
Department of Environment and Conservation

And

Bibbulmun Track Foundation

2008 Bibbulmun Track User Research Report

Prepared for: Linda Daniels
Executive Director
Bibbulmun Track Foundation
Recreation and Trails unit
DEC Parks and Visitors Services

CB Contacts: David Bruce

Phone: (02) 6249 8566

Issue Date: June 2009

Funding support for this research was provided by the Trails Grants Program administered by the Department of Sport & Recreation and supported by Lotterywest.

1. Executive Summary

1.1 STUDY BACKGROUND, OBJECTIVES AND METHODOLOGY

Background

The Bibbulmun Track is one of the world's great long distance walking tracks, stretching 963km from the eastern outskirts of Perth to Albany on the south coast of Western Australia. The track in its current form was opened in 1998, and a number of smaller scale projects to provide an indication of user numbers were undertaken by the (then) Department for Conservation and Land Management (CALM – now the Department of Environment and Conservation, DEC).

In 2003 Colmar Brunton Research (CBR) was commissioned by CALM and the Bibbulmun Track Foundation (BTF) to design and execute a study that could generate reasonable estimates to total track usage, and be repeated at future times. CBR recommended the use of a systematic observation and data collection methodology that we had developed and employed to estimate usage of a number of other similar recreational facilities.

This methodology has been expanded and replicated with a 12-month data collection phase in 2007-2008. This report documents the processes and outcomes of this second whole-of-track usage study. Where possible, it provides comparisons to the 2003 study (but the 2007-08 study does not include the community telephone survey or business survey components that were in the 2003 study).

Colmar Brunton Social Research would like to acknowledge the dedicated efforts of the Bibbulmun Track Foundation, and its members who volunteered to conduct the observation and interviewing for the study. This is a huge undertaking, and the study could not have been carried out without the dedication of the volunteers and the people who co-ordinated them.

Objectives

To provide updated estimates of usage of the Bibbulmun Track, and to identify any changes in the current attitudes of users to the experience the Track offers.

There were a number of very specific informational objectives to be addressed:

- Primary usage estimate of total number of track users during a 12 month period (measured in 'user days')
- Secondary usage estimate of total number of visits and individual visitors to the track in the same period
- Pattern of usage of the track
- Satisfaction with the track
- Expectations of the track
- Intention to re-use the track
- Expenditure of track users

Methodology

The methodology used for this study was one which Colmar Brunton had developed for previous projects for the Department for Sport and Recreation and CALM in 2000 and 2001, and which was used in the earlier 2003 Bibbulmun Track usage study.

The central component of this method is a systematic schedule of detailed observation and interviews with users. The track was broken down into 54 'functional sections' and these were allocated to five different 'classes' of section: Tourist destination (T-Sites), High volume (H-Sites), Medium volume (M-Sites), near a Population centre (P-Sites) and long Distance(D-Sites).

18 typical sections across these five categories were identified and used for observations and interviews. A systematic schedule of sessions covering all times of the day and week was outlined for each section, and 458 of these sessions were completed by BTF volunteers between September 2007 and October 2008. 6,179 walkers in 2,201 walking groups were observed during these sessions, and 592 walkers were interviewed.

The methodology is explained in much more detail in section 4 of the main body of this report. This section also contains a discussion of the limitations and assumptions associated with the project, and the reader is strongly encouraged to read this discussion in conjunction with the summary of key results provided here.

1.2 KEY RESULTS

Primary Estimate of Usage: Days on Track¹

The key measure of usage of the track is the number of days spent on the track each year. The observational data suggests that **around 434,736 visits are spent on the track each year**. This represents an increase of 55% on the 2003 estimate of 280,000 days spent on the track.

It is estimated that 35% of total use occurs in the H-Site category, 27% in the P-Sites, and 25% in the T-Sites. D-Sites (8%) and M-Sites (5%) contribute just 13% between them.

Secondary Estimate of Usage: Walks²

69% of walkers interviewed on the track were doing day-walks, 15% for 2-3 days, and 16% were walking for more than 3 days. There were more walkers interviewed walking from 4+ days in 2007-08 than in 2003 (8%).

The average duration of a walk (calculated by the number of days spent on the track in the last 12 months divided by the number of visits) in 2007-08 was 2.6 days, compared to 2.0 days in 2003.

Thus, the 434,736 visits is the equivalent of around **167,206 walks on the track each year**. This is an increase of 22% from the 2003 estimate of 137,250.

¹ Days on Track are the basic unit of observation for the study, as during a multi-day walk it is possible that a walker would be observed on more than one occasion. A 'day on track' does not refer to any specific length of time spent on the track, but rather refers to a walker spending some time on the track on that day (the walking duration could be anything from a minute to the full 24 hours)

² A Walk is the unit which captures the number of trips to and from the track which are made by users. A walk could be a single day visit, or a multi-day use of the track.

Patterns of Usage

Profile of walkers and group composition

53% of observed walkers were male, and 47% female. It was estimated by the observers that 81% of observed walkers were over the age of 18. The age and gender profile of the five categories of track was largely consistent – with the D-Sites being the only variation to this with a higher proportion of males.

The average group size was 2.8. 23% of observed groups consisted of a single person walking alone – T-Sites and H-Sites tended towards slightly larger groups, while D-Sites tended towards smaller groups.

Age and gender of observed track users, and average group sizes

	Observed Groups			
	% Male	% Female	% Adult	Average group size
Total	53%	47%	81%	2.8
T Sites	51%	49%	79%	3.1
H Sites	53%	47%	84%	2.6
M Sites	57%	43%	73%	2.0
P Sites	53%	47%	87%	2.1
D Sites	68%	32%	89%	1.2

The interviewed walkers were younger than those seen in 2003, with 30% aged under 25, 53% aged 25-39, and 18% aged 40+.

66% of interviewed walkers (who were not walking alone) reported that they were walking with family or friends, and 24% were walking with their spouse / partner only. 5% were walking in a non-commercial group, 4% in a school / youth group, and 1% in a commercial tour. These figures were largely unchanged from 2007-08.

When the track is used

Different classes of section are used in different ways. The results from the 2007-08 study are more reliable in this analysis, as many more observation sessions were completed across a full 12 months.

T-Site: has by far the highest peak load; weekday use is minimal, and primarily in the middle of the day; Saturday midday and afternoons, and especially these timeslots on Sundays, are the peak use periods for this type of section, but also for the track as whole.

H-Sites: have the highest use on Saturdays, especially afternoons. Weekday use peaks in the later timeslots, while Sunday use is consistently moderate.

M-Sites: were only ahead of the D-Sites in terms of overall usage; usage was low, but relatively consistent across the weekends and the midday on weekday slots; if anything it tended to peak in the midday slot on weekdays and Saturday, but was more consistent across all of Sunday.

P-Sites: had the most consistent use across all times and days; overall levels of use was generally between the higher H-Sites and the lower M-Sites.

D-Sites: lightly used compared to the other categories; if peaks occur anywhere it appears to be midday on weekdays, and early on Sundays, perhaps suggesting times when people are most likely to access these types of sections.

Duration and distance

69% of people interviewed on the track indicated that they were doing a day-walk (40% <4 hours; 29% >4 hours). These figures are not significantly different from 2003, when the total was 72%. However, there were also slightly fewer who were walking for 2-3 days (15%, down from 19%) – and this leaves an increase in the proportion walking for 4+ days from 8% to 16% in 2007-08.

The average reported duration of a visit over the past 12 months was 2.6 days – up from 2.0 days in 2003.

In terms of length of walk, as opposed to duration, the mean distance being walked increased from 70km in 2003 to 105km in 2007-08. However, the mean is highly affected by a relatively small number of very long walks, and so the median³ is a better indication of the 'typical' length of walk. The median walk in 2007-08 was 15km, up slightly from 14km in 2003.

The median walk varies considerably across the categories of track. D-Sites had the highest median (410km), ahead of M-Sites and H-Sites (16km), T-Sites (12km), and P-Sites had the lowest median at 10km.

The proportion of walkers who reported doing an 'out-and-back' walk as opposed to a one-way walk to a different end point was higher in 2007-08 than in 2003 (74% vs 57%).

Method of accessing the track

Methods of getting to the track did not appear to have changed substantially since 2003, with nearly 83% of walkers who accessed the track by private vehicle (63% on their own car, 20% being 'dropped off').

8% reported walking or jogging to the track, and this was mostly seen at P-Sites (91%) while it did not get above 2% for any other category.

D-Sites had a slightly higher proportion of private vehicle arrivals – but unlike other categories, half of these were drop offs.

Where walkers came from

87% of walkers interviewed in 2007-08 were from WA (compared to 89% in 2003), 6% from interstate (7%) and 7% from overseas (4%). One-in-three interstate and overseas visitors had decided to walk the Track before they arrived in WA, a figure that is consistent with 2003.

Accommodation

31% of walkers on the track reported using some form of accommodation as a part of their walk on the track in 2003 – and this figure was slightly higher at 36% in 2007-08 (which probably reflects the high proportion of longer duration walkers in the 2007-08 survey).

81% of nights spent in some form of accommodation were spent in track campsites, exactly the same as in 2003. Hotel/motels (4%), Backpackers (5%) and other campsites (5%), as was the case in 2003, picked up the bulk of the rest of the nights.

³ The median is the point at which half the people fall above and half below, and as such is not as heavily influenced as the mean by a skewed data shape such as we see here.

Track Campsites

40% of walkers had visited a campsite on their walk. Males (43%) were more likely than females (35%) to have done so; and younger walkers were more likely than older walkers to have visited a campsite. Walkers interviewed in D-Sites (88%) and M-Sites (66%) were most likely to have visited a campsite, while those in the T-Site (24%) and P-Sites (29%) were least likely to have done so. Of the people who were intending to stay at least one night in a track campsite on their walk, 80% had already visited a campsite on the walk.

63% of people who had visited a campsite had recorded their details in a log book, and 84% of people who were staying overnight had done so.

Only 12% of walkers who had visited a campsite reported some overcrowding. This figure was highest in the D-Sites (24%, 11 out of 45 walkers), but between 7%-10% for the other categories.

Attitudes and Knowledge of Users

Reasons for use

In 2003 nearly a third of all users indicated that a combination of the *pleasure, enjoyment and challenge* that they got from using the track was the major reason for their using it, while 16% indicated something to do with *health and exercise* was their main motivation. In 2007-08, walkers reported a more even range of reasons for walking – with the *health and exercise* responses leading the way at 15%. The *pleasure and enjoyment* category, dominant in 2003, was ranked 5th at 8%.

However, when asked to nominate their expectations for the walk, 40% indicated that the *natural environment and landscapes* was an expectation, while only 29% nominated *getting fit and losing weight*. 21% nominated the *challenge* of the walk, and 20% expected *peace and tranquillity*.

Prompts to use the Track

56% of walkers interviewed were prompted to first walk on the track by 'word of mouth', with no other specific factor mentioned by more than 11%.

Knowledge of the Bibbulmun Track Foundation

90% of walkers were aware of the BTF / Friends (up from 82% in 2003), including 17% who were current members (14% in 2003).

Leave No Trace minimum impact principles

40% of interviewed walkers reported being aware of the *Leave No Trace* minimum impact principles.

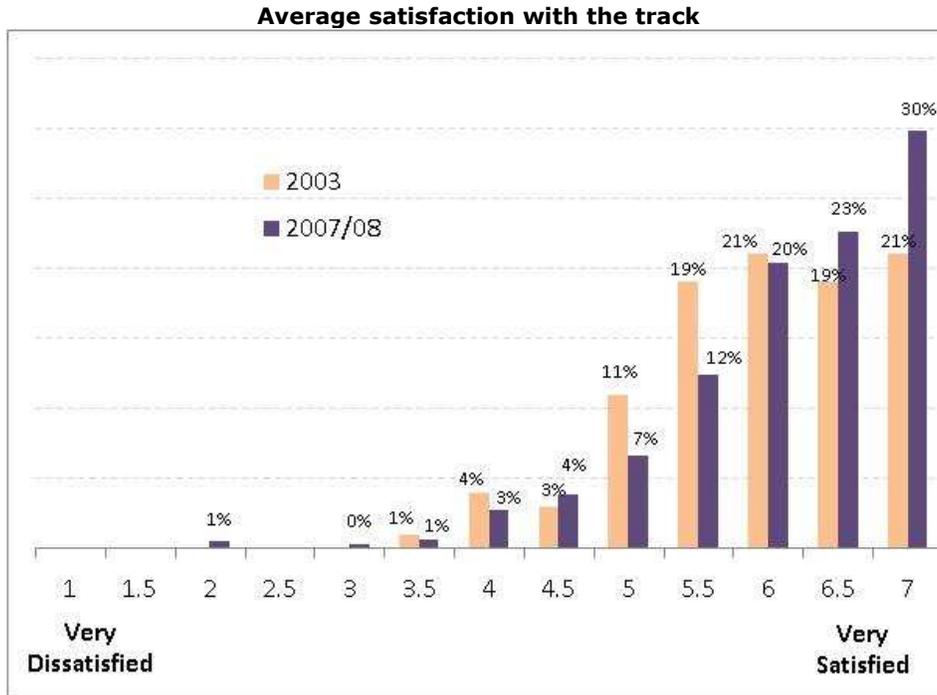
There was a trend for younger walkers to be more likely of being aware of these principles, and 43% of males said they were, compared to 35% of females. Walkers in the less used D-Sites (88%) and M-Sites (64%) were most likely to be aware of the principles, while those in the T-Site (23%) and P-Sites (25%) were the least likely to have heard of them.

Day trippers (22%) were much less likely to have heard of them than those walking for longer (2-3 days: 80%; 4+ days: 77%).

Satisfaction with the track

Satisfaction with the track amongst users has increased from 2003 to 2007-08. 87% of users rated the track as a 6 or 7 out of 7 in terms of how pleased they were with their walk (increased slightly from 82% in 2003), while 72% rated it as a 6 or 7 out of 7 for exceeding their expectations (increased from 59% in 2003).

Averaging these two ratings to obtain an overall satisfaction rating for the track gives the results shown in the chart below. 73% of walkers gave an average rating of 6 out of 7 or higher (increased from 61% in 2003), and the 'average' average rating was 6.1 / 7.0 (increased from 5.9 / 7.0 in 2003).



