Social and Forest Values of the Community within the West Australian RFA Region

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EXECUTIVE SUMMARY

The objective of this study was to identify the social values associated with forested land within the population of the West Australian RFA region. The study was based on a random sample of 1,100 respondents drawn from across five regional sectors within the region. The five regional sectors included (i) Urban (Kalamunda, Lesmurdie) (ii) Central (Jarrahdale, Collie), (iii) Southern Forests (Donnybrook, Bridgetown, Manjimup, Pemberton, Denmark), (iv) Margaret River (Yallingup, Margaret River, Augusta) and (v) Eastern (consisting of the eastern portion of the RFA region from Talbot Brook to Mt Barker). The structure of the sampling frame allowed comparisons to be made across each of the five sectors, and through proportional weighting of the total sample, inferences could be drawn in relation to the population throughout the RFA region. Structured telephone interviews were used to assess forest values, the use of native forests, attitudes towards management planning, the level of concern for native forests and the perceived impacts of changes in the forest industry on communities and families.

Social Value Scales

An analysis of twelve social value scales indicated significant geographic variation in the values attributed to native forests. Table A summarizes the percentage of agreement in relation to each of the twelve social value scales within the population of the West Australian RFA region and across the five regional sub populations. The significant geographic variation in social value systems ascribed to native forests suggests that the development and implementation of forestry management and planning policies, will have to address the divergent social values of populations across different geographic sectors within the West Australian RFA region.

Data reduction and principal components analyses of the 12 value scales suggests that across the scales used in this survey there are three primary value clusters. They consist of four questions which reflect concern for native forests, three questions reflecting the intrinsic value of native forests and two questions which reflect a value conflict.

Within the population of the RFA region high levels of concern were expressed in relation to the management of native forests. When comparisons were made across the five regional sectors, higher levels of concern were expressed within the Urban and Margaret River sectors when compared to the Southern Forest sector. While concern in the Southern Forest sector was still high, it is probable that the difference between sectors in concern is related to the level of involvement of the community in forestry. Lower dependency and lower direct contact with forestry in the Margaret River and Urban sectors suggests that many of the concerns about the management of native forests in these areas maybe developed through indirect information sources, in particular media representations of forestry and the forest industry.

Two items which measured a value conflict within the community differed significantly between the Central Sector and the Margaret River and Southern Forest Sectors. However, although significant, the low correlation between the two items forming this scale suggests that the items maybe more usefully interpreted separately. An item referring to a possible value conflict between employment and the preservation of native forests, showed that 58% of the population within the region held conflicting values between the need for employment and the need for protection of native forests. This was particularly high in the Central and Eastern sectors, when compared to the Margaret River sector.

Intrinsic forest values were found to be particularly high throughout the population of the RFA region and although there was significant differences across sectors when respondents were asked if they lived in the area for the natural beauty of the forest, this was most likely due to the occurrence of native forests in the area in which the respondent lived. All regional sectors reported high levels of intrinsic values, there being no significant difference between the Southern Forests, Margaret River and Urban Sectors in relation to this value orientation.

Forest Use and Recreation

Seventy-seven percent of the population indicated they had visited native forests within the last year, with 50% of the population visiting native forests at least once a month or more. While a significant percentage of the population visited native forests near Pemberton and the John Forrest National Park, an analysis of the locations of native forests visited within the last year indicated the majority of the population visited highly localised areas of native forest often in close proximity to their place of residence. In addition, it was found that the majority of those visiting native forests did so to undertake passive recreation activities such as bushwalking, picnicing and sightseeing.

Planning of Native Forest Areas

It was found that 80% of the population had sufficient interest in the management of native forests that they were able to identify issues they believed should be considered in the development of plans for the management of native forests. Across the population within the WA RFA region the three core issues the community believed should be addressed in forest planning, were the conservation of forest areas for future generations, greater control or reduction of logging and the need to regenerate areas of native forest through planting of appropriate tree species. Other issues that were identified were the need to manage fire in native forests and the need to better control dieback and disease.

Concern for Native Forests

Fifty-three percent of the population indicated they were concerned about specific places in Western Australia where changes to native forests had occurred from human use. The areas of most concern were native forests in the Pemberton area and native forests in the South-West generally. Many of the areas of native forest that were identified were highly specific and localised areas in the South-West. As might be expected, within the general population of the West Australian RFA region, the main issue of concern was the logging and wood chipping of native forests.

Impacts of Changes in Forest Industry Activity

An estimated 26% of the population perceived that there had been a change in the use of forests in their area within the last two years by industry operations which had affected the community in which they lived, with the most significant change being the loss of employment to the local community. As might be expected there were again significant regional variations in the perception of forest industry activity on communities, with 38% of the population in the Southern Forest sector and 18% of the population within the Urban sector indicating there had been changes in forest industry activity which had affected their community.

When respondents were asked to indicate if a decrease in the future use of forests by the timber, mining or tourism industries would affect their community, an estimated 52%

of the population believed such a decrease would affect their community, with the most significant community change being again the loss of employment in the community. There were highly significant regional variations in response to this question, with 74% of the population within the Southern Forest sector indicating a decrease in forestry activity would affect their community, while 39% of the population in the Urban sector and 33% in the Eastern sector believed a decrease in forestry activity would affect their community.

Although a high percentage of the population believed a decrease in forestry activity would affect their community, a lower percentage (26%) indicated that such a decrease would directly affect their families, with the loss of employment being the most significant affect on families.

Attitudes Towards Industry Development

Respondents were asked to identify what they considered would be the main industries in their area within the next 20 years and what new industries, if any, they would like to see developed in their area.

An estimated 55% of the population indicated that tourism would be the main industry in their area within the next 20 years. In contrast, 10% of the population indicated the processing of native timbers would be the main industry within the next twenty years and 23% indicated the processing of plantation timbers would be the main industry. However, there were significant regional variations in response to this question. For instance, within the Margaret River sector, 82% indicated tourism as being the main industry in the next twenty years, while in the Central sector 58% perceived mining to be the main activity in the next twenty years. Interestingly, within the Southern Forest sector, 20% of the population thought the processing of native timbers would be the main activity in the next 20 years and 56% thought the processing of plantation timbers would be the main industry.

Fifty-eight percent of the population within the West Australian RFA region indicated they would like to see new industries develop in their area, with tourism (47%) and the processing of plantation timbers (29%) being the preferred new type of industry development. The development of the tourism industry was also found to be the preferred type of industry development across all regional sectors within the West Australian RFA.

Table A
Summary of Social Value Scales: Percentage Agreement with Social Values

Value Scale	WA Region Percentage Agreement	Sub-Regional Sectors				
		Central	Urban	Eastern	Southern Forest	Margaret River
ENVIRONMENTAL CONCERN						
I am not confident that native forests are being well managed in Western Australia	65.9	*68.2*	*71.2*	*59.4*	*58.2*	*76.6*
Better laws are needed to protect the use of native forests	77.6	*77.3*	*85.0*	*73.3*	*68.7*	*79.9*
I am very concerned about the management and use of native forests in WA	79.9	*80.3*	*84.9*	*75.8*	*73.2*	*87.3*
People who access native forest should have more say in how forests are managed	73.9	77.7	76.9	73.7	69.9	74.5
Composite Index	**1.98**	**1.97**	**1.87**	**2.07**	**2.15**	**1.86**
INTRINSIC VALUE						
Trees are important for their own sake	96.7	98.7	96.3	98.1	94.9	96.8
The balance of the forest ecosystem is very delicate	94.7	95.0	96.8	95.0	93.0	93.7
One of the main reasons I live in this area is the natural beauty of the forest	76.8	*73.9*	*80.4*	*54.8*	*80.2*	*81.4*
Composite Index	**1.64**	**1.64**	**1.57**	**1.81**	**1.74**	**1.55**
VALUE CONFLICT						
I [do not] feel torn between the need for jobs and the need to preserve native forests in WA	42.4	*32.1*	*44.5*	*33.6*	*44.2*	*49.8*
The conservation and protection of native forests in WA will harm the WA economy	66.4	*60.6*	*71.2*	*61.2*	*64.8*	*73.4*
Composite Index Score	**2.44**	**2.57**	**2.41**	**2.53**	**2.37**	**2.31**
TOURISM DEPENDENCY						
Tourism is very important in the area in which I live	81.4	*72.6*	*78.5*	*66.8*	*92.2*	*96.4*
TIMBER & LOGGING INDUSTRY DEPENDENCY						
The area in which I live is very dependent upon the timber and logging industry	27.9	*39.0*	*16.5*	*23.7*	*58.9*	*13.1*
Laws to protect native forests do not affect me greatly	46.4	38.6	50.2	45.5	48.3	52.3

Note: *Values in italics indicate a statistically significant difference across regional sectors.*
Composite index scores vary between 1.0 (high) and 4.0 (low) and are the mean of the items forming the index.
Source: Environment & Behaviour (1997).

1.   INTRODUCTION

The West Australian and Commonwealth governments have entered into a Regional Forest Agreement (RFA), which encompasses processes and procedures leading to agreement on the use and management of forested land in Western Australia. The West Australian RFA provides for a comprehensive regional assessment of the environmental, heritage, social and economic values of forested land.

As part of the RFA process within Western Australia, this study had two core objectives which were to (a) assess the environmental values held by the population within the West Australian RFA region in relation to the use of forest lands and (b) thematically map the spatial variation in attitudes and values throughout the West Australian RFA region. Survey research was used in identifying the environmental values held by the population within the RFA region and information was obtained on:

(a)   demographic characteristics of the population;

(b)   employment characteristics;

(c)   attitudes towards environmental issues, including attitudes towards the management of native forests and the identification of changes to communities and families from a change in forest related industries;

(d)   the use of native forests, including their recreational use; and

(e)   the environmental values held by the population.

2.   SAMPLING PROCEDURES

2.1   SAMPLE SIZE

The study was based on a sample size of 1,100. A sample of this size permits considerable statistical confidence when making inferences from a sample to a single population. However, the sample size only allowed five sub regional samples to be drawn from the total population of the RFA region, with each regional sample having a maximum sample size of 220.

2.2   SAMPLE SELECTION

Simple random sampling was used to identify households from within the RFA region. As a telephone interview was to be used in undertaking the research the published white pages directory for Western Australia was used to randomly select household phone numbers. There were two alternative approaches to sampling households from within the geographic area of interest.

One alternative was to randomly select, using simple random sampling, 1,100 households from the complete published list of residential phone numbers. Using this procedure, each household within the RFA region would have had an equal probability of selection, however, the sample would have been based predominantly on the more urban and higher population density areas of outer Metropolitan Perth. As the objective of this study was to identify environmental, land use and forest values across the population of the RFA region, and to identify regional differences in these values, it was important that the sampling methodology enabled regional differences to be identified and distinguished between the rural and more urban populations from within this geographic area.

The second alternative, which was adopted in the present study, was based on the random selection of households from within five regional areas. The five regional areas were defined on the basis of the percentage of the population within 1991 Census Collector Districts (CCDs) that were employed within forestry and agricultural industries. Contiguous areas with similar percentages of the population employed within forestry and agriculture were then used to define the five regional sectors used in this study (Table 2.1 and Figure 1). Essentially this approach stratified the population on the basis of residence within CCD areas with varying levels of employment in the agriculture and forestry industries, but at the same time constrained the stratification to contiguous geographic areas.

Table 2.1
Geographic stratification of survey sample within the West Australian RFA region

Aggregation of Census Collector District Values (1991)	Number of Private Dwellings	Percentage in Forestry & Agric.
Urban	17864	2.84
Central	8656	11.25
Eastern	3672	52.17
Margaret River	4611	20.39
Southern Forests	8452	26.69
Total WA RFA region	43255	22.68
Total Western Australia	549,902	8.91

Source: ABS (1991).
Prepared by: Environment & Behaviour (1997).

FIGURE 1. Location of Study Sectors

Percentage Employed in Agriculture and Forestry (1991 Census)

Percent	Sectors
52.17	Eastern
26.69	Southern Forests
20.39	Margaret River
11.25	Central
2.84	Urban

Environment & Behaviour (1997)
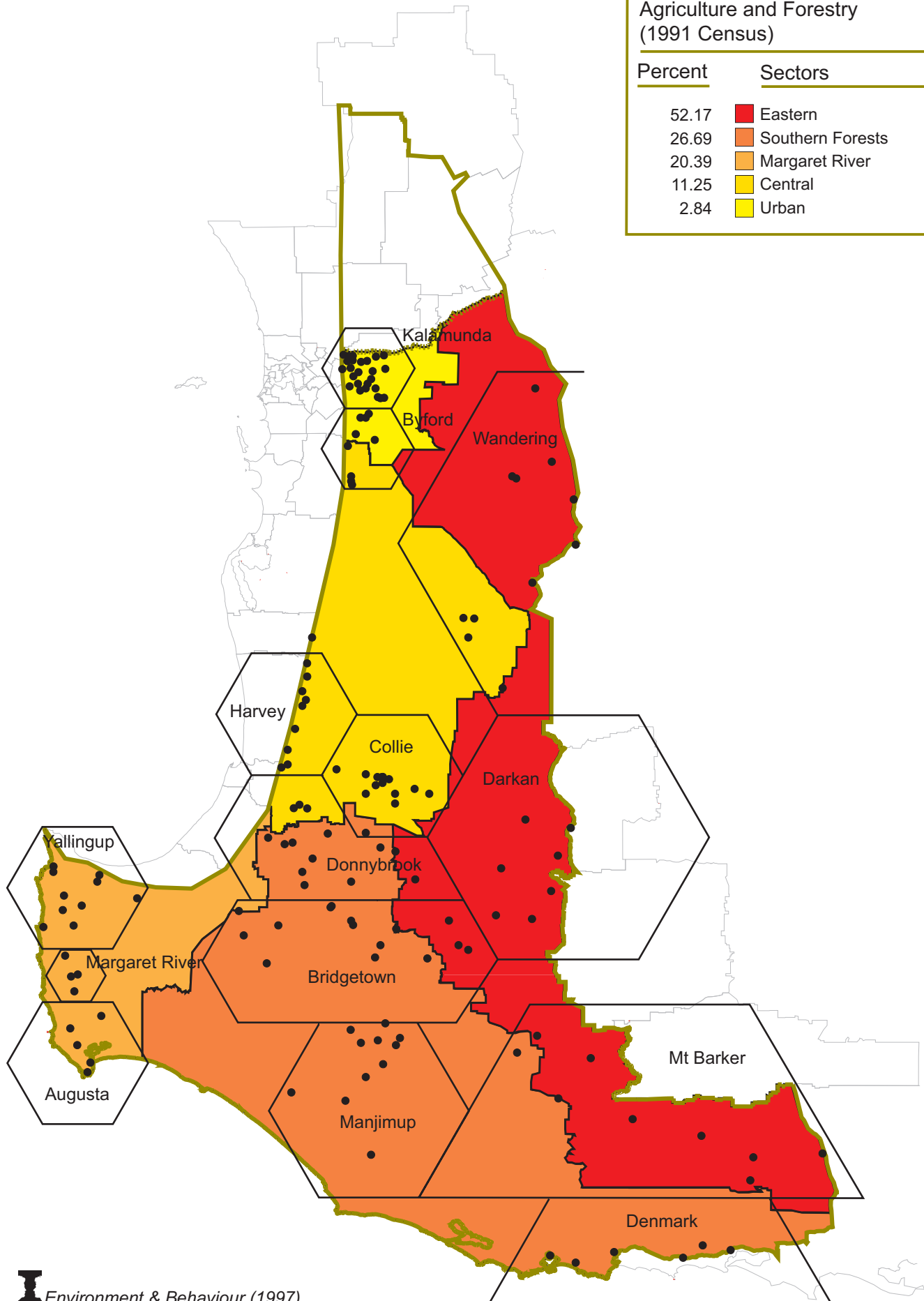
As the study was to be based on five regional sectors defined on the basis of CCD boundaries, each town, and all telephone numbers within the town, were allocated to one of the five geographic areas. Telephone numbers were then randomly sampled, using simple random sampling, from within each of the five sectors. Using this procedure, where simple random sampling occurs within each sector, the sample within each sector would be in proportion to the number of households within each town in each sector.

2.3   QUESTIONNAIRE DESIGN

The most important constraint on the design of the questionnaire was that it must be able to be completed through a telephone interview and that the maximum interview duration could be no longer than 15 minutes.

As required in the study brief, the questionnaire focused on the assessment of forest values throughout the community in the West Australian RFA region. Specific questions and items included in the questionnaire were derived from similar studies in Tasmania and Victoria and modified through West Australian stakeholder involvement to the West Australian context.

2.4   INTERVIEW PROCEDURES

Thirty-six telephone interviewers were used in the study. Each interviewer was supplied with a list of randomly selected telephone numbers in a random order and was required to systematically work through the list until the required number of interviews had been obtained. Interviewers were instructed to make up to three recalls on those telephone numbers which were not answered on the first occasion.

The list of telephone numbers supplied to each interviewer was randomly sorted and randomly selected from the total list of randomly selected telephone numbers from throughout the West Australian RFA region. This procedure minimized bias which may have occurred if interviewers used lists of telephone numbers from specific regional areas.

The interviewers were instructed, as far as they were able to judge, to obtain interviews with those respondents aged 15 years and over. Interviewers were required to record responses to all open-ended questions using, as far as practical, verbatim wording and to avoid classifying or coding such responses.

Interviews were completed between the 26th and 29th of September, 1997 between 6.00 pm and 8.00pm during the week and between 10.00am and 8.00pm during the weekend.

The final sample sizes for each of the five regional sectors is shown in Table 2.2.

Table 2.2
Final sample sizes for each regional sector

Sector sample	Size	Percentage
Urban	219	19.8
Central	225	20.3
Eastern	220	19.9
Margaret River	223	20.2
Southern Forests	219	19.8
Total sample	**1106**	**100.0**

Source: Environment & Behaviour (1997).

The sample sizes for each of the five sectors allowed for meaningful inferences to be made to the population within each sector. However, the total sample could not be used in generalising to the total population of residents within the West Australian RFA region, as each sector was not represented in proportion to the total population size. In order to infer sample statistics to population parameters the sample was proportionally adjusted to reflect the total population within each of the five sectors. As telephone numbers were used as the primary sampling unit, the proportional adjustment was based on the number of private dwellings within each sector, as each private dwelling could reasonably be assumed to have one telephone number. The sample was proportionally adjusted by taking the total sample for the Urban sector, which had the highest number of private dwellings, and proportionally adjusting the remaining four sectors relative to the sample size for this sector. Table 2.3 shows the sample proportions required for each sector relative to the Urban sector. On the basis of the derived proportions, the total sample for the Urban sector was used and proportionate random samples used to obtain the required number of respondents from each of the remaining four sectors. Table 2.3 shows the final sample size for the West Australian RFA region to be 534, which consisted of sub samples from each sector in proportion to the number of private dwellings within each sector.

Table headings in this report identify whether the table is based on the *WA RFA Sample*, as previously defined, or whether the table compares samples *Across the five sectors* and therefore makes use of the total sample.

Table 2.3
Sub sampling procedures for the WA RFA population sample

Sector	Private dwellings	Proportion	Sub sample size
Urban	17864	1.00	219
Central	8656	0.48	108
Eastern	3672	0.21	46
Margaret River	4611	0.26	58
Southern Forests	8452	0.47	103
Total	**43255**		**534**

Note: The number of private dwellings is based on ABS (1991) census data for each of the five sectors. The relative proportion is given relative to the Urban sector, which has the highest number of private dwellings. Sub sample sizes are defined relative to the total sample size for the Urban sector.
Source: Environment & Behaviour (1997).

