Local community perceptions about mountain bike riding in peri-urban national parks

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Introduction

There is growing pressure to allow a greater diversity of recreational activities in some national parks, which often generates controversy (Pickering et al., 2011). Mountain-biking is a good example, as it is increasingly popular - including in many urban and peri-urban parks (Pickering et al., 2011). The appropriateness of mountain biking in some locations is increasingly contested, due to potential social and environmental impacts (Pickering et al., 2011). Perceptions of mountain biking can differ within and among different stakeholders including decision makers, local communities and park visitors (Chavez et al., 1993). A range of studies suggest that conflict can occur among different types of park visitors such as those between hikers and mountain bikers, although this is not always the case (Rossi et al., 2012). However, perceptions of local communities living near national parks, may differ to those of park-visitors, particularly where the potential for conflict results in displacement - with locals avoiding parks (Bentrupperbäumer and Reser, 2008). A survey of local communities living within 5 km of two popular national parks in Australia was conducted to assess residents' perceptions about mountain bike riding, and associated social and environmental impacts.

Methods

Local communities near two national parks (D'Aguilar National Park and Nerang National Park) were surveyed. The parks are proximate to the most populous cities in Queensland, Australia. Both parks feature a network of multiple-use and single purpose trails, which foster a diverse range of recreational activities (e.g. mountain biking, running and hiking).

Local residents' demographic and perceptual data was obtained using a postal survey. Participants were asked to identify how positively, neutrally or negatively they were affected by different recreational activities in the parks, including mountain biking. Also, they were asked to identify social and environmental impacts of these activities. A total of 3,179 households were mailed the survey package, using standard procedures for mail-back surveys (Veal, 2011). The potential benefit of this method is that a large and diverse population can be targeted, but low response rates are typically a limitation (Veal, 2011).

To determine differences between locals who were park users and non-users, chi-squared tests were used. To examine the nature of relationships between respondent's characteristics and their perceptions about mountain biking within the parks, Categorical Principal Component Analysis (CATPCA) was employed using the Statistical Package for Social Science (SPSS®, v21).

Results

A total of 270 responses were obtained from the local communities, resulting in a low 8.5% response rate (typical of these surveys). Slightly more males (51%) than females responded to the survey. Nearly all respondents were >45 years old (80%), with only 5% <34 years old. Respondents were well educated, with 59% holding a tertiary or university degree, while 16% of respondents' highest level of education was a vocational or technical education, and just 25% had only completed secondary education. Nearly two thirds of respondents visited their local national park (62%); many of whom are frequent visitors (66%).

Most local residents' perceptions about mountain biking in the parks were neutral, although a few locals had strongly positive or strongly negative perceptions (Figure 1). Perceptions differed between locals who visited the park and those that did not (Chi-squared = 26,719, $p < 0.001$) with proportionally more locals who visited the parks having a positive perception of mountain biking compared to non-visitors (Figure 1). The primary concerns of local national park visitors pertained to safety on the trails; over 20% reported the potential for collisions as a problem. On the other hand, locals who did not visit the national parks were more concerned about environmental impacts. They reported that damage to plants or animals (13%) was their principal concern with mountain biking.

When analyzing the relationship between local residents characteristics and perceptions using CATPCA, park usage patterns did not account for much of the variation in their perceptions of mountain biking impacts, rather it was closely related to respondents' demographic characteristics, including age, gender and level of education. The projection of the variables included in the CATPCA analysis shows visitors and non-visitors in the vertical axes and respondents' perceptions in the horizontal axis (Figure 1). Visitors were characterized by well-educated males between 25-54 years old, while non-visitors were characterized by people very young (<24 years old) or older than 55 years old with lower levels of education than visitors. Perceptions about mountain-biking were closely related to the reported social and environmental impacts. People negatively affected by mountain biking often reported several social and environmental impacts (Figure 1).

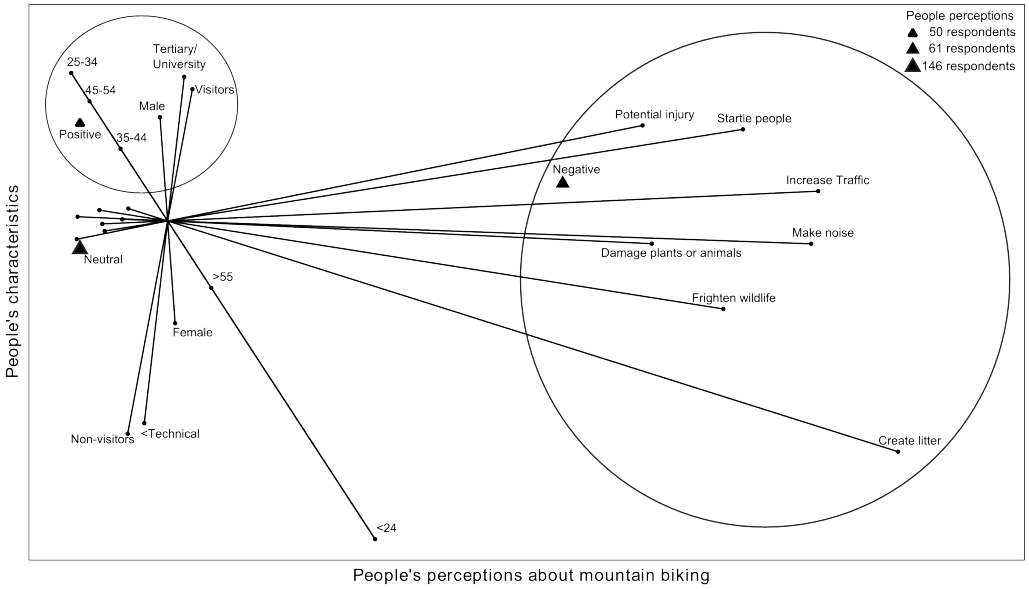

Figure 1. Categorical principal component analysis of local residents' characteristics and perceptions about mountain biking and its social and environmental impacts in two peri-urban national parks in South East Queensland, Australia.

Discussion

Similarly to a previous study which found limited conflict among recreational activities for one of these parks (Rossi et al., 2012), local residents did not report high levels of conflict over mountain biking for either park. However, locals who did not visit the parks tended to have a slightly less positive perception of mountain biking, than locals that did. It appears that locals who do not use the parks may experience social value conflicts, where problems are experienced without direct contact among those engaging in different recreational activities (Vaske et al., 1995). Although the perceptions of social conflicts could be a reason for displacement for these two parks, as has been found in other studies (Arnberger and Brandenburg, 2007) evidence was not found supporting this relationship.

This suggests that displacement due to mountain biking may not be the major reason for some local residents not visiting these parks. Other factors potentially affecting their visitation patterns include age, place of residence and education. These findings corroborate studies that found that residents with higher level of education are more likely to visit a park if it is closer to home (Payne et al., 2005).

Interpreting these findings need to take into account some limitations of the study, potentially driven by the low response rate. This includes an over-representation of people >45 years old, potentially due to a tendency of older members of the community to participate in mail surveys (Veal, 2011), and the greater concentration of older people living close to these parks.

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