Base: All walkers (2003: n=280; 2007-08: n=588)

Average of:
Q11: How do you feel about your walk so far?
Q22: How would you rate your walk overall?

Future use of the track

89% of walkers on the track indicated that they expected to use the track again in the future (93% in 2003) – including some 98% of WA based walkers.

Economic activity associated with the track

Walkers were asked to indicate how much money they personally spent as a result of their walk (preparing, travelling to and from, and during).

These results suggest that an average day walker who walks for less than 4 hours spends around \$50 in total as a result of their walk and those who walk from 4 hours to 1 day spend about \$60 (down from the 2003 estimate of \$72). Walkers on a 2-3 day walk average around \$198 (unchanged from \$203), while those on 4 day or longer walks average around \$1,031 (up from \$738 – possibly reflecting at least partly a longer typical duration of walking for this group in 2007-08 than in 2003, and hence this groups are broken down into detailed groups for the overall calculation). The

major areas in which differences occur with increased duration on the walk are still food / meals, accommodation and equipment.

Based on the 167,206 walks estimated to take place on the track each year, multiplying these expenditure figures out suggests that around \$39 million is spent each year as a result of walkers on the Bibbulmun Track. The 2003 estimate was approximately \$21 million spent across the various categories identified above. The 2007-08 increase is due to the estimated number of visits, an increase in the spend of 4+ days visitors, and an increase in the proportion of the 4+ day visitors. The estimated total expenditure minus equipment is \$28 million in 2007-08, up from \$13 million in 2003.

Estimated annual expenditure by walkers

2007-08				
Total visitor days	100%	100%	167,206	
Duration	Average spend	Proportion	Number of walks	Expenditure
<4 hours	\$49.77	40%	66,882	\$3,328,737
4 hrs – 1 day	\$60.37	29%	48,490	\$2,927,326
2-3 days	\$197.79	15%	25,081	\$4,960,751
4-6 days	\$509.28	4%	6,688	\$3,406,187
7-27 days	\$792.82	4%	6,688	\$5,302,570
4-6 weeks	\$1,394.83	2%	3,344	\$4,664,479
6+ weeks	\$1,452.10	6%	10,032	\$14,567,990
TOTAL				\$39,158,040

1.3 CONCLUSIONS

As in 2003, there are two areas in which this report needs to draw conclusions: with respect to usage of the track; and with respect to the methodology utilised.

With respect to use of the track

The 2003 study concluded that it was clear that the Bibbulmun Track is a significant recreational facility in Western Australia - well known, heavily used, and generating a not insignificant level of economic activity.

The 2007-08 study has reinforced this. The full 12-month data collection process undertaken and much greater number of observation sessions completed has given us more robust data for estimating usage and usage patterns. Where the 2003 data required an estimate of seasonal variation to be made and was not able to average out changes in usage patterns for the periods during which no data was collected, the 2007-08 study overcomes these issues. Post hoc analysis suggested that 23% of observation sessions were completed during the 25% of the year which is 'off peak' for different parts of the track.

The estimate of total number of days spent on the track, which is the most reliable usage estimate being based purely on observed use, indicates a 55% increase from the 2003 estimate, at 434,736 days on track. A third of these visitor days are estimated to be spent in the H-Site categories (35%), and around a quarter in each of the P-Sites around population centres (27%) and the Tourist T-Sites (25%). The other two categories contribute just 13% .

With an average duration of 2.6 days per visit (a figure that reflects a high proportion of single day visits, but an increased proportion of very long walks), it is estimated that there would be around 167,206 walks made on the track in 2007-08 (a 22% increase from 2003). This secondary estimate of walks also relies on information from the interviews completed with walkers, and while the characteristics of this sample appear to be generally consistent with the observed use, some care needs to be taken when using this data source, as the sample cannot be proven to be representative of all walkers.

The track clearly has a profile beyond WA, with a third of interstate and overseas visitors interviewed on the track in both surveys having planned to walk on the track before they came to WA.

Satisfaction with the Track was high in 2003 – and has increased amongst walkers interviewed in 2007-08. In 2007-08, three quarters of walkers interviewed gave an average rating of 6 or higher out of 7 for the two measures that are average to give overall satisfaction – up from 61% in 2003. Of the 87% of track users from WA, 98% intend to walk on the track again.

Estimates of expenditure associated with visits to the track are necessarily indicative only, and rely on a combination of the observation data and interview data. Regardless, it is clear that walking on the track is responsible for a large amount of economic activity, and the 2007-08 estimate is that walkers would spend around \$39 million per year on their walks (including getting to and from the track, preparing for their walk, and accommodation used). This figure is significantly higher than the \$21 million estimated in 2003, reflecting a higher estimated volume of usage, increased individual spending on 2-3 and 4+ day walks, and a higher proportion of 4+ days walkers.

Overall, the 2007-08 study has further demonstrated the significance of the Bibbulmun Track as a recreational facility in WA. Observed usage has increased in terms of both number of days on track and walks. Patterns of usage for the various track categories do vary, and data in this study may assist in tailoring elements of the experience to the users of these sections. That said, the track attracts males and females across a spectrum of ages. Users are satisfied, and intending to re-use the

track. Users spend a substantial amount of money during and in support of their walking, estimated to be in the range of approximately \$39 million per year.

With respect to the methodology

The methodology used in 2003 was somewhat experimental, in that although components had been successfully used in other studies, never had it been applied to a facility as long and diverse as the Bibbulmun Track. The three elements of the methodology used in 2003 each had their strengths and weaknesses in execution. The 2007-08 study focussed only on the observation and walker survey component, but did this on a larger and better scale.

An important improvement was the use of a full 12 month data collection process – meaning that estimates of seasonal variation were not required, and that many more observations were used to form estimates of volume. Post hoc analysis of the data showed that there were different three-month off-peak periods for the northern and southern halves of the track, resulting in 25% of the year being 'off peak'. As the overall observation schedule was consistent across the year, there were 23% of sessions during this time, demonstrating the value of the consistent observation program in proportionally representing seasonal variations in the summary data.

The primary estimate of track usage – days on track – is based purely on the observational data, and with the much greater number of observations, we can be more confident of the 2007-08 estimate than we were with the 2003 estimate. The use of different sites for the observations and the addition of the M-Site category do not negatively impact on the 2007-08 estimate nor the comparison to 2003, as both are the best estimate based on our knowledge of the track at each time period.

While the observational component was strong, attempting to compare the 2003 and the 2007-08 interview samples was more challenging. In this case, the impact of different sites does have some potential impact, but perhaps less so than the potential variations in individual interviewers across the two studies. Without any clear basis for weighting the survey data, it has to be taken largely at face value. However, likely inconsistencies in the way data is gathered in different sites and different years means that variations in the data cannot automatically be attributed to differences in actual walker attitudes or behaviour.

Attitudinally this is less of an issue, but data such as the frequency and duration of walks is used to calculate the secondary estimate of usage (walks), and to do this reliably it is necessary for the sample to be robustly representative. As it may not be, this impacts on the reliability of this estimate.

If there is an opportunity to further improve the methodology, it lies in providing a solution to how to calibrate the interview sample more effectively. To do this, it requires the collection of some robustly representative data about usage that can be a reliable start point. Ideally, this would consist of the collection of critical baseline data from every (or every n^{th} walker) from a number of selected sites over time. There would only need to be a relatively small amount of data collected – frequency of visit, duration and origin would probably suffice to calibrate the interview sample. This would require a more rigorous sampling process to be followed during this data collection, but would then allow the less structured interview data to be more confidently interpreted. It should even be possible to back-apply this calibrating data to the existing interview data if it was available in a sufficiently timely manner, allowing estimates of usage made here to be refined.

Overall though, we are confident that the systematic observation and interview process remains the best available method for estimating use of the track, and given the very large commitment to these sessions expended over the 12 months to gather a suitable sample of observations, we are satisfied with the final outcomes derived from the data.

Table of Contents

1. Executive Summary	1
1.1 Study Background, objectives and methodology.....	1
1.2 Key Results	2
1.3 Conclusions	8
Table of Contents	10
2. Background	11
3. Aims and Objectives	12
3.1 Overall Objective	12
3.2 Research Objectives.....	12
4. Research Strategy	13
4.1 Component 1: Walker Survey	13
4.2 Assumptions and Limitations	18
5. Results	19
Section 1: Estimated Usage of the Bibbulmun Track	19
5.1 Primary Usage Estimate: days on track	20
5.2 Secondary Usage Estimate:	22
Section 2: Patterns of Usage	24
Section 2: Patterns of Usage	24
5.3 Sample Characteristics	24
5.4 Profile of walkers	27
5.5 Origin of Walkers.....	28
5.6 When the track is used	29
5.7 Main Reason for Use	30
5.8 Duration and distance of walks	31
5.9 Getting to the Track	33
5.10 Accommodation.....	34
5.11 Knowledge of the Bibbulmun Track and Organisations.....	36
5.12 Satisfaction with the Track	37
5.13 Future Use of the Bibbulmun Track	39
Section 3: Economic impact of the track	40
5.14 Walker spending patterns.....	40
Appendix A: Breakdown of the track into functional sections	43
Appendix B: Observation form used to record user numbers	44
Appendix C: Walker intercept survey – 2007/2008	45

2. Background

The Bibbulmun Track is a walking track which stretches some 963km from Kalamunda on the eastern outskirts of Perth to Albany on the south coast of Western Australia. The track, in its current form, was officially opened in September 1998, and since that time has been used by many walkers and hikers.

The track passes through a number of townships between Perth and Albany, as well as taking in some of the premier tourist sites in the south west – such as the Gloucester Tree in Pemberton, the Treetop Walk near Walpole and the Albany Windfarm. Along the length of the track are 48 campsites available for the use of hikers which allow users to extend trips beyond a single day, and for some users to walk the entire length of the track.

A considerable number of organisations have an interest in the track – from the Department of Environment and Conservation (DEC) and the Bibbulmun Track Foundation (BTF) through various bodies that contribute to its funding through tourism organisation and right down to the local businesses that benefit from users of the track. For these organisations, having an understanding of how many people are using the track – as well as who they are, where they come from and why they use it – is very important.

However, the nature of recreational facilities such as the Bibbulmun Track make this information very difficult to obtain. The track extends for nearly a thousand kilometres, through townships and through remote bush and forest areas, and is accessible night and day from potentially thousands of entry and exit points. Simply trying to work out how many people use it is a significant logistical challenge, and one that has no perfect solution. Add to this the need to understand something of the nature and motivation of these people, what they think of the experience, and what they want to get from the track - and the project becomes very complex very quickly.

A further consideration is that not only is there a need to gather this information in the short term, there is also a need to be able to monitor it over time, to identify when changes occur in the volume or nature of use, or in the profile of the people using the track. Thus the methodology developed to gather this data must also be sustainable in the long term. Ideally it should also be replicable not just in time, but also in space. That is, it can also be transferred to other tracks and trails in other places, and to provide comparable data.

Colmar Brunton has been involved in several similar projects where the challenge is to understand usage levels and patterns of these sorts of passive or unstructured recreational facility. In completing these studies we have developed a methodology that allows a reasonable estimate of usage to be made within the limitations of time and money which inevitably apply to any study (details of this methodology will be described in more detail in the Research Strategy section of this report). This methodology was proposed and adopted for the initial wave of this project in 2003, and has largely been replicated in 2008 to generate the results that are presented here.

Colmar Brunton would like to acknowledge the invaluable support of the Bibbulmun Track Foundation and its members who volunteered to participate in the project. Without their efforts the proposed methodology could not have been adapted to the unique demands of the Bibbulmun Track, and the project could not have been completed at all. Their input and commitment over the 12 months of data collection and the longer lead-in and reporting time is very much appreciated.

3. Aims and Objectives

3.1 OVERALL OBJECTIVE

To provide updated estimates of usage of the Bibbulmun Track, and to ascertain the attitudes of users to the experience the Track offers.

3.2 RESEARCH OBJECTIVES

There were a number of very specific informational objectives to be addressed:

- Primary usage estimate of total number of track users during a 12 month period (measured in 'days on track')
- Secondary usage estimate of total number of walks
- Pattern of usage of the track
- Satisfaction with the track
- Expectations of the track
- Intention to re-use the track
- Expenditure of track users

4. Research Strategy

The methodology applied to the task of estimating usage of the Bibbulmun Track is an adaptation of a methodology previously developed and used by Colmar Brunton to estimate usage of the Mundaring Recreational Trails Network (2000) and the CALM Regional Parks Network (2001). It was first applied to the Track in 2003, and then again in a largely identical format in 2007-08.

There were three main components of the strategy used in 2003. Component 1 was a systematic program of observing and interviewing track users; component 2 was a telephone survey of the wider community in Perth and the South West; while component 3 was a brief survey of businesses to explore the importance of the track to businesses. In 2008 only the first of these was replicated, but over a full 12 month timeframe compared to the 6 months that was available in 2003.

Component 1, being based on direct observational data, provides the most reliable estimate of number of days spent on the track, and hence is the most suitable methodology for the 2008 objectives. From the interviews completed, a secondary estimate of total number of walks can be made – though this requires some additional assumptions to be made about the data, and will always be a less reliable estimate than those derived from the observational data alone.

4.1 COMPONENT 1: WALKER SURVEY

The premise of this methodology is that while it is not possible to observe every section of the track 24 hours a day, 365 days a year, it *is* possible to put in place a systematic observation program that allows an estimation of overall usage to be calculated (based on a number of assumptions).

The key elements and logic of this methodology are as follows:

Step 1: Break down the track into manageable units

The track in its full form and treated as a single unit is simply not practical to work with - it is too long and too diverse. What needs to happen is for the track to be broken down into manageable units, which can be addressed individually, and then 'reassembled' into the whole track to calculate overall results. It is much more practical to measure how many people pass a particular spot on the track, or use a particular section than it is to do this for the track *in toto*. If this process can be repeated for *all* sections of the track, then adding them together will allow us to estimate a figure for the whole track. Alternatively, selected representative sections of the track can form the basis of such a reconstruction.

To break down the track though is also not a simple task. On a track as long as the Bibbulmun Track it is still not practical to simply divide it into (say) 5 km sections – as we would still end up with nearly 200 of them. Further, different sections have completely different characteristics, and this needs to be taken into account. A better way to break down the track is into 'functional sections'. This means sections with similar characteristics, and will not necessarily be related to the length of each section.

