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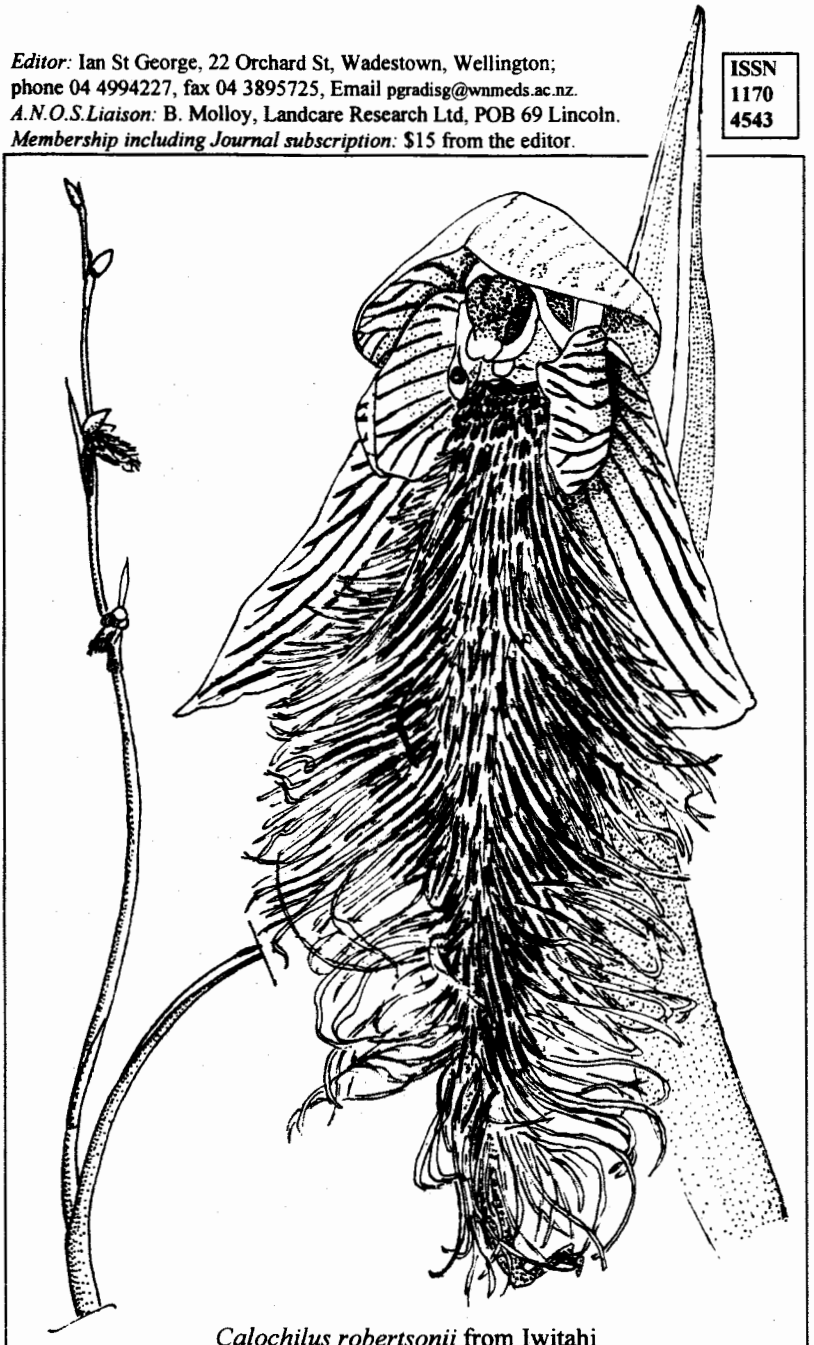


Calochilus robertsonii from Iwitahi

Contents

BACK TO BASICS: IWITAHI 1995

Have YOU phoned or written to Trevor Nicholls letting him know what you want to do at Iwitahi on 8-10 December? When he is not searching his mailbox (at 33 Hinekura Ave, Taupo) for your reply to his notice on page 27 of the last *Journal*, he waits by the telephone (07 378 4813). Brighten his day, would you? Contact him.

Editorial

Calochilus in New Zealand

Three species of "beardies", the genus *Calochilus,* are found in New Zealand - *C. robertsonii, C. paludosus* and *C. herbaceus.*

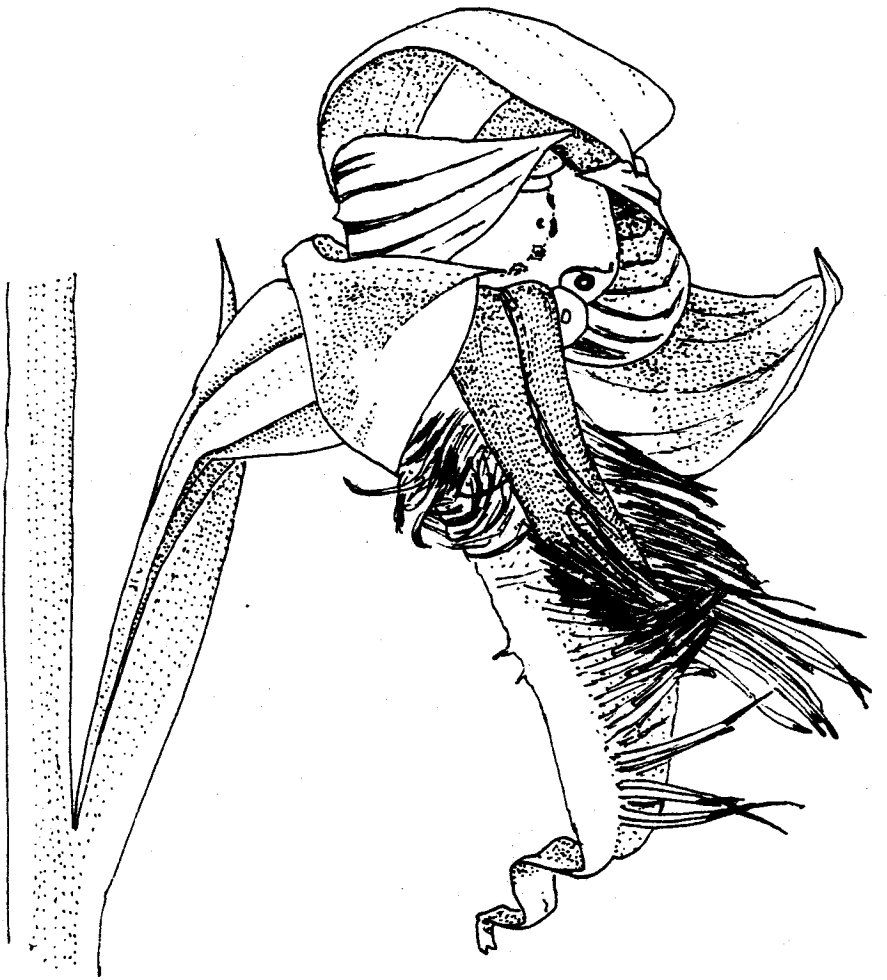
Calochilus robertsonii is familiar to all who have been to Iwitahi weekends - it has those "eyes" - dark swellings on the column wings, which are connected by a prominent dark ridge - and its labellum is covered with hairs, from its base (which has short purple papillae) almost to the tip.

