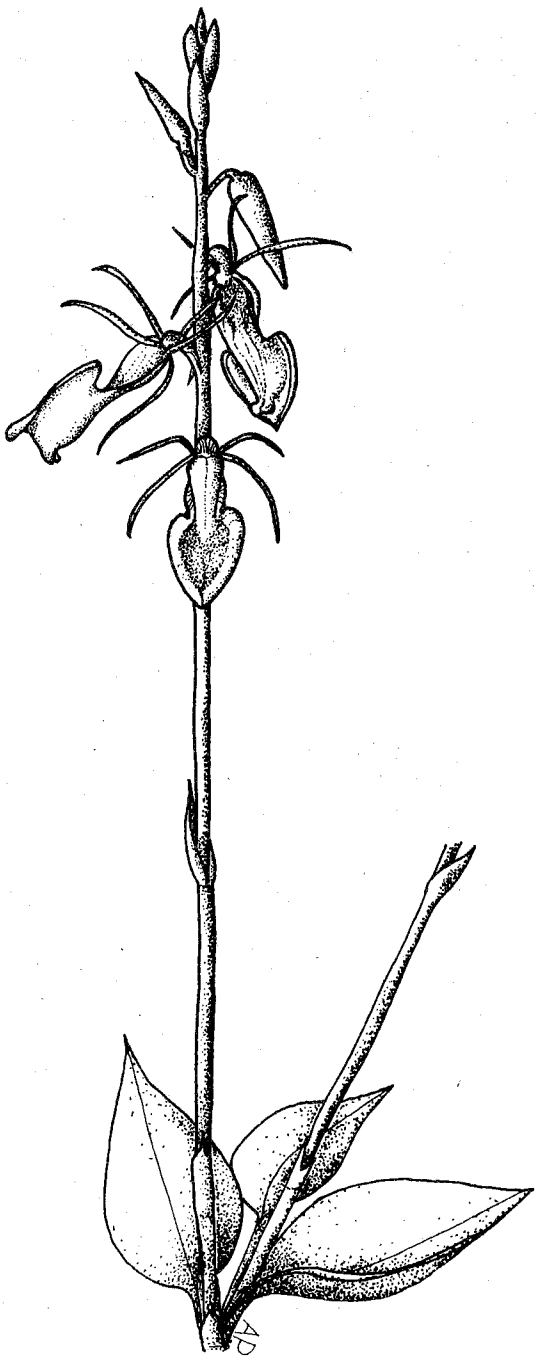
NATIVE ORCHID SOCIETY

of

SOUTH AUSTRALIA

JOURNAL



Cryptostylis ovata

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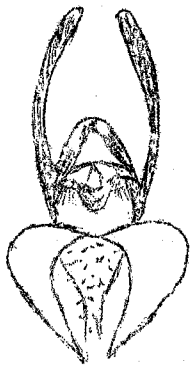

NATIVE ORCHID SOCIETY OF SOUTH AUSTRALIA

J O U R N A L

Volume 9, No. 1

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NEXT MEETING

When: Tuesday, February 26, at 8.00 p.m.

Where: St Matthews Hall, Bridge Street, Kensington.

Subject: Deflasking of Orchids. This will be a workshop night which will be conducted by several demonstrators.

NOTICE OF ANNUAL GENERAL MEETING

The Annual General Meeting of the Society will be held in St Matthews Hall, Kensington at 8.00 p.m. on 22 March, 1985. At this meeting all offices of the Committee (except 2 committee persons) will become vacant.

Nomination forms to fill these vacancies are available from the Secretary or at the February General Meeting. Completed forms must be in the hands of the Secretary 21 (twenty-one) days before the election.

W.K. Harris, Secretary.

INCORPORATION OF THE SOCIETY

Given the size of the Native Orchid Society of South Australia and its financial situation, the Committee has resolved that the Society should be an incorporated body. At present the Society is not incorporated and this may give rise to several problems including:

(1) An unincorporated Association/Society cannot contract or hold property in its own right but must do so by trustees.
(2) An unincorporated Association cannot make simple and effective arrangements to dispose of property when the Association ceases to exist.
(3) Gifts strictly cannot be made to an unincorporated Association (as such) but must be made to individuals to hold on behalf of the Association.
(4) All members of an unincorporated Association may become liable if the Association were negligent in undertaking some of its functions and responsibilities, including financial ones.

The advantages of being an incorporated body include:

(1) The Society has corporate status and may acquire, hold and dispose of real and personal property and shall be capable of suing and being sued in its corporate name.
(2) Incorporation ensures limited liability for both Council and ordinary members.
(3) An incorporated association has power to invest any of its funds and and to borrow money and to hold land or property.

This proposal is most important and will be discussed at the February general meeting. If incorporation is ro proceed then some minor amendments to the constitution will be required. These will be tabled at the February meeting.

