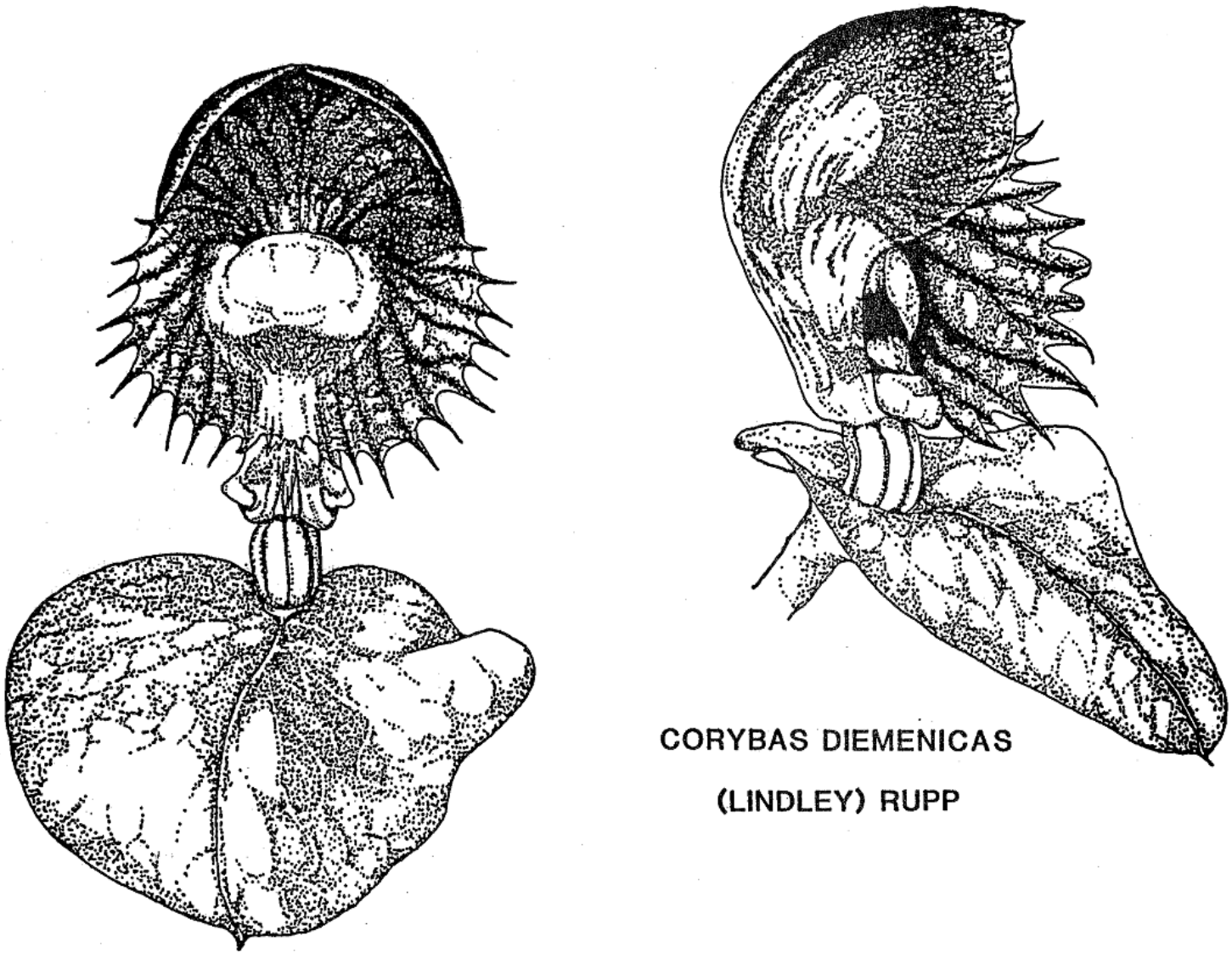
NATIVE ORCHID SOCIETY

of

SOUTH AUSTRALIA INC.

JOURNAL



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NATIVE ORCHID SOCIETY OF SOUTH AUSTRALIA INC.

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 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.

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December 1989 Vol. 13 No. 11

NEXT MEETING

Tuesday, 27 February, 1990. St Matthews Hall, Bridge Street, Kensington. Visitors welcome.