Calochilus paludosus is much more opened-out - its petals and sepals bent backward in the mature flower. There are no "eyes" and the base of the labellum is covered with a short stubble; the labellar tip is straight and hairless.

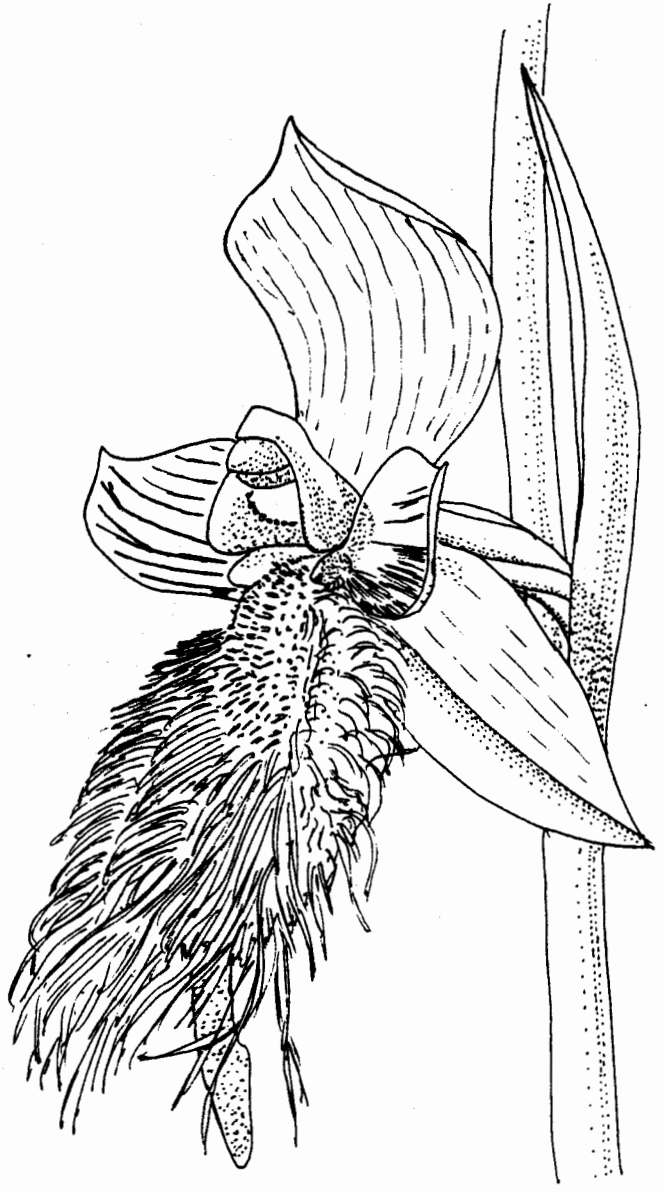
What we are now calling *Calochilus herbaceus* was confused with *C. campestris* in New Zealand, and earlier even by Lindley before his formal description of *C. herbaceus* in 1840 (see "Historical reprint" in this issue). It has the same metallic-blue plates, bald of any hairs, at the base of the labellum, and has a long ribbonlike labellar tip, devoid of hairs. Our plant was identified by M. Clements as *C. herbaceus*: "...distinguished from *campestris* by its swollen, fleshy, tuberous roots, few flowers in a distant spike, pink or pinkish-blue labellum bars, smooth labellum tip, and occurrence in poorly drained habitats".

All three are quite restricted in habitat, our Mapping Scheme showing *Calochilus herbaceus* in Ecological Regions *3, 4, 5, 9; Calochilus paludosus, 5, 6, 11, 13, 46, 47; Calochilus robertsonii, 11, 13, 15, 16, 17.*

None can be grown successfully in cultivation because all are highly dependant on mycorrhizal fungi for nutrition. They are at their loveliest left where they live.

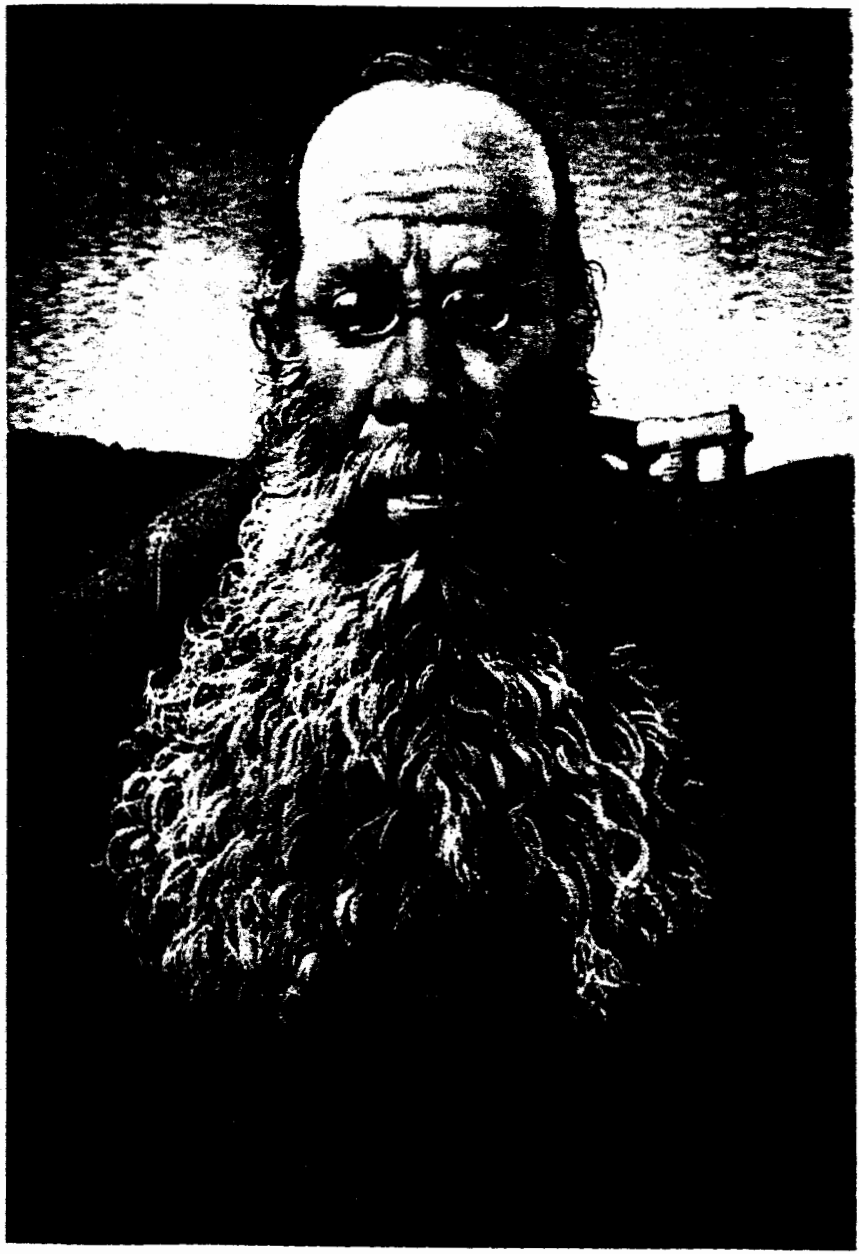


Calochilus herbaceus from Northland



Calochilus paludosus from Rainbow Mountain

Calochilus paludosus - lateral view



Another beardie: Edward Lear from the *New York Times Book Review*, 21 May 1995

Genoplesium pumilum

It was a pleasure to see *Genoplesium pumilum* on a clay bank near my father's old farm at Kaihere on 11 March. Bruce Irwin had shown me the site at Waiti Road several months earlier.

