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From the Chair: Gael Donaghy

Kia ora tatou

Graeme has taken over the NZNOG membership list, and as he is doing the updating, I get to hear about new members (the upside of nepotism?) We have quite a few new members, and I have been wondering how to engage members beyond sending journals.

After enjoying the company of other orchid enthusiasts this spring, especially on the tag-along tour around Southland, I have firmed up plans for having contact people in each region (see page 4). One of the things I learned on the Southland trip was that people initially want to know which species their find belongs to; they are confused when people they think are knowledgeable say it doesn't quite fit any particular species, but on balance is probably species X. Part of the job of being a regional contact will be to engage members in balancing the expectation for certainty, with building an understanding of continuous variability. After 30 years of looking at orchids, I am still learning.

The job of new members is to ask questions – old hands make assumptions quickly, sometimes without looking too closely, and new questions can often point out features that jolt assumptions.

There are orchids flowering somewhere in NZ in every month of the year, and the months in which there are few species flowering have some very rewarding finds to be made. Dorothy Cooper's book *A Field Guide to New Zealand Native Orchids* (1981) lists 8 species that flower in April, to which we can add another couple that were not known back then. Our Editor challenged us in the J163 "Who goes looking for orchids in April?" (p15), and this resulted in Don Pittham sending me a lovely photo of *Genioplesium pumilum* in flower on the West Coast of Golden Bay (at Mangarakau) on 10 April.

At the time of writing (late November) there are still orchids to be seen in flower. Thelymitra species are in late flower (mostly *T. longifolia* and *T. pauciflora* types), and *Gastrodia sesamoides* are in full flower in bark gardens that have been established 10–15 years ago in newer subdivisions in Tauranga. On Rainbow Mountain (20 minutes south of Rotorua), there were very white flowered *Caladenia chlorostyla* (green stemmed), and *Calochilus robertsonii* flowers were just emerging from their sepals.

There are always freak flowering times to be observed – on the tag-along tour of Southland, we saw a *Dendrobium cunninghamii* plant with three flowers open in October, well outside its normal flowering time.

So whether you are a longtime NZNOG member or a recent member, or anywhere in between, there is now an opportunity to get involved further, and experience the joy of learning more about the orchids in your area, or in the area you holiday in.

NZNOG Regional Contacts

Purpose
To engage members in activities about native orchids.

The role
To assist NZNOG members find native orchids in their areas, and help them identify what they find.
To encourage them to share their finds with other members, and contribute to the journal. Members can reach regional contacts via email, phone,
To act as point of contact for international visitors with an interest in orchids.

Regional contacts will be careful about where they take people and what they show them. A couple of us have already have had experience of people removing orchids from the wild. As orchids don't grow in cultivation without their fungal partners, this is a death sentence for them (the orchids that is).

Northland – Bill Campbell, jccampbell@xtra.co.nz
Auckland – John Rugis, jrugis@gmail.com
Waikato – Alasdair Nicoll, aknicoll@xtra.co.nz
Bay of Plenty / Coromandel – Gael Donaghy gaeldonaghy@gmail.com and Graeme Jane, gtjane@kinect.co.nz
Gisborne – Trevor Lupton, Gisborne: use text, 0272308754
Napier – Mike Lusk, Hawkes Bay, mrlusknz@gmail.com
Taranaki –
Wellington & Wairarapa – Ian St George, istge@yahoo.co.nz
Marlborough / Nelson – Mark Moorhouse, Stoke, memopob@yahoo.com.au or 02041665668
West Coast – we have no members in this region. Anybody with a knowledge of the orchids in this area, please contact Gael so your name can be added. In the meanwhile Mark Moorhouse and Graeme Jane may be able to help.
Canterbury – Murray Dawson, Lincoln dawsonm@landcareresearch.co.nz
Otago – Kathy Warburton, kathywarburton1945@gmail.com, 0211783536
Southland – we have no members here. Anybody with a knowledge of the orchids here, please contact Gael so your name can be added. Gael was a long-time Invercargill resident, and may be able to help.
Stewart Is – Peter Tait, tait@sailsashore.co.nz phone 032191151 (6-8pm only).

"How many of us go looking for **orchids in April**?" Don Pittham sent photographs from the upper South Island: *Earina autumnalis, Corunastylis pumila* ▼ and *Pterostylis alveata* ▼ flowering in April.

Original papers

Reconsideration of *Corybas orbiculatus* from False Islet, Cannibal Bay.

By Gael Donaghy & Graeme Jane

The site

On 20 October 2019 we visited a dune slack wetland turf in the Catlins with Otago Botanical Society. The site is near False Islet, a headland dividing Cannibal Bay from Surat Bay. It is a pretty ordinary rather open area amongst flax, lupins, rough pasture in low hillocks of marram. We had scarcely begun crawling around examining tiny herbs in the turf when Gael excitedly spotted tiny tightly cupped leaves of *Corybas*, some with a bud enclosed within, and soon some flowers (**Fig.1**). Later larger plants were found flowering under the lupins. often partly hidden by grasses. Our first guess was that they were *C. orbiculatus,* a species we had not often seen. Back at camp we checked our photos against the *Field Guide* but were not entirely happy with that determination as the lateral sepals and petals seemed a bit too long. Nevertheless we left it at that.


