BULLETIN

OF THE

WESTERN AUSTRALIAN NATIVE ORCHID STUDY AND CONSERVATION GROUP (INC)

MAY 1989

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THE WESTERN AUSTRALIAN NATIVE ORCHID STUDY & CONSERVATION GROUP

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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.

$10.00 Roadhouse Corrigin.

NEXT COMMITTEE MEETING

Wednesday, 17th May, 1989, at 7.00 p.m., Kings Park Board Administration Centre.

NEXT GENERAL MEETING

Wednesday, 17th May, 1989, at 8.00 p.m., Kings Park Board Administration Centre.

TOPIC FOR EVENING

The speaker at the next meeting will be Mr Angas Hopkins from the Department of Conservation and Land Management. Angas's topic for the evening is the Effect of Global Climate Change on Nature Conservation in Western Australia. An outline of Angas's talk and the issues that he will discuss are presented in the following pages.

BULLETIN CONTRIBUTIONS

Contributions are wanted for every edition of the bulletin. Articles should be sent to [redacted] or [redacted]. Your articles can be sent by facsimile machine if you wish, the number of which is [redacted]. The article submission deadline for the next issue of the bulletin is May, 26th.

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 next group field trip is planned for the 10th - 11th of June and is to the Corrigin-Bruce Rock area in search of the Underground Orchids. Rhizanthella gardneri. Arrangement for accommodation on Saturday night have not been formalized but should be available by the May meeting. If you cannot attend this meeting and wish to know what arrangements have been made please contact Ian Greeve [redacted].

The group will meet at Corrigin on Saturday at 10.00 am outside the main Shell roadhouse on the Brookton-Kondinin Road (Brookton Highway).

Besides R. gardneri members will also probably see Caladenia drummondii, Eriochilus dilatatus, Pterostylis vittata, and P. scabra var. scabra.

DIURIS PURDIEI

For those members interested in the plight of Diuris purdiei and its survival in the Canning Vale area this bulletin contains two recent newspaper articles which may be of interest. This plight of D. purdiei will also be discussed on radio station 6WN during the Earthworm program on the 17th of May. This program goes to air at 5.30 and is on the same evening as the May general meeting.

ORCHID SEED AVAILABLE

The Australian Orchid Foundation has advised that it has just received fresh seed material for a number of Western Australian species. The cost, should anybody be interested, is $1.00 for the first serve selection, then $0.50 per serve for any other selection made. The seed may be obtained from Erhard Wusted, Seed Bank Curator, Australian Orchid Foundation, 81 Darvall Road, West Ryde, NSW 2114.

The species for which seed is available are:

Caladenia flava, C. pectinata, C. sericea, C latifolia, C. filifera, C. longicauda
Cyrtostylis huegelii
Diuris longifolia
Elythranthera brunonis
Pterostylis nana, P. recurva
Thelymitra macrophylla, T. pauciflora, T. nuda, T. aff. mucida.

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EFFECTS OF GLOBAL CLIMATE CHANGE

ON NATURE CONSERVATION IN WESTERN AUSTRALIA

OUTLINE

by Angas Hopkins

For the purposes of this paper it is convenient to identify 3 orders of effects resulting from the postulated climate change.

First order effects are those that are a direct consequence of climate change. Most living organisms have a pattern of distribution across the State that can be related directly to climate patterns, particularly rainfall (amount and seasonality).

Second order effects include such things as rise in sea levels and increases in storm surges, lowering of lake levels and ground water tables and changes in stream flow. Changes in sea levels have the potential to create major problems for nature conservation in Western Australia where islands are an important component of the reserve system.

Tertiary effects follow from changes to land use and land management practices as a consequence of climate change, for example, it may be that problems of land degradation in the wheatbelt are exacerbated by the changes in climate in coming years. This could have a major impact on conservation lands (including wetlands) in lower parts of the landscape.

