



BULLETIN

OF THE

WESTERN AUSTRALIAN NATIVE ORCHID
STUDY AND CONSERVATION GROUP
(INC)

JUNE 1991

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OBJECTIVES 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 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 objectives.

NOTE: The opinions expressed by contributors to this bulletin are not specifically endorsed by the group.

POSTAL ADDRESS
OF GROUP

PO Box 323
Victoria Park 6100

NEXT COMMITTEE MEETING - Wednesday
19th June 1991 at 7.00pm, Kings
Park Board Administration Centre.

NEXT GENERAL MEETING - Wednesday
19th June 1991 at 8.00pm, Kings
Park Board Administration Centre.

Topic for General Meeting:-

Derek Mead-Hunter will be speaking
on snakes, snake-bites and how to
avoid being bitten while in the
bush.

GET WELL

Nancy Clarke will again soon be in
hospital having surgery on her
legs. We hope you are feeling
better soon Nancy.

BULLETIN CONTRIBUTIONS

Contributions are needed for every
edition of the Bulletin. Articles
should be sent to Marie French

The article submission deadline
for the next issue of the Bulletin
is 1st July, 1991.

ANNUAL GROUP MEMBERSHIP FEES

1991 Membership Fees are now due!

The group membership fees remain
unchanged for 1991 as follows:

Single Membership	\$15.00 pa
Family Membership	\$15.00 pa
Junior Membership	\$ 2.00 pa

LIFE MEMBERSHIPS

Last year the committee decided to
honour some of our longest serving
members with either Life Membership or
Honorary Life Membership.

These members are:-

Beryl Yates	- Life Membership
Andrew Brown	- Life Membership
Ron Herberle	- Life Membership
Harry Lodge	- Life Membership
Jean Long	- Life Membership

Don Voigt - Honorary Life Membership

On behalf of the committee and members
we extend our congratulations to all of
them.

FORTHCOMING FIELD TRIPS

Wave Rock - Hyden Field Trip

This trip has been arranged for
August 17th and 18th. Further
details about meeting time and
place in the next bulletin.

LETTER TO THE EDITOR

It is with great sadness that I am
informing the Club of my departure from
W.A!

W.A.N.O.S.C.G., has been my prime
interest for most of my 15 years in
Perth. Through the club I have met some
wonderful people, learnt so much and
seen more of WA than most.

The club has a valuable role to play in
the understanding and protection of
these wonderful plants. When I look back
at the information base of 15 years ago
the progress made in the knowledge level
of both amateur and professional
'orchidologists' has been outstanding.
It is exciting to contemplate the
future.

The club has been vital in nurturing
botanists who have developed a specialty
in orchids. This has meant that the
level of awareness of these orchids has
been considerably expanded.

The saddest thing is to assess the
amount of clearing of natural vegetation
over the past 15 years. The need for
conservation is becoming frighteningly
acute.

I am delighted to be among the few who
have found *Rhizanthella gardneri*. It was
a wonderful highlight.

The objects of the club are as relevant
as ever. I hope future generations of
members continue to follow their
guidance. Conservation is more important
than ever. I look forward to seeing any
of you who pass through Brisbane.

My thanks for a wonderful time. I wish
the club a long and vigorous future.

Alison Harrington
Committee 1978-84
Past President 81-83

The Committee and Members wish you well
for the future and thanks you for all
your past support. We hope you will
remain a W.A.N.O.S.C.G. member who
regularly contributes Field Trip Reports
on the Qld Terrestrials (and yes, if we
must, epiphytes).

FIELD TRIP REPORT - Brookton/Corrigin 4th May 1991

The turn out for the field trip to see *Genoplesium nigricans* was a small one (four cars), which met at Brookton, where we joined up with local member Judy Williams.

Judy led us to a disused Water Authority reserve, covered in She-oaks which looked very promising, where we hoped to find *G. nigricans*. Unfortunately we did not, however, we did find *Eriochilus dilatatus* and *Leporella fimbriata* in flower. This spot which is about 3km out of Brookton on the Brookton/Pingelly road is certainly worth a visit later in the year.

From there we travelled to the 186km peg reading towards Corrigin where we located *G. nigricans* which was growing over a large area. Surprisingly the majority of them had already gone to seed, however, we found sufficient in perfect condition to get some good photographs.

We then headed nearer to Corrigin, to a reserve about 10km short of the town where we had a general search, we found *E. dilatatus* in flower and *Pterostylis vittata*, just out of the ground as well as some *Pterostylis* rosettes. As it was now about 4.30 and raining we decided to call it a day and headed for home.

