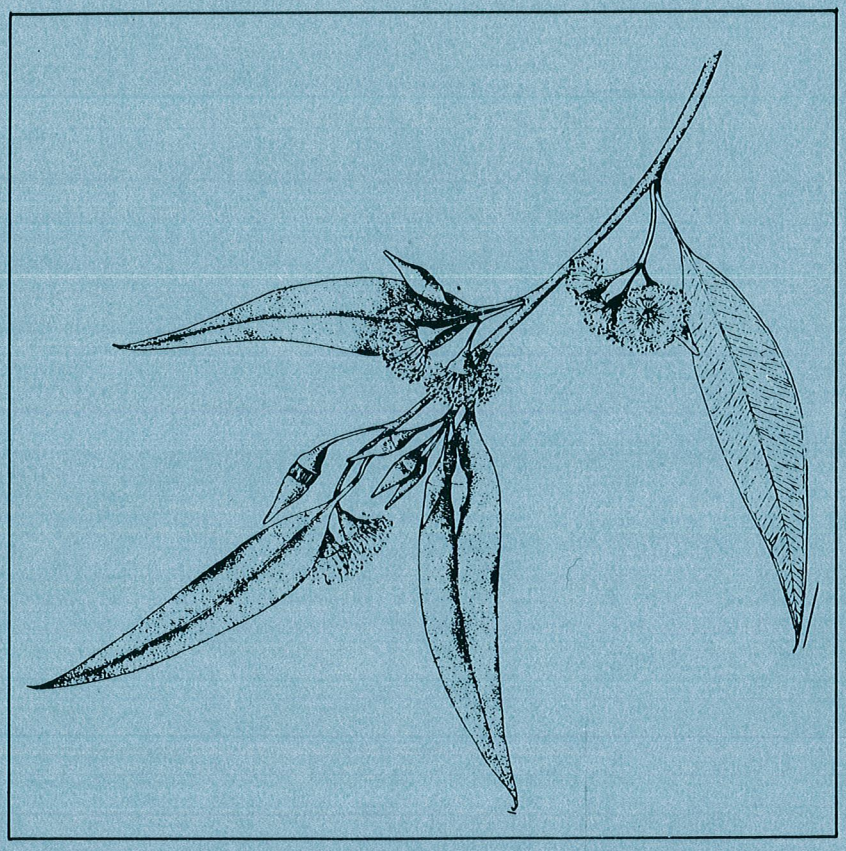
Department of Conservation and Land Management, W.A.

Lane-Poole Reserve



Draft Management Plan
APRIL 1986

VOLUME II PUBLIC INPUT

LANE-POOLE RESERVE

DRAFT MANAGEMENT PLAN

VOLUME II

PUBLIC INPUT

USED TO PREPARE DRAFT MANAGEMENT PLAN

THIS VOLUME CONTAINS:

FORWARD TO WORKSHOPS

Four workshops were held during the Lane-Poole Reserve planning process. These covered the topics of conservation, protection, recreation and associated land uses. Each workshop was divided into a morning and afternoon session. During the morning sessions, relevant invited speakers gave presentations on resources, philosophies, management options and other topics relevant to planning. In the afternoon sessions, small (6-10) groups were formed to discuss management questions. Some questions were designed by workshop organisers, but participants were encouraged to bring up other issues they felt needed attention.

The talks, as given by speakers, are presented in the following sections. Papers appear as provided by the speakers. Where no paper was provided, notes are given outlining the main points discussed.

All references quoted in this Volume appear in the Reference sections of Volumes 1 and 3.

CONSERVATION
WORKSHOP PROCEEDINGS

7/6/85

Chairman: Barry MUIR

LANE-POOLE RESERVE PLANNING GROUP

WORKSHOP 1: CONSERVATION VALUES

Venue: Department of Conservation and Land Management Training Centre, 50 Hayman Road, COMO

Date: Friday 7 June 1985

Time: Commence 0845, End 1630 hrs.

PROGRAMME

Morning: Six background talks to be given by representatives of key interest groups. Topics are:-

1. History of Lane-Poole Reserve and constraints on the brief of the Planning group.

2. Flora and fauna of the reserve

3. Conservation and river usage.

4. Conservation and forest usage.

5. Management options and impacts.

6. Statement of issues affecting conservation values in Lane-Poole Reserve.

Afternoon: Workshop sessions to discuss management implications arising from morning talks, and possible management options.

LIST OF PARTICIPANTS IN CONSERVATION WORKSHOP

NAME	ORGANISATION REPRESENTED
ARNOLD, Jenny	Dept Conservation and Environment
BARRETT, Greg	W.A.I.T.
CAPILL, Laurie	Conservation Council of W.A.
CHRISTENSEN, Per	CALM
DALLIMORE, Jo	Private person
DONEY, Tom	Wilderness Society
FOX, John	W.A.I.T.
GORDON, Sue	W.A. Naturalists Club
HAVEL, Joe	CALM
HULAJKO, Richard	CALM
KABAY, David	Alcoa of Australia Ltd
LAPTHORNE, Graham	Australian Conservation Foundation
McGRATH, Michael	Conservation Council of WA
McGRETCHEN, Neil	WACAE student research
MUNRO, Don	CALM Wildlife Research
MURRAY, Peter	South-west Development Authority
NEVILLE, Simon	University WA, Geography Dept
O'BRIEN, Brian	FPA/Bunnings
PEET, George	CALM
QUICKE, Barney	CALM
SLESSER, Graham	Alcoa of Australia Ltd
SMITH, Francis	FPA
SMITH, Graeme	CSIRO
TAIT, Allan	WACAE research student
TOWERS, Robert	CALM
VERSCHUER, Ann	Alcoa of Australia Ltd
WATKINS, Doug	Royal Australasian Ornithologists Union
WILLIAMSON, Jim	CALM

HISTORY OF THE LANE-POOLE RESERVE AND CONSTRAINTS ON THE BRIEF OF THE PLANNING GROUP

Dr Owen Nichols, CALM

Main points were:

1. History and basic forest types of the Lane-Poole Reserve (LPR) were described. In 1983 the Government asked the Mining and Management Planning Group to review proposals for a jarrah reserve submitted by the Premier's Department and the W.A. Conservation Council. Cabinet considered the resulting recommendations and, in late 1983, proclaimed a reserve which encompassed a series of Management Priority Areas. The reserve was zoned into a conservation zone (75% of the area, encompassing conservation MPA's and where logging and mining would be excluded) and a recreation zone (25% of the area - i.e. originally, Murray MPA, where logging and mining rights were retained).

2. Emphasised that the Lane-Poole Reserve is unlike many other reserves and national parks in that it is not an island surrounded by completely different land use, but is contiguous with similar habitats which differ only in that they lie outside the arbitrarily defined reserve boundary. Management of the reserve and adjacent lands must therefore interrelate.

3. Recreation Management Priority Areas occupy only about 25% of the total area of the Reserve, therefore conservation was seen as the primary value.

   However 5-10,000 visitors/day was not unusual at peak times e.g. Easter and although recreation was localised it was intense at certain nodes of interest, e.g. Baden Powell Waterspout.

4. A summary of the structure and purpose of the Lane-Poole Reserve Advisory Committee and the Planning Group was presented and models for the proposed management plan discussed. The brief of the Planning Group was to prepare an appropriate management plan based on the boundaries and zoning system already established. It was noted that public participation in developing the management was being given a very high priority. The need for an ongoing management committee was emphasised.

5. The principal issues which the Planning Group must address are: conservation, recreation, accommodation, protection, and associated land uses such a private land ownership, water supply, mining and timber.

6. The purpose of these workshops was described.
Reasons were given as:

(a) a chance for participants to raise anything which they are concerned about and provide information and guidelines for the Planning Group.

(b) an opportunity for information exchange between those with different opinions.

(c) to attempt resolution where conflicts of interest occur, or simply to record differences of opinion.

Question: Was tenure of the Lane-Poole Reserve being examined and by whom?

Answer: The Reserve Review Committee, which represents relevant Government Departments and the conservation movement, was currently investigating legal tenures both in the Lane-Poole Reserve and in other conservation MPA's. The RRC is the appropriate forum for such decisions and the planning group is not expected to have to address them.

FLORA AND FAUNA OF THE LANE-POOLE RESERVE

Dr. Per Christensen, CALM

Main points were:

1. The flora and fauna of the Lane-Poole Reserve are specifically not well known. However, the Reserve is contiguous with, and part of, the Jarrah forest as a whole, and extrapolation from studies in Jarrah areas nearby was legitimate.

2. Many of the species present in the Jarrah forest are highly endemic to the south-west of Western Australia but are wide-spread within the Jarrah habitat.

3. A brief summary of the major floral and faunal groups was presented. It was felt that the lists were not complete but this was probably unimportant in terms of management of the reserve. Rare, restricted or other species would require special management but the remaining species would survive under normal management regimes.

4. The importance of fire management was specifically mentioned as it was seen as critical to much of both flora and fauna diversity and success. The presence of certain fire sensitive species e.g. Banksia littoraliszi which is killed by frequent autumn burns was considered to impose constraints on some aspects of management. On the other hand it was known that constant spring fires depleted certain species.

5. It was seen that assemblages or communities were important for management particularly if relatively scarce in the area, e.g. granite outcrops, some heaths and the riverine vegetation.

6. The greatest single threat to the habitat was seen as being dieback disease (Phytophthora cinnamomi) because it was insidious, difficult to manage and more destructive and permanent in its effects. Recreational activities were seen as a source of spread of the disease.

7. Fauna were seen as being in dynamic interaction with the vegetation, therefore dieback disease and fire periodicity were vitally important considerations. For example, Antechinus flavipes was an example of a late successional species which required old (long-burned) vegetation.

8. The best possible management compromise was seen as maximising fire-age diversity and protection from dieback disease to ensure survival of the common species. Further, specific and specialised management may be required for particular species.

==========

Question: What is known of changes in the flora and fauna over the historic times?

Answer: (a) It is believed that Bandicoots (Isoodon obesulus) and Brush-tail Possum (Trichosaurus vulpecula) are increasing in numbers.
(b) The fox was introduced in the 1930's and is believed to have altered the population of small mammals.

Comments: (a) Quokka (Setonix brachyurus) was not thought to have occurred in the forest block during "the early days" but improved trapping techniques showed their presence. The comment was later made by Mr Peter Murray that he had frequently observed Quokkas "in the forest" (as opposed to swamps) near Dwellingup in the 1930-40's.
(b) Black-gloved Wallaby (Macropus irma) is relatively abundant in the south-eastern portions of the Conservation Area.
(c) A 'population explosion' or Phascogale calura occurred near Dryandra State Forest in 1984.
(d) Bettong (Bettongia penicillata) had become more common in the Northern Jarrah Forest in recent years.
(e) Numbats had been observed several times in the Reserve.
(f) Ecotones between adjacent plant associations or formations were considered especially important and should be preserved.
(g) Some parts of the forest may be suitable for reintroduction of rare faunal species.

THE LAND-POOLE RESERVE: CONSERVATION AND RIVER USAGE

Dr. Jenny Arnold, DCE

Aquatic environments in the Lane-Poole Reserve include the Murray and Harris Rivers, their tributaries, the swamps of the Yarragil landforms, the winter-wet Goonaping valleys with the two small lakes - Nalyerin and Yourdamung, and seepage areas around granite outcrops.

Related to the rivers are the swamps characteristic of the upper reaches of the Harris River and the melaleuca-flooded gum fringing woodlands.

Knowledge of all these aquatic environments is limited, with the possible exception of the Harris River (ERMP for the dam project). The Harris River upstream swamps are situated deep within the section of the Reserve with a conservation emphasis and it appears that construction of the proposed Harris River dam will not result in backing up of the reservoir into the reserve.

I propose to concentrate on the Murray Valley.

While recognising that my brief is to talk about river usage I wish to digress to talk about the Murray Valley landform for a few minutes.

The Murray Valley is not identified as a conservation Management Priority Area in the Forest Department Working Plan No. 87 although the plan prescribes a management emphasis for recreation particularly for canoeing and marron fishing.

However, if I may quote the Forests Department submission to the System 6 study:
"Landscape Unit (e) - Deeply incised river valleys in the eastern plateau.

This unit is minimally covered by the Serpentine National Park which is strongly disturbed and subject to heavy recreational use. The bulk of this unit is already submerged due to the construction of dams for Metropolitan water supply and for irrigation. The only areas still remaining relatively undisturbed are the lower portion of the North Dandalup Valley, the Murray River Valley outside the departmental plantation and private lands and the Collie River Valley below the Wellington Dam. The problem would appear to be

that these areas already are, and in the future will increasingly become, subject to heavy recreational use. It is therefore desirable to give detailed consideration to the portions of these relatively restricted areas which could still be set aside for conservation and scientific study."

My first point is therefore that the Murray Valley landform is of conservation value in its own right as the landform is pporly represented in reservations and is subjected to heavy usage where it is reserved. Therefore there is a strong case for managing the Murray Valley in a way which recognises its conservation value.

Because the valleys of the western plateau have, in a sense, been isolated from each other, they re worthy of investigation foe endemics; for instance I believe that the Helena Valley has a number of plant species which are not known to occur outside the valley. It is possible that a similar situation occurs in the Murray Valley. As far as I can see there is no duplication in Management Priority areas of landform and site-vegetation types of the Murray Valley. Thus, now the area is reserved, and until potential conflicts about the valley's use as a water resource have to be addressed, management efforts should recognise its conservation value as well as its recreation value.

'Conservation' is a word frequently used with the result that its meaning may be devalued or confused. Definitions used in the context of conservation strategies tend to become very wordy indeed and uncomfortably mancentred. However the concept of 'sustainable benefit' is relevant to the Murray Valley: The Murray Valley should be managed so that it can yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations for future generations. These needs and aspirations cannot be measured simply in terms of volumes of water or tourist dollars. In this respect, conservation of the valley is inextricably tied up with recreational usage of the river which runs through it.

It becomes clear from one's own responses to the valley and to the responses of people one meets enjoying the valley, that its value for many people resides in the presence of water, rocks, trees, peace, birds. Recreation and conservation are tied up together. Management should be directed towards

maintaining the river and its banks and the riverine woodland and forest because these are the things that confer its means of fulfilling the needs and aspirations of many of the people who visit the valley.

The river, of course, has its problems. These problems are a salt load from its cleared catchment and a nutrient load from farming activities within that cleared catchment.

Bennett and Thomas (1982) describe water quality regions within the Murray catchment and show that the watercourse within what is now the Lane-Poole Reserve has total dissolved solids of between 1,000 and 3,000 mg L^{-1} compared with less than 1,000 mg L^{-1} in the forested part of the catchment. Morrissy is 1978 documented stream conditions in the Murray:

	CONDUCTIVITIES S cm^{1}	
1. River		
Scarp Road	2,680 (spring)	
Nanga Bridge	2,880 (spring)	
Circular Pool	3,040 (spring)	
Trout Pool	3,040 (spring)	1,278 (late summer)
Drivers Road Crossing	4,060 (early summer)	
Hotham River	4,070 (spring)	5,200 (late summer)
Williams River	4,150 (spring)	10,700 (late summer)
2. Streams		
Davies Brook	312 (spring)	
Nanga Brook	151 (spring)	163 (early summer)
Yarragil Brook	550 (spring)	
Howse Brook	440 (spring)	
Chalk Brook	850 (early summer)	

A point which should be highlighted is the contrast between late summer conductivities for Trout Pool and for Hotham and Williams Rivers. This suggests that the headwater streams within the forest play a big part in ameliorating the summer conditions of the river. What will be the case if the headwater streams are dammed? - the Murray River environment will be substantially altered.

Bennett and others in Bennett and Thomas (1982) (On Rational Grounds) give an average salinity of 1,000 mg L^{1} TDS.

Apart from Morrissy's paper I have not had time to search for references on the fauna but it is clear that it cannot be regarded as pristine. Even the marron, on which a part of its recreation value rests, probably did not occur there naturally.

Morrissy reports the presence of mosquito fish and redfin perch and documents records of introductions of this species and trout. The river has a t some time attracted enthusiastic trout fishermen.

Another aspect of water quality problems is issulstrated by Morrissy (1978) for Bob's Crossing in April 1977. He demonstrated a halocline (sharp transition between fresh and saline waters) at about 4 m with fresh water (? from Nanga and Big Brooks) sitting above brackish to salt water from higher in the catchment. Morrissy showed that dissolved oxygen levels fell sharply at the halocline from about 80% saturation to zero and that temperature showed a sharp rise at the halocline. This indicates that the environment in the deep pools can be pretty inhospitable. Morrissy identified this situation as one requiring investigation.

The Advisory committee discussed the need for investigations on the marron populations and their management. Discussions were held with Dr Morrissy but proposals for Fisheries to design and assist with an investigation were shelved because there was no means of policing catch methods in the absence of full-time rangers. The planners should promote research into the marron fishery and fishing pressures. While the river waters are clearly significantly polluted with salt, and probably nutrients, the fringing vegetation is apparently in a healthy state and its productivity is indicated by the presence of cormorants.

If the river has impaired water quality, the headwater streams have good water quality. There is, however, little known about the aquatic fauna of these headwater streams. However, work carried out in the northern jarrah forest further north indicates that the fauna is likely to be scientifically interesting.

Western Australia is not well endowed with fresh water habitats. The small headwater streams are the only fresh running (lotic) systems in a relatively undisturbed state in the northern jarrah forest; all the larger streams are either dammed or affected by salinity.

Work by Bunn and Edward in recent years has greatly increased out understanding of the aquatic fauna of headwater streams. From their work in the Wungong and North Dandalup catchments:

1. Whereas it had been thought that the fauna of the fresh water streams in the south-west was impoverished, Bunn et at have shown that the numbers of taxa is on a par with similar sized streams in the east of Australia (146 taxa).

2. Some of the species are of biogeographical interest: rare, ancient and relictual,
   e.g. a gastropod Glacidorbis occidentalis
   two isopods Hyperoedesipus
   caddis fly family Atriplectidae

3. Predictable changes in the fauna occur from summer to winter - reflecting differences in stream flows and food source; in summer there is a predominance of collectors, and winter filter-feeders and shredders. Perturbations to the streams will be reflected in changes in the community structure away from the predicted seasonal pattern. Velocity of stream flow and water depth were shown to be highly associated with temporal changes in the fauna.

4. Differences were shown between the Wungong and North Dandalup catchments - some species found exclusively in the Wungong catchment; some species characteristics of the southern sites.
   * the composition of the fauna appears sensitive to a number of factors - distinct seasonal changes.
   * there were substantial differences among sites.

Investigation of the stream fauna of the Murray Valley should be encouraged so that the understanding obtained further north can be extended and the fauna fully documented.

EFFECTS OF BOATING

In considering a referral of a proposal to hold a power-boat race on the Murray, the EPA considered a number of potential impacts:

* spread of forest disease
* physical and biological damage to the water course and its banks
* disturbance to wildlife
* disturbance to facilities
* noise
* safety
* disturbance to the expectations of other users
* litter

The following were identified as key impacts:

* spread of forest disease which could occur through activities of participants and spectators on land rather than on the river proper.

* risk of damage to the physical and biological environment e.g. by destabilisation from desnagging and river clearing and damage to the banks and vegetation at start and finish points and by spectators seeking to watch the competitors.