There were perhaps forty stems, none taller than 15cm, most under 10cm, in full bloom, with up to thirty green flowers touched with purple on each stem, the single sheathing leaf ending among the flowers (in contrast to *G. nudum* whose leaf ends below the red flowers).

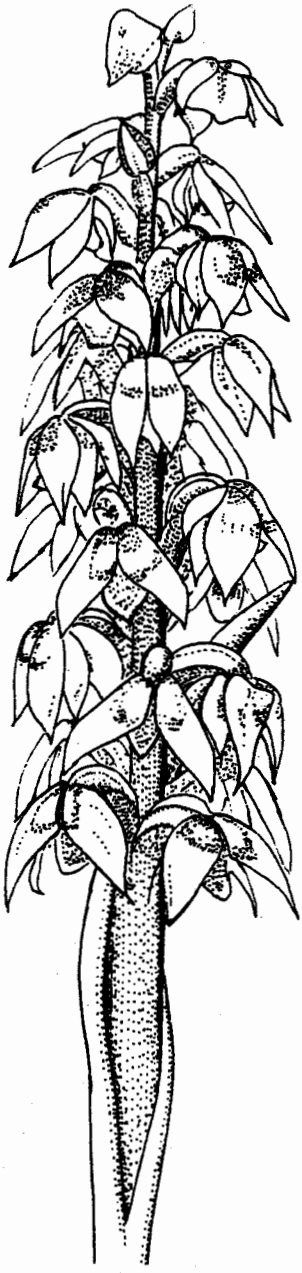
The scentless flowers are nonresupinate, the dorsal sepal or hood inner- and lowermost with the lateral sepals presenting to view.

The labellum is thick and fleshy, lacking the dark . hairy edges of *G. nudum,* mobile on its claw, with two paramedian calli along most of its length.

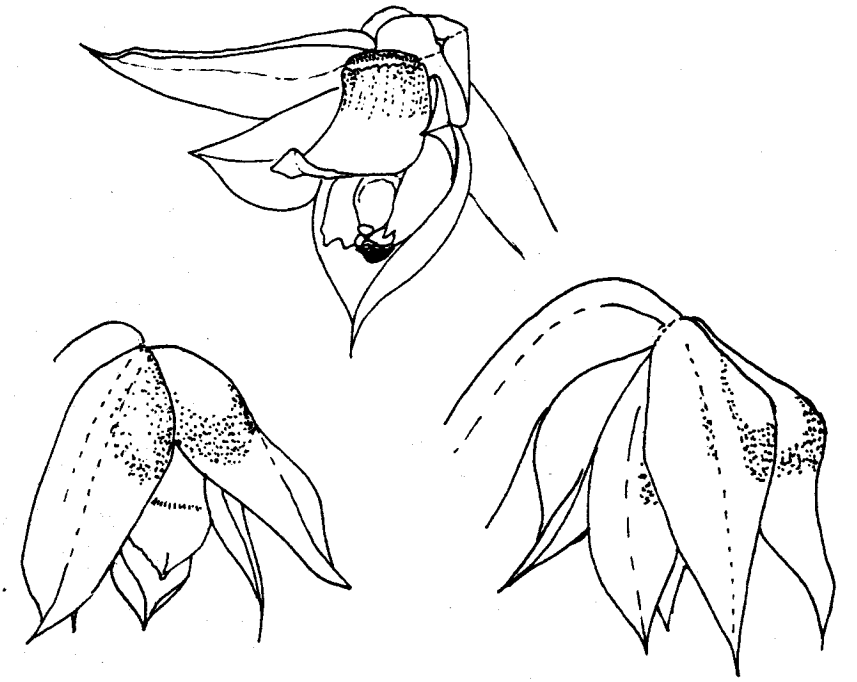
The column in the immature flower has coherent pollinia within a dark anther cap, separated from the stigma by a prominent rostellar shelf, protected at the sides by large column wings with toothed edges.

In older flowers, the anther cap separates, leaving pollinia that are more granular but still coherent, attached to the lower surface of the rostellar shelf, and separated from the stigma thereby. The column wings shrivel and darken at their margins.

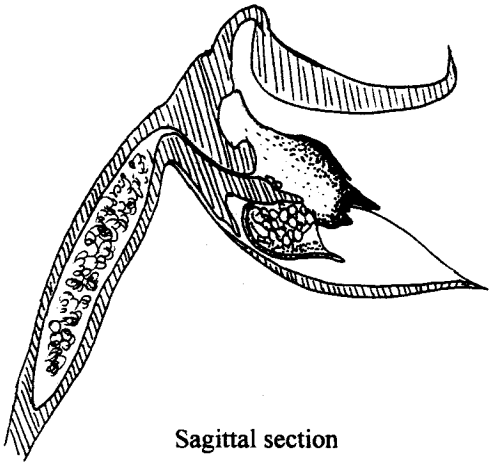
In every flower I examined the pollinia were intact.



Genoplesium pumilum



Flowers from different angles



Sagittal section

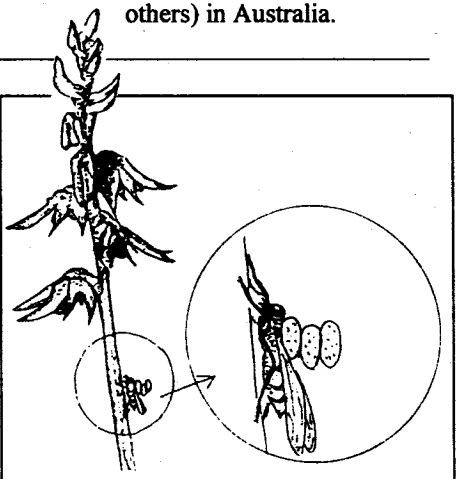
I kept a stem in water to see what would happen (Bruce Irwin has told me that in the wild the flowers remain for many weeks). The pollinia crumbled into granules, the rostellum narrowed as it dried, and as the flower closed, its column wings and petals and sepals formed an enclosed capsule that when shaken (as it would be by wind) scattered the pollinia around inside, some of it onto the stigma.

Jones and Clements (*Lindleyana* 1989; 4 [3]: 139-145) reinstated the genus *Genoplesium,* noting a number of differences from *Prasophyllum,* the most important of which seem to be those shown in the Table.

