

VICTORIA'S CLUBBED SPIDER CALADENIA

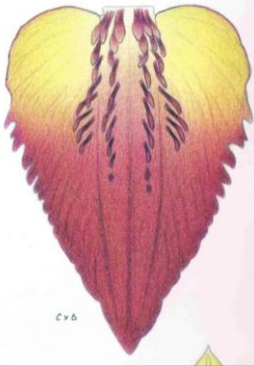

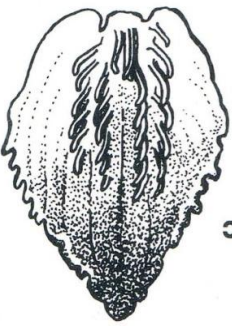
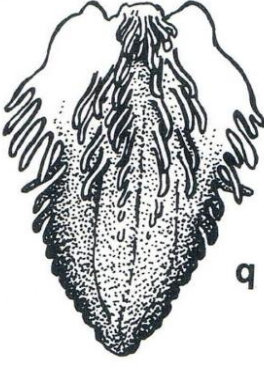
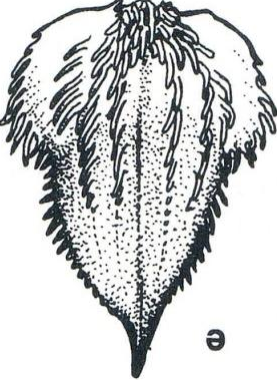

DISCUSSION OF MORPHOLOGICAL GRADING & SUGGESTIONS FOR THE REVISION OF THEIR TAXONOMY

PART 1 - The Fitzgeraldii Type *Caladenia fitzgeraldii*, *C. peisleyi*

Draft Version – April 2015

My Introduction explains how I categorise general spider caladenia orchid Types and particular Forms of those Types. If this Part is read without first reading the Introduction the following recaps relevant information contained in the Introduction.

The theory I explore in this discussion is the proposition that in Victoria there are (A) 5 major, widespread, clubbed spider caladenia Types, namely: (1) Fitzgeraldii Type (2) Montana Type, (3) Australis Type¹, (4) Reticulata Type; and (5) The distinctive and relatively uniform *C. clavigera*; (B) several Types, usually of limited and/or disjunct distribution, that correspond to *C. brachyscapa*, *C. valida*, *C. ancylosia*, *C. xanthochila*, *C. aesteva*, and Turners Spider Orchid; and (C) Some places where there appear to be an, often confusing, population of different clubbed Spider Caladenia about which little is known/understood.

Fitzgeraldii Type	Fitzgeraldii Type	Fitzgeraldii Type	Montana Type	Australis Type	Reticulata Type
					
<p>Riley's illustration of <i>C. fitzgeraldii</i> Kandos, NSW. Moderately elongated ovate to lanceolate labellum (sometimes slightly tri-lobed) Teeth in mid-section only. Sometimes small fringing teeth as shown, and sometimes with larger longer teeth usually deflected down.</p>	<p>Described as <i>C. oreophila</i> but the same as <i>C. fitzgeraldii</i>, and similar to <i>C. peisleyi</i>. Has a larger, elongated labellum, & a few more teeth than <i>C. peisleyi</i>.</p> <p style="text-align: right;">Bill Kosky Goongerah</p> <p style="text-align: center; border: 1px solid red; display: inline-block; padding: 2px;">All approx. relative size</p>	<p style="text-align: center;">In, Flora of Victoria [FoV] as <i>C. fitzgeraldii</i></p> <p>A good example of <i>C. paisleyi</i>. Similar to <i>C. fitzgeraldii</i> but a smaller plant/flower with a shorter stubby ovate labellum, variable labellum shape & edge teeth generally mid-section. Typically smaller fringing teeth (usually larger than shown) & often larger longer & sometimes upright</p>	<p style="text-align: center;">In FoV as alternate form of <i>C. fitzgeraldii</i>.</p> <p>A passable example of <i>C. montana</i> which has a protruding moderately tri-lobed labellum, typically more teeth than shown. Longer finger &/or similar like back teeth becoming shorter wider (incised) mid-section, none near tip.</p>	<p style="text-align: center;">FoV <i>C. australis</i></p> <p>Long tri-lobed labellum. Finger /similar back teeth (typically longer than <i>C. montana</i>) descending in size, often becoming indistinct serrations to, or almost to, tip.</p>	<p style="text-align: center;">In FoV as <i>C. lowanensis</i></p> <p>Short distinctly tri-lobed labellum, often with thicker calli, (usually chunky) finger/similar teeth extending well forward. <i>C. ampla</i> and <i>C. lowanensis</i> are the same as <i>C. reticulata</i>. <i>C. calcicola</i> is the same, or similar.</p>

The introduction explains my use of labellum shape, the (average) number, shape, and arrangement of its teeth to identify/distinguish some clubbed spider caladenia. In this discussion I use the following terms to describe the different sizes of typical plants in a population – unless indicated otherwise, measurements in centimetres: **Large:** Lateral Sepals[LS] 4-5+, Petals[P] 3-4+, Height[H] 30-45+ **Medium:** LS 3-4, P 2.5-4, H 20-35+ **Smaller:** LS 2-3, P 1.5-3, H 15-25 **Small:** LS to 2.5, P to 2, H to 20 **Tepals** are generally 2-5+mm wide but that is flower size dependant. Here I describe them in relative terms as wide, medium, thin, gradually tapering, pinched in, etc. **Clubs** might be well defined, or ambiguous. **Tepal endings and clubs** might be round, channelled, flat and/or tail like. **Teeth** numbers is a reference to **teeth pairs**.

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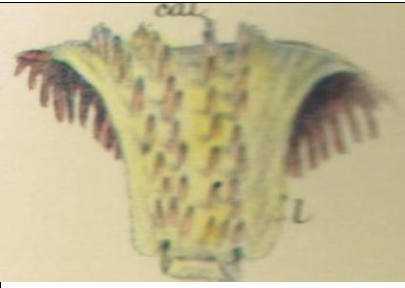
¹ My data on the Australis Type is based on plants in the Won Wron/Mullundung area. A description for, and the range of, the Australis Type, is dealt with in Part 3.