The meeting topic for February will be "A Picnic at Scott Creek " - a report on the 1988 NOSSA Survey of Scott Creek Conservation Park - by members who participated.

NOVEMBER MEETING

Instead of the regular monthly speaker segment the Society once again held a plant auction with Mr Les Nesbitt as the "Auctioneer". The auction was very successful, raising a total of $475 and our thanks go to Les and his helpers. A break-up supper was held after the auction.

COMMITTEE BRIEF

The Management Committee of NOSSA wish all members and their families a Merry Christmas and a Happy New Year.

NOVEMBER MEETING - DETAILS

PLANTS BENCHED :

Terrestrials: *Diuris drummondii* "Butterfly", *D. venosa, D. brevifolia, D. emarginata, Microtis parvifolia, Pterostylis rufa, Elythranthera emarginata*.

Epiphytes : *Sarcochilus Melba*, *S*. Fitzhart, *S*. Lois x Fitzhart, *Dendrobium agrostophyllum*, *Cymbidium suave, Phaius tancarvilliae, Dendrobium trilamellatum*.

COMMENTARY:

Terrestrials: Mr Bob Bates

Epiphytes : Mr Don Wells

(Because of the plant auction and break-up no popular vote or plant judging was carried out.)

CULTURE COMMENTS:

Mr Les Nesbitt gave a brief update on watering of terrestrials during summer months. Les advised that while swamp orchids need to be kept damp all the time, other species such as greenhoods, etc., do not need any water for a few weeks and then the top of the pots can be kept just damp. Too much water will result in tuber rot. With repotting, Les suggests the use of "White King" as a sterilising agent for pots.

Mr Reg Shooter advised members that they should be well into their epiphytic repotting programme and that the coming weeks were a critical time with new growths forming. Snails and caterpillars have a particular fondness for new growth and growers should take steps to protect their plants. Reg also suggested that plants could use less fertiliser at this time of the year, however, he stressed that in hot conditions growers must be careful of their watering programme. In addition, Reg suggested that shade conditions in summer should be reviewed as most plants will require more than 50% during this period.

FIELD TRIP

The first Field Trip for 1990 is the traditional Dipodium Special.

Sunday, January 14. Meet Uraidla Post Office, 8.30 a.m.

