



BULLETIN

OF THE

WESTERN AUSTRALIAN NATIVE ORCHID
STUDY AND CONSERVATION GROUP
(INC)

APRIL 1989

THE WESTERN AUSTRALIAN NATIVE ORCHID STUDY & CONSERVATION GROUP

OFFICE BEARERS 1989

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Immediate Past President:	Kinaslev Dixon [REDACTED]
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OBJECTS OF THE GROUP

- a. To promote interest in and preserve Western Australian indigenous orchids.
- b. To learn the best means of cultivation and do all things possible for the conservation of native orchids in their natural environments.
- c. To learn their habitats and keep records.
- d. To have field days and learn to recognize the different genera and species.
- e. To hold meetings for the exchange of knowledge and furthering of interest in Western Australian orchids.
- f. To affiliate with kindred organisations.
- g. To make rules for the governing of the Group's domestic affairs.
- h. To do all such other lawful things as are incidental to or conducive to the attainment of the above objects or any other on them.

NOTE: Opinions expressed by contributors to this Bulletin are not specifically endorsed by the group.

NEXT COMMITTEE MEETING

Wednesday, 19th April, 1989, at 7.00 p.m., Kings Park Board Administration Centre.

NEXT GENERAL MEETING

Wednesday, 19th April, 1989, at 8.00 p.m., Kings Park Board Administration Centre.

TOPIC FOR EVENING

The guest speaker for our next meeting will hopefully be Dr Neville Marchant from the W.A. Herbarium. Neville's topic will probably be "an introduction to *Darwinias* and *Chamelaucium*s."

BULLETIN CONTRIBUTIONS

Contributions are wanted for every edition of the bulletin. Articles should be sent to Stephen van Leeuwen. Your articles can be sent by facsimile machine if you wish, the number of which is . The article submission deadline for the next issue of the bulletin is April, 28th.

SUBSCRIPTION FEES

Please note that your annual subscription to the group is now due. This year the fee is \$15.00. The subscription fee has been increased from the \$10.00 of previous years to cover the cost increases associated with the production and postage of the bulletin. The fee for child membership remain at \$2.50. If you have already paid your 1989 subscription fee you will be exempt from this increase.

FORTHCOMING FIELD TRIP ARRANGEMENTS

The first field trip for the year is to the Pinjarra-Austin Bay area in search of Caladenia aphylla, Leporella fimbriata and Eriochilus dilatatus. If you intend going on this worthwhile and usually well attended trip, please be at the carpark between the Pinjarra Hotel and Police Station, near the suspension bridge over the Murray River, at 10.00 a.m. Please bring a picnic lunch which will be held on the edge of the Harvey Estuary.

PROPOSED FIELD TRIPS FOR 1989

Below is the list of field trips planned for 1989. Most dates, with the exception of those marked by an asterisk, are tentative and will be confirmed over the coming months. This is the last time this list will be published in its entirety so please ensure that you have recorded all trips. Please note that there has been a change of date for the Dryandra and Moora field trips. If you have any suggestions for field trips please inform the Field Trip Co-ordinator, Ian Greeve.

* May 6th. Pinjarra area for Caladenia aphylla.

* June 10th Corrigin - Bruce Rock area to search for new populations
& 11th. of Rhizanthella.

- * June 25th. Bunbury area for Pterostylis species including P. angusta and P. rogersii.
- * July 15th. Gnangara Pine Plantation - Red Hill area to look at Pterostylis species in the pine plantation and early Diuris on the scarp.
- August 19th - 20th Dryandra State Forest to discover its rich orchid flora and perhaps see a numbat or two!
- September 2nd - 3rd. Moora area to look at northern wheatbelt species, particularly those in the Caladenia denticulata complex.
- * September 9th - 10th. Dalwallinu - Koorda area in search of more populations of Caladenia cristata and other rare species.
- September 16th or 17th Day trip around Perth metropolitan area visiting a number of interesting orchid sites.
- September 24th Granite rocks in the eastern Jarrah Forest between York and Toodyay to search for all species of orchid. An area that has been generally overlooked in previous years.
- September 30th - October 2nd. Mt Barker area for all species of orchid. A good location to conduct trips to the south coast, Stirling Ranges and Porongurups.
- October 14th. Survey of burnt swamps in the Canning Vale - Kwinana area for Diuris purdiei.
- * October 15th. A family picnic at Kings Park during which we will search for orchids in the burnt bushland.
- October 21st-22nd. A survey of coastal granites along the south coast in the vicinity of Walpole to look at their orchid flora, especially thelymitras.
- October 29th. A day trip to a suitable orchid locality or number of localities, probably south of Perth towards Bunbury.
- November 4th. Red Hill - Walyunga area to look for more populations of Thelymitra benthamiana, especially in the numerous burnt areas.
- December 2nd - 3rd. A trip along the Muirs Highway between Manjimup and Mt Barker to look at late flowering caladenias, and several species of Diuris.

