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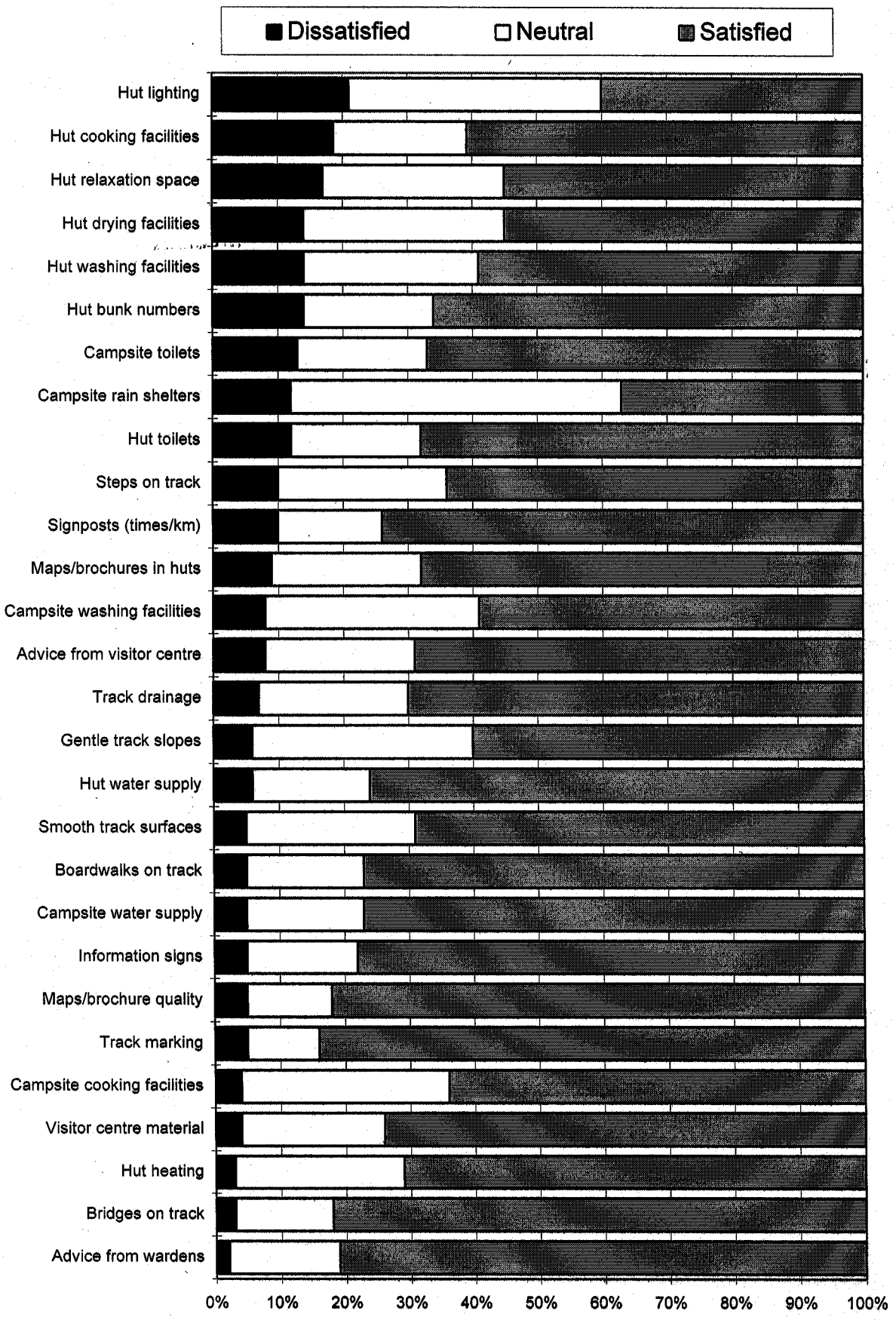

Figure 8. Impact perception responses ordered in summary scale structure.

