded that the habitat was too dry. *D. speciosum* does not grow on any other coral cay to my knowledge.

On the Queensland Herbarium specimen, the collector is given as unknown and in the original description it is clear that Soutter received the plants - not that he collected them. Since the collector was unknown, one wonders how the locality was known. The collector of var. *nitidum* - also described from a plant at Bowen Park was unknown and the attributed habitat of Cairns almost certainly was incorrect.

I have not seen a single clone of *D. speciosum*, from the Tropic of Capricorn southwards, which has short broad sepals as described for var. *curvicaule*. Lady Elliot Island is off the part of the Queensland coast where var. *grandiflorum* is found. If var. *curvicaule* really grew on Lady Elliot Island then it was an outlying stand of the north Queensland plants. This is possible, though not very likely.

It is more likely that Bailey's plant of var. *curvicaule* really was from north Queensland, since all of the plants I have studied (living and preserved) from Mackay northwards, have short broad segments and small examples fit Bailey's description in size.

The racemes of this variety are shorter than in the southern varieties and the flowers open more widely. In small examples the labellum is about 2/3 the length of the other tepals. These points all agree with Bailey's description.

Though this variety varies little in tepal shape and in having comparatively short racemes, it varies considerably in other ways.

**Habit:**

Plants of this variety are variable in stem size and shape. They will flower on stems from 7 to about 100cm tall. Many plants have stems which are narrow at the base, and they taper gradually and are widest near the apex. Often they are flattened, being much broader than thick. Bailey's plant probably was like this since he mentions "the broad diameter often obtaining one and a half inches". I have not seen plants of southern varieties with flattened stems. Most of the plants I have seen from near Mackay and Ingham have curved stems but this is not common further north.

**Flowers:**

The flowers of plants of this variety are white or creamy - the latter being the usual colour for plants from near Mackay, while white is more common further north. Most flowers of this variety I have examined are not very heavy in texture but some from Mackay are much heavier than the others.

**Lobelia:**

Most flowers of this variety from the northern part of its range have the labellum mid-lobe separated from the lateral lobes by a short neck. This is absent on flowers I have examined from near Ingham and near Mackay. The labellum markings vary considerably - from absent (rare) to very heavy. Many examples have rather fine markings, but some of the plants from near Mackay have larger markings and approach the condition Bailey described "thick purple bars".

**Distribution:**

I have studied living specimens of this variety from near Mackay to near Thornton's Peak. It grows from the coast to the highlands but is most common at higher elevations. The dry area of central Queensland isolates this variety from the southern varieties.

***D. speciosum* Sm. var. *pedunculatum***

S.C. Clemesha var. nov. Caules 5-16cm alti, foliis rigidis durisque, pedunculo rigido, erecto, fuscissimo at longiore quam rhachidi. Flores segmentis brevissimis latissimisque. Labellum magnum ox comparatione tepalis. Stems 5-16cm high, leaves stiff and hard, peduncle rigid, erect, very dark and longer than the rhachis. Flowers with very short broad segments and the labellum large in proportion to the tepals.

**Type:**

From a plant cultivated at Coffs Harbour by S.C. Clemesha, 26th August, 1980. From a plant collected by Mr Bruce Gray at Bones Knob via Atherton where it grew on an exposed rockface in full sun.

The Holotype is at the Queensland Herbarium, Brisbane and an Isotype specimen is at the N.S.W. National Herbarium in Sydney.

**Distinguishing Features:**

This variety differs from the others as follows: - The stems are conical and dwarf - from 5 to 16cm high but mostly about 7cm. The leaves are very stiff and rigid though often thinner in texture than other varieties.

The racemes are erect and held up by a very stiff and rigid peduncle which varies from as long to twice as long as the rhachis.

This variety is most closely related to var. *curvicaule* but it differs from it as follows: Its stems are much shorter, straight and more heavily pigmented. The peduncle is much longer and more rigid and darker. The flowers vary somewhat in shape but generally have even shorter and broader segments than var. *curvicaule*. They are a cream or a light dull yellow. The labellum is large in proportion to the other tepals.

The stems, peduncle, rhachis and even the buds and occasionally the sepals - are stained with dark pigment. Seed capsules of var. *curvicaule* are green, whereas those of var. *pedunculatum* are dark purple.

The habitat of var. *pedunculatum* is much drier than that of var. *curvicaule* and within their natural habitats var. *pedunculatum* flowers 4 to 6 weeks earlier than var. *curvicaule*. Intermediates between the two varieties are unknown. Artificial hybrids between var. *pedunculatum* and var. *speciosum* have retained the dwarf habit of the former.

The texture of the flowers varies greatly. The Type plant's flowers were only of average texture for the

species but the flowers on a plant from the Herberton Range were much thicker in texture though not as much so as the central Queensland dwarf plant of var. *grandiflorum*.

I have studied cultivated plants of this variety from the Herberton Range and Type locality and others from unknown localities.

I would like to extend my thanks to Mr Bruce Gray of Atherton who has given me much information about this variety, including its distribution.

#### **Distribution:**

This variety is found from the Palmer River in the north to the Herbert River at least in the south and mostly on the western side of the dividing range.

The name "Pedunculatum" refers to the very long and rigid flower stalk possessed by this variety. In the past it generally has been called "var. *compactum*" but this name is a *nomen nudum* and should no longer be used. It has been applied to small examples of all other varieties. Var. *pedunculatum* when in flower is not compact.

#### **New Guinea specimen :**

Only one plant of *D. speciosum* has ever been reported to have been collected from New Guinea and that was by Mr W. Houton who told me he found it on the Kokoda Trail at about 1,000m growing on a cliff face in strong sunlight with *D. discolor* (or a species like it). Mr Houton in a personal conversation told me that *D. speciosum* was plentiful there and he sent a plant to his home and has it still. It was collected during World War II. The plant has grown well over the years and it is in a clay pan in full sunlight. The stems are short and thick, mostly below 15cm tall and those at the edge of the pot are strongly curved.

The leaves are very thick, short and pointed and unlike any Australian plant I have seen, are a very light shade of green. The raceme I have seen was less erect than in the Queensland plants but like them it was rather rigid, dark coloured and the peduncle was as long as the rachis. The tepals were not as broad or widely opening as the plants from the Type locality but they differ very little from the Herberton Range plants. They were exactly the same colour. All flower segments are slightly smaller but the piece of the plant I flowered was not well established.

Since this plant differs from Australian plants only in habit, I can only regard it as a representative of a remarkably disjunct population of var. *pedunculatum*.

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