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This spring on what became the "Catlins *Corybas* Caper" Gael was keen to revisit the site. It was left to the last day, one day earlier than the date in 2019. As the site is grazed by cattle, it had changed a bit since last visit. The lupins were mostly dead but when we began to pull back the Yorkshire fog on the clearing edge (**Fig.2**) numerous plants in late bud were soon found, then finally a few fully open flowers.


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The flowers

Flowers were quite variable depending on where they were growing in relation to the grass cover and stage of bud development. In late bud in shelter the dorsal sepal was so long it often curved down to the leaf before it curved upwards (**Fig.3**). The lateral sepals were more or less equal and much taller than the dorsal, though very often they were foreshortened either by recent cold or perhaps attempts to remove the cover. In late bud the labellum was rolled inwards from the sides but the fully open flowers show as almost round or inverted tear-shaped like a Google place marker (**Fig.4**) behind the down-curved dorsal sepal. Only 3 or 4 fully open flowers were noted but many dozens of flowers were

noted in various stages of unfurling. Flowers varied around the different patches explored but where they were more exposed changes were more dramatic. The plants became stouter and the sepals much shortened looking more like *C. orbiculatus*.

Nevertheless labellum face was quite unlike the oblong shape of *C. orbiculatus* and perhaps more like the elongate flower we saw on Campbell Is in December 2020 (**Fig.5**). That, we thought, was possibly *C. dienemus* (Donaghy & Jane 2021).

Verification

On returning home we revisited to our photos of *C. orbiculatus* and *C. dienemus*. On the 2019 Catlins trip plants were found in flower in the open and under the scrub. In the open the dorsal sepal and laterals were scarcely taller than the dorsal sepal but petals remained close to the sepals in length. Added to this the labellum was laterally inrolled hence our earlier determination as *C. orbiculatus*. Unfortunately no photos were taken of plants from under the lupin edge though they were seen.

So what does *Corybas dienemus* look like? The type description is in Flora of Australia but a definitive article by Clements & Jones (2007) describes and sketches it in detail. It has lateral petals 2/3 the length of the lateral sepals, a dorsal sepal about the length of the labellum and a somewhat oval labellum with a "drip tip". Photos from material provided by Kell on the davesgarden web site (see below) show live material that illustrates the type. The area around the labellum opening is maroon and enclosed by a transparent halo weakly spotted maroon. The top of the labellum appears inrolled in some photos. The lateral sepals and petals are almost equal in size and the dorsal much longer than the labellum is deep, perhaps twice as long. In one photo the flower clearly originates below the leaf, free of the petiole.

Our photos of the single flower seen on Campbell Is are very similar to *C. dienemus* from Macquarie Is, though the upper labellum is not inrolled so the whole labellum appears heart-shaped (**Fig.6**). It appears very close to the Macquarie flowers and any differences could be due to flower maturity.

Other records from New Zealand, attributed to *C. dienemus* come from Chatham Is, near Wellington and Punakaiki. Postings on *iNaturalist* are either from around Wellington or Macquarie Is. Those from MacQuarie Is are leaf or seed only. Eighteen postings from around Wellington have a similar shape to the labellum face but the colour is consistently quite pale, the dorsal sepal quite short and length of lateral sepals only about half that of the petals.

We then re-examined our *C. orbiculatus* flowers photos, 40 in all from 7 localities from Nelson to Otago. Those from Sawcut Gorge, Whiskey Falls, Clarke River (**Fig.7**), Mangatapu track and Arrow River form a clear group with a very dark labellum with a lower edge and weak "drip tip".

Lateral sepals and petals are quite short with the sepals scarcely taller than the labellum. Those from the Roaring Meg are quite different (**Fig.8**). The labellum is rounded at the top and tapers gradually to the "drip tip". The colour is mostly evenly dark maroon but towards the "drip trip" has transparent streaks. Those plants are in moss in the open or light shade. They are not *C. dienemus* nor are they *C. orbiculatus* but perhaps nearer those at False Islet.

Finally as a last stab I searched the net and turned up photos from Punakaiki – in the *Journal* (Scanlen 2007). In these the labellum face is not clear but lateral sepals appear about the same length as the petals and the dorsal sepal is quite short, scarcely longer than the labellum. The flower is apparently not fully open. Also included was a B&W photo from Lake Hauroko in side view. In addition we noted that in October 2021 John Barkla had posted a photo of *C. orbiculatus* from Haldane in a dune slack. That flower is partly collapsed, past its best, and very dark in colour. This looks very similar to the 2019 photos from the False Islet site.

Similarities

The leaves are stout, almost round, quite cupped when growing in the open and may have a small mucro or be slightly notched. The margin

is sometimes spotted. Flowering leaves are slightly more ovate. The flower sits above the leaf and the fruit in early stages is quite stout. The dorsal sepal is much longer than the labellum, tapers evenly along its length from the labellum top to a blunt tip in the open but is quite acuminate when sheltered. The labellum is longitudinally rolled in late bud. There are high flowering rates.