Nye Evans

Field Trip Report - Balladonia

Have just returned from Toolina Cove, 83 km east of Balladonia on the Eyre Highway, and then 73 Km south to the coast.

Travelled via Esperance and then along the Balladonia Track (196 Km) - no orchids but interesting country with rock outcrops.

The trip to Toolina Cove was to photograph *Banksia epica* (which we did), and in the same area found *Eriochilus* sp. and what appeared to be *Pterostylis sanguinea*. Plenty of plants in flower on top of a limestone cliff amongst low heath vegetation.

Bill Jackson

Field Trip Report - Wongan Hills 25th May 1991

Nine vehicles met at the Wongan Hills Railway Station on a beautiful autumn day. There was intense competition for the right to do the trip report - we won!

The first stop was reached by travelling on the Wubin Road, then left at the Waddington turn off for approximately

2.5 Km. The orchids found at this location were *Caladenia drummondii*, *Eriochilus dilatatus* and *Leporella fimbriata*. No other flowering orchids were located but leaves of *Diuris* and *Pterostylis* were claimed.

On the opposite side of the road we had a brief search for the Wongan Cactus - unfortunately the search was unsuccessful.

Lunch was next before moving to the Gathercole reserve. Searching over this granite hill only located a few *Eriochilus dilatatus* plants.

The group broke up and headed for home.

Roger & Matthew Jones

DISPLAYING ORCHID BADGES

Group member Kenn Cunningham has ordered several of the orchid badges that have featured in our Bulletin. He passes on the following comments with regard to displaying the badges.

"My wife has suggested that, as I now own a new electric router, I build her a coffee table with a glass top, to display the badges underneath. This idea could be passed on to other members".

Kenn Cunningham

LIBRARY - NEW BOOKS

1. Orchids of South Australia
- R.J. Bates & J.Z. Weber

At long last we have a book illustrating all the known orchids of South Australia. The book contains not only superb photographs of the orchid flora, but also provides detailed information on distribution and habitats. In addition keys are included to aid in identification.

2. An introduction to the Orchids of Asia - M.L. Isaac-Williams.

This book describes over 180 orchid species with descriptions, distribution notes and superb illustrations. Included are orchids from habitats as varied as the Himalaya Range, the tropical jungles of Malaysia, New Guinea and Northern Australia, and the temperate and subtropical country-side of Taiwan, Japan and Hong Kong.

CALADENIA GRAMINIFOLIA RESEARCH

Dr. Rod Peakall is hoping to study the population genetics of *Caladenia graminifolia* as part of his current ARC Postdoctoral Research Fellowship project on the "Genetic consequences of deceptive orchid pollination strategies".

This project commenced in January of this year and is funded for 3 years. The aim is to compare pollination behaviour, pollen flow and population genetic structure in three contrasting pollination systems: (i) sexual deceit, (ii) food deceit, and (iii) food reward. Because *Caladenia graminifolia* is a self pollinating species it is of particular interest and will be studied along side the related *Caladenia dilatata* which is pollinated by sexual deception. Rod would greatly appreciate hearing from anyone who can provide details of locations and flowering times. All research is non destructive, whole plants will not be collected, and location details will remain confidential. If you can help please write to:

Dr. Rod Peakall
School of Biological Science,
Macquarie University NSW 2109
Ph (02) 805 8156 or Fax (02) 805 8245

Dr. Rod Peakall has also sent us a number of articles he has written in the past about his research into our native orchids, particularly *Leporella fimbriata*. We will run the articles over the next few months and then pass them onto our library. We wish to extend our thanks to Dr. Peakall for allowing us to reproduce the articles for you.

TWO HUNDREDTH ANNIVERSARY OF EUROPEAN DISCOVERY OF W.A. NATIVE ORCHIDS

This September, 200 years will have elapsed since the first W.A. Terrestrial orchids were collected for botanical research.

Their collection was recognised by the naming of *Caladenia menziesii* (now known as *Leptoceras menziesii*).

The following extract is from Ron Herberle's "History of Orchid Collecting in South Western Australia 1791-1971", reprinted from "Orchids of Western Australia Cultivation & National History" (1st Ed), Edited by Kingsley W. Dixon & Bevan Buirchell.

H.M.S. "Discovery" under the command of Captain George Vancouver en route to North America discovered King George's Sound (Albany) in 1791. During thirteen days (28th September - 11th October) Vancouver explored the area and named King George's Sound - Bald Head - Breaksea and Michaelmas Islands - Princess Royal and Oyster Harbours.