The process was to identify the different classes of section, and then allocate each part of the track to one of these sections. The set of section classes that were chosen for the project were:

- Primary Tourist Sites ('T-sites'): Sites where it would be expected that there will be high numbers of visitors that will be going to the specific location along the track. These sites are tourist / visitor destinations in their own right.
- Secondary Heavy Use Sites ('H-Sites'): These are sites that are not major tourist destinations, but are likely to attract users to the specific location based on a natural feature or recreation facility. They are expected to have relatively heavy usage within a relatively short section of the track.

- Medium Use Sites ('M-Sites'): Sites which are similar in profile to the heavy use H-Sites, but with a lower level of usage (but still higher than the D-Sites below).
- From Townships / Population centres ('P-Sites): Sections of the track that are accessible immediately from towns and population centres. It would be expected that use of these sections by local residents and visitors / tourists would be higher than in more distant sections of the track.
- Long distance sections ('D-Sites'): These are sections of the track which would be expected to be used almost exclusively by 'serious' walkers who are travelling relatively long distances – usually on overnight or longer walks.

The M-Site category was added in 2008, but had not been used in the 2003 study. Along with a re-classification of some sections to reflect our current understanding of those sections or changes in their known or expected use, this has two impacts. First, on the positive side it makes the basis on which the 2008 estimate is calculated more accurate. On the negative though, it has the appearance of making a direct comparison between 2003 and 2008 harder. This is true at the level of individual sections, but not at the level of the overall track, as in both cases the total estimate is the best possible based on the information that was current *at that time*.

Based on these classes, the track was then broken into functional units along its length, with every kilometre of the track being assigned to a series of consecutive functional sections of varying lengths. A breakdown of these sections can be seen in Appendix A to this report.

When broken down like this, the Track was found to have been separated into 54 functional units in 2008. Coincidentally, to walk the track from end to end takes approximately 55 days on average, so we have effectively broken the track into units on average representing about 1 day of walking.

Step 2: Identify proto-typical sections in each class for observation

Once the track had been broken down and the sections allocated to classes, we then needed to identify a smaller number of 'proto-typical' sections within each class that could be used for measurement purposes. The idea here is that if the sections within a class are similar in their usage patterns (if not volumes), then measuring usage in several sections within the class to create an average for the class, and then applying this average to *all* of the sections will yield a reasonable indicator of usage of the whole class.

Proto-typical sections were identified through consultation and agreement between DEC, the BTF and Colmar Brunton. The sections identified were:

Code 07/08	<i>Code 2003</i>	Location Name	Location Description
T1	<i>T5</i>	Mundaring Weir	<i>South ledge to Hills Forrest.</i>
T2	<i>T1</i>	Albany Wind Farm	<i>Anywhere along the section where the Bibbulmun Track intersects the Wind Farm loop trail.</i>
H1	<i>H4</i>	Asher Rd (Kalamunda)	<i>Anywhere convenient between Asher Rd and Hewett's Hill campsite. Possibly just beyond crossing with gravel Road.</i>
H3	<i>H1</i>	Sullivan Rock (Mundaring → Dwellingup)	<i>At intersection of Sullivan Rock spur trail and Bibbulmun Track - just east of rock mass.</i>
H4	<i>T4</i>	Beedelup Falls	<i>Between T junction where Bibbulmun Track heads towards Karri Valley and the upper footbridge over Beedelup Falls.</i>
M2	-	Harris River Dam	<i>Harris Dam camp to Harris Dam picnic site. Day Walk section.</i>
M3	-	Karri Gully	<i>Golden Valley Tree Park to Brockman Highway. Weekend walk back to Balingup.</i>

Code 07/08	Code 2003	Location Name	Location Description
M4		One Tree Bridge Sth (Balingup→ Pemberton)	<i>Just south of intersection of Bibbulmun Track and Graphite Rd.</i>
M5	-	Peaceful Bay Area	<i>Rame Head camp to Peaceful Bay.</i>
P1	-	Kalamunda Nat Park	<i>Kalamunda to Fern Rd. Start of the Bibbulmun Track. Local walkers and visitors.</i>
P2	-	Balingup Town	<i>Balingup Brook bridge to Balingup.</i>
P4	P3	Denmark South (Little River)	<i>At the footbridge over Little River - between Rainbow Close and Maraveen Place.</i>
P5	-	Albany, Little Grove	-
P6	P2	Dwellingup South (Swamp Oak)	<i>Half a kilometre south of Dwellingup, a few hundred metres beyond the school in the direction of Swamp Oak campsite.</i>
D1	D1	Waalegh (Sth of Mundaring)	<i>Intersection of Bibb Track with Allen Rd just north of Helena River crossing - 4.5km north of Waalegh campsite.</i>
D2	D3	Driver Rd (Sth of Dwellingup)	<i>At point where Bibb Track crosses gravel Road just east of Driver Rd floodway crossing of Murray River - 14.2km south of Murray campsite & 3.6km north of Dookanelly.</i>
D3	-	Balingup Area	<i>Mumbalup Tavern to Balingup Brook Bridge.</i>
D4	H3	Manjimup Area	<i>Donnelly River.</i>

Step 3: Develop an observation record and a questionnaire

There were two sorts of data that we wish to record from the selected sections. The first is the objective observational data needed to determine the number of days spent on the track. This is collected by the simple mechanism of an observer noting the number of people passing a particular spot during observation sessions. An example of the volume tracking form that was used for this is included in Appendix B, and allowed the observer to record group size and composition, time and direction of travel. This observational data could be collected without any interaction with the users themselves.

However, it is also useful to supplement this data with attitudinal and other data obtained by interviewing walkers. In particular, data about the duration of use is critically important in estimating the number of walks (as opposed to days on the track).

Other information considered useful includes where people have come from to use the track and how frequently they use it, as this pertains very much to understanding the usage patterns. However, additional information such as data about start and finish points, how the walk compared to their expectations, sources of awareness of the track, and intention to re-use the track were all important, and were included in a survey to be asked of walkers.

The interviewers who complete the observational data also interview as many users as practical to collect this data. Interviewers are instructed that all walkers are to be approached to do an interview unless a) the interviewer was already interviewing; or b) their primary task of collecting volume use data would be compromised (they needed to be able to keep recording observational data even as they were interviewing).

The final questionnaire to be used was kept as short and simple as possible to facilitate easy implementation and to avoid unnecessarily detaining users. It was limited to a single front-and-

back A4 sheet, and a copy of this interview can be seen in Appendix C. This questionnaire varied only slightly from the one used in 2003.

Step 4: Session Schedule

In an ideal world without logistical or budgetary constraints we would then observe usage at the selected sites 24 hours a day for 365 days. However, this is clearly not practical at a number of levels. It then becomes critical that the times that *are* used for observation are systematically programmed to ensure that we have sufficient observations to reliably estimate usage at all times of the day and week. This means establishing a systematic observation schedule that will provide us with the *quality* of data needed, not just the quantity.

For previous projects where we have used this methodology we have broken the week up into a three by three grid, which then allows us to cover *all* parts of the week:

	Weekdays	Saturday	Sunday
Dawn – 10 am	Session 1	Session 4	Session 7
10am – 2 pm	Session 2	Session 5	Session 8
2pm - sunset	Session 3	Session 6	Session 9

The rationale for this breakdown is that we have found that typically usage on different weekdays does not vary systematically, and thus they can be treated as a single category. However, previous research has shown that both Saturday and Sunday have different characteristics, and need to be treated independently.

Statistical tests comparing the means of Saturday and Sunday confirmed that they were again significantly different, validating the continued separate treatment of the data for these days. Further, the data for the three different observation time slots were also significantly different, indicating that the data could be analysed separately.

Observation sessions are then scheduled into each of these nine 'slots'. Once data has been gathered from all the slots (and this is spread over a period of weeks, preferably with multiple observations in each session), then the logic is that:

$$\text{weekly usage} = (\text{Saturday users}) + (\text{Sunday users}) + [5 \times (\text{weekday users})].$$

By collecting data over an extended period and having multiple observations per timeslot we are able to a) develop more reliable 'averages' for each timeslot; and b) begin to factor in seasonality issues. Unless data is able to be gathered over a full 12 month period, seasonality effects can only be partially considered. The 2003 Bibbulmun Track project was only able to collect data for a 5-6 month period, however the 2007-08 project collected data for a full 12 months, meaning that no seasonal adjustments were necessary.

Post-hoc analysis showed that there were different 'off-peak' periods for the north and south sections of the track, with the north end having lower use in the three summer months while the south end has lower use in the three winter months. This means that approximately 25% of the year is 'off peak' for any given section of the track. In total, 23% of the observation sessions were undertaken in the 'off peak' period of the year for the particular site, meaning that no additional allowance needs to be made for this seasonal variation.

For each selected site an observation schedule was defined at the outset of the project. This involved multiple sessions in each of the nine slots across the full 12 months at each of the selected locations, providing multiple raw data points from which the final averages could be derived.

Step 5: Data collection

Data for this project was collected by volunteers co-ordinated by the Bibbulmun Track Foundation. Members of the BTF were contacted by e-mail and by phone, as well as through articles in the Foundation's newsletter.

A detailed training manual developed by Colmar Brunton describing the project and the tasks volunteers needed to complete was provided to all volunteers who worked on the project, and

volunteers were provided with a contact for the Colmar Brunton project manager and encouraged to call if they had specific questions (a number of volunteers took up this option throughout the 12 months of the data collection).

The support from volunteers was very good, and the project could not have proceeded at all without this support. However, inevitably something less than 100% of scheduled sessions were able to be completed. In particular, in some sites in the more remote locations, completing observation sessions was dependent upon finding volunteers willing and able to complete sessions. The 2003 experience suggested to us that it was important to select locations where volunteers would be able to regularly conduct sessions, and the 2008 sites were partly selected on this basis.

In total 458 observation sessions were conducted between September 2007 and October 2008 (compared to 198 from April to September in the 2003 study). The table below shows the number of sessions that were completed at each site.

Site	T1	T2	H1	H3	H4	M2	M3	M4	M5	P1	P2	P4	P5	P6	D1	D2	D3	D4
Completed	28	29	27	28	25	31	27	25	6	26	25	26	28	27	24	26	23	27

The table below shows the number of observation sessions that were completed for each of the nine session slots at the class level. Aside from the T-Sites, where there was only two sites included, all but one of the session averages was based on more than 8 individual observation sessions across the 12 month period, allowing us to be quite confident that the average is a meaningful indicator of the typical usage level of each site.

Session	T sites 57 (12%)			H Sites 80 (18%)			M Sites 89 (19%)			P Sites 132 (29%)			D Sites 100 (22%)		
	Week day	Sat	Sun	Week day	Sat	Sun	Week day	Sat	Sun	Week day	Sat	Sun	Week day	Sat	Sun
1	7	6	6	9	8	9	10	9	10	17	13	9	12	11	10
2	5	4	9	10	8	9	11	12	10	15	15	20	11	12	11
3	8	5	7	9	9	9	10	9	8	15	13	15	11	11	11

During these 458 sessions, a total of 6,179 individual walkers in 2,201 'groups' were recorded.

Interviewing

Of these 6,179 individuals, 592 (10%) were interviewed; with 408 (7%) declining an interview, 128 (2%) who were approached but had been previously interviewed, and 5,051 (82%) who were not approached for an interview. At least one interview was completed in 18% of the groups who were observed. 76% of groups were not approached for an interview. The table below breaks down when and where these interviews were completed.

Session	T sites n=89 (15%)			H Sites n=195 (33%)			M Sites n=56 (9%)			P Sites n=202 (34%)			D Sites n=51 (9%)		
	Week day	Sat	Sun	Week day	Sat	Sun	Week day	Sat	Sun	Week day	Sat	Sun	Week day	Sat	Sun
1	1	12	30	7	44	14	6		3	1	26	18	6	3	18
2	6	2	28	8	44	27	7	25	10	41	11	42	7	6	3
3	3	5	2	2	26	23	1	3	1	3	21	39	2	4	2

There are many reasons why groups may not be approached, including the interviewers being already engaged in an interview; feeling that to do an interview would compromise their ability to record numbers; and many more (including interviewer confidence to approach walkers). However, there are some implications of this for the representativeness of the sample, and these are described in more detail in the assumptions and limitations section below.

4.2 ASSUMPTIONS AND LIMITATIONS

Observations - estimating days spent on the track

There are a number of assumptions involved in deriving an estimate of total usage from component 1. These are:

- *Breaking the track down into 54 functional sections is appropriate.* We are quite confident in this process as the combined experience of DEC and the BTF was used to complete this process, and the sections have good face validity.
- *The allocation of sections to categories is appropriate.* This is perhaps a little more speculative, in that it relies on *a priori* expectations of the sections. However, this is again based on the judgements of the experienced personnel of DEC and the BTF, and the categories and allocation used were agreed on by all parties.
- *Observation points in the targeted sections will capture all users.* It is obvious that this will not be 100% true, as a recreational facility with an almost infinite number of degrees of freedom will inevitably have some users who do not pass a particular site in a section. However, these sites were chosen based on the combined expertise of the relevant bodies, and it is expected that the majority of users will be detected and recorded.

This component is the critical element of the project, as the direct observational data is a very reliable basis for an estimate of usage to be made. It is from this data that the primary estimate of total annual days spent on the track will be made. We are confident that the assumptions that underlie this estimate are sufficiently sound for a robust estimate to be made.

Moreover, the 2008 estimate is based on a much larger number of observations than the 2003 estimate; and the 2008 estimate is based on a full 12 month data collection – meaning the seasonal adjustment required for 2003 was not needed on this occasion. On this basis, we expect that the 2008 estimate is even more reliable than the 2003 estimate was at that time.

Interviews – estimating number of walks

The representativeness of the interview respondents is an important issue for the survey, as the secondary estimate of usage (number of walks) is calculated using the reported duration of visitation from the surveys.

The general survey responses are presented as being indicative of the attitudes and experiences of users (a 'user attitude' survey) – and this does not require the sample to be as rigorously representative as other survey contexts can do, although the more representative it is the better. However, the use of this data to create the secondary usage estimate *does* rely on the sample being representative. We have no way of calibrating the representativeness of the sample in terms of factors such as frequency of usage or duration, and have to rely on random sampling to effectively present usage patterns at an incidence level within the data.

