

## DECLARED RARE ORCHIDS (DRO)

### MANAGEMENT AND ECOLOGY

#### The Act

Based on criteria outlined in Section 23F, Sub Section (2) of the Wildlife Conservation Act, 34 orchids are currently declared as rare and endangered flora (see Table 1). This in essence means that they cannot be picked, plucked, dug up or damaged in any way. This act applies equally to both private citizens and Government officers alike. A fine of up to \$10,000 applies to any person who destroys declared rare flora without written Ministerial permission. However, declared rare flora can be taken if permission is granted by the Minister for Conservation and Land Management. If such permission is denied, the landowner may apply for compensation.

#### The Orchids

All DRO found in W.A., are what can be termed as herbacious perennials. This means they have an annual dormancy and growth cycle. Existing as underground tuberoides during the hot dry summer, then re-emerging following autumn rains. Apart from Rhizanthella gardneri and Diuris drummondii, all DRO flower during the spring months (see Table 1). The flowering period of most species extends over a period of just a few weeks in any given location, and as identification is extremely difficult during any other time. This is when surveys should be undertaken.

The 34 orchid species currently declared rare, are scattered through 8 CALM regions and 16 districts. Some such as Corybas sp. (Albany), are known from only a single population within one region/district, while others i.e. Caladenia plicata, are known from several regions/districts, but occur only in very small populations (see Table 2 for details as to which region/district they are found). Some

species, such as Caladenia plicata and C. sp. (Morseby Range), are known to occur in Nature Reserves/National Parks, and are therefore reasonably well protected. On the other hand C. sp. (Northampton) and Pterostylis sp. (Northampton) are known only from small strips of remnant natural vegetation along road verges. If they are to survive, careful management of their fragile habitat is required.

### Management

Factors which effect the management of DRO are as follows:

#### Fire

Fire plays an important part in the flowering of many orchid species. Many flower in much greater abundance following summer wildfires, and there are some which will only flower following fire, remaining vegetative in intervening years. There are several DRO which fit into this category. Caladenia sp. (Muir) for instance, flowers in greater profusion and C. gemmata var. ixioides will only flower following fire. The timing of such fires, however, is an important factor. As plants are in active growth during the autumn, winter and spring months, fires during that part of the year will prevent flowering and of course seed production. Some plants will be killed, and those which do survive may take several years to recover. I believe, therefore, that until firm scientific evidence is established to the contrary, all fires should be excluded from areas known to contain DRO.

#### Feral Animals

Feral animals and other introduced pests, such as Rabbits, Pigs, Slugs, Snails etc. can, and do, cause a great deal of damage to populations of rare orchids. Rabbits for instance, not only eat emerging plants and flowers, but also, because of their burrowing habits, cause a good deal

of destruction to the plants habitat. Rabbits, Pigs and Goats may also greatly aid the spread of introduced weeds. Evidence of this can be seen in the Northampton Shire, where feral pigs have caused substantial damage to populations of DRO along roadside verges.

### Weeds

Although native orchids will often survive weed infested bushland for many years, long term survival is most unlikely. Control of weeds, particularly along narrow roadside verges, will play an increasing roll in the survival of many such orchid populations. Prevention of successive burning, which encourages weeds to the detriment of natural vegetation, and the use of selective herbicides are important management tools which should now be used. Control of weeds will also greatly assist in the reduction of introduced pests such as snails, caterpillars etc., which often inhabit such weed infested sites.

### Herbicides

Use of non selective herbicides should be avoided wherever possible. In the case of narrow roadside vegetation, overspray from farm operations can cause irreparable damage. In addition both MRD and Shire spraying operations should be avoided in areas known to contain DRO. Several populations of DRF have been damaged by such operations in the past.

### Education

Education of adjoining property owners, Shire Officers, MRD personnel etc. is of high priority. On several occasions information on locations of DRF has filtered all too slowly to the people who count. As a result, populations of DRF have been damaged by grader operations and other vehicle activities. To date, populations of DRO have remained unscathed, but we should not remain too complacent about this.

Finally, I would like to show you a selection of slides, illustrating the rare orchids in question. Drawings attached to copies of my paper, can be used to get an idea of scale.

TABLE 1

Orchid species declared rare flora as of September 1987

PN = Page Numbers in Hoffman &amp; Brown "Orchids of SW Australia"

		FLOWERING PERIOD													
		J	F	M	A	M	J	J	A	S	O	N	D	PN	
<u>CALADENIA</u>															
1.	<i>C. bryceana</i>									+	+	+		145	
2.	<i>C. cristata</i>											+	+		
3.	<i>C. dorrienii</i>											+	+	77	
4.	<i>C. gemmata</i> var. <i>ixioides</i> <small>PELETOO</small>											+	+	159	
5.	<i>C. integra</i>											+	+	+	133
6.	<i>C. plicata</i>											+	+	119	
7.	<i>C. wanosa</i>											+		93	
8.	<i>C. sp.</i> (Murchison)											+	+		
9.	<i>C. sp.</i> (Esperance)											+	+	143	
10.	<i>C. sp.</i> (Cape Naturaliste)											+	+		
11.	<i>C. sp.</i> (Jarrah Forest)											+	+	103	
12.	<i>C. sp.</i> (Northampton)											+			
13.	<i>C. sp.</i> (Leeuwin-Naturaliste)												+		
14.	<i>C. sp.</i> (Coastal Plain)											+	+	113	
15.	<i>C. sp.</i> (Morseby Range)											+	+		
16.	<i>C. sp.</i> (Southern Forest)											+	+		
17.	<i>C. sp.</i> (Muir)											+	+	97	
18.	<i>C. sp.</i> (Salt Lakes)											+	+		
19.	<i>C. sp.</i> (Dunsborough)											+	+		
<u>CORYBAS</u>															
20.	<i>C. sp.</i> (Albany)											+	+		
<u>DIURIS</u>															
21.	<i>D. drummondii</i>													+	357
22.	<i>D. purdiei</i>												+	+	361
23.	<i>D. sp.</i> (Kwinana)												+	+	
24.	<i>D. sp.</i> (Northampton)												+	+	
<u>DRAKAEA</u>															
25.	<i>D. jeanensis</i>												+		217
26.	<i>D. sp.</i> (Kalbarri)												+	+	
27.	<i>D. sp.</i> (South West)												+	+	221
28.	<i>D. sp.</i> (Great Southern)												+	+	+
<u>PRASOPHYLLUM</u>															
29.	<i>P. triangulare</i>												+		253
<u>PTEROSTYLIS</u>															
30.	<i>P. pusilla</i>												+	+	317

31. P. sp. (Northampton)

+

RHIZANTHELLA

32. R. gardneri

+ +

331

THELYMITRA

33. T. psammophila

+ +

19

34. T. stellata

+ +

31

TABLE 2

## Declared Rare and Endangered Orchids CALM Regions and Districts

Key	M	=	Metropolitan
	NF	=	Northern Forest
	CF	=	Central Forest
	SF	=	Southern Forest
	W	=	Wheatbelt
	GA	=	Gascoyne
	GR	=	Greenough
	SC	=	South Coast

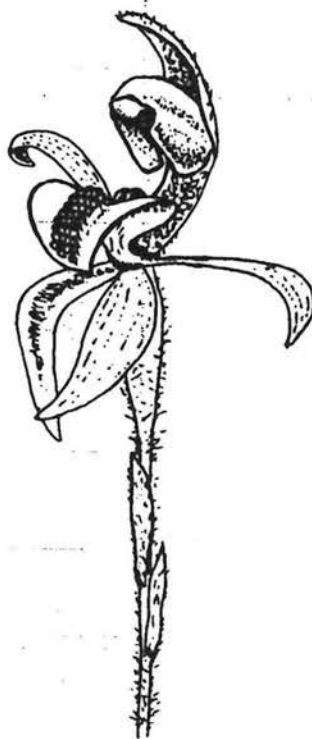
		REGION	DISTRICT	NO POPULATIONS
<u>CALADENIA</u>				
1.	<i>C. bryceana</i>	CF	Boy Br	1
		SC	Cran	1
			Alb	1
		GR	North	5
2.	<i>C. cristata</i>	GR	Moor	2
3.	<i>C. dorrienii</i>	NF	Mund	1
		W	Nar	3
		SF	Manj	3
4.	<i>C. gemmata</i> var. <i>ixioides</i>	NF		
5.	<i>C. integra</i>	W	Kat	2
		NF	Mun	2
		SC	Alb	1
6.	<i>C. plicata</i>	SC	Alb	9
		CF	Nan	2
			Bus	2
		SF	Wal	3
			Manj	1
7.	<i>C. wanosa</i>	GR	Ger	10
8.	<i>C. sp.</i> (Murchison)	GR	Ger	3
		GA	Ger	1
9.	<i>C. sp.</i> (Esperance)	SC	Esp	3
10.	<i>C. sp.</i> (Cape Naturaliste)	CF	Bus	2
11.	<i>C. sp.</i> (Jarrah Forest)	SC	Alb	6
			Esp	2
		NF	Kelm	1
			Mund	6
		CF	Bus	4

		Nan	2
12. C. sp. (Northampton)	GR	Ger	1
13. C. sp. (Leeuwin-Naturaliste)	CF	Bus	5
14. C. sp. (Coastal Plain)	M	Met	4
	CF	Bus	3
15. C. sp. (Morseby Range)	GR	Ger	3
	W	Nar	1
		Kat	1
16. C. sp. (Southern Forest)	SC	Alb	1
	SF	Manj	2
		Wal	4
		Pem	1
17. C. sp. (Muir)	SF	Man	1
		Wal	2
18. C. sp. (Salt Lakes)	W	Mer	1
	GR	Moor	2
19. C. sp. (Dunsborough)	CF	Buss	2
<u>CORYBAS</u>			
20. C. sp. (Albanj)	SC	Alb	1
<u>DIURIS</u>			
21. D. drummondii	SF	Man	3
22. D. purdiei	M	Kwin	6
	NF	Pinj	1
23. D. sp. (Kwinana)	M	Met	1
24. D. sp. (Northampton)	GR	Ger	3
		Moor	
<u>DRAKAEA</u>			
25. D. jeanensis	CF	Har	2
		Bus	2
	NF	Kelm	1
		Mun	1
	M	Met	1
26. D. sp. (Kalbarri)	GR	Ger	6
27. D. sp. (South West)	CF	Bus	1
	SF	Wal	1
	SC	Alb	1
	M	Met	1
28. D. sp. (Great Southern)	SC	Alb	2
	W	Kat	1



