



Conservation by Concensus

The Lane-Poole Jarrah Reserve

by
Wayne Schmidt & Peter Kimber

We hope that future generations of forest users will come to heed the warning of noted conservationist Aldo Leopold, issued nearly 40 years ago:

Conservation is getting nowhere because it is incompatible with our concept of land. We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect (1).

Public debate over the use and management of Western Australia's forest areas has been a lengthy and at times heated one. Earlier this century, the dedication of State forest was itself the subject of debate, as foresters fought to reserve the remaining tracts of forest from agricultural development. In recent times, the debate has focused more on issues relating to how State forest is to be used and managed. It is a debate which is likely to continue in one form or another for as long as there are people with differing philosophies and values.

However, despite the range of opinions which exist on this topic, there is wide agreement within the community on the need to preserve representative areas of forest for future generations. Witness for example, the statement from the 1971 Committee of Inquiry into the Mining Act, an inquiry undertaken (in part) to advance and safeguard mining interests in this State:

...it appears to us that the forests have so many other advantages to the State and the people that commercial production is not the only reason why they should be preserved. ...forests should be safeguarded not only for these [commercial] reasons but because they are a scenic and tourist attraction and provide a natural habitat for the indigenous plant and animal life which occurs naturally in a forest of indigenous trees (2).

The recent debate over areas of forest preservation has been not so much a question of if, but rather where and how much. The differing perspectives of the conservation movement, industry and other community groups to the recent designation of a major reserve in the jarrah forest is evidence of this fact. Though the details and implications of this initiative may continue to be argued for some time, the designation of the Lane-Poole Jarrah Reserve provides an example of constructive consultation and

negotiation between groups with widely disparate interests and values.

This article describes some of the background leading to the establishment of the Lane-Poole Jarrah Reserve and outlines the progress which has been made in planning for its future use and management.

The Lane-Poole Jarrah Reserve: Perth's Playground

The jarrah forest has played a key role in the development of Western Australia, dating back to the earliest days of settlement. Jarrah timber, or Swan River mahogany as it was known, formed the basis of a thriving export industry as well as supplying local building needs. By the turn of the century, the forest was being heavily cut to supply eastern states' and overseas' markets and the timber developed an international reputation for its strength, durability and attractive appearance.

Since then, the jarrah forest has continued to increase in importance to the community, but for reasons quite apart from its commercial timber value. Perhaps its main value today is the protective mantle on the catchments which provide the major source of fresh water for the inhabitants of the coastal plain. Without access to this supply, the existence of Perth would be jeopardized.

The jarrah forest is also the backyard for Perth, Bunbury and other coastal communities. Each year, tens of thousands of residents and visitors are attracted to the forested plateau and river valleys, many to picnic and camp, others to sightsee or simply enjoy the beauty and tranquility of the bush. In this context, the jarrah forest is an integral and irreplaceable part of the lifestyle of these communities—part of their heritage.

Recently, the northern jarrah forest has become the focus of public concern and debate over its future use and security. The

main controversy has centred on the clearing and mining of State forest for bauxite and the resultant impact on water quality, conservation and recreation. This issue is compounded by the presence of jarrah dieback disease, and the problems associated with its detection and control. These issues have been the subject of several major inquiries and reviews, including the report of the Darling Range Study Group and the System 6 inquiry.

Efforts to reserve a major area within the jarrah forest extend back nearly 100 years. In the 1890s, the State Government was persuaded by scientific opinion of the day to set aside a large reserve for flora and fauna in the Murray District between Pinjarra, North Dandalup and Bannister. However, pressure to release this area for timber production soon mounted and the purpose of the reserve was subsequently changed in 1907. [3]

Since 1974, substantial tracts of State forest have been designated as Management Priority Areas (M.P.A.s) for the conservation of flora, fauna and landscapes (see Forest Focus Nos 18 and 22). [4 5] These M.P.A.s were selected to reserve within State forest representative examples of the various forest ecosystems which exist throughout the south-west of the State.