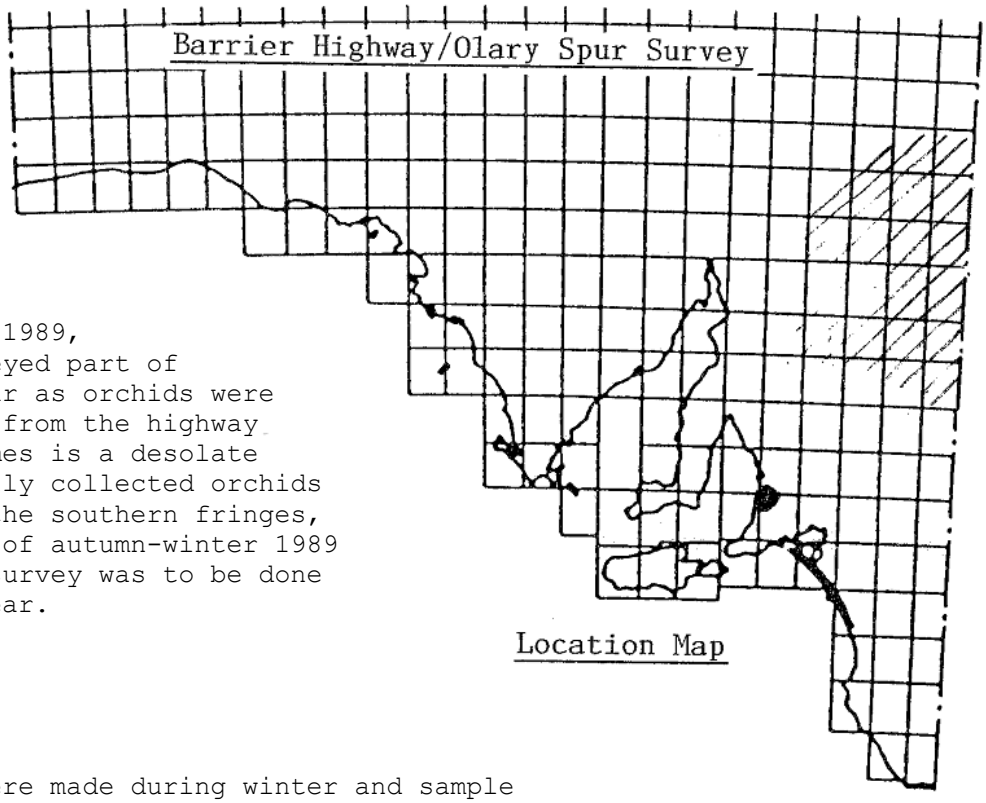
RECENT NAME CHANGES

A paper by David Jones and Mark Clements, published in September 1989, removes all the Midge orchids from *Prasophyllum* and places them in the genus *Genoplesium* R.Br.

The South Australian species involved are: *Genoplesium archeri* (i.e. previously *Prasophyllum archeri*), *Genoplesium despectans*, *G. morrisii* (collected in South Australia for the first time in 1989), *G. nigricans* and *G. rufum*.

Reference: Jones, D.L. and Clements, M.A. "Reinterpretation of the Genus *Genoplesium* R.Br.", Lindleyana R(3:139-145) 1989.

RESULTS OF BARRIER HIGHWAY SURVEY 1989



The vast area of semi-arid, drought-prone pastoral country stretching for 100 kilometres on either side of the Barrier Highway between Oodla Wirra and Broken Hill (an area almost the size Tasmania) was, until 1989, the most poorly surveyed part of South Australia as far as orchids were concerned. Certainly from the highway the scene at most times is a desolate one. I had occasionally collected orchids here, especially on the southern fringes, but the record rains of autumn-winter 1989 indicated that if a survey was to be done 1989, would be the year.

Methods:

Five weekend trips were made during winter and sample rosettes of plants were removed to be flowered on in Adelaide.

Examples of most species collected were forwarded to David Jones in Canberra for identification and duplicates lodged at the State Herbarium Adelaide. Photographs of habitat and flowers were taken. The plants will be kept at the R.S. Roger's Orchid House until conditions are suitable to return them to the wild.

Results:

Despite the degradation caused by over 100 years of grazing and depredation by rabbits and goats (often in plague proportions) orchids still remain in protected sites. Apparent losses have been great in the last 20 years, i.e. a large population of an undescribed *Pterostylis* on Mt Pepuarta near Mannahill was marked in the early 1970s. In 1989 the site was overgrown with weeds, rabbits were thick and no orchids of that species located.

The most frequently encountered orchids were *Pterostylis* of the rufa group. Of some ten species collected only two belonged to named taxa (*Pterostylis biseta* of several forms [including the largest I have seen], were located at several widely spaced locations, i.e. Weekeroo, Pualco, Oodla Wirra and *P. mutica* at Pualco, Oodla Wirra and Maldorky Hills). The eight undescribed species included several never before collected! (See illustration.) The richest areas for these included the magnificent granite domes and springs between Old Boolcoomatta and Cathedral Rock - there were three very beautiful species here: the Pualco Range near Bearmar with its grass-tree topped razorback ridges has a species very similar to the recently named *P. cobarensis*. Other new species were found near Oratan Rock, Kalabity, Plumbago and Bimbowrie. The only other Pterostylis collected was *P. robusta* (at Pualco some 60 kilometres out of its previously known range).

In addition to the *Pterostylis*, species of several other genera were found. *Caladenia toxochila* was located near Oodla Wirra and further north-east than ever before at Ontalpa. *Prasophylum patens* was found at Oulnina Park and Maldorky - again some 100 kilometres outside its known range. *Microtis unifolia* was discovered at the spring, 200 metres from Old Boolcoomatta Homestead - this turned out to be of a form not previously seen in South Australia and extended the known range of the species by over 100 kilometres.

Results of the Barrier Highway Survey 1989 (contd.)

How is it that so many species were located in an area receiving less than 250 mm rainfall per year, an area so badly degraded and so prone to drought and with no conservation parks and why were so many of them new species? The answers lie in the varied topography, the diverse geology and the rocky terrain. Although there are no forests and no sizeable areas of scrubland or mallee the scattered rocky outcrops have enough cover of bushes and native grasses to provide shelter for these "not-so-delicate" orchids.

