Native Orchid Society of South Australia Inc.

Journal

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NATIVE ORCHID SOCIETY OF SOUTH AUSTRALIA INC.

P.O Box 565,
UNLEY S.A 5061

The Native Orchid Society of South Australia promotes the conservation of native orchids through cultivation of native orchids, through preservation of naturally-occurring orchid plants and natural habitat.

Except with the documented official representation from the Management Committee of the native orchid society of South Australia, no person is authorised to represent the society on any matter.

All native orchids are protected plants in the wild. Their collection without written Government permit is illegal.

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NATIVE ORCHID SOCIETY

OF SOUTH AUSTRALIA INC

APRIL 1996 Vol. 20. No. 3 JOURNAL

APRIL MEETING

Tuesday, 23rd April 8.00 pm: at St Matthews Hall, Bridge Street, Kensington Kevin Handreck, a Research Scientist with CSIRO's Division of Soils, will speak on potting mixes, fertilisers etc. Kevin's research for the past ten years has been concerned with the improvement of the quality of potting mixes and the nutrition of plants that are grown in them. One of his books 'Growing Media for Ornamental Plants and Turf' is a textbook for horticultural students throughout Australia. Doors to the hall will be open at 7.15pm for those wishing to borrow books from the library or take in items for the trading table.

DIARY DATES

Apr 21 Field trip - *Genoplesium* Special
May 3 Annual Dinner at the Buckingham Arms Hotel.

COMMITTEE MEETING

To be held at 7.30 pm Friday April 26th at the home of Thelma O'Neill

COMING FIELD TRIPS

Sunday 21st April 10am. *Genoplesium* Special Meet Monarto South Post Office to look at *G. nigricans* and an undescribed species *G*. aff. *rufum* (mallee). Then to Scott Conservation Park to look at a third *Genoplesium* Bring picnic lunch.

NOSSA ANNUAL DINNER

Buckingham Arms Hotel - 7pm, Friday May 3rd.
This yearly NOSSA event is one that most of us look forward to long in advance as it has always proven to be a great evening. Please note that the venue is changed from previous years. Of course, all members and guests are invited. Cost of the dinner (smorgasbord) is $20.00.
Our Treasurer, Ron Robjohns, will be looking for a deposit of $10.00 per person attending at the April meeting.

NEW MEMBERS: NOSSA welcomes

John & Beverly Gay of Murray Bridge
Neville Hudson of Seacombe Heights
Gill Schach of Dernancourt

ROLL BOOK: NOSSA is now required to maintain a list of those attending our meetings, excursions etc, Heaps of fun! As of the April Meeting a book will be placed on a table near the doorway of the hall. Please enter your name in the book under the appropriate date. Names should be legible.

WANTED: Trading Table Convenor - Due to commitments to the Third Australasian Native Orchid Conference and Show, our current Trading Table convenors are unable to continue for 1996. It would be terrific if one or more of our members would be willing to take over the task of trading table convenor for the year. See Gerry Carne or ring him on 332 7730 if you might be interested.

WANTED: Articles for the Journal! Make 1996 a year of variety, send your editors articles about growing epiphytes, trips to Queensland etc.

FOUND: Bilby droppings - Well, not actually bilby droppings. Did you visit the Australian Geographic Shop in March and purchase a bilby? A receipt and some attached cash were found in the hall during the March Meeting.

APOLOGY: the editors apologise for the accidental repeat of an article from last year but if we had enough articles to get the journal done early these things wouldn't happen!

MEMBERSHIP: Australian Native Orchid Society (ANOS) Application forms are available through Gerry Carne. $26.00 annual membership fee includes four issues of the journal THE ORCHADIAN.

ON THE BENCH

Terrestrials: *Eriochilus cucullatus, Leporella fimbriata, Pterostylis pedoglossa, P. fischii x P. truncata, P. furcillata, Spiranthes sinensis.*

Epiphytes: *Dendrobium* Annes Rainbow Surprise, *D.* Aussie Victory x Red River, *D. bigibbum* 'compactum', *D. bigibbum* 'compactum' white flowers, *D.* Essie Banks, *D.* Hilda Poxon x Pinterry, *D.* Manning, *D. rigidum, D. speciosum, Bulbophyllum macphersonii*.

