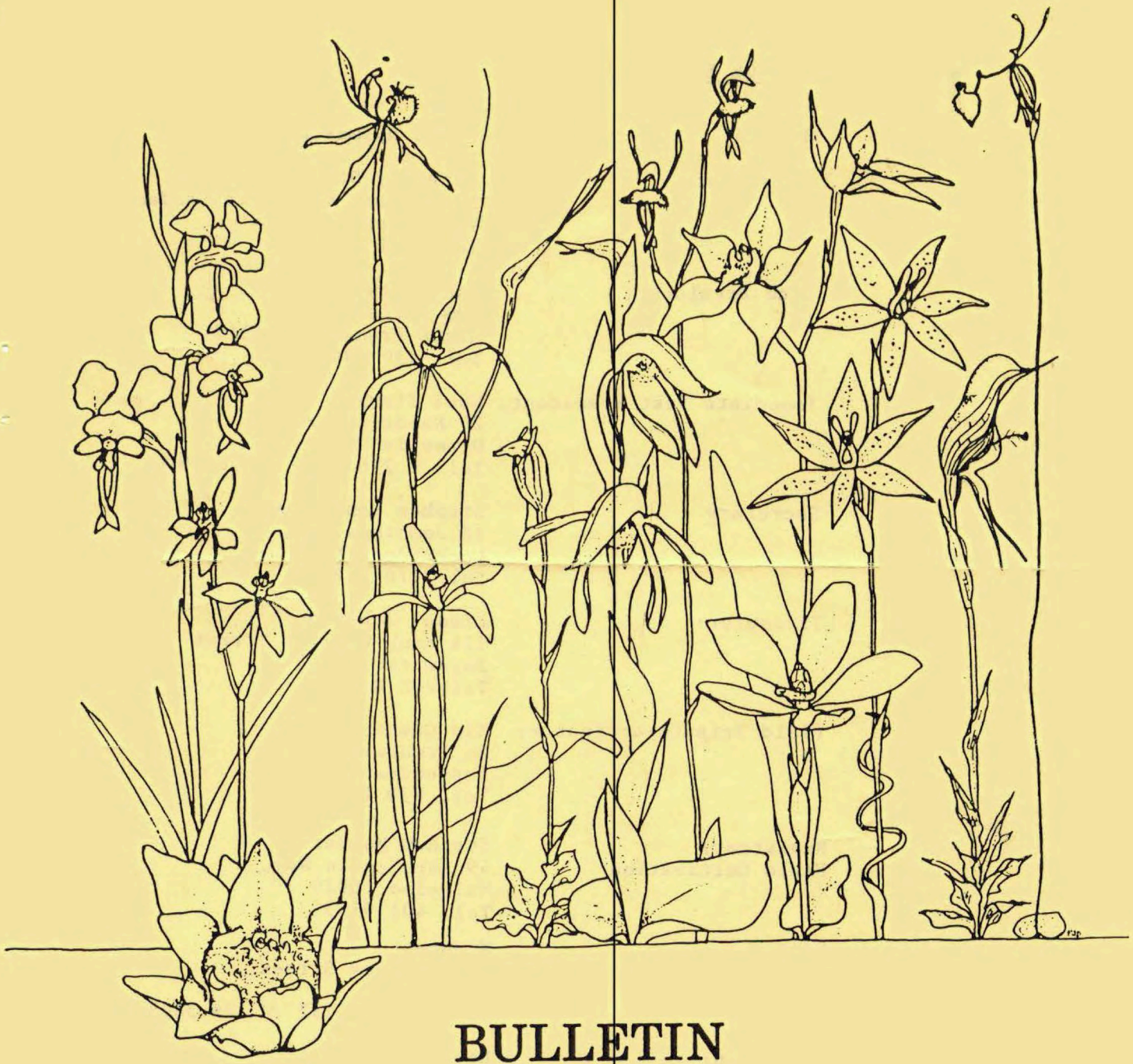

BULLETIN

of the

Western Australian Native Orchid Study and Conservation Group (Inc.)

May 1986

Registered by Australia Post Publication No.WBH1240

OFFICE BEARERS 1986

Patron:	Mrs J Holmes a'Court
President:	Kingsley Dixon Kings Park & Botanic Gardens, West Perth. 6005
Vice President:	John Tonkinson
Immediate Past President:	Noel Clark
Secretary :	Stephen Van Leeuwin
Treasurer:	Lionel Johnston
Field Trip Co-ordinator:	Sid Gibbings
Registrar/ Field Cultivation	Stephen Hopper
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Librarian:	Bevan Buirchell
Committee Members:	Don Graham
	Wayne Merritt

POSTAL ADDRESS OF WANOSCG:

P O Box 323, Victoria Park WA 6100

Note:
Opinions exspressed by contributors to this Bulletin are not specifically endorsed by the Group.