Of course the survey is by no means complete and other species can be expected in areas not yet explored.

Orchid list:

Caladenia toxochila, *Microtis unifolia*, *Prasophyllum patens*, *Pterostylis biseta*, *P.* aff. *biseta*, *P.* aff. *carbarensis*, *P.* aff. *mitchellii*, *Pterostylis* sp. nov. "sandstone", *Pterostylis* sp. nov. "granite", *Pterostylis* sp. nov. "quartz", *Pterostylis* sp. nov. Mt. Victoria uranium mine, *Pterostylis* sp. nov. "Old Boolcoomatta", *Pterostylis* sp. nov. "Oratan Rock" , *Pterostylis mutica*, *Pterostylis robusta*.

I would like to thank the land owners who allowed me access to their leases (some unfortunately did not). Thank you also to Bob Markwick who showed me an invaluable Department of Mines publication on the geology of the area.

R Bates

ORCHID RAMBLES IN VICTORIA

(Continued from November Journal.)

Everett and Margaret Foster very generously hosted my stay in Geelong, introducing me to some of their favourite orchid areas within easy reach of the city.

Inverleigh Common (25 kilometres west of Geelong)(5), and Bannockburn (20 kilometres north-west)(6), were visited as an outing organised by ANOS Geelong. ANOS members from Melbourne also attended. At Inverleigh, several massed flowerings of *Thelymitra x macmillanii* were of special interest. *Diuris sulphurea* and an interesting form of *C*. aff. *patersonii* were also flowering nicely. Thousands of *Thelymitra rubra* were scattered throughout the area, some in groups of several hundreds and covering only a few square metres. *Thelymitra flexuosa* and *T. ixioides* were flowering at Bannockburn.

The Anglesea River Valley(7) lies some 30 kilometres south of Geelong. This area is mainly Crown Land, part is leased by Alcoa and part is Flora Reserve. The area has diverse habitats including heathy woodland, bald hills heathland, riparian open forest, heathy open forest and closed shrubland. The sheer number and diversity of orchids (including a number of rare species, e.g. *Thelymitra matthewsii*, *Burnettia cuneata*) is amazing. *C. cardiochila* is common and appears to be a different form to the South Australian species. The *C. patersonii* are outstanding. Two different forms of *C. dilatata* grow together. One grows tall and carries large flowers with sepals having hairy glandular tips. The other is shorter having smaller flowers with sepals ending in thick yellow clubs. A lovely form of the hybrid *C. patersonii x C. dilatata* was sighted in two widely separated locations. Some plants very similar to the Adelaide Hills *C. reticulata* were specially sought out and examined.

The Edna Bowman Reserve(8) lies within the town of Anglesea. Here we met Mary White, a retired school Principal, now into her 80's who has published much information on the flora of the area, including the book "The Flowers of the Anglesea River Valley ". Miss White is a talented natural history artist, works on environmental issues, (indeed, very practically, she was removing litter from the reserve when we met her), leads excursions around Anglesea and is an active member of ANGAIR Inc. (Anglesea, Airey's Inlet Society for the Protection of Flora and Fauna), a body made up of many Victorians dedicated to preserving and studying the natural history of the area. This lady is a marvel! Any naturalists visiting Anglesea should make an effort to meet her and purchase her book (it's only $12 and is set out after the style of Ann Prescott's "It's Blue With Five Petals"). All of the proceeds go to ANGAIR. Flowers of special interest in the Edna Bowman Reserve were *Caladenia vallida* and a sulphur yellow clone of *Diuris corymbosa*.

On one very full day we visited a Forest Reserve on a dry hilltop along Courtney's Road at South Belgrave some 40 kilometres east of Melbourne(9), and coastal grassland flats at Cribb Point on the Mornington Peninsula opposite French Island(10). Three memorable species were seen at Courtney's Road, namely *Caladenia praecox*, "*C. rhodochila*" and *Lyperanthus suaveolens*. David Jones describes *C. praecox* as a "poorly known" species. "*C. rhodochila*" is an unofficial name used by the locals to identify a plant with affinities to *C. reticulata*. The sepals of this plant are not clubbed but have glandular filiform tips. Flowers of *L. suaveolens* are always a delight and are especially attractive in their natural habitat. Leaves of *Cryptostylis leptochila* and buds of *C. subulata* were also seen. For a South Australian it was an education to see the latter growing in such a dry environment.

