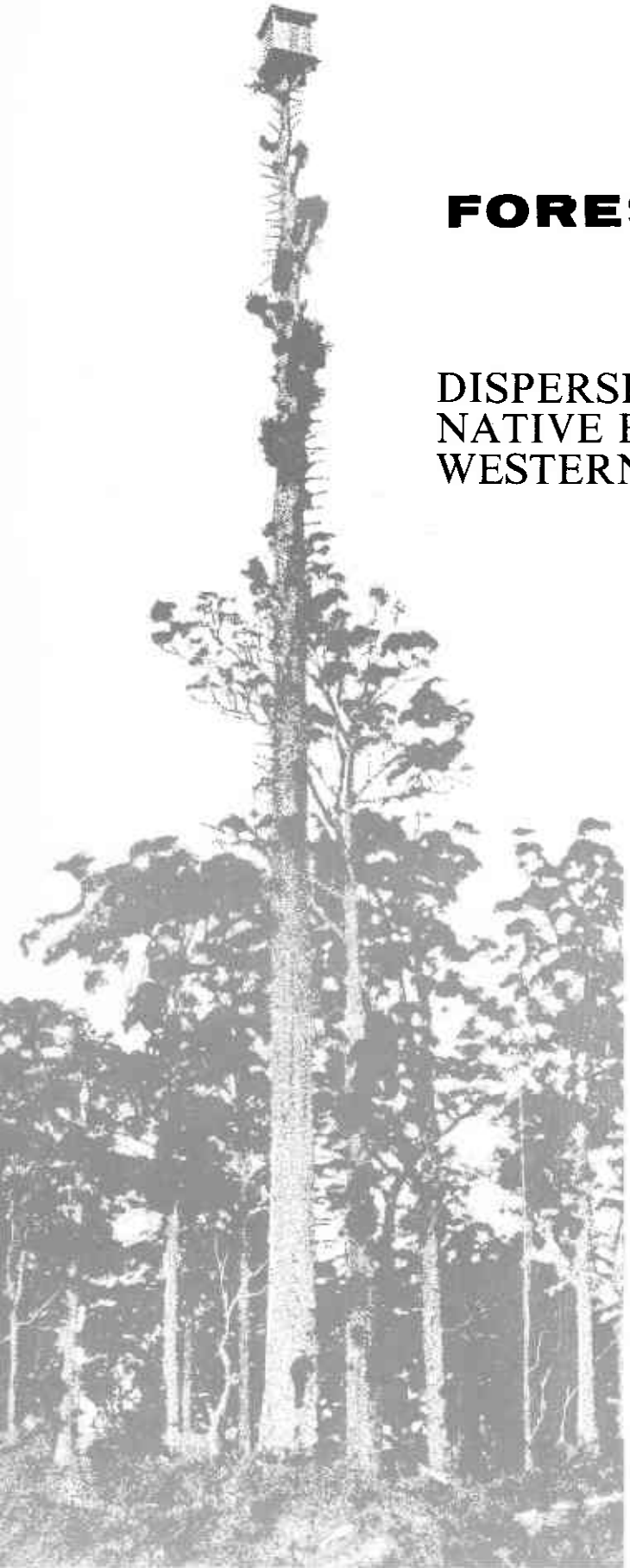
Research Paper No 16

1975



FORESTS DEPARTMENT
OF WESTERN AUSTRALIA
54 BARRACK ST., PERTH

DISPERSED RECREATION SURVEY IN NATIVE FORESTS NEAR PERTH, WESTERN AUSTRALIA

by

D. SPRIGGINS

SUMMARY

Field interviews and a questionnaire were used in spring 1970 to widen the understanding of the dispersed recreational use of jarrah (*Eucalyptus marginata* Sm.) forests within a 56 kilometre radius from Perth, Western Australia. It was found that few visitors arrived before 11.30 a.m. but, during the day, numbers steadily increased until 4 p.m.

