NEW ZEALAND NATIVE ORCHID GROUP
Newsletter no.9
March 1984

Dear Member,

Thank you all so much for your notes, letters, diagrams, and I'm sorry that time does not allow me to answer them all individually. Some of you will find your information appearing in the newsletter, others may not, but rest assured that all information sent is kept, filed, is very helpful, and will eventually be used somewhere by someone! Dan Hatch from Auckland - who incidentally has agreed to talk on native orchids at the 1985 International Orchid Conference in Wellington, is currently revising, with Mark Clements from Australia - at present working at Kew - some of the names used by the early botanists in the collections held at Kew. I'm afraid this will probably mean more name changes for us to get used to, but the information that you are sending me now, could well relate to some research project for the future, so please keep up the good work.

I feel I should mention the following information that has come to hand since the last newsletter:

Dave Hunt, Nelson, has been most industrious with his information on Gastrodias found in some of the forest areas this season, and also sends a report of Acianthus viridis from the Howard State Forest, flowering in Feb.

Kevin Luff, Wanganui, reports Pterostylis cardiostigma from Mt. Ruapehu, and reports Aciantnus viridis flowering there too - early December I think, his letter is undated.

Brian Torrens reports Pterostylis card!ostigma from Egmont National Park.

Elsewhere in this newsletter is a report of Acianthus viridis from the Tararuas - found on New Years Day by John Gregory, Linden. His diagrams are so good, and there's not many decent drawings of this species around, I include them here. (A. viridis was reported from Renata Ridge, Tararuas, in Jan. and Dec.1981, by Ian Cooksley, Manakau; previously only known from Ruapehu area in the North Island, - more common in the South Island.)

Jim Forrest, Te Puke, reports A. viridis in the Longwoods near Te Anau, "together with millions of ·..Corybas: - C. trilobus is in no way an endangered species".

Bruce Irwin, reports C. robertsonii with 13 flowers and 4 buds at Ngatea.

Gill Nendick sends in a very full report of Pterostylis foliata, in very exposed conditions on Hawkins Hill, 1477', Wellington - where the radar screen for Wellington Airport was once demolished by high winds!

Janet Lennane, Gisborne, reports watering Pterostylis trullifolia with rain water supply which seemed to result in the death of the plant, and wonders if our terrestrial species need rain water to survive? - good point, as many town water supplies are very heavily treated with chemicals. She also reports a very healthy colony of Drymoanthus adversus on a large old cabbage tree in the Opotiki district.

Beryl Finlay, Avondale, reports on success in growing epiphytes in pots. I don't think this point has been raised before, but I think the extra moisture around their roots helps them to establish more easily. She has also had success in raising seedlings from seed scattered around pots etc, as I know many people have. While my comments on the difficulty of raising native orchids from seed applied to raising the harder to grow species in flasks, it appears some people may have successfully done this too. Could I ask anyone who has tried, and either failed or succeeded, in flask-raising, to let me know. The Nature Conservation Council is interested in promoting research on the growing of native orchids from seed, an idea that the Orchid Council of N.Z. supports, so the sooner we know your results, the better!

Lastly! - in October 1985, the N.Z. Orchid Council is sponsoring an International Orchid Conference for several days, to be held in the Show Buildings, Wellington. Host Societies are the Wellington and Golden Coast Orchid Societies, and it is really going to be a very big event. There will be seminars, mass displays of orchids, society displays and commercial stands. How about the New Zealand Native Orchid Group putting on a display of native orchids????? I know many of you are members of orchid societies and would be coming to the conference anyway, - so, bring a native or two with you!

We could supply the ferns, bush litter etc here in Wellington, we could include blown up photos of our natives, and I think with some imagination from all you artistic people waiting in the wings out there, it could be a feature that would help explain our native orchids to all the overseas visitors and to New Zealanders who didn't know there were any! It would also create new members for us, and thus hopefully, more people to engage in the conservation of these plants. Bookings for a stand at the Show have to be made shortly, so if you could offer support - either in supplying plants, photos, manning the display, or helping to set it up, please let me know as soon as possible. Which also brings me to say I think it would be a good idea to affiliate with the New Zealand Orchid Council (CONZED). This is the national body of orchids in New Zealand, many societies have members growing native orchids, the Council sponsors conferences such as this, - they are holding the 15th World Orchid Conference in Auckland in 1990 which will be an even bigger event, and all it would entail would be an affiliation fee per member, at present this is 50c p.a but it is due to be increased at the AGM in May. Let me know your thoughts. There are 41 orchid societies in New Zealand, 42 including ours; How about it?