MY CALADENIA FITZGERALDII TYPE = C. FITZGERALDII, C. OREOPHILA, C. PEISLEYI

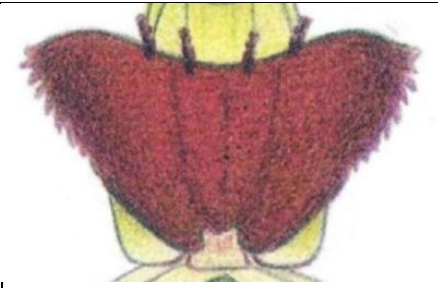
The Fitzgeraldii Type in all its Forms is characterised by an ovate labellum (occasionally appearing mildly, or rarely more distinctly, tri-lobed) short/stubby through to elongated (lanceolate), usually with a pointy tip. Tip section protruding when fresh out and after usually lightly to moderately curled under. The labellum edge teeth generally confined to the mid-section. (Sometimes the teeth more extensive, ie: into the back and/or, less so, the front sections.) Teeth ranging from small/short forming a short fringe, to shorter narrow finger like teeth deflected down, less often longer upcast teeth. Except for Fat Legged Peisleyi, generally medium to narrow, gradually tapering tepals, narrowing somewhat mid-way. Usually well-defined light to sometimes heavier sepal clubbing with short (occasionally beady) to medium length round clubs covered with densely packed round, grape like, mounded to mildly storked, osmaphores*. Occasionally flat or channelled clubs, petal clubbing, and double flowers. (More so post fire, or in a good season). Typically 4, occasionally 6, rows of calli (often outer rows irregular/short). A red labellum front with white to creamy yellow back towards the base. Tepals white to creamy yellow, often with a pink centre stripe. Sometimes with an overall yellow/green, or red/pink, hue. Reticulate veining on upper and lower labellum greatly reduced, absent, and/or replaced by a central pink flush underside. * See Osmaphores **Endnote A**]



Above, Right: Parts of R. D. Fitzgerald's illustration of plants from Mudgee, NSW nominated by Rupp as the Holotype. Fitzgerald's front and rear labellum illustrations are of one plant, and his side view another. Labellum 2 is slightly tri-lobed with a mid-section fringe of 9 pairs of relatively long narrow teeth (NB: calli into red tip). Labellum 4 fewer shorter teeth. On both: Reticulate veining very faint or absent; Teeth deflected down; Tepals thin to medium; Clubs short/beady.



Above & Right: Parts of Riley's illustration as *C. fitzgeraldii*, Kandos (near Orange) NSW. On the flattened labellum above right I count ~8-9 small teeth pairs and the labellum right ~9. Probably the same plant? Tepals pinched in clubs medium and well defined.



Fitzgerald could not reconcile these plants with Hooker's *C. clavigera* illustration but nevertheless (wrongly) identified them as *C. clavigera*. This is understandable at the time, particularly as the clubs on his specimens are short/beady and both species have a short fringe of mid-section teeth (not readily noticed on *C. clavigera*). *C. fitzgeraldii*'s elongated protruding labellum distinguishes it from *C. clavigera*. In 1942 Reverend H. M. R. Rupp named it *C. fitzgeraldii*, and Fitzgerald's illustration as the holotype, noting that he had collected and examined *C. fitzgeraldii* from areas many hundreds of miles apart and found it very consistent, with scarcely any variation.

MY FORMS OF THE CALADENIA FITZGERALDII TYPE

Fitzgeraldii Form - *C. fitzgeraldii*, *C. oreophila* = *C. fitzgeraldii*,

The discovery post the 2014 Orbost North Fires of new populations of *C. oreophila* in the Goongerah and Yalmy regions lead to the realization that *C. oreophila* was more widespread than originally thought. That: its similarity to the *C. fitzgeraldii* Type specimen from (and *C. fitzgeraldii* populations in) central NSW some 600km north; and my inability to discover any significant points of distinction between *C. oreophila* and Central NSW *C. fitzgeraldii*; lead me to the conclusion that ***C. oreophila* = *C. fitzgeraldii***. This conclusion was proven to my satisfaction by the photo comparisons that follow, and by examining specimens held at the Melbourne (RBGM) Canberra (CNAB) and Sydney (RBGSYD) Herbariums including one of Rupp's specimens of 2 plants from near the *C. oreophila* type site.²

Peisleyi Form (*C. peisleyi* , Fat Legged Peisleyi)

The morphology of *C. peisleyi*, is closely related to *C. fitzgeraldii*/*C. oreophila*, and I have concluded that *C. peisleyi* should be considered a (different) Form of the Fitzgeraldii Type occurring as distinct population at the southern edge of this Type's range. My conclusion is that, **ideally its best taxonomic fit is as a sub-species of *C. fitzgeraldii*, but, at least for the time being, it's recent description as a separate species should stand.** That what I call **Fat Legged Peisleyi should be considered a variety of *C. paisleyi*** because it is a form that occurs mixed into populations of the more common Typical Peisleyi form.

Amongst other things these conclusions are supported by a teeth count analysis.

Teeth Counts of the different Forms of the Fitzgeraldii Type with <i>C. montana</i> comparison	No. of Plants	Average Teeth	Typical Range	% in Typical	Extreme Range
Fitzgeraldii Form					
<i>C. fitzgeraldii</i> Central NSW (Mudgee, Bathurst, Orange regions) Small sample	19	9.87	8-12	89%	7-14
<i>C. oreophila</i> Victoria & SE NSW/Vic border areas	110	9.22	7-12	77%	3-15
Knocker plants Sample too small	7	~10	9-11	NA	NA
Peisleyi Forms					
Typical Peisleyi	100	7.74	5-10	78%	2-15
Fat Legged Peisleyi (these may include some Typical Peisleyi)	17	7.35	4-10	82%	3-10
<i>C. montana</i>	304	13.58	10-16	83%	5-27.

For an orchid Type with the large range, all these Fitzgeraldii Forms are rarely encountered in Victoria, NSW and the ACT. In Victoria all are elusive, growing in open woodland and forests with grassy, or sparser ground vegetation, or where the ground cover has been reduced by fire (or slashing). Plants only persist in naturally open groundcover, or ground worked over by lyrebirds. They decline post fire as vegetation builds up/thickens.

The Distinction between Fitzgeraldii Types (*C. fitzgeraldii*, *C. oreophila*, *C. peisleyi*) and *C. montana* (includes the morphologically identical *C. osmera*)³

The best distinguishing feature is labellum shape, posture and placement of labellum edge teeth - See page 1.

- A Typically Fitzgeraldii Forms have short ovate to elongated ovate to lanceolate shaped labella not significantly tri-lobed; *C. montana* has a longer moderately (and noticeably) tri-lobed labellum protruding forward to form an inclined platform.

² I do not have the permission of the various Herbariums to publish my photos of these specimens. I have prepared some photo comparisons of these specimens which I have provided to these Herbariums, and have, or might on request, provide them to selected researchers studying these clubbed spider orchids.