Conservation M.P.A.s have been afforded special management status under five year working plans inherited from the Forests Department [6] and enjoy the same security of tenure as an 'A' class reserve. However, this tenure provides no protection against land use activities such as mining and water supply and the M.P.A.'s are considered by some to be too small. Consequently, the future security of fauna and flora within the M.P.A. system has been a source of debate and uncertainty.

The concept of a reserve protected from exploitative uses such as bauxite mining



Cliff Winfield

Above

In the western parts of the reserve rock-rimmed pools and large granite boulders create a distinctive riverscape.

Right

The stark white bark of bullich (*Eucalyptus megacarpa*) forms an attractive contrast to other vegetation types in the reserve. Bullich stands are reported to have been part of the favoured habitat of the noisy scrub bird.



Cliff Winfield

Below

The Lane-Poole Jarrah Reserve is dissected by the Murray River. Current plans for the reserve attempt to solve the conflicts between conservation and recreation in the river valley.



Cliff Winfield



Cliff Winfield



Cliff Winfield



Les Harman

Above Left

Human and aquatic life conflict during marroning season. The marron numbers have decreased recently as a result of environmental conditions and heavy fishing. Management of the Murray River's marron population is now being examined.

Above Right

Water inter-play can be refreshing and stimulating.

Left

The jarrah forest is home to many creatures, some small and furry, others large and scaly, like this racehorse goanna (*Varanus tristis*).

Below

Forest visitors enjoy the summer sun near Baden-Powell Water Spout.



Cliff Winfield

originated with the Conservation Council of Western Australia, Inc., which submitted a proposal to the System 6 inquiry calling for the creation of a reserve of some 77,000 hectares centred on the Murray River Valley. [7] The Conservation Council recommended that the reserve be based on conservation M.P.A.s administered by the Department of Conservation and Land Management, plus M.P.A.s designated for scientific study and recreation. These areas were to be linked by corridors of adjoining forest.

The proposal, which was later amended to incorporate a total area of 94,000 hectares, initially met with strong opposition from mining and timber interests. Their concern centred on the loss of resources considered essential for the long-term operation of industry. The resulting polarization of views presented a major obstacle to the creation of the reserve.

However, in subsequent negotiations, a successful compromise position has been achieved. The companies have relinquished part of their claims to the main reserve area. In turn, the State has agreed to scale down the size of the area to be reserved and to reduce the size of the connecting corridors between southern and northern parts of the reserve.

The result is a 54,000 hectares park which forms one of the State's major conservation and recreational assets, combining the upper Murray River with some of the best stands of virgin jarrah, plus areas of wandoo, blackbutt and bullich forest.

A Remarkable Forest

The Lane-Poole Jarrah Reserve encompasses a variety of environments, ranging from the steeply forested valley slopes and rock-rimmed pools of the Murray River near the Darling Scarp to the more open, undulating jarrah and wandoo woodlands further east.

Terms such as unusual and unique have frequently been

used in describing these forested landscapes. These qualities are not so much attributable to the scenic appeal of the forest as to the physical adaptations which enable it to grow in this environment. The Darling Plateau is a harsh environment, characterized by infertile soils, periodic droughts and subject to occasional wildfires. The very presence of a high forest under such conditions is nothing short of remarkable.

Of all the tree and shrub species which occur within the reserve, none is more remarkable than the jarrah (*Eucalyptus marginata*) itself. Through its highly specialized root system, which is able to grow in the concrete-like soil in parts of the scarp, the jarrah is able to extract sufficient moisture year-round to not only survive but flourish.

Jarrah also has other characteristics which aid its survival following intense bushfires. The bark is thick to insulate the stem from heat, and the trunk and branches of the tree have hundreds of dormant buds beneath the bark. If the canopy of the tree is destroyed by fire, these buds are stimulated to shoot and form a new crown of leaves.

As a forest tree jarrah tends to dominate the dry upland areas within the reserve. On the lower slopes of the reserve, marri (*Eucalyptus calophylla*) occurs in greater numbers and may predominate in moist gullies.