George Nieuwenhoven gave the commentary on the Terrestrials

Roger Rankin spoke on the Epiphytes.

POPULAR VOTE:

Terrestrials: *Leporella fimbriata* grown by George Nieuwenhoven

Epiphytes: *Dendrobium rigidum* grown by George Nieuwenhoven.

COMMENTATORS CHOICE:

Terrestrial Species: *Spiranthes sinensis* grown at Black Hill

Terrestrial Hybrid: *Pterostylis* Trunkfish grown by John Peace.

Epiphyte Species: *Dendrobium rigidum* grown by George Nieuwenhoven

Epiphyte Hybrid: *Dendrobium* Best yellow grown by John Peace

Roger: it was certainly a surprise to see the *Dendrobium speciosum* in flower as this is normally a spring flowering plant. A feature of the epiphytic hybrids was the complexity of their parentage. This parentage caused some lively discussion.

George: pointed out that if terrestrial growers want their plants to come up early and water them in February March they must keep them cool ie under domes. George tried the trick of growing the difficult *Leporella* in sphagnum and lo and behold they flowered beautifully.

MARCH MEETING

Charlie Edwards explained all the behind the scenes work which is needed to organise the Big Conference! He showed a series of magnificent slides of displays at previous conferences.

1995 PRESIDENT'S REPORT by BILL DEAR

Another year has simply flown past and it gives me a great deal of pleasure to present my second President's report.

Our meetings continue to be well attended with new faces at most. A diverse range of topics were presented by our Guest Speakers from Cultivation, Conservation to flora through the eyes of an Artist with a highlight being a talk on the Mount Lofty Botanic Garden by our Patron Mr Noel Lothian.

It was good to see an increase in the number of field trips this year and hopefully this can be continued for the coming year as there are many areas near the city with good displays of orchids.

The Open Day group unfortunately lost its leader and momentum this year and must be looked at again in the future.

The Spring Show was again very well supported by growers with a great display of flowers of both epiphytes and terrestrials. We must make a greater effort to promote this venue to the public next time.

The Conservation Group continues to monitor three areas in Belair National Park and it was pleasing to see orchids and other native understorey plants reappearing in the areas where the Bone Seed had been cleared. Many members were also involved in a series of rescue digs in the South East and hopefully tubers from these will become available from the Tuber Bank in the future, as this is possibly the only way some of these orchids will survive.

The major areas of the ANOS Conference have been organised and now is the time for ALL members to help out with the setting up and running of what promises to be a fantastic week of activities.

On the social side the annual dinner, auction and supper and the Christmas barbecue were all very well attended with everyone having a good time.

Finally, a big THANKYOU to the Committee and everyone else who helped out at meetings, field trips, tuber bank, shows, publishing and mailing the journal etc. It is because of your efforts that NOSSA continues to be such a successful organisation in the community.

THE HISTORY OF *MONADENIA* by BOB BATES

STAGE 1:- IN WESTERN AUSTRALIA

The history of *Monadenia bracteata*, a South African terrestrial orchid which has become a weed in Southern Australia began at Youngs Siding near Albany Western Australia in 1944 when a Miss D. Southerland collected plants and forwarded them to Charles Gardner the Government Botanist of Western Australia. Gardner sent the plants to Reverend H.M.R. Rupp, foremost Australian orchidologist at the time.

Monadenia bracteata

Rupp in 1946 described the plants as a new species, *Monadenia australiensis* (1), but it was soon agreed that they were the same as a South African species known at that time as *Monadenia micrantha* Lindley. As Albany was often the first Australian port of call for ships from South Africa it was guessed that seed had arrived in sacking covering goods from that country. As the species is self pollinated, only a single seed need have made the journey and germinated. No attempt was made to eradicate the Monadenia plants at Youngs siding.

Joyce Stewart in Wild Orchids of Southern Africa (1982) gives the correct name of the species as *Monadenia bracteata* (Sw.) Dur and Schinz and says that the species is "common in the west and South Cape areas especially in disturbed sites and flowering more abundantly after fire". She also illustrates several other self pollinated species of Monadenia!