Table

	Genoplesium	*Prasophyllum*
Growth features	Filiform to very slender. New leaf emerges thru persistent fibrous tube < > tuber & plant.	Slender to robust. Nonfibrous tube does not persist.
Floral structure	Small dull flowers; labellum dull & similar colour to rest of flower	Larger fls; labellum colourful, prominent, shiny, contrasting with rest of fl.
Labellum	Mobile on a short claw; margins smooth or irregularly toothed or hairy. Callus surface not smooth; no nectar.	Immobile; margins undulate, convoluted or strongly crisped. Callus surface smooth; nectar present.
Column	Basal foot prominent, curved; col. wings smooth, toothed or hairy; anther attached at apex, strongly developed rostrum, basal viscidium.	No basal foot; col. wings smooth or notched; anther attached at base, poorly developed rostrum, apical viscidium
Pollination	Little or no scent; tremulous labellum attracts pollinator: tiny Diptera in Australia.	Fragrance, & colourful shiny labellum, attract pollinators, mostly Hymenoptera (& others) in Australia.

Gary Guide reported a field trip to the South Australian southern sandplains in NOSSA *Journal* 1995; 19 (4): 34 - "An interesting observation was made here of a Chironimid fly pollinator on a flower spike of *Genoplesium* aff. *rufum*. This fly had pollinia glued to its back which weighed more than the fly itself so that the fly could not fly. It fell of the flower spike, landed upside-down and had trouble righting itself. Eventually the determined insect climbed back up the spike...."



Genoplesium aff *rufum* and Chronimid fly loaded with pollinia

Papers

Observing *Gastrodia* at Iwitahi

by Trevor Nicholls, Taupo.

We have shifted a considerable number of *Gastrodia sesamoides* and *cunninghamii* into the new reserve over the last two growing seasons (Jan/Feb). In the process we have made a number of observations.

First we have found proof that they are capable of being shifted. We have a good number of *G. sesamoides* that have taken the shift. The plants we know of have been those that were taken later in the season and we have no knowledge of any successful ones from those shifted earlier on in the season. The plants that have accepted the shift had very strong growth and average flower counts. We have no idea of whether this success was due to maturity or rainfall or lack of.

We are not positive of any *G. cunninghamii* being successfully shifted. This last season we have made a point of recording where they have been transplanted to and will be watching for the outcome. In the same area we have scattered the contents of a large number of seed capsules.

As Bruce Irwin says, "Iwitahi is the king of the ***G. minor***." It is common to find patches that keep you nimble footed trying to make progress without walking on them. We gave up trying to count them as it came to the point of where were the boundaries of the "patch". Among the flowers which numbered from one two seven it was not common to find one open. Even then, if you were not careful you overlooked it. Later in the season they change from looking like a patch of miniature shepherd's crooks into standing at attention. Then I will defy you to tell whether they are *G. minor* or juvenile *G. sesamoides*.

G. cunninghamii appears to have a shorter and earlier flowering season than *G. sesamoides* . The plants seem to be no more than about 45cm tall and have up to 26 flowers. They can be found from single plants up to large numbers in near proximity. We found a group of over 50 plants and estimated there was probably at least 80.

Plants of ***G. sesamoides*** come into flower over quite a period. The highest flower count was 35 and the tallest plant about 90cm. The plants tend to be scattered. It is quite common to find one plant with no others nearby. When we did find a congregation of them they still gave the impression of being single plants because they were still scattered enough to appear separate. The greatest number of plants in one place would have been the erstwhile group growing on the edge of the old reserve. Bruce and I counted 28 in very close proximity.

Not very far away from the second colony of *Chiloglottis valida* Bill

Rademaker and I found a *G. sesamoides* which was different. There were two spikes about 60cm high and the stalks were bright pea green. We transferred them to the new reserve and protected them from predators. Bruce checked them out and said that we had found an *alba* form of *G. sesamoides*. It has no red pigmentation present. He asked me to have a go at pollinating it. I got there to find one spike had been eaten. The second spike had already had the flowers setting seed pods. I opened the next likely flower with the intention of pollinating it, only to be greeted by a small (about half the size of a ladybird) pear shaped black beetle. Whether it was just investigating or is the pollinator I wouldn't know. I made a tour of other plants in the near vicinity and none of them were setting pods. I have been back since and all that there is to see is shrivelled remains on the stalk Were there any seeds? I don't know. However, we will be watching carefully to see if this plant survives.

Pterostylis humilis R.S. Rogers - an orchid with a past

by ED Hatch, Laingholm

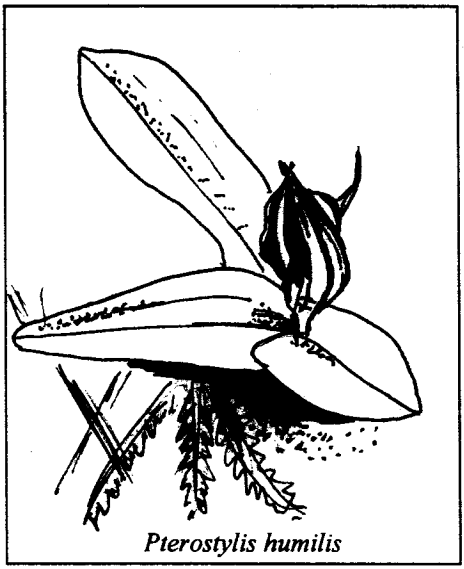
I first found *Pterostylis humilis* in the autumn, in April, when the large leaves were turning bright yellow and were most conspicuous. The plants were of course in seed. I had no idea what they were and they didn't seem to be listed in Cheeseman's 1925 *Manual*. (I did not in fact discover the identity of this plant until May 1944, when Dr Ella Campbell gave me a copy of Rogers's paper). They were growing in the shelter of what was then called *Hebe buxifolia* (*odora*), on the edge of one of those pumice 'stacks' which were, in those pre-bulldozer days, such a feature of the Rangipo Desert.

In 1942 there were several *Nothofagus* copses on the south-east side of Ruapehu, at about 1200m asl, containing a number of orchid species which I duly noted and examined. *Chiloglottis cornuta*, *Corybas trilobus*, *Gastrodia cunninghamii*, *Pterostylis montana*, *Pt. patens* and what I later learned was *Pt. humilis*. Most of these grew inside the copses, in the relative calm of the low forest, but *Pt. humilis* grew exposed and in the open, round the margins. I had never before seen an orchid actually flowering in the snow, and wondered how the plant managed to survive in that harsh subalpine environment. Tracing one plant down through the scree, I found that the relatively large tubers were 150mm below the surface. Pile a metre or so of snow on top of this and *humilis* would be as happy as a hibernating bear. The tubers had to be large, in order to store enough nourishment to enable the rhizome to reach the surface. I'm still a bit puzzled though, how the seed managed to germinate under such conditions.

The plants were obviously self-pollinated. The column was erect, so that the anther was directly above the stigma. The pollinia were extremely sensitive, the slightest touch to the flower being sufficient to cause them to fall. The stigma was globose and relatively large, protruding forward beyond the vertical line of the anther. The column-wings had the lower lobes strongly incurved and almost touching the stigma - so that the falling pollinium was caught between them and the viscid stigmatic cells. (In passing, *Pt.montana* was similarly self-pollinated, while *Pt.patens*, though growing under the same conditions, but with a different column structure, was not). *Pt.humilis* does not always grow in such bleak places, and I found it later on the Ohakune Track, on the forested west side of the mountain; far away to the east on the Kaimanawa Ranges; and of course on Egmont, where it grows under sub-alpine scrub.