³ I address this issue here because there has long been general misunderstanding about the distinction between *C. fitzgeraldii* and *C. montana*. The current approach being to treat any encountered in Victoria as *C. montana*, and in the ACT as either all one, or all the other. In Flora of Victoria Vol 2 p 779, 780 & 783 the newly named *C. montana* is demoted to a synonym of *C. fitzgeraldii*. Since *C. montana* was subsequently accepted for Victoria (how?) it included all plants previously determined as *C. fitzgeraldii*. The current Census of Victorian Plants does not recognise *C. fitzgeraldii* (save as a synonym of *C. montana*) but does recognise *C. oreophila* and *C. peisleyi*. *C. osmera* - See Part 2.

- B Fitzgeraldii Forms have fewer shorter teeth confined to the labellum mid-section, sometimes appearing as a short fringe. On *C. montana* longer upcast finger and/or similar shaped teeth begin further back, and mid-section, become shorter/broader, but don't extend to the tip. See Teeth Count Table above.
- C Whilst there is some size overlap *C. fitzgeraldii* is a smaller to medium sized plant/flower (*C. peisleyi* small to smaller); and *C. montana* medium to large.
- D In favourable (warm, hot, windless and preferably humid) conditions *C. montana*, but not, it appears, Fitzgeraldii Forms, emits a detectable burnt plastic odour. In practice those conditions are rare, particularly at higher altitudes, and these odours are usually not detected on either.
- E All things being equal Fitzgeraldii Forms will begin, and end, flowering a little earlier than *C. montana*, although the main parts of their flowering seasons overlap. I describe elsewhere other characteristics and character sets which serve to distinguish populations of Fitzgeraldii Forms from *C. montana*.

Fitzgeraldii Forms and *C. montana* exist in somewhat similar habitats often growing together, or in close proximity, in Victoria, NSW, and the ACT.

A THE TYPICAL FORM OF THE FITZGERALDII TYPE - *Caladenia fitzgeraldii* (includes the species described as *C. fitzgeraldii* and *C. oreophila*)

A smaller to medium sized plant/flower characterised by an mildly elongated ovate to elongated lanceolate labellum (occasionally mildly, or rarely more distinctly, tri-lobed) usually with a pointy tip. Tip section protruding when fresh out and then usually lightly to moderately curled under. The labellum edge teeth generally confined to the mid-section. (Sometimes the teeth more extensive, ie: into the back and/or, less so, the front sections.) Teeth ranging from small/short forming a short fringe, to shorter narrow finger like teeth deflected down, less often longer upcast teeth. Average teeth ~9.5 +/-4. Medium to narrow, gradually tapering tepals, narrowing somewhat mid-way. Usually well-defined light to heavier sepal clubbing with short (occasionally beady) to medium length round clubs covered with densely packed round, grape like, mounded to mildly storked, osmophores. Petal clubbing ranges from around 0-40% depending on conditions* (more so post fire, or in a good season). Occasionally flat or channelled clubs, and double flowers. Typical hockey stick shaped calli arranged in 4, or occasionally 6, rows (often outer rows short/irregular). Flower colour as per these photos, viz: A red labellum front with white to creamy yellow back towards the base. Tepals white/cream, often with a pink centre stripe. Sometimes with an overall yellow/green, or red/pink, hue. Reticulate veining on upper and lower labellum greatly reduced, absent, and/or replaced by a central pink flush underside. Leaf as for other SE clubbed spiders. Notes: *The incidence of petal clubbing can be relatively high in some populations (particularly after fire or a good season) and low or absent in others. Apart from that, flowers only moderately variable within populations (more so after fire) and across its wide range, less variable than *C. peisleyi* or *C. montana*. An elusive species in foothills and mountains above ~300m to 1,000+m Altitude.

1 NSW Central Tablelands Populations

Specimens examined: Bathurst/Burruga, Orange/Mt. Canobolas, Narrabri/Mt Kaputer, Mudgee/Mt Kandos/Dripstone, Barrington Tops, Lithgow, Warrumbungles. Fitzgerald's Type specimen from near Mudgee and Riley's illustrations of a plant from Kandos are excellent examples of *C. fitzgeraldii* and of the limited degree of variation, in and across populations. **Photos examined:** I only had photos (of variable quality) of some 17 plants from Central NSW. Using both of these, and the illustrations, I ended up with 19 good samples to analyse. Whilst a small sample it is sufficient to be broadly indicative of these populations. The teeth on all were comparatively small and short and fringe like. Relatively 18% had small teeth, 50% medium and 32% longer teeth. On most of the photos and illustrations the teeth are horizontal, or if longer, deflected down. Plants in 2 of my 17 photos had slightly longer moderately upcast, teeth. The average teeth pair count for my samples was 9.87 with 89% within a typical range of 8-14. I note that Riley & Banks' description of their Kandos plant states that the flattened labellum "is not obviously tri-lobed" "...partly veined and fringed with maroon teeth...which don't extend into the tip section". The flattened labella on the CNAB Floral cards show there is not a great deal of difference between the labella that are slightly tri-lobed and those that aren't. That of my good sample, on 58% the sides of the roughly "V" shaped edges of the labellum are either straight or mildly convex, and on 42% the sides mildly concave. Those with concave sides, as a consequence, being slightly, but usually, not so obviously, tri-lobed.

Generally there was only moderate variation in plant characteristics seen in all these, save that on some specimens or photo sets containing multiple plants from a location all or most had petal clubs, on others petal clubs were few or absent. I was not able to obtain a good picture of the incidence of petal clubbing in the populations, but my experience of petal clubbing of Fitzgeraldii Forms in Victoria leads me to believe that the incidence of petal clubbing has, at least in part, to do with plant vigour, and is higher in a good season, or after fire. In the northern parts its range *C. fitzgeraldii* overlaps the range of the distinctive *C. subtilis*.

Examples of *C. fitzgeraldii* from NSW Central Tablelands



Near Orange, NSW
~11 teeth pairs.
Photo Colin Bower



Mt Kaputer (near Narrabri) NSW *Photo Ron Howlett*
Perhaps ~9 teeth pairs?



Burruga, South of Bathurst, NSW
~9-10 teeth pairs Petal clubs



The bottom photos are all enlargements of that above



On all of these the teeth are located midsection and mildly deflexed (down). Of my 20 Central NSW photo sample plants only 10% (one each from Burruga, and the Warrumbungles) had upcast teeth towards the back. Note the absence of reticulate veining replaced by a central pink flush on the labellum underside.