By 1984 Monadenia had spread as far north as Perth and east to Esperance (2). Ten years later in 1990 Hoffmann and Brown record it as having spread as far north as Geraldton and east to Israelite Bay, a distance of 2000 km. They also make the note "the greater profusion of plants is found in open paddocks rather than in surrounding bushland" (3).

STAGE 11:- IN SOUTH AUSTRALIA

In South Australia the species was being grown at Coromandel Valley and Blackwood by orchid enthusiasts Harold Goldsack and Ray Nash as early as 1970 (presumably as a curiosity) and by 1984 Ray Nash had reported that *Monadenia* was germinating as a weed in orchid pots in his shade house (4). By 1975 Monadenia was being cultivated in orchid collections as far apart as Nangwarry in our South-east and Williamstown in the northern Adelaide Hills.

It was first reported as wild plants in Belair Recreation Park about 1987 when the Friends of Belair group had a working bee to remove these plants (5) and at an Eden Hills quarry later that same year. The first South Australian collection at the State Herbarium was one made in April 1988 during the NOSSA survey of Scott Creek Conservation Park and the first published reference to the species as a weed in South Australia appeared in the NOSSA Journal the following month (6). As these initial infestation sites are within 10 km of Coromandel Valley there can be little doubt as to the origin of this weed in our state. The seed is as fine as dust and each plant produces many thousands of seeds so wind dispersion is the obvious method of spread. Stories of seed in trouser cuffs of botanists who collected and pressed *Monadenia* in

Western Australia in the early 1980's (ie R.J. Chinnock 1981, R. Bates 1984) would seem un-realistic as neither of these botanists lives near the original introduction sites. Examination of the collections of *Monadenia* at the State Herbarium shows that by 1992 some twenty collections had been made in South Australia, mostly by Enid Robertson who as early as 1987 had begun a campaign to eradicate the weed: (All collections to 1992 had been made within 20 km of Coromandel Valley). The Native Orchid Society was soon involved in this eradication program. Posters and flyers dealing with *Monadenia* began proliferating as Enid attempted to have *Monadenia* declared a pest plant by the Dept of Agriculture. All to little avail!

Despite tens of thousands of plants being pulled up and burned and some fifty published references to the *Monadenia* problem in 5 years the population of this weed has at least doubled annually and the local spread has averaged some 10 km a year north and south. By 1994 there were huge infestations reported as far north as Mt Crawford and as far south as Second Valley - a distance of over 100 km. In 1995 *Monadenia* entered the Murray region near Eden Valley and was reported for the first time growing 400 km away in our South-east near the Victorian border at Nangwarry-Penola forest.

It is hardly a coincidence that the three centres of Monadenia distribution in South Australia ie Coromandel Valley, Williamstown-Mt Crawford and Nangwarry-Penola are the three locations where the plant was being cultivated 20 years ago!

There is little doubt *Monadenia* will continue to spread across South Australia and into Victoria and will even include road sides in semi arid areas by 2020.

In Western Australia *Monadenia* does not compete much with orchid plants and it is unlikely that there will be any problem in South Australia where it is largely confined to degraded areas. Friends of Park and other groups would be better off controlling woody invasive weeds and species which completely smother areas of quality woodland.

Finally a quote from Ray Nash (1984) "Monadenia bracteata is not one of the world's spectacular orchids. The flowers are small and in a tight spike growing from an untidy rosette of grass-like leaves. Perhaps its greatest asset is its eagerness to be on the move, get out, explore and colonise. If nothing else it has used man to its advantage."

REFERENCES

1. HMR Rupp Australian Orchid Review, Sept 1946
2. N. Roffman & A. Brown Orchids of South-West Australia, 1984.
3. N. Hoffman & A. Brown, Second Edition, 1990.
4. R. Nash. J. Nat. Orch. Soc. Sth. Aust., Dec 1984.
5. P. Reece, Pers. comm., 1987.
6. R. Bates, J. Nat. Orch. Soc. Sth. Aust. 12:33, 1988.

ORCHID VIRUS by DON GOWANLOCK

Continued from March issue

Detection using Immunosorbent electron microscopy (ISEM): In the EM, viruses do need to be in fairly high concentrations in order to be readily found. This problem can be overcome in some cases by using a specific antibody which selectively captures virus particles from the sap prior to the sample being placed in the microscope. Again this technique can only be used where electron microscope facilities exist.

