

Orchid Conservation in W.A.

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Western Australia is well endowed with terrestrial native orchids. Some 130 species, 30 varieties in 28 genera and approximately 30 unnamed taxa were listed for the State in 1971. Studies since then suggest that at least 30 additional unnamed orchid taxa occur in the south-west.

The majority of W.A.'s species are found nowhere else, so the orchid flora is highly individual. The largest south-western groups include the spider orchids (*Caladenia*, 40 named species), sun orchids (*Thelymitra*, 21 species), leek orchids (*Prasophyllum*, 17 species) and green hoods (*Pterostylis*, 14 species). Among the smaller genera are several bizarre forms including the Underground Orchid *Rhizanthella gardneri*, now famous following its recent rediscovery.

While many W.A. orchids are widespread and abundant, the State also has an unusually large number of uncommon and elusive species, some so rare that they have been seen only once or twice in recent decades. This adds interest to the field work of the orchid enthusiast because there is always the possibility of turning up something rare or completely new. It also represents a significant problem to conservation authorities. No matter how good the intention, you cannot conserve a rare orchid population until it has been located by someone who recognises it and the relevant information is then passed on to the appropriate Government Department and the landowner. Fortunately, in Western Australia, this is often now happening due to the close liaison and cooperation of all parties concerned.

In this article I wish to give an outline of developments in orchid conservation in the State. Conservation of Western Australian wildflowers has been the growing concern of many individuals and organizations from both the private and Government sectors of the community. However, until recently, efforts aimed specifically at conserving orchids were made almost entirely by private landowners and by members of interested groups such as the W.A. Native Orchid Study and

Conservation Group. A recent example followed the rediscovery in 1977 of the Crested Spider Orchid *Caladenia cristata* by Mr Don Voigt of Esperance. This species hadn't been collected for 54 years, and was located by Mr Voigt on 5 ha of uncleared bush on the farm of Mr Norm Scheer. After the identity of the species had been confirmed by Mr Alex George of the W.A.

Herbarium, the W.A. Native Orchid Study and Conservation Group wrote a successful application to the Australian Orchid Foundation for \$150 to pay for fencing of the population of *Caladenia cristata*. Four months after the rediscovery, the fence was erected by Mr Scheer and members of the Orchid Study and Conservation Group, and the *Caladenia* was protected from grazing by stock.

Similarly, many farmers throughout W.A. have left patches of bush uncleared on their properties because they enjoy their wildflowers and wildlife. In so doing, these farmers have made important contributions to the conservation of native orchids in the wild.

The Government, too, has ensured the conservation of many orchids through its policy of creating Nature Reserves and National Parks throughout the State. At present, 14 300 000 ha (6% of W.A.) is set aside for conservation of flora and fauna in some 1 070 Nature Reserves and 50 National Parks. These days, any vacant Crown land opened up for agriculture has a certain percentage set aside as a Nature Reserve. Reserves set aside for other purposes, particularly road reserves, water catchment reserves and State Forest, often retain large tracts of uncleared bush which are also important for orchid conservation. Indeed, in many heavily cleared wheatbelt areas, road verges contain the only remaining vestiges of native flora.

Acquisition of Nature Reserves and National Parks by the State Government has been aimed largely at ensuring that major ecosystems throughout the State are adequately conserved. To this end, the W.A. conservation reserve system has been reviewed twice in the past two decades by expert committees. Significant additions to ecosystem reservation in Nature Reserves and

▼ Zebra Orchid *Caladenia cairnsiana*



GAZETTED RARE W.A. ORCHIDS



▲ The eleven orchids currently gazetted as 'rare flora' under the Western Australian Wildlife Conservation Act (shown at approximately 50% of natural size):
 A. Salmon Sun Orchid *Thelymitra macmillanii*; B. Star Orchid *Thelymitra fuscolutea* var. *stellata*; C. Dwarf Spider Orchid *Caladenia bryceana*; D. Sandplain Sun Orchid *Thelymitra psammophila*; E. Brown Leek Orchid *Prasophyllum lanceolatum*; F. Dark Leek Orchid *Prasophyllum triangulare*; G. Underground Orchid *Rhizanthella gardneri*; H. Purdie's Donkey Orchid *Diuris purdii*; I. Lavender Spider Orchid *Caladenia lavandulacea*; J. Shy Spider Orchid *Caladenia triangularis*; K. Yellow China Orchid *Caladenia gemmata* forma *lutea*.

