64 Listening to public debate on Twitter about parks and other natural areas

Catherine Pickering, **Patrick Norman**, Griffith University, Australia

Introduction

Increasingly those monitoring and managing natural areas are interested to know what people talk about in relation to these landscapes and tourism and recreation activities within them. But obtaining such data can be challenging with methods such as surveys, focus groups, interviews and others limited in scale and time due to logistical and financial constraints. With increasing debate occurring online about a wide range of issues, it is increasingly possible to listen into such discussions to monitor who talks about what places and issues and how they feel about them, as well as monitor responses to specific events (Norman, 2020). Park agencies, governments and tourism operators are already using popular social media platforms, such as Facebook, Twitter and Instagram, to communicate with visitors and others about issues relating to visitation such as natural disasters, social unrest, the closure of parks, trails, roads or other facilities, as well as the promotion of specific events and activities. Some platforms, such as Twitter, also provide the opportunity to not only listen to people's responses to what organizations post, but also monitor more general conversations about a wide range of relevant issues in the form of 280 character tweets posted to the platform (Norman, 2020; Teles da Mota and Pickering, 2020).

Here we review some of the benefits and limitations when using Twitter to monitor public debate about natural landscapes and visitation highlighted in a range of recent papers and projects.

Methods

Data from Twitter can be obtained using Automated Programming Interfaces (API). Twitter provides official tools to access tweets and associated metadata through programming languages including Python, Ruby and JavaScript, and there are community options created to allow easier access including the TAGS for Twitter Google sheet template (Norman, 2020). Due to the large amount of metadata returned when assessing Twitter, relational databases, such as SQLite, PostgreSQL or MySQL, are often required to store and filter tweets. Once obtained, tweets require cleaning and processing to extract usable information with programing languages such as R and Python providing useful tools, although for smaller data sets Excel can be used. For example, metadata can be analyzed to obtain geocoded user locations, while topics, locations, sentiments and emotions in the text of the tweet can be coded, analyzed and visualized using these programs (Norman, 2020; Pickering and Norman, 2020; Bhatt and Pickering, 2021; Mangachena and Pickering, 2021).
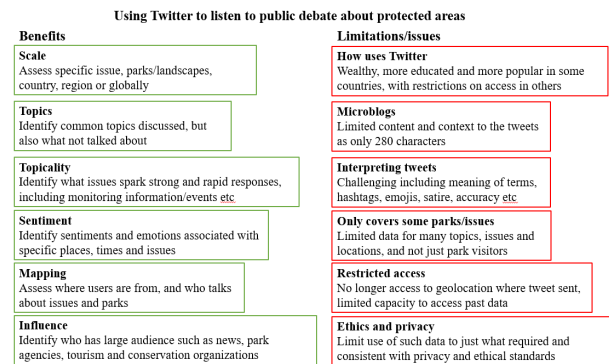

Figure 1: Some of the benefits and limitations of using Twitter data when listening to public debate about protected areas.

Results and Discussion

We and others have used these types of approaches to assess discourse about national parks finding many benefits from such analysis (Figure 1). This included comparing millions of tweets sent globally about national parks where

we assessed which parks dominated the conversation and who talked about them from which countries (Norman, 2020). The results highlighted the scale of the discourse, but also how it was dominated by people from countries such as the USA and Europe and was predominantly focused on just a relatively few parks. Research looking across parks within countries (Bhatt and Pickering, 2021; Mangachena and Pickering, 2021) found that what is talked about varies both among parks, but also among people with some differences between nationals and internationals. Studies in single parks also found differences between national and internationals and highlighted how some issues are specific to a place and time (Pickering and Norman, 2020). The tweets about parks often talk about issues such as conservation, management of mammals, visitation, safety, specific events, landscape features, activities, and biodiversity, among others. Research is also starting to examine differences in what is discussed in English and other languages, how people respond to issues such as COVID-19, park closures and other changes. These studies have also highlighted the potential readership of the tweets with many of those posting about parks

with millions of followers, particularly news and conservation organizations.

The results of the different studies have also highlighted a range of limitations with the use of such data (Figure 1) including the absence of many voices from the discourse, including many park visitors, people from many countries, and certain groups/demographics within countries including those living in or close to the parks. Interpreting the content of the tweets can also be challenging due to the short nature of the tweets and issues with literal interpretations of the meaning of text when those writing and reading them may see other meanings. In some cases, the relative popularity of parks on Twitter is similar to actual visitation (Norman, 2020), but not in other cases (Bhatt and Pickering, 2021). Engagement with many issues and places was fleeting or missing entirely and there are increasing restrictions on access to data from Twitter and other platforms. Finally, there are important ethical and privacy issues that need to be followed in using this and other social/human data.

References

Bhatt, P. and Pickering, C.M. (2021). Public perceptions about Nepalese national parks: A global Twitter discourse analysis. Society and Natural Resources. Doi: 10.1080/08941920.2021.1876193. Mangachena, J. and Pickering, C.M. (2021). Implications of social media discourse for managing national parks in South Africa. Journal of Environmental Management.
112159. **https://doi.org/10.1016/j.jenvman.2021.112159**. Norman, P. 2020. Spatial Assessments of Visitation and Discourse about National Parks Using Social Media. Doctor of Philosophy Thesis, Griffith University, Gold Coast, Queensland, Australia. Pickering, C. and Norman, P. (2020). Assessing discourses about controversial environmental management issues on social media: Tweeting about wild horses in a national park. Journal of Environmental Management. 275, 111244. Teles da Mota, V. and Pickering, C.M. (2020). Using social media to assess nature-based tourism: Current research and future trends. Journal of Outdoor Recreation and Tourism.
30:100295. https://doi.org/10/1016/j.jort.2020.100295.