	CF	Bun	2
<u>PRASLOPHYLLUM</u>			
29. <i>P. triangulare</i>	SF	Manj	1
	CF	Marg R	2
	SC	Alb	1
<u>PTEROSTYLIS</u>			
30. <i>P. pusilla</i>	SC	Alb	5
		Esp	3
31. <i>P. sp.</i> (Northampton)	GR	Ger	2
<u>RHIZANTHELLA</u>			
32. <i>R. gardneri</i>	SC	Rav	3
	W	Corr	1
		Bruce R	2
<u>THELYMITRA</u>			
33. <i>T. psammophila</i>	SC	Alb	3
		Jer	1
34. <i>T. stellata</i>	SF	Den	1
	NF	Mun	3
	GR	Dand	2
		Coo	2

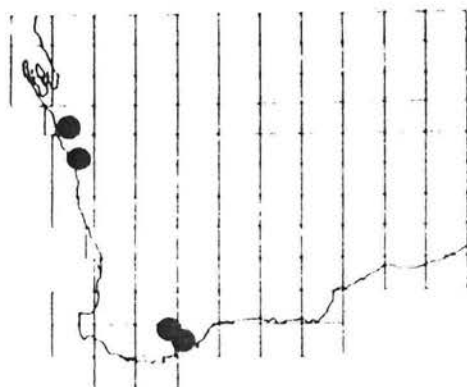
*Caladenia bryceana*



Flower (x4)



Plant with solitary  
flower and leaf



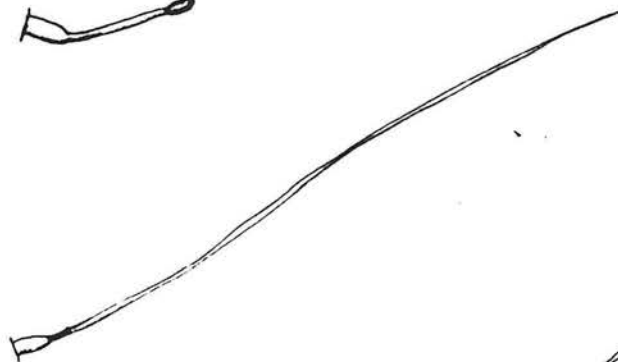
C. darienii



base of stem slightly flattened x20



X10

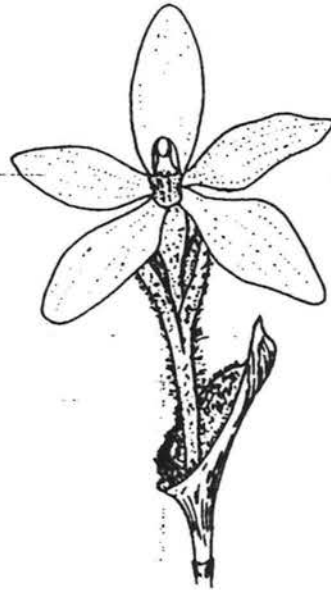


leaf base

*Caladenia gemmata*  
forma *lutea*

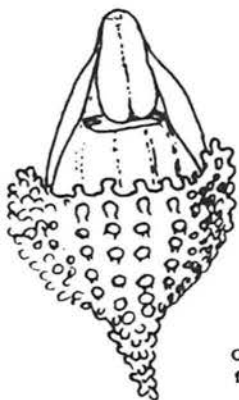
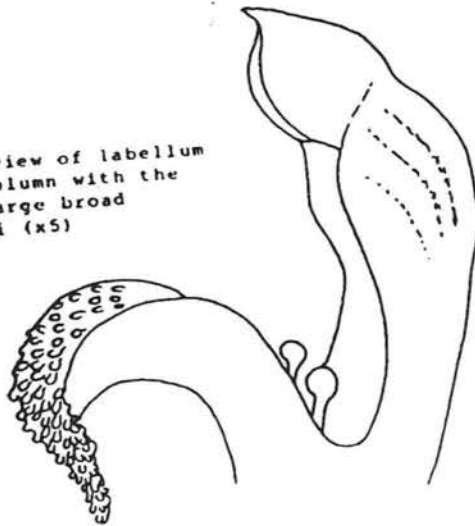


Tall form of plant

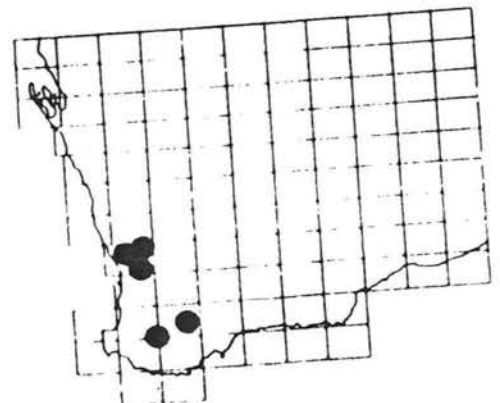


Short form of plant

Side view of labellum  
and column with the  
two large broad  
callii (x5)



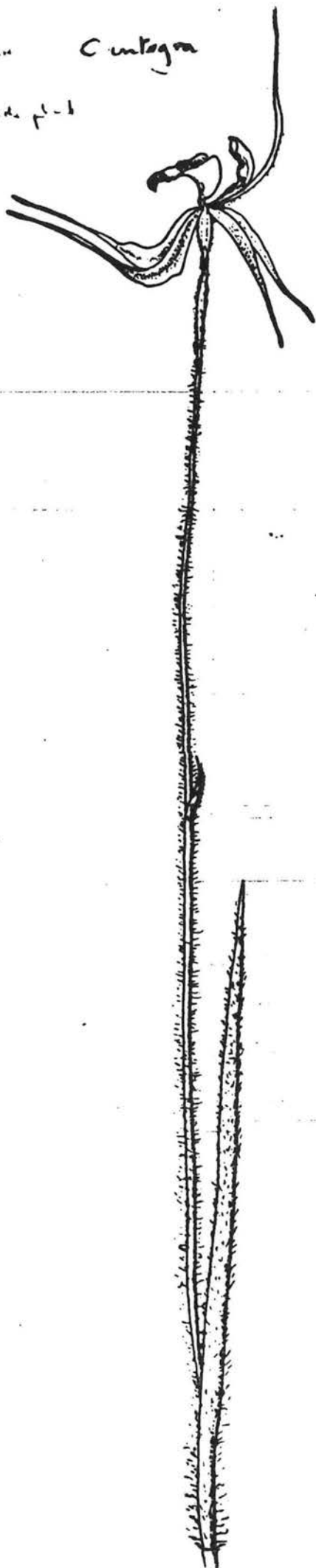
Column and labellum  
front view (x4)



Centogon

side view

See list of plants of the ...  
Museum of the ...



w

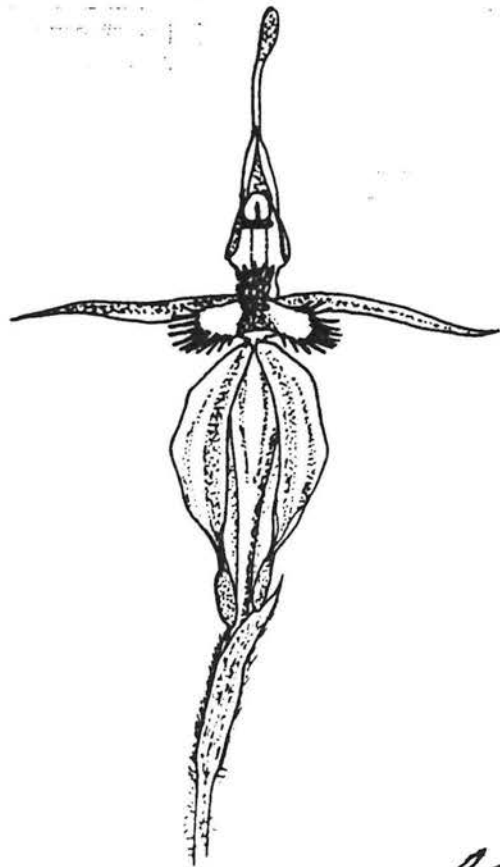
reduced  $\frac{1}{2}$  +

Cal. plicata C. plicata

SDH ? 4157

24.8 86.