As noted above, distribution of most terrestrial native plants and animals, and communities of same, can be correlated with existing patterns of climate. It is reasonable to assume, therefore, that changes in climate patterns will have the effect of forcing changes to distribution patterns.

Major changes in climate over the past c. 2.5 years have caused major extensions and contractions of ranges of many plant and animal species in Australia (and elsewhere). However, these occurred prior to fragmentation of the landscape - ie. the habitats were continuous and so migration was possible. A second consideration is that the rates of change of climate previously were much lower than those postulated for the Greenhouse effect. The organisms were able to respond to slow change - it is not at all certain that they will have the capacity to respond to the rapid changes expected in the next 50 years.

Significant rates of extinction can be expected as a result of postulated climate change. Which actual organisms go extinct will depend on a complex of factors. For example, the climate may remain within the potential niche of a particular species but changes in relative importance of other species may so influence competition that the species goes extinct.

One solution to this particular problem that has been put forward is to establish migratory corridors across fragmented landscapes particularly along existing climatic gradients. However this presupposes that climatic changes will be manifested along those existing gradients - this has not been the case in the past. Further, it is likely that plants (and therefore habitats) and many sedentary animals will not migrate across the landscape of their own accord at a sufficient rate to keep pace with changes in climate.

One further option is to identify refugal habitats and focus management attention on those. These refugia are places where it is known that plants and animal species survived past climatic changes. For example, the Stirling Ranges and Mt Lesueur have a number of highly restricted endemic plant and sedentary animal species mainly associated with moisture upland areas.

Major scientific issues to be addressed are:

- What are the current distributions and abundances of species across the landscape?
- How will species respond to climatic changes, by moving or evolving?
- Where should reserves be sited to encompass the most species now and in the future?
- Are there widely applicable guidelines for off-reserve management to maintain species diversity?

- Will the effects of land use changes override those due to climatic change along.

Considering the first of these issues, the question becomes:

What is the distribution of all organisms in relation to environmental variables? It is recognized that complete inventory is impossible, therefore there is a need to collect data on a subset of organisms. How can we select appropriate subsets? A first approach would be to select species that are climatically sensitive and/or vulnerable (geographically localised, small total populations, specialized especially where part of the life cycle is linked to some climatic factor, poorly dispersed, restricted to rare or threatened environments).

In a similar way each of the 5 listed scientific issues can be broken down into key questions, each of which will require further refinement through research.

Little attention has been devoted to the issue of first order climate change on nature conservation values in marine and estuarine environments. However, it should be noted that these will be particularly affected by changes in sea level and tidal/storm surge regimes. For example, coral reefs and sea-grass are vulnerable to changes in water depth and turbidity.

Islands are important for nature conservation in Western Australia for reasons which include:

- they are repositories for plant and animal species that are now not found on the mainland. In some cases, animal species that were widespread across Australia are now confined to island populations; and

- they provide important resting and breeding habitat for seabirds and marine mammals.

Many Western Australian islands will be severely affected by postulated changes in sea level and storm surges.

At this point there is a great deal of uncertainty about the likely changes in climate and the consequences for nature conservation. Predictions about the changes to climate will continue to be refined but our knowledge above response of the biota will remain poor unless we take action now. One priority initiative should be to establish a network of well documented biological monitoring sites which can be used to gauge consequences of change as they occur.

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

CULTIVATION OF AUSTRALIAN TERRESTRIAL ORCHIDS

Dr Bevan Buirchell

There are twenty one genera of terrestrial orchids native to the south west consisting of approximately three hundred and twenty species. At sometime a representative of nearly all the genera has been cultivated in a pot with variable success. The only genus which is not capable of surviving in pot culture is Gastrodia since this orchid is a saprophyte and totally dependent on soil fungi for its nutrients. The most popular orchids to grow are the Diuris (Donkey Orchids), Pterostylis (Greenhoods), Caladenias (Spider Orchids), Thelymitras (Sun Orchids), Elythrantheras (Enamel Orchids) and Eriochilus (Bunny Orchids). The easiest orchids to grow for the beginner would be the Diuris and Pterostylis species - these orchids reproduce rapidly, flower more readily and are more forgiving to poor cultivation techniques.