Drawings by S.J.Patrick with the exception of G and I, which are by L.F.S. Braganca and B.L.Rye.

National Parks have resulted. The more recent review, undertaken in the early 1970s by the Conservation Through Reserves Committee of the Environmental Protection Authority, was advised by a technical subcommittee which included the noted orchid taxonomist Mr Alex George. Hence many of the reserve proposals were made with the best available orchid knowledge in hand. Even so, it is apparent now (as it was then to the Committee) that many orchids remain to be discovered and named in the State, and most have poorly known distributions because so few interested botanists are available to search for them. Hence it is not surprising that a number of orchids, particularly the rare ones, are not as yet known to occur in nature reserves or national parks.

While progress can and is being made to rectify this situation, effective conservation of all our native orchids will depend on more than the existence of Nature Reserves and National Parks. Successful conservation must also rest upon the good will and conscious endeavours of farmers, conservation groups and Government instrumentalities, such as Shire Councils, the Main Roads Department, the Bush Fires Board and the Forests Department.

In my experience, most such persons and organisations are willing to assist with conservation when a particular problem is brought to their attention. For example, at considerable expense, the Main Roads Department relocated the site of a new bridge on the Frankland River after Mr Alex George informed its officers that approaches to the old bridge were flanked by an outstanding array of native orchids including several rare hybrids. The essential ingredients in such a success story include: (i) enthusiasts searching for, locating, and correctly identifying orchids in the bush, (ii) the relevant information being written down and passed on to the owners of the land occupied by the orchids, and (iii) the owners planning use of their land in such a way as to ensure the conservation of the



▲ Cowslip Orchid *Caladenia flava*

▼ Shy Spider Orchid *Caladenia triangularis*





▲ Bronze Sun Orchid *Thelymitra fuscolutea* var *stellata*

◀ White Spider Orchid *Caladenia patersonii* var *longicauda*

▼ Wispy Spider Orchid *Caladenia filamentosa* and Blue Fairy Orchid *Caladenia deformis*





▲ Blue Fairy Orchid *Caladenia deformis*



▲ Zebra Orchid *Caladenia cairnsiana*



▼ Rabbit Orchid *Caladenia menziesii*



◀ Dwarf Spider Orchid *Caladenia bryceana*

▼ Custard Orchid *Thelymitra villosa*



orchids. In Western Australia a number of exciting developments aimed at facilitating this process are now underway.

Firstly, the State Government enacted new flora legislation in 1980 that, in many respects, is the most advanced of its kind in Australia. The Wildlife Conservation Act protects all native flora nominated by the Minister for Fisheries and Wildlife throughout the State. To date, the Minister has declared as "protected flora" all ferns and fern allies, all gymnosperms and all flowering plants (including all orchids). Protected flora cannot be taken or destroyed without a license on all Crown lands and the legislation binds the Crown. Hence enthusiasts interested in taking orchids from Crown land for private study and enjoyment must hold a license issued by the Department of Fisheries and Wildlife. In addition, whenever the Crown land has been reserved for a special purpose (e.g. Nature Reserve, National Park, water reserve, State forest, road reserve), a license holder wanting to take orchids must also obtain the written permission of the managing authority in whom the land is vested. No license is required where an orchid enthusiast takes material from private property, but the owner's permission must be obtained prior to doing so.

While these provisions are not unlike those applying in other States, the W.A. Wildlife Conservation Act is exceptional in its treatment of rare plants. Under section 23F, the Minister may, by notice published in the Government Gazette, declare plants as likely to become extinct, rare, or otherwise in need of special protection throughout the whole of the State. Once a species is listed in a schedule of gazetted rare plants, no person may take, damage or destroy it or cause the same to occur (e.g. by allowing stock to graze on it) without the special written consent of the Minister. This applies equally to private individuals and to Government officers, and to gazetted rare flora on private land as well as on Crown land. A breach of this provision may result, on prosecution,

in a fine of up to \$1 000. The Act allows for compensation to be paid to private landowners who have been refused permission to take gazetted rare flora by the Minister.