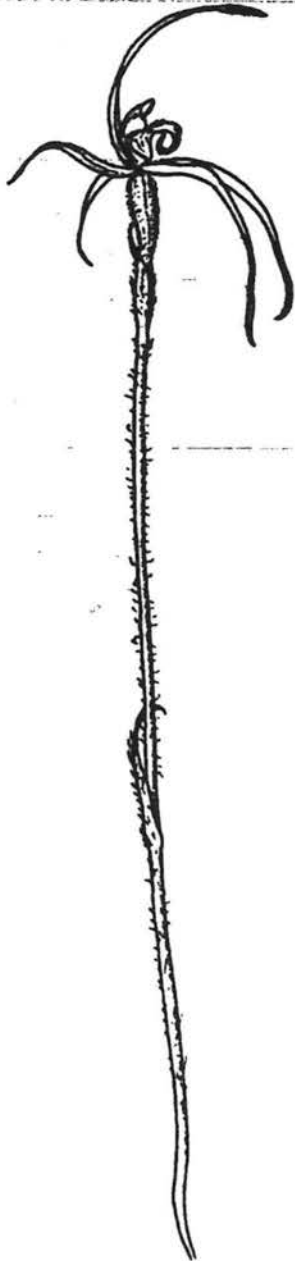
Stirling Range



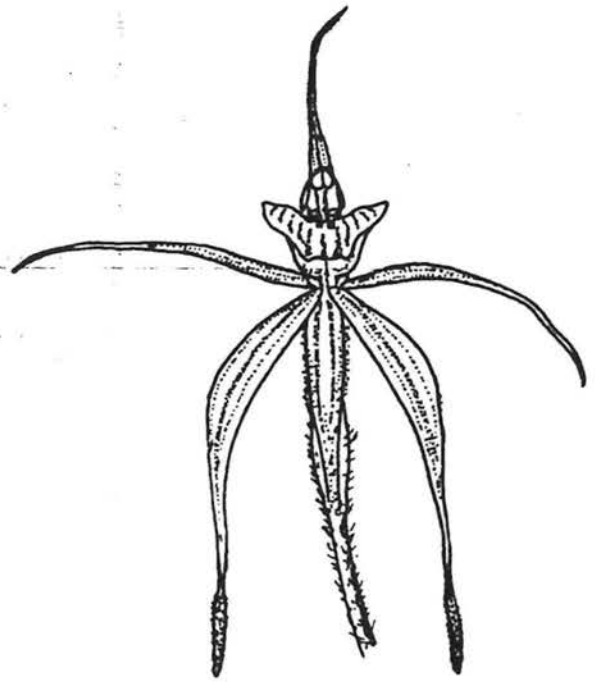
C. wanosa

C. wanosa A. Brown 27. 8. 84

x 1



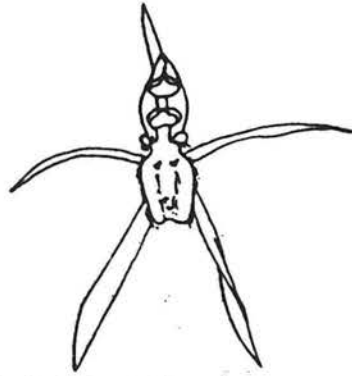
x 2



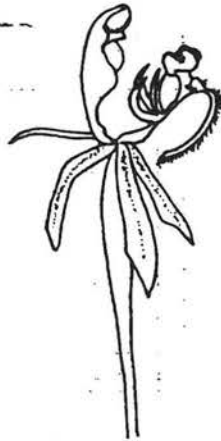
*D. ~~labiosa~~ bahallia*  
15.9.86.

Collected from fence No. 7  
Kallam

95%



enlargement of double  
structure at base of column

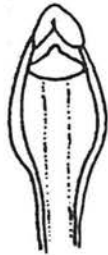


drawing  
of double  
structure

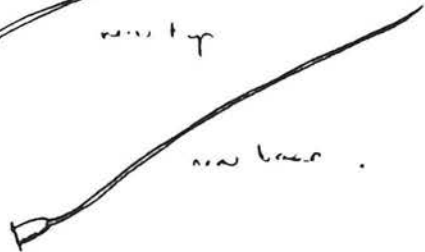
pollinia x 5



Column x 4



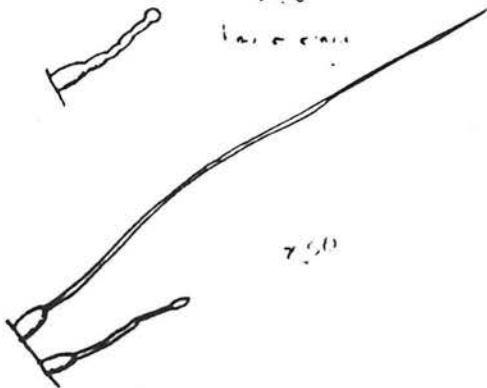
very few hairs  
along base



small hairs  
of column  
x 50



x 50  
hair cross



x 50

base edge of labellum  
x 50



for base of  
labellum hairs





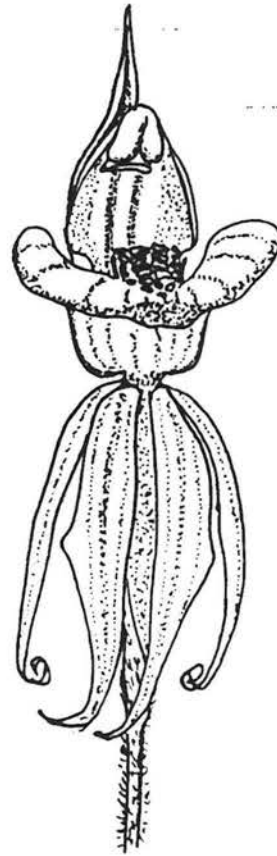
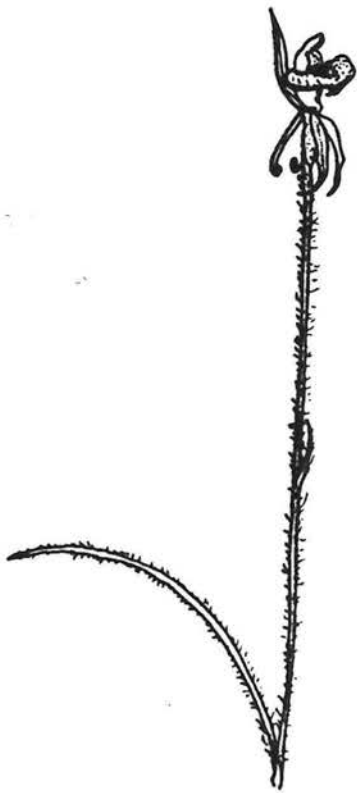
<sup>ell</sup>  
C. cristata

C. vogelii

C. cristata 3147 B Property of N. Scheer. Sabranguns  
cashy coll. 1977 R. Brown

Flower 4

raise upper sepal

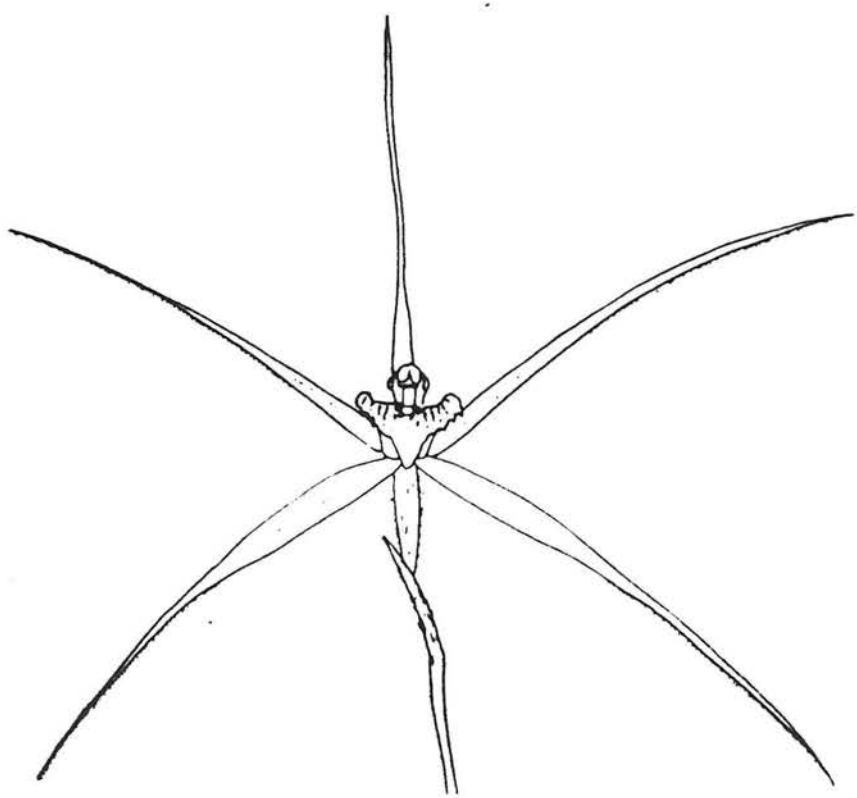
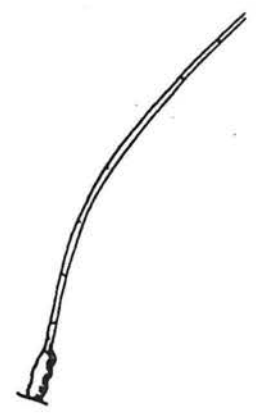
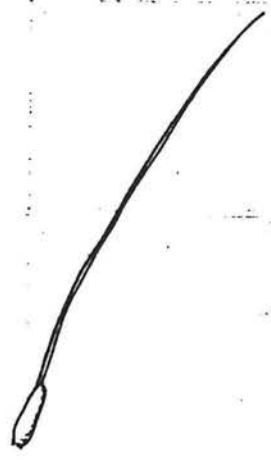
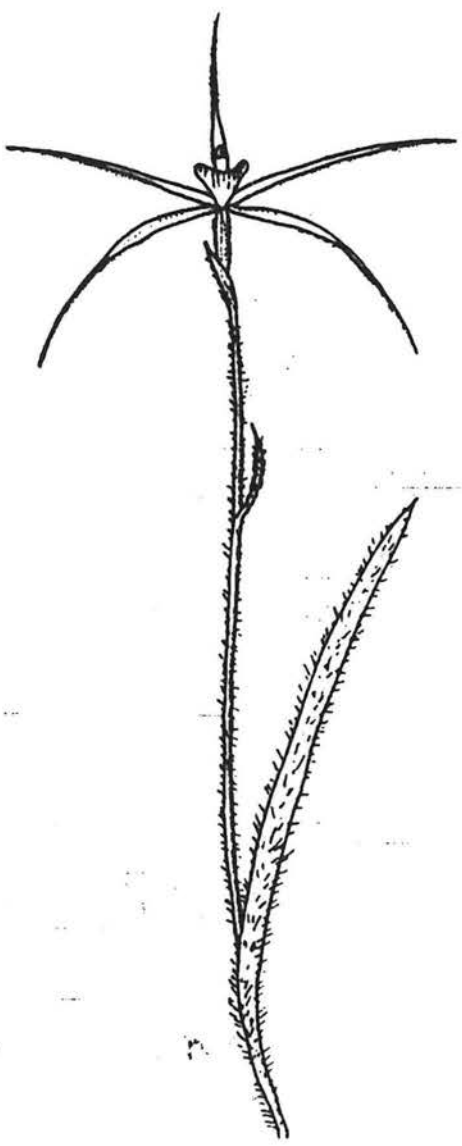