In cultivating any orchid, whether it be a terrestrial or an epiphyte one must keep in mind the type of climate that the orchid naturally grows in and try to mimic those conditions as near as possible. The terrestrial orchids of W.A. are adapted to a Mediterranean type climate. The orchids normally follow an annual growth cycle consisting of 6-8 months as growing plants under cool, moist conditions and 4-6 months as dormant tubers in hot, dry conditions.

Soil Mixes

Soil mixes can vary depending on the type of orchid and growers preference. Basically they must be open, free draining mixes containing some organic matter for the fungi to live on. The following are some examples of soil mixes that have been used successfully;

1)	coarse sand	45%
	loam	40%
	peatmoss	15%
2)	coarse sand	40%
	rich loam	20%
	buzzer chips	20%
	leaf mould	20%
3)	coarse sand	25%
	coastal plain sand	50%
	loam	10%
	peatmoss	15%

The best peatmoss is the imported type which can be broken up into find particles and incorporated into the soil mix. The local peats can be either too salty or made up of mulched sawdust, both of which are unsuitable for orchid growing.

Housing of Orchids

Most of the terrestrial orchids can be adapted to growing under 50% shadecloth. Some of the Pterostylis and Cyrtostylis prefer heavier shade and should be placed either under benches or in the shadier areas of the shadehouse. The spring flowering species can take higher light intensities at flowering time and some flowers may not open properly under full light conditions (eg Thelymitras). If the leaves and stems are weak and limp or if the leaf rosettes are drawn up to the light then shading is too dense and the amount of light should be increased.

All species prefer good air flow and will not thrive in stuffy humid conditions.

During the summer dormant period pots can either be left in the shade house or stored away in a cool, shady spot like in your cellar or up against the south side of your house.

Watering

The watering regime depends on the stage of growth of the orchid and the rainfall.

Summer: Over summer the orchid is dormant and does not require water for growth however it does require water in the soil to prevent total desication of the tuber. Therefore a little water is desirable but only to just dampen the soil not to wet it thoroughly. Excess watering over the summer will lead to the tuber rotting away.

Autumn: The pots should be moved into the shadehouse, if necessary, at the end of February and watering should commence at this stage. Initially soak the pots thoroughly - this is especially important with mixes containing coastal plain sand as this is water repellant and very difficult to wet. Regular watering every couple of days should commence until the advent of the rains.

Each tuber sends up a shoot to the surface in Autumn and leaves grow rapidly in late Autumn/ early Winter as the rains set in. Pterostylis are usually the first to appear in March, followed by Diuris in April, Caladenias and Thelymitras in May.

Winter: Watering during winter is only required if there are any dry periods between the rain patterns.

Spring: Watering should be continued during the dry periods until after flowering. Once flowering has finished and seed is set and collected watering can be reduced. When the leaves start to die off watering can be stopped and the plant allowed to die back completely. This process of dying back and lack of water induces dormancy.

And so the cycle goes around again. It is recommended that for any orchids that usually grow in swamps or very damp areas that they be placed in a shallow container of water so that they remain constantly wet. Over watering is not a great problem with these orchids if you have a good draining soil mix.

Fertilizers

Be very careful with fertilizers as the terrestrial orchids can be easily burnt or killed by overuse. Diuris and Pterostylis are very hardy and will benefit from weak applications of folia feed in the early growth stages. The addition of a small quantity of blood and bone or similar organic fertilizer to the soil mix may be of benefit. Do not use fertilizers, fungicides or insecticides on the more difficult to grow Caladenias or Thelymitras. These species depend upon a delicate association with certain soil fungi, an association that can easily be upset by certain chemical treatments.

Pests and Diseases

The terrestrial orchids do suffer from fungal diseases such as rust and leaf rot. Most of the leaf rot can be prevented by making sure the shadehouse has adequate air circulation. Leaf rot can be treated with a fungicide like Benolate, but the solution should be applied directly to the leaf and never used as a drench.

