Journal of Outdoor Recreation and Tourism 14 (2016) 35–40

Contents lists available at ScienceDirect

Journal of Outdoor Recreation and Tourism

journal homepage: www.elsevier.com/locate/jort

Managers' experiences of visitor monitoring in Swedish outdoor recreational areas

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ARTICLE INFO

Article history:
Received 13 February 2014
Received in revised form
21 April 2016
Accepted 22 April 2016

Keywords:
Visitor monitoring
Counting
On-site survey
Recreation manager

ABSTRACT

Systematically collected information on outdoor recreation participation, motives and behaviors can improve recreation opportunities and reduce the risk of user conflicts. There are many uses of this type of information for managers of recreational areas including analyses of environmental, social and economic impacts, development of infrastructure, and marketing to appropriate audiences. One key component in building this knowledge is the application of visitor monitoring. This study takes an exploratory approach by analyzing managers' experiences on different on-site monitoring methods at 12 recreational areas in Sweden. Results show that knowledge of these methods and their use are strongly linked to individual managers' skills and competence. Contemporary changes in recreation behavior calls for more innovative monitoring approaches, but managers included in this study primarily work with rather traditional methods, which is likely representative of the overall situation in Sweden. Networking, educational programs and closer collaborations with universities could facilitate some of the challenges identified.

MANAGEMENT IMPLICATIONS

- The study showed the relevance of improved visitor monitoring practices, and tailor-made monitoring guidelines, based on actual use and experience-based data.
- Adequate visitor monitoring practices:- help to better incorporate recreation activities and values in natural resource management decisions,
- increase the awareness of possible conflicts between recreational and other resource users,
- show the possible need for increased management capacity, additional training or new ways of visitor management and provide a better foundation for decision making.

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1. Introduction

Sweden is a northern European country rich in natural resources and outdoor recreation opportunities. Official statistics show that 80% of the adult population walks for pleasure or hikes in a forest at least once a year, and 30% does so more than 20 times a year (Statistics Sweden, 2009). More recently, there has also been an increased focus on the social dimension of environmental and natural resource policies in Sweden (Writ. 2001/02:173; Writ. 2007/08:108; Writ. 2008/09:214), and in 2012 national goals on outdoor recreation were decided by the national parliament (Writ. 2012/13:51). Among the causes for this shift of interest towards outdoor recreation are urbanization (i.e. increased demand for urban proximate nature), promotion of public health (outdoor recreation as physical exercise), and an increased recognition of economic values associated with visitation to protected areas (e.g. regional development through tourism). This new interest in outdoor recreation (and nature-based tourism) also stresses the need to collect information about participation, both on-site and through population surveys (Kajala et al., 2007). Manuals on visitor monitoring were published by the Swedish National Board of Forestry and Environmental Protection Agency (Lindhagen & Ahlström, 2005; Kajala et al., 2007), but to what extent different monitoring methods are used and what experiences managers have with them is largely unknown.

Despite this recent interest, there is currently no systematic

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http://dx.doi.org/10.1016/j.jort.2016.04.008
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visitor monitoring in use across the nation (Naturvårdsverket, 2009) and a recent study by Stenseke and Hansen (2014) argues that Swedish management policies of landscapes and protected areas are not up to international standards when it comes to outdoor recreation. Petersson-Forsberg (2014) also found that outdoor recreation interests are given low priorities when it comes to decisions on physical planning in Swedish municipalities. A reason for this somewhat contradictory observation could be the strong outdoor recreation tradition (Sandell & Sörlin, 2008). Outdoor recreation has been part of the every-day life to many people in Sweden, facilitated by the large supply of recreation opportunities vis-à-vis the population size and high accessibility (e.g. the Right of Public Access, public transportations and forest roads open to the public). For a long time, it was taken for granted that outdoor recreation is something for everyone to participate in – something that makes you feel good, and something that is good to society. So why spending public resources on something that people do anyway?