2.5   STATISTICAL ANALYSIS AND MAPPING

As random sampling was used, inferential statistics are used where appropriate to test for significant differences. For the most part chi-square tests of significance are used to identify differences in response percentages across the five regional sectors.

In many instances multiple response analysis is used in developing single frequency tables where several responses have been permitted to a specific question. As one respondent may provide several responses to one question, each of the responses are identified in the table and the respondent counted against each response. As such the columns in multiple response tables cannot be summed as the rows are not independent. Summing column percentages in multiple response tables will often yield percentage totals in excess of 100%, indicating that the same respondent has been included in multiple rows of the table. Where a multiple response analysis has been used it is indicated in the footnote to the table.

A series of thematic maps are provided to illustrate additional regional variations in many of the responses. These maps should only be used in identifying general spatial trends and should not be used in the analysis of highly specific geographic regions. In several instances small sample sizes for specific towns clusters lower the confidence through which inferences from sample to population values can be made. Nevertheless the thematic maps and associated tables which are presented allow for general patterns and trends to be identified within the survey data throughout the West Australian RFA region.

3.   RESPONDENT CHARACTERISTICS

3.1   GENDER

Table 3.1 shows the percentage of male and female respondents for the total sample and a comparison with the percentage of males and females identified in the 1991 population census for census collector districts within the West Australian RFA region. In comparison to census values, and not withstanding that the census was undertaken six years prior to this survey, the sample counts for males and females is within 5% of population counts.

Table 3.1
Comparison of sample and census gender percentages (Total sample)

Gender	Sample		Census (1991)	
	Frequency	**Percent**	**Count**	**Percent**
Male	496	45.6	78,303	50.7
Female	591	54.4	76,126	49.3
Total	**1087**	**100.0**	**154,429**	**100.0**

Note: *Gender was not recorded for 19 respondents in the sample.*
Source: *Environment & Behaviour (1997).*

While Table 3.1 is based on the total sample, Table 3.2 shows the same information in relation to gender percentages, but is based only on the derived West Australian RFA sample. This sub sample, which is a more accurate reflection of population values as regional differences in the sample size have been adjusted, shows very reliable estimates of age within the population of the WA RFA region, with sub sample counts being within 3% of population counts.

Table 3.2
Comparison of sample and census gender percentages (WA RFA sample)

Gender	Sample		Census (1991)	
	Frequency	**Percent**	**Count**	**Percent**
Male	247	47.0	78,303	50.7
Female	278	53.0	76,126	49.3
Total	**525**	**100.0**	**154,429**	**100.0**

Note: *Gender was not recorded for nine respondents in the sample.*
Source: *Environment & Behaviour (1997).*

A comparison of the percentage of males and females across the five regional sectors indicated no statistically significant differences across sectors in relation to gender.

3.2   AGE OF RESPONDENTS

Table 3.3 shows the age of respondents within the WA RFA sample and compares percentages within age ranges between the 1991 census and the sample. This Table indicates that, with the exception of the 15-24 year old age range, the sample ages are within five percent of census percentages for the same age ranges. In the case of the 15-24 year old age group, the current sample undercounts this group by 6.3%.

Table 3.3
A comparison of percentages within defined age ranges between Census (1991) and sample (WA RFA sample)

Age Range	Census (1991) Count	Census Percent	Sample Count	Sample Percent	Sample-Census Discrepancy
15-19	12589	11.07	25	4.74	6.33
20-24	9844	8.66	25	4.74	3.92
25-29	9848	8.66	32	6.07	2.59
30-34	12200	10.73	45	8.54	2.19
35-39	13219	11.62	54	10.24	1.38
40-44	13193	11.60	82	15.56	3.96
45-49	10155	8.93	54	10.25	1.32
50-54	7839	6.89	59	11.20	4.31
55-59	6420	5.65	35	6.64	0.99
60-64	5685	5.00	34	6.45	1.45
65-69	4557	4.01	23	4.36	0.35
70-74	3283	2.89	29	5.50	2.61
75-79	2535	2.23	16	3.04	0.81
80-84	1430	1.26	11	2.09	0.83
85-89	657	0.58	2	0.38	0.20
90+	261	0.23	1	0.19	0.04
Total	113715	100.00	527	100.00	

Note: *This table shows census data for the population aged 15 years and over as the minimum age for respondents in the sample was 15 years. The mean age for the sample was 46.18 years, with a standard deviation of 16.43 years.*
Seven respondents did not report their age

Source: *EBC (1997).*

A comparison of the mean age of respondents across the five sectors indicated no significant differences in mean ages across sectors.

3.3 LENGTH OF RESIDENCE

Table 3.4 shows the number of years the respondent has been resident at their current address. This table shows that 18%, had been resident at their current address for between one and five years and that a further 21% had been resident at their current address for between six and 10 years.

Table 3.4
"How many years have you lived in the area?" (WA RFA sample)

Years	Frequency	Percent
1-5	97	18.3
6-10	109	20.6
11-15	73	13.8
16-20	76	14.4
21-25	27	5.1
26-30	39	7.4
31-35	23	4.3
36-40	21	4.0
41-45	16	3.0
46-50	15	2.8
51-55	7	1.3
56-60	6	1.1
61-65	3	0.6
66-70	4	0.8
71-75	6	1.1
76-80	4	0.8
81 +	3	0.6
Total respondents	**503**	**100.0**

Note: *Where a respondent reported that they had been resident in the area all their life, their age was used in assessing length of residence. The mean length of residence was 19.8 years, with standard deviation of 17.2 years.*
Five respondents did not respond to this question.
Source: *EBC (1997).*

A comparison of the mean length of residence across the five sectors showed no significant difference in the length of residence within each sector.

All respondents were asked if they had always lived in the area or if they had moved to the area. Table 3.6 shows that across the WA RFA sample, 81% of the sample had moved to the area in which they now live, while only 19% considered themselves as always having lived in the area.

Table 3.6
"Have you always lived in the area?" (WA RFA sample)

Response	Frequency	Percent
Always lived in the area	101	19.1
Moved to the area	428	80.9
Total respondents	**525**	**100.0**

Note: *Nine people did not respond to this question*
Source: *EBC (1997).*

If those respondents who have always lived in the area and those who moved to the area are compared across each of the five sectors, 89% of respondents within the Urban sector indicated they moved to this area, as compared to 66% in the Eastern sector (Table 3.7).

Table 3.7
"Have you always lived in the area?" (Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Always lived in area	49	23	74	56	44
	22.0	*10.6*	*33.9*	*26.0*	*20.0*
Moved to area	174	193	144	159	176
	78.0	*89.4*	*66.1*	*74.0*	*80.0*
Total respondents	**223**	**216**	**218**	**215**	**220**
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: Numbers in italics are percentages.
A statistically significant association exists between sector and length of residence, $X^2(4)=36.1, p<.05$
Source: EBC (1997).

Amongst those respondents who indicated they had moved to the area, Table 3.8 shows that within the WA RFA sample, 34% had moved to the area for family reasons and that 33% had moved to the area for work related reasons.

Table 3.8
Reasons for moving to area (WA RFA sample)

Reasons	Frequency	Percent
Family related	140	33.9
Work related	138	33.4
Lifestyle	112	27.1
Economic	23	5.6
Retirement	17	4.1
Environment	10	2.4
Personal	2	0.5
Other reasons	10	2.4
Total respondents	**428**	**100.0**

Note: Based on only those respondents who indicated they had moved to the area (Table 3.6).
This is a multiple response question.
Source: EBC (1997).

A comparison of reasons for moving to their current place of residence was undertaken using the top three categories in Table 3.8 (family, work related and lifestyle reasons), across the five sectors (Table 3.9). The most notable percentages in this table are the relatively large percentages within the Urban sector that have moved to the area for family related reasons and the relatively large percentage of the population that has moved to the Margaret River area for reasons of lifestyle.

Table 3.9
"Why did you move to the area?" (Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Family related	57	70	59	49	46
	37.3	*46.7*	*43.1*	*35.5*	*32.4*
Work related	71	45	58	57	43
	46.4	*30.0*	*42.3*	*41.3*	*30.3*
Lifestyle	43	49	33	46	64
	28.1	*32.7*	*24.1*	*33.3*	*45.1*
Total respondents	**153**	**150**	**137**	**138**	**142**
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: Numbers in italics are percentages.
This is a multiple dichotomy analysis. As this table is a multiple dichotomy analysis, where cells are not independent no statistical tests of significance are appropriate.
Source: EBC (1997).

Table 3.10 shows that 75% of the sample indicated they would likely stay in the area for the rest of their lifetime, indicating a strong sense of attachment to both community and environment.

Table 3.10
"How many years do you think you will stay in the area"? (WA RFA sample)

Response	Frequency	Percent
Less than their lifetime	128	25.1
Rest of their life	381	74.9
Total respondents	**489**	**100.0**

Note: Twenty-five respondents did not respond to this question.
Source: EBC (1997).

A comparison of likely length of stay in the area across the five sectors (Table 3.11) indicated that the population of the Margaret River sector in particular, but also including the Eastern and Southern Forest sectors, were most likely to indicate they would be staying in the area for the rest of their lifetime when compared to either the Central or Urban sectors.

Table 3.11
"How many years do you think you will stay in the area"? (Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Less than their lifetime	66	68	40	40	27
	31.1	*32.4*	*19.0*	*19.3*	*12.7*
Rest of their life	146	142	171	167	186
	68.9	*67.6*	*81.0*	*80.7*	*87.3*
Total respondents	**212**	**210**	**211**	**207**	**213**
	100.0	***100.0***	***100.0***	***100.0***	***100.0***

Note: Numbers in italics are percentages.
          A statistically significant association exists between sector and length of residence, $X^2(4)=34.8, p<.05$
Source: EBC (1997).

3.4   COMMUNITY ATTACHMENT

While length of residence in the area and willingness to spend the rest of their life in an area maybe considered general indicators of community attachment, the questionnaire included three specific measures of attachment to community. These three scales were taken from a scale of community attachment used by Buckner.

The three scales are shown in Table 3.12. A reliabilities analysis, which indicates the extent of inter-item agreement across the three scales indicated the three scales were highly correlated and could be used as a composite index (Cronbach's Alpha 0.85).

Table 3.12
Three scales of community attachment

Scale Items	Mean Score	Standard Deviation
Living in this area gives me a sense of community	1.80	0.62
I feel that I belong to the community in which I live	1.73	0.62
The friendships I have with other people in my community mean a lot to me	1.61	0.60
Composite Index	**1.71**	**0.54**

Note: Agreement with each item was assessed on a four point scale, with anchors (1) strongly agree and
          (4) strongly disagree.
Source: EBC (1997).

Some indication of the validity of the composite scale in assessing community attachment is shown in Table 3.13, where length of anticipated stay in the area is significantly related to the composite index of community attachment. In this case, and as shown in Table 3.13, respondents who indicated they would stay in the community for the rest of their lifetime also reported higher levels of community attachment than respondents who indicated they would stay in the community less than their lifetime.

Table 3.13
The relationship between community attachment and length of stay in the area

Response	Mean Score	Standard Deviation
Less than their lifetime	1.85	0.56
Rest of their life	1.64	0.51
Overall Composite Score	**1.71**	**0.54**

Note: The higher the mean score (1) the higher the level of attachment to community, $t(1040)=5.5$, $p<.05$
Source: EBC (1997).

Although only three items have been used to form the composite index of community attachment, Table 3.13 does appear to indicate that the composite index has some face validity.

Table 3.14 shows the Central and Urban sectors and the Southern Forest and Urban sectors are significantly different in their levels of attachment to community, with both the Central and Southern Forest areas having higher levels of community attachment when compared to the Urban sector.

Table 3.14
The relationship between community attachment five regional sectors

Sector	Mean Score	Standard Deviation	Sample Size
Central	1.61	0.53	223
Southern Forest	1.67	0.51	215
Eastern	1.71	0.46	217
Margaret River	1.72	0.56	216
Urban	1.84	0.59	219

Note: The higher the mean score (1) the higher the level of attachment to community, $F(4,1089)=5.48$, $p<.05$ Tukeys post-hoc test indicates a significant difference between urban and central and between urban and southern forest sectors.
Source: EBC (1997).

Table 3.15 provides some indication of the level of community attachment within several major towns in the RFA region. Some caution should be used in interpreting this table where the index of community attachment is based on low sample sizes. The table indicates high levels of community attachment across all towns within the RFA region, with the exception that Armadale has significantly lower levels of community attachment when compared to the towns of Collie, Harvey and Margaret River.

Table 3.15
Community attachment and major towns in the WA RFA region

Sector	Mean Score	Standard Deviation	Sample Size
Harvey	1.52	0.49	30
Kalamunda	1.61	0.46	26
Bridgetown	1.63	0.51	20
Collie	1.64	0.55	61
Denmark	1.64	0.56	31
Margaret River	1.64	0.52	89
Mt Barker	1.67	0.47	61
Manjimup	1.68	0.51	52
Byford	1.69	0.58	32
Darkan	1.69	0.46	24
Boyup Brook	1.72	0.49	40
Augusta	1.75	0.65	30
Donnybrook	1.92	0.39	21
Armadale	1.98	0.67	61
Lesmurdie	1.98	0.55	31

Note: The higher the mean score (1) the higher the level of attachment to community, $F_{(14,594)}=2.47, p<.05$
        Tukeys post-hoc test indicates a significant difference between Armadale and the towns of Collie, Harvey
        and Margaret River.
Source: EBC (1997).

That the towns of Armadale and Lesmurdie have lower levels of community attachment than many of the other towns in the RFA region indicates that the levels of attachment to community maybe higher in rural towns when compared to the more urban centres and towns. Table 3.16 is shown to illustrate levels of community attachment in many urban localities throughout Metropolitan Perth. Although the information presented in Table 3.16 is based on a composite index of community attachment derived from 18 specific items, rather than three as has occurred in the present study, there is an indication that the more rural townships have higher levels of attachment to community than urban townships.

In addition to undertaking a geographical analysis of community attachment in relation to specific towns within the RFA area, a comparison was also made of the levels of community attachment across different sectors of the population who indicated that either they or other members of their household were employed in the timber, tourism, mining, beekeeping, seed or wildflower collection industries. This analysis indicated no significant variation in community attachment across different industry groups and between industry groups and the general population.

Table 3.16
Comparative analysis of community attachment scores to other LGAs and suburbs of Metropolitan Perth

Suburbs or Local Authorities	Mean Score
Applecross	2.02
Ardross	2.08
Bicton	2.10
Melville	2.12
Attadale	2.14
Alfred Cove	2.22
Palmyra	2.27
Mt Pleasant	2.27
Myaree	2.29
Brentwood	2.31
Booragoon	2.47
Kenwick	2.51
Huntingdale	2.51
Manning	2.51
Mt Hawthorn	2.53
Thornlie	2.54
Waterford	2.55
South Perth	2.56
Northbridge	2.58
Gosnells	2.63
Salter Point	2.63
Hamilton Hill	2.64
Kensington	2.65
Como	2.66
Leederville	2.68
Kwinana	2.70
Beckenham	2.72
Langford	2.75
Maddington	2.75
Highgate	2.75
Karawara	2.85

Note: The lower the score (1) the higher the level of community attachment..
Source: Score for community attachment were obtained from six studies:
         Environment & Behaviour (1992). Community Service Needs in the Town of Kwinana. Report prepared for the Town of Kwinana.
          Environment & Behaviour (1992). Sport and Recreation Needs Study. Report prepared for the City of South Perth.
         Environment & Behaviour (1992). Social Infrastructure Study. The Redevelopment of Homeswest Landholdings in Hamilton Hill. report prepared for Homeswest.
         Environment & Behaviour (1992). A Community Place Feasibility Study: Report prepared for the City of Perth.
         Environment & Behaviour (1991). Perceptions of Residential Planning in the City of Melville. Report prepared for the City of Melville.
         Environment & Behaviour (1991). Sport, Recreation and Leisure in the City of Gosnells. Report prepared for the City of Gosnells.

3.5   PROXIMITY TO NATIVE FORESTS

Table 3.17 indicates the proximity of native forests to the respondents place of residence. Within the the population of the West Australian RFA an estimated 92% of the population indicated that native forests were within fifty kilometers of their home.

Table 3.17
"Are there any areas of native forest within 50 kilometers of your home?" (WA RFA Sample)

Response	Frequency	Percent
No	42	7.9
Yes	490	92.1
Total respondents	**532**	**100.0**

Note: Two respondents did not respond to this question.
Source: EBC (1997).

As might be expected there were significant variations across sectors in the proximity of native forests to the respondents place of residence (Table 3.18). In the Southern Forests, 95% of residents indicated that native forests were within fifty kilometers of their home, while in the Eastern Sector 82% indicated that native forests were within fifty kilometers of their home.

Table 3.18
"Are there any areas of native forest within 50 kilometers of your home?"
(Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
No	26	13	40	8	11
	_11.7_	_5.9_	_18.2_	_3.7_	_4.9_
Yes	_197_	_206_	_180_	_210_	_212_
	_88.3_	_94.1_	_81.8_	_95.1_	_81.7_
Total respondents	**223**	**219**	**220**	**218**	**223**
	_**100.0**_	_**100.0**_	_**100.0**_	_**100.0**_	_**100.0**_

Note: Numbers in italics are percentages.
           A statistically significant association exists between sector and proximity of native forests, $X^2(4)=39.6, p<.05$
Source: EBC (1997).

3.6   INVOLVEMENT IN FOREST PLANNING AND MANAGEMENT

Each respondent was asked if they had been involved in forest planning and management during the last year. As indicated in Table 3.19, 18% of the population considered themselves to have been involved in forest management, planning or protection in Western Australia.

Table 3.19
"Have you ever had any involvement in forest management, planning or protection in Western Australia?" (WA RFA sample)

Response	Frequency	Percent
No	437	81.8
Yes	97	18.2
Total respondents	**534**	**100.0**

Source: EBC (1997).

Of the 97 respondents who indicated an involvement in forest management, planning or protection in Western Australia (Table 3.19), 86 of these respondents also indicated the type of involvement they have had (Table 3.20).

Table 3.20
"What type of involvement have you had?" (WA RFA Sample)

Response	Frequency	Percent
Community groups and organisations (inc. protest and action)	29	33.8
Industry groups and actions	21	24.4
Voluntary	17	19.8
Government agencies	10	11.6
Replanting programs	9	10.5
Total respondents	**86**	**100.0**

Note: *Eleven respondents did not respond to this question.*
Source: *EBC (1997).*

3.7 EMPLOYMENT IN FOREST INDUSTRIES

Respondents were asked if they, or any members of their household, were employed in the timber, tourism, mining, beekeeping, seed or wildflower collection industries. Table 3.21 shows that within the WA RFA sample 13% of respondents were themselves or had members of their household employed in the mining industry, while 10% were employed in the timber industry.