W.K. Harris, Secretary.

CONSERVATION/EDUCATION SUB-COMMITTEE

Members who attended the Spring Show in September will be aware of the work done by the Sub-Committee to inform the public of the Society's aims on conservation.

It seemed a good idea to have this material on display all year round and, with the agreement of the Committee, it has been decided that one four-sided module be on display at Belair Recreation Park and the other at Cleland Conservation Park. As well as depicting the orchids indigenous to the areas other relevant information will be provided on NOSSA and its activities. The modules will remain the property of NOSSA and be on permanent loan to the Parks unless needed for our own use.

Material will also be provided for use at Black Hill Conservation Park and at the Education Department's Outdoor School, Arbury Park.

Much hard work has gone into this project and I would like to thank my willing and enthusiastic members Iris Freeman, Letizia Gentile, Bob Bates, Don Harper and Oliver Fuller. Also thanks to Marigold and Jim Jacobs, Roy Hargreaves and Kevin Western who were co-opted to assist with the Show display and have since tontinued to show interest and support.

Margaret Fuller,
Convener

FROM THE EDITOR

18 Tyrie Ave,
FINDON.
S.A. 5023

Dear Members,

I shall begin my introductory letter to the Journal with a proverb, one of which I happen to believe and feel is relevant:

"Knowledge that is not shared is knowledge wasted."

One may think this a strange and most unusual way to begin, but as one continues to read on, it is hoped that it will be understood.

I became a member of NOSSA only a few years ago, but in that time I have learnt a great many things about our native orchids and both my knowledge and love for them have deepened. Some of this knowledge has been extracted from books on the subject, but most of what I now know has come from talking to members of the Society.

Within our Society there is a great pool of knowledge, which, if brought together can be of great benefit to all. You may be asking yourself, how can we do this? One answer may be by simply passing on what we know by word of mouth. This has problems as it only reaches a few people at any one time.

My answer lies, literally in the palm of your hands. One of the greatest avenues of communication open to the world is "the written word", and in particular words written in this Journal.

I am inviting one and all to share your knowledge and experiences with other members in the Society in order to gain a greater understanding of our terrestrial and epiphytic orchids. The articles need not be technical, scientific or lengthy. All that is needed is to put your thoughts, experiments, triumphs, tragedies, opinions, etc., to paper.

If only one person is helped by what is written then it is well worth the effort. It is our responsibility to both ourselves and to each of the members in our Society that knowledge gained is passed on and not lost. After all "knowledge that is not shared is wasted!"

Letizia Gentile

Editor

FIELD TRIPS FOR 1985

February 23	(Next Saturday morning) Yundi and Nangkita to check for Pterostylis aphylla, Prasophyllum archeri and Spiranthes. Meet at Mt Compass Post Office, 10.30 a.m.
June 23	(Sunday) Warren Conservation Park to survey winter orchids.
September 14	(Saturday afternoon) Annual excursion to Belair Recreation Park.
October 12-14	(Long weekend to be determined.) Request volunteers to organise something.
November 3	(Sunday) Mt Magnificent area for Gastrodia, Thelymitras, etc.
January 11	(1986) Dipodium special, Crafers.

PHAIUS TANCARVILLIAE

Les Nesbitt

At the July 1984 NOSSA meeting four flowers on my plant were pollenated but no one present could tell me how long the pods took to mature. I can now report that the pods had ripened and split open at Christmas making the gestation period five months. Unlike our local terrestrials, the pods remained green when ripe and the splits barely opened. The pods had to be inspected closely to see that they had split.

Green pods were sent for flasking at three months and four months and the flaskers reported that the seed was well developed. The remaining two pods were left to mature and some of the dry seed was stored and the remainder sown on top of the parent pot. Hopefully from one source or another we will see some seedlings later on.

WANTED

Two or three people are required to assist in collating the Journal each month. Those interested please see the Secretary or Roy Hargreaves.

CONSERVATION NEWS

It's good news for the ducks!

Dodds Road scrub near Myponga has been declared a private sanctuary.

The 3.5 hectare vestige of bush contains the largest known colony of the duck orchid (Caleana major) in South Australia as well as a smaller colony of the little duck orchid (Paracaleana minor); including the freak form "Paracaleana sullivanii".

A recent survey gave a count of over one hundred flowering plants of C. major. None have been seen to set seed naturally during the last ten years; no doubt the complete clearance of surrounding bush has wiped out the pollinating wasps. However several NOSSA members hand pollinated some 50 flowers this year to aid survival of the colony. Forty plants of P. minor were seen in flower. These were setting seed by apomixis as all pollinia were intact.

The news is not so good for the "yellow cowslips" (Diuris pedunculata) at Cherry Gardens. Most of the roadside vegetation has been sprayed with herbicide destroying a small colony of the now rare Diuris. Surprisingly the weeds seem to be recovering while the native vegetation is not!