More than half the visitors were located within 200 metres of sealed roads. These areas had a density of 17.1 people per square kilometre, while other areas contained only 1.2 per square kilometre. The most common groups were single families but three organized groups contributed over one third of the visitor total.

The majority of groups came as picnic parties and were representative of most of the Perth suburbs.

INTRODUCTION

Pilot surveys in spring 1969 showed that State Forests in the Darling Range, sited close to the Perth metropolitan area, were being heavily used for dispersed recreation at weekends. These forests, in which jarrah (*Eucalyptus marginata* Sm.) is the main species, have a good road network permitting vehicular access to most areas. Much of the area is also used for water supply reservoirs and restrictions are imposed on camping, fishing etc., so that activity is almost entirely restricted to single-day, passive recreation.

PROCEDURE

Following indications of arrival time in 1969, the 1970 study was conducted on Sunday 13 September 1970 from 11 a.m. to 4 p.m., on areas within 56 kilometres of the Perth G.P.O.

Eleven interviewers were each supplied with a detailed grid map of their forest patrol. Each section contained an average of 2 800 hectares, 6.4 kilometres of bitumen road, 4.8 km of gravel road and 71 km of forest track. The total sample was about 25 per cent of the forest available for recreation within the 56 km radial zone.

Each officer patrolled his section by vehicle and interviewed all stationary groups; there was insufficient time to attempt interviews with moving groups or parties at major picnic grounds. The study was carried out in two parts, the first being an "on site" interview to provide base statistics relating to time, place, vehicles, the forest type, number of adults and children, and an enquiry to determine the main purpose of the visit. The second stage was to issue a questionnaire to the group leader with a stamped, addressed envelope and a request that it be completed and returned at the leader's convenience. Satisfactory questionnaires were subsequently returned by 57 of the 140 groups interviewed and the results are described separately for Interviews and Questionnaires, all data having been processed by divisive information analysis using the INFAN computer programme.

RESULTS FROM INTERVIEWS

Time of Arrival and Density

The study was confined to the period between 11 a.m. and 4 p.m. and confirmed that peak arrivals occur between 1 p.m. and 3 p.m. Density of use varied from 0.5 to 6.15 per square kilometre, the highest being in an area that featured a large granite tor, while the lowest densities were interpreted as indicating the low visitor appeal of normal jarrah forest. Visitor density showed a decrease beyond 40 kilometres radially from Perth, and actual density by radial distance is summarised in Table 1.

TABLE 1

EFFECT OF DISTANCE ON VISITOR DENSITY

(Based on interview data)

Radial Distance from Perth km	Hectares Patrolled in Sector	Visitors Counted	Density Visitors per km²
16 to 23	2 720	46	1.69
24 to 31	10 920	416	3.81
32 to 40	9 540	253	2.86
41 to 47	4 240	25	0.59
48 to 56	3 530	43	1.24

Choice of Recreation Site

Data were collected to investigate preference for particular recreation sites, this information being related to type of road access, proximity of diseased forest (affected by *Phytophthora cinnamomi* Rands) and proximity of cleared land or planted forest plots. Although forest tracks and gravel roads are of fair quality, 54 per cent of visitors were observed within 200 metres of a bitumen road, giving a visitor density of 17.1 per square kilometre. The presence of 15 per cent of diseased forest did little to discourage visitors, 24 per cent of whom were located close to these areas. Although only one per cent of the study area contained planted pine forests, 16 per cent of visitors were found near them. The latter situation could have been influenced by the open, grassy nature of these plots, which are often sited on old pasture lands.

The data outlining the above 3 factors is illustrated in Table 2.

TABLE 2

SELECTION OF SITE WITH RESPECT TO ROADS, HEALTH, EXOTICS

(Based on interview data)

	Roads		Diseased Forest		Planted Forest	
	Bitumen	Other	Infected	Healthy	Present	Absent
Number of Groups	76	64	34	106	23	117
Number of People	442	341	166	617	130	653

Composition of Visitor Groups

Records were kept of the size and composition of groups interviewed and the data are summarized in Table 3.