Transmission

As previously mentioned viruses are very small and so can enter a plant through the smallest of wounds. These wounds may be the result of mechanical damage to the leaf surface or insect feeding punctures. CyMV and ORSV are easily spread from plant to plant by leaf contact, handling and pruning operations by you, the grower. Vegetative propagation provides an ideal means of spreading virus. As the virus is distributed generally throughout the infected plant, the virus goes along with each subdivision. Insects also play an important role in the transmission of viruses either in a non-persistent or circulative manner. The former is more correctly called stylet-borne-transmission. When efficiency of this type of transmission varies from 10 to 50% depending upon conditions. In a circulative type of transmission the virus is taken up by the insect and a time has to elapse while the virus circulates and in some cases multiplies in the insect vector. I suspect the large rhabdoviruses as well as the orchid fleck type rhabdovirus belongs to this group even though as yet no definite vector is known. Seed and pollen transmission does occur in other crops. No serious work on orchids has as yet been published except for one paper on pollen transmission of ORSV and CyMV. It has been reported that virus-free meristem tissue can occasionally be taken, but on the whole, mainstemming will result in infected plants if the original was infected.

Control:

Diagnosis is the first line of defence against virus infection. A new plant should not be introduced into your collection without knowing it is virus-free. Strict control on hygiene has to be practised within the orchid house through the use of sterile tools (washed in 10% trisodium phosphate) and adequate insect control. Immediately destroy plants confirmed as being virus infected.

TEMPERATURE CONTROL IN ORCHID FLOWERS by M. PHILIPS

Many plant species control the temperature of their flowers to make them more attractive to pollinators. In cold climates or in winter a warm spot would be most attractive to insects!

The Lotus lily (*Nelumbo* species) keeps its huge pink flowers at a constant 30°C both day and night through chemical and physiological methods. This amazing discovery was first made by botanists at Adelaide's Botanic Garden in the garden's famous Lotus Lily Pond. In alpine regions and in the tundra of the northern hemisphere many flowers are able to focus the sun's rays to create a warm spot for their insect pollinators.

Do any of our orchids do this? The answer is yes!

Our best known genus the greenhoods (*Pterostylis*) have flowers which are actually miniature greenhouses. The translucent, enclosed flowers allow the sunlight through: they heat up and store the warmth to help entice insects. A large proportion of our South Australian Pterostylis species flower in the winter when warmth is a real attraction to insects.

The sun worshippers of the genus *Thelymitra* (the sun orchids) work their control differently. They tend not to open unless they are warmed by the sun in the first place. Secondly the cup-shaped flower with their convex tepals reflect and concentrate the sun's rays in the centre of the flower. This warmth is an added attraction to the bees which pollinate the sun orchids (Sun orchids are floral mimics of vernal lilies which also use this method of temperature control!)

Some of our orchids are suspected of altering the temperature of their flowers by chemical means so that they are at times warmer than the ambient temperature. In cool weather native

bees cluster on the labellum of *Diuris behrii* flowers. Yellow flowers are often known for their ability to concentrate warmth from the sun but *D. behrii* flowers are most attractive to the bees in overcast conditions so it is likely that they use some other method to raise their temperature.

AN ORCHID GARDEN IN LAUNCESTON, TASMANIA by H.M.R. RUPP
(Extracted from Orchid Review, September, 1946

Those readers who are interested in our native Orchids may like to hear what a young Launceston enthusiast, Neil Burrows, is doing in the way of growing plants at his own home. He has been corresponding with me for several years, and I can testify both to his enthusiasm and his keen powers of observation. He has discovered a new species of *Thelymitra* on the Tamar River; a possibly new *Prasophyllum*; a *Caladenia* previously unknown beyond NSW; and many other "treasures of the bush."

When the Editor of this journal visited my home recently, I showed him a photograph of Neil's "Orchid Garden" and, as is the way of Editors, he immediately suggested that I might provide something for the "Review" on the subject. I therefore inflicted upon Neil a sort of questionnaire (terrible word!), and I think it will be a good idea to give you his answers to my questions in practically his own words. He explains that he has not replied to certain questions I put about raising the native Orchids from seed, because as yet he has not succeeded in mastering the difficulties in this direction; but he is studying ways and means, and personally I have no doubt that in time his perseverance will be rewarded. He remarks, in presenting his answers, that his "Orchid Bed" is 70 square feet in area; and that he grows other wild flowers with the orchids to make the conditions as natural as possible.

