Visitor satisfactions, impact perceptions, and attitudes toward management options on the Heaphy Track

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Great Walks visitor research programme

This report is the seventh from the Great Walks visitor research programme. Reports from other track samples are published through the same series. While data were collected predominantly during January–February and at Easter, 1994, those visitor responses still provide valid indications of visit experiences and evaluations. Any significant management or use-pattern changes since then can be interpreted in light of these results. Apart from progressive track maintenance work there has been little major change on the Heaphy Track. Creation of Kahurangi National Park in 1996 has changed the management basis for this track, with the main consequence to date being the exclusion of mountain biking as an option on the track. Management reports indicate that use-levels have shown only minor increase.

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Abstract

Walkers on the Heaphy Track were surveyed during January–February and at Easter, 1994 as part of a wider study of track users in New Zealand. Their visit evaluations were highly positive, suggesting little dissatisfaction or any need for urgent management action. Other results indicated that further improvements to visit quality would be best achieved through improving the use of space in huts. Perceptions of crowding and social and physical impacts indicated that visit-experience problems would emerge with future increase in use-levels, particularly because of hut congestion, which was linked with crowding perceptions. Perceptions of physical damage were notable, particularly among New Zealand visitors, while overseas visitors perceived higher levels of over-development. Visitors favoured information-based management to address these increasing use-pressures rather than more regulatory controls. However New Zealand visitors tended to be more resistant to any management of their recreation activities, particularly if based upon more direct types of controls. Overseas visitors were more resistant to management options based on facility developments.

Executive summary

This report summarises key results from a survey of 664 walkers on the Heaphy Track. The survey was undertaken as part of a broader study of people doing overnight trips on the Great Walks. It provides information about visitor satisfactions with their visit experiences, about which aspects of visits may be detracting from the quality of these experiences, and about management options to address these issues.

Evaluation

Evaluations of the visit were very positive. Overall satisfaction scores were very high, most rated the visit-experience better than they expected. In addition, most visitors in summer expected higher use-levels than those they experienced. The overall satisfaction measure was not linked to any other variables in the survey, which limits its practical value as a possible tool for any monitoring of the quality of visit-experiences. High crowding perceptions, particularly during Easter, indicated visit experiences were being compromised in some way, but there was no relationship between these perceptions and how the trip was evaluated overall (e.g., overall satisfaction scores). However these crowding perceptions were found to have links with impact perceptions related to hut congestion. In general, crowding scores appear to represent a more sensitive measure of compromises to visit-experiences.

Satisfaction with facilities and services

Satisfaction with specific facilities and services was high. There were no links between the satisfaction with specific facilities and services and overall visit evaluations. Crowded visitors were less strongly satisfied, particularly with hut conditions like sufficient bunk numbers and space to relax. Younger visitors were less strongly satisfied with information services and some track standards (e.g., steps, boardwalks), although this was not substantial. Overall, these results suggest there is no immediate need for significant management intervention. Attention to the space and facilities in huts appears the only area where any further enhancement of visit experiences may be currently achieved. Some questions are raised with regard to information services, and perceptions of track standards, but these represent long-term concerns of lesser priority.

Impact perceptions

Visitors were aware of high levels of some social and physical impacts, but the proportions of visitors bothered by these impacts rarely exceeded 30%. The trampling effects on the tracks, perceived over-development of tracks, littering of huts and tracks, perceptions of water hygiene, and social congestion conditions in huts were particularly prominent. Some types of impacts appeared to be seen as particularly unacceptable (e.g., associated with litter, toilet paper/ waste, wood-cutting), but these were not reported at notable levels. Perceptions of mountain biking impacts suggested a notable degree of tolerance, although these data were limited to the Easter sample (n = 76).

Crowded visitors were more bothered by most types of impacts, but most particularly those associated with hut congestion conditions (e.g., seeing too many in huts, insufficient bunk numbers). In general, New Zealand visitors were more bothered by the physical impacts, and overseas visitors were more bothered by over-development impacts. While overall satisfaction levels, and general satisfaction with facilities and services, remains high, these distinctions in impact perceptions are not of immediate concern for managers. However, given the link between crowding perceptions and hut congestion (and the higher crowding perceptions during the high-use Easter period), management actions to minimise any future compromise to visit-experiences should focus first on hut conditions, as should any related monitoring. Any detrimental effects on visit experiences from increasing use will appear first among the perceptions of physical and social congestion associated with increasing pressure on huts.

Attitudes toward management options

Visitors were most positive toward the use of information to encourage better choices of trip timing and appropriate behaviour on them. Attitudes were generally negative toward most other types of management options, including developments to increase accommodation options (e.g., more bunks, huts campsites, guided walk facilities), encouraging alternative types of visits and accommodation use (e.g., camping, guided trips), applying rationing systems (e.g., bookings, permits), and manipulating use conditions. Attitudes toward mountain biking management options were generally split both for and against, although these data were limited to the Easter sample (n = 76). Overall, most visitors were strongly opposed to the more regulatory types of management approaches. New Zealand visitors appeared generally less tolerant of their visits being managed, disagreeing more than overseas visitors with all types of management options, except those based on increasing accommodation options. Overseas visitors disagreed more than New Zealand visitors with this option, suggesting they were generally less tolerant of facility developments. Compared with older visitors, younger visitors disagreed more with options based on rationing/use-limit approaches, particularly if permits were mentioned rather than bookings. Older overseas visitors were notably least negative toward the options of rationing/use-limits and information management. These differences indicate where future investigations will be required when exploring the implications of applying different management approaches.

Recommendations

While there was no urgent need for immediate management action to address any current problems, the most productive directions for preventative action to minimise future compromises to the quality of visit-experiences appear to be:

- Specific attention to the facility capacity and bunk capacity of huts
- Optimising/reconfiguring the use of space for comfort and facility access in huts
- Provision of general information about the features and development levels of the Heaphy Track, and for undertaking visits to it

- Provision of information approaches which forecast visitor numbers and hut loadings in advance, accompanied by suggestions on visit timing and operation

Most initial gains should be made by concentrating upon short-term physical changes to hut facilities and their operation, complemented by more long-term promotion of beneficial behavioural changes through information use. Appropriate research and information back-up, not necessarily only specific to the Heaphy Track, could include:

- Assessing options for optimising the use of space and facilities in huts
- Assessing the effectiveness of information-based techniques in influencing visitor use
- Investigating differences in the expectations and evaluations of visits by different visitor groups, particularly by age-group and nationality (e.g., New Zealand *vs* overseas visitors)
- Investigating in more detail the greater perception of impacts by crowded visitors
- Investigating what underlies the perceptions of damage to the track damage and over-development of the track, overall and between different visitor groups
- Investigating the distinctions between noticing and tolerating impacts, and being bothered them
- Investigating the general resistance by visitors toward the more direct management approaches
- Investigating the apparent greater resistance of New Zealand visitors to management controls, and the roles that 'perceived freedom' and the 'level of regimentation' may play
- Investigating the apparent greater resistance of overseas visitors to management development of facilities and services, and the role that perceptions of 'natural states' may play
- With reference to any insights from the investigations above, evaluate the outcomes of different management options on visit experiences and visit patterns, comparing booking systems with other short and long term options
- Investigating the apparent summer and Easter differences in the accuracy of visitor expectations of use-levels

Any monitoring of the quality of the visit-experience should concentrate first upon hut congestion conditions at key huts, particularly during Easter. Emphasis should be on a variety of approaches as simple measures of overall satisfaction are unlikely to provide a useful means to monitor changes in these conditions.

Acknowledgements

The overall Great Walks study covered a wide variety of different track and recreation situations, and raised a number of large operational and analytical challenges. Help and advice on statistical approaches to these analyses was provided at various times by Margaret O'Brien and Ian West of Science and Research Division, and Roger Wilkinson of Landcare Research. Data entry for the project was carried out very effectively by the Tourism Green project team of Michael Chan, Victor Keo, and Sulia Aumua. Ian Mackenzie of Science and Research Division provided the editorial assistance for final production of the reports. Thanks are also due to other Departmental staff who viewed the draft reports and made useful suggestions on their overall approach and contents.

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1. Introduction

The Heaphy Track is a 3–6 day track which traverses forested valleys, karst highlands and rugged coastline in a link between the Northwest Nelson area and the north of the West Coast. (Since 1996 the track has been within the newly gazetted Kahurangi National Park.) This survey was undertaken as part of a broader study of people doing overnight trips on the Great Walks. Tracks classified and managed as Great Walks are the primary locations for multi-day walking trips in the New Zealand backcountry. They are of high scenic and recreational value, and are characterised by high and increasing use-levels. This use pressure, and the need to provide for quality outdoor recreation experiences, requires that these tracks be specifically managed to provide high levels of facility and service provision without compromising the quality of the visit experience. To achieve this outcome, managers require information about visitor satisfactions with their visit experiences, and what aspects of visits may be detracting from these experiences. On this basis, the objectives of the Great Walks study were to:

- Provide brief description of overnight visitors to the Great Walks
- Identify visitor satisfactions with the facilities and services provided
- Identify visitor perceptions of crowding and use-impacts
- Identify visitor attitudes towards management options

Departmental staff at key huts administered standardised questionnaires to visitors on each track[1] on their last trip night. Overall, 664 Heaphy Track visitors completed the survey questionnaire. These comprised 588 during the main 1993/94 summer season, and a further 76 during the high use Easter period of 1994. The Easter questionnaire included items on mountain biking in Questions 5 and 8 (results attached to Appendix 1). After data coding and entry, preliminary results were initially presented to managers as percentage tables. These descriptive results are summarised here in the questionnaire format (refer Appendix 1).