(to be continued.)

R.J. Markwick

HOME FLASKING: A SIMPLE TECHNIQUE

(from ANOS - Sydney Group Bulletin - July 1989) (Phil Collin)

Over a period of twenty years I have used the following technique of flasking orchid seeds. The method has proved very reliable, requires no special equipment, takes only a few minutes and the cost is negligible.

The materials required are as follows:

- kitchen type rubber gloves
- protective coat (to guard against chlorine solution spotting clothing)
- chlorine solution - concentrate (approx 30 grams per litre active chlorine)
- chlorine solution - dilute (approx 50 ml of the concentrated solution per 500 ml water - this being the solution used in sterilisation of the cotton wool and seed pod)
- cutting knife
- candle
- rod - made from 2 mm diameter wire 25 cms in length and flattened at one end (for transferring seed)
- cotton wool (6 pieces of 6 cm x 6 cm)
- flasks (I use narrow necked containers similar to small soft drink bottles to hold the growing medium)

The flasks are stoppered with rubber "corks" in which approx 5 mm diameter holes have been bored and backed with cotton wool. The stopper and upper part of the flask are covered with aluminium foil. The complete unit is sterilised in a pressure cooker for 15 minutes and allowed to stand until medium has solidified.

The important points to remember are:

1. Pathogenic agents (moulds, spores, etc.) are always present in the air, therefore the opened flasks, stoppers and seedpods should not be exposed to the air unless protected by sterile materials such as chlorine treated cotton wool.

2. In the technique described there are instances when exposure to the air is unavoidable, such as the actual transfer of the seed from the pod to the flask, therefore speed is essential.

METHOD

Once you have protected yourself with gloves and coat, the cotton wool pieces and seed pod are placed in the jar containing the dilute chlorine solution and the contents shaken intermittently for a few minutes. Meanwhile, newspaper is spread on a suitable bench (I use the kitchen bench). Use one piece of the sterilised cotton wool to swab the gloves and an area of paper approx 30 cm x 30 cm. The lit candle is also placed on the papers.

Now the remaining cotton wool pieces are removed from the jar, squeezed free of excess chlorine solution and flattened out on to the swabbed paper. Each flask (I generally use three flasks per seed pod) in turn is held in the left hand fingers, and as the stopper is removed, the right hand places one of the cotton wool pieces over the neck of each flask. The stopper at this time is wrapped in its aluminium foil.

After the flasks have been prepared as above, the seed pod is removed from the

Home Flasking: A Simple Technique (contd.)

chlorine solution and placed under a piece of chlorine-treated cotton wool. The knife is sterilised in the candle flame and the seed pod sliced open and immediately covered again with the treated cotton wool.

The wire rod is then "flamed" and used to transfer a small quantity of seed to the flask. It is best to hold the flask at an angle of about 45° and lift the protective cotton wool from the flask with the left hand fingers in a movement co-ordinated with that of the rod containing the seed. It is best to dip the transfer rod into the small volume of liquid that is always present on top of the medium. The rod is withdrawn and the cotton wool replaced to cover the neck of the flask. Repeat the process in the remaining flasks.

The next step is to unwrap the stoppers (one at a time) from the aluminium foil and run the stopper through the flame in a rotating fashion with the right hand. The left hand holds the flask at a 45° angle, the left fingers flip off the protective cotton wool cover and the stopper is immediately replaced in the neck of the flask. The aluminium foil is now replaced. Repeat this process with the other flasks.

The seeds in the flask are distributed across the surface of the medium by a gentle rotary motion of the flask. Label each flask with the necessary details.

NEW MEMBERS

Max Milne, Bellevue Heights.
John and Joan Peace, Glengowrie.
John and Allyson Sandham, Panorama.

BRIEF OBSERVATIONS OF A POSSIBLE

PTEROSTYLIS PLUMOSA POLLINATOR

While picnicking on Carrapee Hill, Eyre Peninsula this September we were sitting in warm sunshine by a colony of a dozen yellow-bearded greenhoods, *Pterostylis plumosa*. About 12.30 p.m. a black, fat-bodied, slow-flying fly approached one of the flowers from down wind in a zig-zag flight path. An unusual thing about this fly was the presence of a clump of pollinia on its back. We waited expectantly, hoping to see how pollination of this greenhood takes place.

