

# What have we learned in the past 12 years about Monitoring and Management of Visitors in Recreational and Protected Areas?

## Current knowledge and future research directions.

*Catherine Pickering*, Environment Futures Research Institute, Griffith University, Australia. c.pickering@griffith.edu.au

*Agustina Barros*, Instituto Argentino de Nivología y Glaciología y Ciencias Ambientales (IANIGLA), Centro Científico Tecnológico (CCT) CONICET, Mendoza, Argentina. abarros@conicet-mendoza.gov.ar, anaagustinabarras@gmail.com

*Sebastian Dario Rossi*, Environment Futures Research Institute, Griffith University, Australia.sebastian.rossi@griffithuni.edu.au

*Ana Hernando*, Instituto Argentino de Nivología y Glaciología y Ciencias Ambientales (IANIGLA), Centro Científico Tecnológico (CCT) CONICET, Mendoza, Argentina.ana.hernando.j@gmail.com

---

### Introduction

Visitation to recreational and protected areas continues to increase and diversify. This creates both challenges and opportunities for those who engage in these activities and for those who manage the destinations. With increased visitation there can be increasing environmental impacts and potential for social conflict unless appropriately managed. Recognizing the importance of these issues a group of scholars came together in 2002 to provide opportunities for academics and practitioners to exchange information by running multidisciplinary conferences every two years on Monitoring and Management of Visitors in recreational and protected areas (MMV conferences). The first conference was in Vienna, Austria in 2002, Vienna, with subsequent conferences in Rovaniemi, Finland in 2004, Rapperswil, Switzerland in 2006, Montecatini Terme, Italy in 2008, Wageningen, The Netherlands in 2010, Stockholm, Sweden in 2012, Tallinn, Estonia in 2014, and here in Novi Sad, Serbia in 2016 (Figure 1).

The proceedings of these conferences provide snapshots of key issues and research outcomes in this important discipline. By reviewing presentations from the conferences we can assess: (1) who is conducting research on MMV, (2) where is the research conducted, (3) what types of research are presented, (4) what methods are used, (5) are their trends over time in the research presented, and (6) research gaps and future directions for research on managing and monitoring visitors.

### Methods

We conducted a Systematic Quantitative Literature Review of the proceedings of the first seven MMV conferences using the methods of Pickering and Byrne (2014). This involved entering data on the abstracts of the core oral presentations at the conference excluding the abstracts for poster sessions, open presentations and keynote speakers. For each of these abstracts information was entered into a person-

al database on: (1) who did the research including names of authors and their country of affiliation, (2) where the research was conducted including the country where the study was located, and if it was conducted in a protected area, (3) the type of research including if the presentation was of original research, a report on one or more case studies, a method paper, concept paper or a review, (4) the discipline area of the presentation including if it was primarily focused on Environmental, Social, Technology and/or Visitor usage (i.e. information about numbers and/or visitor flows obtained by traffic counters or other types of devices). For each study we recorded all individual locations and countries where the research was conducted.

## Results and Discussion

Across the seven proceedings there were 758 conference abstracts for standard oral presentations of which 10% were from Vienna, Austria in 2002, 8% from Rovaniemi in Finland in 2004, 17% from Rapperswil, Switzerland in 2006, 13% from Montecatini Terme, Italy in 2008, 16% from Wageningen, The Netherlands in 2010, 20% from Stockholm, Sweden in 2012, and 15% from Tallinn, Estonia in 2014 conferences. There were a total 1227 authors, with most from USA, Austria, Germany, Switzerland, Netherlands, Finland, Australia and Canada. Authors who have multiple papers at the conferences were mostly from Austria including Andreas Muhar (21) Arne Arnbjerg (18) as well as Dominik Siegrist (12) from Switzerland and Peter Fredman from Sweden (11). Other authors outside Europe with several presentations included Wolfgang Haider from Canada (17), Catherine Pickering from Australia (9) and Donald English from USA (8).

As one would expect for conferences held in Europe, most presentations reported the outcomes of research in Europe (68% presentations), with a strong focus on research from Germany, Austria, Switzerland and Finland (Figure 1). The conferences also included presentations from other parts of the world, including North America (15% papers), Asia (11%), Australia and New Zealand (6%), South America (1.6%) and Africa (1.3%). There were temporal spikes in the number of presentations based on the location of the conference, with region where the conference was held often well represented that year (Figure 1).

Most of the research has been conducted in national parks or other types of protected areas (58% presentations). National Parks that featured in many presentations included Danube Flood Plains in Austria, Daizetsuzan in Japan and Oulanka in Finland. Outside of protected areas there were studies in ski resorts (2%), urban green spaces and other areas (6%) among other destinations. Many of the studies looked at recreation and tourism generally (64%), while others assessed specific activities such as hiking (20%), mountain biking (9%), and skiing (4%).

Most of the oral presentations were of original research (64%) or case studies/reports (15%), with some presentations in the form of reviews (11%), concept papers (4%) or focused on developments in methodology (6%). There was a strong emphasis across conferences on the social sciences with 622 presentations on this discipline area. Of these 67% assessed visitors, 14% assessed local communities and 6% assessing government organizations with some assessing combinations of these three. In contrast there were only 231 presentations on the environment, many of which as-

sessed the environmental impacts of trails. Reflecting advances in technology there were 197 presentations focused on technology including 50 reporting on computer simulation models, 37 on types of traffic counters and 30 reporting on GPS trackers and/or hand held digital devices.