Other analyses were carried out on the database, and this report summarises the main findings derived from these descriptive and analytical results. The report presents overall evaluations by visitors of their visit experiences, and then investigates the specific aspects of facility and services satisfactions, social and physical impact perceptions, and attitudes toward different management options. Analyses are undertaken which assess how these specific responses vary between different groups of visitors, and how they relate to the overall evaluations. This approach enables any significant current or potential compromises to the quality of visit experiences to be clearly identified.

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[1] A standardised questionnaire (Appendix 1) was developed for overnight walkers on the Great Walks system, which comprises the Abel Tasman, Heaphy, Kepler, Milford, Rakiura, Routeburn, Tongariro, and Waikaremona tracks, and the Wanganui River journey. Surveys of the Travers-Sabine and Dart-Rees track circuits were also included, although flooding prevented any work being possible on the latter. A sample of sea-kayakers was also collected in Abel Tasman National Park. Some site-specific questions were used where required, particularly for questions related to boat use on the Wanganui River and the Waikaremoana and Abel Tasman Tracks; some non-applicable questions were omitted on the Milford Track; and it was possible to survey at Easter on the Tongariro, Kepler, and Heaphy Tracks. German and Japanese translations were provided.

2. Visitor information

In summary, visitor characteristics were representative of a young group of people, around half from overseas, largely unfamiliar with the Heaphy Track and generally inexperienced in backcountry walking. Short hut-based trips predominated. Some summary findings included. (refer Appendix 1 for details)

- A similar proportion of males (52%) and Females (48%)
- Most (57%) were from New Zealand, compared with 17% German, 7% British
- Many (60%) were aged between 20–40 years, with 16% aged 50 years or more
- Most (91%) were on a first visit to the track, 13% were on their first overnight walking trip, and only 16% had done more than 20 such trips
- Their group sizes averaged around 4 people
- Most (69%) stayed 3–4 nights, 13% stayed 2 nights, and 16% staying over 4 nights
- Most (69%) used only huts, compared with (9%) who only camped, while the reminder (22%) used a combination of huts and campsites

Compared with New Zealand visitors, overseas visitors were more often in the 20–40 year age-range (86% *vs* 54%), had smaller group sizes (mean of 2.21 *vs* 3.69 people), and were on slightly shorter visits (mean of 3.21 *vs* 3.72 nights). Other than these features, comparison of New Zealand and overseas visitors, including comparisons of walking experience and previous Heaphy track visits, did not suggest any other notable differences. In general, experience levels appeared to be low for almost all visitors.

Comparisons were also made of the of the characteristics of visitors who indicated they were either ‘crowded’ or ‘uncrowded’. Refer to Section 3.2 and Appendix 3 for descriptive discussion of this crowding distinction. However, the only notable differences were the larger group sizes of those who were crowded (means 4.23 *vs* 3.86), and their slightly greater experience of doing similar types of walks (mean score 3.02 *vs* 2.67). While neither group had greater previous experience of the Heaphy Track, the difference in numbers of similar walks done suggests that the crowded visitors may be more experienced. However, this difference is slight and no conclusions can be drawn from these results. Overall, the crowded and uncrowded visitors could not be distinguished from each other on the basis of their descriptive characteristics.

Visitors at Easter were distinguished by an higher proportion of New Zealanders (73% *vs* 55% in summer), an older age distribution (46% *vs* 28% over 40 years in summer), and more had done previous trips on similar walks (mean of 3.78 *vs* 2.73 walks done).

3. Evaluation of the quality of visit experiences

Overall evaluation of the quality of visit experiences was assessed through four questions related to overall satisfaction and perceptions of use-levels (refer Appendix 1 for question details).

3.1 EVALUATION OF OVERALL SATISFACTION

Two questions allowed visitors to evaluate the quality of their overall visit experiences:

- An *overall satisfaction* score (how satisfied or dissatisfied with the trip — Question 5)
- An *expectation fulfilment* score (was the trip better or worse than expected — Question 4)

Positive responses from visitors to these questions represented their evaluation that they had achieved high quality recreation experiences on their visit. Figures 1 and 2 show that satisfaction on the Heaphy Track was very high (95%), and most experiences were as good as had been expected, or better (52%).[2] The proportion of Heaphy Track visitors who indicated the visit experience was better than they expected was similar to that on other tracks. And, virtually nobody indicated they were dissatisfied with their trip. The main conclusion drawn from these overall evaluations is that visitors are achieving quality experiences on the Heaphy that are frequently better than they expected.

Figure 1. Overall satisfaction.

Figure 2. Fulfilment of trip experience expectations.

[2] While these responses were similar in degree, they were only weakly correlated with each other ($r = 0.32$).

3.2 EVALUATION OF USE-LEVELS

Two further questions allowed visitors to evaluate the quality of their visit experiences in relation to use-levels:

- A score for perception of crowding (overall, did they feel crowded on the trip — Question 2)
- An evaluation of expected visitor numbers (seeing more/same/less than expected — Question 3)

Positive responses from visitors indicating low levels of crowding, and not seeing more people than expected, would have reinforced overall evaluations of achieving high quality visit experiences. However, despite Figure 3 showing that crowding perceptions were substantial and at levels comparable to other tracks overall, Figure 4 shows that most visitors still expected too see more people than they actually did. This suggests that while crowding perceptions were substantial, many visitors had expected even higher use-levels. These evaluations of crowding and expected use-levels were only weakly correlated with each other (r = .39), indicating those who experienced higher use-levels than they expected did not necessarily give higher crowding scores[3].

Easter visitors were more often crowded than summer visitors (71% *vs* 55%), and more Easter visitors indicated they expected to see fewer people (28% *vs* 13%). By contrast, a majority of Summer visitors indicated they expected to see more people than they actually did (53% *vs* 32%), indicating that many overestimated the use-levels they would encounter. Easter visitors were more likely to underestimate use-levels, suggesting that while crowding is commonly more acute at Easter, many visitors were still unaware of these conditions. However,

Figure 3. Crowding perception summary.

Figure 4. Fulfilment of visitor number expectations.

[3] In addition, an ANOVA test (F(2,612) = 54.90, signif. F = .0000) showed mean crowding scores increased from those expecting more people (2.48), through those expecting the numbers seen (3.41), to those expecting fewer people (4.52). Similar analyses found no significant differences between use-level expectations and overall satisfaction mean scores.

excluding the extreme case represented by Easter, crowding effects on the Heaphy Track appear considerably less acute than on most other Great Walks (refer Appendix 3).

Other questions were asked which aimed to identify any focal points for crowding perceptions on the Heaphy Track (Question 3). Overall, 69% of visitors indicated that some places were more crowded than others, and of these visitors 100% included hut sites in their examples. Less than 5% gave any non-hut examples.

Appendix 1 summarises other crowding information from Question 3, which indicated that visitors who indicated some focus for hut crowding (n = 664) specified Mackay Hut (44%), and to a lesser extent Heaphy Hut (33%) and Perry Saddle Hut (22%). These results indicated issues related to hut use were the key to crowding perceptions.

Although substantial crowding perceptions were reported in summer (55%) which can be considered 'high normal' conditions (refer Appendix 3), they may not be considered excessively high and were not significantly linked with overall satisfaction. In other words, higher crowding perceptions were not associated with higher evaluations of dissatisfaction with the trip, or it being considered worse than expected. While some visitors indicated they did experience crowding, and some experienced higher use-levels than they expected, this did not appear to affect how they felt about their overall trip. Despite this finding, the high crowding levels suggest that some degree of compromise to the quality of visit experiences was occurring (refer Appendix 3). Subsequent sections in this report present analyses which indicate where some of these compromises may occur in relation to satisfactions with particular facilities and services (refer Section 4.2), or with perceptions of particular social and physical impacts (refer Section 5.2).

FIGURE 5. SATISFACTIONS WITH THE FACILITIES AND SERVICES PROVIDED.

4. Satisfaction with facilities and services

Satisfaction with 28 specific facility and service items were surveyed, covering aspects of the tracks, huts, campsites, and information services provided (refer Appendix 1, Question 7). The complete list of responses, summarised in Figure 5, shows there were few expressions of dissatisfaction. Dissatisfaction levels only approached 20% for satisfaction with hut lighting (23%), drainage of water off the track (23%), hut drying space and facilities (20%), signposts for distances/times (19%) and hut relaxation space (18%). None of these appear to be essential components of facility and service provision, although for some visitors they appear to be desired extras. Overall, the results indicate a high acceptance of the existing standards of services and facilities, and by inference, may be indicative of little demand for any additional provision.

4.1 EFFECTS OF AGE, GENDER, NATIONALITY, AND CROWDING PERCEPTION

4.1.1 Background to analyses

Additional analyses were required to assess whether satisfaction varied significantly according to age group, gender, nationality, and crowding perception. Because it was apparent that patterns of visitor responses were often similar across particular groups or 'clumps' of these satisfaction items, summary scales of these 'clumps' had to be constructed to allow valid statistical analyses. The resulting satisfaction scales, each containing items which had related response patterns, are listed in Table 1 and shown in Figure 6.

TABLE 1. SUMMARY SCALES FOR SATISFACTIONS WITH FACILITIES AND SERVICES (REFER APPENDIX 2).