A step in the right direction has been taken by the Thames Valley Orchid Society - a member of our group, :- "At the committee meeting ... your committee decided in view of the need to conserve our Native Orchids, in future no native orchids will be accepted for sale on the Sales Table." See article elsewhere from the N.Z.Nature Conservation Council.

D. Cooper

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COLLECTION OE NATIVE ORCHIDS COULD ENDANGER WILD POPULATIONS

The collection and sale of large numbers of New Zealand's native orchids is of great concern to those who do not wish to see these beautiful, and In some cases, rare plants disappearing from the wild.

The Nature Conservation Council is concerned that hundreds of native orchids, including the endangered Cryptostylis subulata, have been collected in recent months and are being offered by commercial growers, garden centres and shops for sale to the public. There is a real risk that some wild populations will be destroyed by such collection. Unfortunately too many of those orchids do not survive in cultivation and most native orchids cannot be successfully grown from seed.

What makes these plants special, and what are their requirements for survival?

- New Zealand’s orchids occupy a wide range of habitats, growing on mountain tops, on banks, in forest and scrub, in damp places, or perched on trees and rocks.

- So far, twenty-two genera of native orchids have been identified, representing almost eighty species. New discoveries are still being made, Six species are epiphytic, perching on trees but not parasitic on them, five species obtain their food from a fungus which is parasitic on the roots of forest trees, and many species are associated with a specific fungus which they require for growth and survival.

~ About 10 orchid species, or 14% of our total orchid flora, are included David Given’s checklist of native plants at risk. These are:

Species	Threat Category
Bulbophy11um tuberculatum	Indeterminate
Calochilus campestris	Endangered
C. robertsonii	Vulnerable
Chiloglottis formicifera	Extinct
Corybas unguiculatus	Endangered
Cryptostylis subulata	Endangered
Paracalean minor	Er.dangered
Pterostylis nutans	Extinct
Thelymitra matthewsii	Extinct
Yoania australis	Vulnerable

- Most native orchids cannot be successfully propagated from seed. The fine seeds require a mycorrhizal fungus to grow, and this fungus has not yet been identified for New Zealand species, Almost all of the native orchids for sale, therefore, have been collected from wild populations, One flower picked may be thousands of seeds lost.

Unlike the tropical orchids, most native orchids have small short-lived flowers which are best appreciated with a hand lens. Orchid enthusiasts can play a leading role in the conservation of native orchids by adopting sensible guidelines for collecting, and by making a conscious effort to record more of what they see with notebook, pencil and camera,
Several common epiphytic species of native orchid can be propagated by division, and are relatively easy to grow. One of these, Earia autumnalis is also highly fragrant. If people wish to grow native orchids, these'are the species to try first.

Protection sought

There is no legal way to stop people from selling native orchids, provided they have been legally collected. Those growing in National Parks, Forest Parks or Reserves are afforded the same level of protection as other species found in those areas. Those growing on private land are unprotected, though consent to collect them would have to be given by the landowner.

In some countries, legislation has been passed prohibiting the collecting of wild orchids and their sale or export. In New Zealand, a revision of the Native Plants Protection Act is awaited, so that special protection can bo given to rare and endangered plants, including those likely to be collected to the point of extinction. Without this, the existence of some populations, especially those growing on private land, is tenuous.

Consequences of Collection

Internationally, wild orchids are regarded as one of the major groups of plants facing extinction. Habitat destruction and indiscriminate collecting of species for commercial reasons have hastened their decline. In Australia, orchids are one of the major plant families with the greatest number of species at risk. About 178 species, or 30% of the Australian orchid flora are listed as rare or threatened.

The consequences of over zealous collection are well illustrated by the European lady's slipper orchid, Cypripedium. calceolus. For centuries, people have picked the flowers and dug up the plants for their gardens, where they seldom survive, Although now protected by law in much of its range, the plant has become very rare. The few remaining wild plants in Britain are surrounded by tripwires and alarms and are guarded day and night while they are in flower to prevent people from digging them up and taking them home to "save" them. What, can be done?