TABLE 3

FREQUENCY OF COMBINATIONS OF GROUPS INTERVIEWED

Number of Children in Group	Number of Adults in Group							
	1	2	3	4	5	6	7	8+
0	3	44	6	3	4	1		3
1	2	9	1		1	1		1
2	2	8	5	3				
3		7	2	3	1			
4		4	4	4	1			1
5		3		1		1		
6		1		1				1
7				1				1
8+	1	1		1				3

The most common group comprised two adults without children, while a party of 2 or 3 adults with one, two or three children was also very common.

Purpose of Visit

Interviews were restricted to groups that had stopped in the forest. It was therefore predictable that a picnic was the main purpose of the visit in the sample. However, with many groups it appeared that the outing itself and a drive through the forest ranked as a further important motive. Table 4 illustrates the analysis of reasons given by the 140 groups of people.

TABLE 4

MAIN REASON GIVEN FOR VISITING FOREST

(Based on interview data)

Reason	Per cent of Groups	Per cent of People
Picnic	55.0	74.6
Drive for pleasure	27.9	14.6
Collect firewood	11.4	6.8
Ride motor bicycle	1.4	0.6
Collect rocks for garden	1.4	1.0
Exercise dog	0.7	0.6
Play games	0.7	1.4
Run long distances	0.7	0.1
Climb trees	0.7	0.3

RESULTS FROM QUESTIONNAIRES

Questionnaires were issued to 111 of the 140 groups interviewed. Sixty-two were returned, of which 57, representing 537 people, were sufficiently complete for computer analysis. All three large groups supplied adequate questionnaire replies and the data is therefore biased towards these groups.

Group Composition

The frequency of the different combinations of adults and children is summarised in Table 5, but the data is too restrictive to permit further subdivision into group types.

From the questionnaires it would appear that 35 per cent of the visitors were in organized groups (185 out of 537 people), whereas the

TABLE 5

FREQUENCY OF COMBINATIONS OF GROUPS WHO RETURNED QUESTIONNAIRES

Number of Children in Group	Number of Adults in Group								Totals
	1	2	3	4	5	6	7	8+	
0		9	1	1	2			4	17
1		7	1		1	1			10
2	1	1	5						7
3		5	1	3	2				11
4		1		1				1	3
5		1				1			2
6								1	1
7								1	1
8+				1	1			3	5
									57 groups

TABLE 6

COMPARISON OF INTERVIEW AND QUESTIONNAIRE

Group Type	Interview		Questionnaire	
	Per cent of Groups	Per cent of People	Per cent of Groups	Per cent of People
Single family	61	40	56	22
Two or more families	32	42	28	26
Group of friends			11	17
Organized Groups	7	18	5	35
	100	100	100	100

interview data show that 18 per cent of visitors were in organized groups. Table 6 illustrates the apparent anomaly between interview and questionnaire results, which was caused by the bias towards the larger groups referred to previously.

Age Classes of Visitors

Six age classes were used for recording the age of each person in individual recreation parties. A comparison with estimated age distribution of the Western Australian population as of June 1970 is shown in Table 7. Low numbers in the 13 to 24 year age class may be due to lack of strenuous recreational activity at a forest picnic. If boating and water ski-ing were permitted on water supply reservoirs, there would very likely be an increase in visits from younger people.

Education Level

A comparison with figures supplied by the Bureau of Census and Statistics shows that the forest visitors included more people educated at tertiary level than occured in the general population, and this comparison is made in table 8.

Home Suburb of Group Leader

The Perth metropolitan area was divided into nine geographical zones to see if people living in the uninspiring environment of the less attractive suburbs were the most common visitors to forest areas. All suburban groups were very evenly represented and the results suggest that there is no link between type of suburb and level of visitors.

Country of Birth of Group Leader

Compared with 1966 census figures, the results show that group leaders born in the United Kingdom were much more common among forest recreation groups than in the population as a whole, as shown in Table 9.