THE WEST AUSTRALIAN NATIVE ORCHID STUDY & CONSERVATION GROUP

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 environment.

c. To learn their habitats and keep records.

d. To have field days and learn to recognise the different genera and species.

e. To hold meetings for the exchanging of knowledge and furthering of interest in Western Australian orchids.

f. To affiliate with kindred organizations.

g. To make rules for the governing of the Group's domestic affairs.

h. To do such other lawful things as are incidental to or conducive to the attainment of the above objects or any of them.

NEXT COMMITTEE MEETING:

21 May 1986 at 7.00pm.
Kings Park Administration building.

NEXT GENERAL MEETING:

21 May 1986 at 8.00pm.
Kings Park Administration building.
Speaker:- Ron Heberle will present a talk on the variations in terrestrial orchid species.

FEES:- Now due - $10.00 per family.

BADGES:- These are available (per the illustration) in green and white with your name overprinted in black at a cost of $5 to $6 (depending on the quantity ordered by the group)

THESE ARE A MUST FOR EVERYONE.

Orders to: Lionel Johnston

[redacted]

BY 18 June 1986

W.A. NATIVE ORCHID STUDY & CONSERVATION GROUP (INC)
KINGSLEY DIXON

Field Trip Report

In Search of *Caladenia aphylla*

27 April 1986

A fine, warm day, plenty of sunshine and a good turnout of members and visitors were the ingredients for a successful day searching for and finding the Leafless Orchid, *C. aphylla*.

The trip centered on the area south west of Pinjarra in the vicinity of the 9-mile Lakes. Within 10 minutes of arriving at this first site the first plant was found. Then ensued a feverish hour of searching resulting in 100 plants being found. All were in excellent flowering condition despite unusually warm weather in the previous fortnight. Most specimens were 30-40cm tall and showed no evidence of pollination in all the blooms examined. A solitary black wasp (unidentified) was observed on a bloom but failed to remove or place pollen.

Several blooms were collected to assist crossing for seed production and the following notes are of interest:

i/ the flowers are capable of realigning to a horizontal position no matter what angle the stem is at. Inclined stems will bend at the ovary within the day which is a fairly rapid movement. The reason for this facility seems to be vertical alignment of the labellum which would otherwise swing away from the column.

ii/ 24 hours after hand pollination flowers had closed and the stigma was swollen.

Eriochilus dilatatus was found on ten occasions most with 2 to 5 flowers open. Surprisingly no *Leporella* was found althougn plants are now in flower around Perth.

Altogether a relaxing day with some of the members enjoying a brief visit to the nearby Peel Estuary for lunch.

The following people supported this excursion.

Lionel Johnston
Kingsley Dixon
Ray Axon
Betty Axon
Stuart Harris
Mary Harris
Michael Harris
Kathryn Harris
Glin Reed
Sally Garnett
Pat Garnett
Beryl Yates
David Parker
Peter Brown
Beryl Brown
Nancy Clarke
Noel Clarke
Ken Jones

Dowerin - Moonijin Field Trip
31 May - 2 June 1986

Plans are in hand for this major trip to search new locations of the underground orchid, Rhizanthella gardneri. Unfortunately a complete reconnoitre of the route is not possible beforehand but a very comprehensive map has been drawn up courtesy of Mr Rod Randall the local A.P.B. officer (see enclosed).

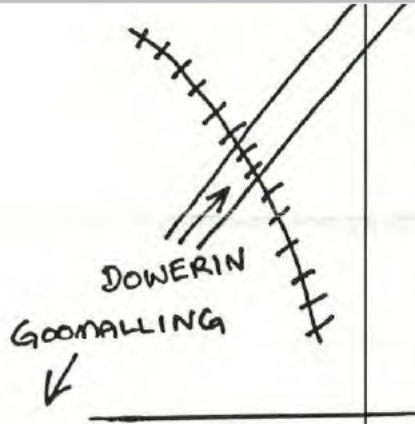
Accommodation has been arranged with Rod who has kindly allowed the group the free run of his home at [redacted].

As space is limited members will have to bring all their own sleeping and eating requirements (No stove but fridge & microwave). Please call Sid Gibbings if you are intending to come along.