Differences

The key differences lie in whether the petiole sheaths the peduncle below the leaf or is free from the petiole and in the shape and colouring of the "face" of labellum. Both characters can be difficult to determine from photographs. The petals and lateral sepal lengths can also be helpful but are strongly affected by exposure and weather (frosts):

Differential characters of taxa discussed

Feature/taxon	***C. orbiculatus***	**Campbell Is**	**False Islet**	**Roaring Meg**	**Wellington *iNaturalist***	***C. papa***
Peduncle	clearly free below leaf	not visible	clearly free below leaf	not visible	peduncle prominent above -1/2 ovary length	peduncle prominent above -1/2 ovary length
Sepal/petal ratio	2:1 but short	3:2 but long	about equal sheltered, 3:1 exposed	2:1	2:1 but long	about equal, but long
Labellum face shape	square	Google marker	Google marker edges inrolled	broadly flared diamond	broadly flared diamond	broadly flared diamond
Labellum face colour	Maroon with clear patches at bottom	maroon with halo	maroon above netted clear below often with halo	maroon above netted clear below	maroon in throat, green with maroon flecks	maroon in throat, green bellow

Conclusions

The plants from False Islet are not the same as either *C. orbiculatus* nor *C. dienemus* but much nearer the latter. The one flower seen on Campbell Is is closely similar to plants from the type locality for *C. dienemus*.

Plants on *iNaturalist* from around Wellington come from several localities and appear quite consistent. They are more like *C. papa* and C. "whiskers" than those from Campbell Is or perhaps *Corybas dienemus*, as the petiole sheaths the peduncle and there is a short pedicel above the leaf. The labellum appears of similar shape, but the colour pattern matches neither.

References

Clements MA & Jones DL 2007: A new species on *Nematoceras* and characterisation of *N. dienemum* (Orchideaceae), both from Macquarie Isand. *Telopea* 11:405-11. (https://www.biodiversitylibrary.org/page/58147651)

Donaghy G & Jane G 2021: The Deep South - Auckland & Campbell Is orchids. *NZ Native Orchid Journal* 160: 7-11.

Scanlen EA 2007: The Column 2. *Nematoceras aff. dienem*a in the South Island? *NZ Native Orchid Journal* 97:37.

On Web

Listing statement: https://dpipwe.tas.gov.au/Documents/Corybas%20dienemus%20listing%20statement.pdf

Photos from Macquarie Is: https://davesgarden.com/guides/pf/showimage/436440-4/

Photographs of the Cannibal Bay *Corybas* on this page are by Mark Moorhouse

The Catlins *Corybas* caper

By Mike Lusk

Gael and Graeme suggested a trip to look at the orchids of the far south and several people from far and wide took up the idea. We ranged from the flat part of the Hump Ridge Track in the west to the upper end of the Catlins in the east. Multiple sites had been selected by our leaders, based on previous visits so that nowhere we went was a disappointment, although the season may have been a little late. Minimal time was spent in raincoats.

Dominant finds were of course *Corybas trilobus* agg but with Carlos' separation of some of the taxa, most we saw were able to be fitted into a species. Ian collected specimens of several which will, we hope, help in further untangling. The usual opinions were aired and some were changed without overt rancour. It was pleasing to note that physical violence never threatened.

Highlights were seeing many *Pterostylis auriculata* in flower and most of the group saw what may have been *Corybas dienemus* at Cannibal Bay (see previous paper). Ian and I missed that delight, instead visiting the upper Leith Valley, Shag Point and Trotter's Gorge. At the last the colony which prompted the tag name "Trotters" close to the start of the track is in decline, the canopy being now too dense to permit flowering.

In spite of the fact that "Tag Along" meant participants arranged their own food and accommodation, Gael and Graeme still had plenty to sort out in the planning and execution of the trip and they did a superb job. It would be good to think that more such adventures may be in the offing.

An unusual *Corybas trilobus* agg found on old dunes near Surat Bay, Catlins. Note the long, slim dorsal sepal and the forward slope on the labellum.

Most colonies of *C. trilobus* agg had a few flowers or more often none- but this one on the Catlins River walk was much more generous and the flowers were rather unusual too (see over).

A fungus gnat (genus *Allocotocera* possibly *A. cephasi*) at Croydon Bush near Gore. So keen it's ripped the orchid apart. *Photo Mike Lusk.*

Have you seen these? ►

Mike Lusk took these shots of *Corybas* growing in water at the Kaweka Lakes in midnovember: "There were several colonies with long pedicels and leaves that would pass for *C. macranthus.* Some had obviously tried to flower with the bract well below the leaf. The second is of a single much denser colony with leaves about half the size of the aforementioned and a large number of capsules sitting on the leaves.

Seeking a name — on the importance of communication

By Graeme Jane

Introduction

Naming things is part of the human need to communicate ideas and concepts. As societies developed they naturally began to name the things that were useful to them — creating common names. This enabled the information to be passed on to others.