In deciding on plants for gazettal as rare, the Minister is advised by the Flora Committee of the Western Australian Wildlife Authority, which has representatives from the Departments of Fisheries and Wildlife, Agriculture (i.e. the W.A. Herbarium), Main Roads and Forests, as well as botanists from Kings Park, the University of Western Australia and non-



▲ Sandplain Sun Orchid
Thelymitra psammophila

government organisations. The Flora Committee decided that to qualify for gazettal as rare, a plant must have been named by botanists in the correct way, it must have been searched for in the wild reasonably thoroughly, and it must have less than a few thousand known wild adult plants. On these criteria, two orchids were listed in the first schedule of rare flora published in the Government Gazette of November 14, 1980 - the Underground Orchid *Rhizanthella gardneri* and the Lavender Spider Orchid *Caladenia lavandulacea*.

Only these two were included in the first list because representatives of the Wildlife Authority's Flora Committee had not discussed other possible candidates for gazettal with members of the W.A. Native Orchid Study and Conservation Group. Discussions along this line, particularly with Mr Andrew Brown, led to the inclusion of a further 9 orchids in the revised schedule of rare flora published in the Government Gazette of 12 March, 1982 - the Dwarf Spider Orchid *Caladenia bryceana*, Yellow China Orchid *C. gemmata* forma *lutea*, Shy Spider Orchid *C. triangularis*, Purdies's Donkey Orchid *Diuris purdiei*, Brown Leek Orchid *Prasophyllum lanceolatum*, Dark Leek Orchid *P. triangulare*, Star Orchid *Thelymitra fuscolutea* var. *stellata*, Salmon *T. Macmillanii* and Sandplain Sun Orchid *T. psammophila*. All of these orchids are illustrated and described in reports available from the Extension and Publicity Office, Department of Fisheries and Wildlife, 108 Adelaide Terrace, Perth. A colour leaflet on the Underground Orchid is also available. It is expected that more orchids will be gazetted as rare as knowledge of their distribution improves.

Although the rare flora legislation is potentially a powerful mechanism for conservation, it requires in the first instance a knowledge of the precise locations of rare plants and of the ownership of the lands they occupy. To this end, field surveys of the distribution of gazetted rare orchids have been initiated by myself, by the W.A. Native Orchid Study and Conservation Group, and, specifically for the Underground Orchid, by Dr Kingsley Dixon.

Dr Dixon was appointed for 18 months to search for the underground orchid on a grant of \$29 000 awarded to Dr P.R. Wycherley and Professor J.S. Pate by the World Wildlife Fund Australia. Dr Dixon, assisted by members of the Orchid Study and Conservation Group, has been spectacularly successful in locating some 150 plants of one of the State's most elusive orchids. The majority of

these plants occur on a townsite reserve in the central wheatbelt, but two smaller populations occur on Nature Reserves one of which has been upgraded to Class A status following the discovery of Underground Orchids on it.

To facilitate the rapid communication of survey results such as these to landowners, a number of Orchid Group members are now contributing to a computerized "Atlas of the W.A. Flora" pilot project run by the Department of Fisheries and Wildlife. Only just getting off the ground at the time of writing, this project promises to be particularly rewarding and effective in getting known locations of native orchids written down in a manner that is most useful for conservation initiatives. One of the first Atlas studies that should be published in 1983 is a survey of orchids on National Parks and Nature Reserves in the Perth Metropolitan Region.

In addition to field surveys, management of orchids on Nature Reserves, National Parks and private wildflower reserves is a subject that will require considerable research in the future. Data on the response of orchids to fire are essential in a State where fire is used as a key management tool. A knowledge of flowering seasons, pollinators, fruit maturation and mycorrhizal associations will also assist management planners in some instances.

While the main emphasis of this article has been on conservation of orchids in the wild, there are clearly many instances where this is not possible. In some cases, cultivation of orchids is the only option available to prevent their extinction. Fortunately, this has not yet been the case for any known W.A. orchid. However, the experience gained by growers of native orchids will no doubt prove invaluable for future conservation problems. Moreover, the work of members of the Native Orchid Study and Conservation Group in transplanting orchids from the pathway of bulldozers to a reserve made available by the



▲ Underground Orchid *Rhizanthella gardneri*

Nedlands City Council is commendable.

If there is one lesson that the history of orchid conservation in W.A. can teach, it is that close liaison between private orchid enthusiasts, land owners, research scientists and Government

Departments is the surest way to make effective conservation a reality. Ultimately, each of us must decide if we are prepared to make an effort now in this direction so that future generations may enjoy the pleasure and inspiration for which our native orchids are an unceasing source.