Here, then are my questions and Neil's answers:

Q. - When did you begin to cultivate native orchids?
A. - In 1939, first of all in tins. My orchid bed was started in 1942.

Q. - Are they all from what we might call the Launceston-Tamar River area?
A. -Most of them come from this area: a few come from more distant places; eg *Dendrobium striolatum* from the East Coast, and *Pterostylis cycnocephala* from Stanley, in the opposite direction.

Q. - Do they include species from both mountains and lowlands?
A. - Yes.

Q. - When preparing your orchid bed, did you use any special methods?
A. - Yes. I placed on top of the old garden soil a 2 inch layer of small pieces of brick, basalt rock, charcoal, etc., to provide drainage, and to separate the old soil from that in which my orchids are planted. Above this "drainage layer" from 4 - 5 inches of bush soil was added, and the orchids were put into this. For orchids which like wet conditions, like *Thelymitra venosa* and *Cryptostylis subulata*, I placed a sheet of iron with a few holes in it, immediately under the drainage layer, and this portion of the bed I made perfectly flat.

Q. - do you always bring some of the earth the orchids were growing in, when transplanting them from the bush?
A. - No, not always. I use either soil from the same area or a mixture of soils from different localities. The orchid bed has many pure soils and soil mixtures; bush soils only are used.

Q. - Do different species require different kinds of soil?
A.- Most of our orchids will grow in the same type of soil, particularly in brown iron-stone. Many of the Greenhoods are not particular, and do well in a variety of soils. Others, however, are not so adaptable. *Pterostylis grandiflora* and its namesake *Thelymitra grandiflora*, for instance, will thrive only in chocolate ironstone soils:

Q. - What have you found the easiest species to grow?

A. - *Pterostylis pedunculata, curta and nutans*; *Caladenia patersonii, clavigera and carnea; Eriochilus cucullatus*.

Q. - On the average are the flowers in your orchid bed larger than, smaller than, or the same size as those in the bush?
A. - On the average, species of *Pterostylis* are larger; but most of the others are about the same size.

Q - Can you give us a list of the orchids you are growing successfully?
A. -*Thelymitra ixioides, nuda, grandiflora, pauciflora, retecta, rubra, venosa and cyanea: Diuris maculata* and *pedunculata: Prasophyllum fuscum* and *patens: Chiloglottis reflexa: Acianthus exsertus* and *reniformis*; *Eriochilus cucullatus: Caladenia patersonii, clavigera, angustata, dimorpha* and *carnea: Glossodia major*: *Cryptostylis subulata: Pterostylis concinna, curta, nutans, nana, pedunculata, foliata, decurva, grandiflora, longifolia* and *parviflora*.

Q. - Have you ever tried to grow the Hyacinth orchid, *Dipodium punctatum*?
A. - Yes, but I have had no success.

Q. - Are the plants in your orchid bed reproducing themselves, either by seed or by the vegetative method?
A. - Species which are found growing in "colonies," eg *Pterostylis curta, P. pedunculata*, etc., are rapidly increasing by the vegetative method. Other orchids, such as *Glossodia* and *Diuris*, also increase, but very slowly, by this method. My orchids also produce seed, but up to the present there has been no increase of plants by this means.

Well now, I feel sure we shall agree that the Burrows orchid Garden in Launceston deserves all the encouragement we can give it. Its owner is doing his utmost to preserve and propagate our dainty little terrestrials, which alas! are in so many areas disappearing rapidly before the ruthless march of settlement. The photograph of Neil's treasures shows what can be done in quite a short time by studying the conditions and requirements of these humble but fascinating members of the great orchid family.