Other species of eucalypts, most of which grow on moister sites, are also found within the reserve. In the western portion of the reserve where the valleys are relatively narrow and steep, the soils are usually more fertile red loams. The lower slopes of these valleys support yarri (*Eucalyptus patens*) — or Western Australia blackbutt as it is also known — and flooded gum (*eucalyptus rudis*).

The former is a magnificent tree, equalling jarrah in height, and frequently of much larger girth. It generally occurs in a

mixture with jarrah on the deep valley loams, but also grows on the sandy margins of the more shallow eastern valleys. Flooded gum, on the other hand, is confined to areas along the Murray River which are subjected to periodic flooding.

In the eastern part of the reserve, the landscape flattens out into a series of broad undulating valleys and low ridges. Here wandoo (*Eucalyptus wandoo*) forms an attractive woodland on the clay flats.

Still other areas of the reserve support bullich (*Eucalyptus megacarpa*), a striking white-barked eucalypt which occurs in pure pockets in gullies near the western fringes of the Darling Range. Its occurrence is very localized and generally confined to the orange silty soils that occur on the edges of some swamps.

Apart from the dominant eucalypts, a variety of smaller understorey trees occur in various mixtures throughout the reserve. These include bull banksia (*Banksia grandis*) which often grows in pure stands on disturbed areas, sheoak (*Allocasuarina fraserana*) which occupies sandy sites and snottygobble (*Persoonia longifolia*), a small graceful tree with dark, flaking bark and long, narrow leaves. Other species such as the native pear (*Xylomelum occidentale*) and a second species of persoonia (*Persoonia elliptica*) occur sporadically throughout the forest. The lower layer of forest vegetation is formed by shrubs and herbaceous plants, of which there are some 500 species within the reserve. They include many of our better known wildflowers, such as blue lechenaultia, pink boronia, native wisteria, and prickly moses.

As well as the large number of species, the understorey flora of the northern jarrah forest is characterized by an amazing diversity of plant forms. These range from delicate spider and donkey orchids to such sculptural oddities as the common blackboy (*Xanthorrhoea preissii*) and the zamia palm (*Macrozamia riedlei*). The latter



Cliff Winfield



Above:
The jarrah forest attracts a range of recreation activities, some of which may conflict with each other.



Maxine Coperman

Left:
Loving it to death. Overcrowded camping and unrestricted vehicular access can lead to degradation of the forest environment as well as to the decline in the enjoyment of visitors.

Below:
Vandalism is a world-wide problem in forest as well as urban environments. The creation of the reserve is intended to prevent scenes like this from re-occurring.



Cliff Winfield

species is not a true palm, but belongs to the cycads, a small group of dioecious plants (separate male and female plants) which are distantly related to the conifers. The blackboy is a member of the family of plants which includes the lillies.

In recent times, research by Havel [8 9] and others has greatly extended our understanding of how these plants are distributed across the forest landscape. It was this research that led to the original designation of the system of conservation M.P.As in the northern jarrah forest, and ultimately to the declaration of the reserve itself. With this increased knowledge has come a growing appreciation of the biological variety which exists throughout the jarrah forest. The recognition of the richness and diversity of the forest has led in turn to increased community awareness of the need to maintain this ecological asset.

In contrast to the flora, there is less known about the fauna of the jarrah forest. Many species are nocturnal and/or highly mobile, making their detection difficult. Fauna populations are also subject to periodic fluctuations as a result of various disturbances. Consequently, the preparation of detailed lists of species involves many years of painstaking research, and this work is not yet complete.

A number of fauna surveys have been carried out in the jarrah forest, several within the reserve itself. Based on this work, the area supports an impressive range of species. [10 11 12] Twenty-eight species of mammals (21 native and seven introduced species), 21 species of reptiles and amphibia, 10 species of fish and 78 species of birds are either known inhabitants or occasional visitors to the Lane-Poole Jarrah Reserve.