A take away and hotel meal is being arranged for the Saturday and Sunday nights if members wish - so make your intentions known to Sid by 21 May (meeting night).

MUD MAP TO DOWERIN ACCOMMODATION

[redacted]



NB EXPECT TO ARRIVE AROUND NOON 31/5

Notes to contributors to the Bulletin

We would like to thank contributors to our Bulletin & encourage them to continue the good work.

Members who have not yet put pen to paper should not be put off sharing with others just what is happening or growing in there "neck of the woods"

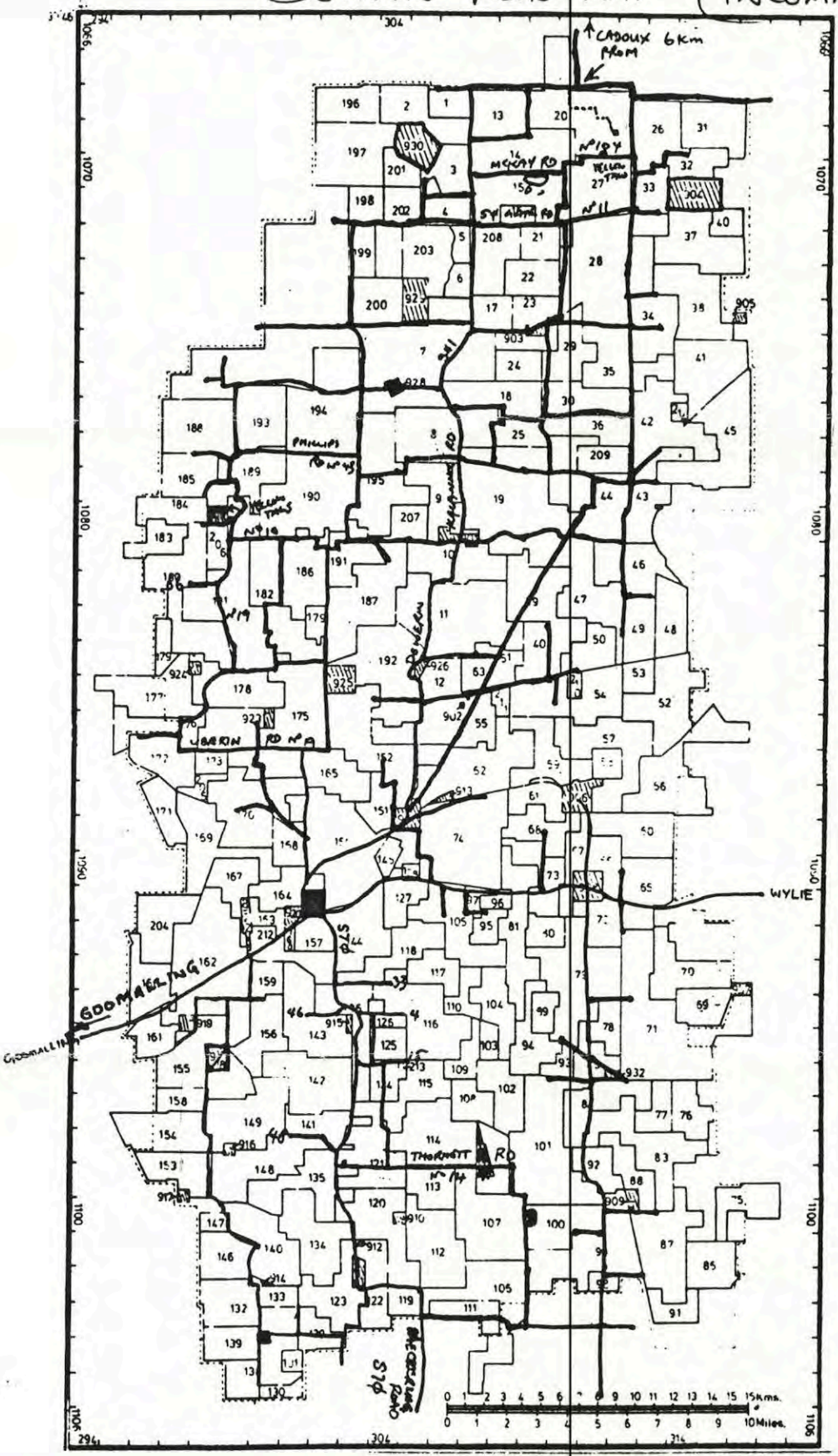
Copy should be typed whenever possible - to assist our ever patient (volunteer) typists.