There are several arguments in favor of collecting visitor data in nature areas. The collected information can be used to improve recreation opportunities and reduced the risk of conflicts between different user groups (Gimblett & Skov-Petersen, 2008; Hornback & Eagles, 1999; Pröbstl, Wirth, Elands, & Bell, 2010). Protected areas are increasingly seen as key attractions in the tourism system, which further justifies the needs for visitor monitoring (Cessford & Muhar, 2003; Priskin & McCool, 2006; Wall Reinius & Fredman, 2007). Such knowledge is useful for the analysis of environmental, social and economic impacts, for development of infrastructure, and for marketing to the appropriate audiences (Muhar et al., 2002; Arnberger, 2006; Sievänen et al., 2008; Yuan & Fredman, 2008; Ankre & Wall Reinius, 2010). An important aspect in building this knowledge is to better understand what monitoring approaches are actually applied in practice and for what purpose. Hence, the aim of this study is to focus on managers' perspectives of visitor monitoring and analyze their experiences with different types of on-site methods in Sweden. The resulting information can facilitate future policy decisions that support visitor monitoring at a regional and national scale in Sweden (Writ. 2012/13:51).

While the concept *visitor monitoring* comprises many different forms of data collection, the focus in this study is on on-site visitor counting and surveys following the definitions in Kajala et al. (2007):

> "Visitor counting means monitoring of area use by one or several methods, e.g. direct observation and immediate recording, measurement by instrument, or recording by registration form."
>
> "Visitor survey is a study by means of which researchers or managers obtain up-to-date information about an area's visitors and their opinions, expectations and behavior. The survey is performed on an area's visitors, using questionnaire or interview methods".

This means that information gathered through population studies (e.g. surveys addressed to the residents of a particular municipality, region, country, etc. by letter, telephone or the Internet), is not discussed in this study.

2. Methods

A qualitaassociated tive research design with semi-structured telephone interviews with managers was chosen for this study. Each interview lasted for 45–60 min, was recorded and transcribed. Interviews were done by telephone because of the geographical dispersion of respondents, however physical meetings and focus groups could be an option in further research. A more quantitative approach (e.g. postal, on-line or telephone surveys) was not deemed appropriate until the number of sites using visitor monitoring has increased further in Sweden. Still, the selection of respondents was challenging since there is no public registry of nature areas or associated managers working with visitor monitoring. Hence, potential informants were identified by experts familiar with the Swedish nature areas. Contacts were first made by e-mail with 30 managers of natural and recreational areas throughout Sweden to investigate if they had monitored visitors in the past five years. Based on the responses from these contacts, a sample of twelve interviewees was identified. Among the 18 managers not included in the study, nine never responded to the e-mail despite several reminders and the other nine managers reported that they had not done any visitor monitoring in the past five years. While the low number of respondents should be taken into account when interpreting the results of this study, we believe that they are still informative. In this respect, a larger separate survey directed to a broader range of administrations, municipalities and destinations could be of interest in the future.

The twelve selected managers, each representing one of the nature areas shown in Fig. 1, had varying skills in visitor monitoring. Monitoring activities included were: visitor counting (by counting devices), surveys (mail, phone or online with initial contact on-site), qualitative interviews conducted on-site and/or observations of visitors on-site. Hence, the focus of this study is on more traditional methods, in the light of recommendations from the above mentioned monitoring manuals.

The geographical locations of the nature areas included in this study are well distributed across Sweden and reflect the higher population density in the south (i.e. greater need for monitoring). Interior forests, mountain and coastal areas, as well as more urban proximate areas in the southern parts of Sweden are all represented (Fig. 1). Together, the twelve interviewed managers have conducted six visitor surveys (on-site, postal and electronic), three on-site interview studies (semi-structured and structured) and two on-site observations. In eight of the areas, visitor counters (e.g. Radio Beam and Eco-counters) were used. Listed below is a description of the nature areas, the management organizations in charge and the monitoring methods used:

1. *Tyresta National Park and Nature Reserve* – Tyresta Forest Foundation (6 counters).
2. *Blekinge archipelago* – Blekinge county administrative board (on-site survey).
3. *Nature reserves Örnsköldsvik municipality* – Örnsköldsvik municipality (on-site surveys with postal and electronic follow-ups, 3 counters).
4. *Nacka nature reserve* – Nacka municipality (focus groups, semi-structured interviews, on-site survey).
5. *Nature reserves the west coast* – West coast foundation (25 counters).
6. *Djurgården, Haga and Ulriksdal* – The Royal Djurgården Administration (manual observations, 6 counters).
7. *National parks and nature reserves in Stockholm County* – Stockholm County Administrative Board (structured interviews, on-site surveys, 18 counters).
8. *Naturum Gotland Storsudret* – Gotland county administrative board (on-site survey).
9. *Västra Götaland nature reserves* –Västra Götaland county administrative board (10 counters).
10. *Nature reserves and nature areas Uppland County* – The Uppland Foundation (on-site survey with postal follow-up, structured interviews, 5 counters).
11. *The Skåneleden Trail* – The Scanian Landscape Foundation (on-site survey with electronic follow-up survey).