* impact on the expectations of other users for peace.

Impact on wildlife would be significant is there was frequent use of the river by power-boats but may not be significant if there was only a single race held before water levels start to fall in the spring.

==========

Question: Is power boating likely to be detrimental to the river?

Answer: The problems arise from noise destroying recreational solitude and constantly disturbing bird life and other fauna which occupy the upper levels of the food chain. This was likely to have detrimental long-term effects on the river. Any demand for removal of snags or rapids should be viewed with concern as these provide

specialised environments essential to some components of the fauna. Activities of spectators and participants could spread dieback disease and damage river banks. Litter and other auxiliary problems also arise.

Question: Has recreational management such as installing steps and boat ramps had any detrimental effects on the river?

Answer: Effects of developments on this type are unknown, but considering the large winter flow of the river, and trees, etc which fall into the river, it is unlikely these developments will have substantially more effect than do those natural events. Indiscreminate camping and other recreation <u>outside</u> the areas specifically provided is, however, having a high impact.

CONSERVATION AND FOREST USAGE

Mr Joe Havel, CALM

Main points were:

1. Management priority areas which form the basis of the Lane-Poole Reserve where chosen by undertaking detailed studies and vegetation mapping in three selected areas, then extrapolating the results in order to define a small number of MPA's which contain examples of the major geomorphological/vegetation types.

2. The Reserve shape includes the greatest range of geomorphological/vegetation types within the constraints of land-use conflicts.

3. A concern in management is the long boundary interface which exists between the Reserve and adjacent lands. This greatly increases the influence adjacent land management will have on the Reserve, especially with non-compatible uses such as agriculture or mining.

4. The Jarrah forest within the Reserve was not homogenous in structure or floristics and showed considerable spatial variation in both parameters.

5. The riverine habitat was almost totally different to the forest habitat and represented a unique assemblage of plants and animals within the reserve.

6. The interactions between conflicting land uses were discussed. Mining, timber production, orchards and pastures tend to be associated with particular landscape types. This allowed some predictability for future demands.

7. Fuel accumulation could be predicted from landscape type. This information plus local topography will allow some predictability of fire hazard.

8. Buffer zones were included in the proposed reserve boundary and given the same status as the Reserve. Provision of additional buffers was therefore not seen as appropriate although management buffers might be agreed upon in some forest areas. The existing Agreement with Alcoa firmly sets boundaries.

Comments: Strong concern was expressed regarding the location of the boundary on the north-east side of the recreation zone. It was considered that it required further rationalisation. It was also mentioned that some participants felt the core areas were too small and that some buffers were ineffective and did not fully surround the Reserve.

A PHILOSOPHY OF MANAGEMENT FOR THE JARRAH RESERVE - THE CONSERVATION PERSPECTIVE

Mr Michael McGrath, Conservation Council of W.A.

My views are personal rather than representative of Conservation Council; as a conservationist not a recreationist.

Background to Mangement

* History of exploitation for timber; old townsite, intensive roading, pine plantations.
* Existing recreational use, likely to intensify.
* Park surrounded by public land, one of the objectives of management of which is conservation.
* Terrible management boundary, inadequate resources.
* Government 'zoning' into conservation and recreation.

Alternative Objectives of Management for Conservation

* Maintenance of maximum diversity of species, of structural formations.
* Maintenance of maximum area of vegetation in a mature or late successional stage.
* Maintenance of scenic attractiveness - wildflowers, tall trees, limiting burning.
* Management for particular species of flora or fauna, e.g. enhancement of the range of the quokka; maximum development of jarrah.

In other words, we can make the Park a stage on which to mount public displays, a scientific laboratory, or a land bank to maintain options for later use. None of these options are acceptable. The mounting of floral displays can be done in a regional park such as Kings Park; the carrying out of experiments on fauna in the University of W.A.'s Thompson's Lake Nature Reserve or the Perup Fauna Priority Area. Growing of tall straight jarrah trees for timber is an objective of the timber production wing of CALM Enhancement of scenic attractiveness is not appropriate - the Government has decided that the area is sufficiently valuable to be protected; many people find it attractive. If others do not, then that is their problem.

MY PREFERENCE:

Protection of a representative sample of the jarrah forest ecosystem in as near as possible a condition to that existing prior to European occupation of Australia (i.e. not necessarily using the same management techniques). Although manipulation of the environment to enhance the population of particular geographically restricted or otherwise threatened species, or to provide a visually exciting spectacle, would not be objectives of management both of these might be by-products of the implementation of the above objective. The justification for this objective is based upon a philosophical view that the jarrah forest has an intrinsic value, a right to exist. This is where I go further than Jenny - who put the value of the reserve in terms solely of its value to present and future generations.

How do we do this, in view of the pressures on the park resource? Some of these are illegitimate, such as attempts by business people to grab shunks of the park for their own profit or pro-shooting, others, such as marroning, picnicking and camping, are legitimate uses. First we have to decide what this area is. Is it wholly or partly a national park, a nature reserve, a regional park, or is it neither more nor less that the State Forest from which we are assured that it is going to be carved out of? Reserves Review Committee had one point of view, System 6 Committee and EPA another. The JRAC have decided to manage it as a national park.

What are the implications for conservation of the various options?

State Forest -
'multiple use', focussed always on need to maintain timber production. Broad brush management, dominance of man's works in terms of roads, firelines, picnic areas. No 'wilderness'.

Regional Park -
intensive recreational management; conservation subordinate to recreation. Public enjoyment in a natural environment is goal. Only particularly significant areas exempted from development. Again, dominance of man and his works.

National Park -

Objective is conservation of natural environment, with the opportunity provided for recreational activities which will not unduly affect conservation values. Zoning of areas on basis of management priority, from area which, because of the high fire risk, are closed to the public all summer, to areas in which almost a scorched earch policy carried out to protect large numbers of careless members of the public.

Nature Reserve -

Objective is similar to that of a national park, but with less emphasis on recreational uses. Strictly limited alteration of the environment for recreational purposes, with recreation focussed solely on the flora and fauna. Scenic lookouts, scenic drives, camping, etc, not appropriate. Manipulation of the environment for one or more species is considered acceptable.

The possibility exists of managing discreet portions of the Park according to different prescriptions. However, we already have State Forest versus the Park; unified management is better. We believe that the entire area should be made a National Park, classified as 'A' class so that it can not be altered other than by Act of Parliament; and vested in the National Park and Nature Conservation Authority.

Consequent Management Actions

* Reject Government Zoning...note that granite outcrops, riverline vegetation, wetlands occur in Murray Valley just as in remainder of Park - indeed much of riverine complex is restricted to Murray Valley. New zones should focus on natural values, not political constraints to management -
  N.B. - riverline comples
  - Lake Nalyerin Basin
  - wandoo forest
  - swamp oak forest

* Oppose all exploitative activities;
  - logging of native vegetation
  - resort development
  - damming of river or tributaries for domestic water supply

Legal constraints oblige the management authority to accept that mining of a portion of the park will occur, probably in about 20 years, and that conveyor construction can be expected. This is totally unacceptable, and the management authority should never miss an opportunity to make that point. In the Northern Territory, they cut the uranium mines out of the Park; in Tasmania they did a land swap, in New South Wales they phased out mineral sand mining and banned underground coal mining. National parks are for conservation and appropriate recreational activities - NOT MINING. We can only hope that the Western Australian community in 10 or 15 years is more enlightened than that of today. All accommodation facilities other than camping must be located outside the park, only camping depends on a natural environment; only with camping are impacts able to be minimised. The degree of disturbance from the encroachment of an urban community into the Park, such as occurs with cabins, chalets, etc, is unacceptable. Ample opportunities exist adjacent to the Park, and there is scope for more such developments. These are the types of uses, however, that the park has been reserved from.

* Focus on activities that have a potential to alter a significant proportion of the area, or to alter environmentally significant portions of the area:
  - fire management
  - enhancement of the spread of dieback
  - alteration in drainage as a result of road construction
  - impact of feral animals as competitors/preditors

Establish a buffer zone of fixed (not indeterminate) width, on both public and private land, on which activities detrimental to the integrity or conservation of the Park would be controlled or prohibited. E.g. pine plantations (fire risk), intensive horticulture (spray draft), bauxite mining (dieback spread, stressing of native vegetation). It is recognised that the agreement reached by the Reserves Review Committee may limit the extent to which this can be achieved.

Similar restrictions should apply to privately-owned inholdings.

Management of surrounding land in sympathy with the Park is more important in the case of the Lane-Poole/Jarrah park than in most other cases, because of ridiculous boundaries determined by mining considerations. Narrow connecting corridors, fingers of State Forest extending into Park, elongated shape to

comply with recreational objectives. Long-term objective should be redesigning of Park boundaries, once the W.A. population has abandoned the view that the bauxite mining industry is a sacred cow. Recreational activities which focus not on the natural environment but on the activity itself (i.e. sparks) such as trail-bike riding, car rallying, speedboat racing, four wheel driving, should not be permitted if they have an appreciable impact on the natural environment they are making use of. I might add, as a person concerned with recreational policy as well as conservation that it seems unwise to permit these non-National Park-dependent activities if they reduce the suitability of the area for National Park-dependent activities. This is particularly so in view of the accessibility of a range of other areas in which such activities may be undertaken.

* Ensure that recreational activities with a potential to degrade the environment (e.g. car-camping, marroning) only affect a proportion of any one ecological complex...e.g. don't permit strip development up and down the Murray River, on both sides.

* Ensure that, to the maximum extent possible, recreational development is such that it focusses attention on natural environment which is the reason for the park being set aside, rathat than on the facilities being provided. Recreationists should find difficult not to be confronted by the natural environment. This means

- facilities to be unobtrusive - no 'hard edge' between development and the bush. Roads and carparks should fit into contours, be concealed by vegetation; camping must be in the forest, rather than the forest being a backdrop. The road system must be rationalised; road design speeds must be kept low.

- no provision of distractions - e.g. adventure playgrounds, water slides, etc.

- interpretation should focus on the living nature of the jarrah forest, the dynamics of life. In view of excessive focus on trees in forests generally there needs to be a bias in the other direction - towards aquatic life, birds, forest floor invertebrates, small mammals, etc. Visitors should be told of the

impact of disturbance on the forest - if they don't understand why mining and pine plantations are bad for the forest, they are not going to understand why we need to have the Lane-Poole/Jarrah National Park.

- every opportunity should be taken to entice people out of their cars, away from their picnic tables and into the forest. Even a walk of 10 metres is better than the cliched 'Kodak stop' where you balance the camera on the windowsill. Some tracks in attractive areas (e.g. along river) need now to be closed and revegetated to walking tracks; however, new tracks need to be constructed specifically designed for walkers.

General questions and points raised in discussion.

1. Question: How is environmental data being assessed by the planning group? By computer or by hand?

   Answer: By hand, as computer facilities are not available and the majority of data is not in a condition suitable for direct input into a data retrieval system.

2. Question: Will the Planning Group become involved in Biological surveys?

   Answer: Certainly not on a broad scale because of constraints on time, the draft plan being required by January next year. There may be time for a very brief examination of certain key habitat types, but at present this is probably unlikely.

3. Comment: Strong feelings were expressed on the pros and cons of the adequacy of the presently defined Reserve boundaries. Some felt the boundaries too restrictive or irrational, others felt they were founded on substantial data and by agreement with the mining companies etc.

4. Comment: The need to manage processes in the dynamic environment rather than attempt to preserve the environment as perceived at this point in time was seen as a priority.

5. Comment: Amphion 6 should be included in the Reserve.

6. Legislative and other methods of controlling detrimental changes in enclaves within the Reserve should be examined.

7. Question: Has a cost/benefit analysis of the planning and reservation process been made and how does this relate to the cost/benefit of forgone forest and mining values prevented when the reserve was proposed.

   Answer: The short answer was no but the reserve has been set aside for specific purposes on request of the public, for the public.

As such, the Government has seen fit to accommodate this request and the relative cost-benefits then become academic.

RESULTS OF WORKSHOP

A.

QUESTION:

Are present Reserve boundaries appropriate and if not give reasons?
What are the suggested locations of boundaries and on what grounds are the revised boundaries based?

RESOLUTIONS:

(Group 1) Land use adjacent to the Reserve should be managed in such a way as to minimise impacts on the reserve. Particular management priorities should be set down in sensitive areas, preferably based on drainage into the Reserve. This was particularly important in the Keats and Tumlo blocks, but was not so critical in the Conservation Zone.

Phytophthora cinnamomi infestations, fire protection, preservation of scenic values, erosion, stream turbidity and blackberry control should be the priorities for protection in adjacent buffers.

(Group 2) Boundaries of Conservation Zone were seen as appropriate but saw a need to resolve enclaves. There was feeling that remainder of Surface MPA should have been included to increase the Reserve's content of virgin jarrah forest.

Concern was expressed about the linear corridor shape of the Recreation Zone. It was felt there should be additions made to the western boundary especially in the Chald and Federal blocks to eliminate the bottleneck nature of these portions of the Reserve. Although it was recognised that these constrictions were in map boundary only, it was conceivable that future land uses may change the structure or floristics of land adjacent to the Reserve, and the option to widen it then would have been lost. It was therefore thought advisable to widen it now.

Irregular and undefinable boundaries especially on the north-east side were seen as a management problem, but it was recognised that nearly five years had already been spent in negotiating boundaries and this should be borne in mind when proposing changes.

(Group 3) Reserve boundaries have been decided on political rather than rational grounds therefore debate on boundaries was not profitable. The original Forests Department recommendations on core areas should be re-examined in order to ensure the values of these areas were contained within the Lane-Poole Reserve.

B.

QUESTION:

Should sub-zoning of the major Conservation and Recreation Zones be considered in order to control access by foot, horses, motorbikes, 4-wheel drive or 2-wheel drive vehicles or for other purposes such as scientific research. Should zoning also be applied to the Murray River. If the answer to any of these is yes, where should the boundaries be, and on what criteria are they based?

RESOLUTIONS:

(Group 1) Primary zoning should be on natural landform e.g. lateritic plateau and riverine landforms. Recreational and other zones e.g. fire or dieback should be super-imposed on that basic scheme. A need for "wilderness zones" and "facilities zones" was perceived, but these needed to be defined. Off-road vehicles e.g. trail-bikes or indiscriminate off-road use of 4-wheel drives and power boats on the river should be totally prohibited. If horse-riding was permitted it should be restricted to certain zones where erosion, weed and dieback spread would be minimal or controllable.

Foot access could be more or less uncontrolled but more information was needed on spread of dieback disease from this source. General visitor access by vehicle should be controlled by closing roads or tracks, and by imposing speed limits.

Provisions of parking, facilities and accessways for the disabled was seen as a necessity.

(Group 2) In the Conservation Zone the original F.D. core areas should be protected by careful management of the buffer zones to absorb the impact of land uses in the surrounding areas.

In the Recreation Zone it was felt that experimental zoning of the Murray River could be used to investigate management options for recreational marron fishing. Further zoning was necessary on the river margins and in the forest based on the level of recreational usage. This in turn should govern (and be governed by) the provision of facilities. Attempts to restrict access per se should be limited except where there were specific management problems e.g. dieback quarantine or danger to the public e.g. steep tracks not negotiable to two-wheel drive vehicles.

There should be no restrictions to vehicles on public roads. Foot access should be available everywhere but there should be no constructed walk trails in the Conservation Zone.

Horses should be directed to rehabilitated landscapes or to adjacent farmlands, etc outside the Reserve. There should be total prohibition of horses in the Conservation Zone.

Educational facilities should be a priority in management.

(Group 3) A need was seen for three sub-zone types within conservation values.

(1) Flora, Fauna and Landscape Conservation. I
Criteria (a) no promoted foot access
(b) no promotion of recreation
(c) main aim preservation of conservation values because area very precious or very vulnerable.

(2) Flora, Fauna and Landscape Conservation. II
As for I except foot access permitted but not promoted.

(3) Conservation Corridor.
As for I and II but lower recreation value and primarily to serve as corridor for fauna.

It was further proposed that there should be three sub-zones within the Recreation Zone.

(1) Foot Access Zone

Suitable for bushwalking, camping and non-motorised river usage. Vehicles totally excluded. Horses require further research.

(2) Vehicle Access Zone

2 and 4 wheel drive vehicles and camping permitted.

(3) High Impact Zone

High levels of recreational use with developed facilities, BBQ's etc.

As a general principle off-roading and motorised river usage should not be permitted.

C.

QUESTION:

Should biological surveys be initiated with the specific aim of providing additional data for preparation of the management plan or, given constraints on time and manpower, should extrapolation from studies already existing be the priority?
If surveys are suggested for the present, or as ongoing research after the preparation of the management plan, on what areas or plant/animal groups should they concentrate?

RESOLUTIONS:

(Group 1) Full scale biological survey was not considered necessary but specific research is needed on rare and endangered species along the Murray Valley and in sensitive, or scarce vegetation types as recognised from maps, etc.

(Group 2) It was felt that there was adequate knowledge of the jarrah forest to develop a conservation management plan. There was however a need for surveys of riverine habitats particularly in the rsponse of flora and fauna to recreation. The suggestion that Eagle Hill vicinty on the Canning River may be a suitable area for comparative studies. Biological surveys should commence in Plavins block and work southwards.

(Group 3) The Management Plan should recognise the need for biological survey as part of the implementation of the plan. Budget and personnel (either staff or contract) should be written into management plan. Initially studies should centre on the old FD core areas. Appropriate impact assessments should be carried out where proposed developments may affect theenvironment detrimentally. Special research effort should be directed at acertaining the impact of corridors, roads and conveyor belt. A further research committment should be on fire sensitivity of plant communities rather than on individual species.

D

QUESTION:

Should beekeeping be permitted, and if so where and under what conditions?

RESOLUTIONS:

(Group 1) Beekeeping should be excluded from the Conservation Zone.

Approval may be appropriate in Recreation Zone. Guidelines should be prepared by planning group.

(Group 2) No apiary sites in Conservation Zone.

Sites in Recreation Zone permitted subject to limitations of dieback spread, distance from recreation foci etc.

Further research is needed on the impact of bees on forest ecosystems.

(Group 3) Planning Group should detail reasons for exclusion in Draft Management Plan.

Exclude beekeeping from Conservation Zone but not necessarily from Recreation Zone.

Impact of feral bees is low compared to that of apiary sites.

E.

QUESTION:

Are there any general principles the workshop feels should be applied to Marron, Trout and Cobbler Fishing in the Murray River?

RESOLUTIONS:

(Group 1)

(1) Policing of the fisheries should be in the hands of the Department of Fisheries, not CALM. Negotiations with Department of Fisheries should be undertaken to define responsibilities of the two Departments.

(2) Rangers could be honorary Fisheries Officers.

(3) Fishing for Trout, Perch and Marron should be tolerated as a means of controlling feral species (all are introduced species).

(4) Research is required into the dynamics of fish populations in the river.

(Group 2)

(1) Fishing should be permitted, but only by baited line rather than traps or nets.

(2) Fishing should be subject to Department of Fisheries regulations.

(3) Fishing should be used as a means of controlling population sizes and special controls on seasons, size and bag limit may need to be fixed.