The names used were often quite local and sometimes remain such. For instance in Europe the same species may have a different common name depending on country, even after translation; for instance stink weed in Sweden becomes herb Robert in Britain. Closer to home, spider orchids in New Zealand are *Corybas* species (**Fig.1**) whereas in Australia they are *Caladenia* species (**Fig.2**) and in Europe the early spider orchid is *Ophrys sphegodes* (**Fig.3**).


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So over the millennia systems for naming plants and animals have evolved and been adopted across countries, especially among the monasteries. Finally in 1905 a standard system was agreed on and is now used internationally for all life and continues to evolve as knowledge expands.

One of the most important roles of botanical societies such as NZNOG is to act as a link between the scientist and the botanical enthusiast. They provide a forum for an exchange of ideas and scientific advances in their area of interest. They also provide a bridge between different levels of skill and knowledge. Whether individuals have a general interest in knowing what that plant is, or narrower interests, they provide that forum for the exchange of ideas. All members can have a role and everyone can teach something through discussion and questions. This is particularly relevant for new members who need to begin to understand the range of variation in individual species and how to tell them apart.

Key points

1. Each of us has something to contribute to the group knowledge and can teach someone else something new just by asking questions.

2. The ultimate definition of a species is the type specimen and key features may be described in the type description but for different situations some other key features may be apparent.

3. The group knowledge can act as a bridge between the technical description and the field reality.

4. The key to knowing a particular species lies in understanding its peculiar variability.

Part 1 Recognition

One of the difficult things for someone starting out is learning how to look at plants, and learning the specialised language for identifying them. The art of taking an illustration in a field guide or written description and matching that plant in front of them — that takes time to learn.

Each of us has different ways of looking at the world and it is all too easy to grasp at a single feature or choose a set of characters that are inappropriate for the situation. These frameworks are built up over time and governed by our individual experiences. But some sort of framework has to develop. This is where the group can provide an understanding of key features and help build that framework. There is always someone in the group who knows as little or as much as you do.

In any situation the information we have or equipment available may govern how we look at a specimen, be it in the field, as a photo, or in the herbarium. For each species there are key features that set it aside from similar ones and we subconsciously go through a filtering process in looking at them. Is it a plant — a tree — no its an orchid — has it a flower — what colour flower — *Corybas* or *Caladenia*, how big, till we have just a few species to sort between.

Where you are may mean the filtering process starts at a different point. In the field you are perhaps in a bog looking for *Pterostylis* but you see a *Thelymitra*. If you are new to orchids maybe you are happy to recognise it as a *Thelymitra*. In the herbarium you may have the specimens in front of you from yesterday — all *Caladenia* — but which one? This can affect the way a species is photographed, drawn or described.

Sometimes a photo is presented for identification. In an editorial Ian St George once stated **(J 46, 1993):**

"The differences among *Caladenia carnea, C. catenata, C. minor* and the apparently undescribed plants are what cause my headaches.
"I sent seven slides of the representatives of the complex as I have found them to our three leading native orchidologists, and asked them to identify them and to tell me how they decided.
"As it happened, they were unanimous on none of the seven slides, and two experts agreed on only one."

In the field there are many features that guide the recognition of species of orchids that may not be apparent in a photograph. This can include nearby plants, soil type or other site or ecological features. A photo may be inadequate because it doesn't provide the right information for a particular observer to identify it from their experiences. Maybe its taken from the wrong angle or some key information may be missing, such as details of where it was found. These details can quickly eliminate many possibilities. So don't be disappointed if you do not get a definitive answer from a single photo. Finally there may be no clear answer because we still lack a good understanding of the group to which it belongs.

Part II Understanding variability

Whether you are new to orchids or feel you are very familiar with them the most important aspect of identification is understanding variability (Irwin 2003). There are several elements to building this understanding. Firstly if you look closely enough you can always find differences between two plants or even two flowers. Spots on petals can vary in number and size between flowers. Flowers of a species can lack colour sporadically or be characteristic as between *Corybas vitreus* and *C. wallii*. Presence of hairs or numbers of callii can be highly variable.

Secondly some characters such as size or shape may vary continuously and can be easily measured. Yet there may be gaps in size distribution between different species. Other characters are difficult to measure and may be discrete, such as colour. For instance *Thelymitra longifolia* flowers are usually white (**Fig.4 overleaf**) and *T. pauciflora* are blue (**Fig.5**), though pink forms have been attributed to both (**Fig.6**).


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Thirdly abnormalities are not unusual and can occur locally in a population (St George 2001). Some are common across genera or within genera such as distorted labella (*Petalochilus*) or the consistently misplaced lateral sepals. *Pterostylis* "trident" is seen in several *Pterostylis* species (in *P. banksii*, *P. australis* and *P. trullifolia*). Then there are hybrids which may occur sporadically and are often sterile or of low fertility and soon die out. If they are fully fertile they may show a range of forms back to one or both parents. These sorts of crosses can be highly variable and may be the start of new species.

