

Recreation Ecology and Visitor Impact Research: Past, Present and Future

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Introduction

Visitor activities in parks and protected areas inevitably have some consequences to natural resources. Even the most careful visitors can potentially disturb soil, vegetation, and wildlife; and in some cases affect water and air quality. Management decisions as to the level of acceptable disturbance to protected area ecosystems can be difficult and challenging and must be well informed by the best available science.

Considerable research conducted since the 1960's has demonstrated the relationships between visitor use and resource impact (e.g., Leung & Marion 2000, Buckley 2004). This discipline is often referred to as Recreation Ecology. Several fundamental principles can be generalized from this body of knowledge including:

1. Recreation activities can and often do directly affect the soil, vegetation, wildlife, water and air components of ecosystems.
2. Ecosystem structure and function can also be affected by visitor activities particularly given the interrelationships between ecosystem components.
3. For a given finite space, the relationship between many ecosystem responses and use is curvilinear, with the majority of impact occurring with initial use
4. Although some generalizations apply, resistance and resilience to visitor use disturbance is ecosystem specific
5. The distribution of use and visitor behavior are primary driving variables in determining the amount of impact

Given these principles, recreation ecology studies of two types are generally performed in parks and protected areas in an effort to assist managers in the avoidance and mitigation of visitor impacts. Experimental studies (e.g. Cole 1995, Cole & Monz 2004) examine causal relationships between use type and intensity and ecosystem-specific components. These studies employ carefully controlled experimental designs and can determine the levels of visitor use a given ecosystem (or ecosystem component) can tolerate. Monitoring and assessment studies (e.g. Cole & Hall 1992, Marion & Leung 1997) are perhaps more common as managers often find them to be of considerable utility. Conducted over a long term, these studies can provide an initial assessment of the current resource conditions, the trends of how impacts are changing over time, and an evaluation of the effectiveness of management actions.

While recreation ecology continues to be an important and growing field, and visitor impacts to natural resources are an ever present concern of park managers, numerous challenges exist in both the application of recreation ecology principles in management and in the expansion of knowledge in the discipline. First, full time practitioners in this field are very limited, especially compared to human dimensions research. In addition, researchers have mostly worked in relatively small, geographically separated groups, with few opportunities for dialog between the groups. Second, funding for basic scientific investigations utilizing experimental designs has been extremely limited in the best of times and frequently nonexistent. Managers in protected areas have supported most of the work in the field and therefore most studies – understand-

ably – have been monitoring and assessment efforts. While monitoring studies are useful, they are typically limited in their ability to examine causal factors and in quantification of use-impact relationships. Finally, confusion and conflicting opinions exist about the importance of recreation use impacts from both park ecologists and social scientists. Heretofore, few seem to recognize that while recreation impacts tend to be of limited extent on an area basis, they also tend to be much more intense than other types of impact in protected areas. Moreover, these intense impacts often proliferate in high value areas containing unique species or other desirable attributes, since these are places visitors often desire to go.

Conclusions

In order to begin to address the above challenges and to expand and revitalize this important field, a group of researchers has recently organized to promote increased collaboration between practitioners worldwide. Recent meetings and panel presentations (in 2003 and 2005), including sessions at the biennial George Wright Society Conference, led to the formation of the Recreation Ecology Research Network. This group seeks to promote the field through increased visibility at professional meetings, research collaborations and expanded theoretical and conceptual development of important topics. The forthcoming panel session at this conference and the associated publications will be an excellent next step in this process and will strive to establish a future research agenda of international scope. This paper will provide a concise review of the science of recreation ecology including management implications, a discussion of the current challenges and limitations, and a direction for future research.

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