(Group 3)

Did not have time to examine this aspect.

F.

QUESTION:

Are any of the workshop participants aware of species of animals or plants (or areas) which require special management or of which they feel the Planning Group may not be fully aware?

RESOLUTIONS:

(Group 1)

(1) Red-eared Firetail Finch - requires protection of streamline vegetation.
(2) Black Bittern - very rare, requires paperbark stands; may be breeding in the area.
(3) There is much concern about feral pigs and foxes damaging the environment.
(4) Several Aboriginal sites recorded in Harris River catchment. Refer to that report.
(5) Presence of old forestry sites e.g. Treesville, old millsite in southern part of Surface Block.
(6) Old railway routes in Samson Block. Refer Max Rutherford, Forest Officer at Collie, who has recollections of timber operatons at Tallanalla.

(Group 2)

(1) Historcal sites and equipment left from logging in the 1930's and 40's should be traced and preserved. Items should include bush loading ramps, line camps, railway formations, bridges, horse paddocks and remains of campsites. Such sites require documentation and restoration if appropriate. Public access to these areas should be examined for feasability.

(Group 3)

(1) Eucalyptus decipiens stands in south-east portion of Conservation Area require protection.

(2) Important swamps occur in the Conservation Zone, Bell Block and Plavens.

(3) Tammar and Brush Wallaby populations exist in the south-eastern portion of the Conservation Zone.

(4) The vegetation along the Murray River includes several unique assemblages. These need to be identified and protected.

(5) Ephemeral swamps e.g. Nalyerin and Yourdamung should be protected because of the scarcity of these resources on the Darling Plateau.

(6) Historical sites worth preserving include Dawn Creek Bridge, Nanga Townsite and Treesville.

PROTECTION

WORKSHOP PROCEEDINGS

13/6/85

Chairman: Drew HASWELL

LIST OF PARTICIPANTS IN PROTECTION WORKSHOP

NAME	ORGANISATION REPRESENTED
BLACKBURN, Roger	W.A.W.A.
BONIWELL, Bruce	Private Person
CHADLER, Richard	CSNF
CHRISTENSEN, Per	CALM
ERRINGTON, Alex	CALM
FAWCETT, Adrian	Murray Shire
GORDON, Sue	W.A. Naturalists Club
GRACE, Don	CALM
HARRIS, Bill	Bushfires Board
HAY, Chris	Bunnings
HEARN, Roger	CALM
KABAY, Dave	Alcoa of Australia Ltd
KEPPEL, Peter	CALM
McARTHUR, Geoff	Forest Consultant
McGRATH, Michael	Conservation Council of W.A.
McKAY, Greg	Bushfires Board
MOORE, Peter	W.A.W.A.
NEVILLE, Simon	University W.A., Geography Dept.
O'BRIEN, Brian	Bunnings
PEARSON, Baden	Apiarists
PEET, George	CALM
RAVEN, Tony	CALM
SHEARER, Brian	CALM
SMART, John	CALM
SNEEUWJACK, Rick	CALM
STYLES, Gordon	CALM
TINGAY, Alan	Australian Conservation Foundation
TOWERS, Rob	CALM
VERSCHUER, Ann	Alcoa of Australia Ltd
WILLIAMSON, Jim	CALM

THE PRACTICAL APPLICATION OF FIRE TO PROVIDE BROADSCALE PROTECTION TO LIFE, PROPERTY AND FOREST VALUES

Kevin Vear, CALM, Dwellingup

1. List the values that need protection, in and around the Reserve.

2. Protection of values is a balance of prevention, pre-suppression and suppression. i.e. The Protection Triangle.

3. Prevention

   - education
   - law enforcement

4. Fire Suppression

   - detection
   - rapid deployment of men and machines
   - good equipment
   - training

5. Pre-suppression

   - hazard reduction burning
   - access
   - planning

6. Must understand fire behaviour to establish a balance in the Protection Triangle.

7. Factors affecting fire behaviour are:

   - past weather (fuel dryness)
   - present weather
   - fuel quantity and structure *
   - forest type *
   - topography

8. Management can affect these - *

9. It is not safe for men to suppress fires when the forward rate of spread reaches 140 metres per hour, or when the flame height exceeds 2 metres.

10. Under normal summer conditions, forest fuels maintained between 5 and 7 years (8-10 tonnes per ha) will not result in fires exceeding this critical factor.

11. Other factors relevant to fire behaviour are:-

- slope. Fires of 120 metres per hour on level ground, will increase to 200 metres per hour on slopes of 10°
- prevailing weather, such as temperature, wind speed/direction, relative humidity, surfact fuel moisture content and drought index can all affect fire behaviour.

12. In meeting the Protection Triangle, need to consider:

- values (flora, fauna, landscape)
- seasonal and intangible values
- cost
- safety
- acceptable levels of risk

ENVIRONMENTAL MANAGEMENT PLANS

Alan Tingay, A.C.F.

1. There is general lack of information on these topics.

2. Existing management plan documents are lacking an ecological approach.

3. Natural units are the best places for landuse management. Therefore plans must be based on a Regional basis, rather than some arbitrary unit like the Lane-Poole Reserve.

4. Agriculture has had a significant impact on the Lane-Poole Reserve, and is now a constraint on management. e.g. water quality.

5. Other activities in the forest, external to the Lane-Poole Reserve are also impacting upon it. e.g. timber utilization, dieback spread.

6. Management plan should define the problems that affect the Lane-Poole Reserve, and attempt to specify potential solutions.

7. Where activities outside the Lane-Poole Reserve are considered to seriously impact the values inside the Reserve, referral to the Land Resource Policy Council, should be considered. This applies particularly to freehold land.

8. In State Forest, Department of CALM has a say about operations external to the Reserve. System 6 also supports the principle of Regional Management on State Forest to protect MPA's. The Lane-Poole Reserve may be considered as an amalgamation of these former MPA's for recreation and conservation.

9. It is important to manage landuse factors external to the Lane-Poole Reserve, which will have an adverse effect on the values within it.

An approach should be as follows:

- identify and describe ecosystems
- initiate data base collection
- identify problems originating outside the reserve

- define constraints to management i.e. beyond direct control of management authority
- derive solution
- initiate research

10. Within the Lane-Poole Reserve there exists insufficient data to adequately define the problems.

11. Therefore after external factors has been considered, the next stage is to develop a substantial data base by:

    - identification of areas where data is inadequate.
    - list and establish priorities. Determine what data is essential for the management plan to be effective.

12. The management plan compiled in this way becomes a course for action, in obtaining funds for management.

13. An approach to the development of an internal management plan, could be as follows:

    - identify problems
    - establish priorities
    - develop data base (flora, fauna surveys, visitor analysis)
    - define research programmes in detail
    - collect data
    - revive management plan

14. Because our data base in inadequate, there is a need to develop an interim management plan, at this stage.

15. Must therefore adopt a pragmatic approach and be conservative in the specification of management strategies.

16. Should therefore practise fire exclusion within the Lane-Poole Reserve. Fire should be used outside the Reserve, to protect the values contained within it.

17. An overriding objective is to maintain diversity within the Lane-Poole Reserve. Management should not aim at single flora and/or fauna species.

JARRAH DIEBACK DISEASE MANAGEMENT

Dr. Brian Shearer, CALM Research Branch, Dwellingup

1. Some features of the life cycle of P. cinnamoni

   - widespread geographically
   - floristically diverse
   - dynamic interaction in space and time

2. Distribution

   - low landscape loams
   - lateritic uplands

3. Production of spores is at a maximum in the warm moist conditions of Autumn and Spring.

4. However, no safe conditions exist. e.g. high rainfall in summer markedly boosts sporolation.

5. A major vector in the forest are the high populations of Banksia grandis.

6. Mass collapse of the forest occurs:-

   - on sites of impeded water drainage, above a caprock layer. These conditions are highly favourable for the rapid development of innoculum.
   - by lateral movement of water and spores through the coarse textured layers above the impeded layers.

7. There exists a mosaic of potentially high impact sites in the Murray Valley.

8. Research - The main aim has been to identify the key site indicators:

   - by undertaking surveys of impact. Subtle, moderate and high impact are noted in the forest.

- by examining the processes within each impact site.
- by understanding host suceptability.
- by developing disease assessment procedures.

9. There exists an association between site suseptability and potential impact from the disease. These can be determined by site (soil, geomorphology) and vegetation characteristics.

10. However, subtle disease expression is often observed with the S site/vegetation class, and is a cause for concern because of its extensive occurrence.

11. Jarrah has been shown to have variations in host resistance to the disease. This is related to its capacity to repair damaged tissues. It is known that:-

    - high soil moistures result in greatest host suceptability
    - certain site factors within the soil affect soil moisture, and hence host suceptability

12. Fire has been used to modify jarrah forest sites which disfavour the disease, by the development of dense understory (Acacia) vegetations.

13. Management control of the disease.

    1965 - discovery
    1969 - development of forest hygeine strategies
    1976 - introduction of Quarantine
    1980 - logging trials inside Quarantine
    1984 - routine logging inside Quarantine using Dieback free, impact and hygiene plans, derived from 70mm photography.

14. All operations are now subject to 7-Way Tests of Impacts and Consequences.

15. Need to develop <u>potential impact plans</u>.

FIRE AND CONSERVATION

By Michael McGrath, W.A. Conservation Council

1. The original fire plan for the Lane-Poole Reserve was critisized by the W.A. Conservation Council, because:

   - it concentrated unduly on hazards
   - it was more dictated by reason rather than frequency and intensity of burning.

2. The new fire plan compiled by the Lane-Poole Reserve Advisory Committee addresses these issues. It is a management plan which is more ecologically sensitive.

3. The plan provides protection for recreationists, and accepts the need to protect private property in some parts of the Reserve.

4. Fire must therefore aim to provide:

   - for the maintenance and enhancement of structural complexes.
   - for the maintenance to the greatest extent possible, of older age classes of vegetation.

FIRE AND CONSERVATION

Barry Muir, CALM

1. Protection is a major aspect of conservation landuse management.

2. Fire and conservation values of the Lane-Poole Reserve are also very important.

3. Much information is now available on the flowering and seeding cycle of plants. For example about one-third of the species in the Northern Jarrah Forest require greater than 5 years to flower and set seed. These plants are therefore not suited to the existing rotational prescribed burning regime.

4. Some species may require up to four times the seed setting period before maximum pollen and seed production occurs. These plants are also disadvantaged by the existing Prescribed burning regime.

5. The consequent effects on flora may also alter the populations of nectar and pollen reliant vertebrates and invertebrates..

6. Rates of fauna recruitment after fire are not well understood.
   - birds rapidly recolonize after fire.
   - almost no data on reptile recolonization.

7. The general fauna recolonization is at its greatest rate between 0 and 4 years after fire. Populations tend to stabalize after 10 years. The existing fire regime may therefore not optimize fauna values.

8. What information exists regarding post-fire mortality?
   Virtually none.

9. What changes in fauna species and populations occur with different fire intensities and frequency?

10. Do we use fire to manage for just some fauna species, or do we compromise?

11. What is the ideal burn size for maximum recruitment of fauna? A figure of 3km square seems appropriate.

FIRE AND FAUNA MANAGEMENT
AT
TWO PEOPLES BAY

Angus Hopkins, CALM

1. Gullies are the preferred habitat of the Noisy Scrub Bird.

2. The objectives of fire management in Two Peoples Bay Reserve are to protect the habitat of the Noisy Scrub Bird.

3. What are its features? It is not a good flyer, and feeds on invertebrate fauna.

4. Therefore need to exclude fire from Noisy Scrub Bird habitats.

5. Kangaroos graze heavily on uprooted native scrub species after fire. This creates a regeneration problem within the Reserve.

6. Fire Plan devised as follows:-

   - the provision of fuel reduced buffers throughout the Reserve
   - the provision of firebreaks, around the Reserve
   - replace wood BBQ's with gas fired BBQ's

7. Summary

   - establish the purpose of the Reserve, and the objectives of management.
   - develop fire management strategies consistant with this purpose and objectives.
   - monitor the effects of fire.
   - revise the fire management plan, where appropriate.

FIRE HISTORY AND DEVELOPMENT OF FIRE MANAGEMENT WITHIN THE AREA WITHIN AND SURROUNDING THE PROPOSED LANE POOLE RESERVE

R J Sneeuwjagt

Fire History

The history of hazard reduction burning in this area illustrates the change in philosophy and fire management practice that has occurred throughout Western Australia forests and throughout Australia this century.

Early records in W.A. indicate that fires were common in or near the Jarrah forest areas prior to European Settlement in 1829. These were lit either by Aborigines for hunting, cooking or improved access, or by lightning strikes during summer thunderstorms.

According to Hallam (1975), and Underwood (1978), these early fires were probably periodic and undoubtly covered large areas. But it is questionable whether they reached the intensity which followed forest and land utilization.

The explotation of the jarrah (and wandoo) resulted in marked changes both to the nature of periodic fires and to the structure of the forest. The resultant heavy growth of understorey shrub within canopy gaps, together with masses of logging debris supported intense fires which caused further damage to the tree canopy. These intense fires created severe and widespread forest damage in the 90 years preceding the passing of the Forest Act in 1918.

Early Foresters were alarmed by the extent of the damage and from 1924 onwards attempted a policy which almost entirely excluded fire from the cut over forest.

The policy required a low intensity fire before and after a trade operation or silvicultural treatment, after which the areas were protected by dividing the forest into compartments surrounded by a firebreak approximately 100m wide which was burnt regularly.

This regime resulted in an initial reduction in the number and size of destrubtive fires in the 1920's and 1930's within the prime forest, although widespread fires were still common in the low quality forest on the eastern margin as a result of escapes from land clearing burns.

The policy of fire exclusion, which lasted until 1953, saw a continued build up of forest fuels in the protected areas. Wildfire suppression became progressively more difficult, and large or multiple wildfires were virtually uncontrollable even under relatively mild conditions, despite the many advances in the quality of equipment and skills of the fire fighting manpower at that time.

Extreme difficulty was experienced in containing burns within firebreaks adjoining fuels that carried heavy forest fuels. Many fires were initiated from bush locomotives and from logging activities. Escapes from private property burns were also a major source of fires during this period. Lightning fires associated with dry summer thunderstorms were responsible for numerous fires many of which started within inaccessible forest blocks carrying heavy fuels.

By 1953 it was realized that complete protection could no longer be maintained. A review of the major factors involved, including community protection, led to a drastic change in fire control policy from complete protection to prescribed burning over large areas. The new policy aimed at systematically reducing the accumulated fuel by rotational prescribed burning over the whole forest except those areas where young advance growth temporarily precluded the practice.

Prescribed burning was carried out in the mild weather of spring and autumn when damage to timber values is minimized. The frequency of the burn operation was based on the rate at which litter built up to dangerous levels. The rate at which forest litter and debris accumulates varies according to forest type and overstorey canopy cover. In general, the average burn rotation varied from 5 to 7 years. After this period fuel loads may exceed safe levels and fire control becomes next to impossible and unsafe to firefighters.

During the 1950's fuel reduction burning was done by ground crews. Limited manpower, equipment, and inadequate knowledge of fire behaviour meant that improvements were slow in developing. In 1961 heavy accumulations still existed throughout the forest. The summer of 1960/61 was extremely hot and dry. The Dwellingup fires which resulted from a series of 19 lightning strikes in January 1961 eventually burnt out some 140,000 ha, including the towns of Dwellingup, Banksiadale and Holyoake. Only in the recently fuel-reduced areas could these fires be brought under control.

The 1961 Royal Commission, led by Mr C.J. Roger, to enquire into these fires, recommended that the "Forests Department makes every endeavour to improve and extend the practice of control burning to ensure that the forests received the maximum protection practicable, consistent with silviculture requirements".

The ability to bring almost the entire jarrah and karri forest under a regime of rotational fuel reduction burning was given a boost with the development of aerial ignition techniques in 1965. In addition the development of Forest Fire Behaviour Tables in 1965 (Peet) and subsequent refinements (Sneeuwjagt and Peet 1985) have enabled foresters to predict and use prescribed fire as an effective tool for fuel reduction burning.

Other advances in fire control have contributed to the excellent record of wildfire control that has become evident since 1961. These advances include the use of an aerial surveillance system throughout State forest, development of reliable and effective fire fighting pumpers and equipment; use of chemical retardents for suppression and mop-up.

Effectiveness of Fuel Reduction Burning

The beneficial effects of prescribed burning and other fire control measures are most obvious during fire emergencies in periods of extreme weather.

Since 1961 there have been many fire emergencies in or around State forest in 1969 (Boorara fire); 1974 (44 wildfires on 20th December); 1975 (over 100 lightning strikes in February) and 1978 (Cyclone Alby fires).

The most outstanding example of the contribution of fuel reduction burning occurred in 1978 following Cyclone Alby which caused 92 fires to burn out of control near forest lands. Wind speeds of up to 130km/hr caused fires to run at speeds of 8000 metres/hour with extensive spotting. Although the total area burnt was more than 54,500 ha, the rate of spread of fires in State forests (where fuels were kept low by prescribed burning) were so reduced that only 7000 ha of native forest were burnt.

In the northern jarrah forest which includes the Lane-Poole Reserve, the impact of prescribed burning has been remarkable. There have only been 3 fires of more than 200 ha in size throughout the entire area since 1965 when aerial burning was first applied.

Although the size and number of damaging large fires has been drastically reduced, the numbers of wildfires attended by Departmental firefighters remains high. Without doubt, if the forest fuels were allowed to accumulate beyond 10 tonnes/ha over large areas, the risks for large, uncontrollable fires would again be very high.

Fire as a Tool for Multi-Purpose Forest Management

Considerable expertise and knowledge has been developed that enable forest managers to use fire in a controlled manner to achieve such management objectives as:

- fuel hazard reduction for protection of forest and community assets.
- site preparation for forest regeneration.
- maintaining natural ecosystems and landscape values.
- enhancing wildlife habitats.
- regulating understorey or undesirable vegatation.
- controlling spread of diseases such as jarrah dieback.

The fuel reduction burn regime which has been adopted as the most suitable to achieve the protection aim, whilst not necessarily harmful nevertheless may not always represent the optimum fire regime for conservation of all the major flora and fauna components within any one area. For this reason it is necessary to develop special burning values within Conservation Forests, National Parks and Wildlife Reserves.

These burning plans would include a wide range of fire treatments to satisfy the varying requirements for the maintenance of representative plant and animal communities within Conservation forests. Such fire treatments may include variation of burn frequency, fire intensity and the season of burning. The extent to which such diverse treatments can be applied is greatly dependent on the land use values and management practices on adjacent lands, the provision of strategic low-fuel buffers as a measure to minimize the risk of fire escapes, and the finance and manpower available to safely carry out these complex tasks.

All such fire management plans must have the safety of neighbours, forest users and fire fighters foremost in mind.

Conclusion

Fire management technology and experience is now sufficiently advanced to enable forest managers to implement different burning regimes to meet a range of management objectives including faunal protection. Provided adequate funds and manpower are available, the development of diverse fire regimes (including fire exclusion) should be expanded in areas such as the Lane-Poole Reserve.