calyx



*C. caerulea*  
*maculosa*

979



5011 4289

arrecta

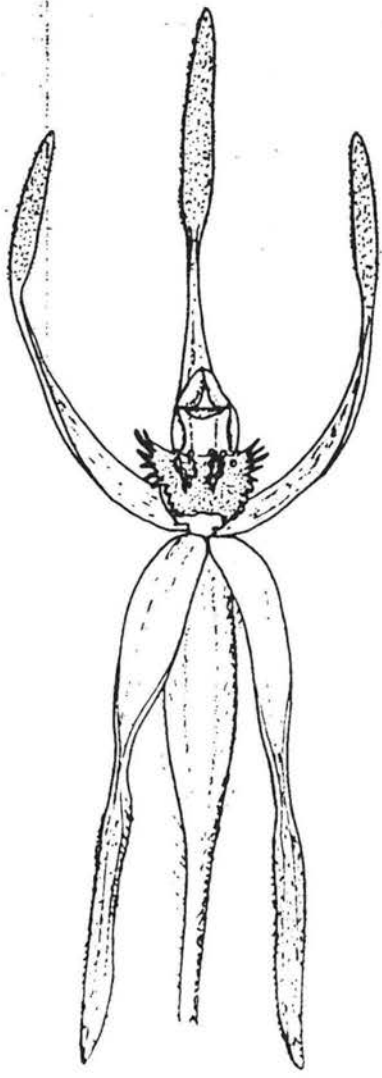
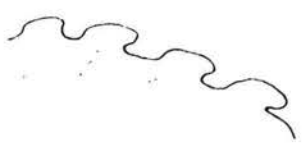
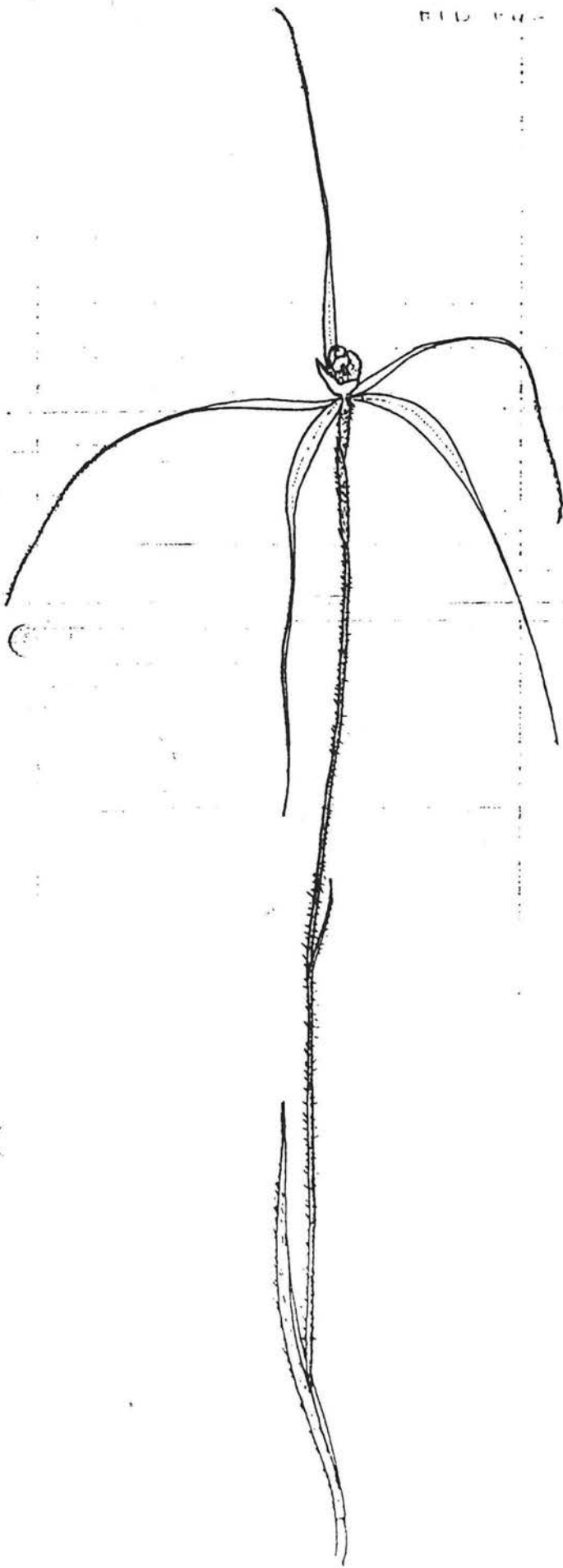