All names, including botanical, should be set out in CAPITAL letters (to avoid any misunderstanding), and botanical names underlined.

If typing is not possible please submit your written manuscript double spaced and print all names as above.

All copy must be with the editor by the 30th of the month

DOWERIN ROAD MAP (INCOMPLETE)



No. 53 DOWERIN

THE ORCHID FLORA OF THE PROPOSED MT LESUEUR NATURE RESERVE.

During 1985 the following species of orchid were recorded in the vicinity of Mt Lesueur;

Caladenia crebra
C. deformis
C. discoidea
C. filamentosa var. denticulata
C. flava
C. gemmata forma gemmata
C. hirta
C. huegelii
C. latifolia
C. menziesii
C. patersonii var. longicauda

Diuris laxiflora
D. longifolia

Elythranthera brunonis
E. emarginata

Eriochilus dilatatus
E. scaber

Leporella fimbriata

Lyperanthus nigricans

Microtis aff. alba
M. alba
M. unifolia

Prasophyllum elatum
P. fimbria
P. giganteum
P. macrostachyum var. macrostachyum
P. macrostachyum var. ringens
P. parvifolium
P. sargentii

Pterostylis dilatata
P. nana
P. recurva
P. vittata var. vittata

Thelymitra antenifera
T. campanulata
T. crinita
T. fuscolutea var. fuscolutea
T. fuscolutea var. stellata
T. nuda
T. variegata var. variegata
T. variegata var. apiculata
T. villosa

Perhaps the most significant finds were those of Eriochilus scaber, Thelymitra fuscolutea var. stellata and T. crinita. These finds were significant because it is the most northern locality for both E. scaber and T. crinita, extending the range of T. crinita by approximately 100 km. The discovery of T. fuscolutea var. stellata within the proposed nature reserve was of major significance because this species is gazetted rare and its occurrence within the reserve will hopefully ensure that it is conserved.

Stephen Van Leeuwen

Orchid Research - Past and Future.
An Informal Discussion held at Kings Park March 17 1986.

It has been only in recent years that W A orchids have been the focus of scientific research. Warren Stoutamire's research on the pollination of our orchids was perhaps the first major research project undertaken. This was followed by extensive work on Rhizanthella by Kingsley Dixon. Other projects include those by Terry Wells, taxonomic invesigations by Stephen Hopper and genetic studies by myself. Andrew Brown's new position with CALM is the most recent development, allowing further research into various aspects of the orchids.

Presently orchid research is undertaken at three main centres CALM, Kings Park and UWA. These bodies are separate entities, and because each researcher has very heavy commitments the interaction between those involved in orchid research is often minimal. To bridge this gap an informal discussion between these 3 organisations was held at Kings Park on Monday, March 17. A summary of these reports and discussion follows.

Andrew Brown reported that much of his recent work for CALM has concentrated on rare species of flora. Several changes of gazetted rare orchids have been proposed including the removal of Thelymitra macmillanii and Caladenia triangularis which are believed to be hybrids. Prasophyllum triangulare, now believed to be synonomous with P.lanceolutum, will also be removed. Andrew also reported that his book Orchids of South-West Australia will be revised in the next 12-18 months. This revision will incorporate some major changes including a rearrangement of species by taxonomic relationship rather than flower colour. Some of the photographs will be changed and more than one photo per plate will be presented with additional details provided in the text. This work will also incorporate all new and reinstated taxa. Andrew suggested that the number of new taxa for Southwest Australia may be in excess of 30 and will include important changes in the genera Caladenia, Corybas, Diuris and Pterostylis which are presently the subject of taxonomic revision by several workers. Andrew also plans to investigate the fire ecology of the orchids which will involve long term studies on fire repsonse at permanents sites.

Stephen Hopper reported the preparation of a number of publications including The Orchid Atlas, Perth Orchids and various brochures on the orchids of the larger National Parks. It is hoped these will be published within the next 2 years. The Orchid Atlas should be the first publication to be completed. The Atlas promises to be a reasonably priced, informative publication which will contain line drawings, detailed text and distribution maps of all taxa. A colour publication on orchid pollination designed for the enthusiast is also in preparation, this will incorporate spectacular photographs by Bert Wells which were taken during the last season. Steve has been concentrating on the ground work for these publications during the last few seasons with a strong emphasis being placed on understanding the taxonomy of the genus Caladenia. Steve reported he will be making some major changes to the taxonomy of this genus, both at the species level and at higher levels of classification, these should be published in the near future.