Endnote B has more examples of NSW Forms including of a plant with a distinctly tri-lobed labellum and one with longish slightly upcast teeth.

2 Populations in the ACT and adjacent parts of South East NSW

David Jones' ACT Field Guide has for *Arachnorchis* (AKA *Caladenia*) *montana* a photo of a flower from Nursery Swamp Track that is clearly *C. montana*, as is his illustration. Jones' Guide does not record *C. fitzgeraldii* in the ACT. My examination of the specimens at Canberra and Sydney establishes that there are populations of *C. montana* in the ACT at Boboyan, Cotter River, Cotter Upper, Namadge, Nursery Swamp, Orroral (sic - can't read name), and in nearby parts of NSW at Brandy Marys, **Brindabella** and **Maragle**. Most specimen sheets contain many plants and are good examples of *C. montana*.

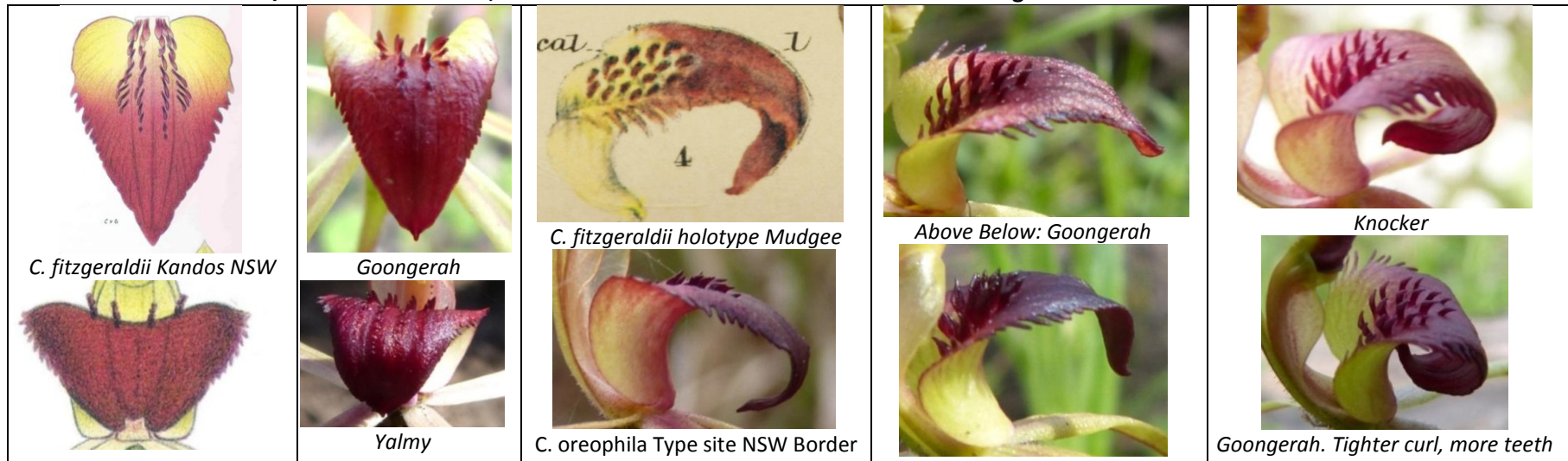
My examination of Canberra's specimens establishes there are populations of *C. fitzgeraldii* at **Brindabella** NSW (close the ACT border) 2 plants clearly *C. fitzgeraldii* [CANB 664852.1 determined as *Arachnorchis montana*], and at **Maragle** NSW ~60km WSW of Namadgi ACT 1 plant clearly *C. fitzgeraldii* [CANB 656015 corrected from *A. montana* to *A. fitzgeraldii*]. Also 2 specimen sheets of ACT plants that are probably *C. fitzgeraldii*, but without sufficient detail to allow me to positively identify them as such.⁴ I have seen photos of plants from the ACT said to be *C. fitzgeraldii*, many of these look more like *C. montana*, although, for lack of detail, I can't be certain. So far there is nothing I can positively identify as *C. fitzgeraldii* from the ACT, even so I have good reason to believe *C. fitzgeraldii* grows there:

- *C. fitzgeraldii* is very elusive and exists in nearby parts of NSW with similar habitat, and it is reasonable to assume it might exist in the ACT.
- Colin Bower who is from the Central NSW Tablelands, and who is familiar with, and has collected, *C. fitzgeraldii* from there, has identified ACT plants as such.
- Pollinator studies have identified plants from the ACT as *C. fitzgeraldii*. (I don't have details of which plants, or where.)
- In NSW and Victoria there are many places where *C. fitzgeraldii* and *C. montana* grow together including the above populations at **Brindabella** and **Maragle**.

It follows from the above that that I do not accept the proposition sometimes put forward, that all the spider caladenia in the ACT are *C. fitzgeraldii*. Nor that plants there that are morphologically typical *C. montana*, are anything but that morphological species.

North and South of these places: North of these populations there appears to be a gap of ~150km to the Central Tableland populations. Are there populations of the elusive *C. fitzgeraldii* within that gap? Other southern NSW populations near the Victorian Border are better considered with their contagious Victorian populations.

Comparison of Victorian and Vic/NSW Border labella, with Central NSW labella viewed from similar angles



⁴ (1) A 1960 specimen, probably *C. fitzgeraldii*, from Mt Coronet, Upper Cotter Valley, of one plant tall plant (38cm) with a medium sized flower (lateral sepals 3cm) with well-defined medium length clubs on all tepals, but some deterioration in its labellum [CANB 6744 determined as *A. montana*]; and (2) A specimen sheet of 2 plants from Namadgi ACT that may well be *C. fitzgeraldii*, both with well-defined clubs (one with, one without, petal clubs), the labella of which are pressed in a way that partly obscures labella teeth detail [CBG8913905 identified as *A. fitzgeraldii*, and said to be common]

Victorian and NSW border Populations (described as *C. oreophila*) and Central NSW populations (known to be *C. fitzgeraldii*) compared



Above: Mt Kaputer (~Narrabri)NSW – as *C. Fitzgeraldii*. Ron Howlett [RH]
Below: Burruga, (~ Bathurst) NSW