Many field identifications are like a photograph, though there are some advantages — relative scale can be taken into account, and several angles can be viewed. Also key characters can be sought and viewed. Habitat can be taken into consideration. Some characters thought discrete in one place can actually be part of a spectrum of variation within the same population or species as may be the case in *Pterostylis montana* (**Figs 7, 8**).

Within orchids generally, some characters such as hairs and calli need to be treated with caution. In some groups of species or genera they may be reliable distinguishing characters but in other cases they can be unreliable. The shape of the column in *Thelymitra* can be distinctive for some species but can grade towards that of similar species in other situations. Presence of hybrids can often be indicated by the presence of one or both parents nearby.

It is by looking around a locality and seeing the variation and understanding the importance of slight differences you begin to recognise what is "just variation" due to site variation and what is something different and perhaps a new species to you or science. It is when a set of "different" characters remains constant over several seasons in one locality as occurs in something like our *Thelymitra* "china blue" (**Fig.9**) or appears in other places in a similar situation as we found with *Pterostylis alveata* (**Fig.10**), that the possibility of a new taxon can be considered.


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Part III Identification

Identification is about matching concepts, those of the author or source and your own. Then perhaps transmission of those concepts to others — your concept may be broader or narrower than the author's because of different tools, experiences or contexts. The key is making sure the links between contexts are sound and variability is understood and taken into consideration. Even scientists can make mistakes because of the difficulty of understanding someone else's written or illustrated concept (Irwin 2009).

Scientists working in a herbarium may have been working on that flat brown specimen. They have a different way of looking and thinking about key features. Flowers are more constant within species and variable between them and often a focus. Colour is of little value as it is often faded or plants are just brown. They may build their concept with a range of tools not usually available in the field (a ruler, microscopes, chemical tests, DNA analysis) as set out by Ian St George (2004). Most of their communication is in writing or at meetings or conferences. The difficulty lies in transmitting this concept to those in the field, often over distance (St George, 2015). And that is where the problems begin.

This process works well when the author of the type description is the same as the person who is showing you what they mean in the field. But this is rarely the case. In the early to mid 1800's Colenso and Edgerley were key people transmitting this information between the herbarium and the field. More recently botanical groups have been able to re-transmit a specific concept through scientists who are often active in the group. Tony Druce with his deep field and herbarium knowledge of the flora was a key figure in transmitting concepts. In the early days of the society Dan Hatch and Brian Molloy were key figures, Carlos Lehnebach and perhaps Murray Dawson serve that link today.

This process breaks down when the information provided is insufficient (as many early type descriptions were) or the fundamental concepts change. Study of the small caladenias was fraught by poor descriptions and lack of defined types. Also a

much broader definition of species prevailed in the past, exacerbating the problem. *Corybas rivularis* (**Fig.11**) has had a worse fate: first being mis-identified for over 100 years by a single slip by Kirk in 1864 (**Fig.12**) that was propagated by others (Hatch 1986, Molloy 1994). After that issue was resolved (and before), the name was used as a dumping ground for any *Corybas* that occurred in wet places, especially along streams. Similarly *Corybas trilobus* first required a type to be defined and interpreted before several new taxa could be separated (Lehnebach 2016).


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There remain several important taxa to sort out, for example: *Pterostylis montana* agg., *Prasophyllum colensoi* agg., *Thelymitra,* especially *T. longifolia/pauciflora*. Old rejected names exist that may be appropriate. Colenso provided quite a few names to start with. But the difficulty is do we really know what Colenso meant? Then there are closely related Australian taxa, though here we must be careful, as all too often the New Zealand taxa have proven to be unique.

So where do we start? Things can go badly wrong as in the past — and recently. The lesson from *Caladenia minor* and *C. bartlettii* is quite clear. Both taxa were correctly identified in the first review of *Caladenia* by Ian St George (1995) as *C. minor* and *C.* aff. *carnea* (then *C. carnea* var. *bartlettii*). The first *Field Guide* (St George *et al*, 1996) also appears to be largely correct but thereafter a series of Australian and manuscript names were applied to the "real" *C. bartlettii* and *C. minor* was associated with several other taxa based on the wrong key features. It was only when Mark Clements (2019) who had typified *C. minor* in 1983, pointed to the correct identity of *C. minor* and Georgina Upson (2020) took the trouble to examine the type for *C. bartlettii* that the puzzle unravelled.

So the first step is to be sure of the type. For instance, *Thelymitra longifolia* and *T. colensoi* are New Zealand taxa but *T. pauciflora* is Australian and is still being investigated there, and may not be in NZ. In an earlier situation *Caladenia atradenia* was known as *C. minor* forma *calliniger* for a while then as as *C. iridescens* till Doug McCrae visited Australia and realised they were not the same (McCrae 1988).

The next step is to visit the type locality (if possible) and see where it grows, how distinct it is there today, and how variable. Take lots of photos especially if the place is difficult to visit. Do some basic measurements, especially of any key characters, and to set the scale.

Then the next step is to set out how it differs from similar species and can be clearly separated from them. Prepare a journal article that sets out the differences. Then see if others can see those differences in other places and how constant they are. That way a clear concept of what that species looks like can be built up, where it occurs and how it differs from similar species in the field. At the same time this will spread the concept amongst the group to build a knowledge base.