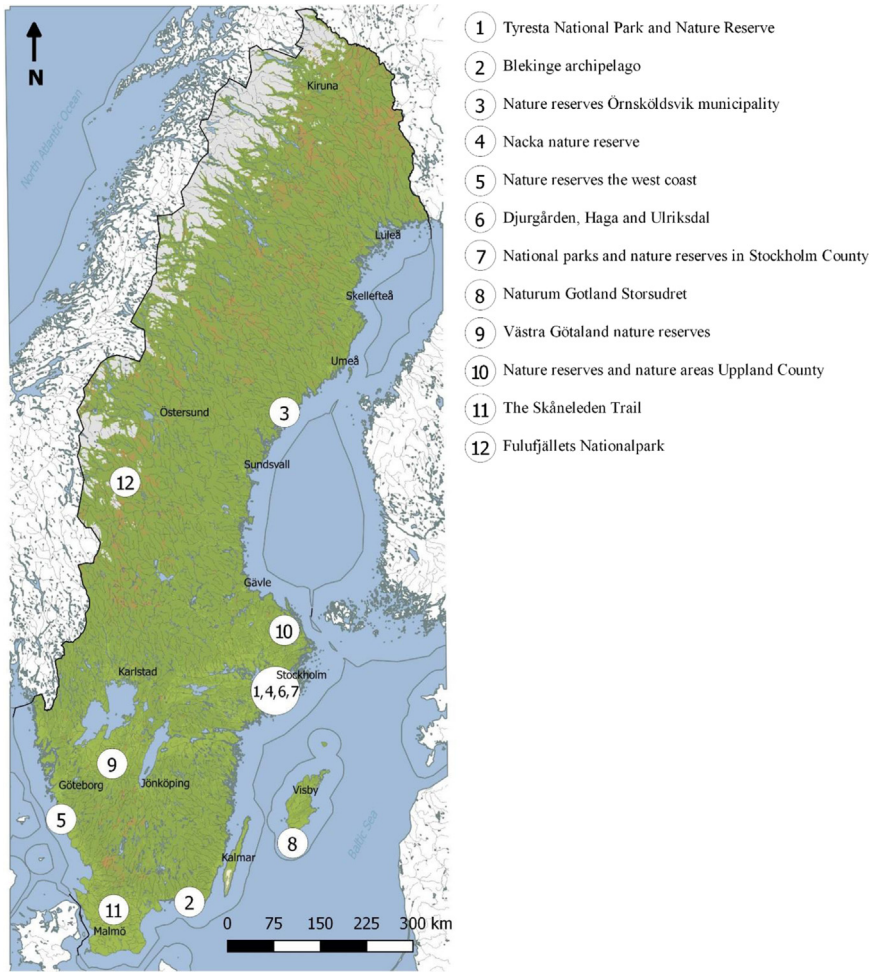

Fig. 1. The location of the nature areas included in the study.