However, such an expansion of the use of fire must be done cautiously bearing in mind the lessons of the past. The low incidence since 1961 of large wildfires in the Lane-Poole Reserve area as a result of the prescribed burning policy may lead to a degree of complacency. Fires are common, and under severe conditions cannot be easily controlled where fuels are allowed to accumulated beyond acceptable limits. Areas set aside for fire exclusion and long-rotation burning must be effectively protected from wildfires, and must not be located where they constitute an unacceptable high hazard to life, property and Reserve values.

NOTES FOR LANE-POOLE RESERVE MEETING - 13 JUNE 1985

Dr Per Christensen, CALM

The Perup Management Priority Area (MPA) is a fauna conservation area within State forest. The area was set aside in 1972 for conservation of rare and endangered fauna including; woylie (Bettongia penicillata), the tammar (Macropus eugenii), the numbat (Myrmecobius fasciatus), the native cat (Dasyurus geofroii) and the Western Ringtail Possum (Pseudocheirus peregrinus).

There are two management objectives;

a) Conservation of the rare and endangered fauna - maximize populations whilst at the same time attempting to cater also for other species of fauna and flora.
b) Research - use the area for biological research with particular emphasis on species biology and habitat requirements in relation to fire.

Lessons to be learnt from the Perup include:

A simple fauna fire management plan which is both practical and effective and which provides adequate levels of fire protection has been developed. The plan includes autumn burning and longer rotation burns as well as interest controls. Experience has shown there are some difficulties burning under dry conditions. Protection of unburnt areas has also proved difficult. Three fires have occurred in the 2 unburnt control areas.

Burn size has been found to be a critical factor. In small burns, less than 250-500 ha in area, grazing by kangaroos may affect understory plant species composition. In some instances certain species and especially leguminous plants, may be almost eliminated from a burn area. This effect appears to be inversly proportional to rainfall i.e. in lower rainfall areas burns would need to be bigger to avoid the problem.

Some species like the gregarious tammer require only small areas for successful management, others are more solitary species e.g. the woylie may require very large areas.

It has also been shown that animals e.g. the woylie may be re-introduced into an area successfully if enough is known of the species biology. It may also be possible to establish colonies of certain species e.g. the tammar by artificially creating habitat for them e.g. by planting.

Certain species have long term cycles or fluctuations and monitoring is necessary to understand these so that management can be fitted in with the cycles e.g. large burns when a species is at the lowest point in its cycle can be a real problem.

Certain introduced weeds e.g. grasses may establish and spread following fire. Some fire regimes favour weeds more than others thus intense fires and frequent fires are the biggest problem.

In summary much of what has been learnt may not be directly applicable to the Lane-Poole Reserve at this time. The following points are worth noting.

(i) Unburnt areas will almost certainly catch fire at some time therefore extreme care should be exercised in the selection, location and size chosen for such areas.

(ii) In practice it has been possible only to burn fairly large areas. If burning blocks are too small, burns tend not always to be done. They may miss out because of other priorities, short season, especially in autumn, etc.

(iii) Burns must be relatively large to prevent selective grazing effects. This cannot be stressed too strongly. Low intensity burns in particular have to be large or legiminous species coming up in 'hot spots' may ben entirely grazed out.

In short I believe a simple plan with relatively few large burns with simple rotation lengths and some seasonal variation is most likely to work. Fancy plans with many burns and a complicated network of rotation lengths and seasons may look impressive but they are unlikely to work in practice.

A SUMMARY OF THE
PROTECTION WORKSHOP ISSUES

MAIN POINTS DISCUSSED ON THE WORKSHOP TOPICS.

DIEBACK DISEASE:

1. The Management of Access.

- rationalize access based on predicted environmental impact, and the potential for disease spread.

- classify activity with road class (e.g. major roads, forest tracks, bulldozed firebreaks, tracks on ridges, or through high impact sites).

- evaluate the freedom of access:

  . open, (up-grade or maintained?) access to recreation sites, fire fighting or private access.

  . temporary management roads (burn boundaries).

  . restricted roads which require permits for access.

  . permanently closed roads.

- off-road access to be on foot only.

- assess the need for vehicle access to the Murray River.

  . do we need access on both sides?

  . does the recreation zone have a finite carrying capacity? Are we reaching this level in riverine areas?

  . what is the current level of use.

2. The management of dieback spread and impact; considered of particular importance in the Conservation Zone.

- develop accurate plans of disease distribution, impact and site susceptability. Where not available from 70mm photography, ground survey as an interim measure.

- develop plans predicting the risk of disease introduction, based on the type and intensity of landuse.

- rehabilitate graveyard and high impact areas.

- monitor disease introduciton and changes in impact, with time.

- consider limited treatments to reduce site susceptability e.g. Banksia reduction.

3. Consider the extension of Quarantined areas to all Conservation Zones.

4. Develop a public dieback education site.

FIRE:

1. What monitoring and research programmes on the impact of fire management on ecological values, are required?

   - monitoring/research programmes are essential to the management plan. They should be simple, inexpensive, reproducible and effective.

   - some considered that the monitoring/research of fauna species was a sensitive indicator of site changes. Others preferred a "community" approach.

2. What is the impact of fire management on minor forest produce e.g. beekeeping?

   - Reserve is extensively used and would prefer as little fire as possible. Banksia understorey important in honey flow, so that even mild burning is detrimental.

   - prefer autumn burning.

3. What should be the strategy for wildfire management?

   - some thought that because fire was a natural phenomenon, it should be allowed to "run freely", within the conservation zone.

4. What should be the strategies of fire exclusion:

   - in the recreation zone need to protect conservation values, as well as protect life and property. Fire exclusion could be practised more readily in the recreation zone, not accessed by the public.

     Others were concerned about the difficulties of fire-fighting in steep areas of the Murray Valley. Most considered an evacuation plan to be an integral componant of Reserve management.

   - in conservation zone, need to establish a broad philosophy. In general, areas should remain unburnt, unless they are required for the protection of life and property.

Problems were seen in the loss of fire-free areas, through natural or accidental ignition.

Other factors which the management plan should consider include:

5. Can a more systematic approach to the analysis of fire risks, be determined?

6. What are the changes in ecosystem nutrient status that can be expected from various fire management regimes?

7. What is the balance between the provision of access, wildfires and public safety?

   - there is a need to develop an education programme that informs the public on the prescribed use of fire, and evacuation procedures during wildfires.

   - fire-free areas should be balanced with accessable, regularly burnt refuge areas.

8. Should fire management be aimed at single species, or concurrent species management of flora and fauna?

ENVIRONMENTAL PROTECTION:

1. The management of feral animals and noxious weeds.

   - need to evaluate the responsibilities of adjacent landowners.

   - need to determine "effects" on conservation and recreation values.

   - apply the same management strategies to conservation and recreation zones, namely,

     . eradicate noxious weeds, particularly blackberries, Pattersons Curse, Arum Lilly and Cape Tulip.

     . control and ultimately eradicate pigs, foxes, rabbits, cats and dogs.

2. Exclude horses from "special" conservation areas of the Reserve.

3. Provide temporary access (e.g. to blackberry infestations), followed by rehabilitation, after the completion of eradication.

LANE-POOLE RESERVE

RECREATION WORKSHOP

21/6/85

Chairman: Jim SHARP

LIST OF PARTICIPANTS IN

RECREATION WORKSHOP

NAME	ORGANISATION REPRESENTED
BARKER, Peter	WACAE
BARTLE, John	Dwellingup Progress Association
BELL, Geoff	Nanga Bush Camp
BIRD, John	Trinity College
BLACKBURN, Roger	MWA
BROWN, Jackie	CALM
CHURCHWARD, Barbara	Tree Society
CRAWLEY, Dennis	Mt Lawley Tech
DALLIMORE, Jo	Private
DALWOOD, Ray	Cygnet Tours
FAWCETT, Adrian	Murray Shire
FRASER, Frank	Christchurch College
HANDCOCK, Brian	WATC
HEARN, Roger	CALM
HOOPER, Caroline	Tree Society
HULAJKO, Richard	CALM
JORDON, Barry	CALM, Harvey
KABAY, Dave	ALCOA
McGRATH, Michael	Conservation Council
McGRECHAN, Neil	Nedlands CAE
MOORE, Sue	CALM
MURPHY, Margaret	Private
MURRAY, Peter	SWDA
O'BRIEN, Kevin	St Norbert College
PEET, George	CALM
RICHMOND, Ian	
SHARP, Jim	Dept of Sport & Recreation
SHARP, Peter	Dept of Sport & Recreation
TACEY, Warren	Dames & Moore
TAIT, Allan	Nedlands CAE
TAYLOR, Mike	WRC
TOWERS, Rob	CALM, Collie
VEAR, Kevin	CALM, Dwellingup
WILLIAMSON, Jim	CALM
YORK, Terry	CAMS

HISTORY OF USE AND MANAGEMENT OF RECREATION DEVELOPMENT

Kevin Vear, CALM, Dwellingup

History of Recreation in the Lane-Poole Reserve:

In 1972 there were 40,000 visitor days
1978 - 65,000
1985 - 120,000

This rapid rate of increase is likely to continue, along with associated problems.

Recreation is defined as a voluntary/pleasurable activity and part of the process of revitalism.

80% of reserve users are day trippers,
60% are family groups,
40% aged between 20-40 years,
90% are W.A. residents.

The most intense use is on weekends and public holidays.

Over 50% of reserve visitors use the reserve for picnics/barbecues. Many are "high-tech" users i.e. bring their own gas barbecue, fridge, radios etc.

More than 90% do not move more than 200m from a main road.

The main attractions of the Lane-Poole Reserve that people nominate are the peace and solitude, the availability of facilities, and the landscape features, particularly the valley and associated vegetation.

Dislikes include trail bikes and site conditions.

Planning should allow for existing needs without destroying values on which it is based. It should use a systematic approach, which includes:

1. Inventory
2. Identify use patterns and opportunities
3. Classify resources in relation to physical and cultural environment
4. Identify user needs
5. Assess resource capability
6. Determine future options
7. Identify constraints e.g. land use conflict, legal constraints and financial constraints
8. Implement and control
9. Review planning recommendations.

The Dwellingup Division working plan has been used as a guideline for current development. Expenditure in upgrading facilities has included:

$250,000 CEP funds
$ 15,000 Dwellingup Division funds.

The main problem is to set up a mechanism for money aquisition through lobbying. Current levels of management above will require at least $50,000 per year. The plan should indicate sources of ongoing finance.

Questions

Q: (J Dallimore) - Recreation area requires greater protection. 100,000 people is an under estimate and most are concentracted in a small part of the Land-Poole Reserve.

Q. (M McGrath) - Is there any change in the type of user over the last 10 years?

A: - Some trend towards a more responsible user due to the provision of facilities, controls and information.

Q: Noted that these are still significant numbers of exploitative users e.g. for marron fishing and pig hunting.

Q: (D Kabay) - How many people manage the reserve?

A: In the 1970's, 1 person for rubbish removal, plus ½ person for management. Now, management is handled by the Advisory Committee, a ranger is about to be appointed, and 4 full-time maintenance workers are required.

Q: (S. Neville) - Can you direct pig hunters away?

A: Communication will not solve the problem but will help. Other strategies need to be thought about.

Q: (B. Churchward) With regard to boundaries, planning should be in harmony with the surrounding forest.

Q: (M. Taylor) How many go more than 200m from roads and what types are these?

A: 1-2% are backpack campers, bushwalkers, also there are school groups, trail bike riders and pig hunters.

Q: View presented that many more, especially school groups, go away from roads and figures do not reflect their numbers.

Q: (M McGrath) More interpretive material, trails etc needed to get groups off the main tracks.

Q: (R Dalwood) Figures, expecially at peak periods (e.g. Easter) almost certainly an underestimate.

Q: (R Blackburn) If areas closer to the city were available for backpacking would they be used?

A: Christchurch Grammar and other schools do use such areas but generally concentrate on the Murray where they have facilities. However, increased use of water catchments would take more pressure off.

TOURISM AND THE LANE-POOLE RESERVE

Mr Brian Handcock, W.A. Tourism Commission

I presume we are talking about the NORTHERN JARRAH FOREST as the LANE-POOLE RESERVE.

I presume again we are talking about the area already under some exploitation for tourism and recreation and, by and large, well managed by the prediluvian Department of Forestry now CALM (Can anyone logically manage?).

LETS LOOK AT WHAT YOU'VE GOT - TOURISM-WISE

A major piece of representative forest and rivers system within striking distance of the Perth metro area and serviced by good access roads, a variety of alternate recreation areas such as Peel Inlet, Hotham Railway Dwellingup.

Throw in a fragile, somewhat unknown ecosysten, a million tourists and a fire regime and you've got problems.

TO SPECIFICS

WHAT IS A TOURIST - 40 k's and overnight.

WHAT DOES HE WANT - to experience:

. the problems of museums
. the need to be safe - the one way mirror syndrome
. the need to spend
. the need to wrap the trip up
. the need to fix points or sights or experiences.

WHAT DOES HE GET - dishonest advertising - 7 days - 8 nights

Exceptions:- 'Come to Alice when she's hot', or 'Pemberton a pretty wet place'.

He is not expecting the heat, flies, conditions etc. He is expecting to watch it all on three dimension colour television.

TOURISM IN THE MURRAY VALLEY

TOTAL WESTERN AUSTRALIAN NUMBERS 1983/84

Intra State	4 847 000 or 91%	Value $753m or 74%
Inter State	332 300 or 6%	Value $166m or 16%
International	167 200 or 3%	Value $103m or 10%

Obviously this will go up during America's Cup

OVERSEAS VISITOR NUMBERS TO WA

	To Australia	Our Share
1981/82	952 000	14.2%
1982/83	930 000	13.6%
1983/84	992 000	13.1%

WHERE FROM

New Zealand	26 000
USA	24 000
UK/I	20 000
Japan	4 300
Other/Asia	6 300

OCCUPANCIES

	Establishment in WA	Rooms	%
1976/77	474	11 000	50.5
1983/84	485	13 600	45.8

DWELLINGUP TOWNSITE

ITS INTER-RELATIONSHIP WITH:-

A. THE LANE-POOLE RESERVE

Given that most of our tourists come from the metro area, Dwellingup becomes a big resource centre. It provides a gateway to 'outside', a resupply point, a known meeting or reference point, a place to 'go into town and rage' after a week in the bush.

Increasingly it will be called upon to service tourism coming into the reserve. Its essential services and ancillary services will have to grow to meet the tourist population. Public telephones, ambulances, police, lost children etc.

FOR EXAMPLE:

MARGARET RIVER has a population of 4,160, a rate revenue of $2.3m and yet over Easter 1985 12,000 - 15,000 people visited the Shire. Easter traffic count gave 19,860 cars on the highway. It has 17 separate public toilet facilities within the Shire, considerable fragile environment and horrendous road cost construction in some areas.

B. THE JARRAH CENTRE

By this I suppose you refer to the construction of a centre similar to the Jarrahdale concept.

These centres, like all the old Forest Department material are excellent. Others like the Manjimup shire Timber Museum provide a first class, very professional and absolutely vital part of tourism and the tourist enjoyment of our forests.

Japanese for example have difficulty coming to grips with our forests. They can't see the trees for the wood so to speak. They need reference points. Our school groups do also.

Most importantly although not in significant numbers, our angry young men and women need this type of material to enable them to come to grips with our reserves without having to ask questions. The roughest yobbo looking bikie can often demonstrate a high retention rate of information after visiting a site equipped with these signs and materials.

EDUCATION OF VISITORS

Directly related to concepts such as the Jarrah Centre is the need to educate our West Australian people to understand and relate to our forests. For years we have created an atmosphere of unlimited space and material in Western Australia. This coupled with the throw away generation is creating a mental approach to our fragile forest that is bordering on the disasterous.

PRIVATE VERSUS PUBLIC DEVELOPMENT

The Golden Rule of government was spelt out very succinctly by George Washington:- "The Government should do for the people what they cannot do themselves or, being able to do, cannot do sufficiently well".

W.A. is a rich mans frontier and America was a poor mans frontier.

Given our sparse population etc Government must initiate - open up - set the tone and be willing to allow private development when ready.

NANGA Bush Camp preforms an excellent role.

The DYSR camps like Lewana Park are first class examples of Government initiatives. Donnelly river Mill Village is a natural private development that follows a successful government initiative.

Perhaps leases should be longer - often 21 years is not enough to allow developers to adequately secure borrowings etc. Conditional purchase could be considered. We should search out our old methods - land grants for development such as the Midland Railway Company scheme could well be viable. Government departments should also co-operate.

MARKETING THE LANE-POOLE RESERVE

Marketing is a subject often dwelt on by speakers and yet it boils down to the five prime rules or marketing and these are:-

People
Product
Package
Price
Promotion

PEOPLE

To establish what people will use our reserves or buy our produce we must use hard statistics such as the Tourism Commission's Market Segmentation Study and District Tourism Monitors. Anything else is like winking at a girl in the dark. You know what you're doing - she doesn't.

PRODUCT

Really, what are we selling? Forests or freedom and big breaths of air - we need to know and we need to know now before we make any decisions on product development within the Reserve.

PACKAGE

Do we package for bushwalking, for conference centres to be built, for sophisticated development or for a wilderness area with big fences to keep out people who do not know what a wilderness is?

PRICE

Should we charge for God's trees, if so, how much? Government must be very careful that they do not upset an economic status quo and destroy any possibility of private enterprise entering into our tourism industry.

PROMOTE -

WHAT? HOW? HARRY BUTLER STYLE? WILDERNESS STYLE? HARD SELL? CONCESSIONS TO PRIVATE OPERATORS? BETTER BROCHURES? LESS BROCHURES? BIG ARTERIAL ROAD SYSTEMS? NO ROADS?

RANDOM POINTS

THE CIRCULAR FLOW OF TOURISM

Have we considered the day tripper doing the Perth-Mandurah-Pinjarra-Perth circuit?

THE SHANNON/D'ENTRECASTEAUX

Are we about to bring that experience down upon our heads. 1 000 + people at a public meeting. A highly organised KOCO campaign supported by service clubs in Manjimup etc etc.

DEFINITION OF A TOURIST

Is our classical definition, i.e. travels over 40 k's and stays overnight, a valid measure for this survey?

DEFINING A FOREST

Is our definition of a forest or nature park or wilderness a valid one? If our terms are incorrect are they causing us to misjudge e.g. read overseas tourism material and research such as Larry Helber of the University of Hawaii?

FIRE CONTROL

Our fire control gives some consideration to preserving natural fauna. Perhaps the tourist is also an endangered species if fire regime is not adequately planned.

KILLING WITH KINDNESS

Are we over-exposing certain trees such as the Gloucester Tree which can be killed by the simple compaction of the soil around the tree by multitudes of tourists feet.

LOGGING

Given that a tree is 400 years old and can be felled in an hour or so and given that Pemberton has probably only 8 years logging ahead of it can we learn from the successes of the Old Coast Road and the 'no cut' strips or are we going to intrude into these areas for short term economic or community gain.

ACTIVE VERSUS PASSIVE RECREATION: MANAGEMENT CONFLICTS AND POSSIBLE SOLUTIONS

Terry York, C.A.M.S.

Confederation of Australian Motor Sports has 30 000 members nationally.

