

NATIVE ORCHID SOCIETY
of
SOUTH AUSTRALIA INC.
JOURNAL



Caladenia menziesii R.Br.

NATIVE ORCHID SOCIETY OF SOUTH AUSTRALIA Inc.

JOURNAL

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NEXT MEETING

Tuesday, 22 April 1986 at 8.00pm, St. Matthews Hall, Bridge Street, Kensington

Speaker will be Mr R. Bates who will talk on "Orchid Adventures in Western Australia"

NEXT FIELD TRIP

Saturday, 3 May 1986 to Knott Hill. Meet Meadows Hotel at 2.00pm. [This trip previously planned for April, has been put back to May as the area had been without rain this year, even into early April].

PRESIDENT'S REPORT 1985-86

The end of the 1985 year sees the completion of yet another interesting successful year for the Society. Each succeeding year sees the Society grow from strength to strength, this year has been no exception.

Our membership continues to maintain its growth rate stabilising at around 300 members. In common with many special interest groups membership is somewhat volatile, however, the fascination with Australian Native Orchids appears as strong as ever to an increasing number of people. An interesting and satisfying observation is the number of younger people joining the Society.

Our monthly meetings have been well patronised, with an average of 65 members attending to listen to a variety of speakers talking on a variety of subjects. One of the continuing and most difficult tasks facing the committee year in and year out, is obtaining suitable speakers for 10 meetings each year and I take this opportunity to ask you, if you know of anybody who would be willing to talk to a meeting for 30 minutes or so, on a subject relative to our interests, please advise any of the committee members.

In 1984, the Society formed a conservation group with the aims, among other things, of disseminating the knowledge, mainly to the young, that our native orchids were

being threatened and were in some instances in danger of extinction. The first year was all hard work for that sub-committee, and at times very frustrating. It is only this last year they have seen their efforts reach fruition, thanks to those efforts, the Society now has several illustrated modules showing various facets of conservation on temporary loan to a number of National Parks and Conservation Parks. At show times, these modules are used as an adjunct to the orchids, where they elicit great interest from the public. In association with a number of other conservation minded societies, we are mounting an exhibition using these modules at the Constitutional Museum, in March this year.

The conservation sub-committee was also responsible for the production of a 'pic-a-pac' kit, consisting of slides and printed material to be issued to schools throughout the State to be included in the school curriculum.

The Society has been very much involved with shows this year, mounting three in all. For the first time we were invited to mount a display of Australian native orchids at the Royal Show. This we did in conjunction with an exhibit of the underground orchid *Rhizanthella gardneri* raised and grown by Dr Walkup. Reports back from the show committee of Orchid Club of South Australia, the host club, indicates that this was one of the main attractions at the Royal Show, and have invited us back this year.

Our own Spring Show was of the same high standard as usual, and with the introduction of a photographic competition and extended trading area (plus a little help from the weather), attracted well over 1000 visitors. This show is the means by which the Society raises its funds enabling it to keep the annual subscriptions to a minimum.

By the time the S.G.A.P. show came along, everybody involved was feeling a little jaded, however, members responded magnificently and in the end it was agreed that this was possibly the best S.G.A.P. show the Society has mounted.

Looking forward to 1986 with the advent of the 10th Australian Orchid Conference being held in Adelaide, to which N.O.S.S.A. has been invited to exhibit, we will be involved in four shows in total. These will require lots of plants and our resources will be stretched to the limit, so please, if you have an orchid in flower at the time of the shows bring it along, you do not have to have a shadehouse full, just one pot from each member would be enough. Remember the old lady and the sea? Every little bit helps.

You will have noticed, I hope, that the quality of the printing of the journal has improved in the last couple of issues. Since the inception of the Society, in March 1977, the journal has been printed by Gestetner, which involves cutting stencils, filling the machine with ink, manually

rolling the sheets of paper, etc. A very time consuming and often messy business. This work has been done year in and year out, by a dedicated band of workers, ably led by Roy Hargreaves. In recent months, the machine, which was not new when we purchased it, has started to show signs of deteriorations, resulting in wasted paper and duplication of work. As a result of this, the committee decided to look for alternatives. To have the journal printed commercially was out of the question, the cost was prohibitive, so after much investigation, it was decided to use the process of Photostatting. It is less labour intensive and results in an even and good quality reproduction, even allowing photographs and drawings to be reproduced. The cost is slightly higher, but as mentioned earlier, due to our financial situation through successful shows, can be absorbed.