FIG. 14

*Calothrix* de *lobulata* subsp. *elegans*

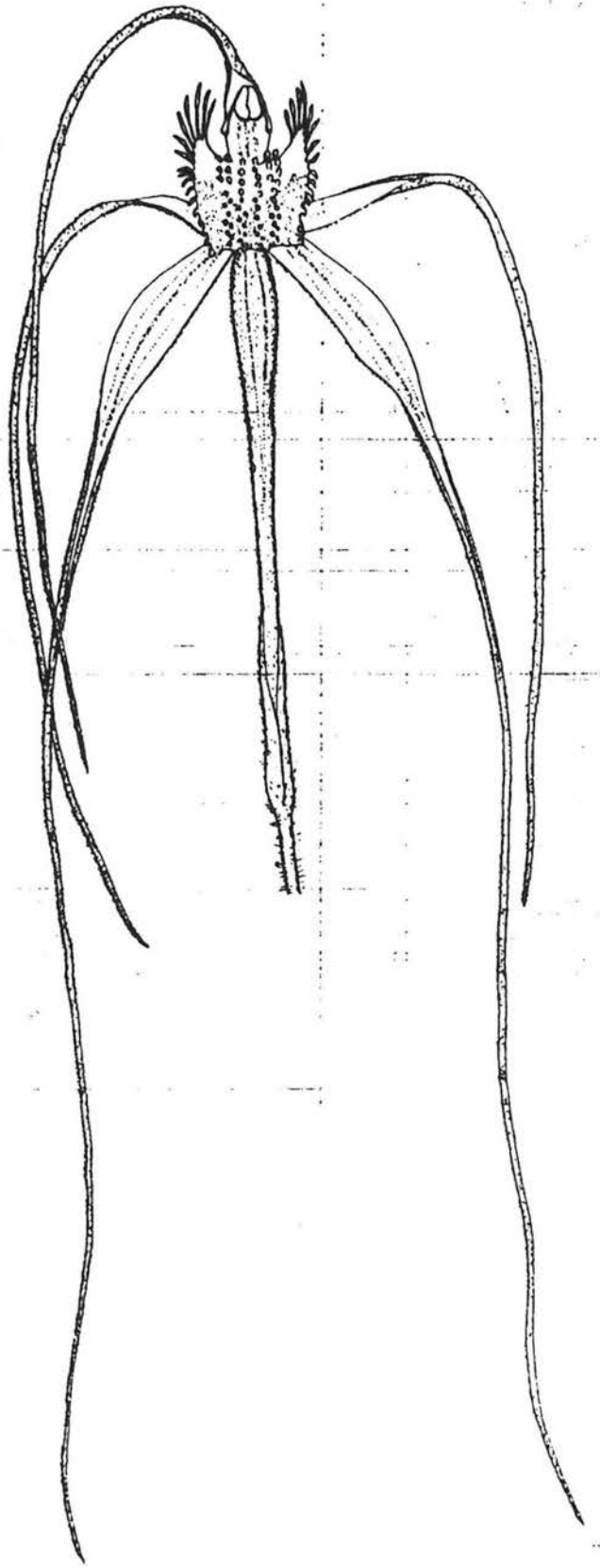


longitudinal section  
x 100

transverse section  
x 100

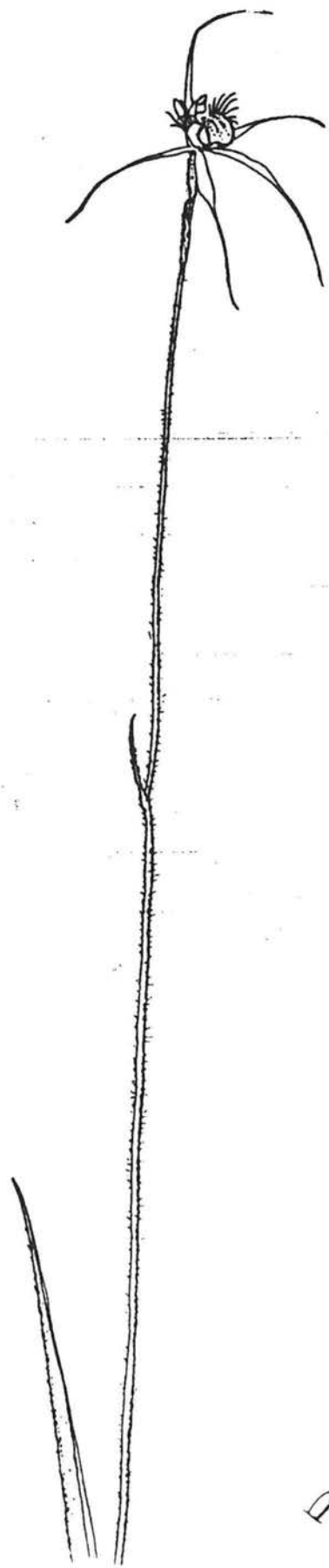
longitudinal section  
x 100

C. excelsa



h

h

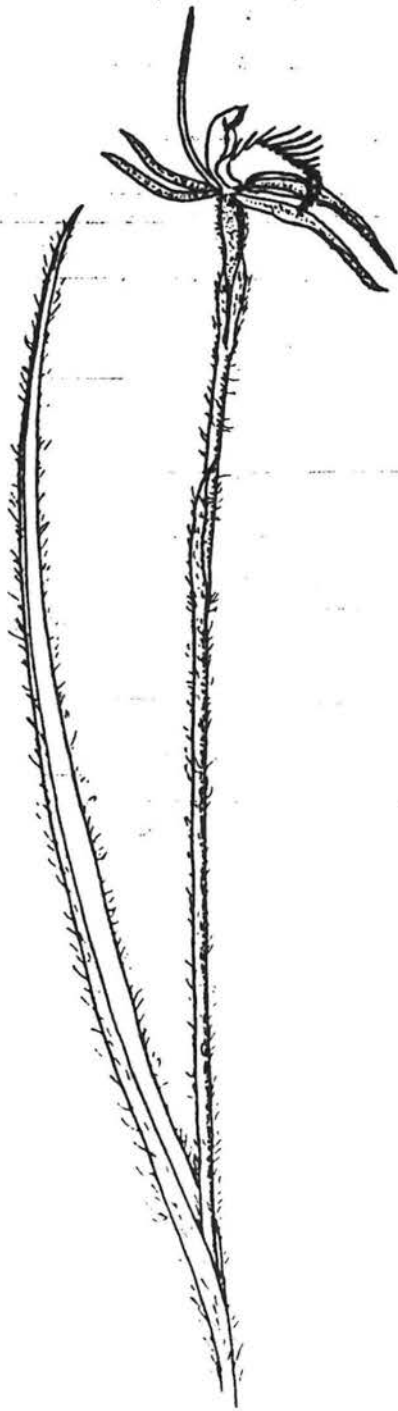


III

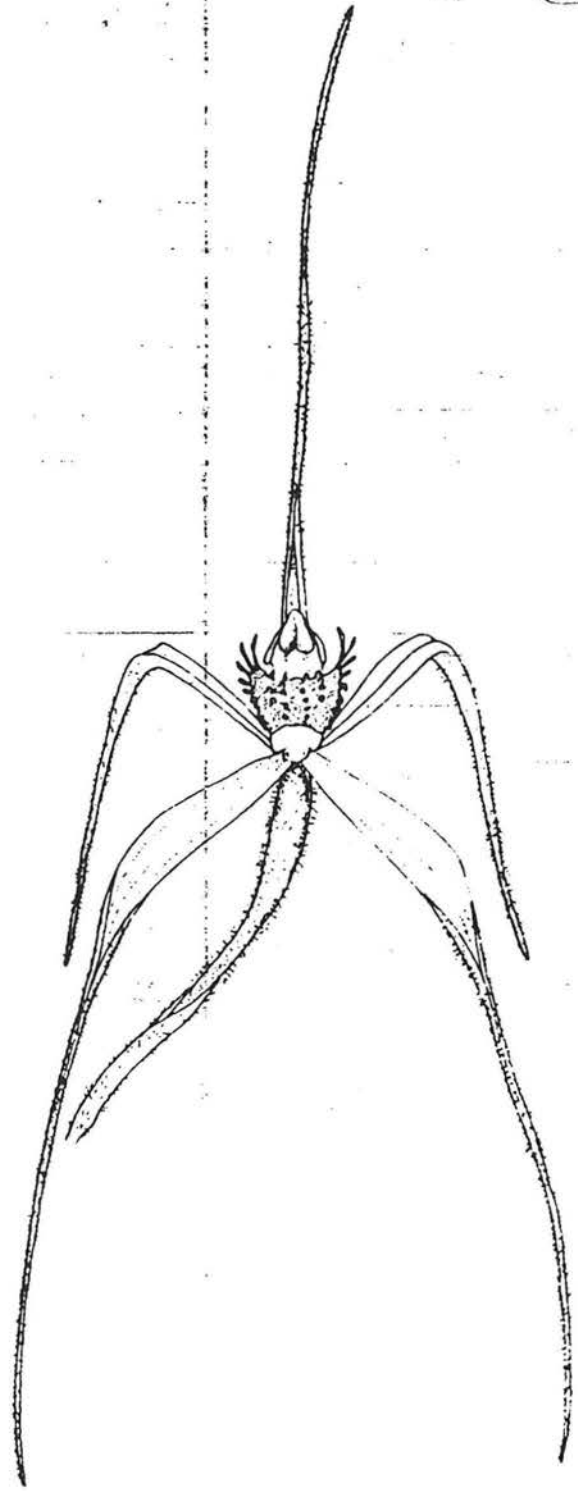


C. hoffmanii

C. hoffmanii 27. 8. 86. A Brown



C. herringtonae



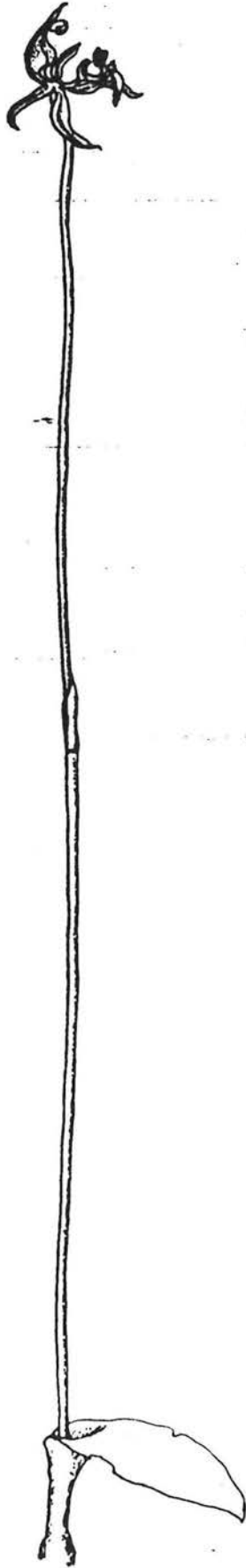


Drakonorchis

SDH 4162

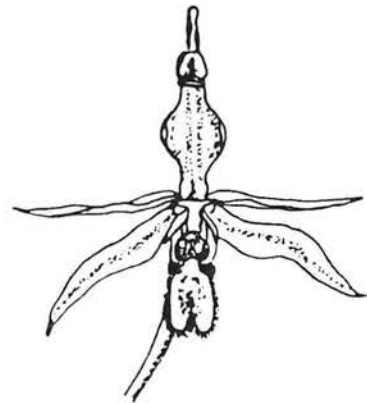
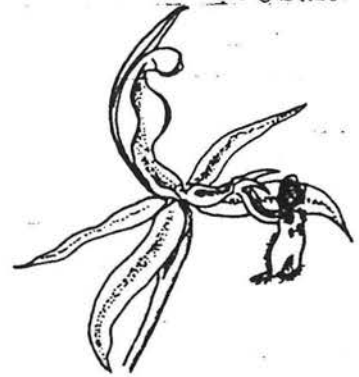
Caladenia barbarrisia  
ssp. nov

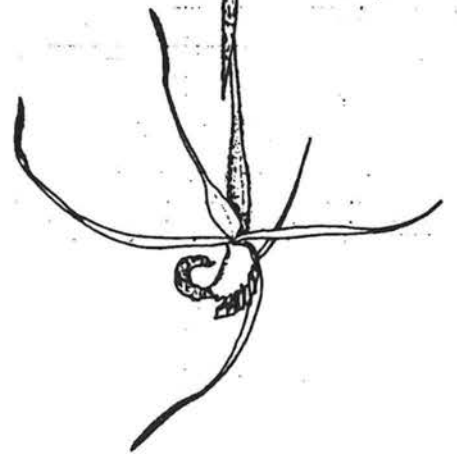
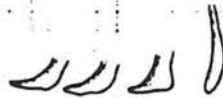
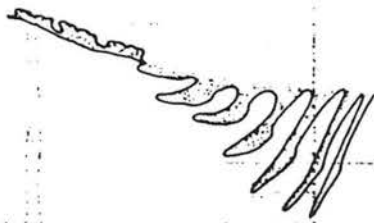
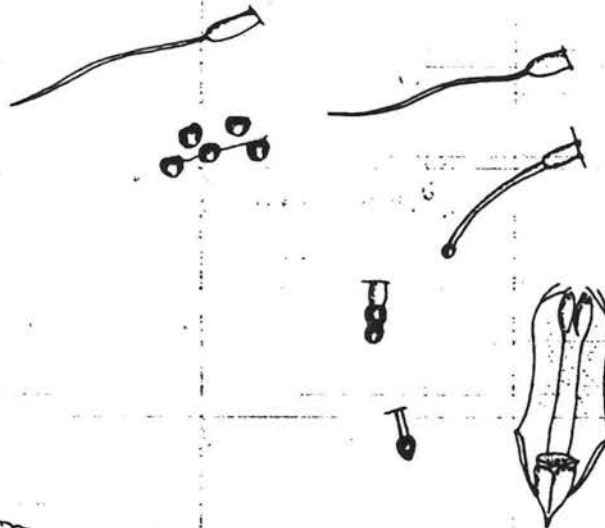
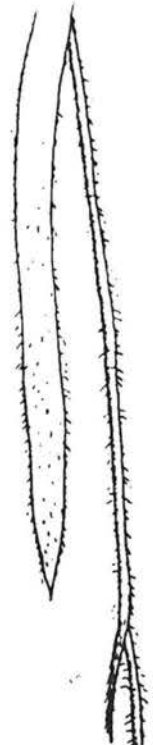
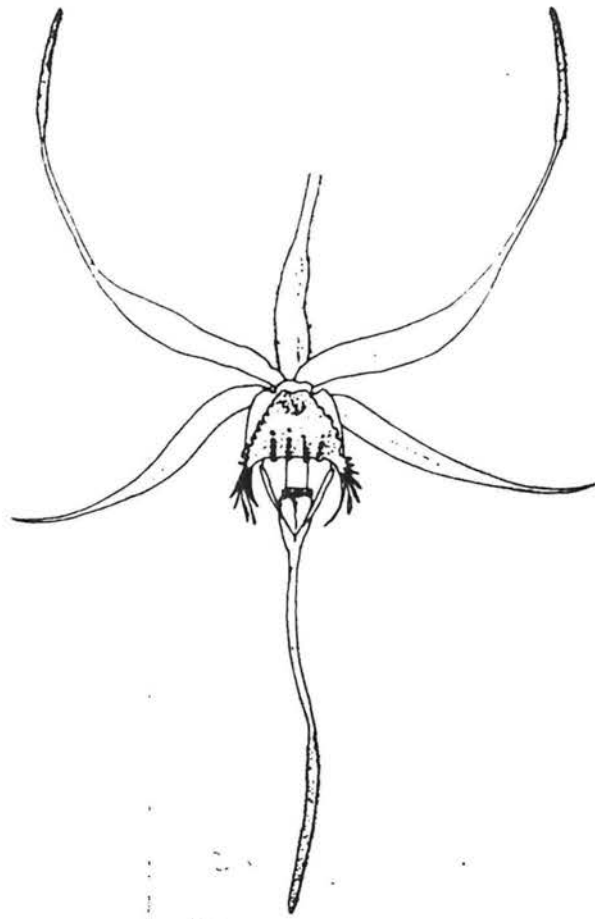
Drakonorchis  
drakaeoides



