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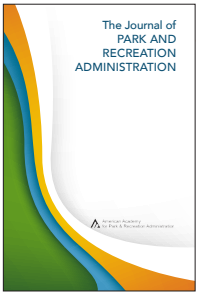

Journal of Park and Recreation Administration

Print ISSN: 2327-0179, Online ISSN: 2327-0187
Journal homepage: https://js.sagamorepub.com/jpra/index

A Research Strategy to Ignite the Science of Outdoor Recreation on Public Lands

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To cite this article: Miller, A. B., Cerveny, L. K., Derrien, M. M., Selin, S., & Blahna, D. J. (2020). A research strategy to ignite the science of outdoor recreation on public lands. *Journal of Park and Recreation Administration*. doi: 10.18666/JPRA-2020-10049

To link to this article: https://doi.org/10.18666/JPRA-2020-10049

Published online: 2/17/2020

Research Note

A Research Strategy to Ignite the Science of Outdoor Recreation on Public Lands

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Abstract

To respond to changing demands for outdoor experiences on public lands, managers and researchers specializing in outdoor recreation and tourism are calling for a shift in the way we think about, study, and manage recreation. New and updated conceptual frameworks and management tools are needed to guide agency decision-makers as they face complex and dynamic outdoor recreation management challenges. This article introduces a research strategy that seeks to align management needs with actionable research on sustainable recreation and tourism. We describe eight Research Focus Areas (RFAs) proposed in the strategy. These RFAs were identified and developed through a collaborative process involving researchers and practitioners from government, academia, industry, and non-profit sectors. We emphasize the importance of interdisciplinary, interagency collaboration to solve modern challenges in outdoor recreation management from the site to landscape scale.

Keywords

Outdoor recreation, tourism, management, public lands, social-ecological systems

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Introduction

Public lands and protected areas provide a diverse range of economic, social, cultural, health, and well-being benefits for visitors and those who receive off-site benefits. These lands host a wide variety of human activities while protecting important natural resources and ecosystems. Demand for outdoor recreation and tourism on public lands has increased and diversified in recent years, corresponding to changing social, economic, and cultural attributes of the U.S. (Cerveny, Blahna, Selin, & McCool, 2020), as well as increasing international tourism to the U.S. (United Nations World Tourism Organization, 2018). However, budgets supporting management of natural and recreation resources on U.S. public lands have stagnated or declined (Smith, Wilkins, & Leung, 2019; Watkins, 2019). Furthermore, outdoor recreation and tourism patterns and practices have changed since current planning and management tools were developed.

New and updated conceptual frameworks and management tools are needed to guide agency decision-makers who grapple with evolving recreation and tourism management challenges (Blahna et al., 2020). Several sources have called for updates to existing recreation and tourism tools, frameworks, and policies for use on agency lands (Canadian Parks and Recreation Association, 2015; U.S. Department of the Interior National Park Service, 2013), and protected area tourism broadly (Cerveny & Miller, 2019; Eagles, 2014).

To address this need across U.S. public lands, the U.S. Forest Service initiated a collaborative effort among federal and state agencies, universities, non-governmental organizations, industry, and other partners to develop a strategy to guide research in support of long-term sustainable recreation and tourism goals. This initiative, 'Igniting the Science of Outdoor Recreation' (ISOR), seeks to invigorate our collective capacity for outdoor recreation research and management. We emphasize that sharing information, aligning interests, leveraging resources, and developing partnerships across agencies, disciplines, and sectors will be essential to stimulating a new wave of innovation and knowledge co-production.

The ISOR initiative seeks to align research and management goals and developing actionable research results. This article introduces eight "Research Focus Areas" of the forthcoming publication entitled, "Igniting the Science of Outdoor Recreation: A Research Strategy for Sustainable Recreation and Tourism on Public Lands" (referred to here as the "ISOR Research Strategy"). We briefly summarize the Research Focus Areas (RFAs) and then discuss additional themes that may spark new areas of inquiry.

ISOR Research Strategy

The purpose of the ISOR Research Strategy is to provide a national strategic document to guide investment in research for recreation and tourism on public lands, and is intended to be adapted by individual agencies and other research institutions. The ISOR Research Strategy primarily addresses issues on federal and state lands in the U.S., though we believe that these RFAs are relevant globally and will prompt management connections across the wildland-to-urban landscape gradient. We view the ISOR Research Strategy as a dynamic document, and expect it to be revisited and discussed as new insights, conditions, and innovations shape the field.

Process

In October 2017, the ISOR initiative was launched by 14 managers, planners, and researchers with expertise in public lands recreation and tourism from two federal land management agencies and three universities. The group convened in Seattle to discuss priority management challenges and information needs, and strategize on how to build a community of practice for outdoor recreation and tourism knowledge co-production (Figure 1). The group, which became known as the ISOR core team, identified several important societal changes (e.g., demographic change, urbanization) and technological developments (e.g., social media, electronic bikes) with implications for outdoor recreation patterns and practices (Selin, Cerveny, Blahna, & Miller, 2020). To address these changes, participants concluded that reinvestment in research was needed to develop new concepts and management tools.