I would like to take this opportunity to thank all those members who, over the years, have given their time and effort to ensure that the journal got printed and issued on time. The Society owes a debt to those members. Thank you.

Whilst on the subject of thanks, I would like to record a vote of thanks to Don Wells, who has been responsible for the running of the tuber bank since its inception. This project has a two-fold purpose, it raises Society funds, but more importantly, it enables growers to obtain species that perhaps would not be otherwise available, except by illicit means and therefore protects those species from being obtained illegally. Don has had to give up these duties due to a variety of reasons, but the tuber bank will continue to function as before.

Perhaps the highlight of the year was the A.N.O.S. Victoria group visit to Adelaide in September. Some twenty members joined with N.O.S.S.A. members for a weekend of field trips, slide evening and socialising. A most enjoyable and informative weekend ensued culminating in a presentation to our Society library of two magnificent orchid books and an invitation to members of a reciprocal weekend in Melbourne in 1986.

Finally, I would like to say thank you to ALL the members who participated in the Society's various activities during the year, with particular thanks going to the committee members, who work unceasingly throughout the year, to make the Society tick, the trading table operator, the librarian, the raffle ticket sellers, etc. Without volunteers to help with the hundred and one things that have to be done, there would be no Society. I quote, with apologies to John F. Kennedy, "DO NOT ASK WHAT THE SOCIETY CAN DO FOR YOU, BUT WHAT YOU CAN DO FOR THE SOCIETY".

Thank you!

R. Shooter

REPORT OF THE MARCH MEETING

Native Orchids Benched:

EPIPHYTES

Cadetia taylori, *Dendrobium bigibbum* var. *superbum*, *D. Ellen* (*D. kingianum* x *D. tetragonum*), *D. lichenastrum* var. *prenticii*, *D. unknown species* ex Bali, *Liparis reflexa*.

TERRESTRIALS

Eriochilus dilatatus, *Prasophyllum nigricans*, *P. rufum*, *Pterostylis abrupta*#, *P. baptistii*, *P. fischii*, *P. longicurva*, *P. affin. longicurva*, *P. ophioglossa*, *P. revoluta*, *P. truncata*.

= first time seen at NOSSA.

Plant Commentary:

Commentary on the epiphytes was given by Gordon Brooks. Gordon noted that the *Dendrobium Ellen* which we had seen last month at NOSSA, and had been shown previously at the meeting of another orchid society, had finally run out of new flower buds. He noted that *Cadetia taylori* seemed to do well mounted and generally required heat to grow and flower well.

A favourable attribute of *Dendrobium lichenastrum* var. *prenticii*, despite its tiny flowers was that it tends to flower when most other dendrobiums are not. Gordon noted that the compact form of *Dendrobium bigibbum* var. *superbum* could be grown cold, but for optimal growth and flowering, that at least a cold glasshouse was required for Adelaide winters for this species.

Commentary on the terrestrials was provided by Don Wells. Don opened his commentary by noting that species from all the eastern states, South Australia and Western Australia, were on show this evening. Don also announced that plants of *Phaius tankarvilliae*, propagated from flower stalks would be available after the meeting. The pieces had been sent to us from New South Wales. On reviewing the plants benched further, Don considered that most of the species benched would be suitable for beginners to grow. Don suggested that unlike the majority of *Pterostylis*, the Queensland form of *P. baptistii* benched had only a very short (about 1 month) dormant period and needed to be watered once that period had passed. The form benched had an uncommonly dark coloured galea.

As last months commentator mentioned, Don considered that the early flowerings of *P. revoluta* and *P. fischii* should be avoided if possible in view of the potential for thrip attack at this time of year. With respect to *P. fischii*, Don added that he considered this species may require to be kept slightly damp in view of the prevailing naturally damper conditions of its usual habitat. Don especially recommended *P. truncata* and *P. ophioglossa* for beginners.