Orchid Research - Past and Future (Continued)

Kingsley Dixon reported results of his work on orchid mycorhizza undertaken jointly with Robert Ramsay and staff at Kings Park. Kingley's group have now developed good techniques for the isolation of mycorrhizal fungi from the orchids. They have successfully obtained fungal isolates from most orchid species found in S W Australia and are presently testing their ability to germinate orchid seeds. Amongst other important aspects, the studies to date, have provided an understanding of the site of infection and the various infection patterns found within the different genera. Much of this information is presented in a draft manuscript which will be published this year. Ongoing studies are concentrating on determining the taxonomy of the fungi involved in the orchid associations, using anastomosis groupings and other techniques. Having established the identification of isolates, future work will concentrate on refining techniques so that it will be feasible to germinate orchid seeds on a large scale and grow them to maturity for conservation and study purposes.

My own research involves a detailed investigation of genetic aspects of Australian terrestrial orchids. My research interests are divided into three main areas:- 1) Chromosome numbers; 2) Pollination Biology; and 3) Post-zygotic phenomona. To date most of my attention has focused on the pollination biology of several orchid groups. In these studies I am investigating the interaction between pollination mechanism, pollinator movement and gene flow. I have prepared a detailed draft paper on the unique pollination of Leporella by sexually attracted male winged ants. This paper will be submitted for publication at the end of this coming season. I am also investigating the pollination systems of Caladenia gemmata and Prasophyllum fimbria and I will be conducting a detailed study of pollinator movements in Drakaea. During the next year I will also be concentrating on completing counts of representative species in as many Australian terrestrial genera as possible and will be undertaking a field trip in November to the eastern states to collect material for this purpose.

In conclusion I would like to thank those who participated in this informal discussion and in particular I would like to thank Andrew, Kingsley and Steve for allowing me to report here the information they freely shared. Our informal discussion clearly indicated a healthy future for orchid research in W A and served as a forum for discussion, positive criticism and co-operation between researchers of W A orchids.

Rod Peakall
Department of Botany
University of W A

W.A. NATIVE ORCHID STUDY & CONSERVATION GROUP (INC)

NOTICE OF MOTION TO AMEND THE CONSTITUTION

The following are the proposed amendments to be put before the general meeting on 21 May 1986-

22 DUTIES OF OFFICERS

a) The President

Amend by adding the following duty-
"Submit a report on the year's activities to the committee and after its approval by the committee to present same to the Annual Meeting of members"

c) The Secretary
Delete duty 2 (f) being - " To submit a report on the year's activities _ _ _ _ _ _ _ _ of members."
and
Amend duty 2(g) to read 2(f).

24 BANK ACCOUNT
Amend to read as follows -
"An account shall be opened at a Bank decided upon by the Committee and all monies received shall be banked therein. The account shall be operated by the President, Secretary, Treasurer and Field Trip Co-ordinator, any two of whom to sign cheques.

S.Van Leeuwen.
Hon Secretary
30 April 1986

THE ORCHID FLORA OF THE KIMBERLEYS.

The flora of the Kimberleys and particularly the Mitchell Plateau is floristically very rich and contains many taxa that are typically tropical in origin. The flora is somewhat similar to that found in Queensland and the Northern Territory and contains many elements that are found in other southeast Asian countries. The biological significance of the area is also reflected in the fauna, particularly in the reptilian and amphibian faunal assemblages, which are very species rich.

In recent evolutionary times, the flora of the whole Kimberley region was probably almost exclusively tropical but as time has progressed and climatic conditions have become drier, these tropical flora assemblages have retreated to the more favourable habitats and are now only found on the Mitchell Plateau and its adjoining islands. On the plateau the tropical species are particularly prevelant in the vine thicket communities. These communities are perhaps the most fascinating feature of the plateau, occurring in scattered isolated pockets that vary in size considerably. These thickets may contain as many as 60 species of trees but like most tropical forest communities contain only a sparse, very poor understorey community. These vine thicket communities are, at present, decreasing in size as a result of increases in the burning frequency on the plateau. Only one species of orchid, Dendrobium dicuphum is found in such plant communities.

These vine thicket communities are surrounded by the typical vegetation community of the plateau and the whole Kimberley region which is Eucalyptus savana. It is within these savana communities that the majority of the Kimberleys orchid species are found. The other major plant community of the plateau and the entire Kimberley region is the Pandanus-dominated savana. This community is confined to the areas of black soil and are relatively unexplored but may contain a number of orchid species, particularly around the Melaleuca-dominated swamps.