Although the relative dominance of presentations for different fields of research (i.e. social, environmental, technology) has remained relatively constant over time, there are some important trends in the topics presented. Between 2002 - 2014, social science presentations transitioned from data on visitor socio-demographics to presentations also looking at factors affecting visitation such as perceptions, attitudes, motivations and social values. The types of visitor data collected has also expanded from data on visitor numbers to also include data on visitor behavior and movements captured through technologies including GPS trackers, smart phones and social media. Within environmental presentations, there has been a trend from studies focusing on recreation impacts on terrestrial vegetation and wildlife to include marine ecosystems.

### Conclusions and future research directions

The MMV conferences are important outlets for research on a wide range of topics relating to managing and monitoring visitors, particularly social science research including visitor data. It is also likely that there will be increasing focus on presentations involving the analysis of 'big data' from hand held technology and social media including geolocated images at future conferences. More presentations from under represented regions including South America and Africa would be desirable in future conferences.

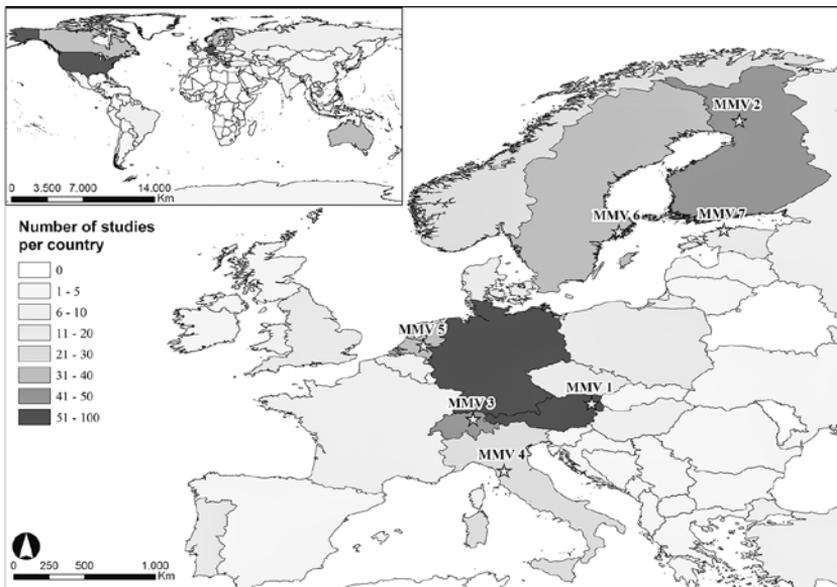


Figure 1. Geographical distribution of the location of studies from 758 oral presentations given in the first seven Managing and Monitoring Visitors in recreational and protected areas conferences



- Pickering, C.M. and Byrne, J. (2014). The benefits of publishing systematic quantitative literature reviews for PhD candidates and other early career researchers. *Higher Education Research and Development*. 33: 534-548.
- Arnberger, A., Brandenburg, C. and Muhar, A. (editors) (2002). *The 1st International Conference on Monitoring and Management of Visitors in Recreational and Protected areas*. Vienna, Australia, 30<sup>th</sup> January-2<sup>nd</sup> February, 2002.
- Soevamem, T., Erkkonen, J., Jokimaki, J., Saarinen, J., Tuulentie, S. and Viratanen, E. (editors) (2004). *The 2<sup>nd</sup> International Conference on Monitoring and Management of Visitors in Recreational and Protected areas: Policies, Method and Tools for Visitor Management*. Rovaniemi, Finland, 16-20 June, 2004.
- Siegrist, D., Clivaz, C., Hunziker, M. and Iten, S. (editors) (2006). *The 3rd International Conference on Monitoring and Management of Visitors in Recreational and Protected areas: Exploring the Nature of Management*. Rapperswil, Switzerland, 13-17<sup>th</sup> of September, 2006.
- Raschi, A. and Trampetti, S. (editors) (2008). *The 4<sup>th</sup> International Conference on Monitoring and Management of Visitors in Recreational and Protected areas: Management for Protection and Sustainable Development*. Montecatini Terme, Italy, 14-19 October, 2008.
- Goossen, M., Elands, B. and van Marwijk, R. (editors) (2010). *The 5th International Conference on Monitoring and Management of Visitors in Recreational and Protected areas: Recreation, Tourism and Nature in a Changing World*. Wageningen, The Netherlands 30 May-3 June, 2010.
- Fredman, P., Stenseke, M., Liljendahl, H., Mossing, A. and Laven, D. (editors) (2012). *The 6<sup>th</sup> International Conference on Monitoring and Management of Visitors in Recreational and Protected areas: Outdoor Recreation in Change – Current Knowledge and Future Challenges*. Stockholm, Sweden, August 21-24, 2012.
- Reimann, M., Sepp, K., Parna, K. and Tuula R. (editors) (2014). *The 7<sup>th</sup> International Conference on Monitoring and Management of Visitors in Recreational and Protected areas: Local Community and Outdoor Recreation*. Tallin Estonia, 20-23 August, 2014.