Archibald Menzies had been appointed to the expedition under the sponsorship of Sir Joseph Banks with the instructions to study climates, report on soil fertility, collect samples of seeds, plants and shrubs, and to put the earth and rocks to his microscope.

His remuneration was to be eighty pounds per year.

He made extensive collections of plants at King George's Sound, however, most were lost before the "Discovery" returned to England three and a half years later.

Robert Brown wrote up and published the surviving specimens in his epic work *Prodromus Florae Hollandiae et Insulae Van Diemen* in 1810 (the forerunner to the *Flora of New Holland and the Island of Van Diemen*). This work contained the first three terrestrial orchids to be named and described from New Holland (the south western part of W. Australia). One of these was named in Menzies honour.

- * *Caladenia menziesii*
- R. Brown - Prod. 1810
- * *Caladenia flava*
- R. Brown - Prod. 1810
- * *Diuris longifolia*
- R. Brown - Prod. 1810

As at least 30 orchids flower in the area during September - October, we must assume that if collected, they were among the lost specimens.

Over the next few months we will run a series of articles prepared by the Royal Western Australian Historical Society about W.A.'s "Pioneer Botanists" as part of our club's tribute to the anniversary of 200 years of W.A. Native Orchid collection and research.

PIONEER BOTANISTS OF WESTERN AUSTRALIA by G.G. Smith

To appreciate fully the history of botanical investigation in the early years of Western Australia it is necessary to have some idea of the development of botanical science in Europe in the nineteenth century.

The study of botany is generally considered to have reached a peak in descriptive work in the latter part of last century. Botanists of Great Britain and continental Europe were then largely occupied with describing and naming plant species of their own and distant countries. Although much descriptive work is still being done, botany in the twentieth century is essentially in a period of experimental research into the nature of the physiology, heredity and sociology of plants.

The grand period of descriptive botany had for its centre Kew Gardens of England. It is worthwhile to mention something of the history of Kew Gardens as they are linked with the history of colonial times in Australia through the botanical expeditions sent out to the colonies by the directors of this famous centre.

In the year 1772 George III inherited his mother's property, Kew House and its extensive private botanic gardens. To this property he added an adjoining garden property of some size and so established Kew Gardens as a public botanic garden under the directorship of Sir Joseph Banks. Banks, of course, was later to accompany Cook on his first voyage around the world and to be the first botanist of Kew to bring back extensive information of the flora of the east coast of Australia.

Banks directed Kew Gardens for forty-eight years in which period he inaugurated the policy of close co-operation between Kew and the Empire - a policy ever since followed by his successors. He sent many collectors to British colonies and foreign countries to bring back living specimens for the Gardens and pressed specimens for the Herbarium. In this way many beautiful plants such as fuchsias and hydrangeas were introduced into English gardens.

More important of course was the study of the collections of dried and pressed plants for their academic botanical value and for their possible commercial value such as was found of the bread-fruit plant, species of tea, the cinchona and rubber plants.

After the death of Banks and George III both in the year 1820, Kew declined for lack of efficient directorship, becoming no longer a growing scientific institution but more a royal pleasure garden without a serious purpose. By 1840 this decline was arrested by a group of botanists who petitioned Parliament to proclaim the gardens a national centre of botanical science for the Empire. Fortunately, Parliament had the foresight to see the value of this suggestion and in 1841 Kew became the National Gardens under the directorship of a botanist, Sir William Hooker. From that time onwards Kew flourished as the botanical centre of the British Empire, if not the world.

Between 1865 and 1885 Sir Joseph Hooker, son and successor of Sir William, directed the Gardens and its large Herbarium. It was Sir Joseph who inaugurated the writing and publication of a series of floras or works describing and naming the plants native to many parts of the Empire. Hooker himself wrote "*Flora of British India*" and other descriptive works. George Bentham aided by Baron Ferdinand von Mueller wrote "*Flora Australiensis*" - a remarkably ambitious work for its time, describing all the then known species of Australian plants. Other authors wrote similar works on the floras of the West Indies, Ceylon, Tropical America, South Africa and Hong Kong.

Along with this highly valuable work the botanists of Kew and allied institutions helped the colonies with the agricultural problems, dispensing plant of economic value from the collections within their glass houses.

It was during these most glorious years of Kew that the botanical exploration of the Australian colonies revealed to the world of science the vast flora of the great South land.