Snails, slugs and caterpillars treat orchids as gastranomic delights. These creepy crawlies can devastate your collection of orchids in one sitting. Apart from keeping the orchids off the ground and having supplies of snail and slug bait spread around on the benches, the only real solution to the snail problem is constant vigilance.

Multiplication

Terrestrial orchids can be multiplied by seed and by vegetative means.

(a) Vegetative

(i) Pterostylis, Diuris and some Caladenias can multiply successfully in a pot and fill the pot in a couple of years. These orchids produce more than one tuber each year. Pterostylis can produce up to 7 new tubers each year. Diuris usually produce 2 tubers per year.

(ii) There is an artifically way in which the orchids can be helped to produce more than one tuber per year. By the time the orchid has reached flowering stage it has replaced its old tuber with a new one. This tuber can be removed by tipping the pot upside down, remove the dirt to expose the new tuber then gently twist the new tuber off the plant at the base. Replace the dirt, put the plant back in the pot and continue to water the plant regularly. The orchid is capable of growing another tuber to replace the one you have removed. The tuber you have removed should be potted up and treated like a plant going into dormancy, that is, start to cut back the watering and allow the pot to dry out.

(b) Seed Seed can be produced by pollinating the orchid either with its own pollen or from another similar species. Seed takes about six weeks to mature and the pods should be collected when they start to yellow off. Do not wait till the pod splits or else you will loose most of the seed. Store the seed in a small envelope or a similar paper container. Keep it in a dry cool area until the following March. Seed can be sprinkled around a mother plant in March, preferable under the sheok or similar mulch that covers the top of the pot. Be careful when you water that you do not over fill the pot and wash the seed away. Some

seedlings will appear in spring. Do not repot the following year as the seedling tubers are very small and hard to find. Take special care that the top of the pots is covered over summer to prevent the seedling tubers from drying up completely.

Flowering

Not all the orchids are capable of flowering every year, some like Caladenia menziesii and Lyperanthus nigricans only flower, at least in the bush, after a summer fire. Some growers have stimulated flowering in these species by placing the pot in a plastic bag with a green banana skin and leaving it there until the skin turns brown. The best time to do this is around February. The banana skin gives off ethylene which is a plant hormone involved in dormancy breaking.

Some orchids may only produce a flower every second year and in the alternative year only produce a leaf. If pots are over crowded with leaves there is less likely that the plant will flower - repotting is recommended to overcome this problem.

Occasionally an orchid that flowered or produced the year before may not produce anything this year. There can be a number of reasons for this, however do not conclude prematurely that the orchid has died, treat the pot as usual for the growing season and at repotting time see if the tuber is still intact.

Repotting

Repotting is carried out in December and January when the orchids are dormant. The process helps to replace any nutrients that have been used up or lost and gives a new open mix for the orchid to grow in. It is especially necessary for orchids that have become too over crowded for the pot they have been growing in.

Repotting involves the following steps;

i) turn the pot upside down over a sieve (6mm) and sieve through the soil. A smaller sieve may be necessary for seedling tubers and some Pterostylis species.

ii) collect all the tubers and lay these aside.

iii) mix some of the old soil with the new soil - this is done to carry over the soil fungus that is associated with the orchid.

iv) fill the pot to within 6cm of the top of the pot.

v) plant the tubers at this level with the "eye" of the tuber upper most.

vi) fill the pot to within 2cm of the top and then add a mulch like cut up sheok leaves or pine needles.

vii) water in and leave in the shadehouse. Then treat the pot as usual.

Daily News, Friday, April 28, 1989

Rare orchids delay new homes plan

By FRAZER GUILD

A MASSIVE effort to save rare WA orchids is underway at Canning Vale.

The orchids — gazetted as rare and endangered — are on a 200ha area bordered by Nicholson and Ranford Roads where a shopping centre and major housing development are planned.