Part IV Naming

Records of plant naming systems go back to the Greeks and Romans. It was not until the 1600s that the Bauhin brothers produced the first catalogue of plants based on genera and species. However the names used were long and descriptive. Tournefort in 1700 introduced an emphasis on floral characters rather than general features. But it was Linnaeus who simplified the names to two words calling them "trivial names" (Manktelow, undated). Thus began the binary system used today.

Linnaeus set out some rules for establishing plant names but it was not until 1905 that an international congress formalised the system we use today. That system continues to evolve as science evolves (St George, Editorial, 2001). From Roman times Latin was the common language of the church and science and hence became the language for diagnosing species that was required until very recently. The core of the system is the designation of a type specimen.

The chain of identity for a species goes something like this:
Specimens collected (Type designated)
Location recorded → type locality
→ type description → illustration (or photo)
→ other material, other sites→ (variability)→ distribution→ habitat (preferences)
→ subsequent illustrations or descriptions
→ later field representation and interpretation.

Until very recently the **type specimen** was what defined a species. Some will say that only that specimen is the species. All others will be something different. But they can be sufficiently similar to represent an example of that specimen. The type description sets out how that specimen differs from other (similar) species and where it may be found. It sets out how the author thought that type of plant differed from others that were known — at the time. Often there will be a **diagnosis** (in Latin!) that sets out the key differences.

Investigation of something you think is different may require at least several visits to assess variability in that form and wider searches to find other examples as at False Islet, Cannibal Bay recently. Initially the concept may only be transmitted by word of mouth and demonstration of examples. That may get corrupted in the process. At some point it may be useful to start using a tag name as the concept evolves *cf. Pterostylis* "domesticus" (Donaghy, 2010 **Fig.13**).

So what are tag names? Where do they fit in? They are names used informally by scientists when investigating a group of plants. There will be an investigation of variation and discussion in the process of defining that species. One or more tag names may be used internally within an organisation until a type is decided, a formal name given and a description prepared. That is then vetted by their peers and published in a refereed journal.

Should we use tag names? They are scorned by taxonomists, especially in publications. One reason for this is that if a name is published in any journal or book without a proper formal refereed process it becomes unable to be used as a formal name under the International Code of Botanical Nomenclature. One way round this issue is to use aff. ... or cf .. to refer to undescribed species. This can create difficulties when more than one similar unnamed species is present. One solution used in New Zealand is to refer to them by herbarium collection number.

Generally tag names are used sparingly and for well defined taxa while the status is defined. This can sometimes take a long time if the species is not threatened. So tag names creep into common usage within botanical groups. Problems arise when there is no way of being sure how the tag name differs from other tag names or from existing species as with C. "Trotters" (**Fig.14**), C. "Remutaka" (**Fig.15**) or *C. hypogaeus* (**Fig.16**) unless you are part of the "usage group".

Hence tag names serve as a useful shorthand when referring to sets of plants we think are different (St George, 2016). Prior to Journal 76 (2000) there were perhaps 90 tag names, many of those were aff or cf., often relating to similar Australian species and changing perceptions of genera. They resulted from careful evaluation of distribution and variation especially in *Corybas rivularis* (Irwin 1989).

Currently the various NZNOG Journal issues and publications contain nearly 460 tag names and their use is strongly advocated by some (Scanlen 2015). Many of these appear without useful discussion or illustration. It is one thing to note variation but another to label every different illustration with a tag name without sufficient investigation (Irwin 2004). Tagging variation in excess can result in confusion rather than clarification. Eric Scanlon's (2016) muddle of 8 names for one taxon illustrates the futility of tagging every variation without being sure it has not been noted and reported before.

A journal article about something different, with several photos setting out site features and key differences from other taxa can be a start. This can raise awareness of something new and perhaps open discussion in the Journal or between people in the field. Older information may come to light. Further photos and information may be brought forward. This may establish a case for establishing a tag name and ultimately a formal description. But with better information it may turn out to be a previously recognised taxon or a hybrid. Whatever the outcome it too should be the subject of a note in the Journal.

Thus communication is the key to a wider understanding. Unless ideas are exchanged either in writing or within a group and concepts are challenged, mistakes creep in. Whereas with discussion and challenges they can be refined and spread to a wider group.

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Confronting taxonomic vandalism in biology: conscientious community self-organization can preserve nomenclatural stability.

Wolfgang Wüster, Scott A Thomson, Mark O'shea, Hinrich Kaiser 2021.

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Abstract

Self-published taxon descriptions, bereft of a basis of evidence, are a long-standing problem in taxonomy. The problem derives in part from the Principle of Priority in the *International Code of Zoological Nomenclature*, which forces the use of the oldest available nomen irrespective of scientific merit. This provides a route to 'immortality' for unscrupulous individuals through the mass-naming of taxa without scientific basis, a phenomenon referred to as taxonomic vandalism. Following a flood of unscientific taxon namings, in 2013 a group of concerned herpetologists organized a widely supported, community-based campaign to treat these nomina as lying outside the permanent scientific record, and to ignore and overwrite them as appropriate. Here, we review the impact of these proposals over the past 8 years. We identified 59 instances of unscientific names being set aside and overwritten with science-based names (here termed aspidonyms), and 1087 uses of these aspidonyms, compared to one instance of preference for the overwritten names. This shows that when there is widespread consultation and agreement across affected research communities, setting aside certain provisions of the *Code* can constitute an effective last resort defence against taxonomic vandalism and enhance the universality and stability of the scientific nomenclature.