Two plants of *P. longicurva* benched differed a little in the labellum character. This lead to the comment that one of the plants benched may ? . . . ? be labelled as *P. spp. affin. longicurva*. ? . . . ? *P. abrupta* which has just recently been described and named, Don referred members to a recent article in the Orchadian. Don noted that *Eriochilus cucallatus* was conspicuous by its absence and noted that *E. dilutatus* differed from *E. cucullatus* in that its leaf was lofted up on the stem rather than low to the ground as in *E. cucullatus*. A superbly grown pot of *P. revoluta* attracted favourable comment from Don and went on to win popular vote in its section.

SPEAKER

Les Nesbitt showed slides of awarded plants. In opening his presentation, Les stated that since NOSSA was headed for its 10th Anniversary next March, that growers should be encouraged to produce award-quality plants. He encouraged growers to aim at producing specimen plants or specimen pots (if terrestrial orchids) and commented that though most awards thus far have gone to terrestrials, there should, by now, be award quality epiphytic orchids amongst NOSSA members' collections.

Slides shown of awarded plants included:

Dendrobium aemulum, *Sarcochilus hartmanii*, *Dendrobium x gracillimum*, *Diuris punctata*, *D. longifolia*, *D. maculata*, *Pterostylis x ingens*, *P. nana*, *P. nutans*, *P. scabra* var. *robusta*, *Caladenia dilatata* and *Acianthus exsertus*.

Les then went on to inform members that they could nominate their own plants for award judging by contacting Les, who would then organise a judging panel or the plant may be proposed for an award by the committee during any monthly meeting, or NOSSA show. He further discussed NOSSA rules pertaining to the awarding of plants and requirements of plants and exhibitors. Les suggested that country members seeking to have plants awarded should photograph the plant(s) concerned and send them to the NOSSA Secretary for consideration. A further set of slides of plants (in order of screening) which have received NOSSA awards was then shown.

These included:

1) <i>Dendrobium speciosum</i>	c.c. 1978	R. Haese
2) <i>Caladenia pattersonii</i>	c.c. 1979	R. Bates
3) <i>Caladenia rigida</i>	c.c. 1979	L. Nesbitt
4) <i>Diuris Pioneer</i> var Big Ears	c.c. 1979	L. Nesbitt
5) <i>Pterostylis longifolia</i>	c.c. 1981	R. Bates
6) <i>Pterostylis Cutie</i>	c.c. 1981	-
7) <i>Dendrobium Bardo Rose</i>	c.c. 1981	L & R Moore
8) <i>Caladenia catenata</i>	c.c. 1981	G. Nieuwenhoven
9) <i>Pterostylis cucullata</i>	c.c. 1983	H. Goldsack

10) <i>Pterostylis curta</i>	c.c. 1984	W. Walloscheck
11) <i>Dendrobium</i> Rosemary Jupp	c.c. 1984:	B. Bailey
12) <i>Caladenia dilatata</i> var. <i>suavolens</i>	c.c. 1984	D. Wells
13) <i>Caladenia dilatata</i>	c.c. 1985	D. Wells

Les mentioned that people seeking to have terrestrial orchids awarded, would be advised to plant tubers of the same clone to maximise their chances.

K. Western

THE AQUARIUM ORCHID-MINDER: SOME NOTES IN RETROSPECT

In the N.O.S.S.A. Journal of August 1984, I wrote an article entitled "Fishy Business", wherein I described the maintenance of young, small seedling plants of Australian native *Dendrobium* and *Sarcochilus* and of some exotic genera and hybrids in a modified aquarium, which had about 4" of rainwater at the bottom, maintained at a minimum of 20°C by a thermostatically controlled aquarium heater. Air movement in the aquarium was provided by means of a 240 volt mini fan of the type used to cool power supplies of computer circuits (the one I used cost approx. \$25.00).

Native orchid plants grown in the unit included *Dendrobium tetragonum* var. *hayesianum*, *Den.* "Pee Wee", *Den. tetragonum* var. *giganteum* x *Den. tetragonum*, *Den. kingianum*, numerous other very small hybrid dendrobiums, *Sarcochilus fitzgeraldii* and some *Sarcochilus* hybrids. (Only a *Dendrobium kingianum* and a *Laelia* appeared to be unhappy in that environment and both died).