Table 3.21
"Are you, or any members in your household employed in the timber, tourism, mining, beekeeping, seed or wildflower collection industries?" (WA RFA sample)

Response	Frequency	Percent
Mining	67	12.7
Timber	50	9.5
Tourism	43	8.1
Wildflower	8	1.5
Seed collection	7	1.3
Beekeeping	5	0.9
None of these industries	363	68.6
Total respondents	**508**	**100.0**

Note: *This is a multiple dichotomy table.*
Source: *EBC (1997).*

A comparison of respondent or household employment in the mining, timber and tourism industries across the five sectors (Table 3.22), shows a high percentage of mining employees in the Central sector (68%), the percentage timber industry employees being highest in the Eastern (50%) and Southern Forests (51.4%) and the highest percentage of tourism industry employees occurring in the Margaret River sector (52%).

Table 3.22
"Are you, or any members in your household employed in the timber, tourism, mining, beekeeping, seed or wildflower collection industries"? (Across the five sectors)

Industry Household	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Mining	56	25	6	17	12
	67.5	*53.2*	*20.0*	*23.6*	*20.0*
Timber	*24*	*9*	*15*	*37*	*22*
	28.9	*19.1*	*50.0*	*51.4*	*36.7*
Tourism	13	14	9	22	31
	15.7	*29.8*	*30.0*	*30.6*	*51.7*
Total respondents	**83**	**47**	**30**	**72**	**60**
	100.0	***100.0***	***100.0***	***100.0***	***100.0***

Note: *Numbers in italics are percentages.*
This is a multiple dichotomy table.
Source: *EBC (1997).*

4. VALUE ORIENTATIONS

Given that the survey was based on telephone interviews with respondents, the most appropriate method for identifying specific value orientations was through the use of belief statements. Ten belief statements were used to identify the value orientations of respondents and were based on previous survey research in Tasmania and Victoria and through direct consultations with stakeholders in Western Australia. It is recognised that additional belief statements would be required in order to identify more specifically the value orientations of the general population, however time constraints associated with telephone interviews and the requirement to accommodate stakeholder issues, precluded the use of additional statements in the survey. Nevertheless, it is argued that the belief statements that have been used provide general indicators to the value orientations held by the general community within the survey area.

While the percentage of agreement with each belief statements has been analyzed, it must be recogised that many of the belief statements are related and measure a common underlying theme. Inter-correlations across all 10 belief statements indicated three common themes, where the belief statements within each theme were correlated and yet uncorrelated or independent of the belief statements within other themes.

Three themes were identified when the inter-correlations amongst belief statements were analyzed. The three themes have been identified as (i) environmental concern, (ii) intrinsic values or beliefs and (ii) value conflict (Tables 4.1 and 4.2). The following analysis is based on the analysis of the three separate themes.

The analysis of the belief statements and the three themes shows a consistent pattern of response amongst the population within the RFA region which distinguishes respondents from the Urban and Margaret River sectors from those respondents within the Central, Eastern and Southern Forest sectors. In particular, the level and pattern of environmental concern was found to be different across these sectors, with the Margaret River and Urban sectors showing higher levels of environmental concern than the remaining sectors, although the type of environmental concern was focused almost singularly on issues related to the logging and use of native forests by the timber industry. However, within the Southern Forest sector and amongst households with members employed in the timber industry, there was less concern about the use of native forests, with the type of concerns, when reported, being far more diverse than those reported by the populations within the Margaret River and Urban sectors.

It is probable that the differences in value orientation observed between the Urban and Margaret River sectors and the Southern Forest sector maybe due to differences in the level of contact and knowledge of forest related issues, with the Urban and Margaret River sectors more reliant on media representations of the forest debate than the population in the Southern Forest, who have greater direct contact with native forests and the use of native forests.

In addition to the three themes which were identified from responses to each of the belief statements, two additional statements were also included, which identified the perceived dependency of the area in which the respondent was resident on the tourism industry and the timber and logging industry.

Table 4.1
Summary of Social Value Scales: Percentage Agreement with Social Values

Statement	Mean Score	Standard Deviation	Percent Agree	Percent Disagree
ENVIRONMENTAL CONCERN				
I am not confident that native forests are being well managed in WA	2.08	0.92	65.9	34.1
Better laws are needed to protect the use of native forests	1.93	0.79	77.6	22.4
I am very concerned about the management and use of native forests in WA	1.85	0.81	79.9	20.1
People who access native forests should have more say in how forests are managed	2.12	0.72	73.9	26.1
Composite Scale *(Alpha=0.79)*				
INTRINSIC VALUE				
Trees are important for their own sake	1.52	0.57	96.7	3.3
The balance of the forest ecosystem is very delicate	1.55	0.62	94.7	5.3
One of the main reasons I live in this area is the natural beauty of the forest	1.92	0.83	76.8	23.2
Composite Scale *(Alpha=0.66)*				
VALUE CONFLICT				
I [do not] feel torn between the need for jobs and the need to preserve native forests in WA	2.65	0.84	42.4	57.6
The conservation and protection of native forests in WA will harm the WA economy	2.23	0.74	66.4	33.6
Composite Scale *(Alpha=0.42)*				
TOURISM DEPENDENCY				
Laws to protect native forests affect greatly	2.50	0.76	46.4	53.6
Tourism is very important in the area in which I live	1.89	0.73	81.4	18.6
Composite Scale *(Alpha=0.23)*				
TIMBER & LOGGING INDUSTRY DEPENDENCY				
The area in which I live is very dependent upon the timber and logging industry	2.80	0.84	27.9	72.1

Source: Environment & Behaviour (1997).

Table 4.2
Summary of Social Value Scales: Percentage Agreement with Social Values Across Sub-Regional Sectors

Value Scale	WA Region Percentage Agreement	Sub-Regional Sectors				
		Central	Urban	Eastern	Southern Forest	Margaret River
ENVIRONMENTAL CONCERN						
I am not confident that native forests are being well managed in Western Australia	65.9	*68.2*	*71.2*	*59.4*	*58.2*	*76.6*
Better laws are needed to protect the use of native forests	77.6	*77.3*	*85.0*	*73.3*	*68.7*	*79.9*
I am very concerned about the management and use of native forests in WA	79.9	*80.3*	*84.9*	*75.8*	*73.2*	*87.3*
People who access native forest should have more say in how forests are managed	73.9	77.7	76.9	73.7	69.9	74.5
Composite Index	**1.98**	**1.97**	**1.87**	**2.07**	**2.15**	**1.86**
INTRINSIC VALUE						
Trees are important for their own sake	96.7	98.7	96.3	98.1	94.9	96.8
The balance of the forest ecosystem is very delicate	94.7	95.0	96.8	95.0	93.0	93.7
One of the main reasons I live in this area is the natural beauty of the forest	76.8	*73.9*	*80.4*	*54.8*	*80.2*	*81.4*
Composite Index	**1.64**	**1.64**	**1.57**	**1.81**	**1.74**	**1.55**
VALUE CONFLICT						
I [do not] feel torn between the need for jobs and the need to preserve native forests in WA	42.4	*32.1*	*44.5*	*33.6*	*44.2*	*49.8*
The conservation and protection of native forests in WA will harm the WA economy	66.4	*60.6*	*71.2*	*61.2*	*64.8*	*73.4*
Composite Index Score	**2.44**	**2.57**	**2.41**	**2.53**	**2.37**	**2.31**
TOURISM DEPENDENCY						
Tourism is very important in the area in which I live	81.4	*72.6*	*78.5*	*66.8*	*92.2*	*96.4*
TIMBER & LOGGING INDUSTRY DEPENDENCY						
The area in which I live is very dependent upon the timber and logging industry	27.9	*39.0*	*16.5*	*23.7*	*58.9*	*13.1*
Laws to protect native forests affect me greatly	46.4	38.6	50.2	45.5	48.3	52.3

Note: Values in italics indicate a statistically significant difference across regional sectors. Composite index scores vary between 1.0 (high) and 4.0 (low) and are the mean of the items forming the index.

Source: Environment & Behaviour (1997).

4.1   ENVIRONMENTAL CONCERN

Table 4.3 shows that 66% of the population within the West Australian RFA sample believe that we are not managing our native forests very well.

Table 4.3
I am not confident that native forests are being well managed in Western Australia
(RFA sample)

Response	Frequency	Percent
Strongly Agree	166	32.1
Agree	175	33.8
Disagree	136	26.3
Strongly Disagree	40	7.7
Total	**517**	**100.0**

Note: 17 respondents did not respond to this question.
Source: Environment & Behaviour (1997).

Table 4.4 and Figure 2 show that the belief about how well native forests are being managed varies significantly across the five sectors. It is apparent that within the more urbanised and Margaret River sectors there is a relatively greater percentage (71% and 77%) of the population who do not think native forests are being well managed, when compared to the remaining sectors.

Table 4.4
"I am not confident that native forests are being well managed in Western Australia"
(Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Agree	146	153	123	121	167
	68.2	*71.2*	*59.4*	*58.2*	*76.6*
Disagree	68	62	84	87	51
	31.8	*28.8*	*40.6*	*41.8*	*23.4*
Total	214	215	207	208	218
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: In this analysis the response categories strongly agree and agree have been combined as has the response categories strongly disagree and disagree.
Numbers in italics are percentages.
A statistically significant association exists between sector and agreement with this question,
$X^2(4)=23.57, p<.05$.
Source: Environment & Behaviour (1997).

Table 4.5 identified whether the community saw a need for better laws to protect the use of native forests. As shown in this table, 78% of the population agreed with the need for better laws to protect the use of native forests.

Table 4.5
"Better laws are needed to protect the use of native forests"
(RFA sample)

Response	Frequency	Percent
Strongly Agree	179	35.0
Agree	218	42.6
Disagree	101	19.7
Strongly Disagree	14	2.7
Total	**512**	**100.0**

Note: 22 respondents did not respond to this question.
Source: Environment & Behaviour (1997).

FIGURE 2. "I am not confident that native forests are being well managed in Western Australia"

Percentage Agreement

Percent	Sample Areas
76.61	Margaret River
71.16	Urban
68.22	Central
59.42	Eastern
58.17	Southern Forests

Percent	Town Clusters
80.67	Margaret River
75.00	Augusta
73.91	Denmark
73.05	Kalamunda
70.34	Byford
68.00	Yallingup
66.67	Donnybrook
66.67	Collie
66.28	Mt Barker
62.82	Harvey
61.22	Darken
59.38	Bridgetown
55.88	Wandaring
40.26	Manjimup

Environment & Behaviour (1997)

22
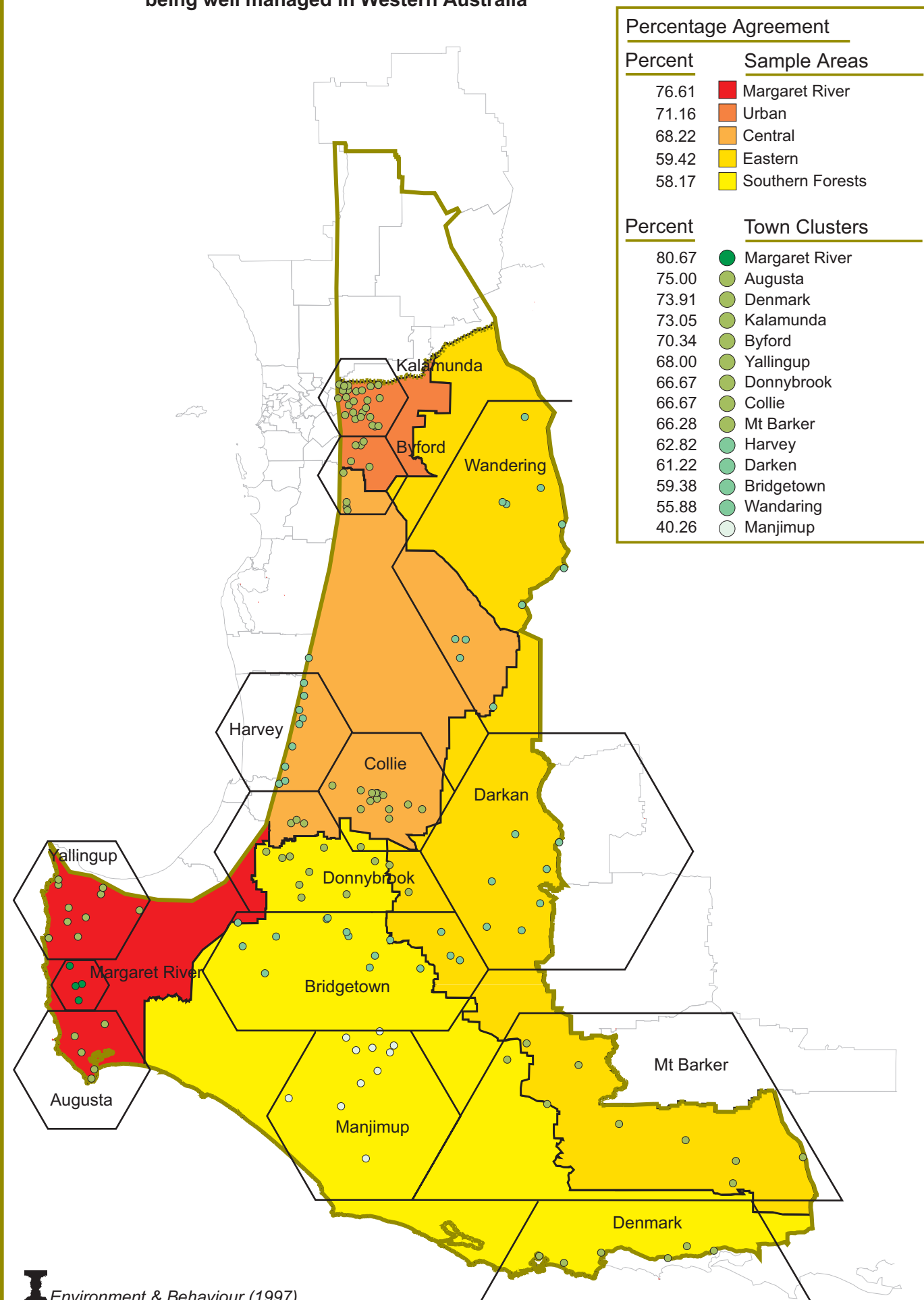
The need for better laws to protect native forests showed significant variation across the five sectors (Table 4.6 and Figure 3). As was the case with the previous analysis, the populations within the Urban and Margaret River sectors were again found to be significantly different from other sectors in relation to their agreement with this statement. Within the urban sector, 85% of the population saw a need for better laws to protect native forests and within the Margaret River sector 80% saw a need for better laws to protect native forests.

Table 4.6
"Better laws are needed to protect the use of native forests"
(Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Agree	167	182	151	145	175
	77.3	*85.0*	*73.3*	*68.7*	*79.9*
Disagree	49	32	55	66	44
	22.7	*15.0*	*26.7*	*31.3*	*20.1*
Total	**216**	**214**	**206**	**211**	**219**
	100.0	***100.0***	***100.0***	***100.0***	***100.0***

Note: *In this analysis the response categories strongly agree and agree have been combined as has the response categories strongly disagree and disagree.*
Numbers in italics are percentages.
A statistically significant association exists between sector and agreement with this question,
$X^2(4)=18.59, p<.05.$
Source: *Environment & Behaviour (1997).*

Table 4.7 identifies the level of concern respondents have about the management of native forests. It is estimated that 80% of the population within the RFA region express a high level of concern about the management of native forests.

Table 4.7
"I am very concerned about the management and use of native forests in
Western Australia" (RFA sample)

Response	Frequency	Percent
Strongly Agree	208	39.5
Agree	213	40.4
Disagree	89	16.9
Strongly Disagree	17	3.2
Total	**527**	**100.0**

Note: *Seven respondents did not respond to this question.*
Source: *Environment & Behaviour (1997).*

As with other belief statements associated with environmental concern, there was significant variation found across the five regional sectors in the level of concern about the management and use of native forests in Western Australia, with the highest levels of concern being expressed in the Urban and Margaret River sectors (Table 4.8 and Figure 4).

FIGURE 3. "Better laws are needed to protect the use of native forests"

Percentage Agreement

Percent	Sample Areas
85.05	Urban
79.91	Margaret River
77.31	Central
73.30	Eastern
68.72	Southern Forests

Percent	Town Clusters
91.30	Denmark
86.33	Kalamunda
84.17	Byford
81.67	Margaret River
79.59	Darkan
79.17	Yallingup
77.78	Donnybrook
76.00	Augusta
75.00	Collie
74.42	Mt Barker
72.73	Bridgetown
72.50	Harvey
69.70	Wandering
48.05	Manjimup

Environment & Behaviour (1997)
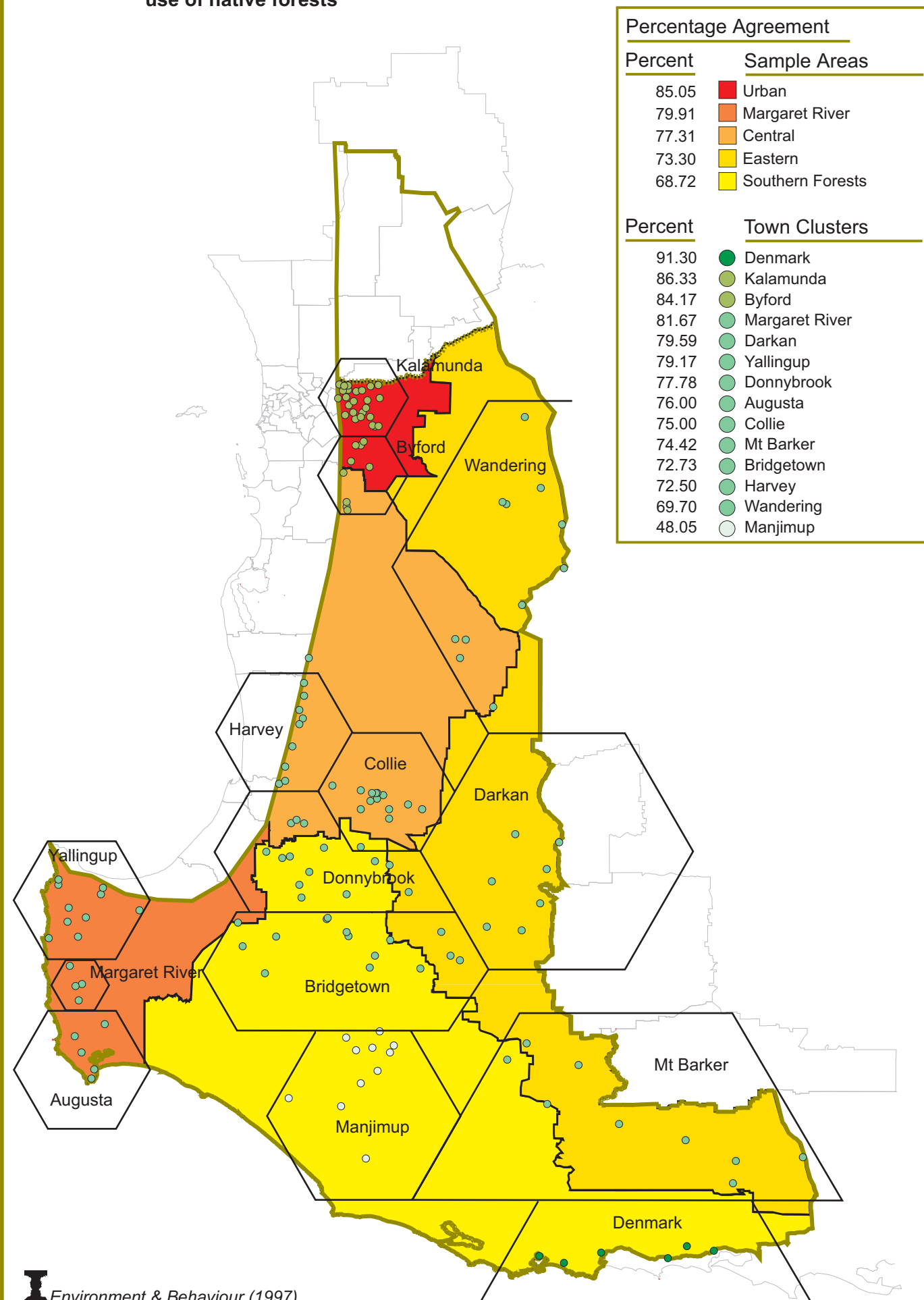
FIGURE 4. "I am very concerned about the management and use of native forests in Western Australia"