All this column Victoria

Above Below: Knocker



Above: Part TypeSpecies Illustration



All this column Burruga, NSW



Above: Goongerah Below: Yalmy



Warrumbungles, NSW - RH



C. oreophila Type site NSW/Vic border



Kandos (~Orange) NSW Riley & Biggs



Poor quality due to enlarging low res photos

3 Vic and Vic/NSW Border Populations of the Fitzgeraldii Form of my Fitzgeraldii Type (NB: Described as *C. oreophila* but indistinguishable from *C. fitzgeraldii*) David Jones' description of *C. oreophila*⁵ is of specimens from the Bondi S.F. NSW, upper Cann Valley just north of the Victorian border. All my 110 Victorian and NSW border plants in the table below, are more or less consistent with: his description; the *C. oreophila* Isotype specimen at RBGM [MEL 2330125] (with a "not very heavily fringed labellum" and, as far as one can tell, short teeth in the mid-section of an elongated ovate labellum); and with the Holotype [CNAB 656585.3]. The Holotype contains 4 specimens which vary (a) in having respectively short, medium and longer more extensive mid-section teeth; and (b) having well defined either short beady, or light to medium density, shorter to medium length, sepal clubs. One of these, the flattened labellum in the floral card forming part of the Holotype, is a perfect match with the flattened labellum on the left hand side of the Mt Canobolas, *C. fitzgeraldii*, Floral Card NSW CNAB ORG 1524. Generally the plants on the Holotype and Isotype are consistent with the other NSW illustrations/specimens/photos referred to and my sample Victorian and Vic/NSW border samples. Viz:

Vic & Vic/NSW Border Sites	Altitude	No Plants	Average teeth	Typical range	% in typical	Extreme range
Type Site (NSW near border)	480m	13	9.00	6-12	92%	3-12
Colquhoun Nth 1a*	300m	10	9.50	9-11	82%	7-11
Colquhoun Nth 1b*	300m	10	8.10	7-9	80%	6-11
Colquhoun Nth 2	300m	4	9.75	9-11	100%	9-11
Colquhoun Nth 3	250m	15	9.00	7-11	80%	5-13
Yalmy #	360m	12	10.75	8-12	67%	7-15
Goongerah	320m	46	9.09	5-12	85%	3-15
Totals/Average All		110	9.22	7-12	77%	3-15

*These 2 sites are next to each other -1a very robust plants in slashed area/good season -1b weak/insipid plants in different poorer season/thick undergrowth, not typical.

The average teeth count is significantly higher than the average teeth count of 9.22 +/-1 but the typical range about average- 2 plants in this small sample of 12 had 15 teeth pairs.

My Victorian and Vic/NSW Border populations Compared to Central NSW populations of *C. fitzgeraldii*

When Rupp named *C. fitzgeraldii* in 1942 he noted that he had collected and examined *C. fitzgeraldii* from areas many hundreds of miles apart and found it "very consistent, with scarcely any variation". The Sydney Herbarium inherited many of Rupp specimens including a specimen sheet [NSW 651320] containing 2 plants collected by Norman Wakefield at Nungatta South in the "Extreme SE of NSW near the Genoa River, September 1940". That location is around 8-10km from the *C. oreophila* type site. Rupp, in his own distinctive copperplate handwriting, has changed the determination of it from *C. clavigera* (Fitz) to "Caladenia Fitzgeraldii Rupp" and has signed the sheet. Other Rupp *C. fitzgeraldii* specimens are: [NSW 651329] collected by Rupp in 1939 from Barrington Tops; and a plant collected by another from "near Mudgee" in 1945 [NSW 651328]. "near Mudgee" is the location of Fitzgerald's type specimen. As Rupp's Nungatta South and Barrington Tops specimens were collected prior to naming *C. fitzgeraldii* in 1942, it is a reasonable assumption that these were specimens he examined, and refers to, in naming *C. fitzgeraldii*.

In short, my examination of all these Victorian/NSW border plants establishes that they are generally typical of, and a good match for, the type specimen illustration and the Central NSW plants shown here, and/or examined at the Herbariums. Despite an extensive range of some 800+km the variation seen in all is limited, and less so than seen on *C. peisleyi* or *C. montana*. That is: Some labella are slightly trilobed; The length/shape of labellum teeth vary from short "V" shaped, to longer, but not very long, finger like teeth usually downcast; Labellum teeth are either confined to the midsection proper, or extend a little, but not much, further forward or back; The clubs are usually well-defined and vary from short (sometimes beady) to medium length, light to moderately heavy (ie; thick) sometimes heavier post fire.

The average teeth count of my small sample of 19 NSW plants is 9.87 which is 7% higher than the 9.22 for my 110 Vic/NSW border plants, but sits within the range of variation of these populations. That is from around 9 to 10.75. I cannot find any significantly different morphological characteristic/s that might distinguish these Victorian and Vic/NSW border plants from the type specimen illustration, and the NSW *C. fitzgeraldii* plants I refer to above. **Ergo *C. oreophila* = *C. fitzgeraldii*.**

⁵ *C. oreophila* was originally thought to be confined to the Upper Cann River Valley/NSW/Vic border area. Subsequently plants in the in the higher northern Colquhoun SF were identified as *C. oreophila*. Following February 2014 fires north of Orbost it was found at two sites along the Yalmy Road, and several sites around Goongerah. It is probably more widespread in areas north of Orbost but, is elusive, and particularly in the dryer Yalmy region, only likely to be encountered there, and in most other places, after a fire.

The following pages contain photos of plants from the Victorian and NSW border populations referred to above.

All this set *C. oreophila* Type Site
Showing some variation



Above/Below: Robust plant. Long labellum & posture like *C. montana*
Teeth placement as per *C. oreophila*

Note: The labellums with white spots (mildew?) are more mature, have curled under, and become a little flaccid.



Colquhoun Nth 3

The fresher plants here perhaps a good example of a more uniform population of fairly typical/less extreme plants.


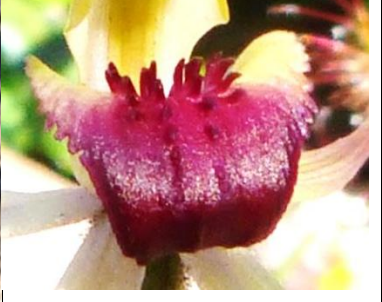


















Yellow clubs such as on the plant at far left are occasionally seen on all Clubbed Spider Caladenia.