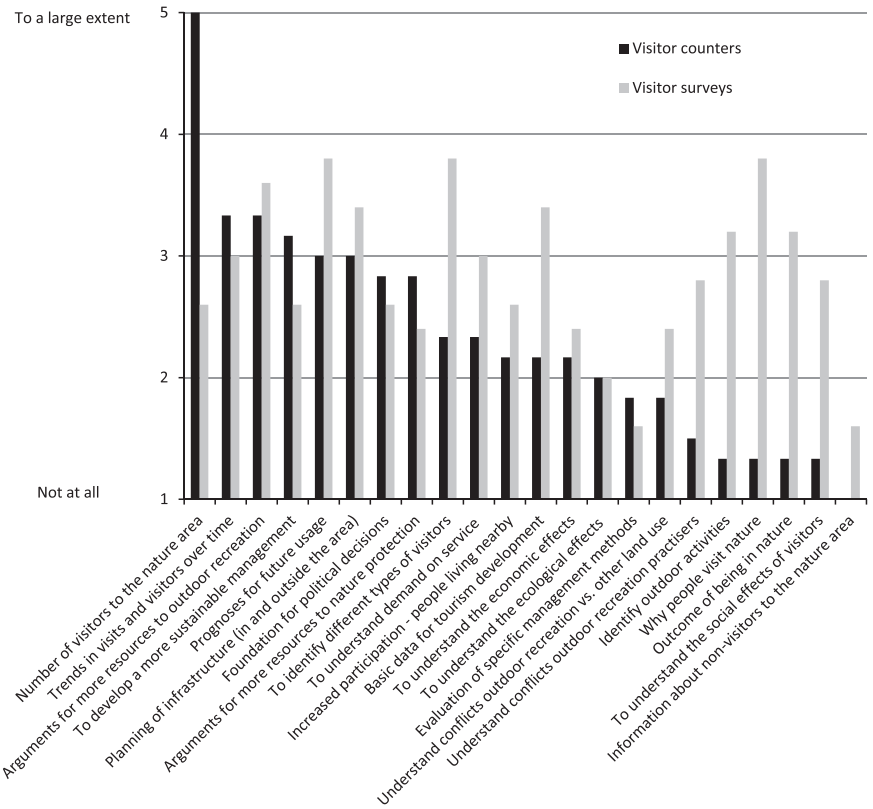

Fig. 2. Uses of data from different monitoring methods among Swedish recreation area managers.

12. *Fulufjällets Nationalpark* –Dalarna county administrative board (manual observations, 8 counters).

As a supplement to the interviews, eleven of the managers also answered a small survey with 22 statements regarding their application of different monitoring approaches and use of the data. Answers were recorded on a five point Likert scale ranging from 1 (not at all) to 5 (to a large extent). The statements related to how monitoring results were used in the management of the nature areas regarding visitor patterns, existence of conflicts, measurement of impacts, sustainability issues etc. (see Kajala et al., 2007). While the statistical significance of the results of this survey is limited, the results provide valuable background information for the interpretation of the interviews with the twelve managers. Fig. 2 shows that data from visitor counting is primarily used for estimating visitor numbers, identifying trends over time and building arguments to secure resources, while visitor surveys are used for analyzing conflicts, activities, motives, benefits and impacts.

3. Results

This section presents the main themes that emerged from the semi-structured interviews regarding how managers use on-site visitor counting and surveys, their experiences from visitor monitoring and their skills in performing it. Also discussed are challenges of technology, field work, costs and associated constraints.

3.1. Usage of visitor counting and surveys

Most of the interviewed managers who use visitor counting have collected data over several years and use special databases to store their results. If visitor monitoring was part of a larger project, or when consultants were involved, a written report was often produced. However, results are frequently not presented in a formal way but rather used informally among the local managerial staff. It is evident that information from visitor counting are viewed as useful to present numbers and figures to management boards, authorities, politicians and the county administration. These statistics enable managers to provide their boards with the information necessary to facilitate evidence-based decisions. The results of visitor counters are considered easy to communicate since they consist of numbers that provide "black and white" answers. As one interviewee expressed: "*The concrete numbers are better for some purposes, simple to use concrete in work.*". The results from counters are therefore frequently used to seek funding for services and devices. However, one manager cautioned that when the results are presented one cannot simply look at the numbers, but a certain judgment has to be made: "*It may not need to be an exact science either, but more to ourselves as managers to get an idea of how many visitors we have, and we can make clarifications and inform this to all those who are interested in developing natural and cultural tourism; tourism in general*". Data from visitor counting is also seen as an important tool within the organizations to motivate and highlight the significance of the field staff's work.

Several managers expressed that the results from visitor surveys are useful when making changes in management. Activities getting more popular amongst users can mean that changes in management are necessary. One example of this application relates to a municipal evaluation of attitudes towards lit trails for cross-country skiing: "*The business of maintenance and improvement, that's what we asked most about. There has been a fee in the winter and there has been some debate in the media, so there have been some questions about it; what the users' lack, what they want to improve …*". On-site surveys are also an effective method to identify who the visitors are, where they come from, how they get to the area, how they perceive the nature area, and their satisfaction as customers with respect to services, as well as their positive and negative experiences from visiting the area. An example of the application of on-site surveys is the design of services for disabled visitors, where survey results have been used to guide the type of services needed and their appropriate location in the area to welcome these visitors. One of the interviewed managers reported that results of visitor surveys are used to communicate with families and pre-school groups. Several managers wish to prioritize families. This is how one manager expressed it: "*Something we have seen is that there are visitors who think that there is lack of,* for example, *children's activities, and I've been thinking more and more of how it* [the nature area] *should cater to small children too … something that children can engage with.*" Yet another significant application is the use of survey results is to inform tourism development and determine how visitors affect the areas: "*We must know what the visitor pressure is like. That's important, because it's the biggest impact* [on the area]."