DISCUSSION

Prior to this survey, little quantitative information was available on recreational use of State Forests in Western Australia. This survey is considered to have achieved its main objective, namely to obtain a broad quantitative view of dispersed recreational use of forests close to Perth. Using the results of this survey as a base, more detailed studies of particular aspects can now be made.

TABLE 7

AGE CLASS DISTRIBUTION OF VISITORS

(Based on questionnaire data)

Age Class (years)	Males	Females	Total	Per cent of Total	Per cent Estimate of Population*
0— 5	24	24	48	8.9	12.0
6—12	52	52	104	19.4	14.3
13—16	13	13	26	4.8	7.8
17—24	22	22	44	8.2	14.6
25—64	148	157	305	56.8	43.8
65 plus	6	4	10	1.9	7.5

*Data from Bureau of Census and Statistics, June 1970.

TABLE 8

EDUCATION LEVELS OF VISITORS COMPARED WITH 1971 CENSUS DATA FOR WESTERN AUSTRALIA

(Based on questionnaire data and expressed as a percentage of population)

Education Level	Incomplete		Complete	
	Visitors	Census	Visitors	Census
Nil	8.9	11.2	Not recorded	4.5
Primary	19.2	14.6	5.6	16.5
Secondary	5.6	6.7	54.5	42.9
Tertiary	0.4	*N/A	5.4	3.7

*Included with complete education, secondary level.

TABLE 9

COUNTRY OF BIRTH OF GROUP HEADS

(Based on questionnaire data)

Country of Birth	Questionnaire Results per cent	1966 Census Figures per cent
Australia	59	76
New Zealand	2	0.4
United Kingdom	24	12
Europe	2	9.2
North America	2	0.4
Other	2	2.0
No response	9	

As only static groups were interviewed, no estimates can be made of visitors simply driving for pleasure or travelling to a major developed facility. Almost all parties have been shown to reach the forest by car, so that road blocks should be considered as a method of data collection for future surveys.

To measure mobility of parties, visitors could be asked to nominate which of the developed or scenic areas they have visited or intend to visit on the day of the interview.

Results show that from 11.30 a.m. onward, there was a steady increase in numbers visiting the forest. Future surveys should aim to distinguish between parties who lunch at home before visiting the forest and those who have a picnic lunch or barbecue in the forest. The latter group is likely to exert a greater demand for developed facilities.

This survey was confined to the 56 km radial zone from Perth; future surveys should examine the use made of forest areas further away. A more detailed study repeated on eight Sundays in spring 1971 has confirmed the high concentration of visitors located within 200 metres of sealed roads. There is scope for interviewing these people to establish their basic reasons for remaining so close to selected roads.

Information on the size and frequency of the various combinations of adults and children in groups suggests that up to 60 per cent of any picnic facilities should be sufficient to cater for 8 or more people. The large number of visitors in organized groups, and the impact they have on the forest, justifies some investigation into their reasons for visiting the forest and possibly the development of selected areas for their use. At the moment, mainly passive recreational activities predominate in forests close to Perth but there is little doubt that this is a rather artificial situation created because active recreational facilities are lacking.

The uniform representation of visitors from nearly all suburbs in the Perth metropolitan area was not expected, particularly as a visit to the forest from seaside suburbs may involve a drive of 40 km or more through urban areas. This situation may alter as population and traffic densities increase, making a trip to the forest a more difficult exercise.

The reason why people born in Britain are so active in forest recreation is not known and should be pursued in future surveys. Group leaders born in Europe were not common, although they are frequent visitors to developed areas at John Forrest National Park (David Jones, Geography Dept., University of Western Australia, personal communication).

ACKNOWLEDGEMENTS

The assistance given by Mr. J. J. Havel with the computer analysis, by Mr. P. N. Hewett with the preparation of the material for publication and by the eleven interviewers with the field work is all gratefully acknowledged.