Included in this tally are native marsupials such as the mardo (*Antechinus flavipes*), the

short-nosed bandicoot (*Isodon obesulus*), the brush-tailed wambenger or native squirrel (*Phascogale tapoatafa*), the chuditch or native cat (*Dasyurus geoffroii*) and the quokka (*Setonyx brachyurus*). Few people realize that the quokka, better known as a resident of Rottnest Island, is common in the swamps and valleys throughout the jarrah forest.

Although this inventory of species is incomplete, it indicates that the Lane-Poole Jarrah Reserve supports a large variety of fauna. Future studies will provide more detail on the occurrence and habitat requirements of individual animals. Such surveys will also provide records of insects and soil fauna, of which very little is presently known. It is partly due to this scarcity of information that the reservation of representative forest ecosystems is essential. These reserves provide the best chance of ensuring the survival of plant and animal communities while developing a better information base about the ecology of individual species and populations.

Use, Preservation, or Both?

Designation of a reserve is only the first step in protecting a physical environment. However, for such reservation to succeed, there must also be a programme of planning, management, and monitoring. This is particularly important in areas where public use places increasing demands on the natural environment.

The establishment of the Lane-Poole Jarrah Reserve is a response to a strong community desire to safeguard conservation values. At the same time public use of the river valley for recreation must be maintained. This dual commitment in itself presents potential conflicts, as certain outdoor recreation pursuits may be incompatible with conservation objectives. For instance, the social nature

of activities such as picnicing and camping can lead to the over-use of popular areas. Other activities such as trail-bike riding can disturb soil, damage vegetation and spread dieback disease.

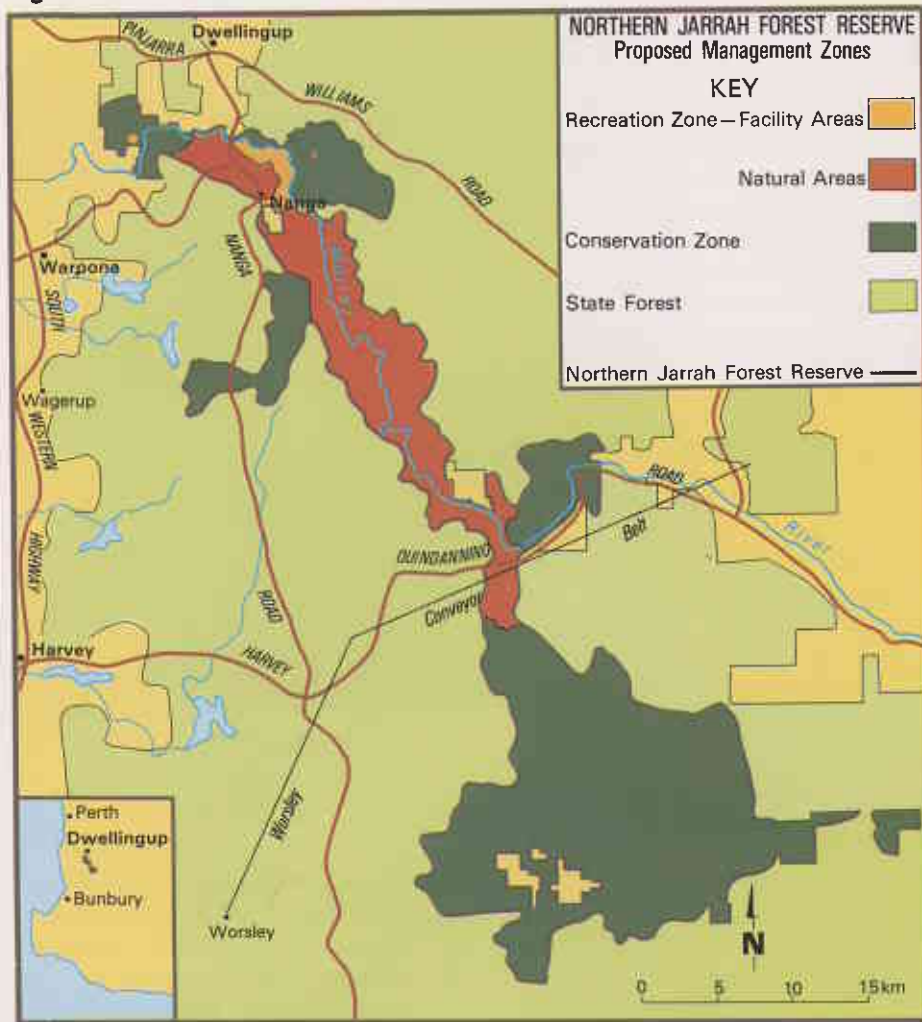
There is a need for a balance between preservation and recreation. This can best be achieved by directing people pressures away from areas of high conservation value into less sensitive zones. Approximately three-quarters of the reserve has been zoned for conservation (refer to figure 3). This area, comprising zones designated in the System 6 study as having high conservation value, will be secure from future mining and timber extraction and will be afforded special management protection from other uses.