SCALES	DESCRIPTIONS
Hut space/facilities	Hut space, bunk numbers, cooking/washing/drying facilities
Hut toilets/water	Hut water supply and toilet facilities
Track construction	Slope, surface, difficulty, drainage, steps, boardwalks, bridges
Information services	Map/brochures, visitor centre/warden advice
Track marking/signs	Track marking, distance/time and information signs
Campsite facilities	Includes campsite space, water/toilet/other facilities
(extra individual items —	Advice from wardens, maps/brochures in the huts)

4.1.2 Significant findings

Using the SPSS MANOVA routine, a series of multivariate analyses of variance were carried out on these satisfaction scales (e.g., the dependent variables). Differences in these impact scales according to age-group (over and under 40 years), gender (male/female), nationality (New Zealand and overseas), and crowding perception (uncrowded/crowded) were analysed. The same approach was subsequently used for impact perception (Section 5.1) and management attitude (Section 6.1) scales. The significant effects and interactions associated with the analysis using impact scales are summarised in Figure 8. These results indicate that hut conditions, and to a lesser extent track conditions and information services are particularly important for management attention.

To minimise a data constraint associated with missing values, these satisfaction analyses excluded those not using huts (9%). Additional analyses indicated no notable results were compromised by this exclusion.

FIGURE 6. SATISFACTION RESPONSES ORDERED IN SUMMARY SCALE STRUCTURE. (THIS IS SIMPLY A REORGANISATION OF MATERIAL PRESENTED IN FIGURE 5.)

TABLE 2. SIGNIFICANT EFFECTS ON SATISFACTION SCALES (HUT USERS ONLY).

SOURCE OF SIGNIFICANT EFFECT*	SIGNIFICANT SATISFACTION SCALES†	MEAN VALUES (ADJUSTED)‡	
Crowded effect (F(5,636) = 4.37, p = .001)	Hut conditions F(1,640) = 16.76, p = .000	Uncrowded 2.09	Crowded 2.44
Age-group effect (F(5,636) = 4.21, p = .040)	Information services F(1,640) = 8.89, p = .003 Track conditions F(1,640) = 6.18, p = .013	Under 40 2.24 2.07	Over 40 2.05 1.93

* The significance of overall satisfaction effects was tested using the Wilks' criterion in the SPSS MANOVA.

† A series of univariate ANOVAs in the MANOVA identified the contribution of each satisfaction scale to the overall significant effect, and identified these listed scales as being significant.

‡ Mean values for the summary scales are divided by the number of constituent items to give an interpretation using the original question categories (e.g., 1 = Very satisfied, 3 = Neutral, 5 = Very dissatisfied).

Crowded effect

Visitors who felt crowded were significantly less satisfied with facilities and services than were uncrowded visitors. This difference was based most upon their relatively lower satisfaction with hut conditions. However, this finding must be seen in context of the generally high levels of satisfaction, where their mean scores of over 2.00 places them well within the 'satisfied' to 'neutral' categories. This means that crowded visitors should be considered as being only less strongly satisfied, rather than distinctly more dissatisfied. Reference to the other mean scores in Figure 8 indicates this interpretation applies to all the effects summarised there.

Additional exploration[4] of the individual items comprising the 'hut conditions' scale (refer Figure 7) revealed that while crowded visitors were less satisfied with all satisfaction items, some items appeared to contribute more to the difference than others. For the hut conditions scale, less satisfaction with insufficient bunk numbers and space to relax in huts appeared to be the most prominent items. Items of secondary importance included lesser satisfaction with facilities and space for washing-up and cooking in huts. Overall, the bunk capacity and space characteristics of huts appeared the most important sources of lower satisfaction among crowded visitors.

Age-group effect

Younger visitors (under 40 years) were significantly less satisfied with facilities and services than were older visitors (over 40). This difference was predominantly based on their relatively lower satisfaction with information

[4] Comparison of response to the dependent variable, for each item comprising the significant scales, was carried out mainly using the Mann-Whitney test. This provided a conservative test to identify the items which appeared to contribute most to the overall effect. Multiple ANOVA tests were also run which supported Mann-Whitney test findings. This complementary approach was applied to the constituents of all significant scales identified in this report.

services and track standards. Additional exploration of the 'information services' scale indicated that satisfaction with all the constituent items were similarly lower among younger visitors. While additional exploration of the 'track standards' scale indicated a similar general pattern of lower satisfaction among younger visitors, satisfactions with steps and boardwalks were particularly more negative. These findings suggest that although satisfaction with facilities and services is high overall, younger visitors appear relatively less positive about the information they receive, and the standard of some of the track facilities they encounter.

4.2 RELATING SATISFACTION SCALES TO OVERALL TRIP EVALUATIONS

None of the satisfaction scales were significantly associated with the overall satisfaction or use-level evaluations (e.g., crowding). No notable correlations or significant relationships (using SPSS Multiple Regressions) were found. The state of facilities and services experienced on the Heaphy Track did not appear to contribute at all to how the overall trip was evaluated. In particular, the lack of any notable relationships between overall satisfaction and any of the facility and service satisfaction scales indicates these questions represent distinctly different visitor perspectives on visit satisfaction. This is an important distinction to acknowledge as simply applying a single overall evaluation of satisfaction appears unlikely to highlight any specific-issue satisfaction problems until they are of an order where visit quality may be already highly compromised, and the problems are more difficult to manage.

FIGURE 7. IMPACT PERCEPTION RESPONSES.

5. Visitor perceptions of impacts

Perceptions of 26 specific impact items were surveyed, covering social impacts, physical impacts, and impacts associated with the facilities and services (refer Appendix 1, Question 5). (In addition, three impacts related to mountain biking were added to the Easter survey, although not included in overall analyses, these results are included in Appendix 1.) Visitors were asked to respond to each item using the options of' 'not experiencing the impact', 'experiencing it but not being bothered', 'being bothered a little', and 'being bothered a lot'. The complete list of responses, as summarised in Figure 7, shows that in the main most visitors did not experience many of these impacts. This may be because the impacts did not occur, or because they were not noticed by the visitor[5].

The most prominent impacts reported here are indicated through combining the responses of those who were 'bothered' by impacts, and those who simply 'noticed' them. These total 'impact aware' responses often represented a majority of the visitors. The main examples of these more prominent impacts, including the total percentage of visitors who were aware of them, included: uncertain water hygiene (79%), track damage/trampling around wet/rough/muddy areas (78%), seeing too many in huts (63%), seeing litter around the huts (57%), and over-development of tracks (53%). These were the most prominent impacts noticed on the Heaphy Track, although it should be remembered that there is a clear distinction between the impacts being noticed and tolerated, and being seen as negative. What contributes to the progression from noticing and tolerating an impact, to becoming bothered by it (e.g., it becomes negative) represents an important question for future research.

The most negative impacts, those which most 'bothered' the visitors, appear to emphasise water hygiene concerns, conditions related physical conditions, and hut congestion concerns. Many visitors were bothered by uncertain water hygiene (55%). This was a response to the statement 'uncertainty about the water always being safe to drink'. From consultations with managers, it can be concluded that this response most often represents general caution about water quality, rather than being a direct reaction to hygiene problems experienced on the visit. It was not clear if this caution was related to all water sources on the trip, or just those in trackside streams. The physical conditions which most bothered visitors included: track damage from trampling/widening (39%), seeing litter around huts (45%), seeing litter along the track (26%), and too much development of tracks (21%). The social impacts which most bothered visitors included: seeing too many in huts (25%), and insufficient bunks in huts (21%).

When visitors did notice impacts, many were not bothered by them. This response could be considered 'tolerance' of the impacts. For example, while 78% of visitors were aware of track damage from trampling/widening as an

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[5] Mountain biking responses from Easter 1994 (n = 76) indicated that while over 80% of these visitor noticed social and physical impacts with mountain bikes, only around 40% were bothered by them. Around equal proportions of tolerance and opposition for mountain biking were suggested by these results (see Appendix 1).

impact, as many were tolerant of it (36%) as were bothered (39%). Many such impact perception patterns are evident in Figure 7. However, when most of those noticing an impact were bothered by it, it could be considered as high 'intolerance' and unacceptability of the impact source. From Figure 7, impacts indicative of inappropriate behaviour by others appeared those least acceptable to visitors on this basis (also see Figure 8). These included littering of huts, campsites and tracks, seeing toilet paper and waste, and seeing wood cut for fires. Few of those noticing these impacts were not bothered by them. However, while these appear to represent the least acceptable types of impacts, they were not highly reported here.

5.1 EFFECTS OF AGE, GENDER, NATIONALITY, AND CROWDING PERCEPTION

5.1.1 Background to analyses

Additional analyses were required to assess whether these impact perceptions varied significantly according to age group, gender, nationality, and crowding perception. Figure 8 and Table 3 show the impact perception scales which were created for these analyses (refer Section 4.1.1).

TABLE 3. SUMMARY SCALES FOR SOCIAL AND PHYSICAL IMPACT PERCEPTIONS (REFER APPENDIX 2).

SCALES	DESCRIPTIONS
Seeing litter	Litter around huts/camps, on the track
Physical damage	Vegetation damage, track trampling/damage, waste/toilet paper
Hut/track congestion	Insufficient bunks, hut numbers, noise, rushing for bunks, track numbers, big groups
Over-development	Excessive level of huts, tracks, campsites, signs
Campsite congestion	Campsite numbers, noise, rushing for sites, campsite wear
Water/toilet/hygiene	Inadequate water/toilet supply, doubts over water hygiene
(extra individual items —	plane noise, guided groups)

5.1.2 Significant findings

Differences in these impact scales according to age-group (over and under 40 years), gender (male/female), nationality (New Zealand/overseas), and season of visit (summer/Easter) were analysed (refer Section 4.1 for method). The significant effects and interactions associated with the analysis using these independent variables are summarised in Table 4. These results indicate that social impacts from hut and track congestion are particularly important for management attention.