<- Photo Rudie Kuitert



C. fitzgeraldii/C. oreophila at Post 2014 Fire Sites North of Orbost

Yalmy 13 Sept & 9 Oct Goongerah 10, 11 & 15 October, 5 Nov

Yalmy (40km North of Orbost)	Yalmy	Goongerah Creek	Goongerah Creek	Goongerah North
				
<p>Enlargement below</p>				
		<p>Enlargement below</p>		
				
				<p>Above, Below same plant</p>
<p>Above has long mid-section teeth, the aparant back teeth are calli,</p>				

Compared to *C. montana* (includes *C. osmera*): In the field populations of *C. fitzgeraldii*/*oreophila* are easily distinguished from *C. montana* inter alia by the shape of the labellum, and shape and placement of its edge teeth. *C. montana* has a longer tri-lobed labellum protruding forward to form an inclined platform, or less often curled under, longer finger or similar shaped back teeth, wider incised mid teeth, and are more likely to have mild to heavy reticulate veining. The average teeth count for my 110 *C. oreophila* is 9.22 and for my 304 *C. montana* 13.58. Below are photos of *C. montana* at Goongerah (close to *C. oreophila* populations) taken on 16 Oct & 5 Nov 2014. Note presence of back teeth on most. [The greenness is in part due to a wrong camera setting]



4 Knocker Mountains Population (North of Omeo, Victoria)

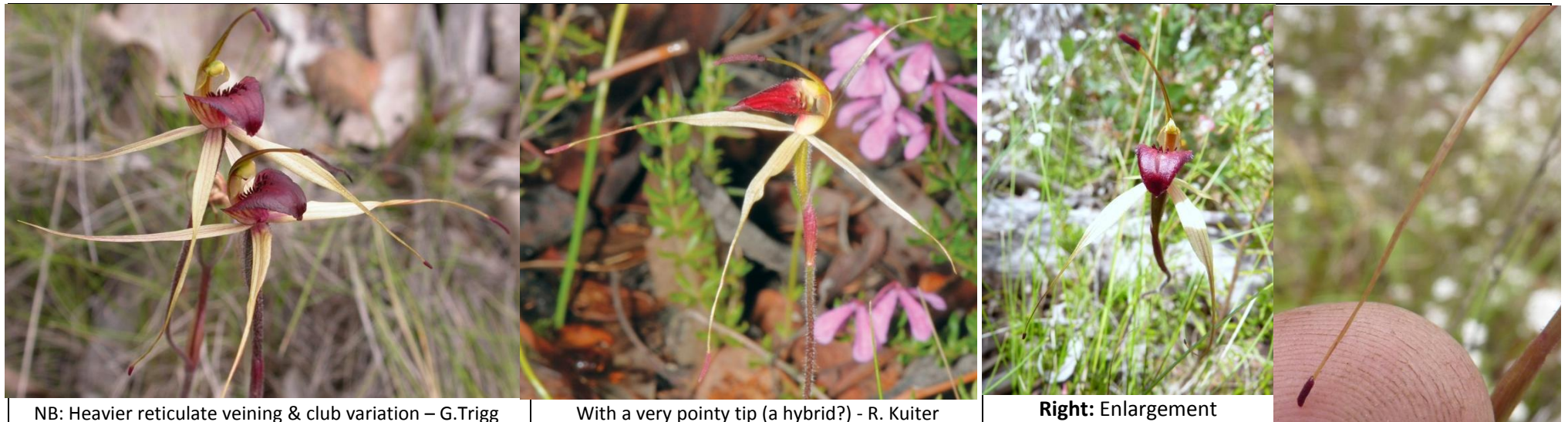
The photos below are from a small population of clubbed spider caladenia at on the Knocker Track north of Omeo, growing with *C. montana*, *C. clavigera*, *C. pava* & *C. fillamentosa*. There is an understandable degree of confusion about these plants, with similar plants identified in some texts as *C. montana* X *C. filamentosa* hybrids



Above G. Trigg 19 Nov 04 All undated these 2 rows 5 Nov 10

Same below

27 Nov12 Same below



NB: Heavier reticulate veining & club variation – G.Trigg

With a very pointy tip (a hybrid?) - R. Kuitert

Right: Enlargement

All of my small sample have labellum teeth generally confined to the mid-section, have thin tepals, and quite short to medium length lighter well defined lateral sepal clubs all of which are typical features of *C. fitzgeraldii*. Some have moderate to light reticulate veining, and some slightly odd narrow pointy labella of the type often seen on flowers fresh out, and on hybrids. The plants in my Knocker sample generally have the characteristics of *C. fitzgeraldii* and differ significantly from the *C. montana* populations in the vicinity. I note my average teeth pair count of the very small sample of the 7 flowers above is ~10 (typical range 9-11, extreme range 7-13) compared to 9.22 for my Victorian Vic/NSW border sample and the small sample count of ~9.87 for Central NSW. This compares to an average of 13.26 for 14 *C. montana* plants growing nearby.

This population is currently only known by a small number of plants growing in a small area. They have over many years been independently discovered and noted as different from the typical *C. montana* plants they grow with. In addition there is some inconclusive pollinator evidence that *C. fitzgeraldii* exists in the area. Even so my sample is too small, and whilst I am reasonably confident they are *C. fitzgeraldii*, I am not prepared to make that call until a survey of this location has been carried out to determine the extent of this population and how these plants (and any hybrids) relate to the *C. montana* population and other local *Caladenia* growing here.

B THE PEISLEYI FORM OF THE FITZGERALDII TYPE – *Caladenia peisleyi* (Described as *C. peisleyi* formerly known as *C. sp. af. Fitzgeraldii*)

Typically a smaller sized plant/flower with a relatively short/stubby ovate labellum (occasionally mildly, rarely more distinctly, tri-lobed) usually with a pointy tip. The labellum may loosely or, less often, more tightly, curl under. Labellum edge teeth are generally confined to the labellum’s mid-section. (Sometimes the teeth more extensive, ie: into the back and/or, less so, the front sections, particularly on longer labella.) Teeth often small/short forming a fringe, sometimes somewhat longer narrow finger like teeth deflected down, less often longer upright teeth (or a mix of these). Within definite limits considerable variation in labellum form and teeth arrangements present in a small patch. Average teeth count of 7.74 with 78% within the 5-10 range. Medium to narrow, gradually tapering tepals, narrowing somewhat mid-way. Usually well-defined light to heavier sepal clubbing with short to medium length round clubs covered with densely packed round, grape like, rounded to mildly storked, osmaphores. Occasionally flat or channelled clubs, petal clubbing, and double flowers.(More so post fire, or in a good season). Typical hockey stick shaped calli usually arranged in 4, or occasionally 6, rows (often outer rows short/irregular). Flower colour as per photos, viz: A red labellum front with white to creamy yellow back towards the base. Tepals white/cream, often with a pink centre stripe. Sometimes with an overall yellow/green, or red/pink, hue. Reticulate veining on upper and lower labellum greatly reduced, absent, and/or replaced by a central pink flush underside. **Notes:** Uncommon, less so after fire. A variety I call *C. peisleyi* variety fatlegs is a little different – see below

The Holotype [CBG 96100226.1] is of 2 plants 19-25 cm tall, plus a Floral Card with 3 dissected flowers, an additional set of tepals, and a leaf, all collected by Alan Peisley at Genoa. All 6 have shorter lighter well defined sepal clubs, and 2 have short petal clubs. The labella have teeth generally confined to the labellum mid-section and show considerable variation in labellum shape, and the shape, extent and length of labellum teeth.