The remainder of the reserve (along the Murray Valley) has been designated as a recreation zone. Though some of this area may be subject to future exploitation for bauxite or timber, these activities will be subject to strict rehabilitation requirements. In the case of timber harvest, the impacts on the forest ecosystem are temporary and mainly aesthetic.

Within the reserve, current management proposals provide for varying degrees of vehicular access and development. At one end of the spectrum there will be a recreation zone stretching from Nanga Bridge in the west to where Yarragil Brook joins the Murray River. Within this section of the valley, visitors will be catered for through the provision of camping and picnic facilities, walk trails, canoe launching areas and river access points. Vehicular access along the river will also be controlled. In some areas, road access leading to badly eroded and compacted sites has been closed and adjacent parking areas provided.

Between Nanga Bridge and Scarp Pool and upstream of Yarragil Brook, public access

Figure 3



- **Recreation Zone — Facility Areas**

Areas in which developments designed to accommodate both short and long-term visitors to the reserve will be provided. A range of facilities including picnic and tent camping areas, self guiding tours, walk trails and interpretative shelters will be planned with the minimum of interference to the natural environment.

- **Recreation Zone — Natural Areas**

Areas which are maintained in their natural state and where vehicular access will be restricted to existing roads and/or tracks required for management purposes such as fire control. Low key developments such as walk trails and back-pack campsites with simple ablution facilities will be provided.

- **Conservation Zone**

A zone possessing plant and animal communities and/or archaeological, geological and landscape features of such significance that it should, as far as practicable, be preserved intact. To minimize human interference, assisted means of access will not be permitted except in the interests of safety or research. However, major established roads will be maintained where appropriate.

along the river will be largely restricted to walking and canoeing in order to maintain the tranquility of the riverscape. Some facilities suited to low intensity activities (such as backpack camping) will be provided in special areas, but these will be kept to a minimum.

As planning for the reserve proceeds, the type and level of public use the Murray Valley can sustain will be assessed. It is important that both the physical environment and the quality of the recreational experience of the visitor are maintained. At some stage it may be necessary to further regulate activities in order to preserve the natural forest values which have attracted visitors to the area in the first instance. Sensitive planning and site design can do much to alleviate problems resulting from inappropriate uses and over-crowding, but widespread public understanding and support is required if these management problems are to be overcome.

Fire Management

The role and use of fire in the management of the jarrah reserve is also receiving special attention. The influence of fire on the ecology of the jarrah forest has been the subject of numerous studies. Although existing knowledge is by no means complete, it is evident that most plants within the forest have adapted to, and frequently make use of, periodic fires to stimulate reproduction.