FIGURE 8. IMPACT PERCEPTION RESPONSES ORDERED IN SUMMARY SCALE STRUCTURE.

Separate analyses for mountain biking impacts indicated that older visitors were more bothered by them than were younger visitors (refer Appendix 1).

Crowded effect

Visitors who felt crowded had significantly different perceptions of some impacts than did uncrowded visitors (Table 4). This distinction was most prominent from the more negative perceptions of the hut/track congestion scale. Additional exploration of the constituent items in this scale (refer Table 3 and Figure 8) highlighted that while all made important contributions to the greater perception of congestion impacts among crowded visitors, the numbers present in huts and insufficient bunk space appeared to contribute most.

TABLE 4. SIGNIFICANT EFFECTS ON IMPACT SCALES.

SOURCE OF SIGNIFICANT EFFECTS	SIGNIFICANT IMPACT SCALES	MEAN VALUES (ADJUSTED)*	
Crowding effect F(6,545) = 14.05, p = .000	Hut/track congestion F(1,550) = 75.16, p = .000	Uncrowded 1.32	Crowded 1.81
	Campsite congestion F(1,550) = 8.50, p = .004	1.13	1.26
	Over-development F(1,550) = 7.00, p = .008	1.44	1.57
Nationality effect F(6,545) = 3.65, p = .001	Physical impacts F(1,550) = 6.47, p = .011	New Zealand 1.53	Overseas 1.47
	Over-development F(1,550) = 5.42, p = .020	1.48	1.55
	Water/toilet/hygiene F(1,550) = 4.33, p = .038	1.82	1.79
Gender effect F(6,545) = 2.03, p = .059	Over-development F(1,550) = 5.64, p = .018	Male 1.55	Female 1.46

* Mean values for summary scales are divided by the number of constituent items to give an interpretation using the original question categories (e.g., 1 = Not noticed, 2 = Not bothered, 3 = Bothered a little, 4 = Bothered a lot).

Comparison of the proportions of visitors bothered by these impacts (%) showed that crowded visitors were particularly more often bothered than uncrowded visitors with seeing too many in the huts (42% *vs* 7%), insufficient bunk space (31% *vs* 6%), noise in the huts (22% *vs* 11%) and 'having to rush for bunks' (21% *vs* 5%). Overall, these figures reinforce the analytical results showing much greater negative perceptions of hut congestion impacts among the visitors who felt crowded.

Crowded visitors also displayed more negative perceptions of campsite congestion and over-development. In both cases, all constituent impact items in each scale generally contributed similar degrees to the difference between the uncrowded and crowded visitor perceptions. However, among the campsite congestion impacts, seeing too many at campsites was the most prominent individual item. And among the over-development impacts, over-development of huts was the most prominent individual item.

Nationality effect

New Zealand visitors had significantly different perceptions of some impacts than did overseas visitors (Table 4). New Zealand visitors were relatively more bothered by impacts associated with the physical impacts and water/toilet/hygiene scales, but were relatively less bothered than overseas visitors by over-development impacts. Most of the difference between these visitors was based upon the perceptions in the physical impacts scale. Additional exploration of this scale highlighted 'seeing shortcuts off the track' and 'seeing where wood had been cut for fires' as the most prominent individual items perceived more negatively by New Zealand visitors. In the water/toilet/hygiene scale, the item most prominent among the more negative perceptions of the New Zealand visitors was the perception that the water may not always be safe to drink. While New Zealand visitors were more negative about these impacts, they were less negative than overseas visitors toward over-development impacts. Additional exploration of this scale highlighted more negative perceptions among overseas visitors toward over-development of tracks and signs in particular.

Gender effect

Males were more bothered by perceptions of over-development impacts than were females (Table 4). Additional exploration of the over-development scale indicated males were generally more bothered by all perception of over-development (e.g., huts, tracks, signs, campsites). This was the weakest of the three main effects identified in impact perception differences.

5.2 RELATING IMPACT PERCEPTION SCALES TO OVERALL TRIP EVALUATIONS

None of these impact scales were statistically associated with overall satisfaction, indicating that no specific social or physical impact perceptions were related to how the trip was evaluated. However, significant associations were found between impact perceptions and the overall crowding evaluation. An SPSS multiple regression ($F(5,562) = 63.47$, signif. $F = .0000$) identified a weak association (adjusted $r^2 = .355$) between the impact scales (independent) and crowding (dependent). The Hut/track congestion scale ($\beta = .629$, $t = 15.92$, $p = .0000$) was the most important predictor of crowding[6]. That is, being more bothered by the social impacts from hut/track congestion was moderately associated with feeling more crowded. This interpretation was supported by the strong correlation ($r = .54$) between hut/track congestion and crowding perceptions. Additional correlations calculated for crowding and the individual items comprising the hut/track congestion scale highlighted 'seeing too many in the hut' ($r = .49$) and 'insufficient bunk space' ($r = .42$) as being the most prominent individual impacts. Most other items were weakly correlated with crowding at around $r = .35$, with the exception of 'noisy groups in huts' which was only very weakly correlated ($r = .19$).

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[6] In addition, a temporary variable composed of the extreme high and low crowding scores was used in a separate multiple regression analysis to test this association further, and demonstrated a stronger association with the same impact scale (e.g., $r^2 = .456$; β(hut/track) = .670).

FIGURE 9. MANAGEMENT PREFERENCE RESPONSES.

6. Visitor attitudes towards management options

Attitudes toward 18 options for managing future increases in track use-levels were surveyed, with visitors indicating the degree to which they agreed or disagreed. These options included increasing the capacity of accommodation, dispersing use pressures, imposing use-limits, and providing pre-walk information (refer Appendix 1, Question 8). In addition, two management options related to mountain biking were added to the survey during Easter (n = 76), although these were not included in overall analyses (see Appendix 1).

The complete list of responses, as summarised in Figure 9, indicates a variety of visitor attitudes. The only management approach attracting consistently high support was that associated with using pre-walk information to influence visitor choices about making track visits (also refer Table 5). Over 50% of visitors agreed with these approaches and around 30% were neutral, while less than 10% disagreed.

The majority of visitors tended to disagree with most other types of management options. Among the options for direct manipulation of use conditions, most prominent disagreement emerged for 'reducing facilities and services in order to discourage use' (81%), 'making the track a one-way route' (77%), and 'making peak times cost more' (67%). Most prominent disagreement among the accommodation development options emerged for 'encouraging more camping along the track' (64%), 'allowing more guided trips using their own huts' (60%), and 'building more huts' (49%). Among the rationing/use-limit approaches, most visitors were in strong disagreement with the options: booking systems for huts (59%), campsites (60%), and requiring permits to do the trip (54%).

These results indicate a pattern of visitor preferences, overall, for different management options. Indirect information-based approaches are clearly most favoured, while all other types of options appear to be largely unfavoured. However, there are some individual options within these types of management where visitor attitudes appear to be more evenly split both for and against.

Attitudes toward the two management options for mountain biking were unevenly split, with majorities: (a) agreeing with allowing some mountain bike access (53% *vs* 31% disagreeing), and (b) disagreeing with a ban on mountain bikes (63% *vs* 25% agreeing) (see Appendix 1).

6.1 EFFECTS OF AGE, GENDER, NATIONALITY, AND CROWDING PERCEPTION

6.1.1 Background to analyses

Additional analyses were required to assess whether these management items varied significantly among visitors, according to age group, gender, nationality and crowding perception. Table 5 and Figure 10 show the 'attitudes to management scales' created for these analyses (refer Section 4.1.1).

TABLE 5. ATTITUDES TO MANAGEMENT SUMMARY SCALES (REFER APPENDIX 2).

SCALE	DESCRIPTION
Rationing/use-limits	Booking systems for huts/campsites, limited track permits
Information management	Encourage use elsewhere, promote low-impact behaviour
Increase accommodation	More hut/camp capacity, guided options, alternative tracks
Manipulate use conditions	Pricing, facility reduction, promote small groups, one-way track

6.1.2 Significant findings

Differences in these management scales according to age-group (over and under 40 years), gender (male/female), nationality (New Zealand and overseas), and crowding perception (crowded/uncrowded) were analysed (refer Section 4.1 for method). The significant effects and interactions associated with the analysis using these independent variables are summarised in Table 6. These results indicate significant differences in attitudes towards management options do occur between New Zealand and overseas visitors, and between younger and older visitors.

TABLE 6. SIGNIFICANT EFFECTS ON ATTITUDE TO MANAGEMENT SCALES.

SOURCE OF SIGNIFICANT EFFECT	SIGNIFICANT MANAGEMENT SCALES	MEAN VALUES (ADJUSTED)*		
Nationality effect F(4,570) = 10.21, p = .000	Increase accommodation F(1,573) = 18.39, p = .000		New Zealand 3.14	Overseas 3.56
	Manipulate use conditions F(1,573) = 13.05, p = .000		3.64	3.41
	Rationing/use-limits F(1,573) = 8.27, p = .004		3.60	3.48
	Information management F(1,573) = 4.39, p = .036		2.22	2.12
Age-group effect F(4,570) = 2.80, p = .025	Rationing/use-levels F(1,573) = 10.26, p = .001		Under 40 3.60	Over 40 3.42
Nationality/Age-group interaction F(4,570) = 2.38, p = .051	Information management F(1,573) = 4.68, p = .031		New Zealand	Overseas
		Under 40	2.14	2.14
		Over 40	2.37	2.00
	Rationing/use-limits F(1,573) = 4.25, p = .040		New Zealand	Overseas
		Under 40	3.65	3.56
		Over 40	3.54	2.89

* Mean values for the summary scales are divided by the number of constituent items to allow interpretation using the original question categories (e.g., 1 = Strongly agree, 3 = Neutral, 5 = Strongly disagree).