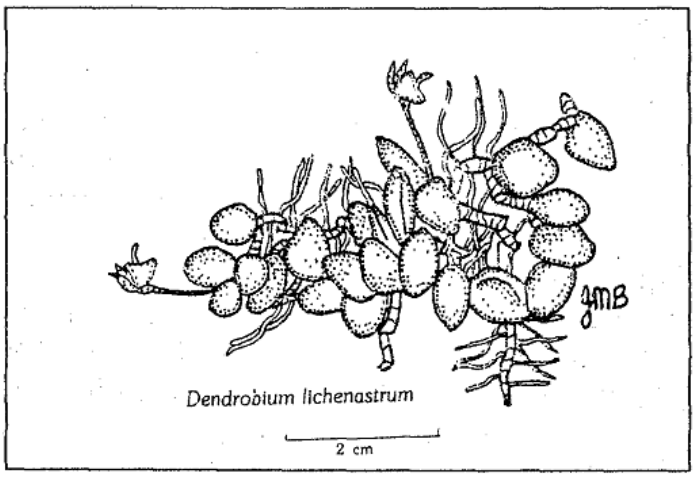
AUSTRALIAN DENDROBIUMS NO. 16
Dendrobium lichenastrum (F. Muell.) Kranzlin

The name indicates the spreading lichen like habit of this tiny species which forms large patches on trees and rocks in rainforest and humid open forest mostly above 500 metres. Largely confined to the higher ranges of north-east Queensland from Mackay to Cape York.

The sterns are as fine as lichen, about lmm thick and rooting as they spread, the leaves are usually less than l cm across and globular. The flowers are butterscotch-like and less than l cm across, creamy or yellow with subdued red stripes.

Sometimes confused with D. prenticei which does not have globular, oppressed leaves.

Occasionally grown in Adelaide but the low humidity here makes the roots susceptible to shrivelling and drying out. Usually grown on cork but needs bits of sphagnum attached in Adelaide to keep up moisture levels. Some of the largest patches can be seen on rock faces in the ranges north of Mackay.



Third
Australasian
Native
Orchid
Conference

96

To be held at
The Flinders University
Adelaide, South Australia
26 - 30 September, 1996

Address correspondence to:
Hon. Secretary, NOSSA, P.O. Box 565
Unley SA 5061

Display Areas The following areas are available for Floor and Table Top Displays:

Floor Area: standard size 3 metres x 2 metres but larger or smaller areas may be arranged
Table Top Display: 1.7 metres x 0.8 metres and 2.5 metres x 0.8 metres (and multiples of)
Mini Table Top Display: 0.8 metres x 0.8 metres

It would be much appreciated if you would let Show Marshall Bill Dear know your intentions regarding your planned display(s) as soon as possible. A clip-board will be sent around at the April General Meeting. We want every available Australasian Native Orchid to be on display at the Conference and you should also bring the orchids that you are not using in your display to the Show as they too will prove useful as fill in plants. For example we will need some terrestrials for the Mt Lofty Ranges backdrop display.

Request for Members to Assist
Several Members have asked how they may assist the Committee of the Third ANOS Conference and Show. Well there are many ways. Many many in fact. Tasks include meeting registrants at the airport and taking them to their respective hotels, transporting plants to and from the Show, setting up and taking down displays, setting up the art/photographic and other exhibits, collecting money, checking entry badges and selling raffle tickets at the Conference (you nominate the times you would like to be on duty), assisting speakers with their slides, building forms for displays, painting, making artificial rocks, loaning plants such as ferns and other natives, loaning rocks and other interesting natural material to enhance displays, filling registrants satchels, handing out satchels and other material to registrants, meeting and guiding VIPs, working on the NOSSA trading table, sign painting, and etc etc.

Who should you see? The following Committee Members will all be able to point you in the right direction::

Jill and Reg Shooter, Helen and Charlie Edwards, Pauline and Geoff Edwards, Jill Taylor, Joan and John Peace, Julie Harrington, Thelma O'Neill, Sylvie Creed, Les Nesbitt, Roy Hargreaves, Ron Robjohns, Neil Christoph, Bill Dear, and Gerry Carne

Trellis Wanted
The Conference Committee is looking for the loan of lots of trellises to be used as backdrops for the Conference Show in September. Bill Dear (296 2111) would like to hear from any one who might be able to assist us in this regard, or who might have some connections with manufacturers/distributors etc.

Sponsored by: The Council of the Australasian Native Orchid Society Inc.

Hosted by: The Native Orchid Society of South Australia Incorporated.