DRYANDRA EXCURSION 19-20TH AUGUST

Tentative bookings for two cottages, which sleep up to 10 people, have been made for this field trip. There is also limited camping available next to the cottages if necessary, at the same price of \$4.50 per person.

To confirm this booking Ian Greeve must have an indication of numbers before April 21st. Any interested members who cannot attend the next meeting please contact Ian at home, in the evening on [REDACTED]. This

should be a very interesting weekend and is not to be missed. More details will be provided at a later date.

FIELD TRIP REPORTS

Wayne Merritt has reported finding a large population of Caladenia corynephora in suitable habitats along the banks and adjacent floodplain of the Blackwood River. His observations were made in December.

Stephen van Leeuwen has recently returned from a trip to Walpole where in the company of Bill and Gloria Jackson they found several plants of Cryptostylis ovata still in flower. These observations were made in mid March and some of the plants seen still had as many as 6 buds present. Who said that at least one orchid species could not be found flowering during every month of the year in Western Australia.

NEW BOOK ON KINGS PARK AVAILABLE

An illustrated book titled "The Bushland Plants of Kings Park" is available at a pre-launch price of \$24.95 from the Kings Park Board, West Perth. This A4 size book of 176 pages has 408 species illustrated by Patricia Dundas of Greenmount with the text by Eleanor Bennett a botanist at Kings Park. The project took three years with the never ending problem of unrecorded species being found. Where possible these were slotted in but there are 27 species described but not illustrated. The plants are grouped together under five categories, trees, shrubs, twining and prostrate plants, herbs and grass and grass-like plants. Within each of these categories the plants are allocated to plates in a sequence of ferns, cycads, conifers, monocotyledons and dicotyledons which in turn are arranged alphabetically under family, genus and species. The original paintings are life size and were purchased by Westralian Forest Industries Ltd to celebrate the 60th anniversary of the Cullity Group of Companies and then donated as the "Cullity Timbers Kings Park Collection" to the people of Western Australia. Those who attended last year's Wildflower Festival at Kings Park will have seen some of these framed paintings on display.

Everyone who has seen the finished book has commented upon how magnificent they think it is. It makes plant identification very easy as the illustrations are of a very high standard. This is your opportunity to purchase the book at the prelaunch price of \$24.95 (later \$29.95) by calling at the Administration Building between 8.30 a.m. and 4.30 p.m. or sending a cheque for \$30.00 to cover the cost of the book, handling and postage (\$5.05) to Kings Park Board, West Perth, 6005.

WELCOME NEW MEMBERS

The committee and membership would like to take this opportunity to welcome the following new members. We would like to wish them a very rewarding and enjoyable association with our group. They are:

Mr Jeff Kite,
Mr & Mrs Parry,
The Hind Family,

HABITAT OF DIURIS PURDIEI IS THREATENED BY URBAN DEVELOPMENT

It was inevitable that the Ranford Rd/Nicholson Rd area where Diuris purdiei grows, would eventually fall to the bulldozers of the developers. In spite of being protected by the Wildlife Conservation Act, D. purdiei is now facing a bleak future in the Canning Vale area. The largest population of this orchid grows on land that is destined to be a shopping centre. Of the 1600 plants known of D. purdiei, 1000 grow on the north side of Ranford Rd and 300 grow on the south side. Both these sites are being rezoned for urban development and this will mean that 80% of D. purdiei is under threat of being destroyed.

Currently 9 hectares of land is going to be reserved for five years, to allow a biological study of D. purdiei, with the aim to eventually shift the whole population to a site unknown. It may possibly be the recreation reserve at Armadale/Kelmscott where a few plants of D. purdiei have been found.

It sounds like a grand scheme until one starts to look at the consequences. There are no guarantees that the transfer of D. purdiei to the other site will work - why endanger the largest population to see whether such a process is possible? The other site is by far inferior to the Ranford Rd habitat - why is that habitat only capable of supporting 30 plants? Are the orchids being shifted to a non viable habitat? Reducing the number of different populations increases the risk that a large percentage of the orchid could be destroyed if one of the remaining habitats was damaged - for example by a spillage of chemicals. Mixing two populations also reduces the genetic diversity of the species and may effect their ability to survive climatic changes in the future. These are only some of the biological considerations.