FIGURE 10. ATTITUDE TO MANAGEMENT RESPONSES IN SUMMARY SCALE STRUCTURE.

Nationality effect

New Zealand and overseas visitors had significantly different attitudes towards management options to cope with increased use-levels. New Zealand visitors were more negative toward controlling use-levels by manipulating use conditions and rationing use in particular, and also toward using information management to a lesser extent. Conversely, overseas visitors were relatively more positive toward all these management options, with the notable exception of development to increase accommodation options. These results indicate New Zealand visitors are more opposed to management options that require visit controls, while overseas visitors are more opposed to options that require facility development.

Exploration of the 'increase accommodation' scale indicated that overseas visitors were relatively opposed to building more huts, providing more bunks in huts, building more campsites, and allowing more guided trips and associated accommodation facilities. There was much less difference with New Zealand visitors toward allowing more freedom for camping along the track. These results suggest a particular preference among overseas visitors for minimising physical developments.

Exploration of the 'manipulate use conditions' scale indicated that New Zealand visitors disagreed particularly more with making alternative tracks cheaper, providing more alternative tracks, removing facilities to discourage use, and making peak times more expensive. Exploration of the 'rationing/use-limits' scale indicated New Zealand visitors disagreed particularly more with the option of requiring permits to do the track. And exploration of the 'information management' scale indicated New Zealand visitors disagreed particularly more with using information on crowding to divert use elsewhere, or information on other tracks to provide alternatives. There was much less difference with overseas visitors for information on physical impacts to promote appropriate behaviours, and when exploring attitudes toward providing information social impacts to promote appropriate behaviours, there was some indication that New Zealand visitors were more positive.

Age-group effect

Attitudes toward management options also differed significantly between younger and older visitors (under and over 40 years), with younger visitors disagreeing more with rationing/use-limits options. Exploration of the 'rationing/use-limits' scale indicated that while younger visitors disagreed more with all options, they viewed use of permits more negatively than booking system approaches. While these results provide no direct explanation of this distinction, the different ways the terms 'permits' and 'bookings' can be interpreted may be a contributing factor.

Separate analyses indicated that younger visitors were more supportive of some management options for mountain biking, while older visitors appeared more opposed (see Appendix 1).

Nationality/age-group interaction

A significant interaction between nationality and age-group was based largely on attitudes to the management options of information management and rationing

use. In both cases, the attitudes were very similar between younger New Zealand and overseas visitors. However among the older group the attitudes were different. While older New Zealand visitors tended to be a little more negative toward these management options, overseas visitors became considerably more positive. In the 'information management' scale, the option of using information on physical impacts (to promote low-impact behaviours) appeared to most reflect this interaction. It is unclear why older New Zealand visitors were least supportive of this option, or why older overseas visitors were most positive. In the 'rationing/use-limits' scale, while older visitors appeared generally less opposed to this management option, the older overseas visitors were notably the most positive. Among the individual items in the rationing/use-limits scale, requiring permits to do the walk most reflected this interaction, although booking systems for huts and campsites also contributed to a lesser extent. Systems associated with the term 'permit' again appear less favoured.

Extreme responses

Because visitor attitudes were sometimes substantially split both for and against the management options (refer Figure 10), additional exploration of these data were undertaken. The top and bottom 25% of scores for each of the management option scales were selected, representing the more 'extreme' attitudes of those who most strongly agreed or disagreed with the options. The main differences indicated from these explorations were between New Zealand and overseas visitors who held extreme attitudes towards management. The 'extreme-attitude' New Zealand visitors more strongly disagreed with manipulating use conditions (64% *vs* 42%), rationing/use-limits (52% *vs* 42%), and using information (56% *vs* 46%). By contrast, the 'extreme-attitude' overseas visitors more strongly disagreed with increasing accommodation options (72% *vs* 33%). The overall pattern of these results reflects the pattern identified from Table 6. Comparisons of other extreme-attitude results found crowded visitors less strongly disagreed with increasing accommodation options (43% *vs* 59% of uncrowded visitors), and older visitors also less strongly disagreed with this option (43% *vs* 53% older visitors). While based upon the extreme responses of visitors, these results do reflect the previous analyses, and indicate differences which may warrant further investigation.

6.2 RELATING MANAGEMENT PREFERENCE SCALES TO OVERALL TRIP EVALUATIONS

There were no significant links between the overall visit evaluations (e.g., satisfaction and crowding), and any scales of the attitudes towards management options. These results suggest that preferences for different management options were unaffected by any experiences on the track visit.

7. Summary and discussion

7.1 OVERALL VISIT EVALUATIONS

Among visitors surveyed, levels of dissatisfaction were negligible, and very few considered the visit was below their expectations. Overall these results indicate that Heaphy Track visitors had very positive visit experiences. However, some caution is required when interpreting these highly positive satisfaction findings. There is a tendency for visitors to give approval to the status-quo of social and environmental conditions they experienced on a visit, particularly if they have little previous experience of the site and do not have strong expectations as to what constitutes appropriate conditions. Over time, in a situation of changing use-conditions, overall satisfaction of such visitors can remain consistently high, despite considerable changes in visit experiences. First-time visitors with inaccurate expectations of social and physical conditions, or repeat-visitors with expectations based on previous conditions, are those most likely to be indicating overall dissatisfaction. These visitors are also the ones most likely to be displaced to different sites, times, or activities, and are more likely to give negative feedback to others about their experiences. Other visitors may recognise that elements of the visit-experience may not be what they would prefer, but are prepared to rationalise some of their experience preferences in the interests of an enjoyable overall visit. All these considerations suggest that reliance on overall satisfaction measures as a monitor of visit-experience quality can be misplaced.

Perceptions of crowding appeared a more sensitive monitor of effects on visit-experiences, being notably greater during the high-use Easter period. While many summer visitors indicated they expected higher use-levels, Easter visitors more often indicated they had expected lower use-levels. These results suggest that background information on use-levels more often promoted over-estimates for summer conditions and under-estimates for Easter conditions. However, while there was a link between greater crowding perceptions and experiences of higher than expected use-levels, this link was not strong. Despite many visitors to the Heaphy Track experiencing use-levels lower than they expected, the relatively high overall crowding perceptions suggest some use-pressures still occur.

Despite variations in summer and Easter crowding scores and use-level evaluations, overall satisfaction levels did not reflect any of these differences. While the high crowding perceptions indicated visit experiences were being affected in some way, particularly at Easter, there was no relationship with how the trip was evaluated overall. Summer visitors did not appear to be any more satisfied, despite experiencing use-levels much lower than they expected, and giving lower crowding scores. In other words, the overall satisfaction score was not sensitive to the different types of recreation experience being captured by the crowding scores and use-level evaluations.

7.2 SATISFACTION WITH FACILITIES AND SERVICES

No notable levels of dissatisfaction were apparent for any of the facilities and services on the Heaphy Track. None of the satisfaction scales were linked with any of the overall satisfaction and use-level evaluations. These very consistent and high levels of satisfaction across all the facility and service types indicated a lack of any specific visitor problems with track management infrastructure, and suggested there were no immediate need for management intervention beyond normal maintenance. The only areas that appeared to require some attention related to a group of facilities and services which could be considered as representing desirable additions rather than core elements (e.g., hut heating and lighting, drying facilities, track drainage, distance/time signs, space to relax in huts). These were not major sources of dissatisfaction (around 20%) and do not appear to warrant high priority on the basis of satisfaction levels alone.

There were significant differences between visitors in the levels of satisfaction, according to crowding perception and age-group. Visitors who felt crowded had lower levels of satisfaction, most particularly with hut conditions related to insufficient bunk numbers, space to relax in huts, and facilities for washing-up and cooking. In a secondary effect, younger visitors (under 40 years) had lower levels of satisfaction, most particularly based on satisfaction with information services and track standards. While these lower levels of satisfaction were consistent for all items of 'information services', among the items of 'track standards' the lower satisfaction with steps and boardwalks were most prominent. However, these were not strong effects and do not appear to represent a major concern at this time. Overall, these findings suggest that while levels of satisfaction with facilities and services were high, in situations where higher use-levels and/or crowding perceptions develop, hut conditions will represent the first area where compromises to the quality of visit experiences may occur. There appears to be a need for further investigation into the subject of 'visitor expectations' of standards and the extent of hut facilities and services.

7.3 PERCEPTIONS OF IMPACTS

Physical impacts bothered a considerable proportion of Heaphy Track visitors. Around 40% were bothered by impacts related to track trampling/widening and litter around huts, while around 25% were bothered by litter on the tracks and perceived over-development of tracks. Around 25% of visitors were bothered by the social congestion effects of too many people in huts and insufficient bunk numbers. Both physical and social impact concerns are raised by these results, with particular focus on perceptions related to track damage and inappropriate behaviour (e.g., littering). In addition, many visitors had negative perceptions of the levels of track development undertaken to counter the track damage. While hut congestion issues were not strongly related to crowding perceptions, they appear to be an area of key concern should future track use-levels rise.