There are 12 species of orchid recorded in the Kimberleys, 2 of which are epiphytic. The two ephiphytes are Dendrobium dicuphum and Cymbidium canaliculatum var. canaliculatum. D. dicuphum is a spring-flowering species that produces its new growth in summer. This species is found growing in the vine thicket communities where it attaches to trees by means of its enormous root system, which may travel in excess of 1 metre per year. Through counts on the number of old bulbs present on a single plant it has been estimated that the age of some of these plants is in excess of 20 years. This species has, in recent years, been under considerable exploitation by wildflower/horticultural collectors.

C. canaliculatum var. canaliculatum, the other epiphytic species in the Kimberleys can be located in swamps and in the Eucalyptus-dominated savana communities where it is always found growing in a tree hollow high up in the canopy. Flowering peaks at the end of each year and this species is the most prolific seed setter in the Orchidaceae in Western Australia. It is hoped that this species will shortly be in culture in Kings Park.

There are 2 species of Calochilus recorded from the Kimberleys. The first is C. caeruleus, which is the species with a single leaf and is in peak flower in late January. Individual flowers last for approximately 3 - 4 days. From field observation it appears that it has a very high pollination success rate which may imply that it has the ability to self pollinate. This species is usually found growing in very moist conditions, usually in habitats where it has 'wet feet' throughout its vegetative stage. The temperature of the waters in which it grows has been recorded as high as 34° C. This species is, at present, under cultivation in Kings Park.

The second species of Calochilus recorded for the region is C. holtzei. This species may be found growing in dry habitats dominated by Eucalyptus species

and Livistonia eastonii, a native palm. This species is very robust and may stand from 1 - 1.5 metres tall. It appears to favour moist situations in the laterite soil and has an enormous tuber system. Flowering appears to last for as long as there is moisture present in the soil. Some confusion appears to exist over the taxonomic status of this species and it has been suggested that it may, in fact, be a new species of Calochilus.

Dipodium stenochielum is a leafless orchid found in the region. It grows in the Eucalyptus woodland savana communities and has light pink flowers. It is in flower in late January. This species, until recently, was referred to as D. punctatum.

One of the rarer orchids in the region is Geodorum densiflorum. This species is restricted to rock ledges and crevices along the edges of creeks and drainage lines, and particularly around water falls. Along these ledges and crevices it grows in leaf litter. The leaves on this species are above ground all year, a reflection most likely of the high moisture availability within its preferred habitat. Flowering commences in late December and continues through to late January. An unusual feature of this species is that the flowering spike bends abruptly at the base of the first flowers. This species is also found in the Northern Territory and Queensland.

There are three species of Habenaria present within this region, all of which occur on the plateau. This genus is characterised by having three lobes to the labellum, a nectary spur and 2 stamenal bundles at the front of the flower. The most common species on the plataeu is H. orchroleuca, which appears to have benefited from recent mineral exploration activities because it is almost exclusively located along the edge of roads and seismic lines. In this species the two side lobes of the labellum turn up to give a horn like appearance. The rarest species of Habenaria on the plateau is H. eurystoma. During the last field trip to the area only 10 plants were located. These plants were all growing in low lying, wet areas in open savana type country. The third specis of Habenaria is H. elongata and this is probably the most attractive of the three. This species has the longest nectary spur and labellum lobes of all Habenaria species and has lemon-yellow flowers. This species is commonly found growing in amongst grasses.

Two species that are found in the Kimberleys but which have not been observed flowering are Nervillea bracteata and Eulophia venosa. Both these species are early flowering, probably commencing in November and finishing by late December. Both species have a very similar leaf pattern and structure and thus are difficult to identify unless flowering. The leaves that they produce are similar to those of Cryptostylis. They grow in amongst grass to form a dense cluster of leaves are are aggressive vegetative spreaders.

The newest species to be discovered in the Kimberleys is Didymoplexis pallens. This species was discovered by Kingsley Dixon in January of this year. The species was found growing in amongst Sorghum in a wet area along the edge of a stream. Only one flowering plant was located and flowers that opened at 10.00 am were closed by 3.00 pm. The plant is a leafless orchid that has a very intensive underground tuber system. This genus is very similar to Gastrodia, differing in the number of calli rows on the labellum.

