

What's the latest research on mountain biking in protected areas?: Results from the special issue of the *Journal of Outdoor Recreation and Tourism*

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Public use of protected areas is changing, with declines in activities such as horse riding and hunting in some locations, while others such as mountain bike riding are increasing. Mountain biking riding is popular now in a wide range of protected areas from urban parks to wilderness areas and in many countries. Such popularity energizes the discourse about how mountain biking can contribute to protected area objectives, and at what cost. There is also an increasing focus on research on social and environmental aspects of mountain biking. This interest was reflected in numerous talks on the challenges of managing and monitoring mountain biking at MMV7 (Reimann et al. 2014). Inspired by this emphasis, a special issue of the *Journal of Outdoor Recreation and Tourism* was set aside to showcase the latest research on mountain biking (Pickering and Leung, 2016).

As the call for papers for the special issue stated: Research is needed to provide managers with information on: (1) The diversity and types of mountain biking, (2) Management of mountain biking in protected areas, (3) Social and health dimensions, (4) Positive and negative social interactions including the potential for conflict among different types of users, (5) Authorised and unauthorised development and use of trails and trail technical features for mountain biking, and (6) Environmental impacts of mountain biking including adventure racing events. The special edition aims to set the research agenda on mountain biking, while providing information for management and planning an include studies in social sciences and natural resources, and those with an interdisciplinary or transdisciplinary nature.

There were common themes to the research in the special issue, as there were for the presentations at MMV7. This includes studies assesses who mountain goes biking, why they go riding, riders, values, motivations and preferences. Some of these studies found that, although there have been some changes in the socio-demographics of mountain bikers, it's still predominantly men, often younger and well-educated, who go riding. Also, although riders often emphasized their desire for exercise, reflecting the health benefits of riding, motivations can vary including among destinations and even within biking cohorts.

Where people go mountain biking is diverse, but there appears to be a common trend for increasing use of destinations in and close to cities including a range of urban and peri-urban protected areas. Within destinations, riders' preference for tracks varies often with their level of experience including for different types of tracks. This includes variation in the duration of the ride, steepness of the track, single vs multi-use tracks, and for track surfaces. What mountain bikers want in tracks can also differ to those of other user groups such as hikers, with riders often preferring longer, steep-

er single tracks compared to some hikers and runners. Research on track preferences has utilized a range of data types including publically available GIS data, online and field surveys as well as field observations. Where data assessing the values of riders has been collected, it has provided interesting insights. Mountain bike riders in some protected areas have been found to exhibit environmental values consist with an ecocentric value set, even when exercise was a major motivator for their presence in the Parks.

Mountain bike riding off and beyond official trail networks appears to be an issue in several protected areas. Studies from different locations all found that mountain bikers often use trails where biking was not currently permitted. This reflects how demand for mountain biking can outstrip opportunities in some locations, but also the challenge for managers, when there are specific environmental and social reasons why mountain biking is not appropriate on some trails and locations, despite its popularity.

Mountain bikers are often using the same tracks, at the same time, as other users including hikers and runners resulting in interactions among different user groups in particularly popular locations. In some cases this can lead to social conflict. In other situations, however, there appears to be limited conflict, at least from the perspective of the mountain bike riders.

Many studies emphasized how the development of new types of mountain bikes has shaped demand for different styles of riding and locations. These issues are illustrated by the development of fat bikes and hence demand for access to snow covered trail. Such new styles of riding result in new challenges for managers including the potential for conflict with existing users, but also the opportunity to diversify use temporally as well as spatially. Similar, large scale riding events are increasingly popular in some locations, providing economic benefits, but also management challenges.

There is still very limited research on the environmental impacts of mountain biking, despite increased recognition from researchers and managers of the importance of such data. Controversial issues for which their remains limited information include the relative impacts of mountain bikers compared to other common activities such as hiking, mountain bike specific impacts such as those from unauthorized trail technical features, and the extent to which mountain bikes transport weeds and pathogens, including which types, how much and how far.

The results of these and other studies highlighted how many protected area agencies are still playing 'catch up' with demand, preferences and diversification of mountain biking, including in terms of policies, facilities, on ground practices and planning. We hope that both the MMV conferences and publications such as the Special Issue of the *Journal of Outdoor Recreation and Tourism* assist in the more effective management and monitoring of this increasingly important type of visitor to protected areas.



Reimann, M., Sepp, K., Parna, K. and Tuula R. (editors) (2014). The 7th International Conference on Monitoring and Management of Visitors in Recreational and Protected areas: Local Community and Outdoor Recreation. Tallin Estonia, 20-23 August, 2014.

Pickering, C.M., Leung, Y-F (editors) (2016). Mountain Biking: Challenges and Issues. Special Issue of the *Journal of Outdoor Tourism and Recreation*, 3.