Many other visitors appeared to have noticed these main impacts, but indicated that they were not bothered by them. For example, of those who noticed the

impact of track trampling/widening overall (78%), around half (36%) were not bothered it.[7] In some cases, very few of those visitors noticing the impacts were bothered by them (e.g., over-development of signs and huts, hut noise), suggesting considerable tolerance among visitors. However, some types of impacts appeared to be tolerated very little by visitors (e.g., seeing litter, toilet paper/waste, and wood-cutting), and while these were not prominent impacts overall, they do suggest particular visitor sensitivity to this type of perceived inappropriate behaviour in natural settings. It would appear that small changes in the levels of such impacts may result in large increases in the numbers of 'bothered' visitors. This may not be the case for the more 'tolerable' impacts. Understanding the distinction between simply noticing these impacts and being bothered by them appears an important research issue for managers.

The importance of hut/track congestion issues was reinforced by the significant differences in impact perceptions between uncrowded and crowded visitors. Crowded visitors had greater perceptions of most social and physical impacts, but were particularly more bothered by hut-based impacts related to hut/track congestion (e.g., too many in huts, insufficient bunk space). Track-based congestion impacts were also included in this difference, but were of less importance. Other impacts related to greater perceptions of over-development by crowded visitors (e.g., over-development of huts). These results reinforce the emphasis on hut conditions raised in the 'satisfaction' results, and suggest that the perception of what constitutes appropriate hut conditions may require further investigation.

Differences between New Zealand and overseas visitors were less pronounced, but featured New Zealand visitors being relatively more bothered by most physical impacts, and by water/toilet impacts related to perceived water hygiene. Overseas visitors were relatively more bothered by over-development impacts, particularly those based on perceived over-development of tracks and signs. These distinctions suggest some difference in how New Zealand and overseas visitors view the interaction of visitor effects, management actions, and the natural setting. These differences did not arise in the context of notably negative overall impact perceptions, and do not represent an area for immediate management attention. However, understanding any such distinction has more relevance for long-term management.

At present, given the high levels of overall satisfaction, and of satisfaction with facilities and services, the distinctions between crowded and uncrowded visitors, and New Zealand and overseas visitors, are not immediately important for managers. However, these distinctions will become more important for long term management, should use-levels increase. A focus on hut conditions appears to be the most important immediate concern for maintaining the quality of current visit experiences, and the quality of experiences achieved under future conditions of higher use. This focus should not be confined to the bunk capacities of huts, alone, as issues of the general numbers present in huts and the availability of hut space were apparent. Visitor perceptions of physical

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[7] This perception pattern was very similar to that apparent for perceptions of mountain biking impacts (refer results attached to Appendix 1).

impacts, particularly related to track conditions and littering issues also appear important. In particular, further analysis of what underlies the perceived impacts may be appropriate, particularly with reference to the differences between New Zealand and overseas visitors. Sections of the track were under major repair during the survey period, and this may have contributed to the high perceptions of track-based physical impacts (both from perceptions of damage and from over-development).

7.4 ATTITUDES TOWARD MANAGEMENT OPTIONS

When considering management options for addressing future increases in visitor use-levels, most visitors were positive toward 'information management'. That is, the strategic use of information to better match visitor expectations with likely experiences, and to give prospective visitors a better basis to choose a visit time and location that better suits their preferred visit experience. This may be a particularly important component of any general improvements undertaken in visitor information services. These results indicate clearly that such information management approaches were considered preferable among all types of visitors surveyed, although New Zealand visitors were relatively less supportive. The main question this poses for managers is whether such information management approaches represent an effective tool of practical value. This is an area where additional investigation should be encouraged, as it offers the possibility of developing management approaches with much higher degrees of visitor (and public) support. Further investigation of the attitudes of New Zealand visitors may also be appropriate, particularly as they were most negative toward the most direct application of information management (using information on crowding conditions to influence visit planning). However, given the highly positive support for information management overall, the small degree to which these visitor groups differed does not appear to be of major importance.

Attitudes were more negative toward options involving: development of facilities, encouraging alternative types of accommodation or visit type (e.g., camping, guided trips), and applying allocation systems such as bookings. Attitudes were split towards management options for mountain biking, although a small majority were more positive toward making provision for mountain biking, particularly among younger visitors (results attached to Appendix 1). Most visitors were highly negative toward the more regulatory options of manipulating use, which aimed to more directly channel or reduce visitor numbers. Compared with overseas visitors, New Zealanders appeared much less tolerant of their recreation being managed or manipulated, but more tolerant of developments aiming at increasing accommodation options. The consistency of this relatively greater opposition across all the more direct-use management options indicates a general reluctance from New Zealand visitors to allow their recreation to be 'controlled' in any way. By contrast, overseas visitors were less supportive of any management options that appeared to require physical development of additional facilities and services. Exploration of the extreme positive and negative responses here added support to these findings.

When distinctions according to age-group were included, attitudes towards options based on rationing/use-limits were generally more negative among younger visitors, and notably most positive among older overseas visitors. A distinction between older New Zealand and overseas visitors was also apparent for attitudes toward information management options, with older overseas visitors being notably more positive. Why older New Zealand visitors should be distinctly less positive toward use of these otherwise most-favoured options related to information management is not apparent from these results. The individual option which most reflected this distinction was providing information on crowding levels and times to allow potential visitors to minimise the chances of experiencing crowding. This represented the most direct-control approach among the information management options, and the result may reflect the general resistance of New Zealand visitors to such approaches in general.

These findings suggest New Zealand and overseas visitors to the Heaphy Track (and maybe elsewhere) have different perspectives on the role of management in natural area recreation. Such differences warrant further investigation for future management application, but may not be of great priority at present unless major management changes are likely in the short term. Booking systems for huts (and campsites), which are being actively considered as management options for controlling visitor numbers on many of the Great Walks, were opposed by the majority of walkers overall. No explanation of reasons for this negative attitude can be drawn from these analyses, although New Zealand and younger visitors were least supportive. But this finding suggests specific investigation is required to address how booking systems are perceived by visitors, and what happens to visitor patterns when such systems are imposed.[8]

Overall, preference was apparent for less intrusive management interventions, and indicates perceived freedom may be an important component of the visit experience. Additional investigation of the role played by perceived freedom in recreation experiences seems appropriate. Clearly this is an issue to investigate among New Zealanders in particular, and between age-groups, to a much lesser extent. The relatively high tolerance of overseas visitors to management of their recreation, but lower tolerance for any developments related to their recreation, are useful findings if continued growth in tourist numbers is anticipated on the Heaphy Track. These results indicate that any applications of new management approaches should take account of what perceived freedom in recreation means to New Zealand visitors in particular, and what perceptions of development mean to overseas visitors in particular.

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[8] Inferences have been drawn from simple comparisons between independent studies undertaken before and after implementation of a booking system on the Routeburn Track, but these have not been part of any specifically designed assessment. If required, specific additional analyses of the Heaphy database, and others in the Great Walks study may provide more information on attitudes toward booking systems.

7.5 CONCLUSIONS AND RECOMMENDATIONS

While there appears to be no urgent need for immediate management action to address any current problems, visitor responses indicate that there were existing effects on visit experiences from the presence and behaviour of other visitors. These effects were mainly associated with hut congestion, and general perceptions of crowding. While these effects appeared to be largely tolerated (many visitors not bothered by them), the results linking crowding with perceptions of hut congestion indicate that some of these evaluations were becoming more negative at higher use-levels. It appears that, given higher use-levels, perceptions of hut-based congestion will also increase. Perceptions of track damage, and physical impacts from inappropriate behaviour (e.g., littering) were notable overall, but were not linked to higher crowding perceptions.

Overall, these results indicate preventative actions to minimise future compromises to the quality of visit-experiences will need to be taken, but these are not critical at present. If management control is required, visitors have indicated a preference for information-based methods to guide visitor choices, rather than any more regulatory approaches to limit or channel visitor opportunities. Initially some development of long-term information approaches could be undertaken. Stringent controls do not yet appear essential. When considering these and other management options, it should be noted that New Zealanders appeared less supportive toward 'visit-control' types of management, while overseas visitors appeared less supportive of 'facility-development' types of management. Any proposed actions may need to allow for the effects on the perceived sense of recreational freedom among New Zealand visitors, and on the perceptions of the setting's natural-state among overseas visitors. In summary, the main management actions which could be undertaken include:

- Specific attention to the facility capacity (e.g., space for washing-up, toilets) and bunk capacity of huts
- Optimising the use of hut space for relaxation and for access to facilities within and around the huts (e.g., can the hut space be reconfigured)
- Provision of general information about the features and development levels of the Heaphy Track, and for planning visits to it
- Provision of information approaches which forecast visitor numbers and hut loadings in advance, to indicate where and at what times 'bottlenecks' are most likely, and give general suggestions on visit timing and trip organisation to avoid 'crowded' visit experiences

Most initial gains should be made by concentrating upon making whatever simple improvements are possible to the use of space in huts. The information management options require generating behavioural change among the visitors rather than the physical changes to hut facilities. Promoting beneficial behavioural changes through information use represents a more long-term approach, which will be based largely on pre-visit information, and may require greater involvement with external agencies. Any consideration of these approaches will require additional investigations in to assess the potential

effectiveness of information use as a practical management tool. Investigations of the Great Walk expectations of different visitor groups concerning the facilities, service, and visit experiences will be important. Particular focus should be on hut and track conditions, and also on the distinctions between New Zealand and overseas visitors.

While more regulatory management options were not highly favoured, they may still be required if urgent control is necessary, particularly in the short term. Additional investigations should be encouraged to explore the reasons for the largely negative attitudes of New Zealand visitors toward these more direct visit-control options, compared with the more negative attitudes of overseas visitors toward the facility development options. This may require some focus on the extent to which perceived freedom from external controls and perceived natural-state of the setting are key elements of preferred recreation experiences. While such investigations go beyond the management of the Heaphy Track alone, they will be important should any major management changes be considered there.