Some species, for example, possess a woody underground growth which enables them to re-shoot after a fire. Others, particularly the grass-like plants, retain their buds or growing points 10 centimetres or more beneath ground level. If a fire consumes their foliage they are able to rapidly form new shoots from these underground buds. Still other plants, such as the wattles, seed prolifically throughout their short life span (usually less than 10 years). By

the time the parent plant dies, the soil beneath them contains millions of seeds but the plants only reappear when the seed is stimulated to germinate by the heat of intense fires.

Not all plants within the jarrah forest, however, are adapted to the same fire pattern. Some plants thrive with frequent, low-intensity fires; other species are favoured by less frequent hotter fires. The same applies to the forest fauna, so preparing a fire management plan to suit a range of different plant and animal communities is a very complex task.

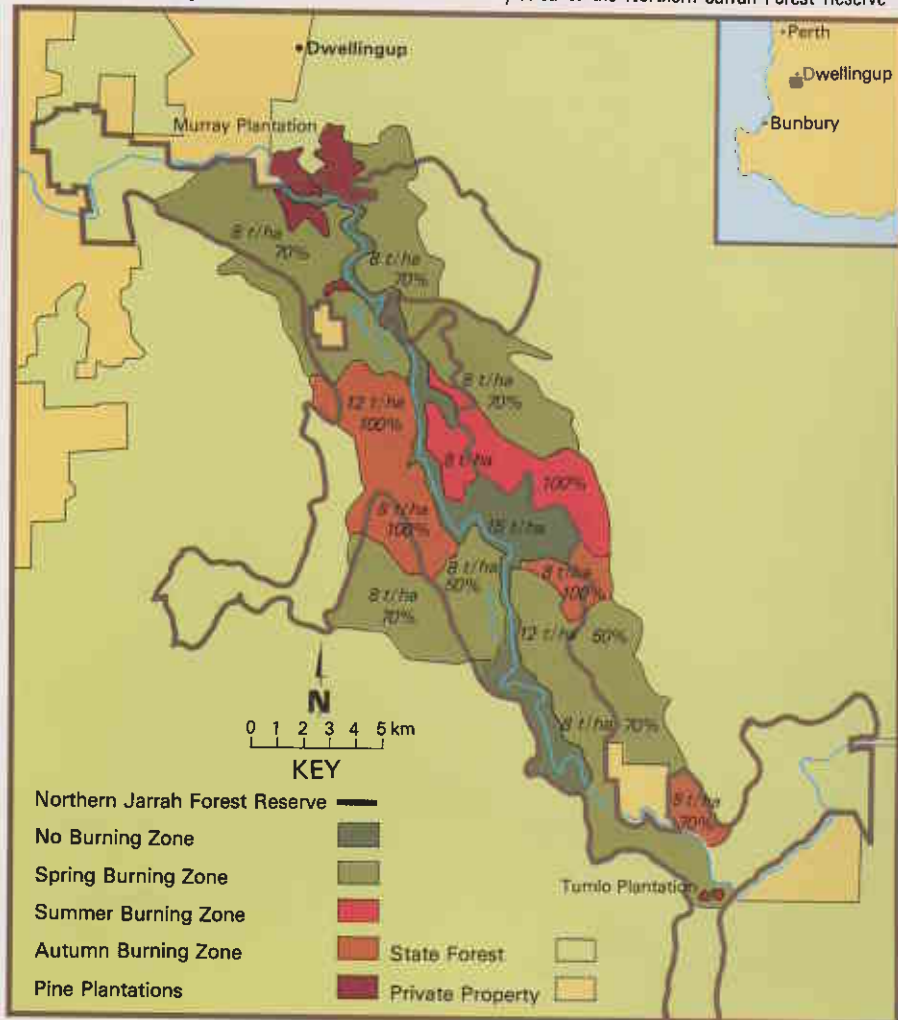
This task is further complicated by the need to balance ecological considerations against the protection from fire of property and human life. Some readers may recall the severe bush fires of 1961 which burnt towns and ravaged the Dwellingup forests, including a substantial portion of the Lane-Poole Jarrah Reserve. Today a regular programme of prescribed burning to reduce forest fuels, coupled with an effective detection and fire fighting system, has greatly reduced the risk of a catastrophic wildfire in the area.

