Visitor Impact Monitoring: Old Issues, New Challenges—An Introduction to this Special Issue

Yu-Fai Leung and Christopher Monz

The issue of visitor impacts

ERODING TRAIL TREADS, DENUDED CAMPSITES, STRESSED WILDLIFE, and damaged tree saplings are some common signs of visitor-induced resource impacts in national parks and other protected areas. From an areal perspective, most visitor impacts add up to only a small fraction of park areas and as a result typically impinge on few plants or animals. However, such impacts are a legitimate management concern since they often affect areas that are ecologically or culturally significant—the very reason these places were designated as part of the protected area system in the first place. Although not necessarily widespread, biophysical impacts at the site level are often intense, consequently affecting the quality of visitor experiences and incurring maintenance costs. In addition, since recreation sites and trails are often dispersedly distributed, some forms of visitor impact, such as trail degradation, dispersal of invasive species, and wildlife disturbance, can have landscape-level effects (Knight and Gutzwiller 1995; Hammitt and Cole 1998; Buckley 2004).

Since the passage of 1916 National Park Service Act, U.S. national parks have been charged with the dual mandate of providing for quality recreation opportunities and protecting park resources. Protected area managers in many parts of the world also share similar responsibilities (Worboys et al. 2005). Achieving a balance between these two mandates is an ever-challenging task. Indeed, visitor impacts are by no means new problems, but they are attracting increasing levels of attention as park operational budgets lag behind management and maintenance needs, and as park stakeholders challenge the justification of visitor management programs more often. These issues come at a time with increased visitation in some park units, more diverse visitors, and emerging recreation activities of unknown resource consequence.

The research response

Systematic scientific studies of visitor impacts, often referred to as the field of *recreation ecology,* can be dated back to at least the 1930s. This line of research became more active beginning in the late 1960s in response to growing management concerns over increased visitation. A recent surge of interest in visitor impact research is related to the rapid growth of ecotourism and concomitant concerns about impacts at

precious ecotourism destinations, which often fall within national parks and heritage sites (Newsome et al. 2001; Buckley 2004).

Collectively, recreation ecology work has provided considerable knowledge about visitor impacts in protected natural areas (Knight and Gutzwiller 1995; Liddle 1997; Hammitt and Cole 1998), with many studies focused on developing impact assessment and monitoring procedures. Methodologies are well established for assessing current conditions of recreation resources, but are not as proficient at monitoring changes over time or monitoring harder-to-observe forms of impact. Further challenges exist in developing monitoring techniques in cost-effective and adaptive ways that can be implemented in perpetuity, providing useful and comparable data as managerial and visitor use situations change. In fact, most visitor impact studies so far have been short-term assessments or one-time studies. For example, a recent survey of wilderness areas found that only about half of the areas had campsite monitoring data and 9% had trail monitoring data (Wright and Cole 2004). In other countries, a similar lack of attention to visitor impact monitoring in protected areas is also evident (Buckley 2004). Even for protected areas that have monitoring data, their quality are often in question (Flood and Colistra 2005).

The prospect

The value and utility of visitor impact monitoring is increasingly recognized by protected area managers. In the U.S., two recently developed National Park Service (NPS) programs—Visitor Experience and Resource Protection (VERP) framework and Vital Signs Monitoring program—have an integral component of visitor impact monitoring. Understanding of visitor impacts was rated high in a recent manager survey and training needs assessment (Conrad 1997). At the international level, monitoring of management effectiveness in protected areas is now one of the most active topics, and visitor impacts are an important element in this endeavor. As the need for monitoring is being institutionalized, it presents an excellent opportunity to review past progress in visitor impact monitoring, evaluate present challenges and barriers, and explore our latest thinking in methodology that may shape the future of monitoring practice.

This special issue

In March 2005, a group of managers and researchers gathered at the George Wright Society Biennial Conference in Philadelphia, Pennsylvania. Two sessions were devoted to visitor impact monitoring topics. The first session was a panel discussion designed to address the issues about the "whys" of monitoring. The second session examined some recent attempts to explore and refine impact monitoring methods. We invited the presenters at these sessions to contribute papers to this special issue. All contributed papers were reviewed by at least one peer reviewer and the editors, and comments were provided back to the authors for revision.

David N. Cole's paper challenges us—both managers and scientists—to advocate for stronger recreation science programs. He argues that in an era of increasing challenges to the authority of managers we need visitor management decisions that are strongly supported by data. The NPS Vital Signs Program's contribution to visitor monitoring is discussed by Christopher Monz and Yu-Fai Leung. Drawing on a

range of experiences across several national parks, this work provides an important context for developing key components of visitor monitoring programs applicable to a wide range of protected areas. Recent visitor impact monitoring efforts have experienced new technical challenges necessitating the development of new methodologies. Solutions to some challenges commonly encountered in trail and campsite monitoring are highlighted in the papers by Jeffrey L. Marion and Peter Newman and their respective co-authors. Visitor interaction with wildlife is a perennial concern for managers, and Robert J. Steidl and Brian F. Powell provide a useful summary of the challenges of monitoring visitor impacts to wildlife. Finally, contributions by Robert Manning and colleagues and by James Bacon and colleagues examine programs at Acadia National Park and Yosemite National Park respectively, as two examples of integrated programs of visitor use and impact monitoring.

Some common questions and challenges emerge from the ideas and experiences presented in these papers, including:

1. How can we best articulate the need for and utility of scientific and proactive management of visitor impacts?
2. How can we design programs that are efficient and beneficial to managers, and given managerial constraints sustainable over time?
3. Can monitoring be adaptive in such a way that monitoring intensity and protocols can change, if needed, based on trends in use and impact conditions?
4. How can we define indicators and measures that can be more consistently and accurately assessed?
5. How can we apply monitoring results effectively to inform management decision-making?

This special issue provides insights on the above questions and hopefully serves as a starting point for more discussion and development on this important topic. It should be noted that all the researchers and managers involved in this effort are strong supporters of visitor use and access to our protected areas. Recent critiques have suggested that even the use of the term "visitor impact" is overly negative and could deter some from enjoying public lands. While we are sensitive to this issue, we also acknowledge the importance of maintaining resource and social conditions at appropriate, sustainable levels. It is our hope that in time, monitoring endeavors in parks and protected areas will help *assure* visitor use in these treasured places by maintaining the important balance between visitor use and resource protection.

Acknowledgments

The editors would like to express our appreciation to David Harmon for his support of this effort. We thank our colleagues for their valuable contributions and their service as peer reviewers. We are also grateful to Dr. Dave White at Arizona State University and Dr. Pam Foti at Northern Arizona University for serving as additional reviewers. Finally, we would like to thank the park staff in various National Park Service units reported upon in our papers. They believe in the value of monitoring and have dedicated valuable time working with researchers in advancing the art, science, and practice of visitor impact monitoring.

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Yu-Fai Leung, Department of Parks, Recreation, and Tourism Management, North Carolina State University, Raleigh, North Carolina 27695-7106; Leung@ncsu.edu

Christopher Monz, Environmental Studies Department, St. Lawrence University, Canton, New York 13617; cmonz@stlawu.edu