To support this, there is a mechanism by which people could not complete more than one survey, and so people who use the track more often or for longer should not be sampled multiple times. However, these people do spend longer on the track and are therefore statistically more likely to encounter an observer / interviewer and be surveyed. Therefore, these people are very likely over-represented in the sample. This would over-estimate the average duration of visit and frequency of visiting, and have the effect of causing the estimates of walks to be somewhat lower than is really the case for the estimated number of days spent on the track. Assuming there is no systematic difference in the sampling between 2003 and 2008, this over-representation should be consistent between waves though, and thus the results would be comparable.

However, it appears that there may be a systematic difference between the 2003 and 2008 data. The average reported duration of walks is slightly higher in 2008 compared to 2003. The direction and magnitude of this change is consistent with anecdotal evidence about usage. The estimate of walks based on this figure has good face validity and is considered a solid estimate of this figure.

The 2007-08 data picked up a larger number of high-frequency users compared to 2003, including some who used the track every day. Interestingly, 19 of the 22 individuals who reported using the track more than once a week over the last year were interviewed in the P-class sites. All of these high frequency users were from WA, and the majority walked / jogged or drove their car to the start point of their walk and spent nothing on the walk during which they were interviewed. This pattern suggests that they are primarily locals walking in and around regional towns where the Bibbulmun Track may offer a particularly good option for regular walking.

5. Results

SECTION 1: ESTIMATED USAGE OF THE BIBBULMUN TRACK

The primary purpose of this study was to estimate the number of people who use the track each year. There are two measures of usage levels that will be developed from the range of data available for analysis:

1. **Primary estimate:**

Number of days spent on the track – the basic unit of observation for the study, as during a multi-day walk it is possible that a walker would be observed on more than one occasion. A 'day on track' does not refer to any specific length of time spent on the track, but rather refers to a walker spending some time on the track on that day (the walking duration could be anything from a minute to the full 24 hours).

2. **Secondary estimates:**

Number of Walks – the unit which captures the number of trips to and from the track which are made by users. A walk could be a single day visit, or a multi-day use of the track..

Of these, the first is the most important, and will be considered to be the definitive usage indicator. This measure is estimated directly from the observational data, and hence is most reliable.

The secondary estimate – the number of walks - will then be estimated by working back from the total number of days on track based on reported patterns of use from the visitors who are surveyed. This requires more assumptions to be made about the representativeness of the survey data, and hence this secondary estimate must be treated much more cautiously.

5.1 PRIMARY USAGE ESTIMATE: DAYS ON TRACK⁴

The number of days on track is directly determined from the observational data, as this ignores factors such as the frequency with which a particular individual uses the track, or for how long, and dispassionately records the numbers of people observed on the track. An individual walker who walks for an extended time can be counted multiple times, with each case contributing to the estimate of days spent on the track.

The process for estimating the total number of walks from the walker survey was described in detail in the Research Strategy section. Following the process step by step yields the results seen below.

Step 1: Average number of observed users for each session and day across the five categories of sites used in the 2008 survey (using data from all 18 locations).

Category		T Sites	[2 sites]	
Session	Weekday	Sat	Sun	
am	6.3 (7)	5.6 (6)	11.2 (6)	
mid	38.6 (5)	66.5 (4)	196.2 (9)	
pm	10.3 (8)	51.4 (5)	98.3 (7)	
Category		H Sites	[3 sites]	
Session	Weekday	Sat	Sun	
am	3.6 (9)	15.7 (8)	10.2 (9)	
mid	7.3 (10)	29.6 (8)	11.1 (9)	
pm	13.6 (9)	21.2 (9)	13.8(9)	
Category		M Sites	[4 sites]	
Session	Weekday	Sat	Sun	
am	1.2 (10)	3.6 (9)	6.5 (10)	
mid	8.1 (11)	7.4 (12)	5.5 (10)	
pm	0.6 (10)	3.9 (9)	7.3 (8)	
Category		P Sites	[5 sites]	
Session	Weekday	Sat	Sun	
Am	9.1 (17)	8.0 (13)	11.2 (9)	
Mid	8.0 (15)	7.4 (15)	14.1 (20)	
pm	4.0 (15)	7.2 (13)	7.3 (15)	
Category		D Sites	[4 sites]	
Session	Weekday	Sat	Sun	
am	0.7 (12)	0.6 (11)	3.7 (10)	
mid	3.8 (11)	2.3 (12)	1.0 (11)	
pm	0.8 (11)	0.6 (11)	0.2 (11)	

Step 2: Estimate daily usage (simply combining the three sessions for each day)

Category	Weekday	Sat	Sun
T	55.2	123.5	305.7
H	24.5	66.5	35.1
M	9.9	14.9	19.3
P	21.1	22.6	32.6
D	5.3	3.5	4.9

⁴ See definition on previous page

Step 3: Calculate total estimated weekly usage for each category.

$$\text{Weekly usage} = (\text{Saturday users}) + (\text{Sunday users}) + [5 \times (\text{weekday users})].$$

Category	Weekly usage
T	705.2
H	224.1
M	83.7
P	160.7
D	34.9

Step 4: Annual estimated usage (weekly usage x 52⁵)

Category	Annual usage
T	36,670.4
H	11,653.2
M	4,352.4
P	8,356.4
D	1,814.8

Step 5: Total track usage

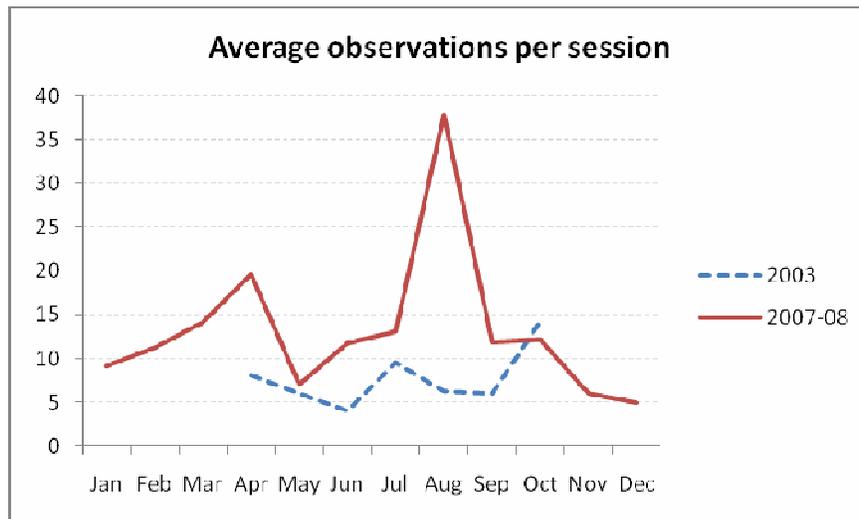
Category	Number of sections in track	Total usage for category	% usage for category
T	3	110,011	25%
H	13	151,492	35%
M	5	21,762	5%
P	14	116,990	27%
D	19	34,481	8%
Track	54	434,736	

This process yields an **estimate of 434,736 days on track**. This figure is 55% higher than the seasonally adjusted 2003 estimate of 280,000 days on track. It is likely that this increase reflects a genuine increase in visitation, though it should also be noted that the reliability of the 2008 figure is considerably higher than the 2003 figure, being based on the greater number of observation sessions completed and the full 12 month data collection. This increase is also consistent with anecdotal feedback about the use of the track, which suggests that use of the track has increased since 2003, and become more consistent.

Unlike the 2003 study when data was collected only for part of the year, no seasonal adjustment is required to this figure. The chart below shows the monthly variation in the average number of observed visitors per session for 2003 and 2008. This shows a very strong spike in usage in

⁵ Because the weekly usage estimate is based on the average across the 12 months of observation, no seasonal calibration is applied.

August 2008 which may have been associated with events around the track's 10th anniversary, but suggests that usage is still lowest through the summer months.



5.2 SECONDARY USAGE ESTIMATE:

Number of Walks on the Track⁶

Note about secondary estimate:

The estimate of usage of the track in terms of days on track is based on direct observations of walkers. For this reason, it is by far the most reliable of the estimations of use presented in this report. Where the number of days is based on directly observable data, the next estimate – number of walks – relies on the interview data as well.

While the interview component *is* intended to provide a meaningful snapshot of the experiences of visitors, the representativeness of the interview sample is less clear cut. For this reason, **this calculation needs to be treated with caution**. Systematic variations in the way that the volunteer interviewers collected data could have significant impacts on the usage patterns reported, and hence on the estimates derived.

For example, if completing interviews as opposed to counting walkers was more common at low-usage times, and infrequent visitors were less likely to be present at those quiet times, then an over-representation of high frequency users would be found in the data. This would over-state the proportion of high-frequency use, and reduce the estimated total number of walks.

As it cannot be determined how representative the sample is, there is need for caution to be exercised. These secondary estimates should be considered in the light of other data sources, and interpreted accordingly.

If no-one who used the track ever did so for anything other than a day-visit, then the number of visits and the number of visitor days would be the same. However, because some visitors to the track are involved in multi-day trips, then the actual number of days spent on the Track is higher than the number of visits.

⁶ See definition on page 20

The number of walks on the track can be estimated by working back from the total of 434,736 days on the track using the average duration of visits. This figure is calculated from the survey data as well as the observational data. Where possible, walkers on the track completed a survey which included a question that asked how long they were walking for on this occasion. This showed:

Duration of current walk	2003 Survey	2008 Survey
1 day	72%	69%
2-3 days	20%	15%
4-6 days	2%	4%
7 days – 4 weeks	<1%	4%
Longer than 4 weeks / end to end	6%	8%
Average (mean) [Days / Visits in last 12 months]	2.0 days	2.6 days

As the comparison to the 2003 data shown above suggests, the average duration of walk per interviewee was longer in 2008 – 2.6 days on average compared to 2.0 days in 2003⁷.

The calculation required to produce the total number of visitor days with this average duration is simply:

$$\text{Walks} = \text{Days on track} / \text{average duration of visit}$$

$$\text{Walks} = 434,736 / 2.6$$

$$\text{Walks} = 167,206$$

Thus we arrive at **an estimated 167,206 walks made on the track in 2007/08**. This figures is 22% higher than the equivalent estimate of 137,000 in 2003.

⁷ The average is not calculated from the reported duration of current walk, but as the average number of days reported spent on the track in the last 12 months divided by the number of visits in the same time. Both this average calculation and the reported duration of the current walk showed a tendency towards longer walks in 2007-08 than in 2003.

SECTION 2: PATTERNS OF USAGE

This section examines the patterns of usage reported by walkers on the track. The data discussed here was gathered from the intercept survey (n=593) unless otherwise noted. Comparisons are provided throughout to the 2003 data (N=295), but the reader is cautioned to treat such comparisons as indicative rather than definitive, given the different numbers of underlying observations (there are many more interviews in 2007-08 compared to 2003), the fact that some different observation / interviewing locations were used between the two years, and the possibility that slightly different practices have been employed by some or all volunteer interviewers.

5.3 SAMPLE CHARACTERISTICS

It is important to understand that the sample used for this study is not automatically representative of all walkers. As noted in the methodology and limitations sections, only a relatively small proportion of observed walkers were interviewed (10%), and any systematic biases in the way that interviewees were approached and / or chose to participate could have a substantial impact on the results from the interview component of the study.

This is presented as a 'walker attitude survey' – and is intended to provide a reasonable snapshot of the views of people who are using the track. It is impossible to precisely calibrate this sample or extrapolate the results, though it is important to understand its essential nature.

The first part of section 2 of the results is therefore to consider the sample of interviewees itself, and draw some conclusions on how comparable it may be to both the overall walker population and to the 2003 sample. This will be done by a comparison between the demographic breakdown of the various samples. Such a comparison cannot prove or disprove the veracity of the 2007-08 interview sample – but it can give us a sense of how much confidence we may be able to place on the results from the remainder of the survey results.

Where interviews were completed

The split of completed interviews across the five classifications of track sections does not match the precise proportions of estimated total use of those categories, but the pattern is sufficiently congruent to be confident that the interview sample is largely representative of the wider population of walkers.

Category	% completed interviews	% estimated total use
T	15%	25%
H	33%	35%
M	9%	5%
P	34%	27%
D	9%	8%

The bulk of interviews were from the two estimated high-volume categories – H-Sites and P-Sites. Interviews with walkers in the T-sites were over-represented by comparison to their overall estimated proportion of total use, with the M and D sites remaining secondary in the sample. This is important, as a dramatic difference in the proportion of interviews from use could generate unrepresentative survey results if there were systematic differences in the views of users of different categories and these were then under or over-represented in the sample.

On the basis of this pattern, we are comfortable that the interview data does not need to be statistically weighted to counter a major discrepancy in the origin of interviews.

Gender

In 2007-08 53% of observed walkers were male, and 47% female. This is largely unchanged from 2003, when the proportions were 51% and 49% respectively.

The interviewed walkers were similarly split on gender, with a 56% : 44% ratio seen in the completed interviews.

As was the case for the location of interviews, this is good for the interview sample as it means it is unlikely to be skewed away from the broader population of walkers due to consistent differences between males and females.

Age

81% of observed walkers were estimated by observers to have been aged over 18. The comparable figure from 2003 was 78%, so again there is a strong consistency which suggests that direct comparisons are potentially valid.

The interviewed sample is not expected to precisely match this, as very young children are included in the observation data, but would not be interviewed. The table below shows the breakdown of interviewees in the two waves of the study. It shows:

- that the sample of interviewees in both years have also been heavily skewed towards adults (which is consistent with the observation data, and helps us to feel more confident about extrapolating the survey results more broadly to the population of walkers); however it also shows that:
- The interviewed sample is very much younger in the 2007-08 survey than was seen in the 2003 survey (which means that a direct comparison of survey results from 2003 to 2007-08 must consider whether this different age profile could be influencing the presence or absence of differences seen over time).

Age of walkers (interviewed)

Age	2003	2007-08
Under 15	-	5%
15-24	8%	25%
25-39	38%	53%
40-59	45%	17%
60+	9%	<1%

Base: all walkers (2003, n=293; 2007-08: n=471)

Q21. Can I just ask how old you are?