3.2. Expertise and skills necessary to overcome challenges

Several managers emphasized that visitor monitoring requires considerable expertise and good skills to overcome the many problems they have experienced. It is common that managers and their staff only get a short introduction to the methods used for visitor counting, or simply learn them by themselves. Whereas most of them stated that they have good access to user-manuals and retailers are available when problems arise, manuals are often in English and field staff cannot always properly read and use them.

The visitor counters' location and placement in the nature areas are critical for producing reliable results. Prior knowledge over the distribution of the visitors in the area and their movements is important that main gateways and/or hotspots can be identified. Visitor counters are perceived as relatively reliable if prepared and placed properly. However, this requires considerable experience: "*It is strategically important to put them* [the counters] *in the right place and then you must have knowledge of outdoor recreation and more when you choose these places and it can´t be anyone. It is professional knowledge that you learn eventually, which of course can be taught as well.*"

When it comes to visitor surveys, poor sampling and low response rates are problems that several managers have encountered. As one of the managers argued: "*Should I do it quite seriously, you realize that it's a real science … we decided immediately to drop all the statistics and determine that this is what we see, this* [result] *is pretty clear. When we look at the results, we try to stick to the major patterns, and do not try to go into detail and not have to use statistical analyses because then we need help to make it real.*" The managers address their lack of scientific skills by getting involved in research projects, engaging university students or cooperating with consultants. One problem when working with consultants is that they often retain the rights to all the data as well as exclusive access to databases. As one of the manager stated: "*…this fact complicates a summary of the results and gives an inferior overview of the material".*

According to several managers interviewed in this study, visitor monitoring is also very time consuming. One of them stressed the need for special knowledge to be successful, almost at the academic level: "*… what we are doing almost requires specialists and is almost at a research level to do an advanced survey. We require fairly simple and quick answers to how we should work. We do not have the resources to dig really deep. It's hard to stay somewhere in between.*" It is therefore common to copy earlier surveys when producing questionnaires because developing new questions is viewed as time consuming and complicated.

3.3. Technology and field work challenges

Several of the managers who use visitor counters pointed out they had difficulties with technology and battery discharge. Many of the managers wished their field staff would be more involved, expressing that they did not always succeed in creating sufficient understanding and interest among them. Moreover, several external factors affecting measurements were mentioned during our interviews. Visitor counters may react to weather conditions (e.g. heavy snowfall) such that areas with few visitors suddenly appear to have higher numbers. While counters are also perceived as theft-prone, only few managers have actually experienced malicious sabotage. One manager decided to provide information about the purpose of visitor counting to prevent this problem, whereas the local population in another area was informed about the counters through signs. The responsible manager stated that this generate positive conditions, which is an important factor in creating the right attitude among visitors.

Recent development in visitor monitoring technology has produced more advanced and expensive equipment. Managers often perceive that it is difficult to know what is best in a certain situation. The managers' opinions over the costs of counters were mixed. Some stated that the technical devices are cost-efficient and quite easy to implement, while others argued that visitor counters are expensive to maintain. One respondent initially thought the counters would be a cost-effective method, but was thoroughly disspointed: *"The data is so poor that these can't be used, we can't even compare from year to year. It's a huge problem. It has been a burden rather than an asset to pay 5000 to 6000 Euro extra a year, so to speak. This includes that we have to repair them every year*." Generally, more positive opinions were found among managers with previous knowledge of visitor counting or among those who have been part of related research projects. More negative views were observed among managers who rely on others to operate their technology or manage their data.

4. Discussion

This study used an exploratory approach to examine managers' experiences with visitor monitoring in Sweden. While many of the results presented were expected based on existing anecdotal evidence (e.g. practical challenges in the field), there are to our knowledge no previous studies that have looked at managers' experiences with visitor monitoring with the kind of systematic approach used here. While the statistical significance and representativeness of our results might be limited due to the small sample size, we believe that the results are still informative. A larger survey targeted at a broader audience including Swedish administrations, municipalities and destinations could be of interest in the future. While the results of our study desribe general patterns and challenges in data collection and use, a few topics deserve further attention to encourage future use of monitoring methods.