x.2

margins of leaves slightly  
ciliate as in  
*C. barbarrisia* (Stuebel) Gray



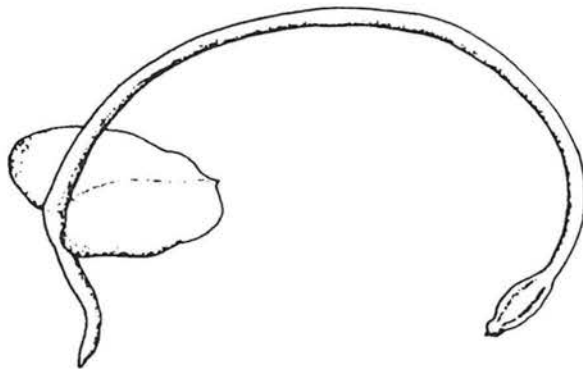
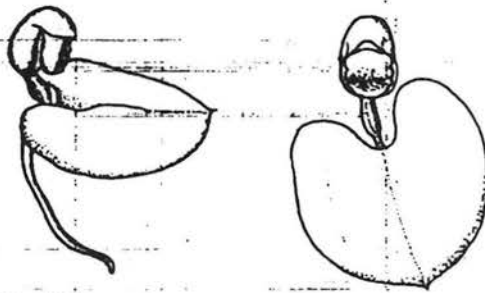


*C. vandermeulenii*

1971

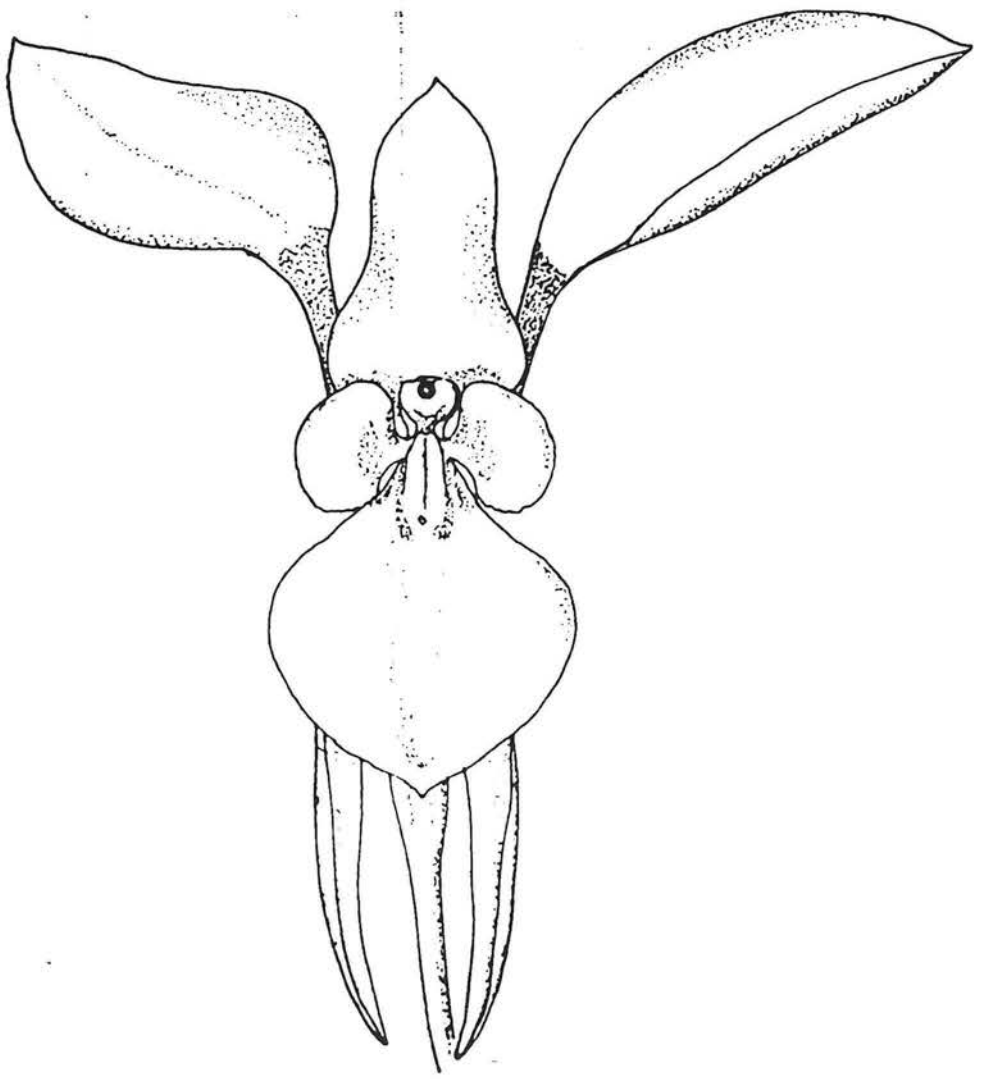
C. granulosa

needs to be  
redrawn - specimen  
was fading other drawn.

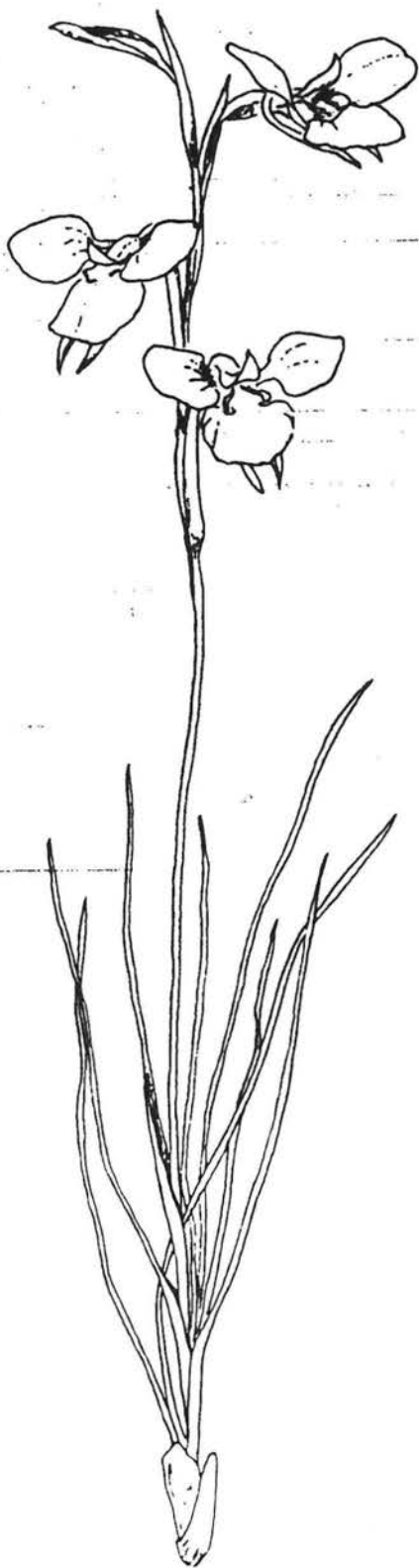


*Diris emarginata* var. *emarginata* A. Burm  
17 72 241 Bussell

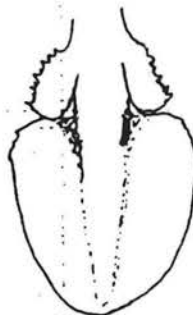
Diris  
emarginata  
anarginata



*Diuris purdiei*



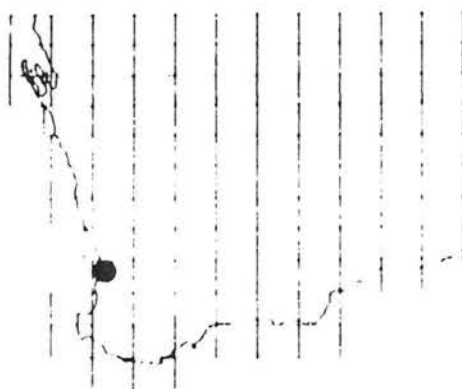
Whole plant with leaves and flowers



Labellum from above (x25)