So far as we know, all native orchids being sold here have been taken from the wild. Propagating them or growing them from seed has usually proved unsuccessful, except for a few species. The Orchid Council has suggested that this be investigated. In the meantime, continued collection means that some species may disappear from the wild, in the same way as the last of the now huias reported in the North Island of New Zealand succumbed to the gun of a dedicated collector.

David Given's 'Code of conduct for Conservation of Wild Plants' is reprinted here as a guide to the conservation of all wild native plants:

1. Official permission must be obtained before taking specimens of any plants from reserves, national parks, state forests, forest parks and sanctuaries, the right of landowners must be respected when collecting plants.
2. It is essential to preserve the habitat and conditions which wild plants grow in. This means watching your step, not compacting soil. and taking care not to break off young shoots and branches.
3. If you want to collect material for growing, take seed or cuttings rather than uprooting whole plants.
4. "Rescue attempts" require knowledge of the biology and habitat requirements of plants and should be undertaken only following approval by an appropriate conservation and administrative authority.
5. If a wild plant is scarce in a particular locality, take only a photograph; if a voucher specimen is necessary take the minimum needed for identification.
6. Trampling and "gardening" before taking photographs of plants reveal the site to others. After photographing repair any damage caused.
7. The exact location of critically rare wild plants should not be disclosed indiscriminately; sites should not be visited by large group

8. Inform the appropriate scientific and conservation authorities (e.g. Dept. of Lands and Survey, Forest Service, Botany Division D.S.I.R.; should a previously unrecorded site for a rare plant be discovered.
9. Respect requests from conservation bodies and landowners not to visit particular sites at certain times.
10. Do not introduce plants into wild habitats without first getting the approval of appropriate authorities. Introductions of native plants into wild habitats must use specimens propagated from locally derived materials to avoid genetic contamination.

David R. Given

- Inform the nearest office of the Dept, of Lands and Survey or N.Z. Forest Service of any n&tive.plants, orchids in particular, being taken from Crown Land or State Forest.
- Press for the reservation of unreserved areas where wild orchids are growing.
- Discourage people from buying native orchids known to have come from wild populations.

from Nature Conservation Council.
John Gregory, Linden

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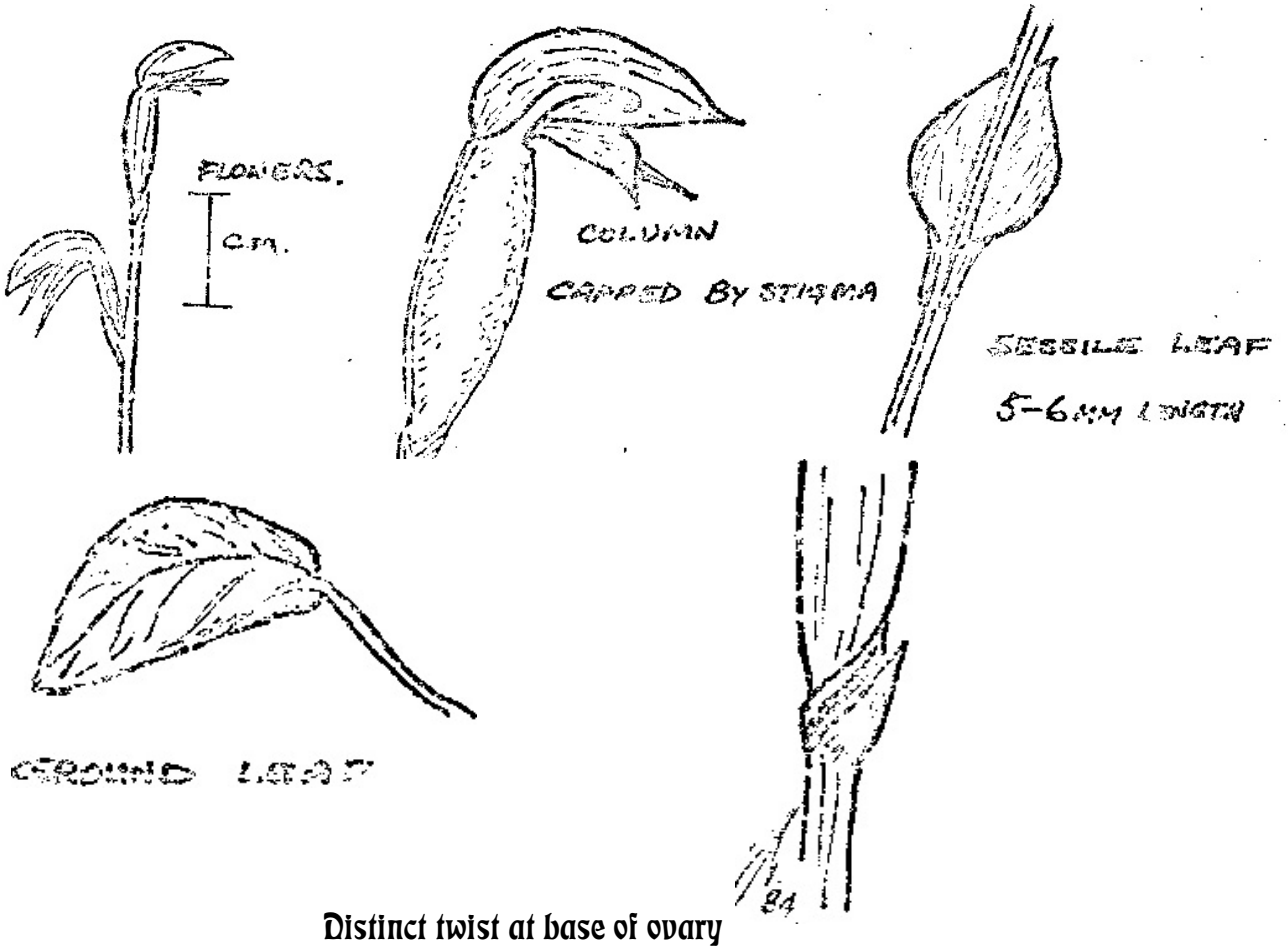
Townsonia deflexa – Acianthus viridis
Townsonia viridis