Monitoring the quality of visit experiences should not rely on overall visit-satisfaction scores. Crowding scores offer a more sensitive overall measure. Any specific monitoring of visit-experience quality should concentrate first upon hut congestion conditions at key huts. For the Heaphy Track, this could initially concentrate upon visitor experiences at either Perry Saddle or Heaphy huts, as these are where most last nights on the track are likely to be spent. Any monitoring should address wider elements of hut congestion conditions than simply bunk occupancy. This may involve more specific investigations of the use of space in huts. Monitoring of track conditions may only be necessary as a single exercise to identify the track features underlying any perceptions of track damage and/or over-development. However, track conditions do not appear to represent a high-priority issue, so such monitoring may not be necessary. Application of any monitoring approaches or related investigations should include coverage of the Easter period, as it can provide a benchmark of high use-level conditions.

Appendix 1

Summary of Heaphy questionnaire responses (n = 664)

This presents the basic response percentages for the questions asked in the survey. These percentages are presented in the format of the original questionnaire, although some lists of responses are attached where their format is incompatible with this approach. Where appropriate, some distinction is also made between the responses of hut and campsite users (at least 1 night).

These responses are presented here as they are incompatible with the questionnaire format in this appendix.

A. Question 1. Nationality breakdown

NATIONALITY	NO'S	%
New Zealand	380	57
Germany	111	17
Great Britain	45	7
United States	24	4
Australia	16	2
Switzerland	26	4
Netherlands	10	1
Canada	11	2
Denmark	5	1
Israel	9	1
Japan	12	2
Other Europe*	12	2
Other Asia (Singapore)	1	0
Other (Uruguay)	1	0

* 5 Denmark, 4 Sweden, 1 Luxembourg, 1 Czechoslovakia, 1 Italy.

B. Question 1. Nights on trip and at huts/camps

(i) Trip Duration

No. of nights on Heaphy

	1 nights	2 nights	3 nights	4 nights	5+ nights
% trips of this duration	3	12	40	29	16

(ii) Nights at Huts and/or Campsites

Overnight accommodation

	Huts only	Hut & 1 camp	Multiple huts/camps	Camps & 1 hut	Camps only
% trips	69	12	6	34	9

C. Question 3. Locations of crowding focus

Overall, (69%) of visitors (n = 456) considered some places on the visit were more crowded than others. They were asked to indicate in general terms whether this occurred in huts, at campsites, on the track or elsewhere, and then relative to these, specifically where. These specific responses are summarised here. Note that multiple responses were allowed for.

Huts — 455 specified huts as a focus of crowding (100% of 456). Of these, the specific focus responses highlighted the following main sites:

44% — Mackay Hut	33% — Heaphy Hut	22% — Perry Saddle Hut
13% — Saxon Hut	9% — Lewis Hut	2% — Gouland Downs Hut
2% — Other Hut	2% — Brown Hut	

Campsites — 23 specified campsites as a focus of crowding (5% of 456).

On the track — 16 specified areas along the track as a focus of crowding (3% of 456).

Other — 1 specified 'other' areas as a focus of crowding (0% of 456).

ATTACHED MOUNTAIN BIKE QUESTIONS

Specific question items related to mountain bike impacts and management were added to the Easter Questionnaire. Such questions were initially considered for the main survey, but were omitted due to manager advice that other survey work on this specific issue was underway, and to maximise questionnaire consistency across the Great Walks. Early viewing of results suggested that, in hindsight, these questions should be included. The opportunity to carry out an additional Easter sample provided the means to address these issues in the context of this survey. During the 1994 Easter period, around 30 mountain bikes were known to have been on the track .

D. Question 5. 'Other' impacts — Mountain biking (asked at Easter only)

OTHER IMPACT PERCEPTIONS (Easter only, n= 76)	I DID NOT EXPERIENCE THIS IMPACT	THIS IMPACT DID NOT BOTHER ME	THIS IMPACT BOTHERED ME A LITTLE	THIS IMPACT BOTHERED ME A LOT
Seeing mountain bikes on the track	6	56	29	10
Seeing impacts from mountain bikes	18	42	28	12
Knowing mountain bikes are using the track	6	65	18	11

In each of these cases, the majority of visitors who noticed mountain bike impacts were not bothered by them. Simple comparative analyses of response percentages using chi square tables indicated that older visitors were generally more bothered by mountain bike impacts. Other comparisons were not possible due to limited sample size (n = 76). None of these impacts were correlated with the overall crowding and satisfaction evaluations.

E. Question 8. 'Other' management preferences — Mountain biking (asked at Easter only)

OTHER MANAGEMENT PREFERENCES (Easter only, n = 76)	STRONGLY AGREE	TEND TO AGREE	NEUTRAL	TEND TO DISAGREE	STRONGLY DISAGREE
Allow some controlled mountain bike access	22	31	16	7	24
Completely ban mountain bikes	22	3	12	28	35

The majority of visitors agreed with allowing some controlled mountain bike access (53% *vs* 31% disagreed), and disagreed with a complete ban on mountain bike access (63% *vs* 25% agreed). In both cases, simple comparative analyses of response percentages using chi square tables indicated that the management preferences of older visitors were generally more negative toward mountain biking. No other comparisons indicated notable differences.

Overall, these results suggest visitors were split in their attitudes toward mountain bikes, with a tendency for older visitors to be more negative. The majority of visitors surveyed here were generally positive toward mountain biking. However, with the Heaphy Track now managed as part of the recently formed Kahurangi National Park, mountain bike use is not allowed.

Appendix 2

Details of Heaphy principal components analysis

Principal component analysis (PCA) was carried out upon selected subsets of response-list items from 664 respondents to the Heaphy Track sample from the Great Walks survey. These subsets related to response lists for visitor perceptions of impacts (Q. 5), visitor satisfactions (Q. 7), and visitor preferences for possible management responses (Q. 8) to increasing visitor numbers. The PCA defined a reduced number of summary scales which could then be used for more complex analytical procedures. The following material describes the summary scales, and demonstrates the degree to which they are representative of their component variables. Items were included in the scale if their removal reduced the value of the scale reliability co-efficient (Kronbachs alpha).

SATISFACTION SCALES (from Question 7)

SCALE NAME	RELIABILITY (Kronbachs Alpha)	COMPONENT LIST VARIABLES (from original questionnaire lists)	LOADINGS (from PCA)
Hut conditions	0.8452	Hut washing up space/facilities	0.756
		Space to relax in huts	0.744
		Hut cooking space/facilities	0.715
		Hut drying space/facilities	0.693
		Number of bunks in huts	0.659
		Hut lighting facilities	0.543
		Hut heating facilities	0.542
Hut water/toilets	0.6828	Water supply at huts	0.650
		Toilets at huts	0.634
Track standards	0.7864	Boardwalks over wet/fragile areas	0.730
		Drainage of water	0.724
		Smooth/easy surfaces	0.715
		Steps	0.670
		Gentle slopes/not steep	0.548
		Bridges over rivers	0.508
Information/ advice	0.8334	Material from visitor centres	0.863
		Advice from visitor centres	0.846
		Quality of maps/brochures	0.741
Track marking/ signs	0.7431	Information signs by the track	0.806
		Distance/time signs	0.765
		Track marking	0.645
Camp conditions	0.8885	Camp cooking space/facilities	0.827
		Water supply at campsites	0.784
		Toilets at campsites	0.771
		Camp washing up space/facilities	0.755
		Rain shelters at campsites	0.748
Extra items		Advice from wardens	
		Maps/brochures in the huts	

IMPACT PERCEPTION SCALES (from Question 5)

SCALE NAME	RELIABILITY (Kronbachs Alpha)	COMPONENT LIST VARIABLES (from original questionnaire lists)	LOADINGS (from PCA)
Littering	0.7083	Litter around hut Litter on track Litter around campsites	0.805 0.707 0.680
Physical damage	0.6620	Seeing where campsites have formed Seeing where wood cut for fires Seeing shortcuts off tracks Seeing human waste/toilet paper Seeing trampling around wet areas	0.711 0.666 0.627 0.519 0.364
Hut/track congestion	0.7594	Insufficient bunk space in huts Having to rush for bunk in huts Too many people in hut Seeing too many big groups of people Noisy people in huts at night Seeing too many on the track each day	0.773 0.758 0.660 0.612 0.506 0.403
Over-development	0.7792	Too much development of huts Too much development of signs Too much development of tracks Too much development of campsites	0.820 0.753 0.734 0.729
Campsite congestion	0.7559	Too many others at campsites Noisy people at campsites Having to rush for campsite space	0.770 0.745 0.684
Water/toilet/ hygiene	0.5178	Inadequate water supply Inadequate toilet facilities Uncertainty in water hygiene	0.763 0.697 0.593
Extra items		Seeing people on guided trips of track Plane noise	

MANAGEMENT PREFERENCE SCALES (from Question 8)

SCALE NAME	RELIABILITY (Kronbachs Alpha)	COMPONENT LIST VARIABLES (from original questionnaire lists)	LOADINGS (from PCA)
Rationing/use limits	0.8516	Bookings for spaces at campsites Bookings for bunks in huts Require permits, and limit these	0.904 0.898 0.742
Information management	0.8032	Provide inf. on physical impacts Provide inf. on crowding conditions Provide inf. on different track options Provide inf. on social impacts	0.798 0.782 0.764 0.757
Increase accommodation	0.6289	Build more huts Provide more campsite/camping facilities Allow more guided trips/facilities Provide more bunks in huts Increase freedom for camping by tracks	0.706 0.689 0.649 0.502 0.499
Manipulate use conditions	0.5894	Provide more alternative tracks Remove some facilities to discourage use Make peak use times more expensive Make track one-way only Encourage small groups/discourage large Make other track options cheaper	0.574 0.568 0.544 0.536 0.532 0.507

Appendix 3

Details of Heaphy crowding scores

Crowding was assessed using a widely used nine-point crowding scale (Question 2), and Table A3.1 presents the responses from Heaphy Track visitors.