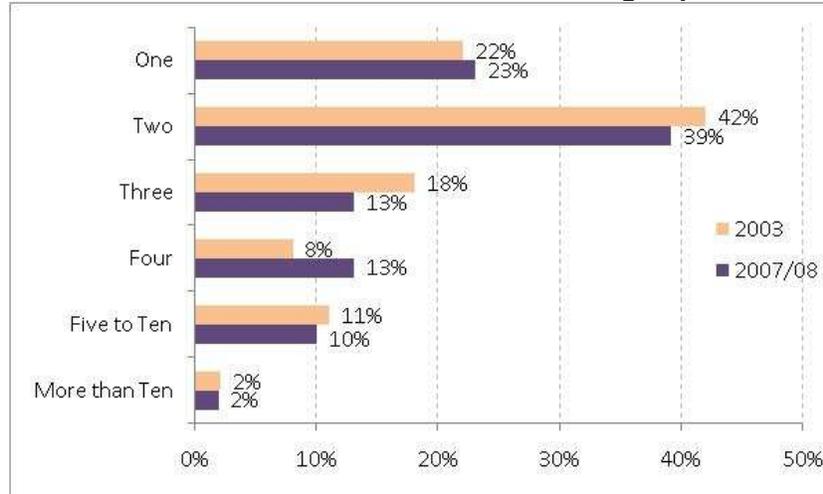
It is also interesting to note a gender difference in the age of interviewed users in 2007-08. 22% of males interviewed were aged 40+, compared to 12% of females interviewed. However, females were more likely to be aged under 24 (36% versus 24% of males).

Composition of walking parties

Information on the composition of walking parties was obtained from the direct observational data and the surveys, enabling us to further consider how closely the interviewees are matched to the population of walkers.

Over the 458 observation sessions in 2007-08, some 2,201 individual walking parties were observed and counted (in 175 of the 458 sessions, 0 walkers were observed – mostly in the M and D Sites). A comparison of the observation data in the two studies shows that walking groups have remained quite consistent, with the most common size for a 'group' of walkers in both being two (around 2 in 5 groups). Around a quarter of 'groups' in both waves is actually a single walker.

Observed number of walkers in each group



Base: all observed walking groups (2003 n= 471; 2007-08: n=2201)

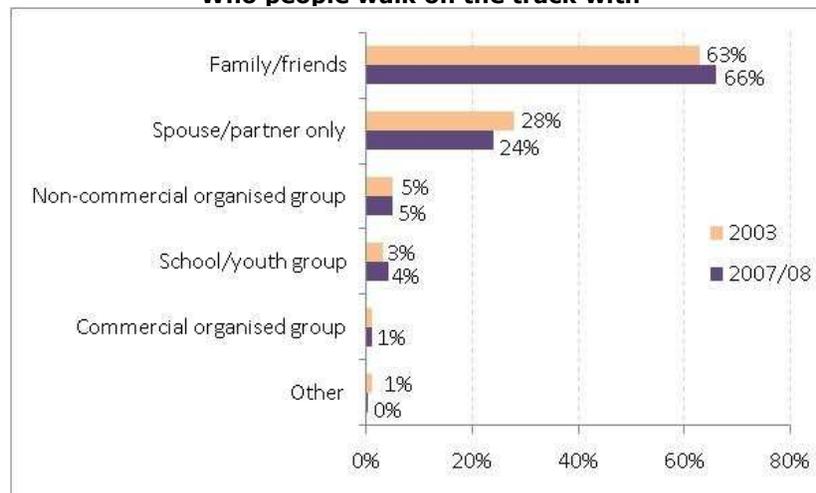
The average group compositions based on observation is as shown below. The reported composition of the groups from which interviews were completed (2007-08 in brackets below) were quite similar to the observed averages, and this further enhances our confidence in extrapolating from these surveys to the wider population of walkers. The table in part 2.2 which breaks down the composition of observed and interviewed groups across the five categories further reinforces the consistency with which the interviewed groups match compositionally to the observed groups.

	<u>2003</u>	<u>2007-08</u>	<u>(2007-08 Interviews)</u>
Adult male:	1.2	1.2	(1.7)
Adult female:	1.2	1.1	(1.6)
Child male:	0.4	0.3	(0.4)
Child female:	0.3	0.2	(0.3)
Total	3.1	2.8	(4.0)

18% of the walkers interviewed in the intercept survey were reportedly walking alone on the Track (compared to 23% of observed walking groups).

Of those people who were not walking alone, one third were walking with family or friends (66%) whilst just under a quarter (24%) were with a spouse / partner only. Non-commercial, organised groups made up 5% of walking parties with commercial groups comprising just 1% of walkers. Again, a comparison between the 2003 and 2007-08 samples appears justified on this aspect.

Who people walk on the track with



Base: all walkers not walking alone (2003, n= 230; 2007-08: n=484)

Q10. Who are you walking with?

Conclusions about interview sample

While it cannot be definitively concluded from this consideration of basic characteristics that the 2007-08 interview sample is representative of either the broader population of walkers in this same time period, or directly comparable to the 2003 sample, the consistency that was generally observed increases the likelihood that such uses of the data are justified.

The only obvious discrepancy was the skew of the 2007-08 data to younger respondents than the 2003 sample. For questions where age differences are known or hypothesised to be important, then care needs to be taken in interpreting the comparison between the two samples.

However, in terms of representing the views of walkers more generally in 2007-08, there is no obvious reason to assume that the views of interviewed walkers would be systematically different to non-interviewed walkers – at least on demographic and observable characteristics. It is always possible that those people who choose to participate in the survey are in fact different in some attitudinal way (eg: they may be the most or the least satisfied users), but there is no way of checking this, and in the absence of evidence of such a skew, it should be assumed that a) the randomness of sampling will overcome such biases; and b) any biases would be approximately equal in the 2003 and the 2007-08 sample.

Therefore, we recommend cautious interpretation of the survey results from 2007-08, but are confident that, so long as this caution is exercised, they can be used to represent the views of current walkers, and also be meaningfully compared to the 2003 survey results.

5.4 PROFILE OF WALKERS

Age and gender consistency across categories

Overall, 53% of observed walkers were male, and this proportion was very consistent across all categories of sites except D-Sites, where more like two-thirds of walkers were male. These proportions were, in the main, very closely approximated in the groups that were represented by interviewees. The only exception to this was in the T-Site, where the proportion of males in groups where an interview was done was slightly low.

Overall, adults (based on observer judgements) made up 81% of walkers, and this was also mirrored almost exactly in the composition of interviewed groups. The observation data suggests that children are most likely to walk in the M-Sites, and least likely to do so in the P and D Sites. The interview samples also reflect this pattern.

In fact, the only place there is a real discrepancy between the nature of the groups from which interviews were completed and all observed groups is in the average group size. It is evident that interviews were more likely to have been completed in similarly proportioned but slightly larger groups (average size = 4.0, compared to the average observed size of 2.8).

Comparison of age and gender across categories

	Observed Groups				Interviewees' Groups			
	% Male	% Female	% Adult	Average group size	% Male	% Female	% Adult	Average group size
Total	53%	47%	81%	2.8	53%	47%	82%	4.0
T Sites	51%	49%	79%	3.1	42%	58%	72%	4.2
H Sites	53%	47%	84%	2.6	57%	43%	86%	3.1
M Sites	57%	43%	73%	2.0	55%	45%	76%	4.7
P Sites	53%	47%	87%	2.1	52%	48%	85%	4.9
D Sites	68%	32%	89%	1.2	63%	37%	88%	3.0

5.5 ORIGIN OF WALKERS

There appear to have been no substantial changes in the origins of walkers on the track, with 87% being from WA (including over 70% from Perth), 6% from interstate and 7% from overseas.

		Where interviewed walkers live	
From	Area	2003	07-08
WA	Perth	75%	71%
	South West	9%	9%
	Other regional	1%	2%
	South West - within 20km of here	4%	6%
	% of Total	89%	87%
Interstate	Qld	1%	2%
	NSW	3%	1%
	Vic	2%	2%
	Tas	0.3%	1%
	SA	1%	-
	% of Total	7%	6%
Overseas	New Zealand	0.3%	1%
	Europe	2%	5%
	Nth America	1%	1%
	Asia	1%	0.3%
	% of Total	4%	7%
		n=290	n=587

Of those who came from overseas or interstate (n=72), about 1 in 3 had decided to walk on the Bibbulmun track before they arrived in WA (37%). These results and similar results in 2003 support the suggestion that the track has some considerable profile outside of WA, or at the very least information about the track is readily available to visitors planning trips to WA.

Although the sample is small, and drawing any definitive conclusions is not practical, just under half of the interstate and overseas visitors interviewed were doing walks of more than two days (43%) and with a median length of 18km, suggesting that such visitors *may* tend towards longer duration walks on the track than locals. A quarter of interstate and overseas visitors interviewed intended to walk the track for longer than 4 weeks (24%).

5.6 WHEN THE TRACK IS USED

The observational data gave us some insight into the times and days during which the different parts of the track are most heavily used. Although the absolute numbers shown below have changed substantially in some cases, it is more the pattern of use that is of interest. The bold numbers in the table highlight the two timeslots with the highest averages. This shows some consistencies with the 2003 data, but also some areas where usage patterns appear to have been quite different at the sites used in 2007-08 compared to 2003.

Average number of walkers observed in each category by session

T Sites	2003			2007-08		
	Weekday	Sat	Sun	Weekday	Sat	Sun
Session						
am	15.4 ⁵	4.0 ²	3.3 ⁶	6.3 ⁷	5.6 ⁶	11.2 ⁶
mid	12.6 ⁷	15.5 ⁶	26.8 ⁴	38.6 ⁵	66.5 ⁴	196.2 ⁹
pm	3.3 ⁶	34.4 ⁵	17.4 ⁷	10.3 ⁸	51.4 ⁵	98.3 ⁷
H Sites						
Session						
am	0.8 ⁶	1.8 ⁶	3.3 ⁶	3.4 ⁹	15.7 ⁸	10.2 ⁹
mid	2.3 ⁸	12.2 ⁵	27.3 ⁸	7.3 ¹⁰	29.6 ⁸	11.1 ⁹
pm	2.2 ⁹	7.8 ⁵	15.0 ⁸	13.6 ⁹	21.2 ⁹	13.8 ⁹
M Sites						
Session				Weekday	Sat	Sun
am				1.2 ¹⁰	3.6 ⁹	6.5 ¹⁰
mid				8.1 ¹¹	7.4 ¹²	5.5 ¹⁰
pm				.6 ¹⁰	3.9 ⁹	7.3 ⁸
P Sites						
Session						
am	1.7 ⁶	2.2 ⁶	0.2 ⁵	9.1 ¹⁷	8.0 ¹³	11.2 ⁹
mid	5.4 ⁸	26.0 ¹	3.5 ²	8.0 ¹⁵	7.4 ¹⁵	14.1 ²⁰
pm	2.3 ⁴	3.3 ⁴	0.0 ⁴	4.0 ¹⁵	7.2 ¹³	7.3 ¹⁵
D Sites						
Session						
am	0.0 ⁴	0.0 ⁵	3.0 ⁵	0.7 ¹²	0.6 ¹¹	3.7 ¹⁰
mid	4.0 ⁵	1.5 ⁴	2.6 ⁵	3.8 ¹¹	2.3 ¹²	1.0 ¹¹
pm	1.9 ⁷	4.5 ⁶	0.7 ⁷	0.8 ¹¹	0.6 ¹¹	0.2 ¹¹

Note: small numbers in italics are the number of sessions the average is based on

Tourist sites (T)

T-Sites were the most heavily used in the 2003 study, and this was again the case in 2007-08. Weekend use was far higher than weekday use, with Sunday afternoons the overall peak. The morning timeslot was the lowest on each day.

High use sites (H)

H-Sites were also skewed towards the weekend and the afternoons, in both the 2003 and 2007-08 studies. Observed usage peaked on Saturdays in 2007-08, where Sunday had been more dominant in this category in the 2003 observations.

Moderate use sites (M)

Overall, the M-Sites had much lower level of usage than the H-Sites, but also the P-Sites (below). Like the T and H sites, observed usage was higher on the weekend – but to a much lesser extent. Weekday usages was heavily skewed towards the middle of the day, and Saturday use was similarly skewed, if less concentrated. Sunday usage was more consistent across the day at the sites included.

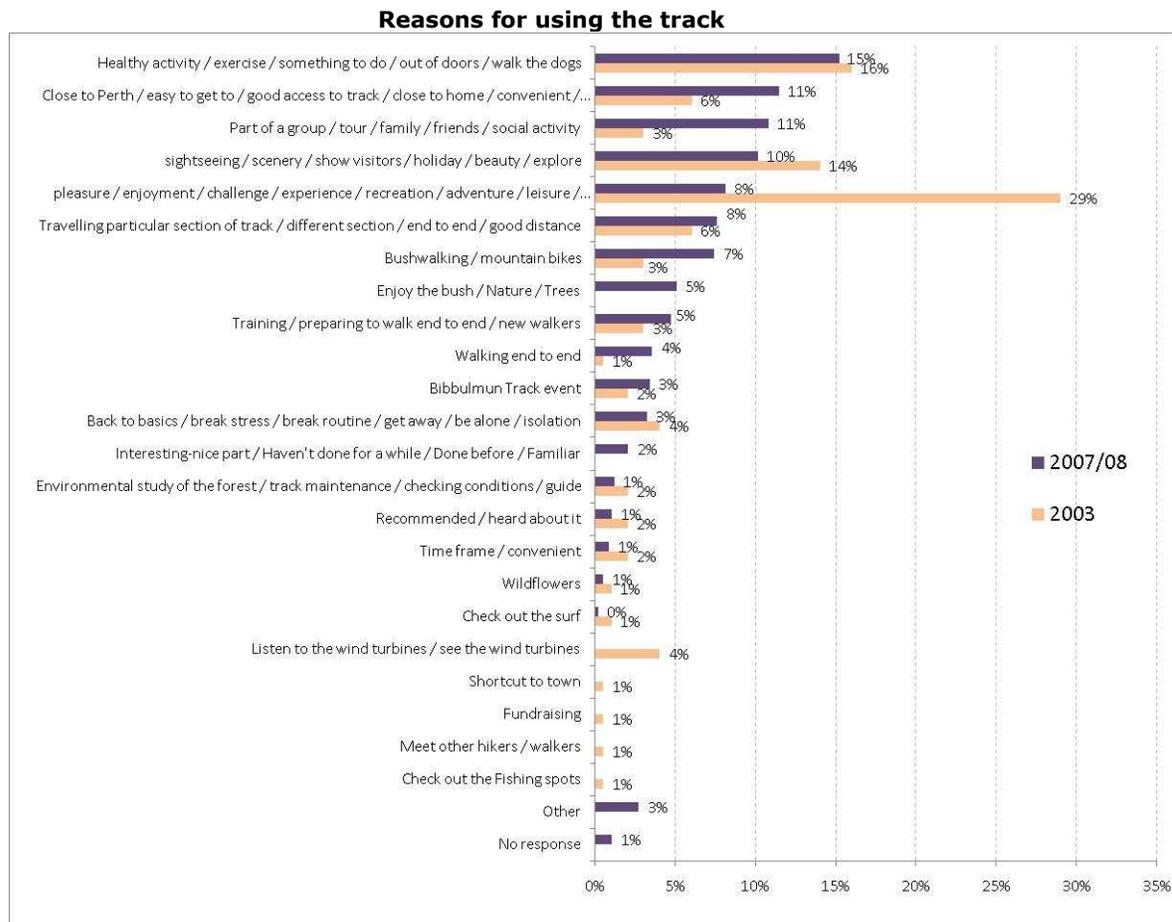
Population-centre sites (P)

The P-Sites had probably the most consistent level of observed use across all timeslots in the 2007-08 study. Weekday use was strong, if not quite as strong as the weekend, and more heavy in the first half of the day.