From an overall conservation point of view, if this process is allowed to occur it means that the potential is there to "herd" all our plants into a small area allowing development to progress at break neck speed regardless of the overall environment. The fact that some plants are now in cultivation is already being used as an excuse to destroy their remaining habitats. Conservations are forever fighting developers who want to take the easy way out - out of sight, out of mind.

In my opinion the Government and the department responsible for administering the Act (C.A.L.M.), should be doing more for D. purdiei than they are now. There should be a concerted effort to preserve D. purdiei where it is by either paying the necessary dollars to purchase the land outright or by arranging a land swap. The Government owns land in this area that could easily be swapped - in fact the developments own the worst section of Canning Vale whereas the Government owns the better parts.

In a effort to conserve D. purdiei I have contacted, on behalf of the group, the three Ministers concerned (Conservation and Land Management, Environment and Planning) and will be meeting with the Minister for CALM on April 12th and the Minister for Planning on April 13th. The later meeting I am attending with the Canning Vale Ratepayers Action Group which is opposing the development for a multitude of other reasons. I have also asked the Australian Orchid Foundation, ANOS and the International Union for Conservation of Nature to intervene on our behalf. In the near future, Peter Hunt of "Earthworm" fame

(Conservation programme on 6WN at 5.30 p.m. on Wednesdays) is going to run a programme on the plight of D. purdiei.

If the members of WANOSCG wish to help then I suggest you contact your local member of Parliament and get them to do something. Do not be intimidated by politicians they are there after all to represent our wishes. Write to the Minister for Conservation and Land Management, Mr Ian Taylor, C/- Parliament House and state that you would like to see the area in Canning Vale made into a reserve for D. purdiei. Also state that when the System 6 plan was created for Perth that this particular population of D. purdiei had not yet been discovered. If it had been known it would have been included in System 6 as a priority conservation area. The other two Ministers (Mr Bob Pearce for the Environment and Mrs Pam Beggs for Planning) should also be contacted - even use the same letter (change the name and address only). The more people that can write the better.

Bevan Buirchell
Conservation Spokesman for WANOSCG

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The following paper was presented to Murdoch University's 1988 Extension Course on Australian Orchids:

Evolutionary History and Conservation of Australian Terrestrial Orchids

Stephen D. Hopper

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Introduction

The conservation of Australian orchids is a concern and a field of active endeavour among most individuals and organisations interested in these fascinating plants. We all can play our part in achieving this worthwhile objective.

In this paper, I wish to lead into a discussion of conservation by first considering what is known about the origin and evolution of Australian terrestrials. A sense of history I believe provides added interest and perspective to the conservation issues we now face. Evolutionary History

Unravelling the evolutionary history of Australian terrestrial orchids is an enterprise that botanists have only recently undertaken. Due to the lack of a fossil record, clues to the origin and evolution of our orchids must be obtained from studies of the living orchids themselves. Corroborative data may also be found by an analysis of geographical distributions.

The approach taken rests on an assumption that the number and degree of inherited differences between related orchids increases through time. Thus, species that differ in only one or two features of the flower are assumed to have evolved in the recent geological past, whereas those that have many differences are assumed to have evolved further back in time.

For example, the blood spider orchid Caladenia filifera of Western Australia differs from the daddy long legs spider C. filamentosa of the southern eastern States in having petals and sepals that are lax and hang down rather than splay out stiffly, and that are uniformly dark red and glossy rather than dull-coloured and red with white margins. C. filifera also grows in colonies whereas C. filamentosa is solitary in habit. These two orchids appear to be close relatives that may have evolved relatively recently.

In contrast, the blood spider orchid differs from the white spider orchid Caladenia longicauda of Western Australia in many features - two rows of calli v/s four to eight; a shortly toothed margin to the labellum v/s a long fringe; a much smaller labellum; petals and sepals much narrower and red rather than white etc. It seems reasonable, to assume, therefore, that C. filifera and C. longicauda evolved as separate species much earlier in geological time than did C. filifera and C. filamentosa.

This same logic can be applied to higher groups among the orchids, at the generic, subtribal and tribal levels in the hierarchy of classification used by botanists.

Having determined relationships and inferred a pattern and pathway of evolution in this way, geographical distribution data provide an independent test of the plausibility of the hypothesis devised. This is achieved by comparing present-day distributions of proposed primitive and advanced groups with those predicted on the basis of known times of separation of the continents as the southern supercontinent Gondwana fragmented during the Cretaceous and Tertiary geological periods.