Official events must have permits, and comply to requirements of management bodies. The Confederation can (and has) re-arranged dates and routes to conform with authorities. Some roads e.g. along the Murray River are no longer used because large numbers of the public also use the area for camping, recreation etc.

CAMS feels that, being organised, it has become a 'scapegoat' for groups which object to rallying in principle.

Many areas are no longer available for rallying, including MPA's, quarantine, catchments etc. They total about 60% of state forest.

The organisation needs ongoing access to forest. Vehicles must be road registered and must comply to the same road rules as anyone else.

No Environmental Impact Statement has been done on rallying, so opinions that rallying and conservation cannot co-exist are unsubstantiated.

Forests Department Working Plan 87 lists sightseeing driving as "passive" and rallying as "active" recreation. This is inconsistent. Activities should be re-classified depending on their details and the areas concerned, not lumped into categories.

CAMS do not want to make extensive use of the Murray due to high people numbers. However, there should be different plans for different parts of the Reserve. CAMS policy is to use any road once per year. Official car preceeds the field to inform campers etc. Much of the rallying is done at night. Overall, there is a very low impact on other users.

With regard to legal restrictions, more restrictions make effective enforcement more difficult, particularly when legally you cannot discriminate between users.

Q: (K. Vear) How many unofficial rallies take place, and what about spectator numbers?

A: 55-60 competitors compete in each rally. Spectators are important and are directed towards 2 main events each year. The group believes in the user pays principle, and pay for road maintenance through taxes of fuel, tyres etc.

Q: (J. Dallimore) Outlines disturbance caused by one rally which followed the roads along the river. Disturbance took place at night and was significant.

Q: (P. Baker) What values are obtained by competitors?

A: There is a thrill based on the skill involved. Driving skills are learnt and people kept off the streets. Many competitors are in the 19-23 age group.

Q: (M. McGrath) Commented on why the reserve is there - to protect a sample of forest from incompatible users. We need a philosophy of recreational management, to help determine what types of activities are compatible with the reserve and with each other. The management plan must clearly state what the purposes of the reserve are and then how the various uses fit in.

Q: Can you separate users by signposting in advance?

A: Yes and we will do so if necessary.

PRIVATE RECREATION DEVELOPMENT IN THE RESERVE

Geoff Bell, Nanga Bush Camp

1. PREFACE

Reserve has unique tranquility and philosophy preserving this should be established. All activities in and adjacent to reserve should be strictly related to this.

2. BRIEF HISTORY OF NANGA BUSH CAMP

Completed June 1980. Designed only for schools. Now used by many other types of groups.

3. FORMAT

Describe user groups and public agencies contacted; comment on benefits and problems arising.

User Groups

Public at large - contacts may be pleasant or otherwise, proportion about equally divided. Types include organised groups e.g. schools, hikers, canoeists, which are rarely a problem. Some casual groups or individuals are OK, others minor irritant. Yobbos in groups can be a major problem, usually only long weekends or high summer.

Public Agencies

Major contact Forest Department and so far amiable and mutually beneficial. This could depend somewhat on personality of D.F.O.

Police..contact so far minimal, presence varies with individual officer, a greater presence in reserve in peak times would be an advantage.

Local Shire..occasional visits are not a problem, but could become so if trend to greater bureaucratic control continues.

Benefits

Considerable support from Forest Department e.g. fire control, erosion protection, litter collection, information to self and camp users. Information, service likely to increase in future, especially if Jarrah Centre eventuates.

Access to reserve effectively expands property boundaries.

Future ranger service should give authority to area and tone down extreme behaviour.

Problems

High user numbers means occasional physical intrusion, theft, harrassment of guests either directly in swimming hole or forest or indirectly through trail bikes, reckless driving, amplified rock music, litter, foul language.

Future Private Development

Siting of any man-made improvements concentrates people in small areas, e.g. barbecues, kiosks, toilets, rope swings.

Experience elsewhere shows disadvantages of such areas once user levels approach limits, therefore only essential structures should be inside boundary, e.g. toilets, car parks, barbecues, in hardened and controlled situations.

Amenities such as shops, standing camps, caravan parks, etc should be outside on either private or public land.

Uncontrolled private developments may attract users outside passive philosophy of reserve, increase numbers using reserve tends to set procedents which may introduce unwanted activities e.g. minibikes, tennis courts, electronic games.

Solutions

Private land is available within and adjacent to reserve, and private enterprise should be encouraged to develop there within broad but firm guidelines. Developments could include camp grounds, caravan parks, chalets, nature parks, horseriding etc.

A balance needs to be found between maintaining atmosphere of reserve without undue restriction on developers.

Assistance could be given in form of tax concessions, low interest loans or guarantees, removal of unnecessary bureaucratic restrictions, and excessive standard setting.

Introduction

- "Passive" use is a somewhat meaningless term.
- More relevant to use the term "unstructured" use referring to users who are not participating in an organized activity or event or use which is informal or casual.
- There is difficulty in assessing the needs of the unstructured user- because of definition there are no organised groups representing their interests.
- The majority of people use of the reserve is by people in this category.

Measuring Use

- There is a need to assess the use and the value of the reserve to users.
- In the planning process there is a area for advocacy on behalf of "unstructured" users.
- Social/Research is an important tool in obtaining information concerning user needs and requirements.
- Participatory involvement in the planning and ongoing management is an equally important tool for ensuring responsiveness to user needs.
- There is a danger that without "user input" planning and management reflects preconceived stereo types.
- We need to plan for diversity.

- The tables at the end of this Summary indicate the wide range of activities pursued at the reserve (based on unpublished survey conducted Easter 1984 by Peter Sharp, Department of Sport and Recreation).
- They indicate that there are a wide range of users and that users are multiply involved.
- Both groups and individuals move through a range of activities.
- Need to recognise that "non users" also place a value on the reserve.
- There are other inputs to the planning process including other land uses, water and timber production, conservation etc.
- However in the intensive use zone we must not ignore the user and what motivates them.

Current Recreational Usage of the Reserve

The tables at the end of Summary are based on a survey undertaken at Easter 1984 by Peter Sharp, Sport and Recreation. There is a high degree of consistency with the data produced in the 1976 Forest Visitors Survey.

- An estimated 10 600 visitor days were undertaken over the Easter and preceding weekend.
- The predominant users were unstructured users in family or casual friendship grouping.
- In addition there were numerous school and special interest groups using the reserve.
- Note the wide variety of activities which individuals move through in their recreation use of the reserve.
- The clustering of activities (Table 2) indicates the dependence on forest values.
- The equipment listing also indicates a high technology dependence - perhaps also an indicator of the economic impact of recreational consumption in our economy.
- Tables 4 and 5 indicates the high level of satisfaction with "developments" to date as well as indicating a general preference for as "natural" or "undeveloped environment" as possible.
- It is important that use of Lane-Poole Reserve be evaluated on the context of other reserves in the "park system" capable of "substituting" for Lane-Poole. The alternatives have a potential for assisting in the management of the reserve by diverting use which may threaten the integrity of the reserve.

Conflicts

- If in planning and managment we are to cater for user requirements there will be several conflicts given that philosophy of maximising use while minimising negative impacts:

(1) Recreation Use with Recreation Use
As indicated in Table 5 there are existing conflicts between users in relation to incompatability of recreational users i.e. pursuit of tranquility with motorized activity.

(2) Recreational Use with Other Land Users
E.g. camping and protection of water purity, recreation with fire protection in areas of timber value, bauxite mining and recreation use.

(3) Recreation Use and Other Values
Predominantly with conservation and preservation values. E.g. dinghy racing with conservation, i.e. river bank erosion.

- It is suggested that planning and management should be as concerned with providing for a diverse range of opportunitites on the reserve as catering for "expressed demand" for use.

Management

Management within the context of sound planning has the potential to resolve the majority of issues in the above conflicts by allowing recreational use whilst minimising impacts detrimental to the values of the reserve.

Several options exist to be used individually or in conjunction with each other:

(1) Planning/Design Restrictions/Options
The user of design controls to influence recreational behaviour.

(2) Restriction of Access

Can range from total exclusion to conditional use (permit system). Could include zoning and phasing. Zoning by closure of some areas, phasing allowing different uses at different times.

(3) Programming

The control of options and recreational behaviour through the use of programmes. Includes directing people toward desired uses.

(4) Information/Education

Can be used to improve the quality of recreational experiences as well as redirecting uses and reducing negative impacts.

Note

- Management has a cost but recreation use has a value in both social and economic terms.

- User payment has the potential to directly reduce management costs. This needs to be considered whether it be partial, total or contributory.

Note

- 1984 Survey indicated majority of users were in favour of making payment for use.

TABLE 1

PREFERRED ACTIVITIES AT LANE POOLE RESERVE
(Easter 1984)

PREFERRED ACTIVITIES	SCORE
RELAXATION/LAZING AROUND	55.8
BUSHWALKING	46.9
CAMPING	31.2
SOLITUDE-RETREAT	27.7
SIGHTSEEING	21.5
SWIMMING	20.6
PICNIC-BARBECUING	18.8
MARRONING	13.9
CANOEING-BOATING	12.9
VIEWING FLORA AND FAUNA	11.0
GAMES-PLAY	8.7
FISHING	7.1
PHOTOGRAPHY	6.3
DRINKING-SOCIALISING	6.3
TRAILBIKE RIDING	4.5
READING	3.5
ORIENTEERING	1.9
CYCLING	0.6
4 WHEEL DRIVING	0.3
	300.0

TABLE 2

ACTIVITY GROUPINGS - LANE-POOLE RESERVE

(Easter 1984)

RIVER BASED ACTIVITIES	NUMBER	RELATIVE FREQUENCY %
FISHING	84	26.0
MARRONING	119	36.8
CANOEING-BOATING	95	29.4
SWIMMING	218	67.5
FOREST BASED ACTIVITIES		
ORIENTEERING	35	10.8
VIEWING FLORA AND FAUNA	213	65.9
ROCK CLIMBING	2	0.6
LOG CHOPPING	2	0.6
METAL DETECTING	2	0.6
TRIAL ACCESS BASED ACTIVITIES		
HORSE-RIDING	1	0.3
SIGHTSEEING	276	85.4
CYCLING	4	1.2
BUSHWALKING	282	87.3
TRAILBIKE RIDING	20	6.2
4 WHEEL DRIVING	3	0.9
FACILITY BASED ACTIVITIES		
PICNIC-BARBECUING	280	49.8
CAMPING	254	78.6
OTHER ACTIVITIES		
READING	161	49.8
PHOTOGRAPHY	167	51.7
SOLITUDE-RETREAT	181	56.0
LAZING AROUND	295	91.3
GAMES AND PLAY	173	53.6
DRINKING AND SOCIALISING	34	10.5

TABLE 3

EQUIPMENT - LANE-POOLE RESERVE

(Easter 1984)

EQUIPMENT

RESPONDENTS INDICATED WHICH ITEMS OF EQUIPMENT WERE BROUGHT INTO THE VALLEY

EQUIPMENT	NUMBER	RELATIVE FREQUENCY %
TENT	242	77.6
CANOES	55	17.6
BOAT-DINGHY	50	16.0
TYRE-TUBE	28	9.0
FISHING TACKLE	82	26.3
MARRON NETS	106	34.0
RADIO	164	52.6
CASSETTE RECORDER	152	48.7
CAMPER-TRAILER	31	9.9
BARBECUE-STOVE	212	67.9
BICYCLE	24	7.7
CAMERA	221	70.8
SPORTS EQUIPMENT	131	42.0
TELEVISION	15	4.8
GENERATOR	19	6.1
CHAIN SAW	20	6.4
CARAVAN	22	7.1
TRAILER WITH GOODS/CANOES	79	25.3
	1653	529.8

TABLE 4

IMPROVEMENTS - LANE-POOLE RESERVE

(Easter 1984)

RESPONDENTS WERE ASKED TO SUGGEST IMPROVEMENTS TO THE AREA

IMPROVEMENT	NUMBER	PERCENT RESPONSE	PERCENT CASES
NO CHANGES	108	27.3	38.0
TOILETS AND SHOWERS	110	27.8	38.7
INFORMATION SIGNS	25	6.3	8.8
CLEAN BARBECUES	13	3.3	4.6
EXPAND CAMPING PARKING	34	8.6	12.0
PROVIDE FIREWOOD	23	5.8	8.1
REMOVE FENCES	3	0.8	1.1
BAN DOGS AND MOTOR BIKES	19	4.8	6.7
MORE RANGER CONTROL	19	4.8	6.7
PRESERVE FOREST	41	10.4	14.4
	395	100.0	139.1

TABLE 5

LIKES AND DISLIKES OF USERS - LANE-POOLE RESERVE

(Easter 1984)

LIKES	PERCENT RESPONSES	PERCENT CASES
TRANQUIL ATMOSPHERE AND QUIET	29.8	43.4
WILDLIFE	0.9	1.3
LEVEL OF FACILITY DEVELOPMENT	6.8	9.9
PROXIMITY TO RIVER	6.6	9.6
EVERYTHING	0.5	0.7
	38.0	55.3
DISLIKES		
EXCESSIVE NOISE	13.0	18.9
CHOPPING OF TREES	1.8	2.6
LEVEL OF CARS AND PEOPLE	8.9	12.9
LITTER AND POLLUTION	6.8	9.9
ABLUTIONS - CLEANLINESS OR ABSENCE	11.2	16.2
LEVEL OF FACILITY DEVELOPMENT	13.7	19.9
	62.0	80.4

WORKSHOP OVERVIEW:

Introduction:

The primary objective of the workshop was to provide participants with the opportunity to express their views as to activities they considered appropriate or otherwise for the reserve. These expressions were to be made available to the planning group for the management plan.

The workshop was also intended to provide an opportunity for the sharing of ideas and the possibility for the changing of ideas or perspectives on activities in the reserve.

Method:

Participants were allocated to one of three groups in such a way as to ensure a variety of interests being represented in each group.

Each group considered the questions in turn and then reported back to the whole group.

Rules of brainstorming applied in that all ideas represented in the group were recorded rather than agreement being sought.

In practice there was considerable debate, discussion and clarification of viewpoints.

Questions:

The following questions were posed:

1. What is the Park likely to look like in 25 years?

2. What would I like the Park to be like in 25 years?
   (a) What recreation activities are appropriate in the reserve?
   (b) How do we decide?
   (c) Do we differentiate between the conservation and recreation zones?

3. What are the management priorities for the reserve in the short term?

Summary:

The responses of the groups follow. It is not possible to integrate the comments of the groups however the following generalizations are made.

In relation to Question 1 there was a high degree of consistency between groups. There was a generally pessimistic outlook as indicated by a concern that there would be increasing development and use and a consequential degradation of the Reserve.

It was clear that a high value was attributed to the Lane-Poole Reserve by the participants both in terms of conservation and recreational use.

When given the opportunity to indicate a desirable future for the Reserve in Question 2 it was clear that maintenance of the environment was of prime concern. There was a shared view that the aesthetics of the Reserve and particularly the landscape be protected. It was equally aparent that planning and management were seen as essential in rationalising the use and integration of uses of the Reserve.

A general tolerance and acceptance of activities and uses which maintained the character of the Reserve was evident.

In response to Question 3 it was clear that participants considered that each activity should be assessed on its own merits rather than operating on the basis of blanket exclusions. The assessment should be based on likely impact on the Reserve environment and on other users. It was agreed that differentiation should occur in the use allowed and encouraged in the conservation recreation zones.

Question 4 indicated a strong reliance of all groups on the management plan to achieve the desired future for the Reserve. It was generally accepted that the status quo in management terms be maintained until the management plan was implemented.

There was a need evidenced for a clarification of the philosophy behind the reservation of the area and hence the objectives of management. It was equally clear that all groups supported the allocation of resources for management relative to the high value they placed on the Lane-Poole Reserve.

QUESTION 1 WHAT IS THE PARK LIKELY TO LOOK LIKE IN 25 YEARS?

ANSWER

GROUP 1

1. Very different.
2. About the same - conservation zone.
3. May be dammed.
4. Nodes of heavy recreation development.
5. High priority recreation.
6. Sealed roads.
7. Limits on numbers, permits for activities.
8. Commercial facilities, services etc.
9. Increased community awareness.
10. Utilities - powerlines, mining.
11. Dieback spread.
12. Changed individual values and expectations.
13. Loss of solitude values.
14. Lane-Poole Management Plan - Mark III.
15. More tent camping.
16. Catchments opened up - (pressure more evenly distributed).
17. MRPA land opened as a result of over use of Murray Valley.
18. Access road on one side of river closed.
19. Owen Nicholls still Project Leader.

GROUP 2

1. Similar to now, but more rules and regulations, attempts to enforce both; more tired looking; bitumen road.

2. Actively used area will be bigger (Driver road), more organised and unorganised camp sites; not a lot of change outside valley.

3. Strip recreational development along the valley, and formalisation of facilities; bauxite pits along the top of the valley (active), no marron; present users will have migrated elsewhere; higher standard roads (bitumenise Nanga Road) - perhaps through to Collie; intensive commercial development or private property along Murray River.

4. Much more 'hardened' facilities, more restrictions on public access, possibly some access restricted to tour type access (e.g. U.S. experience), bookings ahead, probably improving water quality (and no dam on the main river, but dams on side streams).

5. Covered by a grey ash ... ICBM's? Considerable possibility of degradation of conservation areas by recreation.

6. Possibility of some broadscale ecological disaster ...

7. Looking like OK Corral on river floor, and Disneyland in the private properties around.
8. Looking very similar to what it looks like now + a conveyor tract through.

GROUP 3 Under current "System"

1. Lost values e.g. environment.
2. Dam - Murray River.
3. Chopping trees.
4. Air traffic e.g. hang gliders.
5. Development along property - hobby farms.
6. Exotic disease - water borne disease.
7. Sealed roads.
8. High power lines across area.
9. Effects of lots of uncontrolled people.
10. Power boats.
11. Uncontrolled activities exploitive type -
    - mining
    - logging - non sustaining type

QUESTION 2 WHAT I WOULD LIKE THE PARK TO BE LIKE IN 25 YEARS?

ANSWER

GROUP 1

1. Twice the size
2. Change status - National park
3. More rational boundaries
4. Acquisition of adjacent p.p.
5. No feral animals
6. Effective dieback control
7. No dams
8. Effective controls of numbers, uses
9. Interpreting educational facilities
10. Friends of the park
11. Voluntary rangers with adequate permanent staff
12. Bush to look the same
13. More recreation areas (but less developed)

GROUP 2

1. Pretty much like it is now - perhaps a few more hardened sites/public access areas, some extensions south of major areas; strong rangers to ensure that it keeps looking OK.

2. Fully planned and integrated; specific areas for activities; self supporting and adequately supervised.

3. Pretty much like it is now, preferably no more use than at present.

4. Properly planned and properly integrated.

5. A more conscious public (i.e. of their impact) - better environmentally aware; adequate provisions - elsewhere - for activities e.g. trail bike riding, pig hunting, rally driving etc which aren't intrinsically suited to the forest environment or compatible with other recreational expectations.

6. Protection for the riverscape's aesthetic and scenic values, greater proportion of old growth forest within the Reserve, no dams, no bauxite pits, some areas in which recreational activities are not formalised and to which some restriction access applies, rec. developments unobtrusive, vehicle access rationalised.