Suddenly the fly deviated from its course into a bush about one metre away. To our amazement it emerged in copula with a female (about the size of the appendage on the end of the orchid labellum). At least we presumed it was a male fly picking up the female and not the other way around!

We were naturally disappointed that pollination was not observed but the picking up of a mate by the fly was at least compensation.

I would dearly like to hear from anyone who has observed pollination of *Pterostylis plumosa*, one of the great unsolved mysteries of native orchid pollination.

R. Bates

OBSERVATIONS OF FUNGUS GNATS POLLINATING *PTEROSTYLIS MUTICA* IN A SUBURBAN GARDEN

Over the years I've spent a great deal of energy and time and money travelling to distant locations hoping to observe orchids being pollinated in the field. Ironically I've probably observed more orchid pollinators at work in my backyard than in the bush. Most growers of *Cryptostylis* will have seen the colourful red and white spotted male *ichneuman* wasps pseudo-copulating with the *Cryptostylis* flowers on warm summer mornings. Many growers get most upset when their magnificent pot of *Pterostylis cucullata*, molly-coddled and guarded for display at an orchid show, has all its flowers pollinated three days before the big event. The same is true of most spring flowered greenhoods. Their pollinators are abundant in Adelaide suburbs, often more abundant than in the bush! The midge orchids (*Prasophyllum* or *Genoplesium*) are often smothered with tiny "fruit flies" in the autumn. Even honey bees (*Apis mellifera*) can be a nuisance in the orchid house and only yesterday I had to remove four dead hoverflies trapped in *Caladenia filamentosa* flowers.

Sometimes these suburban garden orchid pollinators are not the same as the "genuine" bush pollinators but more often than not what pollinates your orchid-house flowers are the same insect species that "do it" in the bush!

I had occasion recently to observe little fungus gnats pollinating flowers of the widespread dry-land greenhood *Pterostylis mutica* placed on a garden wall. I was sitting on the wall talking to a visitor when we noticed two tiny flies hovering over the flowers. All flowers had their labella in the down, or set position. One of the flies landed on a flower (on the hood actually) and made probing movements with its abdomen, it then ran all around the rim of the hood stopping occasionally to arch and probe with its abdomen. Meanwhile the second gnat landed momentarily on a labellum but nothing happened. We were disappointed as we'd expected the labellum to flip up. However we weren't disappointed for long because the first insect also landed on the labellum and made probing movements. It was not until it aligned itself vertically, grasping the darker green appendage at the top of the labellum that "flick" - quick as a flash the labellum shot up and the gnat was inside the hood where its actions could clearly be seen due to the transparent "windows". A timer was set so we could record how long the insect took to get out. The gnat looked rather too large to be able to escape through the narrow gap between the column wings (most *Pterostylis* pollinators look bulkier than they really are because of their long legs and floppy wings). After only a few seconds of fluttering about inside the hood the gnat aligned itself head-first into the gap between the column wings, its own wings folded tightly down, its legs extended backwards to make it more streamlined. With a series of kicking motions the insect worked its way through. Momentarily it could no longer be seen. We looked up into the galea opening from below. Sure enough out came the gnat, pollinia jammed onto its thorax. With a final kick it half fell, half flew out of the flower. The whole event had taken just 40 seconds.

Within three minutes it had repeated the process on another flower. The second gnat also had been thrown into a flower. It took nearly two minutes to escape, as did the first insect, perhaps hindered this time by the pollinia on its back. As it came out the second time some of the pollinia fell off into the cup-like lobes of the lateral sepals and later some of this was actually stuck to the feet of a third gnat!

One of the gnats was captured. Curiously only a few days later a gnat was observed on a flower in the bush and when captured it appeared to be the same as the one in my garden. *Pterostylis mutica* is, of course, a species likely to have been common in the area of Adelaide before settlement!

Observations of Fungus Gnats in a Suburban Garden (contd.)

The questions still remain: What is the attractant? Were those probing motions part of the gnat's sexual behaviour? (They certainly looked it, however, I must admit to knowing nothing about gnat sexual behaviour.) Are little dark appendages on the labella of *P. mutica* and related species significant as imitation female fungus flies?

R. Bates

ORCHID SPECIES SEED BANK

(The following has been extracted from a letter received from the Australian Orchid Foundation.)