Plants in the aquarium were misted twice and sometimes three times a day, and fertilised two to three times a week with very dilute aquasol-based fertiliser. If misting was reduced to once a day or omitted, the plants soon showed signs of desiccation - with twice to three times a day, all went well.

The exotic orchids fared especially well, as did one of the *Sarcochilus* hybrids. The species and hybrid dendrobiums progressed reasonably well, also I suspect that they would have fared better if the foliage was misted regularly, while the potting mix was thoroughly wetted once a week instead of two to three times a week, I noted that plants in locations that were harder to reach to give a thorough pot-watering, had better roots in the compost and corresponding by better overall growth.

Another problem, which eventually necessitated the shut down of the system and removal of plants from the aquarium, was that the fluorescent lights, permanently fixed in the set-up I employed, were too close to the aquarium and were too "boxed in" for the heat they generated to escape and so the temperatures inside the aquarium became higher than was desirable - (when I eventually build a "Wardian case", the

aspect of heat avoidance and/or removal from light sources, will be given special attention). During summer especially, the heating effect from the fluorescent lights was too great to permit continued use of the unit and as plants were generally hardier and larger, I transferred them to various suitable, sheltered locations outdoors, where they have continued to grow.

To sum the system up, I consider that it worked reasonably well. If I were tailor-making a similar small system to support seedlings, until they reached a size where they could be grown outdoors, I would recommend:

1. The artificial lighting source should be external to the unit and have free air-flow around it.
2. The thermostatically controlled aquarium heater should have been run at a higher temperature than was chosen, to produce a greater rate of evaporation and hence create higher relative humidities in the aquarium.
3. I saw no sign of fungal attack on plants at any time during their stay in the aquarium. I believe that the fan contributed significantly to the overall drying effect and the need for frequent misting. I believe that there would have been sufficient air movement to avoid fungal attack if the fan were controlled by a timer and only ran for 5 to 10 minutes during each hour.

During this year, I have tended to employ plastic bags to store small seedlings purchased from the eastern states and those removed from my own flasks.

Growth has been extremely satisfactory, with good survival rates generally. The seedlings were planted in fine compost including up to 10% finely shredded Sphagnum moss in the upper 39mm of compost. The pots were then placed in smallish plastic bags, sealed with a rubber band and placed in a well lighted (no direct light), location in a built-on verandah. Temperatures ranged from about 9°C minimum overnight to the occasional 30°C maximum for a short time during some days. The draw-back of the system is that it is frustrating, and time consuming to open the bags and reseal them to be able to apply foliar fertilisers - and there is no doubt that they grow far better with fertiliser than without. With the experience gained so far from the aquarium-based system, and the plastic bags, I think my next venture will be to produce a rough version of a Wardian case employing a light framework to support clear plastic sheeting. I will locate the unit in my verandah, employ a fan to provide air movement for about 5 to 10 minutes per

hour and rely on a good supply of indirect sunlight with perhaps some contribution from fluorescent lighting during winter. Instead of water, on the floor of this unit, I will employ wet sphagnum moss and just rely on the room temperature to meet the plants needs. If all goes well, there will be a report in some future Journal.

K. Western

CAN BOTANISTS BENEFIT FROM BUSHFIRE RESEARCH?

by R. Markwick

Members may be interested to learn that considerable research has been done both here and overseas, into the effects of fuel reduction burns in native forests. Since 1977, a team of Australian scientists has been studying the effects of such burns on several sub-alpine dry sclerophyll forests typical of large areas of mountain forest in south-eastern Australia. In recent years, many of us have observed the disastrous effects of uncontrolled fire in this, a principal habitat of much of our indigenous flora, including, of course, numerous species of native orchid. Such fires usually begin with a potent mixture of highly flammable eucalypt fuels, strong winds, and heatwave conditions. Foresters seek to prevent the excessive build-up of fire fuel by hazard reduction burning, generally every 3-8 years.

A principal aim of the Australian research has been to study nutrient recycling, with a view to being better able to predict the long-term effect of repeated burns. Some of the findings are discussed in the Summer 1984/85 edition of the CSIRO Journal, 'ECOS', and they make very interesting reading. While it may not be scientifically valid to extrapolate these findings, to draw any conclusions about the nature and extent of fire-induced nutrient recycling in South Australian forests, perhaps the results are not inconsistent (at least in principle) with what could be expected here. This opens up an interesting area for discussion.