Given the two objectives of protection and maintenance of ecological values, a fire plan for the reserve is being prepared (see figure 4). Prescribed fires which vary in frequency and intensity are proposed and fuel-reduced buffers around private properties, pine plantations, recreation sites and other sensitive areas will be maintained to ensure public safety. The costs and practicality of the plan, and its capacity to meet ecological objectives, remains to be assessed.

The Future

Although the initial boundaries of the reserve have been decided upon and planning for its use and management has commenced, details concerning

Figure 4 Burning Treatment for the Recreation Priority Area of the Northern Jarrah Forest Reserve



- Burn boundaries utilize nearest tracks already constructed rather than the reserve boundary.
- Percentages refer to total area burnt within the burn boundary.
- Period between burns will be based on predicted fuel accumulation shown on the plan, for example 12 tonnes per hectare, eight tonnes per hectare.
- Protected area to remain unburnt within the period of this plan.

the reserve's classification have yet to be finalized.

A Reserve Advisory Committee has been established comprising representatives of the Murray and Waroona Shires, the Conservation Council of Western Australia, Inc., a local landowner and relevant Government departments. The purpose of this committee is to advise the Department of Conservation and Land Management on management objectives and the contents of management plans. To this end, the committee has been actively involved in identifying and resolving many

of the issues discussed in this article.

A full-time planning officer and project planning team have been appointed and have commenced work on the preparation of a detailed management plan for the reserve.

The zoning of the State's forest areas to meet the whole range of community demands has been in progress now for over 10 years. The Lane-Poole Jarrah Reserve is the latest development in the continuing attempt to reconcile often incompatible but legitimate demands, and to ensure that



the interests of conservation, recreation and industry are recognized and catered for.

The ultimate success of the conservation by consensus approach to forest resource management will depend on whether it receives the combined support of all sections of the community.

Management plans and programmes, if they are to reflect and respond to public needs, should be based on input from as wide a cross section of the community as possible.

Consequently, your views on the future management of the Lane-Poole Jarrah Reserve are both needed and welcomed. For further information please contact the Department of Conservation and Land Management, Como.



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Above Left

Fire is an important component in the jarrah forest. Some parts of the reserve were subjected to intense fires little more than two decades ago.

Left

The construction of barbecue and river-access facilities are designed to make recreation easy while preserving the riverbank environment.



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Front Cover

Wildlife is a term that applies to both fauna and flora in their native environments, and includes the smallest insect, the largest mammal, the daintiest flower and the tallest tree. Co-ordinated land management will keep our wildlife everlasting, like these everlastings *Helipterum craspedioides* and *Helichrysum davenportii* which, every spring, carpet the semi-arid regions of Western Australia in profuse colour. Photo: Cliff Winfield

Minister's Message

Western Australia's land is among the most ancient in the world, and because of our isolation and climate, much of our flora and fauna is unique — evidenced by the 8000 plant species that are indigenous to this State.

The Western Australian Government has a responsibility to protect our unique landscape for our current use and, in particular, for the use of future generations.

To help us achieve our objective the Government has amalgamated the Forests Department, the National Parks Authority and the Wildlife Branch of the Department of Fisheries and Wildlife to form the Department of Conservation and Land Management.

The new Department will co-ordinate the functions of its predecessors and will utilize the combined resources at its disposal to encourage effective and lasting land management practices in Western Australia.

To operate effectively the Department of Conservation and Land Management will encourage public participation in its operations and at the same time will keep the public informed of its practices.

The publication of this magazine — Landscape — will play an important role in keeping the public and staff informed about the valuable scientific work being carried out in Western Australia by the Department.

The publication of this, the first issue of Landscape, indicates the success that can be achieved through the combined efforts of people who were previously employed by the amalgamated Departments.

I commend them on the success of this magazine and I look forward to reading future editions.

Ron Davies
Minister for Conservation and
Land Management
Western Australia