Percentage Agreement

Percent	Sample Areas
87.33	Margaret River
84.93	Urban
80.27	Central
75.81	Eastern
73.24	Southern Forests

Percent	Town Clusters
90.00	Margaret River
90.00	Yallingup
87.23	Denmark
86.89	Byford
84.72	Kalamunda
79.27	Harvey
78.00	Augusta
76.92	Darkan
76.70	Bridgetown
76.47	Wandering
76.14	Mt Barker
76.06	Collie
74.47	Donnybrook
60.00	Manjimup

Environment & Behaviour (1997)
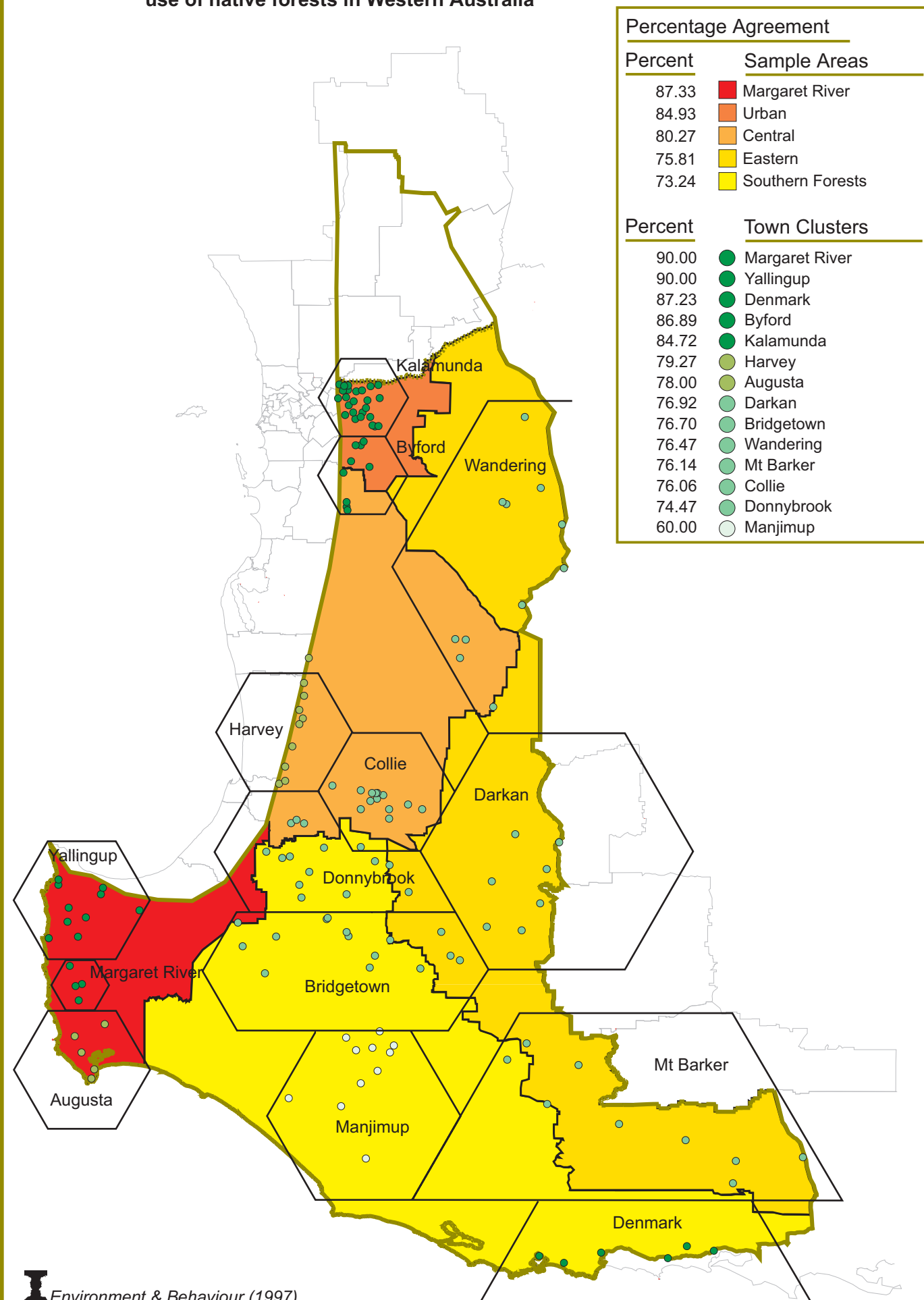
Table 4.8
"I am very concerned about the management and use of native forests in Western Australia"
(Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Agree	179	186	163	156	193
	80.3	*84.9*	*75.8*	*73.2*	*87.3*
Disagree	44	33	52	57	28
	19.7	*15.1*	*24.2*	*26.8*	*12.7*
Total	223	219	215	213	221
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: *In this analysis the response categories strongly agree and agree have been combined as has the response categories strongly disagree and disagree. Numbers in italics are percentages.*
       A statistically significant association exists between sector and agreement with this question,
       $X^2(4)=19.38, p<.05.$
Source: *Environment & Behaviour (1997)*

In relation to forest management there is often disagreement expressed within the community about the extent to which major forest users, including industry, should be involved in decision making. However, within the population of the RFA, Table 4.9 shows that 74%, or an estimated three-quarters of the population, believe that forest users should have more say in how forests are managed.

Table 4.9
"People who access native forests should have more say in how forests are managed"
(RFA sample)

Response	Frequency	Percent
Strongly Agree	84	16.2
Agree	298	57.6
Disagree	116	22.4
Strongly Disagree	19	3.7
Total	**517**	**100.0**

Note: *17 respondents did not respond to this question.*
Source: *Environment & Behaviour (1997).*

No significant differences in this item were observed across each of the five sectors within the West Australian RFA region.

A composite scale of environmental concern, based on the four scale questions was used as an indicator of environmental concern in the community. High inter-item correlations across the four items indicated that each question was measuring a similar underlying construct and therefore items could be summed to obtain to derive an overall measure of environmental concern. The validity of this scale was also examined by comparing each individuals score on the composite scale with a further question which asked, "Are there any places in Western Australia where the use of native forests has concerned you?". If the composite scale has any validity then it would be expected that the mean score on the composite concern scale would be higher amongst that group of respondents who indicated there were places in Western Australia where the use of native forests was of concern to them. Table 4.10 shows that the mean scores on the composite environmental concern scale differ significantly between the two groups of respondents who indicated there were, and there were not, native forests in WA of concern to them.

Table 4.10
A comparison of the environmental concern scale score with the identification of native forests of concern. (WA RFA Sample)

Are there places in WA where the use of native forests has concerned you?	Mean Environmental Concern Score	SD
No	2.28	0.63
Yes	1.73	0.53
Total	**1.98**	**0.64**

Note: *The two mean scores are significantly different, t(482)=6.84,p<.05*
           Low mean scores indicate greater environmental concern, (1) High to (4) Low.
Source: *Environment & Behaviour (1997).*

Table 4.11 shows the mean environmental concern score for the total population of the WA RFA and for three industry sub groups. Three three industry sub groups were defined as whether any household members were employed in each of the industries. It is clear from Table 4.11 that respondents from households with a household member employed in the tourism industry had the highest levels of environmental concern, while respondents from households with timber industry members had the lowest levels of environmental concern.

Table 4.11. A comparison of environmental concern scores across different industry sub groups.

Household Members Employed in Industry Sector	Mean Environmental Concern Score	SD
Timber	2.27	0.76
Tourism	1.82	0.62
Mining	1.94	0.61
WA RFA sample	**1.98**	**0.64**

Note: *Low mean scores indicate greater environmental concern, (1) High to (4) Low.*
           Seed collection, wildflower collection and beekeeping were not included due to low sample counts across the WA RFA population.
Source: *Environment & Behaviour (1997).*

Table 4.12 also shows differences across the three industry sub groups and the general population in their reported concern for areas of native forest in Western Australia, with tourism industry households again having the highest level of reported concern when compared to the timber and mining households.

Table 4.12. A comparison of concern for areas of native forests across different industry sub groups.

Household Members Employed in Industry Sector	Percent Concerned About Use of Native Forest	
	Yes	No
Timber	44.0	56.0
Tourism	67.4	32.6
Mining	44.8	55.2
WA RFA sample	**53.4**	**46.6**

Note: *Low mean scores indicate greater environmental concern, (1) High to (4) Low.*
           Seed collection, wildflower collection and beekeeping were not included due to low sample counts across the WA RFA population.
Source: *Environment & Behaviour (1997).*

One of the difficulties with a single measure or scale of environmental concern is that differences across sub groups in the population may be similar and yet there maybe different issues of concern across the sub groups. Table 4.13 shows the type of issues of concern to the population within the WA RFA sample and a comparison between those households in the sample within individual members employed in the timber, tourism and mining industries.

Table 4.13 suggests that within the population of the WA RFA region concern about the use of native forests is focused singularly on issues associated with logging and wood chipping, with an estimated 83.5% of the population who did indicate concern about native forests in Western Australia focused on this core issue. While issues associated with logging and wood chipping was also the primary issue amongst tourism households, the pattern amongst those households with timber industry employees was very different. Where respondents came from households with timber industry employees, a third of respondents reported concerns about logging and wood chipping, however, the range of issues of concern was considerably more variable than either the WA RFA sample or tourism and mining household sub samples. Respondents from timber industry households also reported issues of concern focusing on general issues of forest degradation, mining activities, the need to rehabilitate forest areas and problems associated with reforestation of areas with pine plantations. The increased variability of issues of concern amongst respondents from timber industry households, is probably due to greater contact and knowledge of native forests and forest related activities, while the singular concern about logging and wood chipping in native forest amongst the general population is probably more likely due to media representations of forest and forest industry issues and activities. In the case of respondents from tourism industry households, it is argued that the high concern about logging and wood chipping maybe due to this industries need to `present' or `market' native forests to the general community in such a way that it encourages tourism activity in forest areas. To the tourism industry, logging and wood chipping of native forests may conflict with the representation of native forests that the tourism industry would wish to convey.

Table 4.13
Issues of concern about the use of native forests in Western Australia

Issue	WA RFA Sample	Households Timber	Tourism	Mining
Logging and wood chipping	234	8	25	21
	83.5	36.4	86.2	70.0
Forest degradation (general)	34	5	4	4
	12.2	22.7	13.8	13.3
Forest management and planning	11	2	0	2
	4.0	9.1	0.0	6.7
Mining activity	16	3	1	2
	5.8	13.6	3.4	6.7
Dieback	13	0	0	0
	4.7	0.0	0.0	0.0
Need to rehabilitate forest areas	11	4	1	0
	4.0	18.2	3.4	0.0
Reforestation with pine	5	5	1	3
	1.8	22.7	3.4	10.0
Green vs industry conflict	5	1	0	1
	1.8	4.5	0.0	3.3
Tourism and recreational use	9	1	0	1
	3.2	4.5	0.0	3.3
Urban development/ land acquisition	10	2	5	2
	3.6	9.1	17.2	6.7
Lack of public access	3	1	1	0
	1.1	4.5	3.4	0.0
Use of fire and fire control	19	2	0	0
	6.8	9.1	0.0	0.0
Public firewood collection	3	1	1	2
	1.1	4.5	3.4	6.7
Erosion and salination	3	1	0	0
	1.1	4.5	0.0	0.0
Other	19	1	1	1
	6.8	4.5	3.4	3.3
Total Respondents	**278**	**90**	**90**	**90**
	100.0	*100.0*	*100.0*	*100.0*

Source: Environment & Behaviour (1997).

4.2 INTRINSIC VALUES

High inter-correlations were found across three belief statements included within the questionnaire and appeared to measure a general dimension associated with the intrinsic value of native forests. The most significant statement within this group of items, was the belief that, "trees are important for their own sake". In relation to this item and as shown in Table 4.14, 92% of the population within the RFA region agreed with this statement, there being no significant differences across populations within the five sectors.

Table 4.14
"Trees are important for their own sake" (RFA sample)

Response	Frequency	Percent
Strongly Agree	290	55.0
Agree	220	41.7
Disagree	13	2.5
Strongly Disagree	4	0.8
Total	**527**	**100.0**

Note: Seven respondents did not respond to this question.
Source: Environment & Behaviour (1997).

The belief that "the balance of a forest ecosystem is very delicate" also appeared to form a component of the intrinsic value scale, with 95% of the population within the RFA region agreeing with this statement (Table 4.15), and there again being no regional differences in agreement with this statement.

Table 4.15
"The balance of a forest ecosystem is very delicate" (RFA sample)

Response	Frequency	Percent
Strongly Agree	273	51.7
Agree	227	43.0
Disagree	23	4.4
Strongly Disagree	5	0.9
Total	**528**	**100.0**

Note: Six respondents did not respond to this question.
Source: Environment & Behaviour (1997).

Table 4.16 shows that in relation to the aesthetic qualities of forest areas, 77% of the population indicated they lived in the area because of the natural beauty of the forest.

Table 4.16
"One of the main reasons I live in this area, is the natural beauty of the forest"
(RFA Sample)

Response	Frequency	Percent
Strongly Agree	193	36.5
Agree	213	40.3
Disagree	108	20.4
Strongly Disagree	15	2.8
Total	**529**	**100.0**

Note: Five respondents did not respond to this question.
Source: Environment & Behaviour (1997).

Table 4.17 and Figure 5 shows that there are differences across sectors in the level of agreement with this statement. However, it is probable that differences observed in Table 4.17 are due to the proximity of native forests to the respondents place of residence.

Table 4.17
"One of the main reasons I live in this area, is the natural beauty of the forest"
(Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Agree	164	176	119	174	180
	73.9	*80.4*	*54.8*	*80.2*	*81.4*
Disagree	58	43	98	43	41
	26.1	*19.6*	*45.2*	*19.8*	*18.6*
Total	222	219	217	217	221
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: *In this analysis the response categories strongly agree and agree have been combined as has the response*
categories strongly disagree and disagree.
Numbers in italics are percentages.
A statistically significant association exists between sector and agreement with this question,
$X^2(4)=56.94, p<.05.$
Source: *Environment & Behaviour (1997).*

Given that there is probably some locational variation associated with the item reported in Tables 4.16 and 4.17 which is due simply to the proximity of forest areas to the respondents place of residence, a composite scale of intrinsic value was derived based on the two items reported in Tables 4.14 and 4.15.

The use of the composite scale of intrinsic forest values indicated that the greater the level of intrinsic value of forest areas, the greater the probability that the respondent would be concerned about native forests in Western Australia. This is shown through a significant positive correlation between the composite concern scale and the intrinsic value scale ($r=0.54$, $p<.05$). In addition, Table 4.18 shows that when comparing those respondents who report concern about the use of native forests in Western Australia with those who report no concern, higher levels of intrinsic value are found within the the respondents who are concerned about native forests as compared with those who report they are not. The association between intrinsic value and reported concern for native forest in Western Australia, may suggest that a belief in the intrinsic value of native forests leads to greater levels of concern for native forests.

Table 4.18
A comparison of the intrinsic value scale score with the identification of native forests of concern. (WA RFA Sample)

Are there places in WA where the use of native forests has concerned you?	Mean Intrinsic Value Score	SD
No	1.81	0.51
Yes	1.50	0.47
Total	**1.64**	**0.51**

Note: *The two mean scores are significantly different, t(520)=7.21,p<.05*
Low mean scores indicate higher levels of intrinsic value, (1) High to (4) Low.
Source: *Environment & Behaviour (1997).*

A comparison of respondents with household members from the timber, tourism or mining industries with those households who had no members employed in these industry sectors, showed no significant difference across households in the level of intrinsic value associated with native forests.

FIGURE 5. "One of the main reasons I live in this area is the natural beauty of the forest"

Percentage Agreement

Percent	Sample Areas
81.45	Margaret River
80.37	Urban
80.18	Southern Forests
73.87	Central
54.84	Eastern

Percent	Town Clusters
95.74	Denmark
86.67	Margaret River
85.42	Kalamunda
76.92	Manjimup
76.00	Yallingup
75.00	Donnybrook
74.00	Augusta
73.55	Byford
71.95	Harvey
70.59	Wandering
70.42	Collie
66.02	Bridgetown
52.75	Mt Barker
50.98	Darkan

Environment & Behaviour (1997)

31
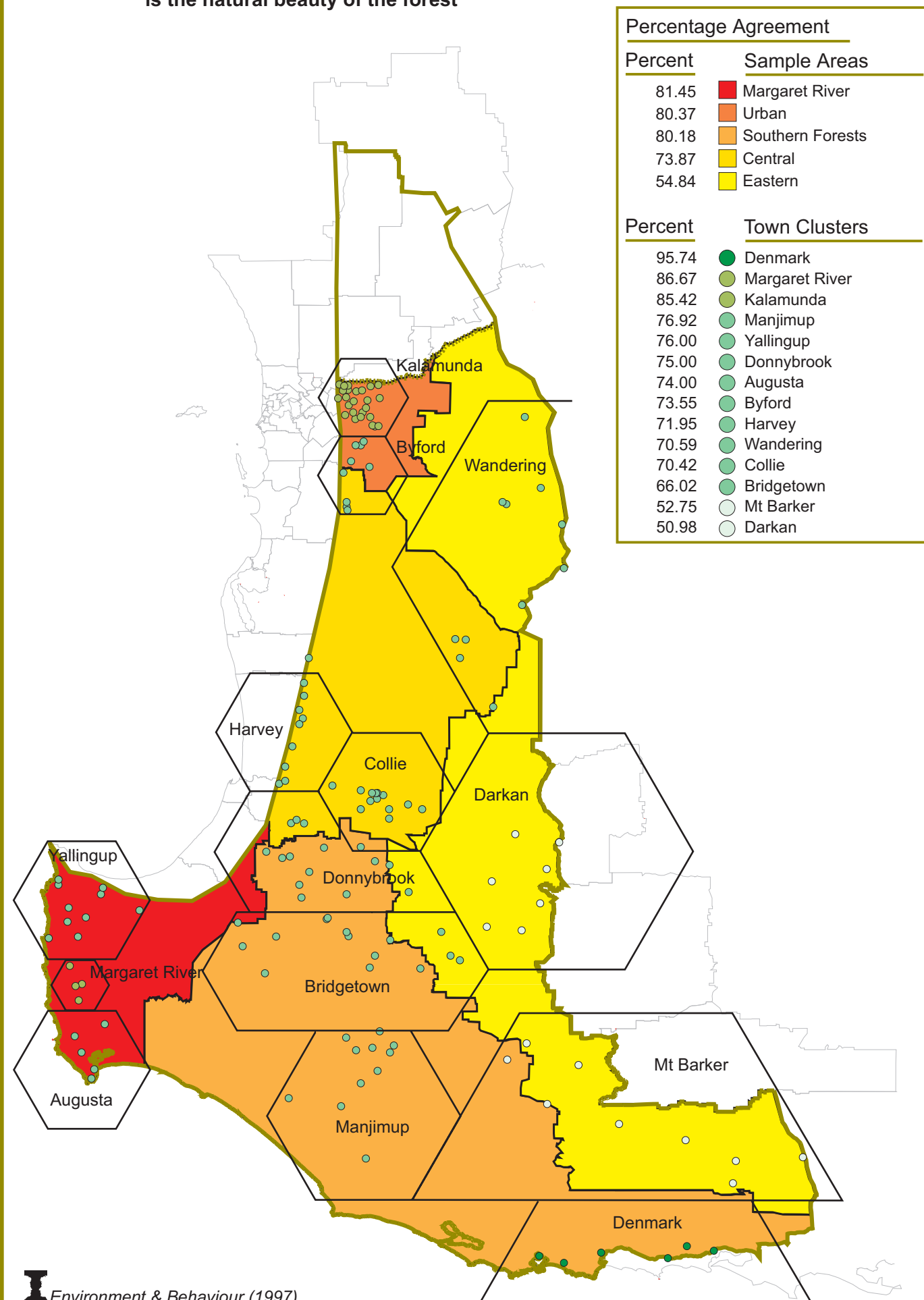
4.3 VALUE CONFLICT

There was a low, although significant negative correlation (r=-0.26, $p<.05$) between two items which formed the value conflict scale (Table 4.1 and 4.2). These two items reflected a conflict between the need for jobs and the need to protect native forests and that the conservation and protection of native forests would harm the West Australian economy.