(Perhaps members could be encouraged to make "Conservation News" a regular feature as it does not take any scientific knowledge to report on local conservation news and this would make the country members useful in reporting back any useful information.)

CULTURE OF PTEROSTYLIS CUCULLATA

Les Nesbitt

This greenhood is rare and localised in the three states in which it is found, namely South Australia, Victoria and Tasmania. It occurs nowhere else in the world. In Victoria and Tasmania it prefers sandy areas near the coast but in South Australia it is known only from a few localities in the Adelaide Hills. I have been growing a South Australian clone ex-Tea Tree Gully for the past twelve years. P. cucullata had been extinct at Tea Tree Gully for several years when I was given one tuber descended from original Tea Tree Gully stock collected by native orchid enthusiasts when the area was subdivided for housing in the 1960s. I also have a Victorian clone which is similar in appearance.

P. cucullata has a single large flower on a short thick stem. The front of the flower (on the outside of the ventral sepals) is covered with short chocolate brown hairs giving the appearance of velvet. The top of the hood is also chocolate brown, while the lower back of the hood or galea is white with distinctive parallel green veining. Flowering period is September-October. One of its features is the large stem bract which sometimes half envelopes the flower, although with good culture the stem is taller and the flower usually is clear of the top bract.

P. cucullata grows and multiplies freely in cultivation but it has a few quirks which must be understood to achieve excellence of culture, an aim we should strive for with every species we grow. This means achieving a

Culture of Pterostylis cucullata (contd.)

high proportion of flowering plants (more than 30%), and a good rate of increase of tubers each year.

Each mature plant of P. cucullata should produce three tubers annually. My first plant didn't multiply for the first two years but I didn't know why at the time. The tubers are large (for a greenhood), roughly spherical and white. Plants must have good drainage and I have found that with my standard soil mix of 45% sand, 40% soil and 15% peat moss, that they multiply best in a clay pot. The same result could possibly be achieved with a sandier mix but this can create other problems. If plastic pots are preferred a trick to try is to plant the tubers in a layer of clean sand with soil mix above and below. This keeps organic material away from the tuber so that the new tubers are squeaky clean and white. I repot every dormant season because I like to see how my plants have multiplied but also because the extra tubers are formed on long side stems which means they are always clustered around the edge of the pot, even if a large pot is used.

Plants of P. cucullata appear very late in the season. Don't panic when there are none showing long after most other Pterostylis are up. June-July is the normal time for leaves to begin development. The plant is a shadelover in its native habitats but grows well under 50% shadecloth for me. It can stand the heavy frosts at Kersbrook without damage. Flowers open in mid-spring, making it one of the last greenhoods to bloom (apart from the rufa types). Harold Goldsack grows this species to perfection and was awarded a Cultural Certificate at the NOSSA Spring Show in 1982.

Spring is the most critical time of the year if you wish your plants to multiply. At flowering time each plant will have one new tuber alongside last year's old tuber, plus one or two adventitious roots developing. If the pot dries out at this stage, the plants go dormant and there will be no additional tubers. This was my problem when I started growing the species because I was scared of rotting the tuber by over watering. You must keep the soil moist and the plant green in late spring while the adventitious roots extend and the extra tubers develop at their extremities. My plants are allowed to go dormant in the first or second week of November, by which time the new tubers have ripened and are firm and fat.

The species has no special pests and diseases in cultivation. Keep slugs, snails and grubs away and watch out for leaf rot.

P. cucullata is a favourite parent for hybridists working on greenhoods. Hybrids with P. baptistii, nutans and ingens are known. P. cucullata x baptistii was registered as P. Cutie and this crossed onto P. x ingens, a natural hybrid between nutans and furcata gives a second generation hybrid called P. Velvetine. The thick stem and velvety texture are dominant features but the rich chocolate brown colour is not. P. Cutie is still the best greenhood hybrid around. Second generation hybrids flowered so far range from plain green to pale browns. There are many more cucullata hybrids in the pipeline so the best is yet to come.

To sum up, P. cucullata is rare in the bush but increasing in cultivation. Its rarity and large attractive flowers ensure that it will be a favoured species in collections. We now have enough knowledge to say confidently that threatened plants can be rescued and propagated in pots for later reintroduction to "safe" areas of bushland.

EXTRA-FLORAL NECTARIES, PSEUDO-NECTARIES AND VESTIGIAL NECTAR-SPURS IN DIPODIUM PUNCTATUM R.Br.

R. Bates

Anyone familiar with the leafless, saprophytic hyacinth orchids Dipodium punctatum, with their variously coloured stems and attractive pink blooms will have noticed that the stems are often swarming with ants. Close observation of the ants shows that they run up the stem and stop at the base of each floral bract as if feeding there. When I first noticed this I was curious as I could see nothing which looked edible. I checked numerous plants until I found one growing apart from others that had not been discovered by the ants. At the base of every floral bract was a glistening drop of nectar! The mystery was solved! These extra-floral nectaries were keeping the ants out of mischief. They were too busy on the stems to visit the flowers from which they may have stolen the pollinia.