The authors are snake experts, not orchidologists, but the issue has reared its ugly head in orchidology too—and it is one that writers and editors need to guard against repeatedly. There are of course two sides to the argument though: experienced nonbotanists may be frustrated by the tardiness of experts to contemplate what are clearly new taxa—Ed.

The inbox

Roger Thwaites noted (midoctober), "Some very good examples of ***Corybas macranthus*** at Rarangi, Marlborough). Three images: **1** shows the juvenile flower forming beneath the leaves. As the flower develops so do the leaves and this hides the flower from view. **Image 2** shows the flower antennae protruding from beneath the leaf, with a flower fully exposed to the view. **Image 3** shows a portrait of the mature flower with another one developing."

Mike Lusk photographed this *Corybas* ▶ in late October, its ovary appearing to have devoured the flower, only the lateral sepals showing. *Like a tuatara swallowing a weta—Ed.*

A perfect photograph of ***Corybas acuminatus*** by Kevin Frank: Stewart Island, 16 October 2021. Posted to *iNaturalist.*

Pterostylis montana, Twelve Mile, Queenstown 15 November. Very common at trackside, with occasional dense colonies. The labellum rarely twisted, the stigma prominent but not bulbous, the lateral sepals not rolled, minimally curled—*Ed*.

Hayden Jones emailed, “This was found with *T. pauciflora*... near Katikati. This site has a very large colony that I've known about for a few years now but this is the first time I've found Orange-top up there.” (See cover too).

Gaylene Harrison posted this photograph on Facebook’s NZ Orchid site on 11 November.

Its easy to forget just how small *Pterostylis tanypoda* is when you are out searching; Christopher Stephens posted this to *iNaturalist* from near Tekapo in November 2021.

How different? Mike and Ros Lusk "took a walk in the eastern Ruahines and found large numbers of *Pterostylis patens* and *P. subsimilis* often growing together: *P. patens* on the left and scale 5mm sq."

Space filler:
Caladenia chlorostyla,
S. Wairarapa,
27 November.

How similar?

Photographs of *Caladenia lyallii* taken on 27 November show variations in decoration, shape and size of flowers. Are these all the same species? Kew and Wikipedia say *C. lyallii* and *C. alpina* are the same thing, though David Jones separates them, noting the dark-tipped fingerlike calli on the lateral lobes of the labellum of the Australian *C. alpina*—but see the photograph below right, which shows finger-like marginal calli, though not dark tipped.

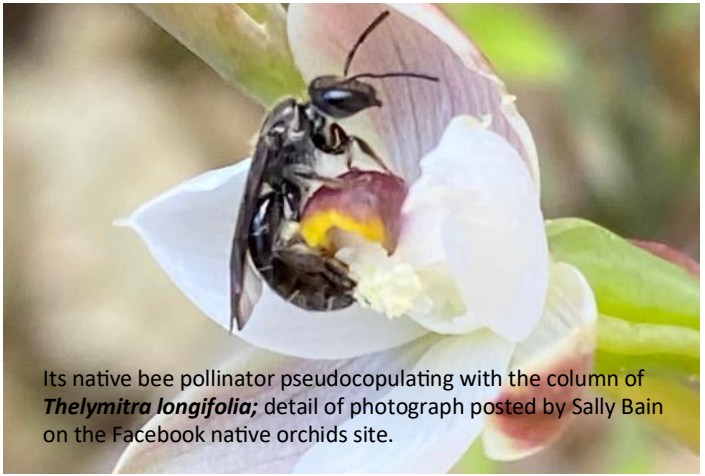
Our North Island forms seem consistently smaller than the southern, the tepals narrower. A plant from the Haurangi shows dark-knobbed trichomes (next page), as does the Iwitahi form (3D image page 2)—but then so do plants from around Dunedin kindly sent by Kathy Warburton (next page).

Fig.1, Haurangi, southern Wairarapa—Ed.

Figs 2, 3, Kahurangi NP posted to *iNaturalist* by “bridget_h”.