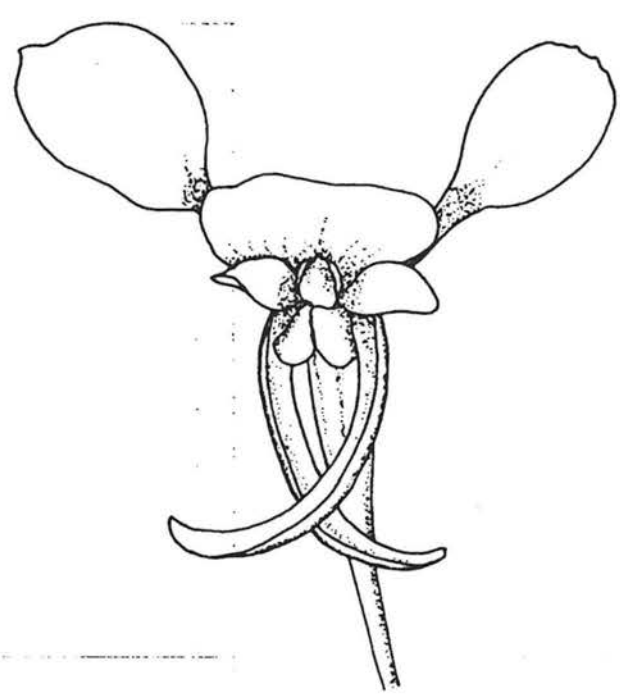
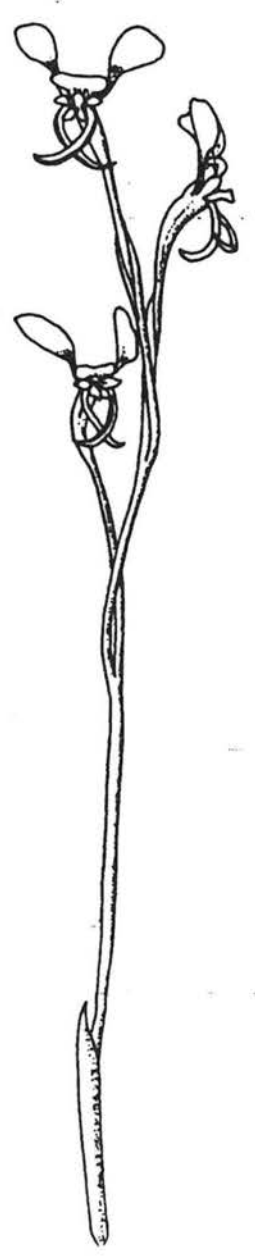


Underside of labellum showing wallflower markings (x25)



*Divisis longifolia* at ...

Divisis  
mini longifolia

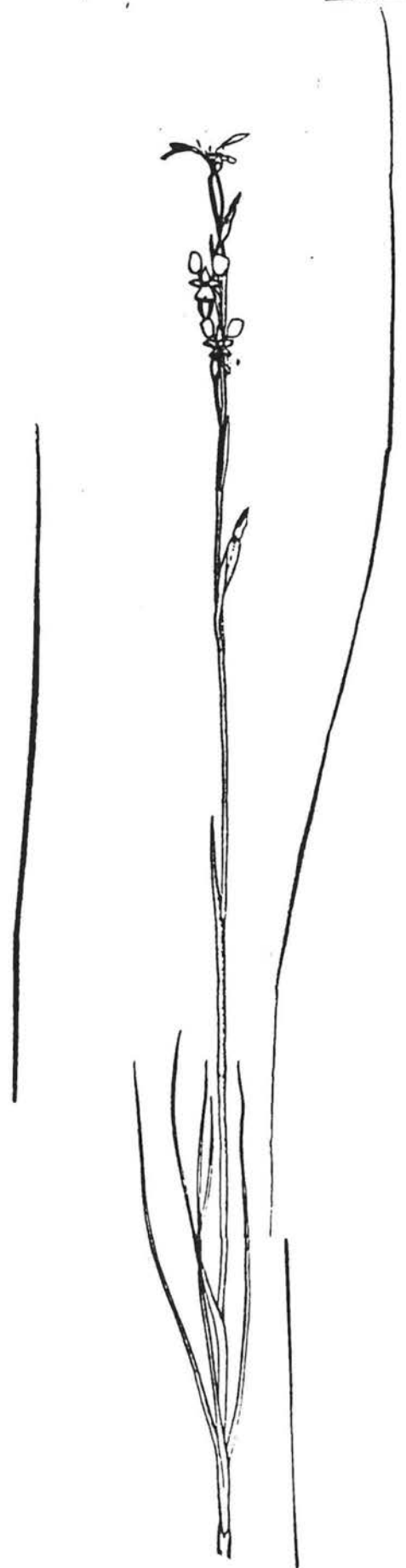
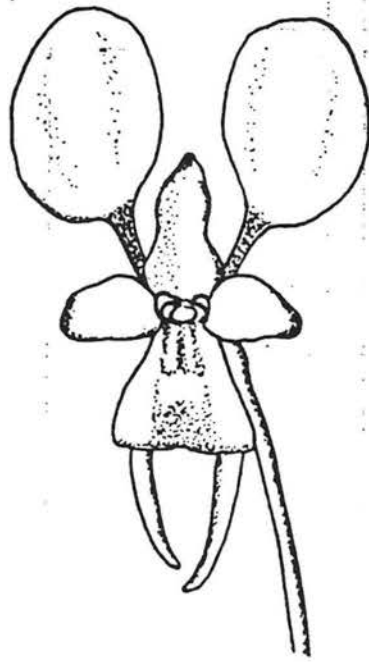


*Dianus aff. laxiflora* Hodge

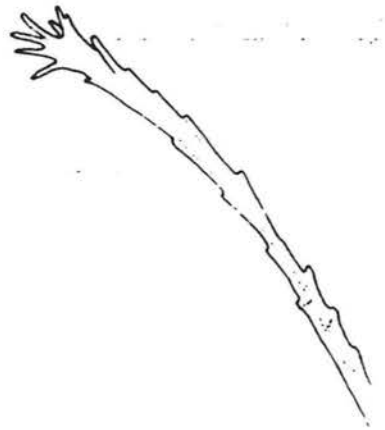
SFH AP Brown

24 9 84

*Dianus*  
*laxiflora*



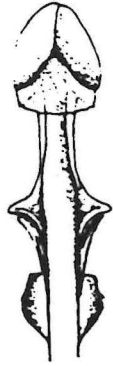
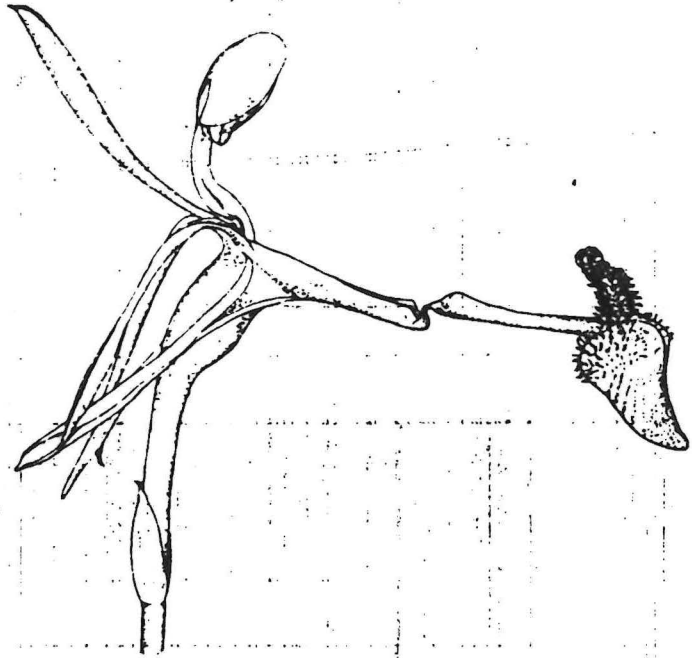
D. jeanensis



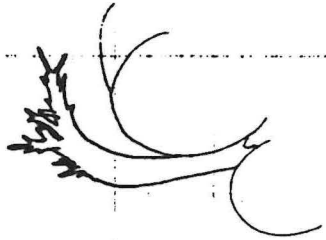


DRAKAEA JEANENSIS

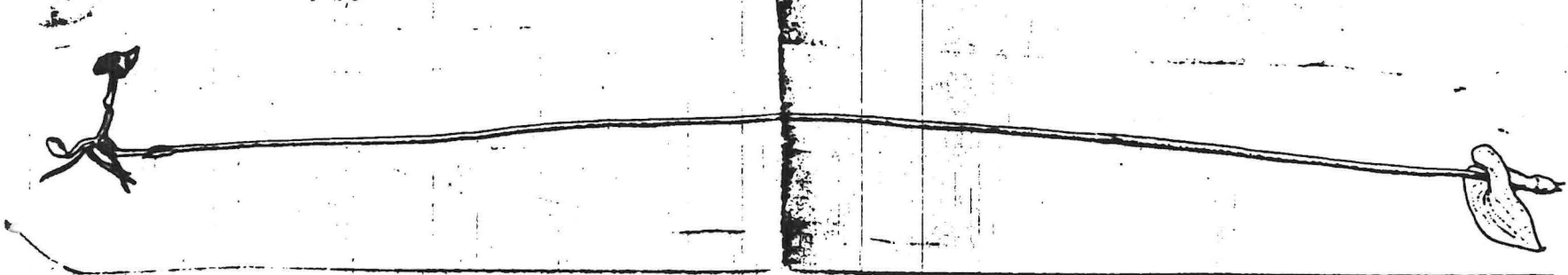
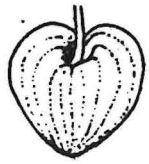
DRAKAEA JEANENSIS