Unfortunately the future development of the mineral wealth in this region will probably come into conflict with the conservation value of the area. Therefore it is hoped that suitably large reserves will be established (i.e. the entire Mitchell Plateau region) and managed in such a way to ensure the survival of all the orchid species, their habitats and associated vegetation communities, and all the flora and faunal assemblages of the region.

(Summary of talk presented by Kingsley Dixon)

INVITATION FROM THE BUSSELL'S

Greg and Mary Bussell would like to take this opportunity to invite any members who are passing through the Margaret River area to give them a call and pop in and discuss the orchid wonders of the area. Maybe, if time permits, they will also go out with you and seek out some of their interesting local varieties and unusual species. They are currently awaiting the flowering of Caladenia aphylla which they found in large numbers in several localities last year.

WELCOME NEW MEMBERS

The committee would like to welcome the following new members and wish them a happy and rewarding involvement with the group. The new members are;

Beryl and Peter Brown.

MARCH NATIVE ORCHID BENCH

Only two species of orchid were on display at the March meeting. They were;

Pterostylis obtusa
P. vittata var. vittata

Both of the above species were grown by Noel Clarke. Noel collected the tubers for P. vittata var. vittata from the Gnangarra Pine Plantation. Noel stressed that both plants were grown 'roughly' and did not recieve any special attention besides being placed under shade-cloth in October - November and after being repotted in December. The potting medium consisted of a course layer of Gnangarra pine needles over the bottom of the pot followed by course grey sand and this was topped off with another layer of pine needles. The orchid tubers were planted in the grey sand after repotting

If any member is interested in obtaining a copy of '50 years: The Australian Orchid' please contact the secretary as soon as possible so that the appropriate number of copies can be ordered. Please inform the secretary by the 18th of June.

Rust Disease of Orchids - A W A Study

Annette Wilson (University of W A)
Kingsley Dixon (Kings Park and Botanic Garden)

Rust diseases are caused by obligate fungal pathogens. They reduce the photosynthetic area and the reproductive potential of plants.

Rust species of the genus Uromyces have been identified on three native orchid species by Mr Alpine (1906). These orchid species are:

Microtis porrifolia (NSW) Uromyces microtis
Chiloglottis diphylla (NSW, Tas, Vic) U. orchidearum
Thelymitra antennifera (Vic) U. thelymitrae

In W A outbreaks of rust on orchid species have often been observed in association with outbreaks of rust on cohort Goodeniaceae species. I have found rust on Microtis unifolia, Thelymitra crinita, and Thelymitra fuscolutea (from herbarium specimens). Department of Conservation and Land Management offices have also observed rust on Prasophyllum brownii and Diuris spp. in W A.

The project proposes to assess the extent of rust diseases on orchid species in W A, identify the causal fungi and to determine if any association exists between orchid species, rust species and non-orchid cohorts. The hypotheses to be tested are *1) Rust observed on orchid species in the field is caused by known rusts.*

2) Non orchid cohort species can act as reserves of inoculum for rust infection of orchids.

To test these hypotheses, as many orchid species with rust in the field are needed. From these plants infected leaves will be collected including similarly infected non orchid species at that site. The rust species involved will be identified using the spore shape and pustule characteristics. To test for specificity of rust species on orchids firstly orchids of the same species will be artificially inoculated to build up the source of rust spores. This procedure will also test if inoculating procedures and environmental conditions are suitable for the development of rust under controlled conditions. Using the rust inoculum cross inoculation will be done between cohort orchids and non-orchid cohort plants. The degree of rust infection on these associated species will be scored and recorded and the specificity of each rust will be determined.

With such an enourmous area of the state which could act as potential sites for orchid rusts members of the Study Group are kindly requested for assistance in this project. All that is required is that if a diseased orchid leaf is found in the field - characterised by small yellow- rusty coloured powdery spots (like wheat rust) that the infected portion is collected and sent to the address below. If this is not possible any details of species and sites where rusts are known or have been observed would be greatly appreciated.

This research is the first attempt since 1906 to determine the extent of rust diseases amongst W A orchids. As such it will be valuable for conservation of orchids especially for growers of W A terrestrials.