Distinct twist at base of ovary
TOTAL HEIGHT OF PLANT 100 mm APPROX

Plants found in the Hector River area, Tarauas, at approx.1800 to 2000ft. Growing in moss beneath beech, leatherwood and Dracophyllum on a Southeast facing slope. Given the same a weather pattern, the 2nd to 3rd week in December would be ideal to find these plants in flower; these, on New Years Day, were past their best.

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THE STRUCTURE OF THE ORCHID FLOWER

E.D. HATCH

(published Led in AK. Bot.Soc. Newsletter November 1964.P.2; an in 'The Orchadian',p.158 and again in July 1966,p. 50)

The orchid flower is peculiar because it is adapted for cross-pollination by specific insects. There are as many flower variations as there are insect types to pollinate them. Wasps, butterflies, bees, ants, moths, spiders and chewing beetles are all catered for. The attraction is centred in the middle petal (labellum) and may be perfume, colour or nectar, or perhaps edible calli. Sometimes the labellum assumes the form of the insect concerned, and near-mechanical devices, traps and pitfalls are not uncommon. The pollinating mechanism of our native orchids has been largely evolved outside New Zealand and the local insect fauna is not sufficiently diverse to do it justice. Consequently there is a strong secondary tendency towards self-fertilisation or even cleistogamy (self-fertilisation within the unopened flower).

The flower of the orchid is basically liliaceous, but the relationship is often hard to trade. The ovary is inferior, i.e. below the flower; is ribbed, ana opens by longitudinal slits. This is a useful point of identification. We may imagine the hypothetical orchid ancestor as having 3 sepals, 3 petals, 6 stamens in 2 whorls, and a single style with a 3-fid stigma. The fusion of 4 of the stamens with the already confluent styles would seem to have developed in different ways to produce different groups of orchids, but in all of them it would appear to have preceded the specialised perianth. With the organs of reproduction in confluence, normal pollination became impossible, and the next logical step in the flower's development was the modification of the abaxial segment (in this case the middle sepal) to form a landing stage for insects. But the middle sepal, being an outer covering segment, could not lend itself to the delicate modifications which eventually took place, so the ovary became twisted through 180° to bring the middle petal (labellum) into the abaxial position, where it could be more easily adapted to the formation of nectaries and calli and the finer shades of colour and form. At the same time the middle sepal came round into the dorsal position where by reason of its heavier texture and protective nature, it could serve as an awning over the anther. The modification of the labellum was completed by its fusion with the 2 remaining free stamens. Most orchids begin with the flower in its original position and the ovary twists during development. In Prasophyllum (and I notice in Gastrodia sesamoides too!) the flower is inverted with the labellum uppermost - actually the right way up! Here is a point worth studying. Has the ovary in these species not twisted at all? Or has it twisted through the whole 360° and so come back to its starting point?