The history of *Pterostylis humilis*

In January 1921 H.B. Matthews found seeding plants 'near the Haunted Whare, Waimarino'. (The shepherd's hut which used to stand beside the Tawhai Falls, on State Highway 48 - the road up to the Chateau Tongariro). Matthews dug up the plants, pressed the specimens and took the tubers back with him to Auckland, where he planted them out in a wooden seed tray. By 23 October 1921 these tubers had produced stunted plants with malformed flowers, nothing like the species as it grew in the mountains. Matthews nevertheless packed the plants in spirit and sent them off to Dr Rogers in Adelaide, along with a photograph showing one of them beside one of the original pressed seeding specimens. Rogers described *Pterostylis humilis* from the stunted spirit specimens, at the same time mentioning the photograph of the large-leaved plant.



Pterostylis humilis

In 1944 I asked Dr H.H. Allan to compare *Pt.humilis* from Ruapehu, with his *Pt.confertifolia* from the Ruahines. He replied that they were identical. Unfortunately he was wrong. *Pt.confertifolia* was in fact a synonym of Colenso's *Pt.venosa*, as was later pointed out by A.P. Druce. But who was I to argue with H.H. Allan? I had never seen the type specimens of either *confertifolia* or *venosa*, nor could I obtain access to them. And *Pt.venosa* (like *Pt.irsoniana*), while common enough on Egmont, was unfortunately

absent from Ruapehu, so that I could not compare living material.

In 1945 I chose one of Matthews's original seeding specimens to be the Lectotype of *Pt.humilis* (AK 108491 C).

Orchids from the 1995 revision of the NZ threatened and local plant list

extracted by ED Hatch from NZ Botanical Society *Newsletter* 1995; 39: 15.

Key:	*	Indigenous taxon found naturally overseas where it is not threatened.
	**	Indigenous taxon, threatened outside NZ, or may be endemic.

Presumed extinct

*Chiloglottis formicifera**,
*Pterostylis nutans**

Critical

*Caleana minor***
Corybas carsei
*Pterostylis nana***
*Thelymitra matthewsii***

Endangered

Pterostylis micromega

Vulnerable

Pterostylis "aff. *patens*"

Rare

*Calochilus paludosus**
*Chiloglottis valida**
*Pterostylis tasmanica**
Thelymitra tholiformis

Insufficiently known

*Calochilus herbaceus**
Thelymitra "Ahipara"

Taxonomically indeterminate and (threat) insufficiently known

An annotated list will be published in the NZ Bot. Soc. *Newsletter* later in 1995 to assist further studies.
Pterostylis "aff. *graminea*"
Spiranthes "Motutangi"

NZ Botanical Society local plant list

(A "watchlist" for taxa that warrant monitoring - may include taxa in threatened and sensitive habitats)
Caladenia "aff. *iridescens*"
*Calochilus robertsonii**
*Cryptostylis subulata**
Drymoanthus flavus
Pterostylis linearis
Thelymitra malvina

Species no longer considered threatened or local

(These are more abundant on known sites than previously believed).
Corybas cryptanthus
Corybas rotundifolius
Thelymitra "rough leaf"
Yoania australis

Orchid artist

Audrey Eagle

"A happy marriage of a love of painting and a love of the New Zealand bush brought forth this book - together with an earnest longing to share this love and by so doing instil in New Zealanders a greater desire to ease up on the chainsaws and matches."

So wrote Audrey Eagle in the preface to her *Eagle's trees and shrubs of New Zealand in colour.* [1]

She was born in Timaru, but lived in England from age seven. During high school a feeling for plants and drawing started her painting the wild flowers of Oxfordshire, and in 1942 she trained as a draughtswoman; in 1948 she spent a year as a part time student at Banbury Art School. In that year the Eagles emigrated to New Zealand, to live in the Waikato for the next thirty-five years.

She began painting native plants while working at the N.Z. Electricity Department in Hamilton until 1953.

1975 saw 228 of her botanical paintings published by Collins. After that she decided to illustrate all the New Zealand trees and shrubs. *Eagle's trees and shrubs of New Zealand second series* with 405 illustrations was published in 1982. [2].

Both of her books earned prizes in the Watties Book of the Year awards, and both were reprinted by Collins in 1986. She has completed most of the 112 illustrations for a third book of NZ trees and shrubs, covering new discoveries, species and varieties.

The search for specimens has taken her to every corner of New Zealand, and to many of the offshore islands. The need for botanical knowledge has brought her into contact with many of the country's leading botanists.

She is an ardent conservationist and has held various offices in the Royal Forest and Bird Protection Society. She was a member of the Nature Conservation Council for eleven years.

Among her orchid paintings are early, unpublished works from the 1950s-60s. They are stylised to the extent that they simplify in order to exemplify - leaves are flatter than in reality, more two-dimensional, less textured.

In 1988 Audrey Eagle offered to do a new orchid painting for a proposed book, and her *Pterostylis humilis* is reproduced here. The heart-shaped and upward facing stigma (here shown self-pollinated, with the pollinia dropped from the anther) is one of the features that distinguish it from *P. venosa.*