x 4

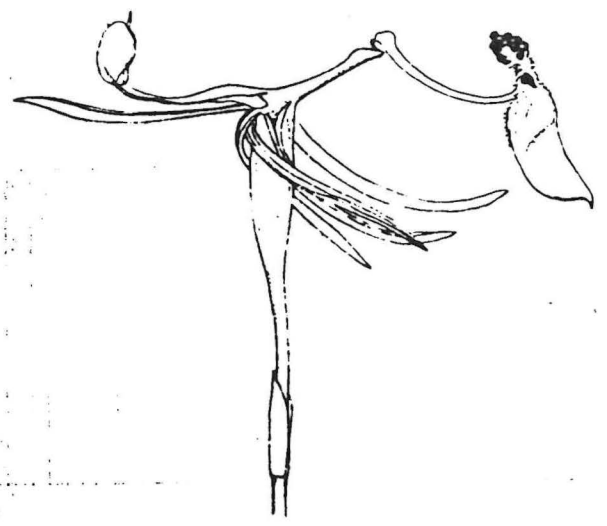
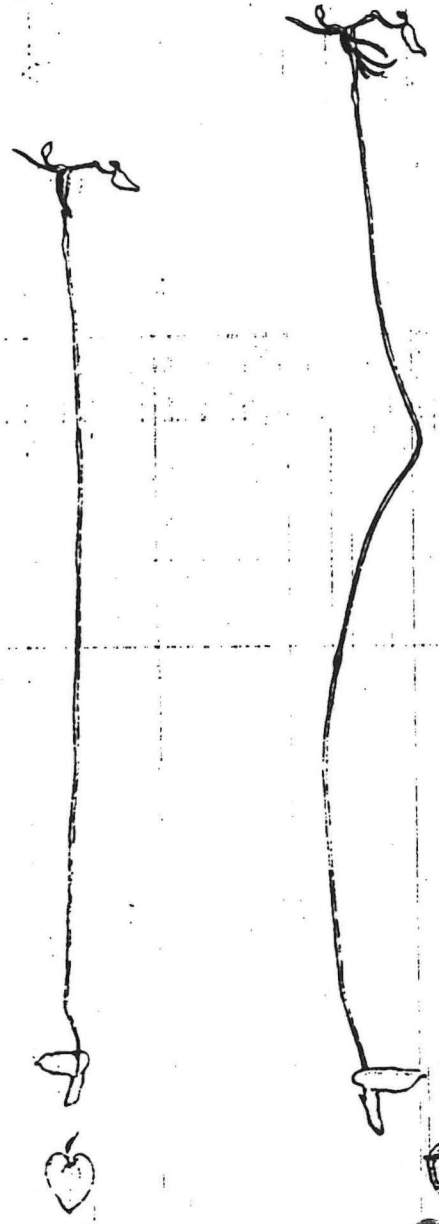


raw ... of ...  
labellum  
50 mm

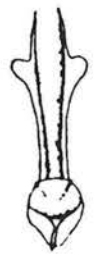
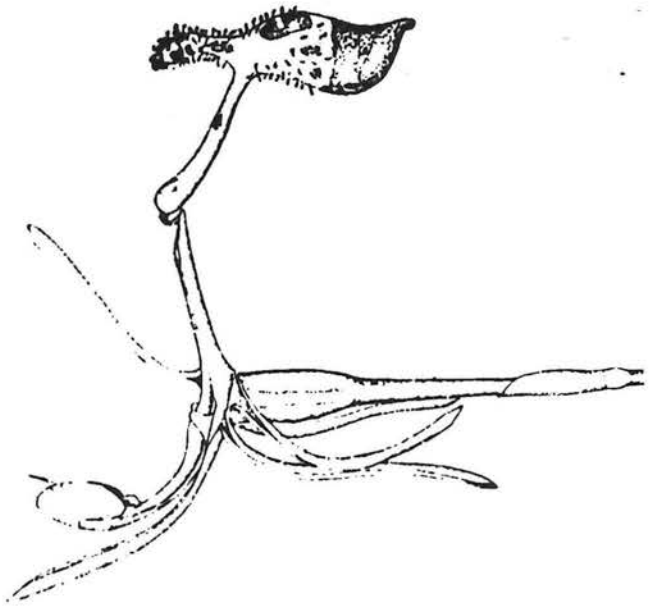


*Drakaea "micrantha"*  
Nicholson Ad.

Drakaea  
micrantha



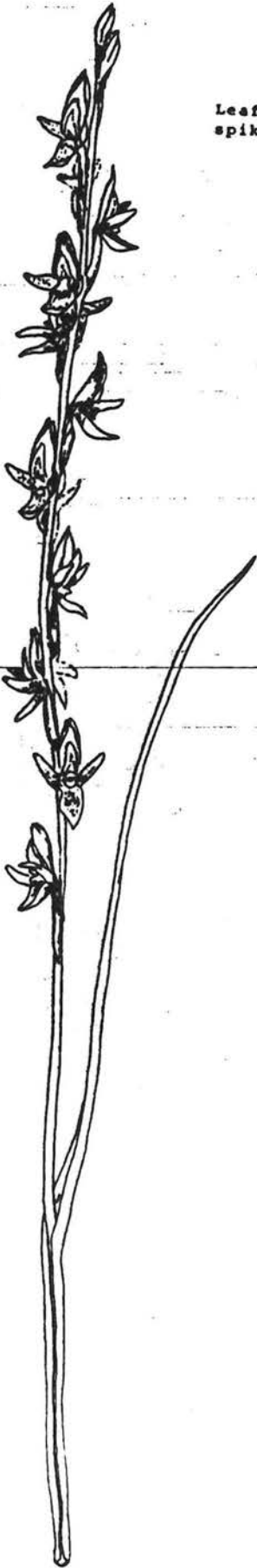
Drakaea ✓  
confluens



Drakaea  
confluens

*Prasophyllum triangulare*

Leaf, stem and flower  
spike

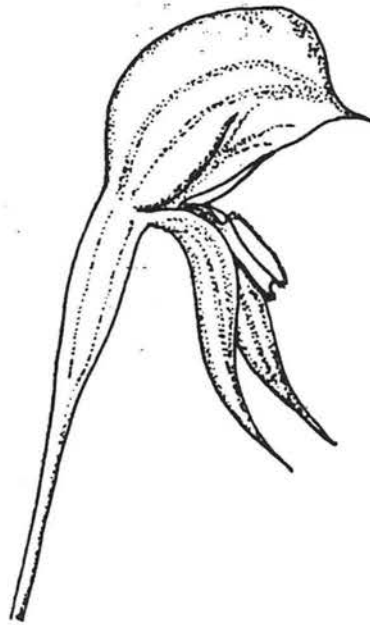


Enlarged flower (x8)

*Pterostylis pusilla*

Herb Shack House 30-10-24

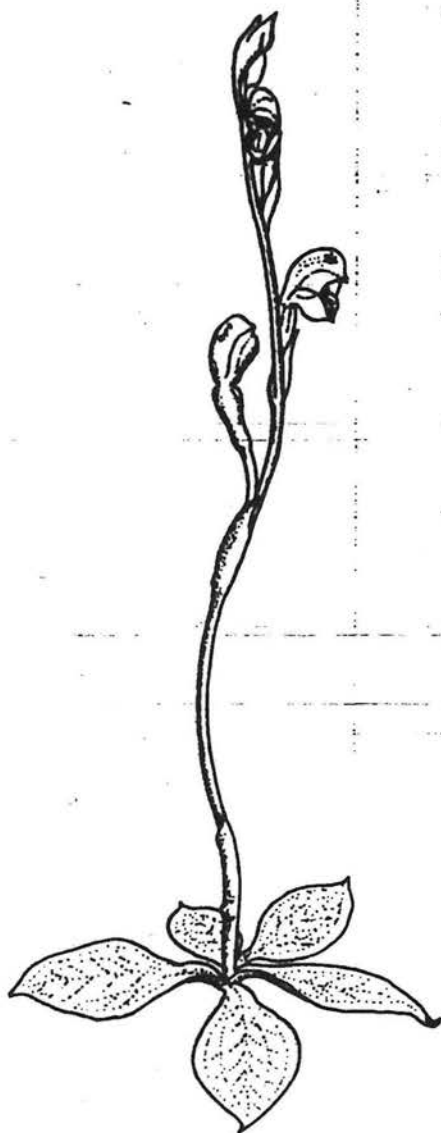
*Pt. pusilla*



*Pterostylis mutica* x2 SPH 16.8.82.

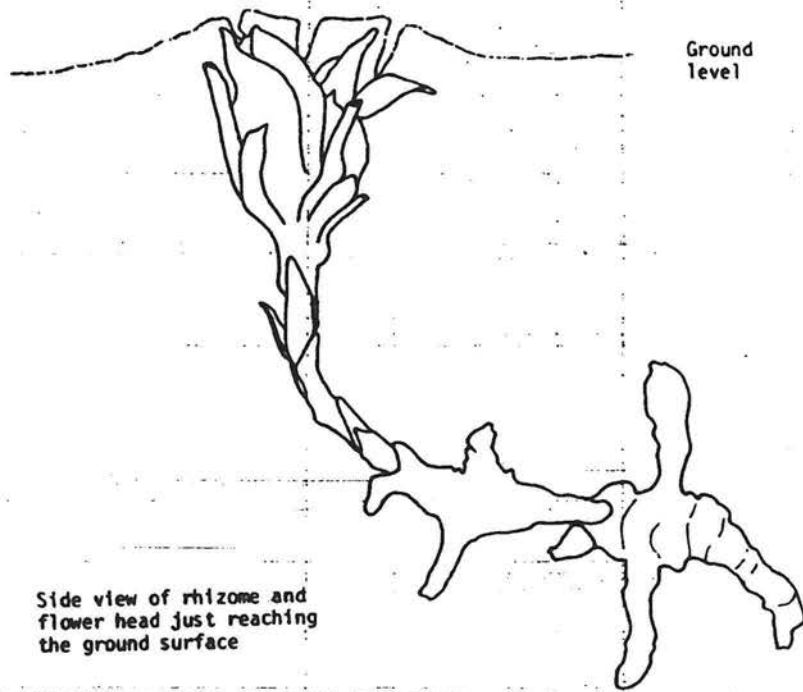
*Pt. mutica*

x1



x3





Ground level

Side view of rhizome and flower head just reaching the ground surface



Front view of flower



Top view of flower head

Side view of flower