On the basis of this chronology, and assuming that transoceanic long-distance dispersal is negligible for these orchids over distances greater than that currently between Australia and New Zealand, it can be predicted that groups presently occurring in both Australasia and South America are more primitive than groups endemic to each of these regions. Further, groups occurring both in Australia and New Zealand - New Caledonia are more primitive than those more narrowly confined to each of these land masses.

Within Australia, the presently temperate south-west and south-east regions were isolated by Miocene seas that receded but left in their wake the major edaphic barrier of the Nullarbor Plain limestones. Hence, it was predicted that groups currently ranging across temperate southern Australia are more primitive than those endemic to either the south-west or south-east.

Turning then to Australian temperate terrestrials, it seems likely that these originated from rainforest ancestors many millions of years ago. Indeed, some central American rainforest terrestrials (Psilochilus, Triphora) show distant similarities to Australian genera such as the Lizard Orchid Rimacola. This may or may not reflect a shared ancestry.

There is more certainty, however, that South American terrestrials in the genera Chloraea, Gavilea, Bipinnula and Geoblasta are related to Australasian terrestrials. A recent study I completed led to the intriguing conclusion that our Leafless Orchid (Caladenia aphylla) is more closely related to Adenochilus of montane NSW and New Zealand temperate rainforests, and to Codonorchis (montane Chile and Argentina) than it is to other Australian caladenias.

The rainforest connection is also evident among the underground orchids (Rhizanthella). Our western species occurs in broombush and mallee country in the wheatbelt, but the two eastern species occur in or near rainforest.

Evolution within Australia is exemplified by caladenias. The fairy caladenias occur Australia-wide, have primitive flowers similar to Codonorchis for example, and therefore appear to be an ancient group that developed well before the Miocene seas split east from west. Groups such as the blue fairies must have arisen very early on as well, because they too are Australia-wide (e.g. Blue Beards, Caladenia deformis).

In contrast, many spider orchid groups have undergone explosive speciation in the south-west, and must have evolved after the Miocene. For example, the king spider orchids are represented by more than 10 superficially similar species in the south-west, most of which are unnamed. A similar situation applies to some genera such as Drakaea, which is confined to south-western Australia.

Conservation

I will not dwell on this subject because it has already been covered by a number of authors in recent publications. Suffice to say that successful conservation depends upon initiatives in many areas. Defining what species you have and determining where they occur in the wild are essential first steps, and we are well advanced in these fields in Western Australia.

Ensuring conservation of wild populations depends very much on the status of the land and the use to which it is put. There is much to commend acquiring land for national parks and nature reserves. Many such reserves exist in Western Australia and have outstanding orchid floras (e.g. Stirling Range National Park). However, much of our remnant bush is on farms or Crown land set aside for purposes other than conservation. Informing the owners of such lands about the orchids they have is a major educational role that all orchid enthusiasts can pursue. In my experience, the reaction of such owners is usually (though not always) positive. At the very least, they will not destroy orchids in ignorance.

Growing native orchids is another key approach towards conservation. Recent years have seen a number of steps forward in this area in Western Australia.

Perhaps the most important contribution of all is maintaining a strong public interest in native orchids and their conservation. It is heartening to see so many enthusiastic orchid lovers among the public at large. Australia has many orchid clubs whose interest and diligence do much to ensure that there is general support for conservation. The

nation also has the unique Australian Orchid Foundation, whose generous grants stimulate research and other activities that foster interest in orchids.

Effective conservation in the future will require strong public support, active research, and sound management of wild populations and cultivated stock. All orchid enthusiasts can play a part, large or small in this rich web of activities.

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...with Australia is exemplified by Calochortis. The latter is a native of the western United States, where it is found in the same group of mountains as the Australian orchids. The latter is a native of the western United States, where it is found in the same group of mountains as the Australian orchids. The latter is a native of the western United States, where it is found in the same group of mountains as the Australian orchids.

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Ensuring conservation of wild populations depends upon many of the same factors as the use to which the land is put. Many reserves, many reserves exist in Western Australia and have outstanding orchid flora (e.g. Scintillating Range National Park). However, much of our orchid flora is on farms or Crown land not set aside for purposes other than conservation. Informing the owners of such lands about the orchids they have is a major educational task. In my experience, the reaction of such owners is usually helpful but always positive. At the very least, they will not destroy orchids in their reserves.

Growing native orchids is another key approach towards conservation. Recent years have seen a number of steps towards this aim in Western Australia.

Perhaps the most important contribution of all to orchid conservation is the public interest in native orchids and their conservation. It is heartening to see so many enthusiastic orchid lovers among the public at large. Australia has many orchid clubs whose interest and diligence do much to ensure that there is general support for conservation. The