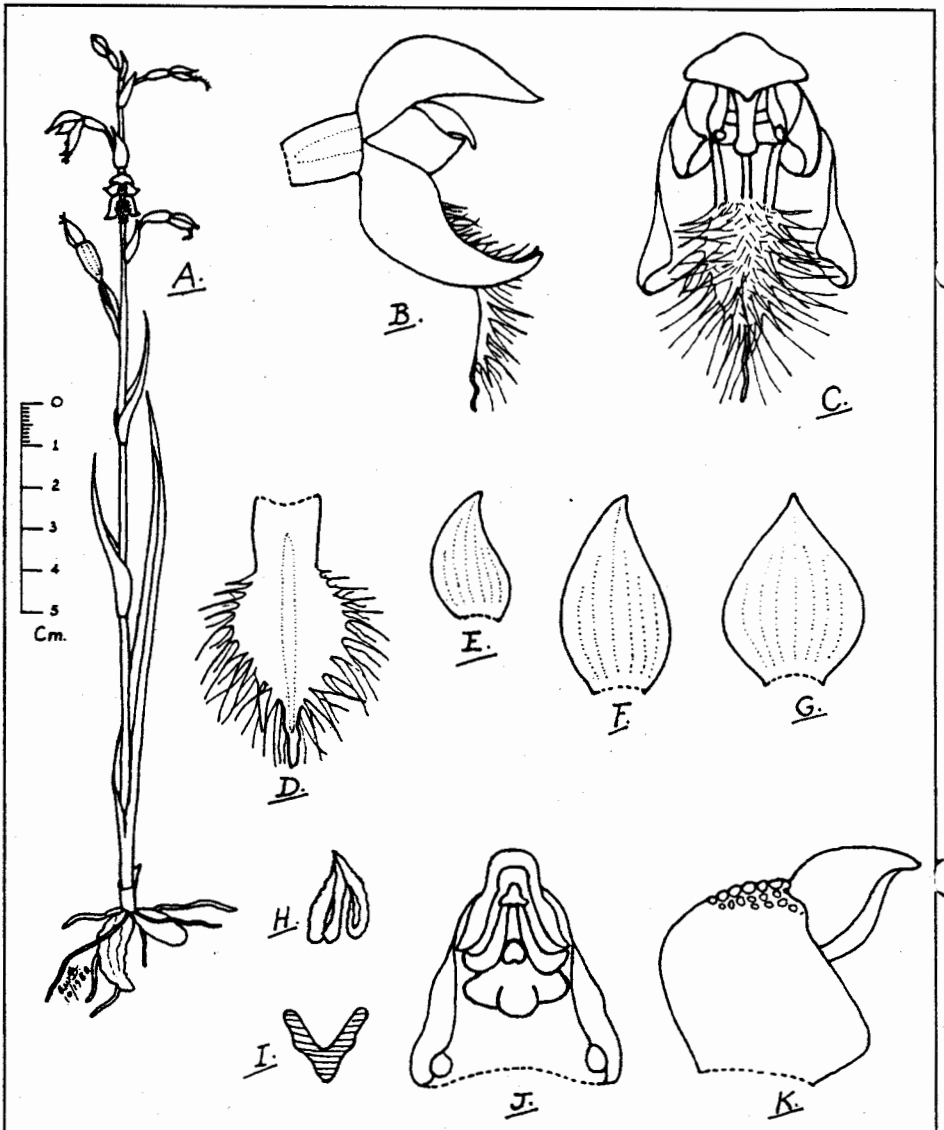
She will move to Dunedin in 1995, after eleven years in New Plymouth.

References

1. Eagle A. *Eagle's trees and shrubs of New Zealand in colour.* Auckland, Collins, 1975..
2. Eagle A. *Eagle's trees and shrubs of New Zealand in colour, second series.* Auckland, Collins, 1982.

Pterostylis humilis from the track above North Egmont Visitor Centre, in the bush, watercolour by Audrey Eagle, 6 December 1988; the column is shown with its wings separated - a pollinium is deposited on the stigma.

Close relations: orchids like ours



Calochilus campestris, line drawing by A.W. Dockrill,
from his *Australian indigenous orchids.* Surrey Beatty, NSW, 1992. p165.

Historical reprints

Pterostylis humilis

from Rogers R.S. Contributions to the orchidology of Australia and New Zealand. *Trans. R. S. South Australia* 1922; 46: 148-159.

Pterostylis humilis, n. sp. Planta robusta, perbrevis, 2-3 cm. alta. Folia 4-6, rosulata v. subrosulata, sessilia, imbricata, 0·5-2·5 cm. longa, ovata v. oblonga. Flos unicus, sessilis; ovarium basibus foliorum in parte obtectum. Sepalum dorsale ovato-lanceolatum, circiter 15 mm. longum cum petalis connivens. Galea subangusta, ap ce acutiuscula. Labium inferius oblongo-cuneatum, erectum, sinu acutissimo, lobi subulati circiter 13 mm. longi galeam multo superantes. Labellum unguiculatum, lineari-oblongum, ad apicem obtusum sensim contractum; lamina circiter 11 mm. longum, linea longitudinalis elevata in medio; appendix linearis, curvata, penicillata. Columna circiter 10 mm. longa; anthera terminalis, obtusa, bilocularis, erectiuscula; lobi superiores laciniarum breves lineares, inferiores longi falcati acutissimi. Stigma perprominens, infra columnam mediam, late cordatum, lobis distinctissimis.

A rather stout plant of low stature, arising from two more or less conical or globose tubers. Leaves (in the flowering stage) 4-6, rosulate or subrosulate, sessile, sheathing, imbricate; lamina of varying length, oblong, ovate or oblong-ovate. Flower solitary apparently sessile, the ovary partly hidden by the sheathing bases of the leaves. Dorsal sepal ovate-lanceolate, about 15 mm. long (when extended), connivent with the petals to form a rather narrow erect galea, apex of galea rather acute but not prolonged into a filiform point. The base of the lower lip oblong-cuneate, erect; lobes subulate (hardly filiform), including a very acute sinus, embracing the galea. Labellum reddish-brown, on a movable irritable claw, oblong-linear, tapering a little towards a very blunt and slightly recurved tip; lamina traversed by a raised longitudinal line with a corresponding groove below; basal appendage linear, curved, penicillate. Column (extended) about 10 mm. long. Anther terminal, bilocular, quite blunt, rather erect. Wings of column with a short linear upper lobe or tooth; the lower lobe long, falcate, very acute. Stigma very prominent, situated below the middle of the column; its two lobes very distinct, together forming a broadly cordate disk. Rostellum linear-oblong situated between the bases of the anther loculi and connected to the stigma by a split tube.

New Zealand: The Haunted Whare, near Waimarino (H. B. Matthews).

Mr. Matthews states that his specimens were removed from their natural habitat near the base of Ruapehu (within three miles of perpetual snow), and cultivated in Auckland, 200 miles north of their native locality. He thinks that the change to abnormal conditions may have produced a dwarfed growth in the plant. Along with his spirit specimens, he forwarded a photograph of a fruiting specimen. This indicates a plant of different habit, with a stature of 11 cm.; with leaves on well-marked petioles and lamina from 3·75-6 cm. long. It is probable that the scape becomes elongated after pollination, so as to assist in the maturation of the fruit, as happens in the case of many Australian orchids, notably in the genus *Corysanthes*. On the other hand, it must be remembered, that in certain other species of the genus, dwarfed specimens are by no means infrequent. This is particularly true of *P. cucullata*, where dwarf forms are often to be found growing side by side with normal plants. These show such a departure from the type that even experienced botanists like Sir J. D. Hooker and Robt. Brown fell into error and described them as separate species.

Mr. Matthews further states that unlike other members of the genus, the flower is reversed, the labellum being uppermost, owing apparently to a retroflexion of the column on the ovary.

The new species appears to correspond rather closely to the description of *P. trifolia*, published by Colenso in New Zealand Inst., xxxi. (1898), 281. As only a single specimen of Colenso's plant was discovered, and that is not available for comparison, it is not possible to say whether the two orchids are identical. Cheeseman, however, regards *P. trifolia* as conspecific with *P. venosa*, which differs from Mr. Matthews' plant in column and in some other respects.

Pterostylis oliveri

from Petrie D. Descriptions of new native plants &c. *Trans. N. Z. I.* 1896; 26: 270.

A rather stout leafy species 6in. to 12in. high. Leaves reticulately veined, bright glossy-green, amplexicaul or shortly sheathing; radical several, narrow-ovate, acute, narrowed into a rather broad petiole, 2½in. to 3½in. long, ¾in. to

⅛in. wide; cauline several, amplexicaul, sessile, almost acuminate, the upper gradually diminishing in size.