Table 4.19 is particularly significant is so far as it shows that an estimated 58% of the population hold conflicting values associated with the protection and use of native forests. The analysis of responses to this question (Table 4.19), indicates that the population is not necessarily polarised in respect to the protection and use of native forests, but that individuals hold concurrent beliefs about the need for protection and the need to use native forests as a source of employment. As such Table 4.19 provides evidence that the popular view of a polarised community (protection vs. use) may be inappropriate and that the majority of the population hold both protection and use values to differing degrees.

Table 4.19
"I [do not] feel torn between the need for jobs and the need to preserve native forests in Western Australia" (RFA sample)

Response	Frequency	Percent
Strongly Agree	48	9.1
Agree	176	33.3
Disagree	216	40.9
Strongly Disagree	88	16.7
Total	**528**	**100.0**

Note: Six respondents did not respond to this question.
Source: Environment & Behaviour (1997).

It was found, as shown in Table 4.20 and Figure 6, that the population within the Eastern and Central sectors were most likely to report a value conflict between employment and preservation of areas of native forest and that this was least likely to occur in the Margaret River sector.

Table 4.20
"I [do not] feel torn between the need for jobs and the need to protect native forests" (Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Agree	71	97	73	95	109
	32.1	*44.5*	*33.6*	*44.2*	*49.8*
Disagree	150	121	144	120	110
	67.9	*55.5*	*66.4*	*55.8*	*50.2*
Total	221	218	217	215	219
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: In this analysis the response categories strongly agree and agree have been combined as has the response
          categories strongly disagree and disagree. Numbers in italics are percentages.
          A statistically significant association exists between sector and agreement with this question,
          $X^2(4)=21.0, p<.05$.
Source: Environment & Behaviour (1997).

While Table 4.19 shows a significant conflict of values within the population in relation to preservation and employment, Table 4.21 again highlights this conflict, with approximately 34%, or a third of the population, holding the belief that forest conservation and protection will harm the West Australian economy.

FIGURE 6. "I [do not] feel torn between the need for jobs and the need to preserve native forests in Western Australia"

Percentage Agreement

Percent	Sample Areas
49.80	Margaret River
44.50	Urban
44.20	Southern Forests
33.60	Eastern
32.10	Central

Percent	Town Clusters
55.50	Margaret River
48.10	Manjimup
48.00	Yallingup
46.20	Kalamunda
43.50	Denmark
42.30	Bridgetown
41.00	Byford
38.80	Augusta
37.10	Mt Barker
35.00	Harvey
33.33	Donnybrook
33.33	Wandering
26.40	Darkan
23.90	Collie

Environment & Behaviour (1997)

33
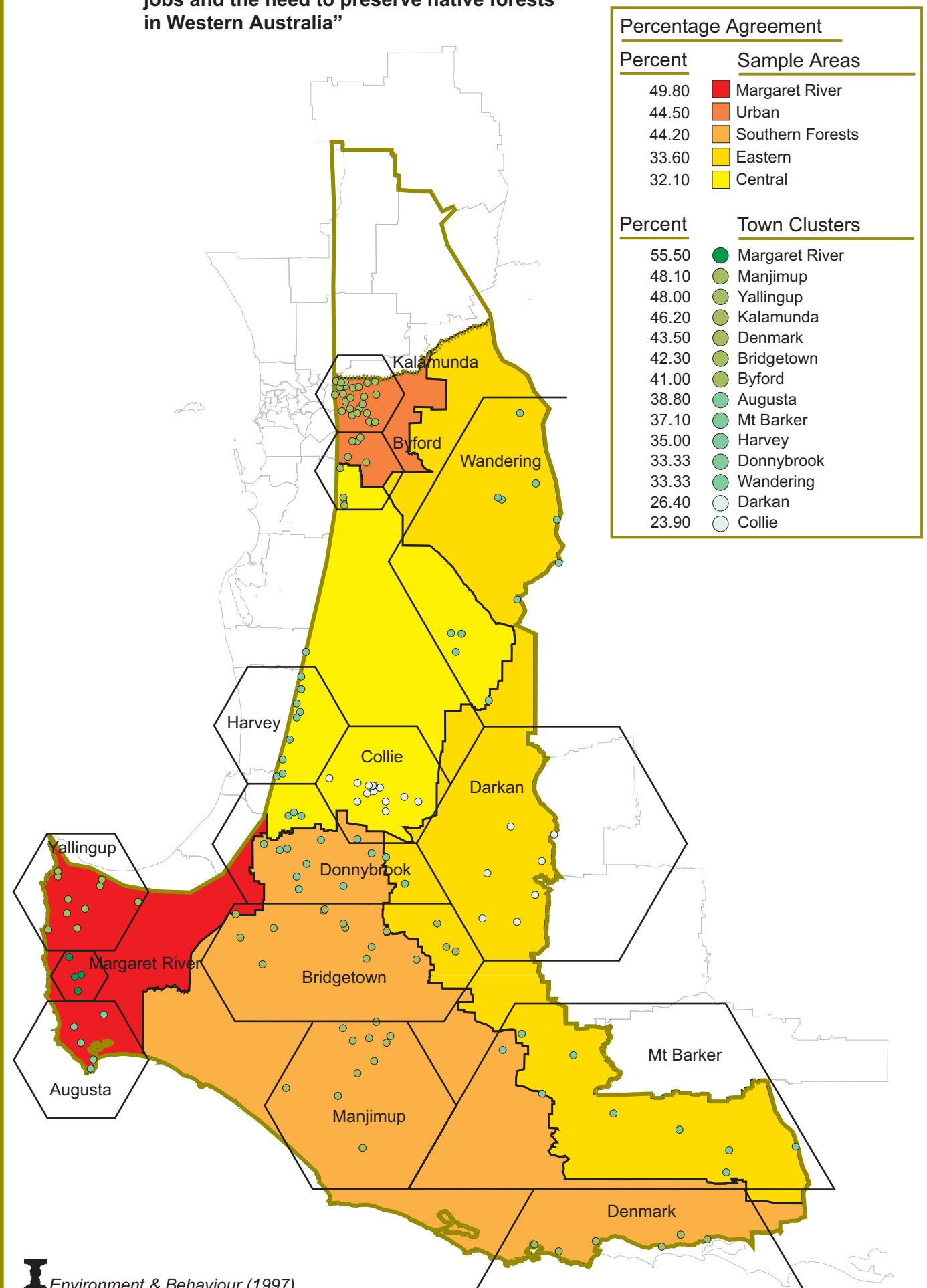
Table 4.21
"The conservation and protection of native forests in Western Australia will harm the West Australian economy" (RFA Sample)

Response	Frequency	Percent
Strongly Agree	26	5.1
Agree	145	28.5
Disagree	257	50.5
Strongly Disagree	81	15.9
Total	**509**	**100.0**

Note: *Twenty-five respondents did not respond to this question.*
Source: *Environment & Behaviour (1997).*

As shown in Table 4.22 and Figure 7, the belief that conservation and protection would harm the West Australian economy was highest in the Central (39%), Eastern (39%), and Southern Forest sectors (35%) and lowest in the Urban (29%) and Margaret River sectors (27%).

Table 4.22
"The conservation and protection of native forests in Western Australia will harm the West Australian economy" (Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Agree	86	62	78	74	57
	39.4	*28.8*	*38.8*	*35.2*	*26.6*
Disagree	132	153	123	136	157
	60.6	*71.2*	*61.2*	*64.8*	*73.4*
Total	218	215	201	210	214
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: *In this analysis the response categories strongly agree and agree have been combined as has the response categories strongly disagree and disagree. Numbers in italics are percentages.*
          A statistically significant association exists between sector and agreement with this question,
          $X^2(4)=12.84, p<.05.$
Source: *Environment & Behaviour (1997).*

4.4   TOURISM DEPENDENCY

All respondents were asked whether they believed the area in which they lived was dependent upon tourism. Table 4.23 shows that across the population within the RFA region, 81% indicated the area in which they lived was dependent upon tourism.

Table 4.23
"Tourism is very important in the area in which I live" (RFA Sample)

Response	Frequency	Percent
Strongly Agree	150	28.2
Agree	283	53.2
Disagree	91	17.1
Strongly Disagree	8	1.5
Total	**532**	**100.0**

Note: *Two respondents did not respond to this question.*
Source: *Environment & Behaviour (1997).*

As might be expected there was significant variation across the five sectors in the perceived dependency on tourism, with the Margaret River and Southern Forest sectors reporting the highest levels of perceived dependency (Table 4.24 and Figure 8).

FIGURE 7. "The conservation and protection of native forests in Western Australia will harm the West Australian economy"

Percentage Agreement

Percent	Sample Areas
39.45	Central
38.81	Eastern
35.24	Southern Forests
28.84	Urban
26.64	Margaret River

Percent	Town Clusters
47.83	Collie
45.65	Donnybrook
43.21	Mt Barker
41.67	Darkan
40.54	Manjimup
37.50	Harvey
36.96	Yallingup
31.09	Byford
30.43	Denmark
30.30	Wandering
28.71	Bridgetown
26.76	Kalamunda
26.53	Augusta
22.88	Margaret River

Environment & Behaviour (1997)
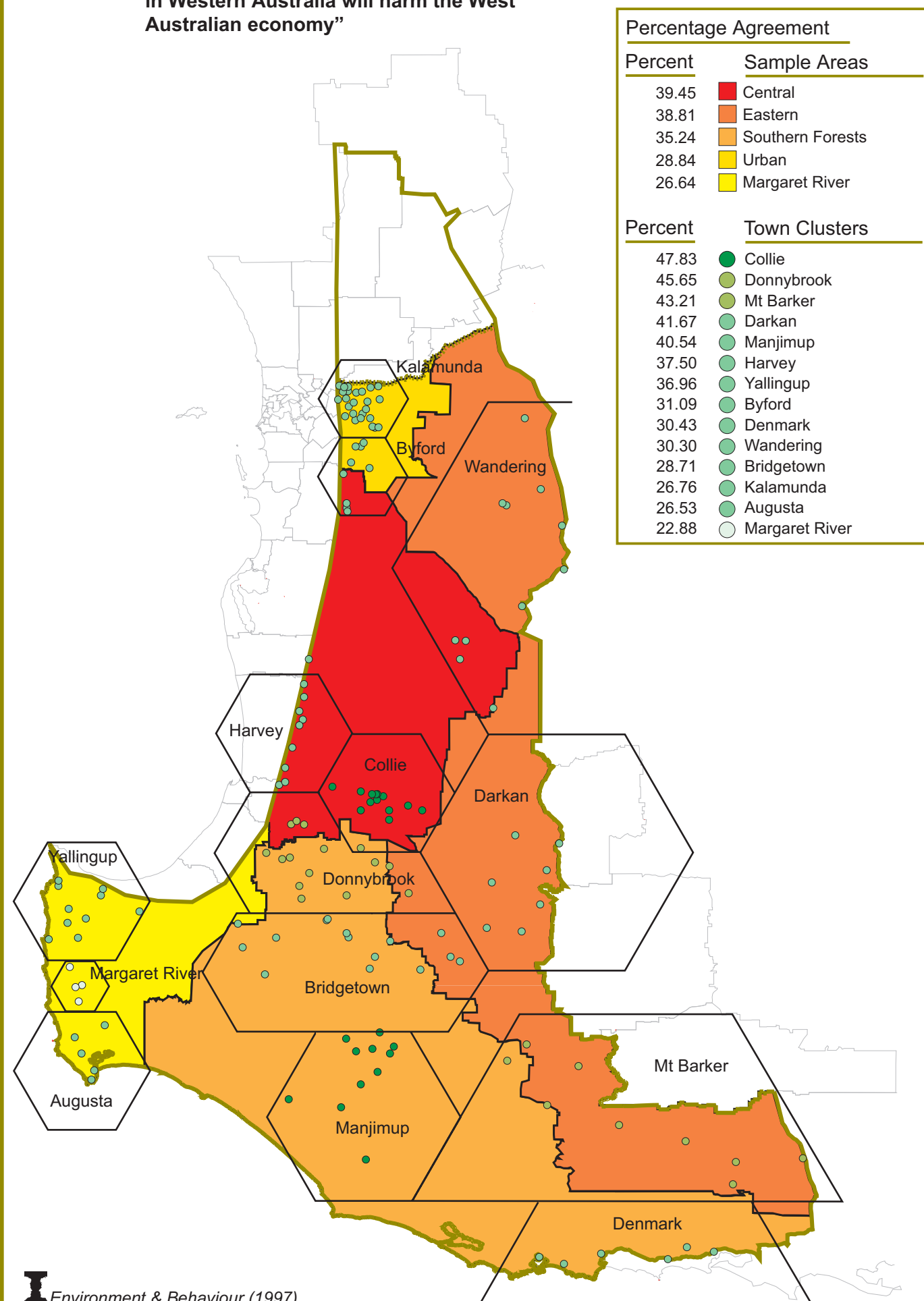
Table 4.24
"Tourism is very important in the area in which I live" (Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Agree	162	172	147	200	213
	72.6	*78.5*	*66.8*	*92.2*	*96.4*
Disagree	61	47	73	17	8
	27.4	*21.5*	*33.6*	*7.8*	*3.6*
Total	223	219	220	217	221
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: In this analysis the response categories strongly agree and agree have been combined as has the response categories strongly disagree and disagree. Numbers in italics are percentages.
A statistically significant association exists between sector and agreement with this question, $X^2(4)=92.24, p<.05$.

Source: Environment & Behaviour (1997).

4.5 TIMBER AND LOGGING INDUSTRY DEPENDENCY

Table 4.25 shows that within the sample, 30% of respondents indicated that the area in which they lived was very dependent on the timber and logging industry.

Table 4.25
"The area in which I live is very dependent on the timber and logging industry"
(WA RFA sample)

Response	Frequency	Percent
Strongly Agree	38	7.2
Agree	110	20.7
Disagree	268	50.5
Strongly Disagree	115	21.7
Total	**531**	**100.0**

Note: Three respondents did not respond to this question.
Source: Environment & Behaviour (1997).

Table 4.26 and Figure 9 indicates significant variation in perceived dependency on the timber and logging industry across sectors. As might be expected the Southern Forests and Central sectors had the highest perceived dependency, while the Urban and Eastern sectors had the lowest levels of perceived dependency.

Table 4.2
"The area in which I live is very dependent on the timber and logging industry"
(Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Agree	87	36	52	129	29
	39.0	*16.5*	*23.7*	*58.9*	*13.1*
Disagree	136	182	167	90	192
	61.0	*83.5*	*76.3*	*41.1*	*86.9*
Total	223	218	219	219	221
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: In this analysis the response categories strongly agree and agree have been combined as has the response categories strongly disagree and disagree.
Numbers in italics are percentages.
A statistically significant association exists between sector and agreement with this question, $X^2(4)=147.9, p<.05$.

Source: Environment & Behaviour (1997).