Distance sites (D)

D-Sites are still by far the least heavily trafficked, consistent with their inherent character. Weekday use of these sections still appears to be most likely to happen in the middle of the day. Other peaks seen in 2007-08 were in the middle session Saturday and the morning session on Sunday.

5.7 MAIN REASON FOR USE



Q4. What is the MAIN reason for walking here in this particular place?

The Bibbulmun Track has a wide variety of potential uses and walkers use it for many different reasons. The previous chart lists the main reasons given by intercept respondents for walking on the Track.

Of those walkers surveyed whilst walking the Track in 2007-08, 79% claimed the Bibbulmun Track was the main reason they came to that particular area.

In the 2003 survey, nearly a third of surveyed users gave a main reason related to pleasure, challenge and recreation. In 2007-08, responses were more varied, with no single dominant reason seen. Health and exercise was the biggest underlying motivator for 15% of walkers in 07-08 with only 8% of walkers mentioning the previously dominant pleasure, challenge and recreation reasons. Convenience (11%) and walking socially with a group (11%) were also important reasons for using the track in 07-08.

When asked more directly about their expectations of the track (a question not used in 2003), it was the natural environment that was most often identified by walkers, with 40% indicating that this was an expectation they held (49% of females, 33% of males). The importance of the track as a facility for health and fitness was also highlighted here, with 29% nominating this as an expectation.

Main Expectations for walk

Expectation	2007-08
Natural environment and landscapes	40%
Get fit and lose weight	29%
Challenge	21%
Peace and tranquillity	20%
Companionship	13%
Wildlife and flowers	10%
Safe environment	6%
Other	6%

Base: all walkers (2007-08: n=577)

Q21. What are your main expectations for this walk?
Multiple responses allowed

5.8 DURATION AND DISTANCE OF WALKS

Respondents in the intercept survey were asked about how long they were walking on the track.

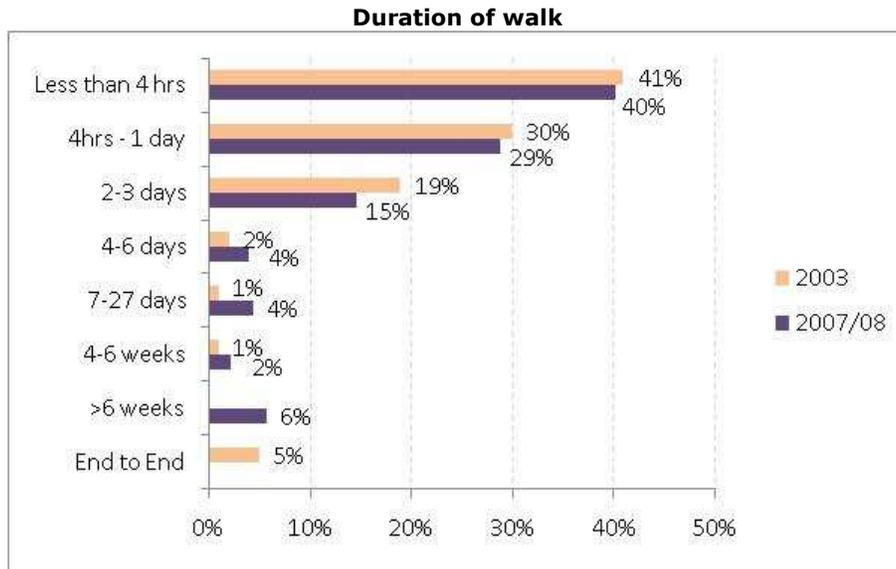
Similarly to walkers in the last survey, 40% were walking for less than 4 hours with another 29% walking for between 4 hours and 1 day. The biggest difference from 2003 to 2007-08 is in the proportion of walkers interviewed who were walking for at least 4 days – with 16% in this category in 2007-08 compared to 9% in 2003.

Walkers who were intercepted were also asked about the *distance* they planned on walking. There was a shift in the length walked with slightly fewer interviewed walkers walking 10km or less (37% compared to 44% in 2003). Slightly more were walking between 10km and 20km (31% compared to 28% in 2003), but over double the percentage of walkers (14% compared to 6% in 2003) reported that planned to walk over 100km. Again, this proportion was made up of a number of people who were planning on completing the whole Track.

The mean distance increased in 07-08 to 105 km (compared to 70km in 2003), but with a standard deviation of 273km - indicating that the distances walked varied widely. In fact, reported distances ranged from just 1km to 2,000km (walking the track continuously both ways).

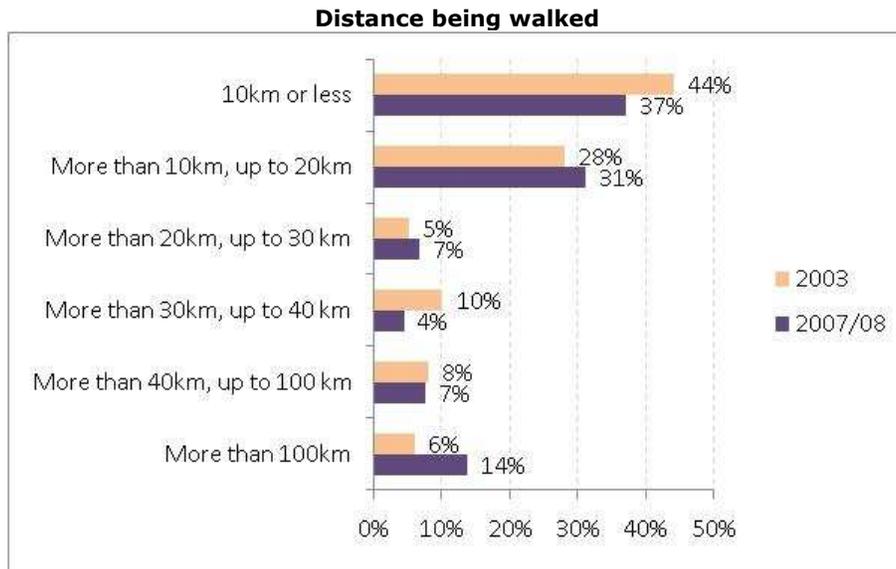
Given this skew towards a small number of very long walks, which pushes the mean up to an unrealistically high figure, a better indicator of the 'typical' distance walked is the median⁸, which was 15km in 2007-08 (1km more than in 2003).

Not surprisingly, the median walk varies considerably across the categories of track. D-Sites had the highest median (41km), ahead of M-Sites and H-Sites (16km), T-Sites (12km), and P-Sites had the lowest median at 10km.



Base: all walkers (2003, n= 293; 2007-08: n=593)

Q1. How long are you intending to walk on the Bibbulmun Track on this occasion?



Base: all walkers (2003, n= 293; 2007-08: n=593)

Q1a. How many kilometres do you think you will cover in total this whole walk?

⁸ The point at which 50% of the responses are lower and 50% higher; less affected by skewed distributions than the mean as a measure of 'average'.

Note: there was a question on the survey that asked whether people were intending to do an end-to-end walk on this trip. This question was intended to identify those people walking from Perth to Albany, or vice versa. However, 27% of people surveyed answered 'yes' to this question, suggesting that it was misinterpreted by many of the respondents or the volunteers conducting the surveys. Comparison to the following question about 'out and back' trips shows that in fact it was interpreted as being the 'a one way walk' rather than 'a length of the track' walk. This data is therefore not reported here.

One-way and return trips

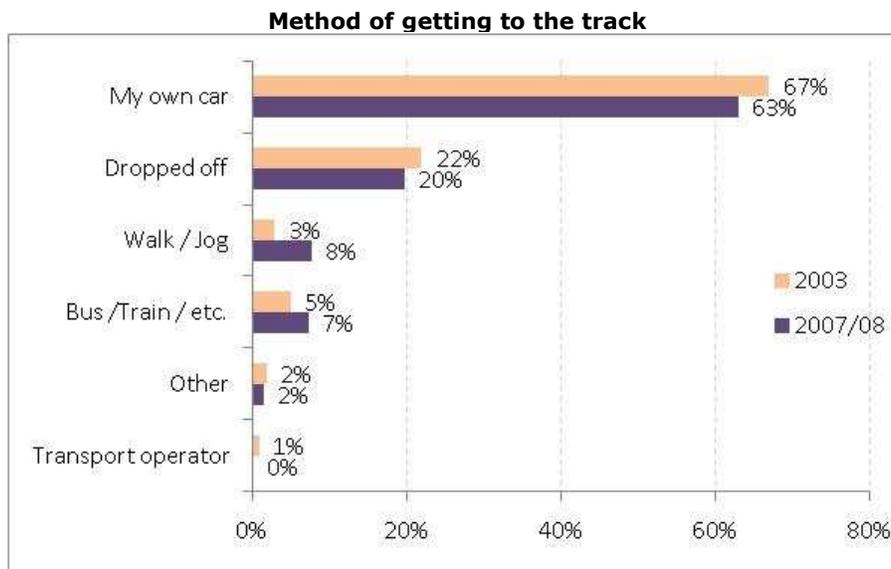
Around three quarters (74%) of the walkers surveyed intended to do or had done an out-and-back walk, compared to only 57% in 2003. These walkers were those who set out from and returned to the same place.

Far less walkers (26%) intended to or had started at one point and finished or were going to finish, at a point further along the track than in 2003 (43%).

5.9 GETTING TO THE TRACK

There has been no major change in the way that people access the track – with private vehicles still accounting for over 80% of walkers arrivals.

Similar to the 2003 results, most walkers access the track by private vehicle. Just under two thirds (63%) of walkers get to the track using their own car while another 20% are "dropped off" by someone else in private transport. Walking or jogging to the track has increased by 5% in 07 – 08, (8% compared to 3% in 2003) however this low percentage still suggests that the majority of walkers actually make an effort to get to the track rather than just walking on it incidentally or using it because it is convenient to home.



Base: all walkers (2003, n= 293; 2007-08: n=593)

Q3. How did you get to your start point on the Bibbulmun Track at the beginning of this walk?

There are some notable differences in the way walkers access different categories of sites:

- T-Sites and H-Sites have a pattern very similar to the overall results, though both have even fewer people who walk / jog to them.
- M-Sites were also similar, but 1-in-5 surveyed users of these sites reported using some form of public transport to reach them.
- At the P-Sites, walking / jogging to the start point accounted for a higher proportion (19% - the only classification with more than 2% using this method).
- 88% of surveyed walkers in D-Sites had arrived by private vehicle – but half of these were drop offs (which probably reflects the higher proportion of one-way walks being done in these sections).

5.10 ACCOMMODATION

From the 593 intercept interviews completed with walkers, 369 (64%) walkers reported that they were not using any accommodation along the track. Given that 69% of walkers were walking for one day only, this suggests that a small proportion of day walkers may travel to an area and stay overnight either before or after a day walk.

The remaining 36% of walkers were using some form of accommodation on their walk (compared to 31% in 2003). Fairly static results in the table below show that track campsites again meet the needs for around 4 in 5 nights of walker’s accommodation while walking the track. The remaining nights were spread across the range of alternative accommodation styles available, again with backpackers (5%), other campsites / caravan parks (5%) and hotel/motels (4%) being the most commonly used.

Types of accommodation used

Nights	Track campsite		Other camp / caravan pk		B&B		Self-contained		Hotel / motel		Back-packers		Friends / family		Total	
	2003	07-08	2003	07-08	2003	07-08	2003	07-08	2003	07-08	2003	07-08	2003	07-08	2003	07-08
1	31	65	8	17	1	5	4	6	4	12	5	13	3	6	56	124
2	26	25	3	3	2	4	1	6		5	4	5	0	8	36	56
3	6	13		8	1	6	0	3	1	6		6	1	6	9	48
4	2	6		2			0	1	2	4		6	0		4	19
5-10	5	20	1	9		3	1	1	3	8	2	10	1	1	13	52
10+	9	46					0					2	0		9	48
Total no. nights	494	2066	24	121	8	48	12	39	30	102	29	163	13	45	610	2584
% of nights	81%	81%	4%	5%	1%	2%	2%	1%	5%	4%	5%	5%	2%	2%		

Base: Walkers who stayed at least one night in accommodation on their current walk (2003, n= 91; 2007-08: n=209)

Q19. How many nights will you spend in each of the following types of accommodation this trip?

Bibbulmun Track campsite visitors

Of the 593 walkers surveyed, 2 in 5 (40%) had visited a Bibbulmun Track campsite on their walk. Males (43%) were more likely than females (35%) to have done so; and younger walkers were more likely than older walkers to have visited a campsite. Walkers interviewed in D-Sites (88%) and M-Sites (66%) were most likely to have visited a campsite, while those in the T-Site (23%) and P-Sites (29%) were least likely to have done so.

Of the people who were intending to stay at least one night in a track campsite on their walk, 80% had already visited a campsite on the walk.

Recording details in campsite log books

63% of people who had visited a campsite had recorded their details in a log book, and 84% of people who were staying overnight had done so. There was no obvious difference in the rate of recording across ages or by gender.