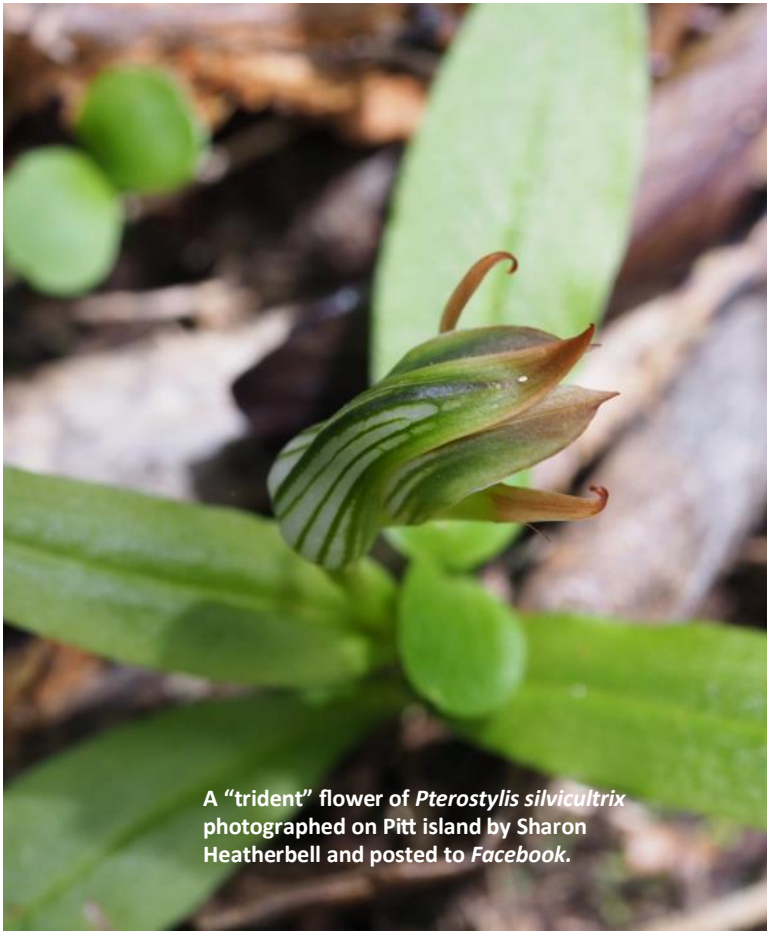
Caladenia lyallii, Haurangi range, south Wairarapa, 27 November 2021: Photo by Pat Enright showing dark-knobbed hairs on the dorsal sepal and proximally on the lateral tepals.

Caladenia lyallii, near Dunedin, showing dark-knobbed hairs



Its native bee pollinator pseudocopulating with the column of ***Thelymitra longifolia;*** detail of photograph posted by Sally Bain on the Facebook native orchids site.

A "trident" flower of *Pterostylis banksii* photographed near Eltham by Jenny Kerrisk and posted to *iNaturalist.*



A "trident" flower of *Pterostylis silvicultrix* photographed on Pitt island by Sharon Heatherbell and posted to *Facebook.*

Editorial: *ars longa, vita brevis est*

"Life is short, the art long, opportunity fleeting, experiment treacherous, judgment difficult," wrote Hippocrates.

He was of course rabbitting on about being a doctor but equally he could have been discussing orchid identification, as those of us who have worked their way through the various plants we have in the past called *Caladenia minor, Corybas trilobus* or *Prasophyllum colensoi* will, if we are honest, admit.

Unless one is unusually gifted (and even then I suspect) it takes a long time to see the subtle differences between similar orchids; furthermore they are seasonal and the opportunity to observe them is necessarily short; plants grown in pots may behave abnormally. Judgment is indeed difficult.

There's another concept that medicine has borrowed from the classical past and it can be applied to orchid taxonomy too.

In Greek mythology Procrustes had an iron bed, in which he invited visitors to spend the night. If they were too tall, he amputated their legs bit by bit until they fitted the bed. If they were too short he stretched them on the rack until they were tall enough. Guests had to fit his concept of what was neat and tidy.

Eventually Procrustes was captured by Theseus, who "fitted" Procrustes to his own bed, as he had done with his visitors.

In medical diagnosis, we are said to commit the *crimes of Procrustes* when we have a set diagnosis in mind and make what we observe fit that preconception. In taxonomy, we come to a decision and we seek only specimens that fit that concept and we reject those that don't – or we make them fit.

This is linked to the *Procrustean problem-solving bias*. We deal with a complex problem by simply cutting out some evidence in order to reduce its complexity.

The goal of the Procrustean solution is not a consideration of equally worthy views, but rather a win for Procrustes and a loss for other ideas.

Medical diagnosis and orchid recognition have somewhat parallel skills.

Researchers analysed the psychological process doctors used to solve complicated diagnostic problems. The size of the problem, the nature of medical information, and the notorious inability of human beings to manipulate probabilities in their heads all conspire against the diagnostician. Unable to estimate the desired probabilities explicitly, doctors recast the problem into a form that uses one of their most effective mental skills – that of comparing patterns. The following six steps are taken to arrive at a diagnosis: aggregation of groups of findings into patterns, selection of a "pivot" or key finding, generation of a cause list, pruning of the cause list, selection of a diagnosis, and validation of the diagnosis by tests.

That reads like orchid taxonomy to me. Pattern recognition: assemble the characteristics into patterns, select a "pivot" or "key" characteristic, prune out habitat effect and intra-species variation, select the name/identity and do the DNA tests.

Some people are indeed unusually gifted in that sequence. For the rest of us, the art is indeed long – and life seems rather too short to master it.