Such extra-floral nectaries are found in many plant families and van der Pijl and Dodson (1966) record them for some Cymbidium, Oncidium and Spathoglottis species. They certainly occur in the Australian Cymbidium canaliculatum (R. Chinnock pers. comm) but I have not noticed them on any South Australian orchids other than D. punctatum. Once attracted by the nectar the ants also help the plant by controlling thrips. Although I have, on occasions, seen ants milking sugar secretions from aphids (and probably protecting them) on immature flower spikes of Dipodium they probably eat the aphids once the extra-floral nectaries start operating.

The next question about Dipodium punctatum was "Do they have floral nectaries as well?". The attractive flowers serve as signs, advertising to the bees that nectar is available; but the flowers are "dishonest" for there is none. On the column however, just below the stigma is a shiny yellow patch of tissue which looks very much like it could be a nectary but careful checking of hundreds of flowers at various stages of development showed that nectar was not present. Another case of deception in orchid flowers for those shiny yellow patches probably represent pseudo-nectaries!

A further interesting feature may be noted on the D. punctatum flowers. At the base of the labellum is a small sac or pouch. This pouch varies greatly from flower to flower. In some it is paired, in some quite long and spur-like, on others almost absent but always irregular and upon examinations empty. Such small irregular features may be found on many flowers and are usually interpreted as being vestiges of some organ no longer functional. I would suggest that those of D. punctatum represent vestigal nectar-spurs from a time when distant ancestors of Dipodium punctatum were pollinated by butterflies. Certainly the flowers have many other features of butterfly-pollinated flowers: the large sloping landing platform and the bell-like, red spotted flowers with a long, narrow, tubular space running down the labellum next to the column (a space tightly closed to present-day butterflies).

Despite hours of observation I have never seen a pollination event in Dipodium and very few flowers set seed ($<20\%$). However Beardsell and Bernhardt (1982) record the bee Chalicodoma derelicta as a pollinator and note that Dipodium may be general mimics of nectariferous flowers.

Certainly as with most orchids the pollination strategies of Dipodium punctatum (both present and past) are quite intriguing.

Extra floral nectaries . . . . in D. punctatum (contd.)

References

Beardsell, D. and Bernhardt, P. (1982) "Pollination Biology of Australian Terrestrial Orchids" in Williams et.al. Pollination '82 (University of Melbourne).

van der Pijl and Dodson (1966) "Orchid Flowers: Their Pollination and Evolution".

UNDERGROUND ORCHIDS OF AUSTRALIA

R. Shooter

In 1928, John Trott, a farmer, was ploughing in mallee country near Corrigin, Western Australia, when he noticed some rather unusual fleshy roots being turned up by the ploughshare. He was sufficiently interested to collect the pieces and have them identified. That chance discovery revealed the unique Australian underground orchid, Rhizanthella gardneri, R.Rogers.

It was only seen again twice in the next forty years and, until a further specimen was found by John McGuiness near Munglinup, some 500 kilometres south-east of the original site in 1979, was considered extinct. This more recent find rekindled interest and concentrated searches in areas of Melaleuca uncinata has revealed some 100 plants in 10 or 12 sites over the ensuing years to 1983.

Some three years after Trott's chance discovery and 3200 kilometres to the east of the continent at Bulahdelah, New South Wales, in 1931 a second species Cryptanthemis slateri Rupp, was discovered by a Mr E. Slater while removing a root of Dipodium punctatum to transfer to his garden. Isolated plants were found during the next few years, 12 at the type locality, single plants in Lamington National Park on the Queensland/New South Wales border and at Springwood in the Blue Mountains, west of Sydney. It has not been seen for almost twenty years despite frequent searching.

Recently Mark Clements and Phillip Cribb of Kew Gardens, London, acquired through the auspices of various Botanical Gardens and Herbaria in Australia specimens preserved in alcohol of both species for morphological study.

Their findings published in The Kew Magazine, Vol. 1, Part 2, 1984, indicate that the two orchids have many similarities, too many to sustain separate generic status and are convinced that they are too closely allied species of the same genus.

Since Rhizanthella is the earlier generic name they have transferred Cryptanthemis to that genus. Hence the underground orchids of Australia will be known as Rhizanthella gardneri and Rhizanthella slateri.

At the conclusion of articles such as this where Botanists advise a change of name, either generic or specific, the advice is usually given to growers to make sure to alter the labels in pots. This is possibly the only occasion where such advise is not required.

References

Clements and Cribb (1984), The Kew Magazine, Vol. 1, Part 2, 84-91.