Overcrowding

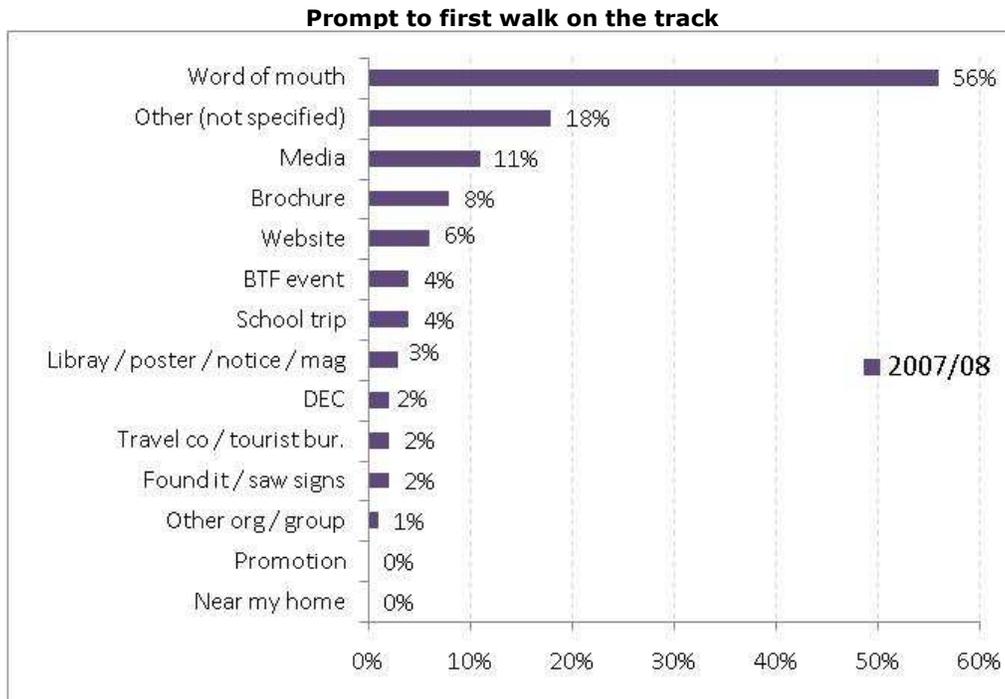
Only 12% of walkers who had visited a campsite reported some overcrowding. This figure was highest in the D-Sites (24%, 11 out of 45 walkers), but between 7%-10% for the other categories.

The table below shows the campsites mentioned as being overcrowded, and the number of people who identified each camp.

Campsite	Number
Helena campsite	10
Hewetts Hill / Hewetts	4
Mt Cooke	4
Beraking Dookanelly	3
Warren	2
Beedelup	1
Brookton Campsite & Swamp Oak	1
Gardner Campsite	1
Hidden Valley	1
Chadoora	1
Monadnocks	1
Murray	1
Nerang	1
Rame Head	1

5.11 KNOWLEDGE OF THE BIBBULMUN TRACK AND ORGANISATIONS

In 2003 those walkers who were interviewed in the intercept survey were asked how they knew about the Track. In 2007-08, this question was changed slightly to be *what first prompted you to walk on the track*.



Q17. What first prompted you to walk on the Bibbulmun Track? *Multiple responses allowed*
Base: All walkers (2007-08: n=587)

Awareness of Friends of The Bibbulmun Track or the Bibbulmun Track Foundation

90% of walkers on the Track had heard of Friends of the Bibbulmun Track and the Bibbulmun Track Foundation (compared to 82% in 2003), including 17% who were actually a member of the BTF (increased from 14% in 2003) and a further 6% who used to be a member.

These results again support the suggestion that members are very active users of the track and may make up a significant proportion of the total track use (though members may also have been more likely to participate in a survey when asked, and therefore be somewhat over-represented in the survey sample).

Overall awareness of the BTF was consistent across ages, but membership was much higher amongst the older age groups than amongst younger walkers. 23% of interviewed walkers aged 25-39 and 31% of those aged 40-59% were members, compared to 8% of those aged 15-24.

Almost all walkers interviewed in D-Sites (98%) were aware of the BTF, while 16% of those interviewed in a T-Site and 14% in an H-Site were not aware.

Awareness of Leave No Trace minimum impact principles

40% of interviewed walkers reported being aware of the *Leave No Trace* principles.

There was a trend for younger walkers to be more likely of being aware of these principles, and 43% of males said they were compared to 35% of females. Walkers in the less used D-Sites (88%) and M-Sites (64%) were most likely to be aware of the principles, while those in the T-Site (23%) and P-Sites (25%) were the least likely to have heard of them.

Day trippers (22%) were much less likely to have heard of them than those walking for longer (2-3 days: 80%; 4+ days: 77%).

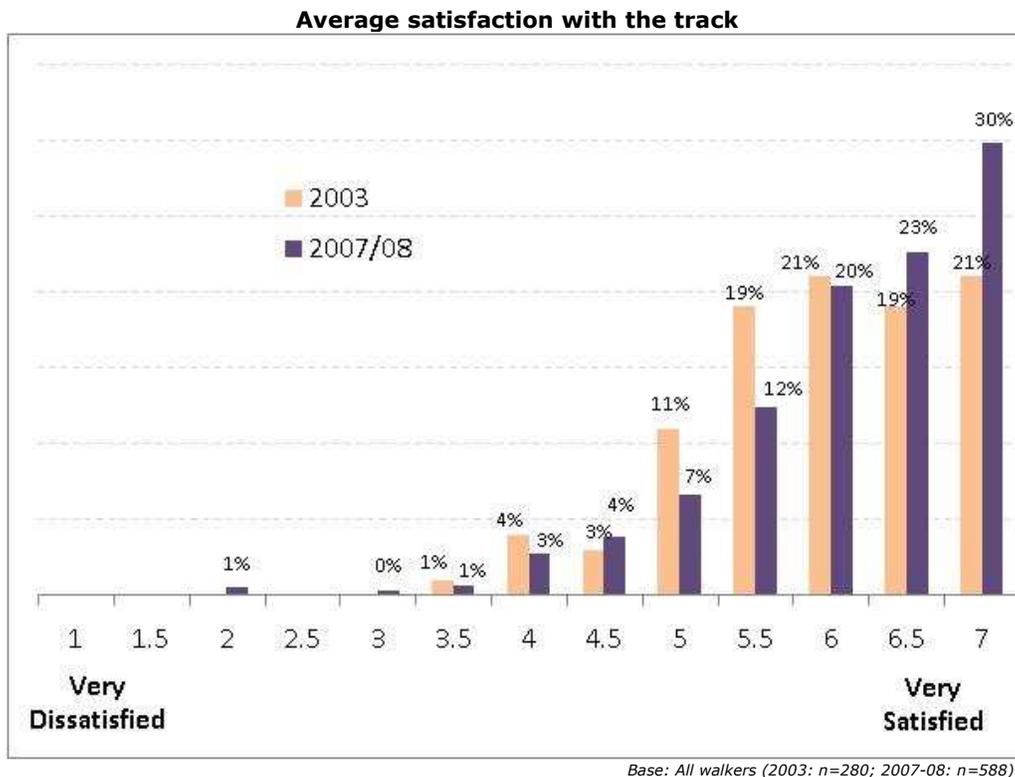
5.12 SATISFACTION WITH THE TRACK

In the intercept surveys, respondents were asked to rate their satisfaction with the Track using the standardised DEC 7-point scales for feeling pleased about the walk and for comparison to expectations.

Users of the track were slightly more satisfied with their experiences in 07 - 08, and the track generally exceeded their expectations. 87% of users rated the track as a 6 or 7 out of 7 in terms of how pleased they were with their walk (increased slightly from 82% in 2003), while 72% rated it as a 6 or 7 out of 7 for exceeding their expectations (increased from 59% in 2003).

Average ratings out of 7.0 (maximum score) for the two questions were 6.3 / 7.0 for being pleased and 5.9 / 7.0 for exceeding expectations.

Averaging these two ratings to obtain an overall satisfaction rating for the track gives the results shown in the chart below. 73% of walkers gave an average rating of 6 out of 7 or higher (increased from 61% in 2003), and the 'average' average rating was 6.1 / 7.0 (increased from 5.9 / 7.0 in 2003).



Average of:
 Q11: How do you feel about your walk so far?
 Q22: How would you rate your walk overall?

There were no differences in satisfaction on either of the two individual questions, nor the combined average, between age or gender groups, based on where walkers lived, or which category of track they were interviewed in.

How the track could be improved

Walkers were asked in the intercept survey for their ideas on how the Track could be improved. Fewer walkers explicitly said that *nothing* needed to be done than in 2003 (15% compared to 31% in 2003), but far more made no comment in 2007-08 (32% vs 7%).

The most common improvements suggested were better signs and directions (14%) followed by improved conditions of accommodation and campsites (4%), banning all forms of vehicles and bicycles from the Track (4%) and a better maintained and cleaner Track(4%). Fewer walkers made comments about improving the facilities along the track in 2007-08 than in 2003 (3% vs 13%).

Making the Track Better	2003	2007-08
Nothing / leave it as it is	31%	15%
Better signage / clear directions / signage which is easily seen / distances	14%	14%
Improve conditions of accommodation/campsites/huts/more of them	-	4%
Ban off-road vehicles / mountain bikes / cyclists / vehicles/Reduce access/Make safer/No hoons	6%	4%
Clear the track / clean up litter / increase maintenance	2%	4%
Improve / increase facilities at campsites / seats on track / circuit walks / bins/toilets/showers etc	13%	3%
Better route design (Alignment/Longer/More hills/More contouring etc)	-	2%
Improve education/etiquette (No smoking/Dogs on leash/No litter/No noise etc)	-	2%
Flora & fauna informative signs / local history	1%	2%
More information available (Different formats/Updated etc)	-	2%
Improve access / more public transport to start points / shuttle service / advertise services	3%	2%
Supply fresh water on track / more water	1%	1%
More access to food	-	1%
Secure car parking/better parking	<1%	<1%
Improve the condition of roads, paths, tracks, steps, <i>campsites</i> (Campsites separated out in 2008)	3%	<1%
Don't over develop / leave it as it is	2%	<1%
More promotion of walks / campsites / maps / website	2%	<1%
Information on short walks / round trips	1%	<1%
Distance between campsites	<1%	<1%
Somewhere to light a fire to dry things out / fireplace inside shelters / supply firewood /allow fires in non-risk areas	1%	<1%
Other	-	2%
<i>No comment</i>	7%	32%
<i>Sample</i>	<i>n=233</i>	<i>n=593</i>

Q20: What ONE thing could be done to MOST improve your Bibbulmun Track experience?

5.13 FUTURE USE OF THE BIBBULMUN TRACK

Intention to walk on the Bibbulmun Track has slightly declined to 89% of walkers (from 93% in 2003). However, only 1% of walkers do not intend to walk the Bibbulmun Track again with the other 10% unsure as to whether they will or will not walk the Track again in the future.

Intention to use the track again		
Likelihood of using track again	2003	07-08
Yes	93%	89%
Unsure	4%	10%
No	2%	1%
<i>Sample size</i>	291	593
Q13: Do you intend to walk on the Bibbulmun Track again?		

98% of walkers from WA were likely to walk the track again. 30% of interstate and overseas visitors indicated that they intended to walk the track again.

Walkers interviewed at the T-Sites (81%) and M-Sites (82%) were the least likely to say that they intended to use the track again (76%) – though all the others were unsure rather than not likely to.

SECTION 3: ECONOMIC IMPACT OF THE TRACK

Information designed to provide some indication of the economic importance of the Bibbulmun Track was derived from a section of the intercept survey which asked walkers about the amount of money they were spending as a result of their walk.

This approach was not designed to facilitate a rigorous economic impact study, but rather to provide some indication as to the magnitude of the economic activity likely to be associated with the track.

The data from the intercept surveys is extrapolated using the estimates of track usage from Section 1. Estimates in this section need to be seen as indicative of economic activity, but interpreted with some caution, bearing in mind the limitations and assumptions associated with the project.

5.14 WALKER SPENDING PATTERNS

Walkers who were intercepted on the track were asked how much they had spent (or expected to spend) themselves personally in getting ready for the walk, getting to the track, during the walk and then getting home again. Spend was measured for:

- Meals (eating out)
- Food supplies / medicinals
- Equipment (inc hiring equipment)
- Accommodation
- Petrol
- Other transport / parking
- Tours / lessons etc
- Maps, guides and other publications
- "Other"
- Annual spend on bushwalking gear

For the purposes of looking at the breakdown of spending, walkers were divided into four groups – day-walkers (under 4 hours vs over 4 hours), those walking for 2-3 days and those walking 4 or more days.

2003 trip expenditure

Days walking	Meals	Food supplies	Equip't	Accom	Petrol	Other trans / parking	Tours / lessons	Maps, guides etc	Other	Total
1	\$7.97	\$9.56	\$21.90	\$10.88	\$15.69	\$0.06	\$-	\$5.26	\$-	\$72.32
2-3	\$7.54	\$39.56	\$90.40	\$23.42	\$21.23	\$6.05	\$-	\$15.16	\$-	\$203.36
4+	\$81.15	\$178.27	\$284.55	\$121.04	\$16.15	\$20.00	\$-	\$36.70	\$-	\$737.86

2007-08 trip expenditure

Days walking	Meals	Food supplies	Equip't	Accom	Petrol	Other trans / parking	Tours / lessons	Maps, guides etc	Other	Total
up to 4 hrs	\$8.08	\$4.92	\$8.38	\$7.53	\$11.35	\$6.71	\$0.13	\$2.25	\$0.42	\$49.77
4hrs - 1 day	\$9.10	\$14.40	\$11.63	\$4.90	\$11.85	\$1.03	\$0.24	\$6.10	\$1.12	\$60.37
2-3 days	\$12.36	\$23.14	\$104.87	\$16.95	\$18.08	\$3.03	\$0.00	\$8.31	\$11.05	\$197.79
4-6 days	\$31.45	\$81.46	\$199.96	\$68.67	\$25.20	\$64.50	\$0.00	\$18.04	\$20.00	\$509.28
7-27 days	\$93.27	\$179.48	\$257.40	\$79.81	\$24.03	\$123.46	\$8.46	\$24.03	\$2.88	\$792.82
4-6 weeks	\$206.15	\$430.00	\$284.62	\$310.77	\$21.84	\$58.38	\$0.00	\$50.84	\$32.23	\$1,394.83
6+ weeks	\$240.00	\$322.95	\$316.30	\$365.00	\$60.29	\$97.94	\$0.00	\$31.38	\$18.24	\$1,452.10

Table shows mean expenditure for each category . Sample sizes:

2003: 1 day: n=206; 2-3 days: n=57; 4+ days: n=26)

2007-08: <4hrs: n=237; 4hrs -1 day: n=170; 2-3 days: n=86; 4-6 days: n=24; 7-27 days: n=26; 4-6 wks: n=13; 6+ wks: n=34)

Q23. Can you tell me how much you spent or expect to spend in total for the following:

Note: A small number of walkers who reported spending in excess of \$1000 on equipment for their walk were excluded from the analysis as they significantly skewed the results.