"While there has been a lot of talking going on about the conservation of the orchid species, very little is actually being done on a practical scale. (The Australian Orchid Foundation) ask (your) members to adopt a project that will produce the seed of at least five different orchid species. We would prefer the seed from epiphytes - our Orchid Species Seed Bank appears to get sufficient seed of the terrestrial species for the demand.

There are many wonderful species being grown in the many collections within Australia, and as time passes the overseas species will become more difficult to obtain. The seed cannot be produced overnight, but if this challenge is accepted, a beginning can be made during the next flowering of that special orchid species.

Wrap the seed in writing paper to be slipped into a small envelope ... DO NOT USE PLASTIC WRAPPING. Send the seed to the

Orchid Species Seed Bank
Mr Erhard Husted
66 Ethel Street
SANCTUARY POINT NSW 2540

Your contribution will be recorded and gratefully received."

CONSERVATION NEWS

Sunset Country National Park:

A huge area of mallee and *Triodia* grassland in Victoria adjacent the South Australian border possibly extending south to Wyperfield and Ngarbat as a regional park with corridors of native vegetation through farming and grazing land. If this park goes ahead it will be one of the largest continuous parklands in Australia. The better soils have largely been cleared but an estimated 20 species of orchid will be found in this new reserve.

(The area has been poorly surveyed for orchids but species known to occur include two species of *Pterostylis* aff. *nana*, four rufa group *Pterostylis*, *Thelymitra nuda* and *T. azarea, Prasophyllum nigricans* and *Caladenia toxochila*.)

P. Phillips

PHOTOGRAPHING NATIVE ORCHIDS

Continuing the series of articles first published in the NOSSA Journal during 1980 and 1981.

To close this discussion, it only remains for me to make a few general comments.

Films

I use and prefer Kodak Ektachrome 64. There are, however, other excellent colour slide films on the market, some of them very fast (a definite plus for the close-up photographer who has to cope with small apertures and long exposures). One such film is the new FUJICHROME 400. Try it.

Notebook

Always carry a notebook and pencil to record the date, field location, the name of the orchid photographed, and details of its habitat. In this way you will build up a useful body of knowledge on locations, habitats, and flowering dates, which will add not only to your knowledge of our favourite subject, but have the potential for adding to the knowledge of others. Until you have perfected your techniques, record aperture and exposure times used with different lens extensions, flash distances, etc. These notes will help you determine where you are going wrong, and provide the basis for development of corrective measures.

Photography for Record Purposes

If you are in to photographing native orchids for study purposes, it is useful to photograph

(a) the plant's habitat,
(b) the whole plant,
(c) the flower from the side, and
(d) the flower from the front.

Also note the magnification size. Ensure that the photograph shows clear details of the flower's labellum, the column, and any other identifying features of the plant. Also clear away any leaf litter or dried grass which could detract from the picture.

Close-ups are very much a matter of experiment and the photographer has to test-shoot his equipment and his methods. Much satisfaction can be derived from a good photograph of a small object, giving it life so that it is more than just a photographic record. Magnification alone is not enough, even close-ups need some artistic (as well as technical) skill.

Conclusion

I hope these articles have been of some use to NOSSA members, perhaps even stimulating some budding photographers, who haven't tried, into giving close-up photography a go. I don't need to tell you that our native orchids make fascinating subjects.

R.J. Markwick

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Closing date for orders -- last mail on 19.1.90.

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5. *Corybas fimbriatus*
6. *C. incurvus*
7. *Diuris carinata*
8. *D. corymbosa* (Vic) tubers,
9. *D. corymbosa* (S.A.)
10. *D. longifolia* (W.A.)
11. *D. pedunculata* (could be *lanciolata*),
12. *D. sulphurea*
13. *Lyperanthus suaveolens*
14. *Microtis parviflora*
15. *M. unifolia*
16. *Pterostylis* Arthur x Martha
17. *P. biseta*
18. *P. concinna*
19. *P. cucullata*
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21. *P. curta* (Mt. Gambier)
22. *P. curta* (large leaf form)
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26. *P.* Cutie
27. *P. excelsa*
28. *P. furcillata*
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32. *P. nutans*
33. *P. nutans x alpina*
34. *P. ophioglossa* var. *collina*
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