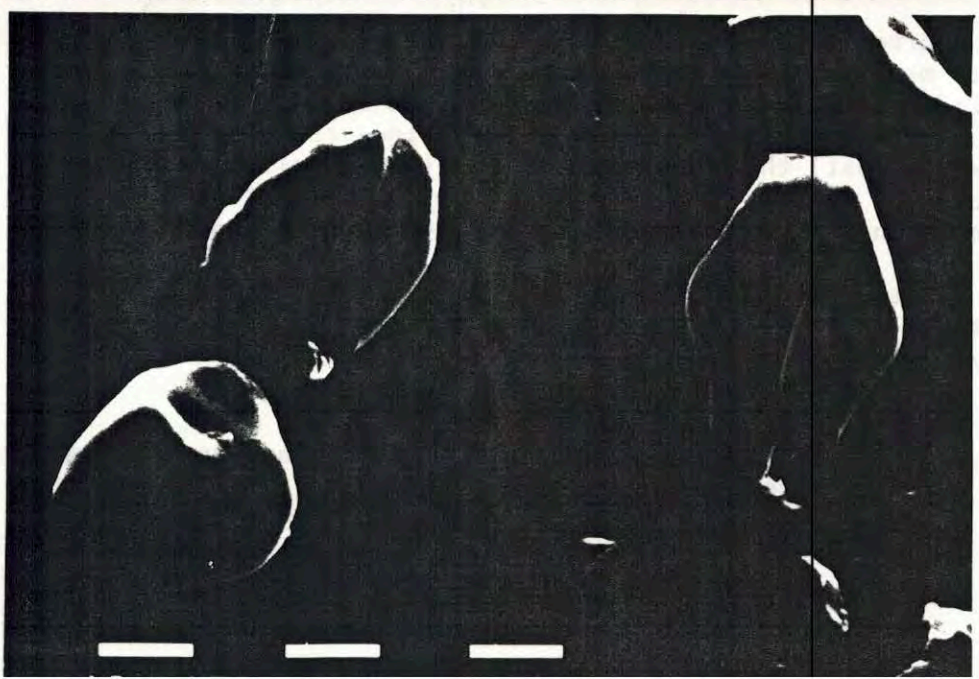
Please send material to: Annette Nicholl
C/o Kingsley Dixon, Kings Park and Botanic Gardens,
West Perth, 6006.

Many thanks.

ELECTRON MICROGRAPH OF RUST SPORES FROM W.A. TERRESTRIAL ORCHIDS.

Uredospores from Thelymitra fusco-lutea

Teleutospores from Microtis unifolia



Teleutospores from Thelymitra fusco-lutea var stellata.

The Hon. Secretary
W.A. Native Orchid Study
and Conservation Group
18 Jennings Way,
Lockridge 6054

Dear Sir,

I have been authorised to inform you that the Commercial Orchid Nurseries in Perth have formed an Association which has been called :

COMMERCIAL ORCHID GROWERS ASSOCIATION OF WESTERN AUSTRALIA

The Association is being incorporated in the State of W.A.

Founder members of the Association are :

CAIWARRA ORCHID GARDEN NURSERY, Railway Terrace, Sawyers Valley

CYMBIDIUM ORCHID NURSERIES W.A., Watsonia Road, Gooseberry Hill

HENLEY BROOK ORCHIDS, Gnangara Road, Henley Brook

PERTH ORCHIDS, Rockingham Road, Henderson

WONDAWEST, Marshall Road, Caversham

The aim of the Association is to promote the growing of orchids in general and to establish markets for orchid plants and flowers locally, interstate and overseas.

Promotion will be carried out through advertising, staging of exhibitions, tuition for home growers and any other means seen fit by the members.

Any members of your Group who are interested in the commercial aspect of orchid growing, should contact the Executive Officer of the Association for further information and basic requirements for membership of the Association.

Yours sincerely,

COMMERCIAL ORCHID GROWERS ASSOCIATION
OF WESTERN AUSTRALIA

(Louis C.de Beer)
EXECUTIVE OFFICER

Raffle Roster.

May...	W.Merrit.
June..	Val Preston.
July..	J.Tonkinson.

Supper Roster.

May...	J.Paish.
June..	J.K.St.Jack
July..	Pat Dundas.

REGISTERED BY AUSTRALIA POST
PUBLICATION No. WBH1240

41 GARDNER ST.,
COMO, 6152

Mr A Brown
[redacted]

Field Trips 1986

May 31st. June 1st. & 2nd. L.W.E. -R. gardneri Goomalling to Corrigin.
June 21st. or 22nd. Thel. verigata Ledge Point.
August 23rd. & 24th. Corybas Northcliffe.
Sept 7th. more Corybus ? Busselton.
Sept 27th 28th. 29th. L.W.E. Thel. psammophila Jerramungup.
Dec 6th & 7th. Late Caladinias Northcliffe.