7. Adequate legislation (constructive) to cope with management.

8. Most of last 2, plus no trail bike riding or 'macho' activities, family groups, learning and profiting from the experience. A non-exploitive attitude to environmental/recreational activities.

9. Lots of interpretive staff.

10. Public transport to Reserve from Dwellingup and/or Pinjarra and/or Perth.

GROUP 3

1. Natural restored environment.
2. No worse condition
3. Highly sophisticated developments within limits of its capabilities.
4. Managed by trained people.
5. Users are educated e.g. interpretation.
6. "Nodal" - "Zones" development all blended.
7. Provide for range of activities.
8. EIS on activities on the Reserve would govern the extent and where it would occur.
9. Control access, activities.
10. User pay system and money goes to park.
11. Limits imposed e.g. bookings on people.
12. Bus system: dropping people off.
13. Limits of development
    No expansion or - parking; toilets; barbecues
14. Fauna and flora still there.

QUESTION 3 - PART (a) WHAT RECREATION ACTIVITIES ARE APPROPRIATE IN THE RESERVE?

ANSWER GROUP 1

Environmental carrying capacity e.g. site use needs consideration.

Environmental Guidelines

1. Not spread dieback

2. Fire Risk

3. Pests

4. Destructive impace on flora and fauna

5. No effect on water quality of river

6. Does not damage aquatic environment of freshwater creeks

Social Guidelines

1. Noise impact on solitude values
2. Crowding impact on values
3. Phasing of activities
4. Safety of public
5. Management cost e.g. cost to manage re boatrace vs bushwalkers

Appropriate Activities:

Recreation	Conservation
Bushwalking	Bushwalking
Backpacking	Backpacking
Camping	Guided look and see.
BBQ	
Marroning	
Guided coach tours	
All activities can be catered for at different levels	

QUESTION 3 - PART (b) HOW DO WE DECIDE? DO WE DIFFERENTIATE BETWEEN CONSERVATION AND RECREATION ZONES

ANSWER GROUP 1

1. Each area and activity should be assessed on a case by case basis.
2. Site constraints within existing conservation zones control.
3. High development-High impact nodes - 4-6 sites.
4. Purpose of Reserve should be reflected by the activities undertaken in it.
5. Values protected by regulating activities to minimise potential degradation.

QUESTION 3 - PART (a) WHAT RECREATION ACTIVITIES ARE APPROPRIATE IN THE RESERVE?

ANSWER GROUP 2

None to be excluded (incl trail bikes and rallies)

Family day trips (bbq); passive (bushwalking & camping)

Structural activities (schools, tourists)

Most activities are OK but some (probably all need management) only with management (trail bikes, off-road 4WD or power boats in river)

Appropriate activities - i.e. any activity that has been found to be suitable and is compatible with the opportunity setting that has been defined.

Shooting and archery are deemed NOT suitable.

Some people feel that all activities are OK provided that the correct management process has ensured that conflicts are avoided.

QUESTION 3 PART (b) HOW DO WE DECIDE?
DO WE DIFFERENTIATE BETWEEN CONSERVATION AND RECREATION ZONES

ANSWER GROUP 2

HOW DO WE DECIDE?

- resource capabilities (recreation capacity)
- suitability of resource for activities
  . existing land uses
  . legislative constraints
  . environmental constraints
  . financial constraints
- land use planning/management strategies
- determine values of area to be kept intact
- determine impacts of possible activities on environment and relationship to increasing use
- activity or combinations of activities which lead to deterioration of values which we want to be kept intact

- Priority to (1) activities which do not unduly reduce conservation values and are dependent upon natural attributes of the Reserve

  (2) other activities which do not unduly reduce the enjoyment of above activities
- N.Region Recreation Framework Plan
  . access capabilties, suitabilities and needs
  . marry together
- Incorporate all public views via participation and planning process.

QUESTION 3 - PART (a) WHAT RECREATION ACTIVITIES ARE APPROPRIATE IN THE RESERVE?

ANSWER GROUP 3 Group considered that method of deciding was more relevant than listing specific activities.

PART (b) HOW DO WE DECIDE?

1. Get much info on the activity then decide.
2. Underline philosophy of the area objective of the area.
3. Determine the limits of the area
4. What do the people want? Determine this.
5. Process (1) library research
   (2) give ideas/EIS
   (3) what's there
   (4) desires of people
   (5) devel. phil.
   (6) objectives of devel.
   (7) management plan
   (8) conservation/recreation
   (9) decide what recreation is appropriate
6. EIS of activities - level, type, location - no broad rules

   (2) and (3) Determine what they can have (or what is provided in that area).

DO WE DIFFERENTIATE BETWEEN CONSERVATION AND RECREATION ZONES?
YES
DIFFERENT SORTS OF RULES

RECREATION ZONE	CONSERVATION ZONE
1. No exclusion but control on where when and level depends upon EIS	1. Any access by permit only No horses/guns No pets
2. Exclusion - wheeled vehicles (don't go off-road) No horses No pets No guns	2. No exclusion but control on where when level EIS
	3. Access only by foot. Wilderness

QUESTION 4 WHAT ARE THE MANAGEMENT PRIORITIES FOR RECREATION?

ANSWER GROUP 1

1. Determine finance
2. Maintain status quo environmentally at least until management plans finalised.
3. Scientific study on impact of potential activities.
4. Obtain adequate management level/expertise.
5. Commence basic public education (fire and environment)
6. Survey existing demand accurately.
7. Appropriate regulation of access (Vehicle and Camping).
8. Prevent ad hoc development until management plan finalised.

ANSWER GROUP 2

1. Need to get adequate funding to do study and management plan.
2. Need funds to maintain status quo - including staff NOW
3. Planning has to be seen to be a democratic process for public acceptance.
4. Needs an interim development order to ensure a freeze to avoid repeat of clearing prior to clearing bans.
5. Determine the priorities of the Reserve

    - purpose
    - philosophy

6. We need a philosopher on the planning team.
7. Planning generally needs to be constructed quickly but be amenable to new sources of information and change i.e. concerned info gathering/collating and interpretation process.
8. More research on problem areas i.e. environmental input of activities, visitor use etc.

ANSWER GROUP 3

1. Six qualified Planning & Management people + workers (1 - priority)
2. What's there (2)
3. What it is capable of sustaining (2)
4. Management of existing area (1) erosion
5. Statement of Reserve objectives (1)
6. Legal status finalised (1)
7. What the people want Survey/Quest (1)
8. Rec resources available outside (3)
9. Start education process NOW (1)
10. Remove rubbish

LANE-POOLE RESERVE

ASSOCIATED LAND USES

WORKSHOP

28/6/85

Chairman: Owen NICHOLS

LIST OF PARTICIPANTS

J Arnold	DCE
G Bell	NANGA BUSH CAMP
D Blyth	CHAMBER OF MINES
M Caldwell	MWA
L Caphill	CSNF
M Cavana	CALM
R Chandler	CSNF
J Dallimore	PRIVATE PERSON
D Hasmere	CALM
C Hay	BUNNINGS
R Hearn	CALM DWP
P Henderson	CALM
C Hooper	TREE SOCIETY
R Hulajko	CALM
D Kabay	ALCOA
C Krans	BUNNINGS
R Lea	MINES DEPARTMENT
G McArthur	MCARTHUR & ASSOC.
N McGrechan	WACAE
J McKenzie	CALM
P Moore	MWA
P Murray	CALM
B Pearson	PIA
P Piavanni	COLLIE SHIRE
B Sadler	WATER AUTHORITY
P Sharp	SPORT & REC.
G Slessar	ALCOA
T Smurthwaite	GEOL. SURVEY
W Tacey	DAWES & MOORE
A Tait	WACAE
A Verschuer	ALCOA
J Williamson	CALM

PRIVATE LANDOWNERS: RIGHTS, RESPONSIBILITIES AND POTENTIAL OF DEVELOPMENTS

Geoff Bell, Nanga Bush Camp

There are about 12 landowners in northern section, 5 are resident, 3 are commercial agriculture, 3 schools plus Nanga Bush Camp, 3 retreats from city (weekenders) 1 resident, works outside, 1 resident + work + chalet hire. This is diverse mix and divided into those predating Reserve and postdating. Location is on extreme northern rim and minute area of 55,000 ha of Reserve. Some have long history and sought rural values and have right to undisturbed and continuing use of land.

Reserve impinges on this by increased usage and protection should be afforded by:

1. sensitive planning by managers of Reserve;
2. official presence on ground, e.g. - Ranger and Police t control excessive behaviour.

Responsibilities include adequate self protection, e.g. - location of access and improvements to minimise intrusion and temptation.

Activities should be carried out with regard to values of Reserve, e.g. - no feed lot near boundaries or feeder creeks, buildings set back from boundaries especially if out of character with forest, e.g. - grain silo, old car bodies.

Owners purchasing after Reserve should have guidelines drawn for appropriate land use. These should be as loose as possible to give maximum scope and diversity of opportunity while protection Reserve from the more extreme developments, e.g. - rock concerts, tavern, minibike track.

Valley is quiet haven from city, so persistently noisy activities not approved. If development is within sight of roads or river it should conform to standards which harmonise with forest. If out of sight no restrictions should apply.

Future Developments:

Great potential exists to contribute to value of Reserve by providing capital and control of facilities not appropriate inside Reserve. Guidance should be given to avoid rampant commercial development with little regard for values of or impact on Reserve. Opportunities include ... accommodation, e.g. - campgrounds, chalet, caravan park, standing campsites ... activities, e.g. - canoe and camping gear hire, organised hiking, survival camping, information distribution, white water rafting, nature walks, pony riding.

Jarrah forest is a tough environment and can withstand high traffic providing it is confined to hardened areas, e.g. - Nanga Campsite, Baden-Powell Waterspout.

Many people threatened by isolation and seek company of other campers, so range of options essential. Crowded areas are self limiting, and people can find almost total solitude merely by walking into forest, or driving to smaller campsites, e.g. - Charlies Flat. Therefore minimum restriction should be placed on developers, providing impact on Reserve is acceptable.

Reserve is long shape and most usage confined to small area, so intensive development there does not impact on more remote areas.

Model campgrounds caravan parks would be screened from roads and river, have natural and low key entrances, facilities dispersed through natural bush, no cats or dogs. Private property in conservation areas more restricted but given maximum freedom, providing no impact on Reserve.

QUESTIONS:

(Q) How far outside the Reserve should activities be controlled?

(A) Control them if they are visible or within earshot.

(Q) There is only a limited number of prime blocks available - should more land be released?

(A) The problem here is one of setting a precedent.

(Q) Should accommodation be centred on Dwellingup townsite, where accommodation is easier to organise?

(A) Yes - it already has the infrastructure, etc.

CONTROL OF PRIVATE DEVELOPMENTS ON LAND ADJACENT TO THE LANE-POOLE RESERVE THROUGH EFFECTIVE PLANNING

Mr Dennis Millan, Town Planning Department

On a regional level, plans can be:

* Statutory plans, e.g. - Metropolitan Regional Scheme. These are formal and legal, with zoning and reserves included;

* Non-Statutory, e.g. - Bunbury Regional Plan, which acts as a guide for local planning.

The function of the Town Planning Board includes consideration of sub-divisions, arbitration on these and development of policies. There is a degree of consultation on reserves, etc, and the Board attempts to defend broader acreages and fragmentation of holdings, with associated problems such as increasing values and poor management.

Interim Development Orders (IDO) are used until Town Planning Schemes are available. IDO's require that any developments must receive council approval, although appeals are possible. They are used for general development control, and are issued for approximately 3 years while planning schemes are being developed.

Planning Schemes include the scheme developed by Harvey in 1983. Most other shires near the Lane-Poole Reserve do not have schemes relevant to the Reserve area. To develop schemes, councils consult with landowners, the scheme is lodged with the Town Planning Board, who comment, the Minister gives preliminary approval and the scheme is released for public comment for 3 months. This helps local authorities to avoid missing long range issues such as road and Reserve planning. When approved, the scheme is a legal document, consisting of:

* scheme map;
* land use map;
* scheme report;
* text.

It gives consideration to many issues, including preservation of places of natural beauty, etc.

The control mechanism is a land use class zoning table. Considerations include:

* objectives of the zone and what standards prevail, what is allowed and what is not allowed, etc;

* an element of council discretion.

Uses can be made incidental to a particular zone, e.g. - houses or agricultural land, recreational impact on the amenity of neighbourhoods.

If a land use is not included then the scheme can be amended but this is difficult, e.g. - if a caravan park is not included in the zone "permitted activities", the scheme or the zoning must be changed.

Schemes can provide protection in areas of intensive farmland or state forest.

Special Rural Zones can be established to cater for such uses as hobby farms.

The Planning Scheme is a legally enforcable document and can be used in conjunction with other regulations such as PWD clearing controls.

Public education on why controls are necessary is an important component of effective Town Planning Schemes. Any decision must relate to economic reality, for example restrictions on the clearing of virgin land.

TIMBER PRODUCTION WITHIN LANE-POOLE RESERVE

Drew Haswell, CALM

Policy:

A policy statement issued to the press by the Department of the Premier and Cabinet on October 11, 1983 defines landuses within the Lane-Poole Reserve. It permits timber extraction and bauxite mining within the recreation zone of the Reserve, subject to rehabilitation treatments that maximise recreation potential.

Objectives:

The objectives of timber production from the recreation zone would be to develop a silvicultural system that:

* enhanced recreation landuse, based on conservation values;

* provided sawlogs, poles and other forest produce for community use;

* maximised water production.

Strategies:

To achieve these objectives, the silvicultural system must consider the following strategies:

* compatability with the primary recreation priority landuse. The capacity for catchments of the Murray River to produce water as a secondary use should also be considered;

* provision for regeneration;

* protection of regeneration and regrowth from fire, dieback disease, insect damage, and the landscape from environmental damage, particularly to soil and water values;

* provision of sustained yield;

* optimum use of forest capital;

* operational efficiency.

Issues:

1. The need to define recreation landuse objectives.

2. The requirement for silvicultural reductions in the canopy of degraded forests, e.g. - grouped forests*, to promote a more appropriate ecological balance consistent with recreation landuse objectives, and conservation values.

3. The short-term reduction in existing recreation and conservation values in even aged mature forests, after timber removal.

4. The temporary removal of access and forest from recreation landuses, during timber removal operations.

5. The need to protect jarrah regeneration may place a constraint on the intensity and periodicity of fire to meet recreation landuse objectives.

6. The degree of acceptable departure from original and natural ecosystems, resulting from silviculture.

7. The timing of timber cutting to:

   * develop full occupancy of site vegetation;

   * allow the development of sustained yield forests;

   * optimise the use of forest capital.

---

* Grouped forests are those where original growth and secondary growth, occur in patches.

8. Timber removal will require the development of operational efficiencies. The need to develop ecological diversity will however result in reduced economies of scale. A compromise is necessary between increased industry and protection costs, and reduced ecological diversity and hence recreation values.

9. Existing commitments to the sawmilling industry must be met. Jarrah timber foregone, (approx. 0.25 million cu.m.), would have to be obtained from elsewhere thus placing an additional strain on resources, outside the Lane-Poole Reserve.

LANE-POOLE RESERVE MANAGEMENT PLAN
PLANNING AND MANAGEMENT OF MINING OPERATIONS

Graham Slessar, ALCOA

The Lane-Poole Reserve lies within Alcoa's mineral lease ISA and covers about 54,000 hectares, containing about 182 million tonnes of bauxite. Alcoa has agreed to forego bauxite deposits within the conservation zones of the Reserve provided the conservation values are maintained, but retains the right to mine the bauxite in the recreation zone. This bauxite is confined largely to the lateritic upland areas. There is no bauxite in the valley floor areas where most of the recreational activity takes place.

Alcoa also retains the right of conveyor access across the recreation zone and through the corridors connecting the MPA's recommended in the System 6 Red Book (p.123-132).

The exact areas in the recreation zone to be mined are yet to be delineated but geological experience indicates that about 10% of the recreation zone area would be mined. On the present 25 year mine plan Alcoa would not mine ore in the recreation zone before the year 2000.

All Alcoa's mine plans and operations strictly adhere to government regulation and are controlled through the Mining and Management Planning Liaison Group (MMP) and the Mining Operation Group (MOG) which comprise representatives of relevant government departments.

Alcoa's mining and rehabilitation operations are managed to minimize environmental impacts. To this end -

1. Rehabilitation in the recreation zone will aim to optimise recreational use of mined land, under guidelines established by the Department of Conservation and Land Management. Alcoa will contribute towards the planning and establishment of facilities to enhance recreational use of the mined area.

2. Rehabilitation of mined land adjoining the conservation zones, particularly within catchment areas draining into the Reserve, will aim to optimise conservation values. Stringent environmental management procedures will be undertaken to ensure that the impact of mining on surrounding forest is minimized.

WATER SUPPLY DEVELOPMENT OPTIONS FOR THE MURRAY RIVER

Morries Caldwell, W.A. Water Authority

In proclaiming the Lane-Poole Reserve Government noted that the major part of it is located in the Murray River Water Reserve and stipulated that the options for development of these water resources should be retained in any management plans developed for the area.

In view of the importance to the community of these water resources, the Water Authority holds the view that catchment protection should have equal priority in areas set aside for conservation of flora, fauna and landscape and/or provision for recreational activities.

The Water Authority considers that water resource development and management are not necessarily incompatible with conservation and recreation objectives.

The Murray River has the potential to more than double the present supply of potable water to the metropolitan area and its environs.

Preliminary studies carried out to date have identified a range of development concepts, order of magnitude costs and requirements for further studies.

They have shown that, if the present rate of increase in consumption is maintained, development would not be required until post 2007 and possibly later depending on the outcome of studies of other sources and on developments in water engineering technology.

The Water Authority is well aware of the need to consider all aspects of multi-purpose use of water resources, particularly in the special case of the Murray. Before any scheme can proceed, detailed environmental and sociological studies will be necessary, in addition to further engineering and economic studies.

The results of these studies will enable informed decisions to be taken regarding development and associated catchment management issues.

It is considered that catchment management decisions for the Murray, including the Lane-Poole area, should endeavour to satisfy, as far as is practical, the various community interests involved and, furthermore, that it would be prudent to keep all development options open until all facets have been carefully examined and evaluated.

If the Murray could not be used as a source of water supply this would impose a heavy cost on the community.

My presentation will indicate the development options currently identified and the results of the preliminary engineering and economic studies carried out to date.

The southern part of the Lane-Poole Reserve is also in the catchment of the proposed Harris River dam which is part of the proclaimed catchment of Wellington Dam.

If the Harris dam is constructed, the impounded area will not affect the Lane-Poole Reserve, and any management plans for the Reserve are unlikely to adversely affect water quality in the reservoir.

QUESTIONS:

(Q) What about the cost of desalination - will this decrease and make desalination of seawater a more viable option-

(A) Difficult to predict at this stage as it depends very much on developments in desalination technology. These developments are being monitored by the W.A. Water Authority.

(Q) Note that desalination would produce wastes e.g. - brine.

(Q) What sort of management decisions would preclude water supply options?

(A) Main considerations are priorities for land use in catchments, especially in areas that may be flooded by impounded waters, as well as access, e.g. - pipeline routing, which will vary considerably depending on the option preferred.