Flowers usually solitary and terminal, a second flower occurring but rarely in the axil of the uppermost cauline leaf, about 2in. long, curved forward and downward in front almost to the level of the ovary. Upper sepal boat-shaped, broad, tapering gradually to an acute point, the free lobes of the lower sepals broadly obcuneate and produced into very slender erect filaments 1¼in. in length. Petals falcate, 1¼in. long, ¼in. broad, acuminate. Claw broadly linear, brown, of nearly uniform width to the base; appendage much narrower than the claw, terminating in numerous very narrow filaments. Column ⅜in. long.

Hab. Open scrub and low bush on the banks of Kelly's Creek, Otira River (1,100ft.). In flower in the early part of January.

I have much pleasure in dedicating this plant to Professor D. Oliver, F.R.S., of Kew, in acknowledgment of valued assistance in my botanical studies.

Calochilus herbaceus

from Lindley J. *The genera and species of orchidaceous plants.* London, Ridgeways, 1840. p459. *Latin translated by Dan Hatch.*

Labellum slightly longer than the ovate, acute sepals; the tip (of the labellum) straight, shortly acuminate or semi-lanceolate. Column with 2 glands at the base. Bracts as high as the ovary, the tips mucronate. Spike short, 2-4 flowered. Basal leaves absent, stem leaves 3, distant acuminate. Anther mucronate.

Habitat in Tasmania - in a sterile hollow near Rocky Cape. Flowers December. (based on Gunn 920).

This plant seems distinct from *C. campestris*, (under which name I have sent it to some of my correspondents) in its close small flowers which are pale green or white, in the want of radical leaves, and its tall graceful habit. The glands at the base of the column are smaller than in the last. My specimens are uniformly of the same height, that of a foot.

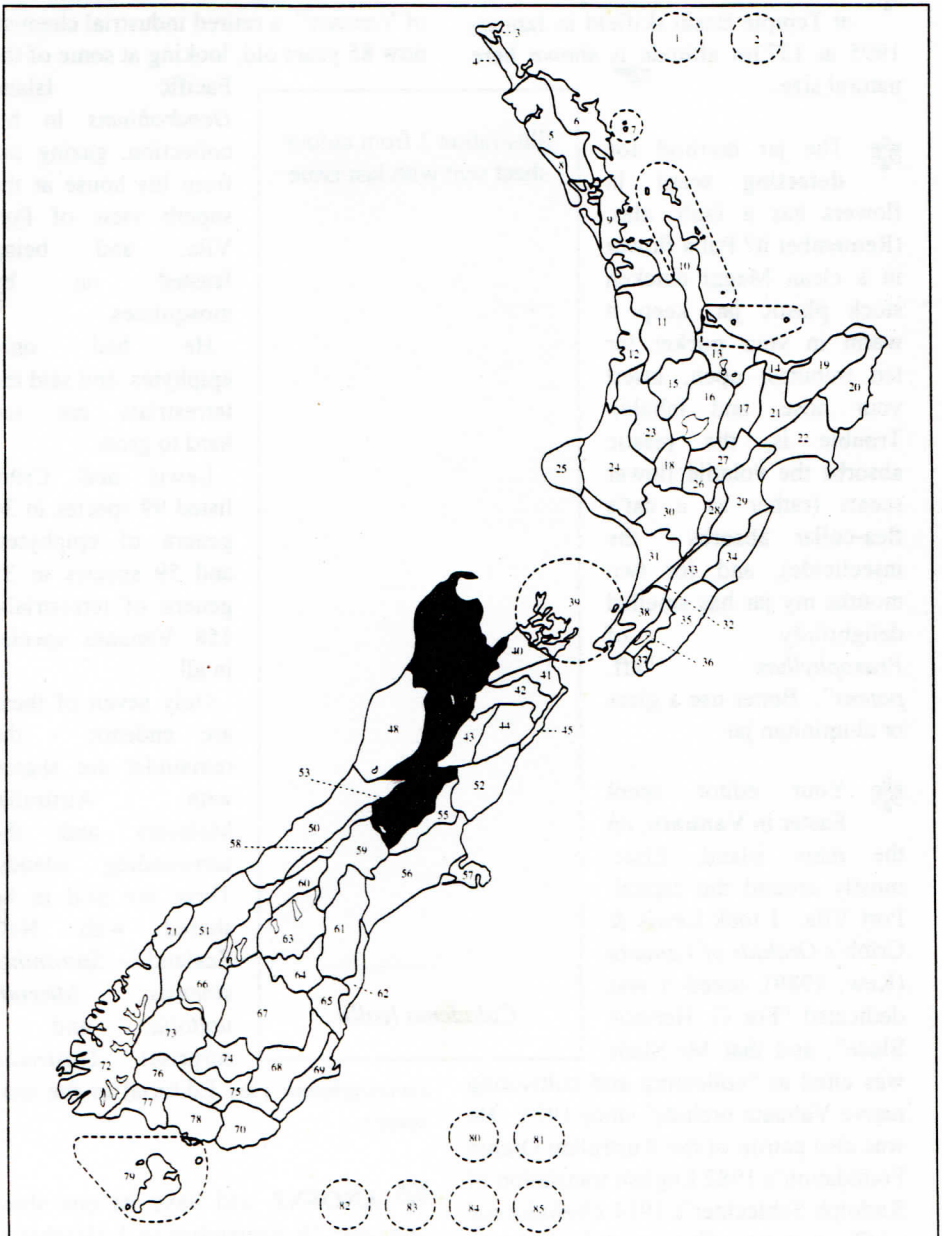
Lindley was describing the green form - see photograph by Hatch in "The NZ orchids, natural history and cultivation". Apart from the colour, his description doesn't seem quite to fit flowers I have seen - Ed.

Notes

Here is my photograph of ***Pterostylis oliveri*** at Arthurs Pass in January. Jessie Brownlee painted it there in about 1934, and her watercolour is reproduced here with permission from the Auckland Museum. Why on earth is this species restricted to Ecological Regions *46, 47, 49, 53 and 54* (see map on next page)?

Pterostylis oliveri, photographed at Arthurs Pass, January 1995

Pterostylis oliveri, watercolour by Jessie Brownlee, *c.* 1934, in the Auckland Museum collection.



The distribution of *Pterostylis oliveri* (data from NZNOG Mapping Scheme)

The stunted ***Caladenia lyallii*** I saw at Temple Basin skifield in January 1995 at 1373m altitude is shown here, natural size...

Caladenia lyallii .

The jar **method for detecting scent** in flowers has a fault, alas. (Remember it? Put a flower in a clean Maggi chicken stock plastic jar, keep it warm in your pocket for ten minutes, open, insert your nose, and inhale). Trouble is, the plastic absorbs the volatile flower scents (rather as a cat's flea-collar absorbs the insecticide), and for two months my jar has smelled delightfully of *Prasophyllum* "aff. *patens*". Better use a glass or aluminium jar.