Previously known as *C. sp. af. Fitzgeraldii*, *C. peisleyi* is a distinctive, separate/standalone, Form of the *Fitzgeraldii* Type confined to the East Gippsland coast and coastal foothills regions to about 250-300m altitude. Presently known populations extend from north of Briagolong to the NSW border near Genoa/Mallacoota, but probably extend into coastal regions of NSW. It forms hybrids with *C. tessalata*, *C. ancylosa*, the Buchan Spider Orchid, and possibly *C. montana*.

This table details part of my sample populations. I do have more samples including of 17 plants @ Briagolong Nth Alt. 200-350 where Fat Legged Peisleyi is ~89% of the *C. peisleyi* population. Here the Average Teeth Count is 7.35, Typical Range 4-10 (82%) Extreme Range 3-12 In this population 41% had petal clubs and 82% had a short fringe of tiny to small teeth.

PEISLEYI FORM - (AKA <i>C. peisleyi</i>) *79% within typical range					
Location	Altitude Metres	No. of Plants	Teeth Average	Typical Range	Extreme Range
NE Bairnsdale	178	11	8.64	7-12	2-14
Lakes/Colquhoun	106	24	7.29	5-10	5-15
Lakes East	97	5	6.40	5-9	3-9
Waygara	82	14	8.50	6-9	6-15
Mt Raymond E	150-240	12	8.10	7-12	3-12
Mt Raymond S	155	13	6.60	6-10	0-10
Cann Valley Central	263	2	7.00	6-8	6-8
Cann Valley West	282	8	7.50	5-10	2-10
Cann Valley South	150	3	6.00	6	6
Genoa Hill	135	2	6.50	6-7	6-7
Genoa Pk Tk	40-110	4	7.8	6-9	6-10
Genoa East	68	2	6.50	6-7	6-7
All		100	7.74	5-9*	0-15

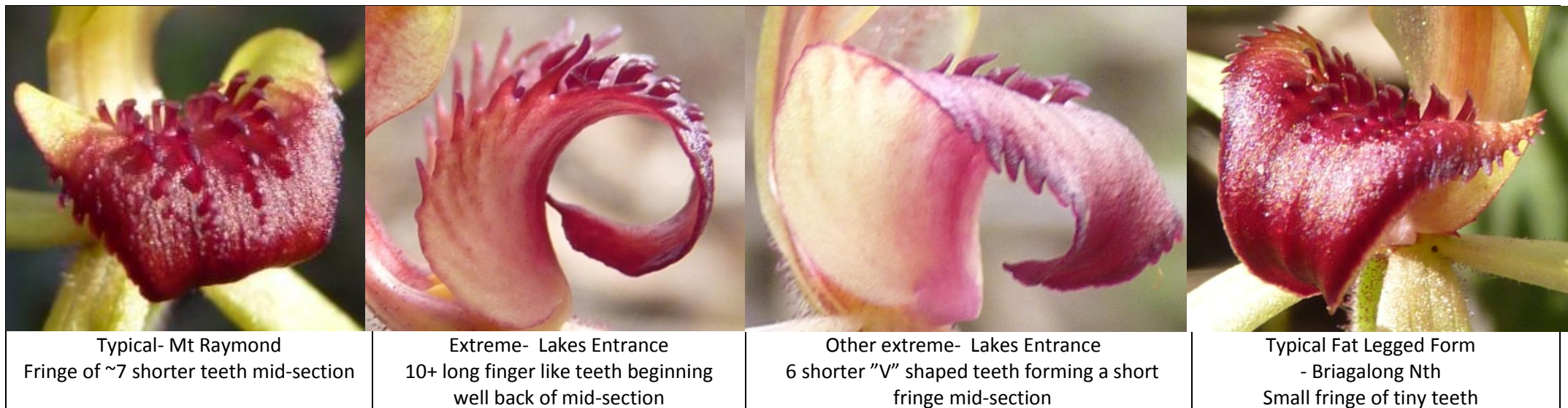
C. peisleyi distinguished from C. fitzgeraldii (includes the morphologically identical *C. oreophila*). *C. fitzgeraldii* replaces *C. peisleyi* in the East Gippsland foothills above 250-300m altitude. Whilst similar to *C. peisleyi*, *C. fitzgeraldii* is readily distinguished from it. Typically *C. peisleyi* is a smaller plant/flower and has a shorter/stubbier labellum, and on average fewer teeth with an average teeth count of 7.74 with considerable variation on labellum features including upcast teeth; compared to the less variable *C. fitzgeraldii* which is a smaller to medium size plant/flower and has a longer/elongated labellum with more, and more extensive, mid-section teeth, with an average teeth count of 9.22.

C. peisleyi can be distinguished from C. montana (includes morphologically identical *C. osmera*) (a) in the manner described above for *C. fitzgeraldii* (and morphologically identical *C. oreophila*), and (b) generally by its smaller size and by its shorter stubbier labellum with less teeth (*C. peisleyi* average teeth count 7.74, *C. montana* 13.58). Nevertheless there is a degree of morphological overlap in teeth numbers where extreme small plants of *C. montana* can look like extreme large plants of *C. peisleyi*. This due mostly to the high degree of labellum variability of *C. peisleyi*, and moderate variability of *C. montana*. This overlap is shown in the chart in my Introduction. Populations of both occur at Genoa, Cann River and other places along the East Gippsland Coast. In ideal hot conditions the *C. montana* at Cann River and Genoa have been observed to give off a noticeable burnt plastic like odour, but no perceptible odour was smelt on the *C. peisleyi* growing nearby. The main flowering seasons for both is mid-August to October. The flowering season of *C. peisleyi* usually begins, and ends, a little earlier.

Taxonomic Treatment

C. peisleyi is a Form of the *Fitzgeraldii* Type closely related to *C. fitzgeraldii*. In my opinion it is best treated as a sub-species of *C. fitzgeraldii* that occurs at lower altitudes at the southern extreme of *C. fitzgeraldii*'s range. I do think that including it as a sub-species of *C. fitzgeraldii* better places it in the overall scheme of things. However Jones has described it as a species closely related to *C. oreophila*. That is a fair call, and arguably the correct taxonomic treatment. It is now well known by that name, and I am not in favour of arbitrarily changing the names of species on small pretexts, particularly when its taxonomic status is currently being studied. Perhaps this issue could be considered if there was to be a broad revision of Clubbed Spider *Caladenia*, perhaps following the outcome of current studies.