(Q) Would tributary dams reduce input of fresh water into the river to a point where salinity in the river would greatly increase?

(A) Tributaries produce 90 m. cu.m. per year, the river flow is 350 m. cu.m., so effect on salinity should not be large.

(Q) Can more storage be gained on tributaries?

(A) Possibly, but assessment will depend on outcome of more detailed engineering studies.

(Q) Should we also look at reducing consumption?

(A) Yes, definitely. The reduction of unnecessary water consumption by encouraging efficient use is part of the Water Authorities ongoing water management programme. In recent years the introduction of the pay-for-use system of charging for water has significantly reduced water consumption.

A major study of domestic water use is nearing completion and this work will provide significant information for the further development of appropriate water conservation strategies.

AFTERNOON WORKSHOP SESSIONS

SESSION 1: PRIVATE DEVELOPMENTS

1. What accommodation developments on private land are needed and compatible with existing Reserve facilities? (please elaborate)

   * camping areas?
   * caravan parks?
   * cabins or bunkhouse?
   * hotels or larger commercial facilities?
   * dormitory style accommodation?
   * anything else?

2. What process is appropriate to review such developmental proposals?

3. What regulations can be used to control these developments at the planning and operational stages?

4. Should private commercial developments be permitted on the Reserve?

5. What other aspects of adjacent private land need management?

   * weed spread?
   * fire?
   * feral fauna?
   * other?

WORKSHOP FEEDBACK:

Existing Facilities and Demand:

The workshop groups agreed that there was a large demand for accommodation in and near the Lane-Poole Reserve, and this demand was likely to increase. One group felt that more accurate information on the demand was needed for effective planning. Dwellingup only possessed limited facilities (one hotel, few toilets) although existing facilities in the Reserve were being upgraded.

Damping:

The groups noted all facilities (within and adjacent to the Reserve) should be in harmony with the reserve's purpose. Within the Reserve, low key camping only should be permitted and large permanent structures avoided. Numbers should be restricted, and limited by the camping capacity of the Reserve. Special interest sites (e.g. Icy Creek) could be developed on a non-commercial basis to include educational facilities, with toilets and the building being used by a caretaker. One group suggested that camp developments should be encouraged on adjacent private property, in order to:

* share the cost of management;

* spread the visitor load, especially onto off-peak times;

* reduce space used in high interest areas.

Caravan Parks:

Groups felt that organised caravan parks should be placed outside the Reserve, either adjacent to it (and well planned and aesthetically designed) or in Dwellingup. There was consensus that no private commercial accommodation developments should be permitted within the Reserve except on existing private land.

Higher Key Developments:

Examples were given of taverns, motels, etc, and the feeling was that they were best placed in Dwellingup which was already the centre for other activities, e.g. Hotham Valley Railway. Organised trips from Dwellingup to the Reserve would be appropriate.

Other Commercial Facilities:

There was some debate as to whether commercial facilities such as on-site canoe hire should be provided. Some thought they should, and exclusion would deny the opportunity for appropriate recreation. One person felt commercial hire was not appropriate to the Reserve philosophy, and people should bring their own equipment.

Planning Controls:

For accommodation on adjacent land, local authorities should consider special land zoning for land adjacent to the Reserve. There should be effective interaction with the Reserve management authority and planners, and implementation through the Town Planning Department. Such liaison with councils and Town Planning was necessary in order to get a consistent approach to planning controls.

One group noted that the reserve users will be a mix of local residents as well as visitors, and this must be taken into account.

Feral Animals, Weeds:

All groups felt that two-way interaction with private landowners was important. Weed control should be carried out (by CALM) and the Agriculture Protection Board programme upgraded. Education of landowners was important to gain support. Control of feral fauna (e.g. - pigs) is necessary on CALM land, but also local authority - CALM interaction is needed regarding farm animals which could become feral, e.g. - pigs, deer, goats.

Other Private Use:

Issues relevant to the Reserve which come up from time to time must be subject to appropriate scrutiny, e.g. an "EIS type" assessment.

Access:

Appropriate control on access to private properties adjacent to, and within the Reserve boundaries is important. Access to all sub-divisions should be maintained so that new access roads are not required.

SESSION 2: LOGGING AND MINING

What aspects of, or guidelines for the following need to be considered in the management plan?

* Applications for mineral exploration?

* Visibility of operations?

* Public access during operations?

* Noise control?

* Rehabilitation options after bauxite mining?

* Areas within Murray recreation priority zone which have particularly high value and need to be taken into account in logging and mining operations?

Before the discussion sessions began, Mr Tony Smurthwaite (W.A. Geological Survey) briefly discussed the procedure necessary to gain prospecting or exploration licences.

Relevant points were:

* Prospecting licences for small scale prospecting;

* Exploration licences for larger scale exploration;

* Approvals procedure involves consideration of the Mining Act (1978), EPA Act (1971), CALM Act (1984) and referral to the vesting authority;

* Provision for access to all areas is needed for appropriately controlled mineral exploration;

* Given stringent exploration guidelines, prospective ground should not be made unavailable.

WORKSHOP FEEDBACK:

MINING

Mineral Exploration:

Two views were expressed. Some stated strong opposition to any mining and therefore exploration, particularly in the conservation zone. Others felt that the right to explore to determine resources should be retained, and Government should determine priorities. They believed that appropriately controlled, "non-invasive" exploration was appropriate throughout the Reserve. Applications for exploration tenements should be referred from CALM to the Reserve Advisory Committee for comments. Final approval of the application could be through the Wardens Court or the Minister of Mines. Interaction with ALCOA's bauxite resource would need to be considered since other minerals could be tied up with bauxite.

Visibility:

Most felt that mining needs to take into account aesthetic values in the recreation zone, and visibility of operations, particularly from the valley, should be limited through the use of screens and buffers.

Access, Noise and Safety:

All felt that public access, safety and noise should be controlled through standard mining regulations although some suggested that appropriate planning could further optimise public access. There was a need for noise control by avoiding high public use areas at peak times.

Rehabilitation:

Although most felt that detailed procedures already exist, there was a need to take into account future recreation use and demand. They identified a need for liaison between park managers and the mining company. There was some doubt that mined sites could solve the trail bike problem since riders preferred the valley and a "free range" situation, not a designated, planned area.

Priority Areas:

Groups indicated that areas of high recreation value should be identified, and appropriate negotiations take place regarding these.

LOGGING

Visibility:

Most felt that aesthetics were important in the planning of logging operations, and the management plan (and subsequently local foresters) should consider visual impact. Some thought that standard operations, with forest hygiene, were adequate.

Public Access, Safety and Noise Control:

Standard procedures should apply, although effective planning to optimise access, and avoidance of high use areas at peak times should apply.

Rehabilitation After Logging:

One view considered that existing licences gave adequate control. A second view suggested that the Reserve manager should have an input into rehabilitation requirements after logging.

Priority Zones:

Some noted that logging was an important silvicultural tool in appropriate areas. Others expressed a need for better planning and justification of logging operations. A third view stated that standard operations should apply, with adjustment to reflect special requirements of fauna habitants, and identification of key areas followed by negotiation.

SESSION 3: ASSOCIATED LAND USES

Should the following be permitted, or what factors need to be considered when deciding upon ...
(NB consider both cons. and rec. zones)

* Beekeeping;

* Minor forest produce;

* Commercial photography, movies, etc;

* Wildflower picking;

* Seed collecting;

* Anything else?

Prior to the discussion sessions, Mr Baden Pearson (beekeeper in the adjacent forest) indicated that there were 25-30 beekeepers in the Lane-Poole Reserve area. He emphasised that the Reserve was an important area for beekeepers and the industry could not afford to have access to areas closed off. The argument presented in Workshop I, that bees damage flowers of many native species, was questioned by beekeepers who claimed that there was a lack of evidence for this.

WORKSHOP FEEDBACK:

Beekeeping:

No consensus was reached on this question. One view stated that beekeeping was of long standing, relied only on peak honey flow, and that there were limited resources elsewhere - therefore it should be permitted, given appropriate dieback controls. Some suggested that special areas should be considered for beekeeping, such as power lines, ex-gravel pits, salt affected land, rehabilitated mined land, etc. Another view was opposed to beekeeping due to possible hybridisation, loss of native species, damage to flowers and competition with indigenous insects. There was a general consensus that a review of the impact of bees on the natural environment was needed.

Minor Forest Produce:

All groups felt that minor forest produce could be obtained from the recreation zone if appropriately controlled (by licence) and possibly zoned, (e.g. - into firebreaks).

Commercial Photography, Films:

Most agreed that large scale projects should have to apply to the current Reserve management body, and appropriate controls on environmental protection and impact on recreation should apply. Licences could be applied and charged for. Accommodation should be outside the Reserve.

One group did not favour commercial photography but supported amateur or educational photography, although it was noted that sometimes distinction is difficult.

Wildflower Picking:

Most were not in favour of commercial wildflower picking.

Seed Collecting:

As for wildflowers.

Individual groups also noted the following points:

Hunting:

Not on in the recreation zone, feral pigs should be poisoned by Authorities.

Services:

MRD, pipelines, power lines and conveyor lines should all be discouraged and subjected to EIS-type assessment.

Army Exercises:

Should not be permitted in conservation areas but allowed to use recreation areas, provided permission is applied for, disturbance to other users minimised and appropriate environmental safeguards are undertaken. There may be a possibility of getting the Army to assist in developing some facilities, e.g. - river crossings.

Other:

One group noted that if the Reserve became a National Park, existing guidelines for National Parks should be applied for most of the issues discussed above.

A SUMMARY OF SUBMISSIONS

RECEIVED DURING THE

PLANNING PROCESS

SUMMARY OF SUBMISSIONS

A total of 48 submissions were received from the 70 groups and individuals contacted. The respondents can be grouped into the following categories:

Category	Number of Submissions
Adjacent private landowners	7
Private individuals	8
Voluntary conservation groups	8
Community or school groups	4
Recreation groups	8
Private industry	4
Government	9
	48

The following summary is not intended to provide comprehensive coverage of every point made in every submission. However, it is intended to reflect the general feeling and main points of all submissions.

MANAGEMENT

Facilities

Some submissions stressed the necessity to upgrade and maintain existing facilities such as toilets, fireplaces, rubbish bins etc and some calls for extension of services were made. The importance of effective policing of the reserve was also raised with particular mention of illegal marron trapping, lighting of fires and vandalism.

There was support for the location of facilities such as a Forest Information Centre in Dwellingup, since the town already had support facilities and attractions (e.g. Hotham Valley Railway) and this would take some pressure off the reserve.

The submissions supported the establishment of an appropriately designed holiday camp/cabin facility within the reserve. However, other submissions strongly opposed the construction of any such facilities on reserve land when they could equally well be placed on private land.

Appointment of a Ranger was suggested as was the provision of firewood to prevent indiscriminant wood collection activities.

Fires

Many emphasised the need for fire restrictions during summer, as well as periods before and after, in the form of total fire lighting bans or permission to use only fireplaces. All that raised the issue were in agreement that firebreaks should be maintained and the network extended.

Other advice regarding fire precautions included maintenance of low fuel conditions in and around camping and picnic areas, exclusion of the public on specified high risk days, control of numbers during high risk periods, well marked "escape routes", heightening of public awareness of emergency procedures, policing of rules and regulations, practice of emergency procedures and monitoring of any treatments to assess long term burning effects.

Prescribed Burning

A number of requests were made to minimise, reduce or modify fire fuel reduction activities and some specific programmes were outlined. Total fire exclusion of some areas was considered very important by some, while others expressed strong concern that undue build up of fuel may be allowed and that 'low fuel' buffers around areas of public use and private land were vital. It was emphasised that hazards should not be permitted to develop while burning plans are being drawn up. Some suggested that private land surrounded by the reserve should be purchased to facilitate effective fire management.

Feral Fauna

Feral pigs were identified as a major problem in the reserve and one individual felt they were major contributors to dieback spread. All that raised the issue agreed that more effective control was needed.

Feral bees were also identified as a potential problem and the provision of apiary sites, especially in the conservation zone, should be rejected. Some submissions disagreed and supported the retention of sites because of the significance of the area and the diminishing access to other areas.

Two submissions made particular reference to pets, especially dogs, and stressed the need to ban them from the reserve.

Grazing was considered to be incompatible with recreation and land conservation.

Introduced Plants and Weeds

Several submissions stated that pine plantations are out of context in the Lane-Poole Reserve and should be phased out. They felt that pines in camping areas (e.g. Nanga) were also out of character and, as replacement was needed, they should be replaced by eucalypts.

One person noted that blackberries were becoming a problem along the Murray, and must be eradicated immediately.

Adjacent Land:

Some landowners requested representation on governing/advisory bodies, greater liaison with landowners as well as effective, two-way information exchange. One owner stressed the need to consider the overlap of forest management and farm management activities. Several emphasised the need to consider tourist type developments, under strict guidelines. These could involve construction of accommodation facilities, and possibly subdivision, on private land adjacent to the Lane-Poole Reserve.

Historic Sites:

Specific mention was made of particular historic sites which some believed should be protected. Aboriginal sites were mentioned and the opinion expressed that consultation with the appropriate authorities should be required before developments are commenced.

Communication and Power Lines:

Setting up of more effective communication lines was suggested by one individual concerned about emergency procedures. These would be important particularly if permanent staff were appointed to manage the reserve. It was indivated that a private airstrip near Bell MPA could be useful in some emergency situations.

One submission stressed that the maintenance and repair of existing power lines must be taken account of in the management plans.

Recreation:

The issue of what recreational pursuits should be encouraged or discouraged and associated demand for facilities received a significant amount of attention. Most advocated the promotion of appropriately controlled 'passive' pursuits in the recreation zone. These activities were generally considered to include bushwalking, camping, canoeing, swimming, birdwatching, orienteering and picnicking. However, the Health Department felt that swimming ought to be discouraged for health reasons. Associated with promotion of 'passive' pursuits were demands for more and/or upgraded walking tracks, canoe entry points, bins, toilets, fireplaces (fire and/or gas) and

endorsement of casual but restricted camping anywhere in the recreation zone for overnight hikers. Some submissions did not support the presence of caravans in the reserve, however others felt that caravans should be permitted in a limited number of clearly defined sites e.g. Tumlo.

One submission supported the use of the reserve for appropriately controlled Army training (mainly navigation) exercises. Some special interest groups and individuals suggested that limited and controlled access to the conservation zone be permitted, for activities such as bushwalking.

The permission for 'active' recreation activities to take place brought forth mixed reactions. Those pursuits generally included in this category included trail bike riding, shooting (including pig hunting), horseriding, car rallying, power boating (including racing), and four wheel driving. All submissions which mentioned shooting were strongly against this activity. Much of the concern about the other activities centres around damage to the environment, i.e. erosion and vegetation damage, danger to others, noise pollution and potential problems associated with spectator groups. One submission suggested that it was important to consider the Lane-Poole Reserve in a regional context, so that inappropriate recreational activities could be relocated outside the reserve.

By contrast, several submissions supported the limited, appropriately controlled use of the Lane-Poole Reserve for car rallying and trail bike riding.

A small number of submissions recommended the introduction of visitor fees either to limit numbers on weekends and public holidays or help finance maintenance works (or both). A "Friends of the Lane-Poole Reserve" scheme was suggested as a possible means of fund raising.

Eventual control on visitor numbers was supported as a means of avoiding excessive environmental degradation.

EDUCATION/RESEARCH:

There was strong advocation for the introduction of some educational facilities. Establishment of an education/research/information - type

"Jarrah-centre" met with enthusiasm. Suggestions presented for other facilities included the introduction of interpretative signs, self-guided nature walks of varying lengths, brochures and other published information.

Many encouraged further study of the reserve especially biological and dieback distribution surveys and monitoring. Associated documentation/publications available for the public were also suggested. Mention was also made that sites of specific natural interest could be used as study areas for schools. Detailed maps were required, which show the location of walk trails.

One group felt that education of pig hunters and surveys into their thoughts and behaviour would help reduce the problem of illegal hunting.

WATER CATCHMENTS:

The W.A. Water Authority indicated that the establishment of the reserve retained the right for development options of water resources. They noted that the Murray had considerable significance in the long term planning for Perth's water supply, and considered that catchment protection should have equal priority in areas set aside for conservation and/or recreation. Planning should allow for pipelines which may be required. Other submissions also referred to the importance of water catchment protection, and indicated that water quality was already low.

The submission recorded that information should be provided on how to keep marron in private dams, etc., to reduce pressures on the river and river banks.

MINING/LOGGING:

Mining and logging operations attracted considerable comment, but generally no distinction was made between the two. The main concerns indicated were the likelihood of operations causing erosion, pollution and dieback. Most submissions which commented on mining or logging were opposed to either being carried out anywhere in the Lane-Poole Reserve. However, particular emphasis was placed on effects to the conservation zone as activities were considered to be 'incompatible with conservation principles'. By contrast, a number of individuals and groups agreed to the continuation of operations provided

certain controls and restrictions were adhered to or in the case of some references of timber extraction in particular, that further study of logging effects be carried out prior to further felling.

Alcoa indicated its intentions to mine upslope areas of the recreation zone, and adjacent to the conservation zone, in accordance with its legal rights. Subsequent rehabilitation works would be carried out to maximise potential recreational use of mined areas in the recreation zone, and areas adjacent to the conservation zone could be rehabilitated accordingly.

With regard to timber extraction, two submissions stated that activities would result in minimal disturbance to the environment, would not contribute to dieback spread and would actually have certain advantageous effects for fauna, flora and recreators. They supported controlled logging in the recreation zone, and in what were originally "buffers" around "core" areas in the conservation zone.

BEEKEEPING:

The topic of beekeeping attracted a number of submissions, and these were evenly balanced between opponents and supporters of this activity within the Lane-Poole Reserve. Opponents listed the damaging effects they believed bees have on the environment, and these effects are discussed in more detail in the Plan (Volume I). Supporters disagreed with most of these claims and pointed out the economic value of beekeeping in the reserve (estimated at up to $135,000 per annum) and the lack of suitable alternative sites.

ROADS:

Improvements to existing roads and bridges were considered a necessity by most and some specific restroation works were outlines. Expansion of the network was recommended by some while others indicated that vehicle access should be restricted by closure of minor tracks and pedestrian access be encouraged. Special interest groups and individuals were in general agreement that some restrictions and regulations were acceptable and necessary particularly within the conservation zone, but they rejected total exclusion from access. Access through private property was indicated as being inappropriate.

SHAPE, NAME AND LEGAL STATUS:

Some submissions expressed the opinion that the Lane-Poole Reserve was an inappropriate shape for effective management, and should be improved if at all possible. Several specific areas were suggested for inclusion in the reserve. These and others felt that the reserve should be as large as possible.

There were several comments on the name "Lane-Poole Reserve". None supported it, and suggestions for other names were "Jarrah Park" or "Murray Jarrah Park".

A number of submissions commented on the legal states of the Lane-Poole Reserve. All of these strongly advocated "A" class status, with effective security of tenure and purpose. Most of those who commented on legal status supported declaring the whole reserve a National Park, although one suggested that a Regional Park was appropriate. There was some criticism that the issue of legal status has taken so long to resolve. One submission recommended vesting in the National Parks and Nature Conservation Authority as soon as possible.