FIGURE 8. "Tourism is very important in the area in which I live"

Percentage Agreement

Percent	Sample Areas
96.38	Margaret River
92.17	Southern Forests
78.54	Urban
72.65	Central
66.82	Eastern

Percent	Town Clusters
97.50	Margaret River
96.00	Yallingup
95.74	Denmark
94.00	Augusta
92.50	Manjimup
83.52	Mt Barker
83.10	Collie
78.72	Donnybrook
78.69	Byford
77.67	Bridgetown
75.00	Kalamunda
67.47	Harvey
60.61	Wandering
47.17	Darkan

Environment & Behaviour (1997)
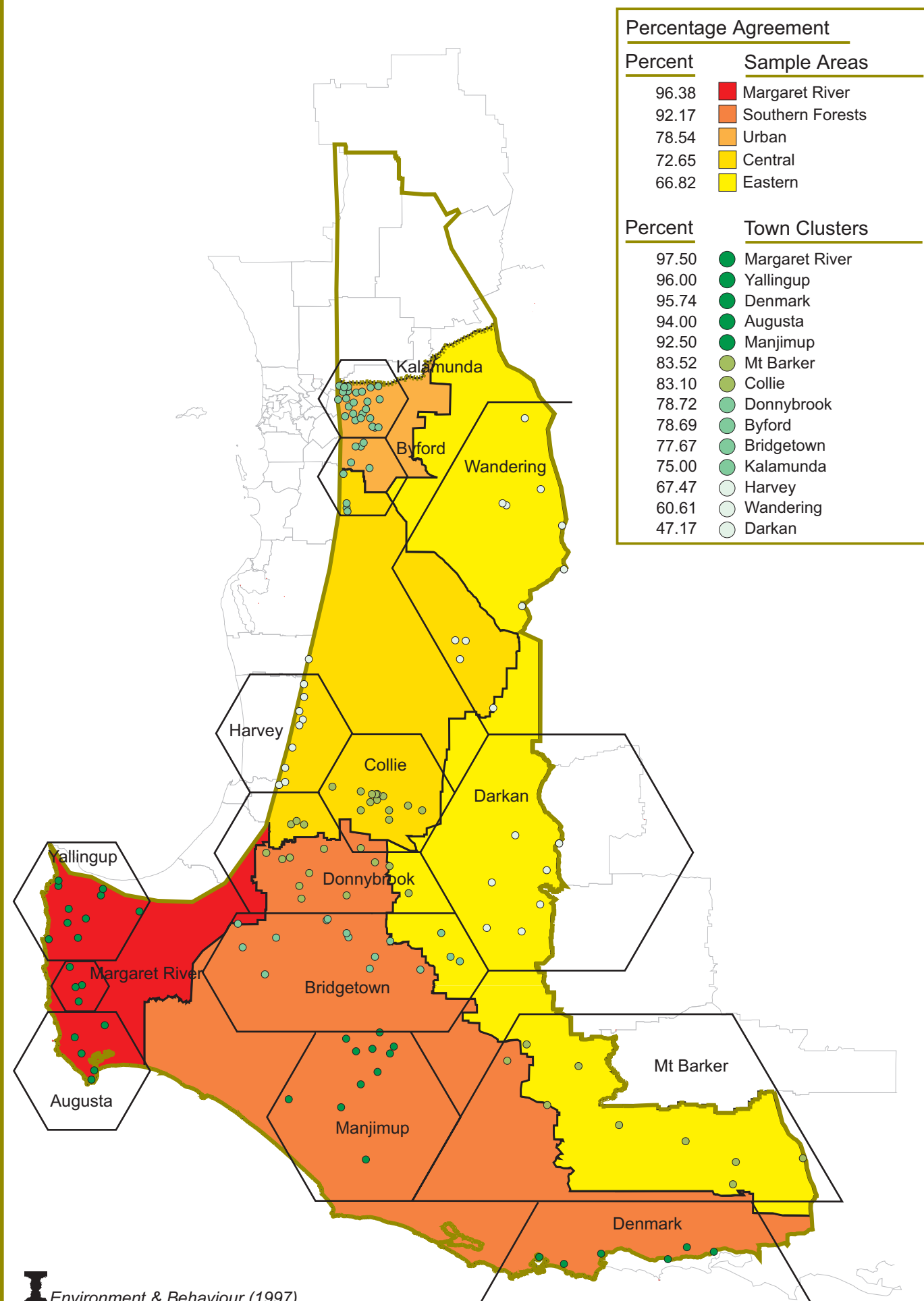
FIGURE 9. "The area in which I live is very dependent on the timber and logging industry"

Percentage Agreement

Percent	Sample Areas
58.90	Southern Forests
39.01	Central
23.74	Eastern
16.51	Urban
13.12	Margaret River

Percent	Town Clusters
82.50	Manjimup
59.22	Bridgetown
50.00	Collie
33.33	Donnybrook
32.53	Harvey
26.47	Wandering
26.23	Byford
21.98	Mt Barker
17.02	Denmark
16.98	Darkan
16.00	Augusta
12.00	Yallingup
11.67	Margaret River
11.19	Kalamunda

Environment & Behaviour (1997)
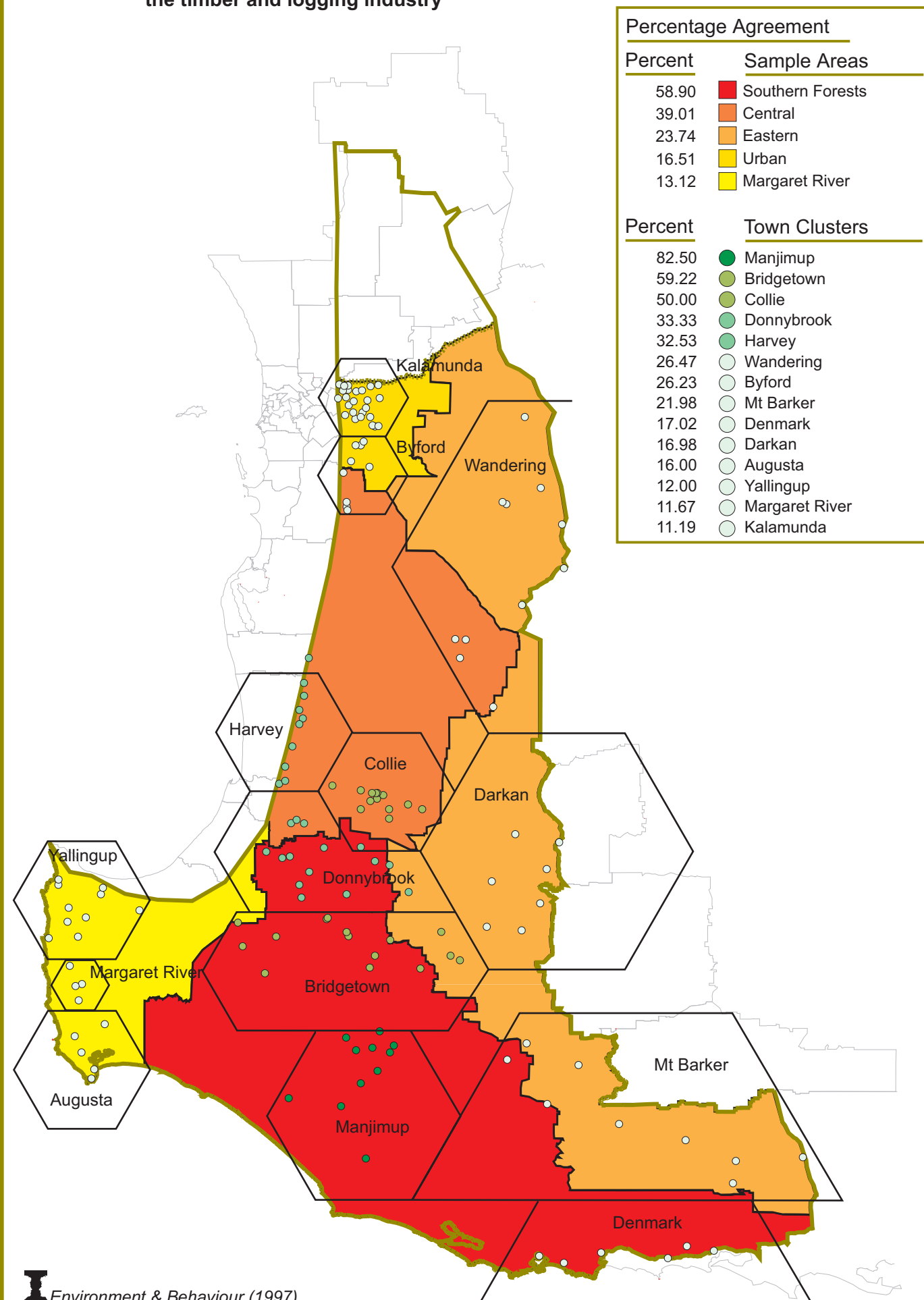
5. FOREST USE AND RECREATION

The questionnaire included several questions which focused on the use of native forests, including their recreational use.

5.1 FREQUENCY OF USE OF NATIVE FORESTS

Within the last year an estimated 80% of the population within the West Australian RFA region were found to have visited native forests (Table 5.1).

Table 5.1
"During the last year have you or your family visited areas of native forest in Western Australia"? (WA RFA Sample)

Response	Frequency	Percent
No	124	23.3
Yes	408	76.7
Total	**532**	**100.0**

Note: *Two respondents did not respond to this question.*
Source: *Environment & Behaviour (1997).*

As might be expected visiting native forests was highest in those areas which had large areas of native forests, which included the Southern Forest and Margaret River sectors (Table 5.2 and Figure 10).

Table 5.2
"During the last year have you or your family visited areas of native forest in Western Australia"? (Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
No	59	66	52	39	31
	26.3	*30.3*	*23.6*	*17.8*	*13.9*
Yes	165	152	168	180	192
	73.7	*69.7*	*76.4*	*82.2*	*86.1*
Total	**224**	**218**	**220**	**219**	**223**
	100.0	***100.0***	***100.0***	***100.0***	***100.0***

Note: *Numbers in italics are percentages.*
           A statistically significant association exists between sector and agreement with this question,
           $X^2(4)=21.91, p<.05$.
Source: *Environment & Behaviour (1997).*

Table 5.3 shows the frequency with which the WA RFA sample had visited native forests within the last year, with approximately half the population visiting once a month or more and approximately 25% of the population visiting once every three months.

Table 5.3
"How often have you visited these [native] forests?" (WA RFA sample)

Response	Frequency	Percent
Once a month or more	195	48.0
Once every three months	87	21.4
Once every six months	69	17.0
Once a year	55	13.5
Total	**406**	**100.0**

Note: *Based on only those respondents who indicated they had visited native forests within the last year.*
           Two respondents did not respond to this question.
Source: *Environment & Behaviour (1997).*

FIGURE 10. "During the last year have you or your family visited areas of native forest in WA?"

Percentage Agreement

Percent	Sample Areas
86.10	Margaret River
82.20	Southern Forests
76.40	Eastern
73.70	Central
69.70	Urban

Percent	Town Clusters
91.70	Margaret River
91.30	Manjimup
87.20	Denmark
81.30	Mt Barker
80.00	Yallingup
78.40	Augusta
76.00	Bridgetown
75.50	Darkan
75.00	Kalamunda
73.50	Harvey
70.80	Donnybrook
69.00	Collie
66.90	Byford
61.80	Wandering

Environment & Behaviour (1997)

A comparison of the frequency of visiting native forests across the five regional sectors showed that the population within the Southern Forest and Margaret River sectors are likely to visit native forests more frequently than the population in the remaining three sectors (Table 5.4)

Table 5.4
"During the last year have you or your family visited areas of native forest in Western Australia"? (Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Once a month or more	83	66	64	114	102
	50.3	*43.4*	*38.8*	*64.0*	*54.3*
Once every 3 months	26	37	27	24	37
	15.8	*24.3*	*16.4*	*13.5*	*19.7*
Once every 6 months	21	25	34	22	32
	12.7	*16.4*	*20.6*	*12.4*	*17.0*
Once a year	35	24	40	18	17
	21.2	*15.8*	*24.2*	*10.1*	*9.0*
Total	165	152	165	178	188
	100.0	***100.0***	***100.0***	***100.0***	***100.0***

Note: *Numbers in italics are percentages.*
        A statistically significant association exists between sector and agreement with this question,
        $X^2(12)=43.95, p<.05.$
Source: *Environment & Behaviour (1997).*

In addition to identifying the frequency of use of native forests, respondents were also asked to identify up to four areas of native forest that they had visited or used within the last year. No specific reference was made in the question to recreational use or any specific type of use. Table 5.5 shows the frequency of use of specific native forest areas within the last year, with the three most common areas of use being Pemberton, John Forest and Walpole-Nornalup National Parks.

However, of particular note in relation to Table 5.5 is the very high percentage of the population who used and visited highly localised areas of native forest often in close proximity to their place of residence. The category 'Seven or less respondents' in Table 5.5 includes all those areas of native forest which were used by seven or fewer respondents and yet this category accounts for 56% of the population. Native forests included within this category often included areas in close proximity to the respondents place of residence and very often were identified in terms of their location to specific towns rather than through the use of formal place names.

Table 5.5
"What was the name of the forest that you visited"? (WA RFA sample)

Name of Forest	Frequency	Percent
Pemberton NP	79	20.1
John Forrest NP	60	15.3
Walpole-Nornalup NP	50	12.7
Perth Metropolitan Area	23	5.9
Collie	22	5.6
Manjimup	20	5.1
Boranup	18	4.6
Margaret River	16	4.1
Serpentine Falls NP	14	3.6
Dwellingup	13	3.3
Darling Range area	13	3.3
Denmark	13	3.3
Kalamunda NP	13	3.3
D'entrecasteaux NP	12	3.1
Augusta	10	2.5
Leeuwin-Naturaliste NP	10	2.5
Stirling Ranges NP	8	2.0
Porongurup NP	8	2.0
Seven or less respondents	220	56.0
Total Respondents	**393**	**100.0**

Note: This is a multiple response table, where all rows of the table are independent.
  13 respondents did not identify native forests that they had visited within the last year.
  Where a town is given the respondent did not recall the name of the forest, but reported the nearest town.
  The abbreviation NP indicates National Park.
Source: Environment & Behaviour (1997).

Respondents were also asked to indicate the type of activity undertaken when they visited native forests. While this question did not specifically ask for recreational activities, the majority of respondents, as evident in Table 5.6 clearly reported a wide range of recreational uses. From Table 5.6 it is clear that the three most common uses of native forest areas by the general population within the RFA region are walking or bushwalking (83%), picnics and barbecues (36%) and sightseeing (26%).

When the three main areas of native forest respondents had visited within the last year (Table 5.5) were compared in relation to the type of activities respondents participated in within these three areas, no significant variation in the type of activities was identified.

Table 5.6
Type of activities undertaken when visiting native forests (WA RFA sample)

Activity	Frequency	Percent
Walking or bushwalking	330	82.9
Picnicking or BBQs	139	35.9
Sightseeing or outdoor enjoyment	105	26.4
Driving	47	11.8
Looking at wildflowers and trees	33	8.3
Camping	28	7.0
Work	19	4.8
Firewood collection	18	4.5
Fishing	18	4.5
4WD or motorbike riding	15	3.8
Birdwatching	11	2.8
Tree walks or tree top walks	10	2.5
Swimming	9	2.3
Watersports (general)	9	2.3
Fishing	9	2.3
Relaxing	8	2.0
Taking visitors or visiting friends	8	2.0
Beach visit	7	1.8
Shooting or hunting	7	1.8
Wildlife education or nature study	6	1.5
Caving	6	1.5
Holiday	6	1.5
Animal contact	6	1.5
Water skiing	5	1.3
Lives there	5	1.3
Visiting beach	5	1.3
Horseriding	5	1.3
Photography	5	1.3
Tourist activities	5	1.3
Licensed wildflower collector	5	1.3
Other Activities (four respondents or less)	32	8.0
Total respondents	**398**	**100.0**

Note: This is a multiple response table where all rows are independent.
Source: Environment & Behaviour (1997).

6. MANAGEMENT OF NATIVE FORESTS

All respondents were asked what they considered to be "the three most important things that need to be considered in planing for the future use of native forests".

Each respondent was given an opportunity to identify an issue of concern to them or to indicate that they didn't know of any issues that should be considered. Table 6.1 shows that 80% of respondents had sufficient interest in this issue that they were able to articulate issues they believed should be considered when planning for the future use of native forests. A comparison across the five regional sectors showed no significant variation in the ability of respondents to identify planning issues.

Table 6.1
Percentage of respondents who expressed an attitude towards planning for the future use of native forests (WA RFA sample)

Response	Frequency	Percent
Don't know	106	19.9
Identified one or more issues	428	80.1
Total respondents	**510**	**100.0**

Source: Environment & Behaviour (1997).

A maximum of three planning issues were recorded for each respondent. That the majority of respondents were able to express issues related to the planning of native forests is further illustrated in Table 6.2, where 40% of the WA RFA population identified three separate issues and 34% were able to identify at least two issues they believed should be considered when planning for the future use of native forests.

Table 6.2
Number of issues identified by each respondent (WA RFA sample)

Number of issues identified	Frequency	Percent
1.00	111	25.9
2.00	145	33.9
3.00	172	40.2
Total respondents	**428**	**100.0**

Source: Environment & Behaviour (1997).

Further analysis of the number of issues identified shows significant variation across each of the five sectors (Table 6.3). In particular, approximately 50% of the population of the Southern Forest sector reports three planning issues, while in the Margaret River Sector the population appears to be bimodal with 40% reporting one issue and 46% reporting three issues.

Table 6.3
Number of issues identified by each respondent (Across the five sectors)

Number of Issues	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
1.00	20	52	8	11	20
	23.5	*27.7*	*22.2*	*15.7*	*40.0*
2.00	31	69	14	25	7
	36.5	*36.7*	*38.9*	*35.7*	*14.0*
3.00	34	67	14	34	23
	40.0	*35.6*	*38.9*	*48.6*	*46.0*
Total	85	188	36	70	50
	100.0	***100.0***	***100.0***	***100.0***	***100.0***

Note: *A statistically significant association exists between sector and the number of issues X2(8)=16.63,p<.05.*

Table 6.4 identifies the range of issues that respondents believed should be considered when planning for the future use of native forests. The three most important issues were conservation for future generations and maintain the natural environment (34%), control or stop logging (24%) and greater regeneration of native forest areas (22%). It should be noted that while the percentages are relatively low for each of these items, some weight should be given to them as they were derived from open response questions without predefined response categories.

Table 6.4
"What do you think are three of the most important things that need to be considered in planning for the future use of native forests?" (WA RFA sample)

Response	Frequency	Percent
Conservation (for future generations & maintain natural state)	144	33.6
Control or stop logging	103	24.0
Regeneration (with more suitable species)	95	22.2
Burning off and fire control	47	11.0
Sustainability	44	10.3
Need for good management	52	12.1
Need to protect fauna	34	7.9
Control of dieback and disease	30	7.0
Public education	20	4.7
Plan for multiple use of forests	18	4.2
Use of plantation timbers	17	4.0
Control or limit access	15	3.5
Littering (provide facilities for rubbish)	14	3.3
Develop appropriate species plantations	13	3.0
Feral animal control	13	3.0
Environment (global, care of)	13	3.0
Accessibility	12	2.8
Track maintenance	12	2.8
Control or limit tourism activity	11	2.6
Selective felling	11	2.6
Provide recreation facilities	10	2.3
Need to promote tourism potential of forest	10	2.3
Other (less than 7 respondents)	175	40.9
Total respondents	**428**	**100.0**

Note: *This is a multiple response table where all rows are independent.*
Source: *Environment & Behaviour (1997).*

7.   CONCERN FOR NATIVE FORESTS

This study, in addition to considering the values associated with native forests, also addressed a related issue which focused on the level of concern the WA RFA population had about changes to native forests from human use. Some discussion of the issue of environmental concern has also been presented in Section 4.

Table 7.1 shows that the population within the population within the WA RFA region are approximately equally divided on whether there are specific native forests of concern to them.

Table 7.1
"Are there any places in Western Australia where the use of native forests
has concerned you" (WA RFA sample)

Response	Frequency	Percent
No	249	46.6
Yes	285	53.4
Total respondents	**506**	**100.0**

Source: Environment & Behaviour (1997).

When examining the variation in concern across the five sectors (Table 7.2 and Figure 11) it appears that the Urban and Margaret River sectors report the highest levels of concern relative to the remaining three sectors, although as indicated in Section 4, this concern is highly focused on the logging and wood chipping of native forests.

Table 7.2
"Are there any places in Western Australia where the use of native forests
has concerned you"? (Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
No	130	88	129	112	86
	57.8	*40.2*	*58.6*	*51.1*	*38.6*
Yes	95	131	91	107	137
	42.2	*59.8*	*41.4*	*48.9*	*61.4*
Total	**225**	**219**	**220**	**219**	**223**
	100.0	***100.0***	***100.0***	***100.0***	***100.0***

Note: Numbers in italics are percentages.
A statistically significant association exists between sector and agreement with this question,
$X^2(4)=32.00, p<.05.$
Source: Environment & Behaviour (1997).

Table 7.3 identifies those areas of native forest within Western Australia respondents were most concerned about. Although respondents were asked to identify specific places where native forests were of concern, 30% identified forests within the `South West' of Western Australia. While 30% of respondents identified forests in the South West, Table 7.3 also shows that 29% of respondents identified highly localised and specific areas of native forest, which were often in close proximity to their place of residence. It should be remembered in relation to Table 7.3 that the percentages are based on only the 53% of respondents who indicated concern about native forests in Western Australia (Table 7.1) and not the total sample.

FIGURE 11. "Are there any places in Western Australia where the use of native forests has concerned you?"