TABLE A3.1. HEAPHY TRACK CROWDING SCORES.

DEGREE OF CROWDING	(scores)	TOTAL % (n = 664)	SUMMER (n = 588)	EASTER (n = 76)
NOT CROWDED	(1)	20	22	4
	(2)	14	15	10
CROWDED — slightly	(3)	17	16	20
	(4)	8	8	4
	(5)	9	8	19
CROWDED — moderately	(6)	16	15	19
	(7)	8	7	16
CROWDED — extremely	(8)	6	6	8
	(9)	2	3	0

Shelby *et al*. (1989)[1] summarised and evaluated the accumulated results from this method, and developed an interpretation method to highlight the management significance of these responses. These interpretations, which can be considered carrying capacity judgements related to the quality of visitor experiences, apply to the 'crowded' respondents (e.g., those scoring 3 or more). Table A3.1 shows that the proportion of 'crowded' visitors on the Heaphy Track was 55% in summer, and 71% at Easter.

Table A3.2 (next page) presents a range of results from the other Great Walks and from studies summarised by Shelby *et al*. (1989). Accompanying these results are the interpretations applied to different crowding scores. The interpretation of 55% crowding on the Heaphy Track in summer is that use is at 'high normal conditions', while 71% crowding at Easter is 'much more than capacity'. Accepting that Easter currently represents an extreme situation, the interpretation of this summer crowding is that research and other investigations are needed to allow management actions to prevent future congestion problems. This time is considered the best opportunity to take such actions before conditions have developed into a more serious state. Some time appears available as at 55%, summer crowding scores are still considerably below the 65% level, above which they could be interpreted as being 'more than capacity'. These interpretations represent informed but subjective guidelines based upon extensive accumulated knowledge.

Comparing the Great Walk crowding scores in Table A3.2 and Figure A3.1 indicates that crowding is excessively high on the Heaphy Track, and while preventative management to minimise effects from increasing use should be considered now before more negative effects become established, more urgent attention may be required first on some of the other tracks.

[1] Shelby, B., Vaske, J.J., Heberlein, T.A. 1989. Comparative analysis of crowding in multiple locations: Results of 15 years of research. *Leisure Sciences* 11: 269–291.

TABLE A3.2 DIFFERENT LEVELS OF 'CROWDED' RESPONSES. (AFTER SHELBY *ET AL.* 1989)

CROWD (%)	POPULATION	RESOURCE	STATE OR COUNTRY	RESOURCE CONDITIONS	CARRYING CAPACITY JUDGEMENT
100	Boaters	Deschutes River	Oregon	Weekends section 1	**Much more than capacity**
94	Anglers	Colorado River	Arizona	Thanksgiving weekend	(80 – 100%)
91	Boaters	Raystown Lake	Pennsylvania	On the lake	Manage for high density recreation
89	Pheasant hunters	Bong Hunting Area	Wisconsin	Opening day	experiences, or treat as a 'sacrifice area',
88	Boaters	Deschutes River	Oregon	Weekdays section 1	allowing quantity of activity to compromise
87	Riparian landowners	Lake Delavan	Wisconsin	Overall rating	quality of experiences. Could be a localised
86	Goose hunters	Grand River Marsh	Wisconsin	Firing line	compromise to reduce pressure on other areas.
85	Pheasant hunters	Public Hunting Area	Wisconsin	Opening day	
* **76** *	**Walkers (GW)**	**Routeburn Track**	**New Zealand**	**Summer**	**More than capacity**
76	Trout anglers	Gun Powder River	Maryland	Opening day	(65 – 80%)
75	Salmon anglers	Waimakariri River	New Zealand	At river mouth	Studies and management are necessary to
75	Boaters	Raystown Lake	Pennsylvania	At attraction sites	preserve recreation experiences, especially if
74	Salmon anglers	Rakaia River	New Zealand	At river mouth	low visitor impacts (social/physical) are
73	Canoers and boaters	Boundary Waters C.A.	Minnesota	Moose Lake	important components. Immediate
72	Rafters	Grand Canyon	Arizona	1985 Summer	management to control use-levels at around
70	Anglers	Klamath River	California		65% level of crowding conditions may be
70	Climbers	Mt. McKinley	Alaska		considered as an option. Research may be
* **69** *	**Walkers (GW)**	**Abel Tasman Track**	**New Zealand**	**Summer**	needed to establish more long-term solutions.
69	Boaters	Door Country	Wisconsin		
* **68** *	**Walkers (GW)**	**Tongariro Crossing**	**New Zealand**	**Summer (Easter 86%)**	
68	Rafters	Rogue River	Oregon		
68	Rock climbers	Seneca Rocks	West Virginia		
66	Boaters	Raystown Lake	Pennsylvania	At put-in location	
* **63** *	**Walkers (GW)**	**Kepler Track**	**New Zealand**	**Summer (Easter 86%)**	**High normal conditions**
63	Boaters	Raystown Lake	Pennsylvania	At take-out location	(50 – 65%)
* **62** *	**Walkers (GW)**	**Milford Track**	**New Zealand**	**Summer**	Should be studied if increased use is expected,
62	Deer hunters	Sandhill	Wisconsin	1988 High-density hunt	allowing management to anticipate problems.
61	Goose hunters	Fishing Bay	Maryland	Firing line	Represents the best time to establish more
61	Floaters	Wolf River	Wisconsin		long-term management, as once higher
59	Salmon anglers	Rakaia River	New Zealand	All anglers	crowding perceptions exist, there is difficulty
* **58** *	**Sea Kayakers (GW)**	**Abel Tasman Coast**	**New Zealand**	**Summer**	in managing use 'down' to levels more

* **55** *	**Walkers (GW)**	**Heaphy Track**	**New Zealand**	**Summer (Easter 71%)**	appropriate for the main recreation
55	Wildlife photographers	Sandhill	Wisconsin		experiences desired.
54	Recreationists	Lake Delavan	Wisconsin	One-day visit	
53	Anglers	Brule River	Wisconsin	1975	
53	Rafters	Grand Canyon	Arizona	1985 Winter	
53	Rafters	Snake River	Oregon	In Hell's Canyon	
53	Backpackers	Mt. Jefferson	Oregon		
52	Canoers	Brule River	Wisconsin	High-use period	
50	Deer hunters	Sandhill	Wisconsin	1982 High-density hunt	**Low Normal Conditions**
49	Backpackers	Eagle Cap Wilderness	Oregon		(35 – 50%)
48	Pheasant hunters	Bong Hunting Area	Wisconsin	Late season	A problem situation does not exist at this time.
46	Deer hunters	State-wide	Wisconsin	No specific resource	As with the above category, these may offer
45	Salmon anglers	Rakaia River	New Zealand	Upstream	unique low-density recreation experiences.
44	Turkey hunters	State-wide	Maryland	No specific resource	These are likely to change with any increase
43	Tubers	Brule River	Wisconsin		in social or physical impacts resulting from
* **43** *	**Walkers (GW)**	**Travers-Sabine Track**	**New Zealand**	Summer	increasing numbers of users, or from changes
* **42** *	**Canoeists (GW)**	**Wanganui River**	**New Zealand**	Summer	in activity types.
* **42** *	**Walkers (GW)**	**Waikaremoana Track**	**New Zealand**	Summer	
42	Sail-boaters	Apostle Islands	Wisconsin	Summer 1985	
41	Tourists and drivers	Stockings Park	Michigan	Presidential Range	
39	Backpackers	White Mt. Nat. Forest	New Hampshire		
38	Floaters	Klamath River	California	1985 Low-use period	
37	Canoers	Brule River	Wisconsin		
* **35** *	**Walkers (GW)**	**Rakiura Track**	**New Zealand**	**Summer**	**Suppressed Crowding**
32	Anglers	Colorado River	Arizona	Midweek	(0 – 35%)
31	Hikers	Dolly Sods Wilderness	West Virginia	Low-use period	Crowding here is limited by certain
27	Goose hunters	Tuckahoe State Park	Maryland	Low-density hunt	management or situational factors, which
26	Rafters	Illinois River	Oregon		allow particular low-density recreational
25	Trout anglers	Savage River	Maryland	Low use period	experiences. These are likely to be unique,
24	Backpackers	Great Gulf Wilderness	New Hampshire	Low use period	and managers should be concerned with
24	Deer hunters	Sandhill	Wisconsin	1982 Low-density hunt	maintaining them. Changes likely to increase
23	Trout anglers	Gunpowder River	Maryland	Late season	visitor numbers/impacts should be considered
20	Canoeists	Wanganui River	New Zealand	Summer (Easter 68%)	carefully.
17	Goose hunters	Grand River	Wisconsin	Managed hunt	
12	Deer hunters	Sandhill	Wisconsin	1988 Low-density hunt	

* * and bold type identify the crowding responses for the tracks included in New Zealand's Great Walks.

FIGURE A3.1. DIFFERENT LEVELS OF 'CROWDED' RESPONSES ON GREAT WALKS.