First, relevant competence training and education are key elements to successful monitoring. Several of the interviewees wished for more communication about monitoring practices with other managers. We therefore recommend to organize a network or forum for the exchange of ideas and experiences regarding visitor monitoring, but also for support if needed. Such an exchange could be organized at the regional level in association with units responsible for nature protection at the county administrations. Another solution mentioned in several of the interviews would be to develop a more systematic cooperation between managers and the scientific community. Successful approaches in this respect can be to work with case studies in larger research projects using mixed method approaches (e.g. combining quantitative and qualitative research).

Second, managers of Swedish nature areas are facing increasingly diverse audiences. The number of different outdoor recreation activities (and sub-activities) is increasing and there are indications that commitment to activities is becoming stronger than attachment to place (Fredman & Heberlein, 2005). We can also observe an increased "sportification" of nature-based recreation as hiking routes and mountain peaks are increasingly turned into venues for adventures, physical challenges and competitive sport events (Sandell, Arnegård, & Backman, 2011). This implies new users, typically of younger age and with new needs that challenge the planning and management of recreational areas. In addition, with the highest per capita immigration rates in Europe, Sweden is increasingly becoming a multicultural society where both experiences of, and preferences for, outdoor recreation is expected to become even more diverse. Keeping up with these changing outdoor recreation patterns requires new and innovative monitoring approaches. However, this study shows that there is little awareness among managers about new technologies (e.g. mobile phone applications, GPS and social media crawling) and their potentials with respect to more advanced monitoring approaches. Our results do not reveal any significant use of such methods in visitor management of nature areas in Sweden yet, but current research in this field clearly shows this is where the development is heading (Fredman, Romild, Wolf-Watz & Yuan, 2012).

Finally, given changes in contemporary societies (e.g. increased urbanization, mobility and migration), managers need to look beyond their recreational areas as part of their monitoring strategies. While this study focused only on on-site monitoring, it is also important to ask who does not visit nature areas and why, especially if the goal is to attract more visitors and new groups. Understanding non-visitors requires managers to go beyond the on-site monitoring methods analyzed in this study and survey also different populations to identify latent demand (Fredman et al., 2012). In this context, it is interesting to note that several of the Swedish managers we interviewed who were located in urban proximate areas (e.g. locations 6 and 7 in Fig. 1) mentioned families as a key target group. Previous studies from such areas in Sweden showed that visitations by children and young people dropped by up to a third in the last 20 years around the cities of Stockholm and Uppsala (Kardell, 2008). In the long term, better knowledge of youngsters in the outdoors could be beneficial, not only to promote public health and environmental awareness, but also to socialize future generations into this form of play (Godbey, Caldwell, Floyd & Payne, 2005; Kimbell, Schuhmann & Brown, 2009; Krahnstoever-Davison & Lawson, 2006; Wells & Lekies, 2006).

5. Conclusion

This study shows that application of visitor monitoring methods are strongly linked to individual managers' skills and competence. The managers interviewed in this study are mainly working with rather traditional methods, which is likely representative of the overall situation in Sweden. Even though the choice of methods for visitor monitoring is not directly tied to the activities, the contemporary changes in recreation behavior may require more innovative approaches. Just as we expected, visitor counting and on-site surveys provide different types of information. While the counters primarily provide trend data and arguments for resource allocations, the surveys help managers to better understand their visitors and their behaviors. Besides time and money, our findings clearly point out that personal expertise is a key factor for successful visitor monitoring. This is also the weak point in

applications of visitor monitoring among recreation managers. Networking, educational programs and closer collaborations with universities could be used to address some of these challenges. There are also financial challenges to overcome for managers engaged in visitor monitoring, but the dilemma is that results from monitoring are often needed to justify budget allocations in the first place. New and more cost efficient technologies might be part of the solution for this challenge, but more research is needed on this topic. Another challenge for future research in this field is to tackle the still dominant environmental paradigm in nature management (Stenseke & Hansen, 2014). Using visitor monitoring to its full potential requires not only raising the social science expertise among managers, but also increasing their awareness of the usefulness of visitor monitoring for management decisions. Successful visitor monitoring is perhaps best achieved when there is an understanding of the larger context to which it contributes such as minimizing conflicts or maximizing visitor benefits.

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