Percentage Agreement

Percent	Sample Areas
61.40	Margaret River
59.80	Urban
48.90	Southern Forest
42.20	Central
41.40	Eastern

Percent	Town Clusters
71.10	Margaret River
62.50	Donnybrook
61.10	Kalamunda
59.60	Denmark
57.10	Mt Barker
54.00	Yallingup
50.80	Byford
49.40	Harvey
47.10	Augusta
47.10	Bridgetown
39.60	Darkan
38.00	Collie
35.30	Wandering
32.50	Manjimup

Environment & Behaviour (1997)

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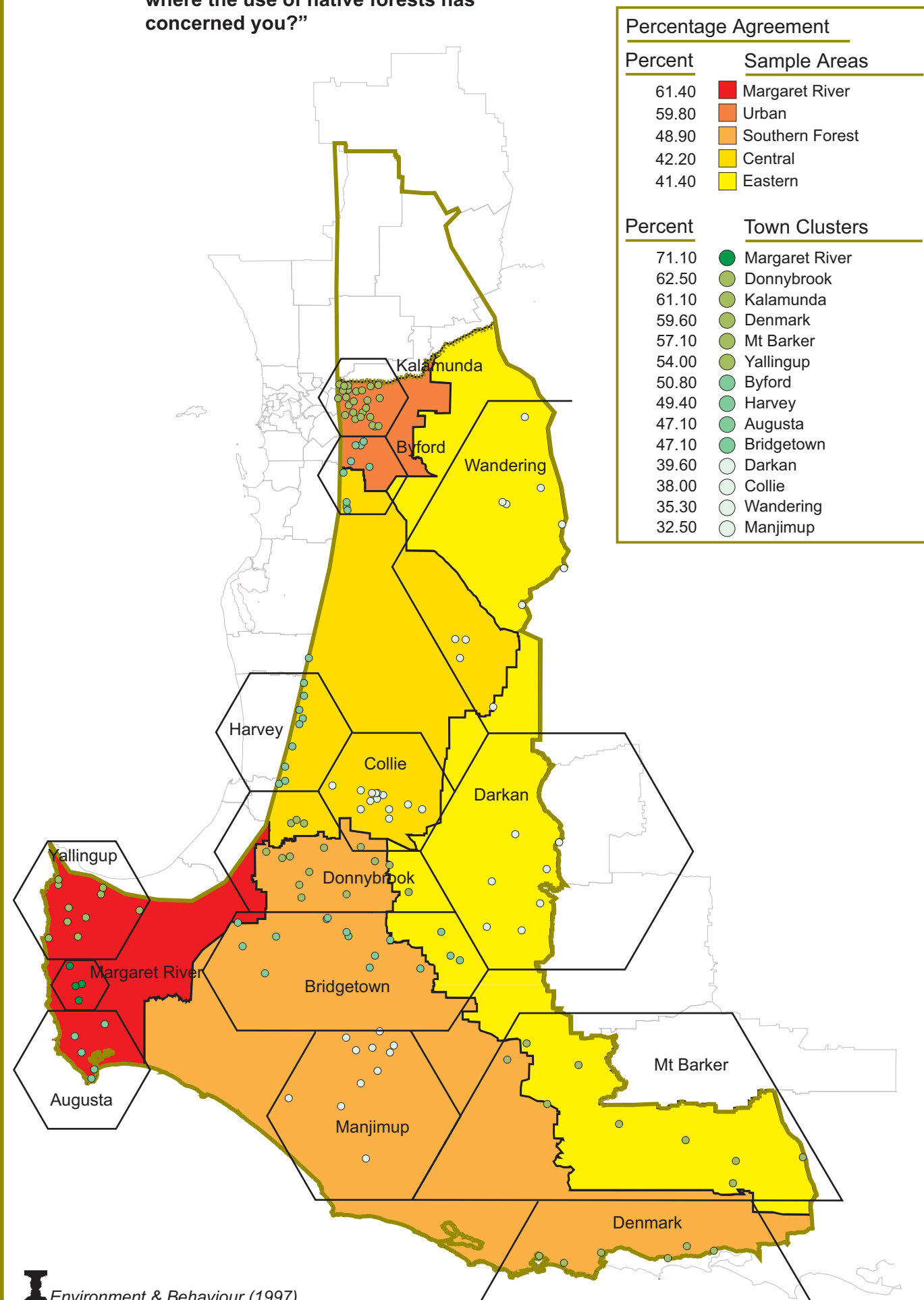
Table 7.3
Locations of native forests of specific concern (WA RFA sample)

Response	Frequency	Percent
South West forests (general)	82	29.8
Pemberton NP	68	24.7
Manjimup	23	8.4
Walpole-Nornalup NP	15	5.5
Perth Metropolitan	13	4.7
Giblet Forest	12	4.4
Denmark	7	2.5
Serpentine Falls NP	7	2.5
John Forest NP	5	1.8
Collie	5	1.8
Albany	5	1.8
Margaret River	5	1.8
Busselton	5	1.8
D'entrecasteaux NP	4	1.5
Darling Range Area	4	1.5
Augusta	4	1.5
Other (3 or less respondents)	79	28.7
Total respondents	**275**	**100.0**

Note: This is a multiple response table where all rows are independent.
          Percentages are based on only those respondents who indicated concern about native forests (Table 7.1).
          Where a town is given the respondent did not recall the name of the forest, but reported the nearest town.
Source: Environment & Behaviour (1997).

When specific issues of concern are examined (Table 7.4), logging and wood chipping
are the most commonly reported issue of concern. However, as discussed in Section
4, the type of issues of concern vary depending on the type of industry household the
respondent is from, with less concern about logging and wood chipping from timber
industry households and greater diversity of issues of concern reported from these
households.

Table 7.4
Issues of concern about the use of native forests in Western Australia

Issue of Concern	Frequency	Percent
Logging and wood chipping	234	83.5
Forest degradation (general)	34	12.2
Use of fire and fire control	19	6.8
Mining activity	16	5.8
Dieback	13	4.7
Forest management and planning	11	4.0
Need to rehabilitate forest areas	11	4.0
Urban development/ land acquisition	10	3.6
Tourism and recreational use	9	3.2
Reforestation with pine	5	1.8
Green vs industry conflict	5	1.8
Lack of public access	3	1.1
Public firewood collection	3	1.1
Erosion and salination	3	1.1
Other	19	6.8
Total Respondents	**278**	**100.0**

Note: This is a multiple response table where all rows are independent.
Source: Environment & Behaviour (1997).

Respondents were also asked to identify how these issue may be better managed. Table 7.5 shows that as logging was the primary issue of concern, this could be better managed through reducing or stopping logging activity (27.4), through greater use of plantation timber (25.0%) or through better management and planning of native forests (16.7%).

Table 7.5
"How do you think these concerns [logging and wood chipping] might be better managed"?
(WA RFA sample)

Response	Frequency	Percent
Reduce or stop logging	46	27.4
Greater use of plantation timber	42	25.0
Better management and planning	28	16.7
Regeneration and replanting	16	9.5
Conserve for future generations	11	6.5
Restrict or selective clearing	10	6.0
Better communication across agencies/groups	8	4.8
Better public information and communication	8	4.8
Less than three respondents	39	23.2
Total respondents	**168**	**100.0**

Note: Responses in this table are based only on those respondents who reported logging and
         wood chipping to be of concern
Source: Environment & Behaviour (1997).

8. IMPACTS OF CHANGES IN FOREST INDUSTRY ACTIVITY

In identifying the potential impacts of the change in use of forests by industry, respondents were asked to identify, (a) whether, within the last two years, there had been a change in the use of forests in their area by any industry which had affected the community in which they lived, (b) if there was a decrease in the future use of forests by the timber, mining or tourism industries would this affect their community and (c) whether a decrease in the future use of forests by the timber, mining or tourism industries would this affect their family.

8.1 CHANGES IN FOREST USE WITHIN THE LAST TWO YEARS

Table 8.1 shows that within the last two years 26% of respondents perceived that there had been a change in the use of forests in their area which had affected the community in which they lived.

Table 8.1
"In the last two years, has there been a change in the use of forests in your area by any industry which has affected the community in which you live"? (WA RFA sample)

Response	Frequency	Percent
No	395	74.0
Yes	139	26.0
Total respondents	**534**	**100.0**

Source: Environment & Behaviour (1997).

As might be expected there were significant variations across the five regional sectors in relation the occurrence of perceived changes in the use of forests by industry. Table 8.2 and Figure 12 shows, as might be expected, that the population within the Urban sector was least likely to have experienced changes in the use of forests which had affected their community, while such changes were most likely to have occurred in the Southern Forest sector and more specifically the Bridgetown town cluster.

Table 8.2
"In the last two years, has there been a change in the use of forests in your area by any industry which has affected the community in which you live"? (Across the five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
No	146	179	151	136	154
	64.9	*81.7*	*68.6*	*62.1*	*69.4*
Yes	79	40	69	83	68
	35.1	*18.3*	*31.4*	*37.9*	*30.6*
Total	225	219	220	219	222
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: Numbers in italics are percentages.
        A statistically significant association exists between sector and agreement with this question,
        $X^2(4)=23.37, p<.05$.
Source: Environment & Behaviour (1997).

Table 8.3 identifies the most commonly reported changes in the use of forests in the respondents area which had affected the community in which they lived. While clearing of forest areas for land and housing, employment loss and the decline of the timber industry were common themes, a large percentage of the population reported highly specific changes to their community which were often localised and specific to their own community. For instance, such changes included, the development of a new power station, greater automation of the timber industry, increases in recreational campers

FIGURE 12. "In the last two years, has there been a change in the use of forests in your area by any industry which has affected the community in which you live?"

Percentage Agreement

Percent	Sample Areas
37.90	Southern Forests
35.10	Central
31.40	Eastern
30.60	Margaret River
18.30	Urban

Percent	Town Clusters
42.30	Bridgetown
37.50	Margaret River
36.30	Manjimup
35.40	Donnybrook
35.20	Mt Barker
34.90	Harvey
34.00	Denmark
29.50	Byford
29.40	Wandering
28.20	Collie
24.00	Yallingup
20.80	Darkan
19.60	Augusta
17.40	Kalamunda

Environment & Behaviour (1997)
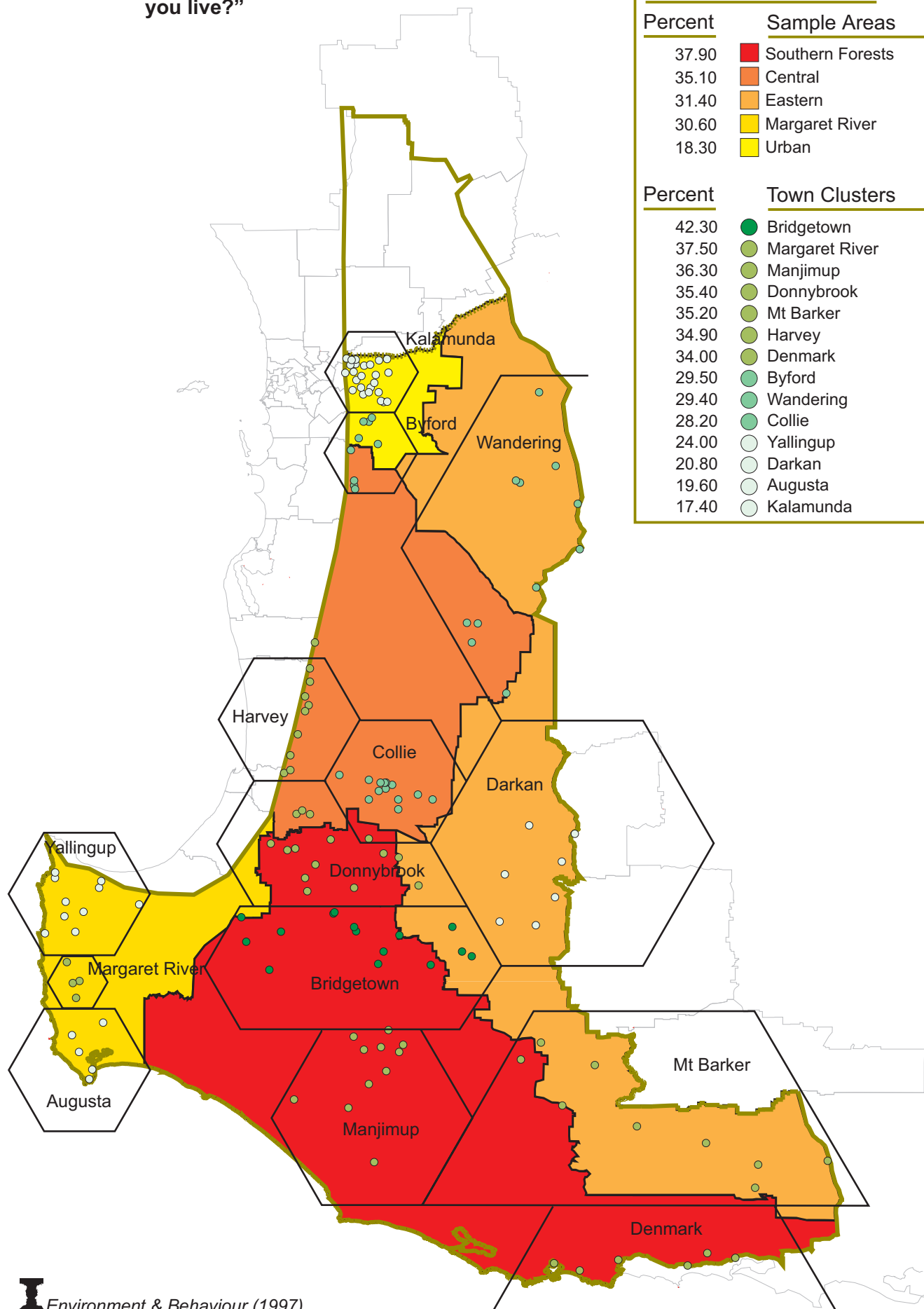
impacting on areas of native forest, and the affects of commercial firewood collection. As such the changes to communities from changes in industry use of forest areas tend to be highly specific to the type of industry activity and to the location of native forests and towns.

Table 8.3
Community changes from changes in the use of forests.
(WA RFA sample)

Response	Frequency	Percent
Clearing for land/housing	15	10.9
Employment loss through decline in timber industry	14	10.2
Timber industry closures through lack of timber	14	10.2
Planting more trees	12	8.8
Loss of old growth forests	12	8.8
Community debate/split on forestry issues	8	5.8
Sand mining	5	3.6
Rehabilitation of land after mining	5	3.6
Poor logging practices	4	2.9
Mining increased	4	2.9
Other (3 or less respondents)	83	60.6
Total respondents	**137**	**100.0**

Note: This is a multiple response table where all rows are independent.
Source: Environment & Behaviour (1997).

8.2   IMPACT OF DECREASED USE OF FORESTS ON COMMUNITIES

Respondents were asked to imagine a decrease in the future use of forests by the timber, mining or tourism industries, and to indicate what effect if any this might have on their community. Table 8.4 shows that an estimated 52% of the population within the WA RFA considered that a decrease in the future use of forests would have an impact on their community.

Table 8.4
"If there was a decrease in the future use of forests by the timber, mining or tourism industries, do you think this would effect your community"? (WA RFA sample)

Response	Frequency	Percent
No	256	48.2
Yes	275	51.8
Total respondents	**531**	**100.0**

Note: Three respondents did not respond to this question
Source: Environment & Behaviour (1997).

As might be expected, there were significant regional variations in the perceived community impacts of a potential decrease in future use of forests by industry (Table 8.5 and Figure 13). The populations in the Urban, Eastern and Margaret River sectors were least likely to report that a decrease in the future use of forests would affect their community, while the population in the Southern Forest sector was clearly more likely to report that a decrease in the future use of forests would affect their community. Figure 13 clearly identifies the Manjimup town cluster as the most likely community to be affected by a decrease in the use of forests by industry.

Table 8.5
"If there was a decrease in the future use of forests by the timber, mining or tourism industries, do you think this would effect your community"? (Across all five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
No	86	133	146	56	107
	38.6	*60.7*	*67.0*	*25.7*	*48.4*
Yes	137	86	72	162	114
	61.4	*39.3*	*33.0*	*74.3*	*51.6*
Total	223	219	218	218	221
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: *Numbers in italics are percentages.*
A statistically significant association exists between sector and agreement with this question,
$X^2(4)=97.10, p<.05.$
Source: *Environment & Behaviour (1997).*

The most significant and singularly important perceived change to the community from a decrease in the future use of forests by the timber, mining or tourism industries was an increase in unemployment (Table 8.6), where an estimated 47% of the population within the West Australian RFA region reported this as the most important community change.

Table 8.6
Types of changes to the community from a decrease in future forest use by industry (WA RFA sample)

Response	Frequency	Percent
Increase in unemployment	110	47.4
Loss of tourism industry	28	12.1
Benefit ecology of area	17	7.3
Economic changes (general)	12	5.2
Increase in tourism (through attraction to forests)	11	4.7
Better quality of life	10	4.3
Population leave town	7	3.0
Reliant on timber industry	5	2.2
Shift of employment to tourism	3	1.3
Poorer quality of life	3	1.3
Other (less than 2 respondents)	19	8.2
Total respondents	**232**	**100.0**

Note: *This is a multiple response table where all rows are independent.*
Source: *Environment & Behaviour (1997).*

8.3 IMPACT OF DECREASED USE OF FORESTS ON FAMILIES

In addition to respondents reporting the perceived impacts of decreased forestry activity on their community, each respondent was also asked to indicate what change, if any, such a decrease would have on their family. Table 8.7 shows that an estimated 25% of the WA RFA population perceived that a decrease in the future use of forests would have an impact on their family.

FIGURE 13. "If there was a decrease in the future use of forests by the timber, mining or tourism industries, do you think this would effect your community?"

Percentage Agreement	
Percent	Sample Areas
74.30	Southern Forests
61.40	Central
51.60	Margaret River
39.30	Urban
33.00	Eastern

Percent	Town Clusters
85.00	Manjimup
66.20	Collie
64.40	Bridgetown
61.70	Denmark
60.80	Augusta
58.50	Harvey
50.00	Margaret River
50.00	Donnybrook
49.60	Byford
44.90	Yallingup
38.20	Wandering
35.40	Kalamunda
34.40	Mt Barker
28.30	Darkan

Environment & Behaviour (1997)

Table 8.7
"If there was a decrease in the future use of forests by the timber, mining or tourism industries, do you think this would effect your family"? (WA RFA sample)

Response	Frequency	Percent
No	397	74.5
Yes	136	25.5
Total respondents	**533**	**100.0**

Note: One respondents did not respond to this question
Source: Environment & Behaviour (1997).