Crowded effect

Crowded visitors had significantly more negative perceptions of impacts. These perceptions were more negative for almost all types of impacts (Table 4), but were higher for hut and track congestion. Additional exploration of the 'hut congestion' scale and the 'track congestion' scale found that this difference was consistent for all their constituent impact items (refer Table 3 and Figure 8). Within the 'hut congestion' scale, crowded visitors were significantly more bothered than uncrowded visitors by 'seeing too many in the huts' (37% vs 12%) and 'insufficient bunk space' (25% vs 5%). From the 'track congestion' scale they were particularly more bothered with 'seeing too many on the track' (42% vs 10%) and 'seeing too many big groups' (28% vs 11%). In each of these examples, general awareness of the impacts was around 20% higher among the crowded visitors. Overall these results indicated much greater negative perceptions of these hut and track congestion impacts among the visitors who felt crowded.

Perceptions of campsite congestion were also higher among crowded visitors, although to a lesser extent than for hut and track congestion. Most visitors indicated they did not notice campsite impacts, reflecting the emphasis on hut use on the Tongariro Circuit (refer Section 2). This was reflected by the lower mean values for campsite congestion in Table 4. However, the proportion of crowded visitors was found to be consistent between hut and campsite users (around 70%). Crowding was highest (92%) for those who used huts, but camped on one night, suggesting that their camping option may have been a consequence of hut crowding. For the main campsite impact item of seeing too many at campsites, crowded visitors indicated they did notice this impacts more often (33% *vs* 18% for uncrowded visitors). And among those who used campsites (n = 297), many more crowded visitors noticed this impact (60% *vs* 31% for uncrowded visitors). These results suggest strongly that crowding effects similar to those at huts were also occurring at campsites.

Crowded visitors also indicated higher perceptions of overdevelopment and physical impacts. In the former, they emphasised greater perception of all types of overdevelopment (e.g., signs, huts, tracks, campsites), while in the latter they emphasised seeing litter and track widening from trampling. However, these contributed much less than the hut and track scales to the overall impact perception difference between crowded and uncrowded visitors.

Summer and Easter responses

This over-all pattern of impact perceptions was also apparent from the comparison of Summer and Easter responses, reflecting the higher crowding scores reported at Easter (86% *vs* 68% in Summer). When the analysis reported in Table 4 was undertaken specifically without including the crowding perceptions variable, very similar results were found between Summer and Easter. From the 'hut congestion' scale, Easter visitors were particularly more bothered with 'insufficient bunk space' (48% *vs* 13%), 'seeing too many in huts' (42% *vs* 27%), and 'having to rush for bunks' (26% *vs* 10%). In general, Easter visitors appeared more aware of the hut congestion impacts and had more negative perceptions of them relative to Summer conditions. From the 'track congestion' scale they were more bothered with 'seeing too many on the track' (40% *vs* 29%). For most other items in these scales, Easter visitors were not bothered at particularly higher levels, but they were more aware of the impacts.

This was particularly evident for the items in the 'track congestion' scale, suggesting that while social impacts on the tracks were observed more often at Easter, they do not appear to have yet reached levels which are perceived more negatively than those in Summer. Part of this apparently greater tolerance for impacts at Easter (where the impact is noticed much more but the proportion bothered by it changes little) may result from different expectations for use conditions at this commonly busier time. The role of expectations in forming tolerance levels represents a useful question for future research.

5.2 RELATING IMPACT PERCEPTION SCALES TO OVERALL TRIP EVALUATIONS

None of these impact scales were statistically associated with overall satisfaction, indicating that none of the specific social or physical impact perceptions were related to how the trip was evaluated. However, weak but significant associations were found between impact perceptions and the overall crowding evaluation. An SPSS multiple regression ($F(5,877) = 74.6$, signif. $F = .0000$) identified an association (adjusted $r^2 = .294$) between the impact scales (independent) and Crowding (dependent). Hut congestion ($\beta = .393$, $t = 12.95$, $p = .0000$) and Track congestion ($\beta = .302$, $t = 9.42$, $p = .0000$) were the most important predictors of crowding.[9] That is, the experience of being bothered by hut and track congestion was weakly associated with the experience of feeling crowded. This finding supports the suggestion made in Section 3.2 that despite the high overall satisfaction evaluation, high crowding scores indicate that some compromises to the quality of visit-experiences are occurring.

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[9] Moderate correlations were also found between crowding, and both hut congestion ($r = .472$, $p = .000$) and track congestion ($r = .400$, $p = .000$). 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 scales (e.g., $r^2 = .417$; $\beta(\text{hut}) = .451$; $\beta(\text{track}) = .333$).