DELIGHTFUL ORCHID DESCRIPTIONS

Margaret Adamson, who is convalescing after hip surgery, has again discovered more beautiful descriptions of our Native Orchid around the Subiaco Area. These are in the new Connie Miller's book titled *Season of Learning* (1983), University Press) on page 121. Thank you Margaret for passing on this information. We all hope you feel much better and we look forward to seeing you at meetings and on field trips soon.

FOR SALE

ORCHIDS OF WESTERN AUSTRALIA..2ND EDITION.

WANOSCG's second publication of the cultivation and natural history of WA native orchids is now available with 14 pages of COLOUR PHOTOGRAPHS.

THE BOOK IS PRICED AT...

\$ 9.00 (plus \$2.00 postage) for WANOSCG members. OR

\$12.00 (plus \$2.00 postage) for non-members.

THELYMITRA APICULATA BADGES

The badge features *Thelymitra apiculata*, a beautiful orchid, the status of which is not declared rare and endangered, but is under the scrutiny of CALM.

The badges cost \$4.00 (plus \$1.00 postage and packaging).

ANOS BADGES

Remember the *Diuris purdiei* conservation badge?

The second conservation badge, featuring *Dendrobium bigibbum*, is available for \$4.50. All profits from the sale of this badge will be used for orchid conservation.

Also available for \$3.00 is the badge for the 1st Australian Native Orchid Conference. This badge features *Pterostylis gibbosa* which has been chosen as the logo for this conference.

Please add \$1.00 postage and packaging to each order.

Pseudocopulation of an orchid by male ants: a test of two hypotheses accounting for the rarity of ant pollination

R. Peakall¹, A.J. Beattie², and S.H. James¹

¹ Botany Department, University of Western Australia, Nedlands 6009, Australia

² Department of Ecology and Evolutionary Biology, Northwestern University, Evanston, IL 60201, USA

Summary. The orchid *Leporella fimbriata* is pollinated by pseudocopulation with winged males of the ant *Myrmecia urens*. This recently studied interaction provides a unique opportunity to examine the two current hypotheses concerning the apparent rarity of ant pollination systems worldwide. The first hypothesis requires a series of specialized growth forms and floral characteristics regarded as adaptations to ant pollination. *L. fimbriata* does not possess them. The second considers the pollenicial effects of secretions from the metapleural gland of ants. These glands are absent in *M. urens* males and it may be that the occurrence of ant pollination requires the absence of metapleural glands in the vector.

Key words: Ant pollination – Orchid – Pseudocopulation – Metapleural gland

Bees and wasps are important pollinators of native and domestic plants throughout the world. Ants are closely related and are as morphologically, physiologically and socially advanced, yet, their role as pollinators is negligible (van der Pijil 1955; Faegri and van der Pijil 1971; Proctor and Yeo 1973; Beattie 1982, 1985). Two hypotheses have been advanced to explain the rarity of ant pollination and the recent discovery of pollination of an Australian orchid by pseudocopulating male ants provides a unique opportunity to examine the relevance of these hypotheses.

The first hypothesis states that because ants are smooth, small and flightless, little pollen can adhere to them and pollen transfer between plants does not occur because inter-plant distances are relatively large (van der Pijil 1955; Faegri and van der Pijil 1971; Proctor and Yeo 1973; Schubart and Anderson 1978; Armstrong 1979). Effective pollination by ants therefore, requires adaptive specializations of the plant which overcome these apparent shortcomings. The few possible cases of ant pollination have been examined to identify these adaptations and as a result, a syndrome of traits thought to be characteristic of ant pollinated plants has been assembled (Hickman 1974). Several traits concern the accessibility of flowers to small crawling insects and

the reduction of distance between flowers of different plants. They include a short, prostrate cushion or mat forming plant habit with interdigitation of branches from adjacent individuals and sessile flowers. Other traits include small flowers with low nectar volumes and few concurrently open flowers. These traits would promote outcrossing by forcing ants to move between flowers and between plants in order to harvest sufficient rewards. In addition, small pollen volumes per flower may discourage grooming behaviour which removes pollen from the ant integument. A corollary to this trait is that there should be few seeds per flower. This syndrome provides a convenient test of the first hypothesis as it leads to the prediction that a high proportion of these traits should be shared by all ant pollinated plants.