As might be expected, and as is shown in Table 8.8 and Figure 14, the perceived impacts of a decrease in the future use of forests by industry would affect families moreso in the Southern Forest sector, when compared to the remaining four sectors. Again, the Manjimup tow cluster is the most likely area where changes in the industry use of forests may affect families.
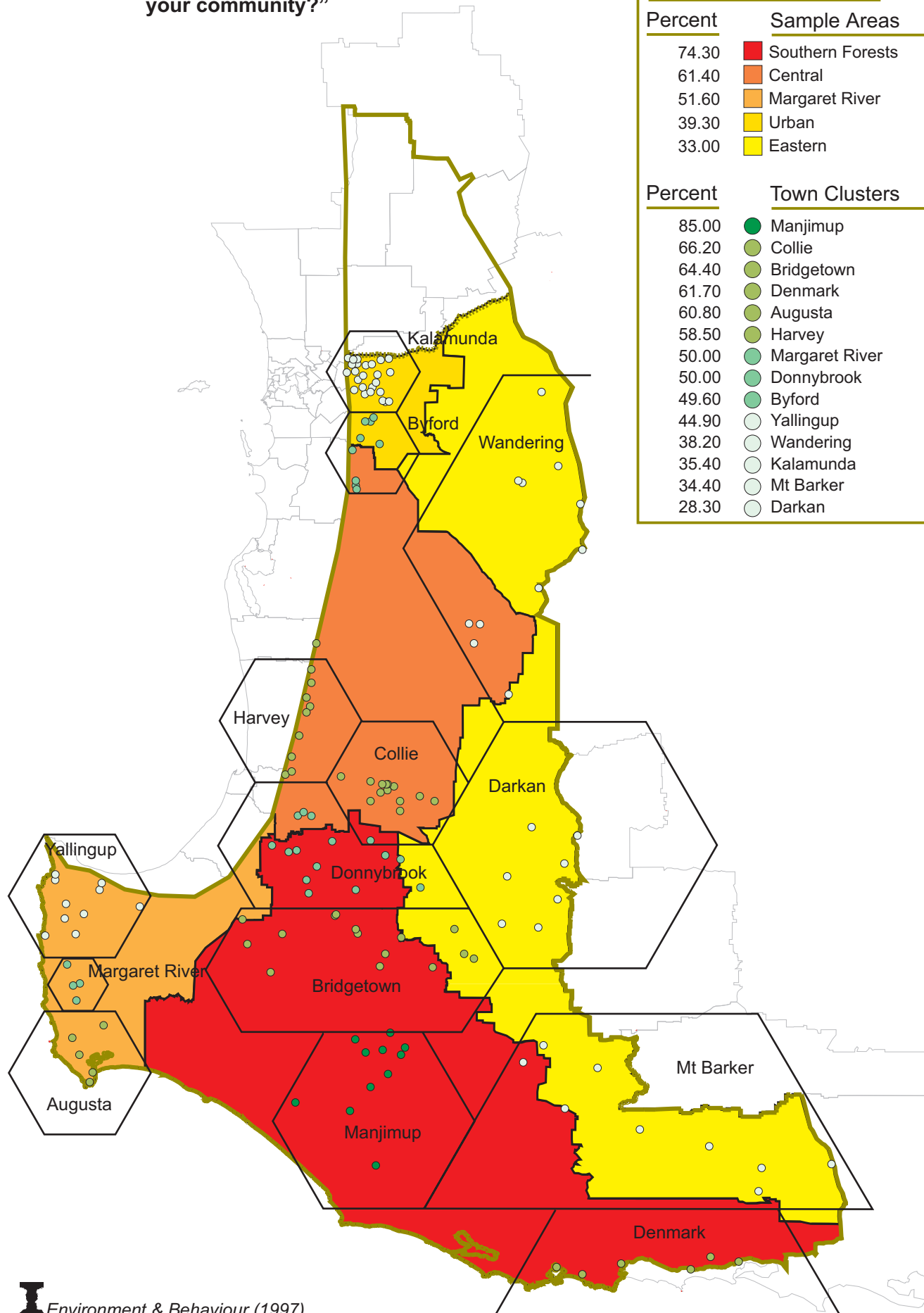
Table 8.8
"If there was a decrease in the future use of forests by the timber, mining or tourism industries, do you think this would effect your family"? (Across all five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
No	168	171	182	132	163
	75.0	*78.1*	*83.5*	*60.6*	*73.4*
Yes	56	48	36	86	59
	25.0	*21.9*	*16.5*	*39.4*	*26.6*
Total respondents	224	219	218	218	222
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: Numbers in italics are percentages.
A statistically significant association exists between sector and agreement with this question, $X^2(4)=32.83, p<.05$.
Source: Environment & Behaviour (1997).

Table 8.9 shows that the type of family impacts, from a decrease in industry use of forests, represent primarily an increase in unemployment within the family and the loss of work amongst family members (45%).

Table 8.9
Types of changes to family from a decrease in the future use of forests by industry (WA RFA sample)

Response	Frequency	Percent
Increase in unemployment	50	44.6
More forests to enjoy	12	10.7
Less financial	12	10.7
Better quality of life	10	8.9
Less small businesses	4	3.6
Children will have less opportunity	4	3.6
Indirectly affected (general)	3	2.7
May limit areas which family can use	3	2.7
Other (Less than 2 respondents)	14	12.5
Total respondents	**112**	**100.0**

Note: This is a multiple response table, where all rows of the table are independent.
Source: Environment & Behaviour (1997).

FIGURE 14. "If there was a decrease in the future use of forests by the timber, mining or tourism industries, do you think this would effect your family?"

Percentage Agreement

Percent	Sample Areas
39.40	Southern Forests
26.60	Margaret River
25.00	Central
21.90	Urban
16.50	Eastern

Percent	Town Clusters
48.80	Manjimup
31.70	Bridgetown
29.60	Collie
28.00	Augusta
27.30	Margaret River
26.10	Denmark
23.90	Donnybrook
22.90	Kalamunda
22.90	Harvey
22.00	Yallingup
21.10	Mt Barker
20.60	Wandering
20.50	Byford
7.50	Darkan

Environment & Behaviour (1997)
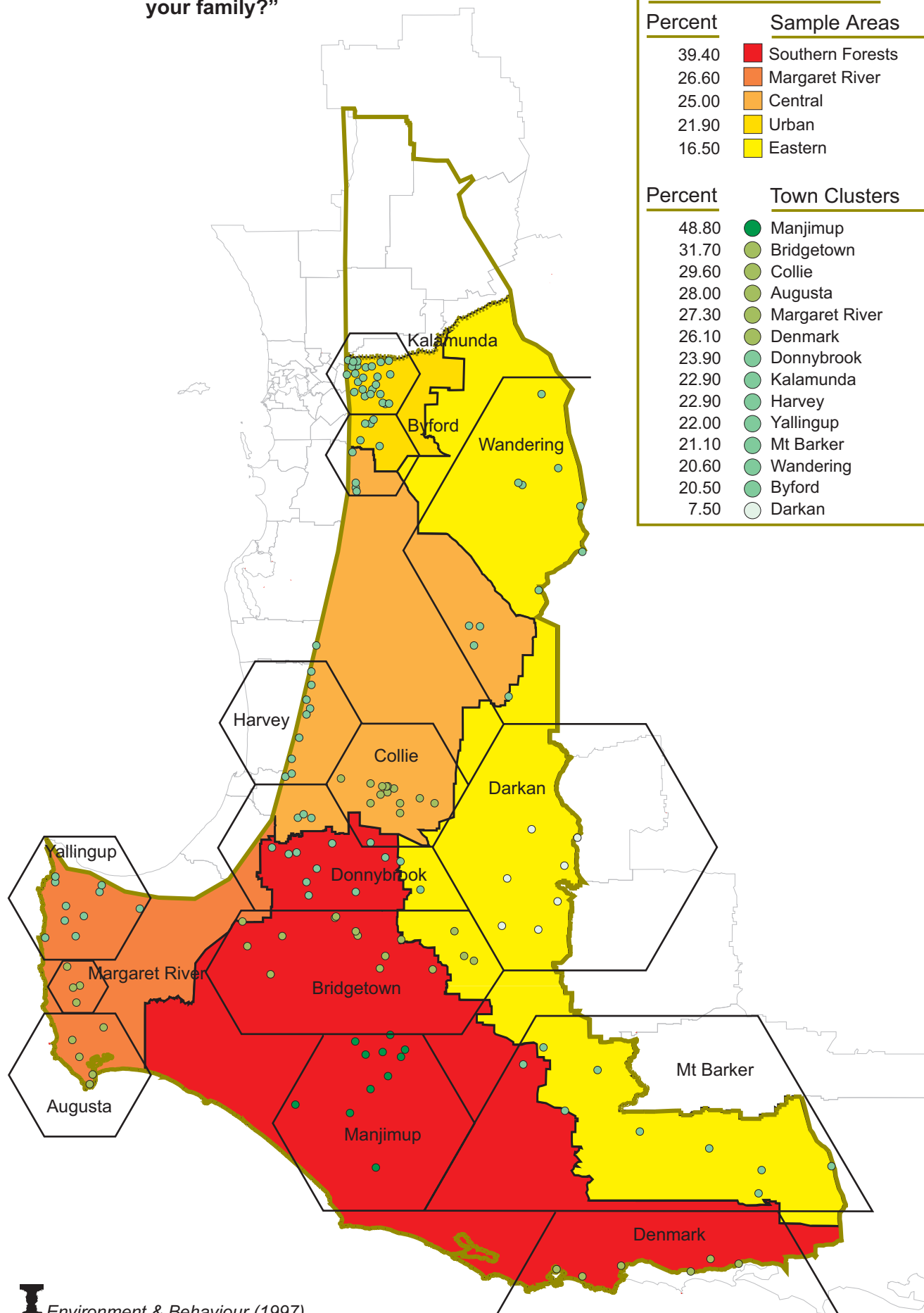
9. ATTITUDES TOWARDS INDUSTRY DEVELOPMENT

Two core questions were used to identify community attitudes towards future industry development. Respondents were asked to identify what they considered would be the main industries in their area within the next 20 years and what new industries, if any, they would like to see develop in their area.

9.1 MAIN INDUSTRIES WITHIN THE NEXT TWENTY YEARS

Table 9.1 shows that for the population of the WA RFA region, 55% believed that tourism would be the main industry in their area within the next twenty years, followed by agriculture (33%) and the processing of plantation timbers (23%).

Table 9.1
"What do you think will be the main industries in your area in the next twenty years"
(WA RFA sample)

Response	Frequency	Percent
Tourism	260	54.6
Agriculture	159	33.4
Processing plantation timbers	111	23.3
Mining	104	21.8
Manufacturing	48	10.1
Processing native timbers	47	9.9
Total respondents	**476**	**100.0**

Note: This is a multiple response table where all rows are independent.
Source: Environment & Behaviour (1997).

Table 9.2 and Figure 15 identifies significant variations across the five sectors in terms of what the population within these sectors considered would be the main industry within the next twenty years. While agriculture was seen as the main industry within the Eastern sector, the populations within the Urban, Southern Forest and Margaret River sectors perceived that tourism would be the main industry in the next twenty years. Within the Central sector, 58% of the population believed that mining would be the main industry.

Table 9.2
"What do you think will be the main industries in your area in the next twenty years"?
(Across all five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Agriculture	86	36	**152**	87	66
	40.8	*20.7*	***72.7***	*41.2*	*31.3*
Tourism	66	**104**	40	**127**	172
	31.3	***59.8***	*19.1*	***60.2***	***81.5***
Native timbers	31	9	11	42	8
	14.7	*5.2*	*5.3*	*19.9*	*3.8*
Mining	**123**	21	7	29	44
	58.3	*12.1*	*3.3*	*13.7*	*20.9*
Plantation timbers	41	11	116	119	19
	19.4	*6.3*	*55.5*	*56.4*	*9.0*
Manufacturing	22	35	4	4	7
	10.4	*20.1*	*1.9*	*1.9*	*3.3*
Total respondents	**211**	**174**	**209**	**211**	**211**
	100.0	***100.0***	***100.0***	***100.0***	***100.0***

Note: Numbers in italics are percentages. This table is a multiple response table, where all rows are independent
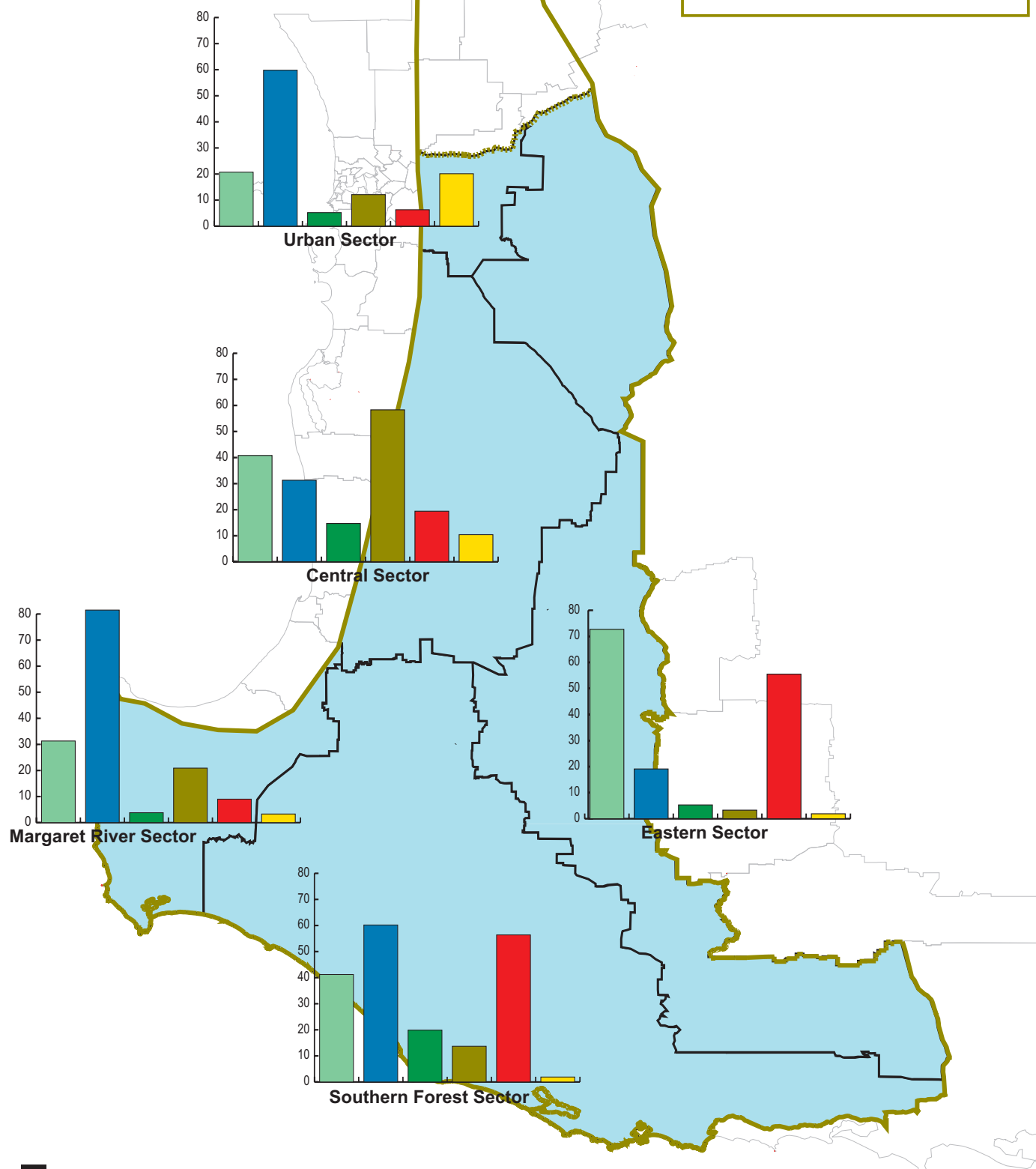Source: Environment & Behaviour (1997).

FIGURE 15. "What do you think will be the main industries in your area in the next twenty years?"

Industry Type
- Agriculture
- Tourism
- Processing native timbers
- Mining
- Processing plantation timbers
- Manufacturing

Note: Chart values are percentages

Urban Sector

Central Sector

Margaret River Sector

Eastern Sector

Southern Forest Sector

Environment & Behaviour (1997)

In addition to being provided with the six industry categories as identified in Table 9.2, respondents were also asked to indicate other main industries they considered would develop in their area in the next twenty years. The most significant additional industry to be identified was the development of vineyards and wineries, which was identified by 29 or 5.4% of all respondents within the RFA sample.

9.2   NEW INDUSTRY DEVELOPMENT

The majority of respondents (58%) indicated they would like to see new industries develop in their area (Table 9.3).

Table 9.3
"Would you like to see new industries develop in the area"? (WA RFA sample)

Response	Frequency	Percent
No	225	42.5
Yes	305	57.5
Total respondents	**530**	**100.0**

Note: Four respondents did not respond to this question
Source: Environment & Behaviour (1997).

Table 9.4 shows significant variation in the perceived need for new industry development across the five regional sectors. Over two-thirds of the population within the Central, Eastern and Southern Forest sectors perceived a need for new industry development, however within the Urban and Margaret River sectors the majority of the population did not perceive a need for new industry development within their area.

Table 9.4
"Would you like to see new industries develop in the area"? (Across all five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
No	74	118	51	63	130
	32.9	*53.9*	*23.4*	*29.0*	*60.2*
Yes	151	101	167	154	86
	67.1	*46.1*	*76.6*	*71.0*	*39.8*
Total	225	219	218	217	216
	100.0	*100.0*	*100.0*	*100.0*	*100.0*

Note: Numbers in italics are percentages.
          A statistically significant association exists between sector and agreement with this question,$X2(4)=95.0,p<.05$.
Source: Environment & Behaviour (1997).

The preferred type of new industry development is shown in Table 9.5. Tourism (47%) is clearly the most preferred type of industry development reported by respondents, followed by the processing of plantation timbers (29%) and agriculture (25%).

Table 9.5
"What type of [new industries] would they be"? (WA RFA sample)

Response	Frequency	Percent
Tourism	113	47.3
Processing plantation timbers	69	28.9
Agriculture	59	24.7
Manufacturing	52	21.8
Processing native timbers	28	11.7
Mining	25	10.5
Total respondents	**239**	**100.0**

Note: This table is a multiple response table, where all rows are independent
Source: Environment & Behaviour (1997).

Significant variations in preferred new industry were identified across the five regional sectors (Table 9.6 and Figure 16). Across all sectors, tourism was seen as the preferred new industry, however within the Eastern sector, agriculture was also seen as a preferred new industry. In addition, a significant percentage of the population within the Eastern and Southern Forest sectors saw the processing of plantation timbers as a preferred new industry.

Table 9.6
"What type of [new industries] would they be"? (Across all five sectors)

Response	Central sector	Urban sector	Eastern sector	Southern Forest sector	Margaret River sector
Agriculture	37	12	56	44	20
	29.8	*16.4*	*40.6*	*37.6*	*35.1*
Tourism	**59**	**33**	**65**	**54**	**22**
	47.6	***45.2***	***47.1***	***46.2***	***38.6***
Native timbers	18	4	12	21	6
	14.5	*5.5*	*8.7*	*17.9*	*10.5*
Mining	18	4	12	11	7
	14.5	*5.5*	*8.7*	*9.4*	*12.3*
Plantation timbers	29	16	59	45	9
	23.4	*21.9*	*42.8*	*38.5*	*15.8*
Manufacturing	22	20	27	19	11
	17.7	*27.4*	*19.6*	*16.2*	*19.3*
Total respondents	124	73	138	117	57
	100.0	***100.0***	***100.0***	***100.0***	***100.0***

Note: *Numbers in italics are percentages.*
Source: *Environment & Behaviour (1997).*

In addition to the pre-defined industry categories presented in Tables 9.5 and 9.6, respondents were also asked to indicate if there were any other industries they would like to see develop in their area. Four percent of the sample within the RFA region, indicated that any new industry development would be preferred, if the industry were able to provide employment opportunities for people within the area.

FIGURE 16. "What type of new industries would you like to see develop in the area?"

Industry Type

- Agriculture
- Tourism
- Processing native timbers
- Mining
- Processing plantation timbers
- Manufacturing

Note: Chart values are percentages

Urban Sector

Central Sector

Margaret River Sector

Eastern Sector

Southern Forest Sector

Environment & Behaviour (1997)