The survey results suggest that the average spend by day trippers to the track has dropped from 2003, to around \$50 per person for a walk of up to 4 hours, and around \$60 per person for longer day walks. The amount spent on a 2-3 day walk has stayed around the same, moving from \$203 per person per trip to \$198. The average amount spent on a 4+ day walk has increased substantially to \$1,031⁹, and this figure has been broken down by all durations in 2007-08.

Estimated economic activity

These average spend amounts can then be multiplied by the estimated number of walks made to the track to produce an indication of the total amount of money being spent in a year by visitors to the track. The tables below show these calculations for the 2003 and 2007-08 surveys.

The 2003 estimate was approximately \$21 million spent across the various categories identified above. In 2007-08, due to an increase in the estimated number of visits, an increase in the spend of 4+ days visitors, and an increase in the proportion of the 4+ day visitors, the estimated magnitude of expenditure is around \$39 million.

In 2003 a secondary estimate of expenditure minus equipment was calculated. This yielded an estimate of around \$13 million. The equivalent figure in 2007-08 would be \$28 million.

Estimated annual expenditure by walkers

2003				
Total Walks		100%	137,250	
Duration	Average spend	Proportion	Number of walks	Expenditure
1 day	\$72.32	72%	98,820	\$7,146,662
2-3 days	\$203.36	20%	27,450	\$5,582,232
4+ days	\$737.86	8%	10,980	\$8,101,703
TOTAL				\$20,830,597

2007-08				
Total Walks	100%	100%	167,206	
Duration	Average spend	Proportion	Number of walks	Expenditure
<4 hours	\$49.77	40%	66,882	\$3,328,737
4 hrs – 1 day	\$60.37	29%	48,490	\$2,927,326
2-3 days	\$197.79	15%	25,081	\$4,960,751
4-6 days	\$509.28	4%	6,688	\$3,406,187
7-27 days	\$792.82	4%	6,688	\$5,302,570
4-6 weeks	\$1,394.83	2%	3,344	\$4,664,479
6+ weeks	\$1,452.10	6%	10,032	\$14,567,990
TOTAL				\$39,158,040

This estimate is not intended to be a robust assessment of the financial impact of the track, simply to provide an indication of the magnitude of economic activity associated with the track. It is clear from these calculations that while the exact figure may vary from these estimates, there is clearly a substantial amount of spending that is generated or contributed to by the Bibbulmun Track.

⁹ This figure may be higher partly because of the longer average duration of walks in 2007-08 compared to 2003. Longer walks would mean more days / nights, and hence even at a standard daily expenditure, the absolute amount would increase.

Annual Equipment Spend

In addition to the trip expenditure described above, walkers were asked how much they would spend on bushwalking gear in an average year. This expenditure is not additional to the trip expenditure, as the current trip expenditure on equipment counts towards this total. It should also be noted that the balance of this annual equipment expenditure is not necessarily spent due to the Bibbulmun Track, as it may be used for other purposes.

Not surprisingly, there was a relationship between how long people were walking for on their current visit, and how much they spend in an average year.

Days walking this trip	Annual spend on bushwalking gear in an average year	After current visit equipment spend
up to 4 hrs	\$ 129.00	\$120.62
4hrs - 1 day	\$ 219.00	\$207.37
2-3 days	\$ 276.00	\$171.13
4-6 days	\$ 544.00	\$344.04
7-27 days	\$ 332.00	\$74.60
4-6 weeks	\$ 227.00	-\$57.62*
6+ weeks	\$ 711.00	\$394.70

Base: all walkers

(sample size: N=588. <4hrs: n=237; 4hrs -1 day: n=170; 2-3 days: n=86; 4-6 days: n=24; 7-27 days: n=26; 4-6 wks: n=13; 6+ wks: n=34)

Q23a. How much would you spend on bushwalking gear in an average year?

Interestingly, those walking for 4-6 weeks on this occasion indicated that they spent more on the current walk than they do in an average year. This could mean that they are sometimes taking their first extended walk and have had to invest in more equipment than would be normal from them; but there are only 13 people in this duration group, and so this figure is based on very small sample sizes.

Appendix A: Breakdown of the track into functional sections

Code	Start	End	Length	Description	T	H	M	P	D
P1	Kalamunda	Fern Rd	5	Start of track; local walkers; visitors				X	
H1	Fern Rd	South Ledge	10	heavy usage		X			
T1	South Ledge	Hills Forrest	3	Mundaring Weir in this section	X				
	Hills Forrest	Helena	12	Walk to campsite		X			
D1	Helena	Dale Road	27	First distance walk out of Perth; overnight walk					X
	Dale Road	Brookton highway	13	Enter from both ends; day walk, overnight		X			
	Brookton highway	Monadnocks	24	overnight walk					X
H3	Monadnocks	Sullivan Rock	7	Sullivan rock is the access point		X			
	Sullivan Rock	Mt Cook camp	6	Walk south from Sullivan rock		X			
	Mt Cook camp	Albany Highway	31	Access along section from Highway; one-way					X
	Albany Highway	Inglehope	53						X
	Inglehope	Dwellingup	11	Short walk from Dwellingup				X	
P6	Dwellingup	Nanga Rd	6	Walk sth from Dwellingup				X	
	Nanga Rd	Swamp Oak camp	7	Nice day walk; popular destination out of Perth		X			
	Swamp Oak camp	Yarragil	8	Day walk section		X			
D2	Yarragil	Harvey Quindanning Rd	40	good weekend walk, either direction from Driver Rd					X
	Harvey Quindanning Rd	Harris Dam camp	40	Distance walkers only					X
M2	Harris Dam camp	Harris Dam picnic	4	Day walk section			X		
	Harris Dam picnic	Collie	17	Locals only				X	
	Collie	Mumbalup Tavern	32	Distance walkers and local use only				X	
D3	Mumbalup Tavern	Balingup Brook bridge	46						X
P2	Balingup Brook bridge	Balingup	4	Locals only				X	
	Balingup	Golden Valley Tree Park	3					X	
M3	Golden Valley Tree Park	Brockman Highway	37	Weekend walk back to Balingup			X		
	Brockman Highway	Donnelly River	16	Overnight mainly					X
D4	Donnelly River	Beedelup Rd	82						X
H4	Beedelup Rd	Beedelup camp	4	Around Beedelup and Karri Valley Resort		X			
	Beedelup camp	Big Brook dam	17	Through walkers only					X
	Big Brook dam	Pemberton	6	Locals only				X	
	Pemberton	Beyond Gloucester Tree	3	Tourist				X	
	Beyond Gloucester Tree	Middleton Rd	49	Distance					X
P3	Middleton Rd	Northcliffe	5	Local + local tourism				X	
D5	Northcliffe	Mandalay	106						X
	Mandalay	Lost Beach track	5	beach access / local walking / popular at times					X
	Lost Beach track	Nuyts Wilderness Track	7	only serious walkers					X
	Nuyts Wilderness Track	Mt Clare camp	7	popular at times			X		
	Mt Clare camp	Walpole River footbridge	8	between sites					X
	Walpole River footbridge	Walpole	2	Locals only				X	
	Walpole	Coalmine Beach	3	Touristy				X	
	Coalmine Beach	Valley of Giants Rd	24			X			
T2	Valley of Giants Rd	Giants camp	4		X				
	Giants camp	Ficifolia	9						X
	Ficifolia	Rame Head camp	7	Includes conspicuous beach		X			
M5	Rame Head camp	Peaceful Bay	10				X		
	Peaceful Bay	Lights Beach	47						X
	Lights Beach	Ocean Beach Rd	8	Attracts people		X			
P4	Ocean Beach Rd	Denmark	8					X	
	Denmark	Shelly Beach lookout	38						X
	Shelly Beach lookout	Cosy Corner	8			X			
M6	Cosy Corner	Muttonbird	6	Popular with locals / also a beach there			X		
	Muttonbird	Hidden Valley camp	7						X
T3	Hidden Valley camp	Sandpatch	6		X				
	Sandpatch	Little Grove	8			X			
P5	Little Grove	Albany	7					X	
	Albany				3	13	5	14	19

Appendix C: Walker intercept survey – 2007/2008

Bibbulmun Track User Survey 07-08

Day	Weekday	Sat	Sun	Date	AM	Midday	PM	Location code
Date				Time				Interviewer

This survey is being conducted in order to find out how the Bibbulmun Track is used – by whom and how often. The information will be used to make the track a better facility for everyone to enjoy. Your participation in the survey is much appreciated.

1. How long are you intending to walk on the Bibbulmun Track on this occasion?

Less than 4 hrs	4hrs - 1 day	2-3 days	4-6 days	7-27 days	4-6 weeks	>6 weeks
1	2	3	4	5	6	7

1a. How many kilometres do you think you will cover in total this whole walk? _Km

1b. Do you intend to do an end-to-end on this trip? Yes 1 No 2

2. Are you doing an out and back walk? Yes 1 No 2

2a. What are your start and finish points? (Use access points on attached list)

Start point: _____ Finish/turn-around point: _____

3. How did you get to your start point on the Bibbulmun Track at the beginning of this walk?

My own car	Taxi	Bus/ train/ etc	Dropped off	Walk / Jog	On a tour	Transport operator	Other
1	2	3	4	5	6	7	8

4. What is your MAIN reason for walking here in this particular place?

5. Are you aware of Leave No Trace minimum impact principles?

Yes	No	Unsure
1	2	3

6. Have you visited a Bibbulmun Track campsite yet on this walk?

Yes	No	If answer is no then go to Q9
1	2	If answer is yes then go to next question

7. Did you record your walk in the green Tracks and Trails Log Book at the campsite?

Yes	No
1	2

8. Have you experienced overcrowding at a campsite on this walk?

Yes	No
1	2

8a. Name(s) of overcrowded campsite(s)

9. How many people are walking in your group? (Including yourself)

Male – Adult	Female – Adult	Male – u18	Female – u18
--------------	----------------	------------	--------------

10. Who are you walking with?

Alone	Family/friends	Spouse/partner only	Commercial organised group	Non-commercial organised group	School/youth group	Other
1	2	3	4	5	6	7

11. How do you feel about your walk so far?

Extremely displeased 1 2 3 4 5 6 7 Extremely pleased

12. Including this walk, how often have you used the Bibbulmun Track in the last 12 months?

Number of TRIPS (if first time = 1): _____ Total number of DAYS spent on the track: _____

12a. If first trip this year: Is this your first ever walk on the Bibbulmun Track?

Yes 1 No 2

13. Do you intend to walk on the Bibbulmun Track again?

Yes 1 No 2 Unsure 3

14. Have you heard of the 'Friends of the Bibbulmun Track' or the 'Bibbulmun Track Foundation'?

Yes – heard of them 1 Yes – current member 2 Yes – used to be a member 3 No 4

15. Where do you live?

WA 1	Perth 11	South West 12	Other regional 13	South West – within 20km of here 14	Your postcode	<input type="text"/>	
Interstate 2	Qld 21	NSW 22	ACT 23	Vic 24	Tas 25	NT 26	SA 27
Overseas 3	NZ 31	Europe 32	Nth America 33	Sth America 34	Africa 35	Asia 36	Other 37

16. If from overseas or interstate: When did you decide to walk on the Bibbulmun Track?

BEFORE arriving in WA 1 AFTER arriving in WA 2 From WA 99

17. What first prompted you to walk the Bibbulmun Track? (multiple answers allowed)

Website 1	Media 2	DEC 3	Word of mouth 4	Travel company/ tourist bureau 5	Brochure 6	BT Foundation Event 7	School trip 8	Other 9
--------------	------------	----------	--------------------	--	---------------	-----------------------------	------------------	------------

18. Was the Bibbulmun Track the MAIN reason you came to this particular area?

Yes 1 No 2

19. How many nights will you spend in each of the following types of accommodation this trip?

Track campsite	Other campsite / caravan pk	B&B	Self-contained accom	Hotel/motel	Back-packers	Friends / family
----------------	-----------------------------	-----	----------------------	-------------	--------------	------------------

20. What ONE thing could be done to MOST improve your Bibbulmun Track experience?

21. What are your main expectations for this walk?

Natural environment & landscapes	Challenge	Companionship	Safe environment	Peace and tranquility	Wildlife and flowers	Get fit and lose weight	Other
1	2	3	4	5	6	7	8

22. How would you rate your walk overall

Much worse than expected							Much better than expected
1	2	3	4	5	6	7	

One of the things we are trying to find out from the study is how much money the Bibbulmun Track puts into the economy. I'd like to ask you a few questions about any money you might have spent on this walk, or in preparation for the walk.

It is important that we look just at money spent BY YOU or ON YOU personally – not the whole group. Please include what you will have spent in getting ready for your walk, getting to the track, during your walk, and then getting home again.

23. Can you tell me how much you have spent or expect to spend in total for the following:

a. Meals - eating out	\$	e. Petrol	\$
b. Food supplies / medicinals	\$	f. Other transport / parking	\$
c. Equipment (inc hiring)	\$	g. Tours / lessons etc	\$
d. Accommodation	\$	i. Maps, Guides & other pubs	\$
		j. Other	\$

23a. How much would you spend on bushwalking gear in an average year? \$

⌵

24. To finish off can I just ask how old you are?

Under 15	15 – 24	25 – 39	40 – 59	60+	Can't say
1	2	3	4	5	99

25. Code gender

Male	Female
1	2

Thank you very much for your time today – we hope you have a great time on the Track. If you have any questions about this study, please feel free to contact the Bibb Track Foundation on 9481 0551.