The second hypothesis is based on a series of recent studies demonstrating that pollen exposed to the ant integument for brief periods exhibits reduced viability and germination (Beattie et al. 1984, 1985). The detrimental effect is caused by contact with secretions from the metapleural glands. These secretions, which become distributed over the integument, are strongly antibiotic, and have an inhibitory effect on the spores and hyphae of entomogenous fungi (Beattie et al. 1986). It has been suggested that the disruption to pollen function, while probably coincidental, is likely to be a reason why ant pollination is rare. A fundamental prediction arising from this hypothesis is that ants which are pollinators will not possess metapleural glands, or plants pollinated by ants will possess mechanisms which avoid or overcome the deleterious effects of metapleural secretions on pollen.

Leporella fimbriata (Lindl.) George is a widespread monotypic terrestrial orchid from southern Australia. One to three red and green flowers 2–2.5 cm across are borne on erect scapes 12–30 cm in height. Flowers have no detectable scent and do not offer food rewards of any kind. Flowering scapes may form stands, reaching densities of 30 per m², but contact between scapes is rare. Pollen is shed as pollinia, each mass consisting of an estimated 100 000 grains. Pollination results in fruits which contain several thousand seeds. The species blooms unusually early, in the austral autumn (March to June).

Leporella fimbriata is exclusively and effectively pollinated by sexually attracted winged males of the ant *Myrme-*

Table 1. Summary of pollination data for *Leporella fimbriata* based on 350 h of field observation over 3 seasons (1984–1986) in Western Australia

Category	Number of flowers	Number of pseudo-copulations ^a (by ants bearing pollinia)	Mean number of seeds per fruit
Observed flower visits by ants ^b	57	33 (27)	4865 ± 1316 ^c
<i>Control flowers</i>			
Ants excluded no hand pollination	20	0	0
Ants excluded hand pollinated	20	0	4775 ± 1117 ^c

^a Some recorded on video

^b only male *M. urens* were observed to visit this orchid

^c $n=4$, $t=0.104$, d.f. = 6, n.s.

cia urens Lowne (Table 1). The vector is 8–10 mm in length and typically approaches the flower upwind in circling and zig-zag flight patterns characteristic of insects orienting by scent. On reaching a flower, the ant grasps the labellum which is 8–12 mm wide, more or less flat with gentle curvature at the sides, and orients itself at right angles to the floral axis (see Peakall 1984 for photographs). The tip of the abdomen probes along the side of the labellum as the ant carries out vigorous copulatory movements. At the same time, pollen masses on the dorsal thorax which have accumulated during previous flower visits are held in contact with the stigma. As the ant prepares to depart, its body movements dislodge a fresh pollinium which adheres to the thorax by means of stigmatic secretions.

Petal tips removed from the flower attracted vectors but did not elicit a copulatory response. This suggested that the glandular tips are the source of attractant, probably a pheromone similar in effect to that emitted by the sexually active queen ant (see Jacobson 1972). As with other orchids, the texture, dark colouration, size and curvature of the labellum is thought to complete the mimicry, acting as a short range tactile and visual stimulus of mating behaviour (Kullenberg and Bergstrom 1973, 1976; Stoutamire 1983).

Successive pollination events involving a single vector and different scapes were observed on a number of occasions. The mean flight distance, including flights between orchid flowers and other vegetation, was short, (3.1 ± 4.5 m, $n=34$) but some were as long as 15 to 20 m. Pollen germinates on the stigma within 2 to 3 days of pollination. Fruit capsules become notably swollen at 6 to 10 days and dehisce 45 to 75 days later. The percentage of flowers pollinated in populations where ant pollination was observed varied from 11.1 to 47.6%.

Leporella fimbriata does not exhibit the syndrome of traits commonly regarded as adaptations for pollination by ants. Its form is not prostrate nor dense, branches do not interdigitate, and the relatively large flowers born on erect scapes are not small or sessile. In addition, most flowers in a population tend to open synchronously, large amounts of pollen are produced and the fruits contain thou-

sands of seeds. Although the vectors frequently groom, they are unable to dislodge the pollen masses. These data demonstrate that ant pollination is not confined to plants exhibiting the traits associated with the first hypothesis nor to habitats where environmental conditions favour a prostrate plant form. Rather, they suggest that plant form is not the determining factor in the evolution of ant pollination.