It is well known that depending on a fire's intensity, the effect can be beneficial to the flowering of some species, while for others it can be quite devastating - resulting in local extinction in some cases. Why some plant species are stimulated to prolific flowering only after a fire is poorly understood. Suggestions including increases soil temperature, more available light, growth of soil fungi or perhaps the release of nutrients, have all been advanced as possible reasons by various authors.

If we are to see the continued survival of our native forests as substantially stable eco-systems, it is obviously of paramount importance to gain an insight into the effects of fire, by studying the time between burns, fire

intensities, times (seasons) of occurrence, soil and vegetation characteristics, nutrient recycling, etc. Notwithstanding its lesser importance on the scale of priorities, the enigma of fire stimulated flowering (especially of certain orchid species), could well provide an interesting area for research by sufficiently motivated members of the scientific community. It seems to me possible, that bushfire research may provide clues for anyone seeking the answer(s). CSIRO research has uncovered the following facts:

- Most Australian forests grow on nutrient-poor soils that receive only very low rates of nutrient input from weathering, rainfall, or nitrogen-fixing understory shrubs. Such communities are likely to be sensitive to disturbance by regular burning.
- Very little documented information exists on the effects of fire on the soil, particularly on biological processes related to nutrient recycling and soil fertility.
- The rate of litter decomposition in forests affects the amount of organic matter in the soil, and the rate at which nutrients in litterfall are recycled to a form available for re-use by vegetation.
- The major release of organically bound nutrients does not occur until the litter has undergone several years of decay, when decomposition rates increase as leaves break up and are incorporated into lower, moister, litter layers.
- After burning, the amount of solar radiation absorbed by the forest floor increases, hastening the rate of drying of the remaining and newly fallen litter after rain, reducing litter decomposition rates.
- After a low-intensity fire, litter accumulates very rapidly at first, primarily because the total amount decomposing on the forest floor decreases markedly, while rates of litter input remain as high as before.
- After fires, it takes only 3-6 years for litter to accumulate to dangerous levels. This severely limits the period during which prescribed burning provides protection from wildfire.
- Substantial amounts of the major nutrients, nitrogen and phosphorus, are lost to the atmosphere during fires.
- Nitrogen lost in smoke may be replaced by rainfall and nitrogen fixation by native plants such as *Acacia*, which often proliferate after burning.

- About 10-12 years are needed between prescribed burns to permit natural inputs of nitrogen to approximately replace the amount lost to the atmosphere in a single fire. Rates of nitrogen fixation, however, may increase after a fire.
- Frequent burning with low-intensity fire can alter the understory species composition, e.g. in some instances, non-leguminous species have replaced important nitrogen-fixing legumes.
- In the short term, fire mobilises nutrients by incinerating organic material to create ash and by heating the soil.
- Nutrients transported into the atmosphere during fire either go up in smoke particles or are directly vaporised. How much of an element is lost in the form of a gas or solid particles depends largely on its vaporisation temperature and on fire intensity.
- Temperatures in forest fires vary widely - glowing combustion occurs at about 650°C, while woody fuels produce flame temperatures of about 1100°C.
- A high proportion of the nitrogen and sulphur in vegetation fuels is volatilised during combustion.
- Carbon, nitrogen, and sulphur are vaporised at low temperatures. The vaporisation temperatures for inorganic forms of other elements range from relatively low for phosphorus and potassium (774°C) to relatively high for calcium (1484°C) and manganese (1962°C).
- Because calcium is not volatilised even at the temperatures generated in most bushfires, there is a higher ratio of calcium to other elements in the burnt residue.
- Fire concentrates most elements in the ash residues. In comparison with unburnt litter, concentrations in the ash have been found to be 10- 50 fold higher for calcium, 10-35 fold higher for magnesium, and 10 times higher for phosphorus.

Here is a piece of lateral thinking. Is it possible that some organic or inorganic substance normally suppresses flowering in some species, and that a sudden fire-induced depletion of the substance is the mechanism that actually triggers flowering?

Reference:

Considine M.L., (1985): "Prescribed Burning and Forest Nutrition", ECOS 42 (CSIRO), Summer 1984/85, 9-12.