The following photos show both typical plants, and extreme examples, of *C. peisleyi*:





Burnt Bridge - James Turner [Enlargement below]



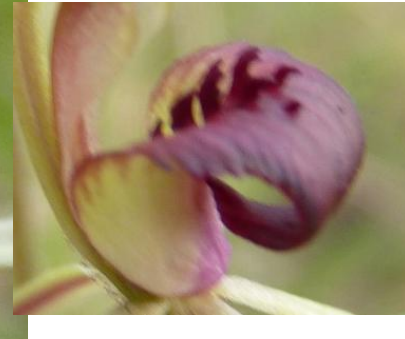
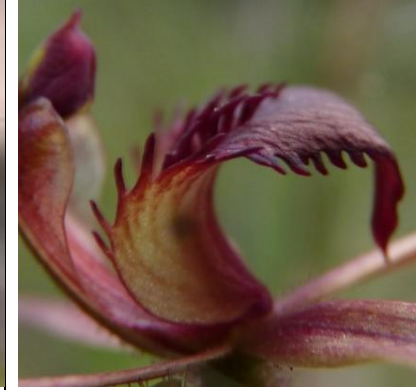
Above Typical & Below Extreme
Both Mt Raymond



Above & Right Cann River
[Enlargements below]



Less distinct sepal & petal clubs



Labellum variation seen in one small patch north of Lakes Entrance



~ 8-9 broader teeth pairs extending midway back.



~ 10 finer, longer teeth, extending well back plus some broader mid teeth Tighter curl.



~ 11 fine long back teeth pairs. But no short broader mid teeth as is typical of *C. montana*



3 large 3 small short broad mid teeth



A few tiny teeth forming a fringe



Despite considerable variation the average teeth count for sites here is 7.29 compared to an average for all *C. peislyi* of 7.74. Also note variation in reticulate veining.

C THE FAT LEGGED FORM OF THE FITZGERALDII TYPE *Caladenia peisleyi* variety fatlegs

Typically a small plant/flower, generally smaller, but otherwise very like typical *C. peisleyi* with a distinctly short/stubby ovate labellum usually only loosely curled under, usually with a less sharply pointed tip. Labellum edge teeth small to tiny generally confined to the labellum's mid-section, forming a short fringe. Less variation in labellum form and teeth arrangements than is seen in typical *C. peisleyi* populations. Average teeth count of ~7.35* with 82% within the 4-10 (compared to Typical *C. peisleyi* with 7.74). Lateral sepals, broad (fat) at the top narrowing in abruptly about 2/3rds of the way to the tip and often bowed in, with reasonably heavy well defined clubs covered with densely packed round, grape like, mounded to mildly storked, osmaphores. Distinctive petals usually daintily bowed/turned out (occasionally turned in). Around 50% have distinct, often flattened, petal clubs. Usually 4 rows of calli, occasionally 6. Most with a greenish hue. Reticulate veining absent, but a central pink flush labellum underside. Main flowering season as for typical *C. peisleyi*.

The Fat Legged Peisleyi Form grows in populations of typical *C. peisleyi* plants. North of Briagolong it is the dominant Peisleyi Form present. The odd few plants of this distinctive Form are sometimes seen growing with typical *C. peisleyi* elsewhere.

These plants are smaller than typical *C. peisleyi* with a distinctive (and very noticeable) set of characteristics. They are always seen growing with typical *C. peisleyi*.

Taxonomic Treatment
These plants constitute a set of characteristics separately seen in populations of *C. peisleyi*, that are derived from, *C. peisleyi*'s diverse gene pool, rather than a different source.

For these reasons they should be regarded as a variety of *C. peisleyi*



Clifton Creek alt.180m



Above & Right: Briagolong North alt. 280m



Right: →
North of
Cann River,
near *C.osmera*
type site
alt. 260m

Location	Altitude m	No Plants	Average teeth	Typical range	% in typical	Extreme range
All Peisleyi Form (as above)	40-240	100	7.74	5-10	78%	2-15
Fat Legged Peisleyi Form Briagolong Nth*	280-320	17	7.35	4-10	82%	3-12

*This table is only indicative of the difference in labellum teeth pairs as the Briagolong Nth population includes some typical *C. peisleyi*.

More examples of the Fat Legged Peisleyi Form



Clifton Creek enlarged overview below

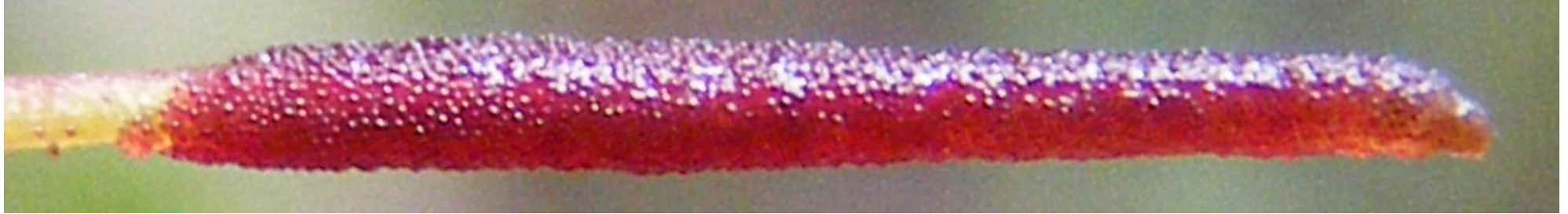


This & Right column Briagolong North - enlargements below



ENDNOTES

A Osmaphores



Above: A wet *C. peisleyi* (Dorsal Sepal)

Below: *C. oreophila* (Lateral Sepal)



Above: *C. peisleyi* variety fatleg (Dorsal Sepal).

Note: All typically with tightly packed round osmaphores & reasonably well-defined boundary to rest of the tepal

B Variation in a small population of NSW *Fitzgeraldii* Forms , Burruga, South of Bathurst, NSW

All with labellum teeth confined to the mid-section, many with light to moderate petal clubs.



Teeth vary from short fringing to longer/finger like. Some plants had moderately to distinctly tri-lobed labellums. Below the tri-lobed shape exaggerated by longer teeth that extend out towards the back and droop or curl under mid-section.



Enlargement of photo right



Enlargement of photo left showing slightly upcast teeth & that sometimes it is related to the viewing angle.