Absence of metapleural glands in ant vectors would support the second hypothesis. Indeed, dissection and scanning electron microscopy of several pollinators revealed that these glands are not present in *M. urens* males. It appears, therefore, that ants may function as pollinators of plants with specialisations very different to those associated with the first hypothesis. In the case of *L. fimbriata*, these specialisations include a flowering period which coincides with the emergence of the winged sexual castes, the production of attracting pheromones, and the possession of petals modified as pseudocopulatory organs. The utility of these adaptations, however, is apparently predicated upon the absence of metapleural glands and their pollenicial secretions. Metapleural glands are present in most ants, but are known to be absent in the males of some species, and absent from all castes in three genera (Holldobler and Engel-Siegal 1984), including the genus *Camponotus*, of which one species *C. compressus* is reported as a pollinator of coconuts (Patel 1938). Further research will reveal whether or not pollination by ants is confined to ant castes or genera which do not possess metapleural glands or plant species which have evolved mechanisms avoiding the affects of metapleural secretions.

Acknowledgements. We wish to thank G. Browning for identifying ant specimens. Dr. R.W. Taylor (CSIRO, Division of Entomology, Canberra, Australia) who confirmed the lack of metapleural glands by dissecting several specimens, and T. Hough for scanning electron microscopy. R.P. held an Australian Commonwealth Postgraduate Award during part of this study and additional funding was provided by the Australian Orchid Foundation; both sources of support are gratefully acknowledged.

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A.N.O.S. RAFFLE

John Riley produced a drawing of *Dendrobium kingianum* which graced the cover of the Proceedings of the 1st Australian Native Orchid Conference and Show, held at Woolongong last year.

After determined efforts the original drawing has been returned to the A.N.O.S. Council and John has graciously donated it to A.N.O.S. for use in fund-raising. It is intended to use the funds gained to defray the costs incurred in printing of the Proceedings.

Council has arranged that the drawing be framed (non-reflective glass) and decided that it should be raffled; a second prize of a Schlechter's *Orchidaceae* of German New Guinea has also been donated.

Tickets are \$1.00 each. The raffle will be drawn at the A.N.O.S. Annual General Meeting in late August (actual date and venue to be advised later).

ORCHID SPOONS

The Victorian Group of ANOS has announced it intends producing a third series of three spoons featuring Australian Native Orchids. This series will feature:-

Dendrobium kingianum
Calochilus richiae
Sarcophilus ceciliae

The spoons will be released in July/August of this year and will be priced at \$5.95 (less 25% for order of 12 or more).

Please let Chris French know if you want to purchase any of the spoons so that an advance order can be placed.

MINUTES OF THE W.A.N.O.S.C.G. GENERAL MEETING 15TH MAY 1991

PRESENT and
APOLOGIES as per the attendance book.

New members present and welcomed were Frank Kelly and Joanne Armstrong.

- Pijil L van der (1955) Some Remarks on Myrmecophytes. *Phytomorph* 5:190-200
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- Stoutamire W (1983) Wasp-pollinated species of *Caladenia* in South-western Australia. *Aust J Bot* 31:383-394

Received June 9, 1987

MINUTES

The minutes of the 17th April were as published in the Bulletin.

Moved Harrington/Clarke "that the minutes be accepted as read".
 Carried.

BUSINESS ARISING

Plastic strips were not used on last field trip.

CORRESPONDENCE

Inward: As tabled

Outward: As tabled.

Moved Clarke/Greeve "That Inward Correspondence be accepted and Outward Correspondence be ratified".
 Carried.

TREASURER'S REPORT

As circulated.

Moved Parker/Swarts "that the Treasurer's Report be accepted".
 Carried.

FIELD TRIPS As Bulletin.

PLANT TABLE Nil.

GENERAL BUSINESS

Orchid Society of WA Conference to be held at Ascot Racecourse 13th-19th September. It was agreed that materials be purchased as needed for WANOSCG display.

People offering to assist were Ian Greeve, Noel Clarke and Bill Burton.

Kingsley Dixon gave a very interesting talk on propagation of orchid material.

'Five in One Survival Aids' were purchased and will sell to members at a cost of \$6.00 each. They comprise of a waterproof matchbox, compass with luminous dial, shrill whistle, fire starter flint and lanyard, all in one small compact case.

Supper was provided by J. Greeve, and D. Burdinat provided the raffle which was won by Roger Jones.

The next meeting is to be held on June 19th, 1991.
 Meeting closed 9.40pm.

*Pk up Lander
from Steves
See Patrick Field on Thursday*

SUPPER ROSTER

Jun - A. Evans
Jul - A. McKay
Aug - T. Bishop

RAFFLE ROSTER

Jun - L. George
Jul - C. French
Aug - K. Bolin

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Forthcoming Field Trips

17th & 18th August - Wave Rock, Hyden.