Now the developers — Winthrop Joint Venturers and partners — have agreed to help Conservation and Land Management researchers find a way of saving the orchids.

They have agreed to delay the development of areas of the land and to help fund urgent research to see if the orchids can be relocated.

Dr Bevan Buirchell of the WA Native Orchid Study and Conservation Group said four species of rare and endangered orchids grew on the site.

They included the Purdie Donkey orchid and 82 per cent of all known plants in WA were on the site. The orchid does not grow outside WA.

Orchids were scattered over about 50 per cent of the site, he said and the rare species grew in few other places in WA.

The International Union for the Conservation of Nature has offered support from London for the fight to save the orchids.

"The habitat has to be preserved because experiments have shown that transplanting them is not successful," Dr Buirchell said.

The plants are protected under the Rare and Endangered Flora Act.

CALM's Director of Nature Conservation, Dr Barry Wilson, said the orchids had created a dilemma with an application for urban rezoning before the State Planning Commission.

CANNING-MELVILLE TIMES May 2, 1989

World pressure to save orchid

A national and international effort is to be mounted to save rare orchids which grow in the path of progress in Canning Vale.

By WENDY EVANS

Soon native orchid conservationists throughout Australia will be wearing the emblem of Purdey's donkey orchid, one of four endangered species threatened by plans to build houses near the junction of Ranford and Nicholson Roads.

The Royal Botanic Gardens of Kew, in England, headquarters of the Royal Horticultural Society and the International Union for the Conservation of Nature, have been asked to send a spokesman to intervene with the State and Federal governments to stop the development.

But Professor Bevan Buirchell, conservation spokesman for the WA Native Orchid Conservation and Study Group, said the response from Conservation and Land Management Minister Ian Taylor had been depressing.

"He said he had decided to shift the orchids as he would not have CALM used by residents to stop a shopping centre and houses," Professor Buirchell said.

"He said houses were more important than plants.

"But if people realised what they were losing they would be up in arms to have this area turned into a nature reserve."

"What is upsetting is that CALM has moved in on the area and burnt it to stimulate flowering before the will of the people has been fully expressed."

Conservationists are concerned that the development will destroy 75 per cent of remaining Purdey's donkey orchids, its other major habitats, also in Canning Vale, having already been destroyed by urban growth.

The minister's plan has been described as suicidal by botanists who said that there might be an unknown link between microscopic fungi in the highly acid soils of the swamps and the growth requirements of the rare species.

This might explain why, in Armadale where there was a small colony of Purdey's orchids, only 30 plants survived.

And there was concern that moving the Canning Vale orchids to Armadale could transfer die-back disease to the hills forests, for it was rife in the Ranford Road area.

Professor Buirchell said the Environmental Protection Act protected the plants from any form of destruction yet gave the minister the power to override the Act.

If he were to refuse permission, the Government would have to compensate the landowners or buy the land.

Most of the land is owned by Landcorp and Canning City Council and a land exchange with private interests has been proposed.

This would open the way for the area to become a part of the proposed banksia woodlands conservation park.

Phone Airport
See Ross re: "Lotus Loans" computer.
Withdraw $1000.00
deposit $500.00 into Visa account

Astrology chart?

SUPPER ROSTER 1989

May	Joni Eaton
June	Kath Bolin
July	Joy St Jack

RAFFLE ROSTER 1989

May	Joni Eaton
June	Margaret Adamson
July	Joan Biddle

Reg Calter & Bertie ?
Mel Vivian $20.00
~~Our Lizard~~ $114.00
RAC. $45.00
Southern Christ $23.50 Claim from Medicare

Tennis Club $105.00

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MR & MRS A BROWN
[redacted]

Forthcoming Field Trips:

June 10th-11th	Corrigin - Bruce Rock area, Rhizanthella
June 25th	Bunbury area, Pterostylis species
July 15th	Gnangara Pine Plantation - Red Hill area, Pterostylis and Diuris species.

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