Your editor spent Easter in **Vanuatu**, on the main island, Efate, mostly around the capital, Port Vila. I took Lewis & Cribb's *Orchids of Vanuatu* (Kew, 1989), noted it was dedicated "For G. Hermon Slade", and that Mr Slade was cited as "collecting and cultivating native Vanuatu orchids" since 1975. He was also patron of the Australian Orchid Foundation's 1982 English translation of Rudolph Schlechter's 1914 *Orchidaceae of German New Guinea*. I looked him up in the phone book and spent a couple of hours talking with "The Orchid Man of Vanuatu", a retired industrial chemist, now 85 years old, looking at some of the Pacific Island *Dendrobiums* in his collection, gazing out from his house at the superb view of Port Vila, and being feasted on by mosquitoes.

He had only epiphytes, and said the terrestrials are too hard to grow.

Lewis and Cribb listed 99 species in 34 genera of epiphytes, and 59 species in 35 genera of terrestrials: 158 Vanuatu species in all.

Only seven of these are endemic - the remainder are shared with Australia, Malaysia and the surrounding islands. Three are said to be shared with New Zealand - *Spiranthes sinensis*, *Microtis unifolia*, and - surprise! *Gastrodia cunninghamii* (see Editorial in the next issue).

ANOSNZ will have its one show this year 29 September to 1 October at Eden Gardens.

Bruce Irwin continues his work on **the various forms of *Corybas rivularis sensu lato***, which, he observes, can be grouped as follows.

GROUP A: THOSE FORMS WITH A FLAT UNDERSURFACE BETWEEN THE TWO POINTS OF FLEXURE OF THE LABELLUM.

1. ***Corybas* "Kaimai"** from northern Urewera Range, through Kaimai and Coromandel Ranges, with outlying colonies near New Plymouth.

1a. ***Corybas* "ratty"** which replaces *C.* "Kaimai" north of Auckland city. I regard it as within *C.* "Kaimai" but probably worthy of varietal rank.

2. ***Corybas* "Kerikeri"** (including *C.* "Te Henui"). Again, close to *C.* "Kaimai" but recognised by its small, very narrow flower and deep red colour of labellum, which almost lacks the outer flexure so that the apex juts forward. Separate species status from *C.* "Kaimai" seems appropriate because the two known colonies lie so distant from each other. Further support is that both *C.* "Kaimai" and *C. "Kerikeri"* grow within a few km of each other at New Plymouth. *C.* "Kerikeri" may be Cunningham's original *Corybas rivularis.*

3. ***Corybas* "Whiskers"** shows several significant points of difference from *C.* "Kaimai" and must be a valid species. At present known from inland Wanganui (2 colonies), Waitomo (1), Arapuni (1), in or near Tongariro National Park (3). I also have an old watercolour of a New Plymouth plant which seems to be of this form.

GROUP B: THOSE FORMS WITHOUT A FLAT UNDERSURFACE OF LABELLUM; THEY HAVE INSTEAD A CONTINUOUS CURVE.

4. ***Corybas* "Waiouru"** (*C. macranthus* var. *longipetalus*). Leaf usually petiolate. Reddish colour within labellum usually spilling out onto the "bib" of the labellum. Occasionally flowers adopt a colour pattern very like *C.* "Mt Messenger".

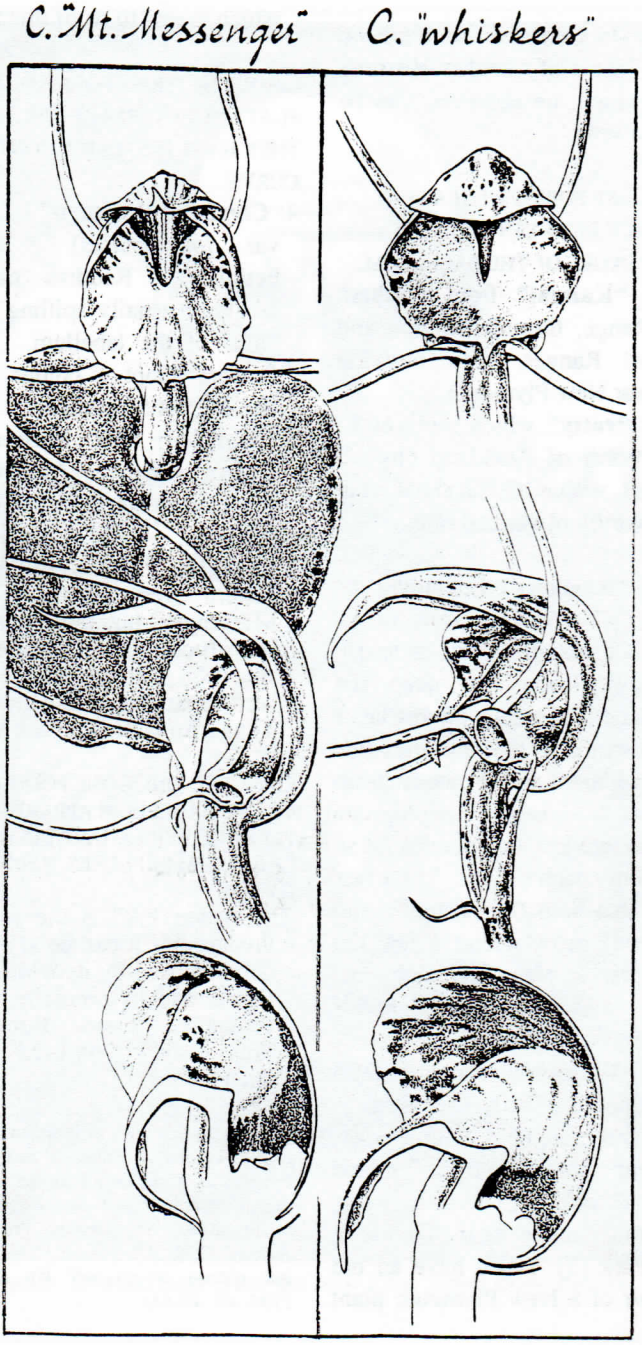
5. ***Corybas* "Mt Messenger".** Leaf always sessile. Apparently almost confined to North Taranaki where it is common.

6. ***Corybas* "rest area"** has a colour pattern very similar to *C.* "Mt Messenger" but significant differences of structure proclaim it a distinct species. At present known from 2 well-separated localities in the Tongariro National Park area.

GROUP C: ONLY ONE POINT OF FLEXURE OF THE LABELLUM APPARENT; THAT FLEXURE VERY SHARP BELOW WHICH LABELLUM REFLEXES TO LIE AGAINST OVARY

7. ***Corybas* "A"** is the sole species in this group. It can be very variable but is recognised by its wide flat red/black flower and its normally petiolate leaf. Probably found throughout NZ. Previously confused with *C. macranthus*.

A paper on this topic will appear in the next issue of the Wellington Botanical Society *Bulletin*; we are grateful to the editor for her permission to use this illustration. *(See also Irwin JB. "Notes on seven forms of Corybas rivularis" NZNOG Journal 1993; 47: 7-9; and "Corybas rivularis - one species or several? Wn Bot Soc Bulletin 1994; 46: 48-53)*


C. "Mt. Messenger"
C. "whiskers"

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THIRD AUSTRALASIAN NATIVE ORCHID CONFERENCE AND SHOW AT FLINDERS UNIVERSITY, ADELAIDE, SOUTH AUSTRALIA 26-30 SEPTEMBER 1996

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