Many submissions recommended managing the Lane-Poole Reserve as if it was a National Park.

ZONING:

There was support for a zoning system, to locate appropriate activities in particular areas of the reserve and thereby protect reserve values. Some submissions supported the zoning system recommended in the W.A. Conservation Council submission "Jarrah Reserve". One submission indicated that public activities should be directed away from Plavins block.

L A N E - P O O L E R E S E R V E

DRAFT MANAGEMENT PLAN

QUESTIONNAIRE

INTRODUCTION

BACKGROUND AND AIMS:

Previous studies have provided considerable information regarding visitor usage in and near the Lane-Poole Reserve. In 1980, the Forests Department (1980) conducted surveys at all major southwestern forest recreation sites, and described visitor numbers, types of visitors and their recreation preferences. In 1984, the Department of Youth, Sport and Recreation performed a detailed survey in the Murray Valley during Easter (Sharp 1985). Similar information was collected to the 1980 study, and both studies indicated high and increasing user numbers along the Murray River.

During the present Lane-Poole Reserve planning process, information from both of these studies has proved particularly useful in developing recommendations which will cater for a wide range of visitor needs and preferences, whilst still protecting the values on which those needs are based. However, the Planning Group needed to obtain opinions on issues or management options which had not been covered in previous studies. Also the Group saw questionnaires as an important means of obtaining input from members of the public who would not be willing to produce a written submission, but were happy to answer brief questions. Questionnaires also provided a means of contacting the general public whereas submissions tend more to reflect the views of groups, Government Departments, industry, etc. - i.e., groups with more specific interests.

The study was thus designed with the aim of contacting as wide a group of Lane-Poole Reserve users as possible, and obtaining their input on key management issues.

METHOD:

Questionnaires were produced with the assistance of W Schmidt and E Herbert (CALM) and P Sharp and J Sharp (Department of Sport and Recreation). A copy of the questionnaire follows this section. The questionnaire was distributed through a number of sources:

- by hand, to users contacted in the reserve;

- over the counter at CALM, Dwellingup;
- at Mr Geoff Bell's Nanga Bush Camp;
- to school groups who had recently visited the reserve (e.g. St Norberts College);
- to members of the public who contacted the Planning Group;
- to members of the WA Association of Caravan Clubs who offered to assist in distributing questionnaires.

The questionnaires were distributed during the months of May, June and July, and then analysed by computer at CALM, Como.

LIMITATIONS:

There were some limitations and possible biases introduced by using this approach. Firstly, results only reflect the views of late autumn/winter users, although this probably would not introduce much bias into the particular questions asked. Secondly, a large number of questionnaires were completed by high school students (age 14-16), and there may be some bias towards the opinions of this age group. Therefore, the questionnaire should not be interpreted as coming from a perfect cross-section of reserve users, but it does reflect the views of one typical sample of users. The extent of any possible bias can be gauged by comparing age, sex, postcode, etc. of this sample group with results obtained in Sharp's (1985) study. There is also a small bias towards location, i.e. it is difficult to contact bushwalkers in the more isolated parts of the reserve, and easy to contact users along the river.

Despite some limitations, there was one significant advantage in using the questionnaire approach. This was the increased contact (including personal contact) with users which would not have been otherwise possible. Many users wrote detailed comments on questionnaires and greatly appreciated the chance to express their opinions.

THE SAMPLE:

AGE AND SEX OF VISITORS

Years	Number	Percent	Sharp (1985)
No comment	15	9.4	
0-9	0	0	25.1
10-19	73	45.9	20.9
20-29	9	5.7	21.3
30-39	23	14.5	19.2
40-49	20	12.6	6.8
50-59	13	8.1	5
60+	6	3.8	1.7
	159	100	

Total number of questionnaires completed = 159.

Males = 53%
Females = 47%

These results partly reflect the survey methods used. For example, the procedures involved in handing out and completing questionnaires resulted in no respondents in the 0-9 age bracket. By contrast, the surveying of school groups resulted in large numbers in the 10-19 age bracket. Nevertheless, the totals are very similar to those recorded by Sharp (1985) in the Department of Sport and Recreation User Survey, who recorded 46% of users in the 0-19 age bracket, compared with 45.9% in the present study. Both studies indicate that the reserve is very popular with young users, although a substantial proportion (over 25%) are in the 30-49 years age group.

ORIGIN OF VISITORS

	Number	Percent	Sharp (1985)
Interstate	3	2.2	0
North-west Metro	42	29.6	23.2
North-east Metro	9	6.3	20.5
South-east Metro	51	35.9	16.4
South-west Metro	29	20.4	27.2
Country	8	5.6	12.1
	142	100	

Some responses came from school groups and this would have biased numbers towards particular postcode zones. However, comparison with Sharp's (1985) results indicates a roughly similar proportion of metropolitan/country/interstate users. The small number of country visitors is surprising, and indicates that the reserve is mostly used by metropolitan groups and individuals. The low number of interstate visitors is probably due to the current lack of promotion of the reserve in tourist literature. This will probably change in the future.

FREQUENCY OF VISITS

	Number	Percent	Sharp (1985)
First time	73	46.5	27.5
2nd or 3rd Visit	45	28.7	42.4
4th-6th Visit	25	15.9	16.2
More	14	8.9	13.9
	157	100%	

Forty-six percent of the visitors to the Lane-Poole Reserve contacted in this survey were using the reserve for the first time. The results are possibly biased by the school groups, since many students would be first time visitors. Both the present study and Sharp (1985) indicate that over 50% of visitors have visited the reserve on at least one previous occasion.

This emphasises a degree of user satisfaction, and the importance of retaining that satisfaction.

DURATION OF VISIT

	Number	Percent	Sharp (1985)
Day Visit Only	23	14.7	16.5
1-3 Nights	63	40.4	62.3
4+ Nights	70	44.9	21.0
	156	100%	

Both the results from this survey and Sharp (1985) indicate that the majority of visitors to the Lane-Poole Reserve stay for one or more nights, and many of these (over 20%) stay for four nights or more.

RESULTS:

QUESTION: Please indicate the activity or activities you took part in during your visit.

ACTIVITY	NUMBER*	PERCENT
Hiking or Bushwalking	108	67.9
Confidence Course	23	14.5
Swimming	52	32.7
Canoeing	78	49.0
Camping	55	34.6
Passive/Peace/Relaxation	22	13.8
Car Rally	1	0.6
Fishing	9	5.6
Scenic Drive	4	2.5
4 Wheel Drive	6	3.8
Photography	7	4.4
Picnic/BBQ	19	11.9
Games	3	1.9
Work	2	1.2
Marroning	8	5.0
Nature Study	8	5.0
Biking	2	1.25
Boating	2	1.25
Trail Bike	1	0.6
Yahoo Rope	21	13.2
Indoor Activities	1	0.6

* i.e. number who mentioned that activity.

The findings clearly indicate a wide variety of activities. Camping and overnight stays are popular. Many activities such as hiking, nature study and photography rely on forest values.

Water based activities such as swimming, marroning, canoeing and the "yahoo rope" are very popular - in fact, the popularity of swimming is surprising considering that the survey was conducted in late autumn and winter. The most popular activities, fishing and bushwalking, are pedestrian based and

indicate a need for suitable information (maps, etc.) and in some areas, appropriately designed walk trails. Other users prefer passive relaxation, and for these some activities would be incompatible.

QUESTION: If picnic and camping areas in the forest and near water were available closer to Perth, would you use them occasionally, often or never?

ACTIVITY	NUMBER	PERCENT
Occasionally	91	59.1
Often	50	32.5
Never	13	8.4
	154	100%

Only 8% of respondents stated that they would never use picnic and camping areas nearer to Perth. This finding is very important because it demonstrates the potential for relieving recreation pressures on the Murray by developing and publicising sites closer to Perth. In particular, the findings emphasise the importance of:

(1) providing information about alternative sites;

(2) providing and developing suitable sites to complement the Lane-Poole Reserve facilities;

(3) potential impacts of changing travel costs, i.e. more expensive travel may mean more pressure on facilities closer to Perth;

(4) incorporating (1) and (2) as part of a comprehensive management stategy.

QUESTION: What type of activities should be permitted in the conservation zone of the Reserve?

ACTIVITY	NUMBER*	PERCENT
No comment	39	25.0
Bushwalking	78	49.0
Camping	48	30.2
Picnic	28	17.6
Passive	28	17.6
Swimming	40	25.1
Fishing and Marroning	17	10.7
Boat/Canoe	41	25.8
Caring for the Environment	17	10.7
4 Wheel Drive	2	1.2
Trail Bike	2	1.2

* i.e. number who mentioned that activity.

Twenty-five percent of respondents had no opinion on this question. Of the remainder, the largest percentage preferred bushwalking, i.e. a pedestrian based activity. Camping and picnicking were popular suggestions, as were water based activities such as swimming, marroning, and boating/canoeing. Only a small number of respondents recommended that 4-wheel driving and trail bikes should be permitted in the conservation zone. Many more respondents preferred "passive" activities and "caring for the environment". Generally, the findings indicate a fairly high degree of consensus.

QUESTION: I am prepared to pay a visitor fee which is similar to fees charged at National Parks?

ACTIVITY	NUMBER	PERCENT
Agree	62	40.0
Disagree	50	32.0
Neutral	44	28.0
	156	100%

COMMENTS

Improve Facilities	2	1.3
Maintenance of Facilities	10	6.3
Should be Free for All	20	12.2
Depends on Type of Facilities Available	5	3.1
Keep Like Qld Parks	1	0.6
Would Change Character	2	1.3
Ranger System Needed	1	0.6
Only for Adults	1	0.6
Minimal Price	5	3.1
Worth a Fee - Excellent Reserve	3	1.9
Too Difficult to Collect	2	1.3
Too Commercial	1	0.6
Annual Licence Needed	1	0.6
Destroys Bush Feeling	1	0.6
Donations Only	1	0.6

Despite the general nature of the question, only 32% were opposed to any form of fee collection while 68% either supported fees or were neutral.

Sharp (1985) found that 70% were prepared to pay a fee. Sixty-five percent did not comment further. Of those who did comment, people in favour said that fees should be used to develop and maintain facilities. Some supported minimal fees and adults only fees. Those opposed to charging thought that fees would be too difficult to collect, and would change the character of a place which should be free for all.

QUESTION: Trail Bikes should not be permitted in the Reserve.

ACTIVITY	NUMBER	PERCENT
Agree	110	70
Disagree	26	17
Neutral	21	13
	158	100%

COMMENTS

Damage Reserve	32	20.1
Disagree Strongly	3	1.9
Trail Bikes Important Recreation Forum	5	3.1
Limited Use in Reserve OK	6	3.8
Special Areas of Forest	11	6.9
With Permit OK	7	4.4
Council Should Provide Alternative Areas	2	1.3
More Physical Activity, not Motorised Activities Needed	3	1.9
Out of Conservation Areas, OK in Recreation Areas	2	1.3
Strongly Agree	9	5.7

There was a strong agreement (70%) with the statement that trail bikes should not be permitted in the reserve. This supports the findings of Sharp (1985) who found that only 3% of respondents in the Lane-Poole Reserve favoured no restrictions on trail bikes, while 68% favoured restrictions to specific areas of State forest and 29% favoured barring altogether.

Comments on the trail bike question emphasised damage to the reserve, and the need for special areas of forest to be set aside.

QUESTION: Camping and accommodation facilities are adequate.

ACTIVITY	NUMBER	PERCENT
Agree	98	62
Disagree	36	23
Neutral	23	15
	157	100

COMMENTS		
Good Experience	12	7.5
More Garbage Bins, etc. Needed	12	7.5
Smaller Areas Needed	3	1.9
Caravans Should be Permitted	4	2.5
Human Pollution Caused by Lack of Facilities	1	0.6
Facilities Change Character	7	4.4
Showers Needed	2	1.3
Better Toilet Maintenance Needed	5	3.1
Adequate While No Fees Charged	3	1.9
More Caravan Areas Required	5	3.1
Drinking Facilities Needed (Water)	3	1.9
Road Signs Needed	1	0.6
Sites Neglected	2	1.3
Firewood Inadequate	4	2.5
Hotel Needed	1	0.6
Less Damage with Facilities than without	2	1.3
Camp Close to River	2	1.3

Sixty-two percent of users consider that facilities are adequate. To some extent this is to be expected since they are users and presumably would go elsewhere if completely unsatisfied. However, the findings do indicate a general satisfaction and lack of complaints by the majority.

Suggestions for improvement centre on general upgrading of existing facilities, e.g. better toilets, more firewood, more garbage bins, etc. There is no obvious demand for more sophisticated facilities or widespread further development of similar facilities (at least during this time of the year).

QUESTION: Picnic facilities are adequate.

ACTIVITY	NUMBER	PERCENT
Agree	113	72
Disagree	16	10
Neutral	27	18
	156	100%

COMMENTS

Are well planned	9	5.7
More Toilets Needed	15	9.4
Ample	9	5.7
Better BBQ's Required	2	1.5
More Would Change Character	1	0.6
Fresh Water Needed	1	0.6
Shelter Needed	1	0.6
Policing Needed	1	0.6
Firewood Needed	4	2.5
Too Congested	2	1.3

Most people (72%) thought existing facilities were adequate, and some commented that sites were well planned and ample were available. A small number (10%) did not think facilities were adequate, and suggestions for improvement included better shelter, firewood, fresh water, BBQ's and toilets.

QUESTION: There should be limits placed on the number of visitors admitted to the Reserve during peak holiday times.

ACTIVITY	NUMBER	PERCENT
Agree	81	52
Disagree	44	29
Neutral	29	19
	154	100%

COMMENTS		
Too Many Cause Damage	15	9.4
Set Numbers Could be Controlled	8	5.0
Control if Necessary	5	3.1
Self Regulating	6	3.8
Permits, etc., May be a Solution	3	1.9
More Space Per Person Needed	8	5.0
Plenty of Space Now	8	5.0
Ablutions Insufficient	2	1.3
Too Hard to Police	6	3.8
Limit for Campers Only	1	0.6

Fifty-two percent responded positively to the idea of placing limits on reserve users during peak periods, while another 19% were neutral. Comments from these respondents were that limits were necessary to control damage and to control use of insufficient facilities. These comments reflect concerns that facilities may become over used, degraded, and reduce the quality of the visitor experience. Control mechanisms such as permits were suggested.

Twenty-nine percent were opposed to any limits on numbers. These respondents thought that the system would tend to be self regulating, and limits would be too hard to police.

QUESTION: Road access within the Reserve is adequate.

ACTIVITY	NUMBER	PERCENT
Agree	130	82
Disagree	11	8
Neutral	16	10
	157	100%

COMMENTS

Depends on Further Developments	1	0.6
OK Now	11	6.9
Disabled Problem - Facilities Inadequate	1	0.6
Ample	12	7.5
Too Rough	11	6.9
Funds Needed	3	1.9
Sign Posts Needed	2	1.3

These results indicate a high degree (82%) of satisfaction with road access within the reserve. Greater or improved access is not therefore an issue. There is no pressure for major upgrading of roads, although there is some concern (7%) that roads are too rough.

QUESTION: Developments on private property adjacent to the reserve should be allowed as long as reserve values are not affected.

ACTIVITY	NUMBER	PERCENT
Agree	116	75
Disagree	19	12
Neutral	20	13
	155	100%

COMMENTS

Depends on Type of Development	7	4.4
Strongly Agree	4	2.5
No Commercial	2	1.3
No Noise or Air Pollution	11	6.9
Maintain Fencing	1	0.6
Provided does not Exclude Caravans from the Reserve	2	1.3
Strongly Disagree	3	1.9
No Problem	1	0.6
Don't Know	2	1.3

There was strong agreement (75%) that developments should be permitted on adjacent private land as long as reserve values are not affected. Few people disagreed with the statement, and few provided extra comments. The most notable concern was the feeling that noise and air pollution from adjacent developments should be controlled.

QUESTION: Any further comments?

COMMENT	NUMBER	FREQUENCY
No Further Comment	121	76
Should be Left as it is	15	9.4
Less Restrictions Needed	3	1.9
Retain 4WD Access	2	1.2
No Camping Time Limit	2	1.3
More Like This Needed	3	1.9
No Dogs or Cats	2	1.2
Control Commerce	1	0.6
Better Fishing/Marroning Control Needed	2	1.2
More Patrolling	5	3.1
Information Boards Needed	2	1.3
Crowded on Holidays	2	1.2
Retain Natural Beauty	1	0.6
Better Rubbish Control Needed	2	1.2
Car Storage Required	1	0.6
Ban Trail Bikes & Guns	1	0.6
Burning Needed	2	1.2
Restock River with Trout & Marron	1	1.2
Ban Vandals when Caught	1	0.6

Only 25% of people commented additionally. Of those who did, the most frequent concerns centred on the reserve being left as it is, and given adequate protection through patrolling, better controls on marroning and fishing, etc. Some suggested that information boards should be provided and that there should be more reserves like Lane-Poole Reserve.

Suggestions for changes included a call for less restrictions, no camping time limit and a better rubbish removal system.

GENERAL CONCLUSIONS

Although there was some bias in the selection of respondents, the age distribution, sex, postcode, duration of visits and frequency of visits of Lane-Poole Reserve users was not greatly different to results obtained by Sharp (1985). Thus, the typical user is young, lives in the metropolitan area, has probably visited the reserve before and stays for at least one night.

Activities preferred by users center on forest values and water based activities. Most popular pursuits are bushwalking, swimming, canoeing, relaxing, camping and picnicking. Motorised activities such as four wheel driving, trail bike riding and boating are not popular with many users. These results emphasise the importance of providing suitable facilities and information for the more popular activities, and resolving any conflicts between incompatible activities.

Many visitors indicated a willingness to use facilities closer to Perth. This will only take pressure off the Lane-Poole Reserve if adequate facilities exist and are publicised.

The majority of respondents also were prepared to pay a fee. This supports the 'user pays' principle which is now utilised in many National Parks throughout the world. Supporters of fees did emphasise that money should be used to improve and maintain facilities, and should depend on the facilities available, i.e. they expected value for money. Other respondents were not prepared to pay fees and felt that the reserve should be free for all.

Generally there was a high degree of satisfaction with existing camping and picnicking facilities. This finding indicates that developments have been well received by the public, and, except at peak times, facilities are not considered inadequate. However, there were some calls for better servicing of sites, more firewood, and the provision of fresh water and shelter.

Over seventy percent of users were in favour or neutral on the question of limiting the number of users at peak times. This is interesting, since the survey was not conducted when visitor pressures are at their worst, e.g. Easter. The results suggest that some system of limiting users would be

generally accepted provided a suitable mechanism is introduced and necessary information provided.

Road access was considered adequate by most of those surveyed, and there were no widespread calls for improved road networks or sealing of roads. However, some users recommended improved maintenance of existing roads. Developments on private property adjacent to the reserve were only supported on the condition that reserve values were not affected. Respondents felt that permission should depend on the type of development, with particular controls needed to regulate noise and air pollution.

Overall, the survey indicated a generally high degree of satisfaction with existing facilities but also provided many useful suggestions for improvement. The vast majority of respondents wanted the Lane-Poole Reserve to be kept much as it is and provided with adequate, suitably maintained facilities.