All the New Zealand orchids belong to the subfamily Orchidoideae. which if has but one fertile anther and 2 fertile stigmas. The structure of such a flower may be summarised as follows:

Theoretically there are 15 segments in 5 whorls of 3. In each whorl 2 of the segments are paired and the third usually different in form or function or both.

WHORL (1) - 3 styles, each capped by its stigma, confluent to the flower. 2 of the stigmas are paired and combine to form the stigmatic plate on the front of the column. The third stigma, or a portion of it, appears to be modified to form the rostellum at the top of the column. (The exact nature of the rostellum is causing much discussion at present and the question is far from settled. The above conclusion however, seems to he correct for the majority of the local species. This is another problem which would repay study).

WHORL (2) - 3 stamens, 2 of them paired and confluent with the sides of the column to form the column-wings (very prominent in Thelymitra, where they supersede the insect-attractive function of the labellum) the third stamen confluent with the front of the column.

WHORL (3) - 3 stamens, 2 of them paired and confluent with the labellum to form the various labellar calli, the third (the only fertile stamen in the subfamily Orchidoideae) usually confluent (but not in Thelymitra) with the back of the

column and carrying the 2-celled anther, which overtops and usually rests on the rostellum. (in Pterostylis the 2 paired stamens of this whorl do not enter the labellum proper but appear as the ciliate process of the labellar appendage: In Thelymitra - but only in the subgenus Thelymitra they are included in the front edges of the column-wings and finally extruded as the cilia of the secondary lobes).

WHORL (4) - 3 petals, 2 of them paired, the third (labellum) rarely similar (Thelymitra), usually much modified to form an attractive landing-stage for insects.

WHORL (5) ~ 3 sepals, 2 of them paired, the third (dorsal) sometimes similar, usually much enlarged, its main purpose being to canopy the anther.

Most orchid genera are subject to reversion and odd ancestral features, free stamens, petaloid labella etc. may be found from time to time. Such as a rule are infertile and their peculiarities die with them. Once in a while however, these mutations do not interfere with the reproductive processes and we get forms like Petalochllus, which becomes quite abundant until man interferes with the habitat. Ordinary malformations are also common. Repressed or enlarged organs, twin labella, petals etc, double or multiple flowers. These are often due to insect or fungus diseases or to purely mechanical causes.

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News from a member who really gets around! - Mrs Pauline Mayhill, Hamilton

Orchids seen on the Chatham Islands, Nov-Dec.1982:

Acianthus fornicatus, recently finished flowering
Aporostlis bifolia, started flowering 10th Dec.
Caladenia catenata, pink form common Nov 20-30, other forms till Dec. 20
Chiloglottis cornuta, many flowers until 13th Dec.
Coryba macranthus, 4 seed heads, 100s of large plants
Corybas oblongus, free flowering last week Nov. nothing later
Coryhaa trilobus, not flowering
Earina autumnalis, budding well
Earina mucronata, great deal of seed
Pterosty1is austra1is. flowering throughout
Pterosty1is banksii, " flowering throughout
Pterostylis micromega, in flower until about Dec.8th
Thelymitra longifo1ia, flowering throughout
A pale leafed short Thelymitra in bud, never seen in flower
Microtis unifolia, commenced about Dec.18th
Adenochilus gracilis, flowering Nov. 25th onwards
?Leaf of Caladenia lyallii

This year she sends Orchids of the Auckland Islands! :6 days, early Dec.

Aporostylis bifolia, flowering
Caladenia catenata
Chiloglottis cornuta, flowering
Corybas oblongus, flowering
Corybas rivularis, flowering
Corybas trilobus
Lyperanthus antarcticus, flowering
Thelymitra longifo1ia, pink buds only Gorybas orb 1 cu. 1 atus '
Acianthus viridis, flowering

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Dorothy Cooper,
14 Avalon Crescent, Lower Hutt.