Figure 1. The "Igniting the Science of Outdoor Recreation" (ISOR) core team that organized and facilitated the three-day Sustainable Recreation Research Workshop held in Golden, Colorado in April 2018. Left to right: Steve McCool, Michael Schlafmann (front row); Gabrielle Snider, Brenda Yankoviak (second row); Jose Sanchez, Jim Barborak, Matthew Helmer, Francisco Valenzuela, Lee Cerveny, Adam Milnor, Dale Blahna, Steve Selin, and Anna Miller (third row).

Following the initial meeting, the ISOR core team conducted an online survey of U.S. and international recreation and tourism professionals and researchers (*n*=240) to identify management challenges and information needs. The core team also organized a national workshop to further expound on information needs and determine future research directions. The workshop was held in Golden, Colorado, over three days and was attended by 88 recreation and tourism researchers, practitioners, and policy-makers from across the United States. To select participants, the core team used a community reference system (Emery & Purser, 1996; Selin, 2007). Selection criteria included: (a) assuring an even representation of resource managers, academics, and agency scientists; (b) selecting participants respected for their knowledge of recreation research and management issues; and (c) willingness to participate in three days of meetings and engage in ongoing follow-up work in support of advancing ISOR efforts. An important output of the workshop was identifying a set of Research Focus Areas (RFAs), which the group produced, refined, and categorized through an iterative, participatory process. One important organizing tool of this effort was a large wall of information needs and challenges to which all participants posted ideas that were discussed, categorized, and re-organized throughout the workshop. The ISOR core team committed to further develop and publish these RFAs in the form of a national research strategy. Workshop participants with relevant expertise were recruited to serve as lead RFA writers and reviewers. ISOR core team members reviewed and edited multiple drafts of the RFAs to improve clarity and consistency, reduce redundancies, and integrate relevant survey and workshop results (Figure 2).

Research Focus Areas

Each RFA encompasses an area of inquiry that will direct future research and development. The RFAs form the heart of the ISOR Recreation Strategy and reflect a strong alignment between management and research priorities. By design and necessity, these RFAs present some overlaps in their content. RFAs are summarized below.

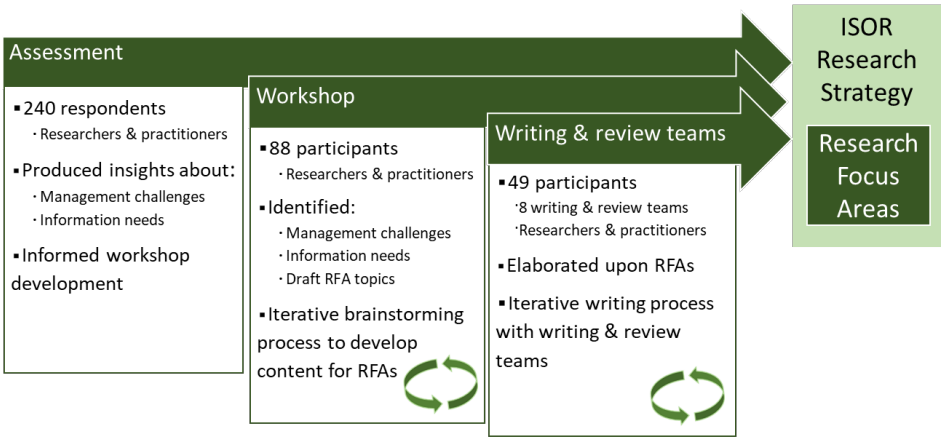

Figure 2. Process of Research Focus Area (RFA) development

RFA1: Integrating outdoor recreation planning into a social-ecological framework

A social-ecological approach views people and ecosystems as one interactive system, where human activities (such as recreation) affect ecological processes, and where dynamic ecological events (e.g., fire, climate change) or trends (e.g., economic or population shifts) affect how people relate to their environment (Bosak & McCool, 2019; Snyman & Bricker, 2019). Research is needed to improve our understanding of recreation as a component of the ecosystem, and to revise our planning tools to reflect that understanding. This focus area seeks to develop and test new integrated planning frameworks and tools for managing recreational visitors and spaces on public lands, using approaches that account for principles of ecological, economic, and social sustainability. Data and tools developed by research within this RFA will help practitioners evaluate alternatives, inform decisions, and monitor assumptions and outcomes.

RFA2: Examining recreation-ecosystem interactions at multiple scales

People are an important part of ecosystems that receive recreational use. Ecosystems directly shape outdoor recreation experiences, both positively and negatively (Nyhus, 2016; Siikimäki, Kangas, Paasivaara, & Schroderus, 2015). Likewise, ecosystems benefit from support of people for conservation, often gained through outdoor recreation (Cerveny & Miller, 2019; Miller, Larson, Wimpey, & Reigner, 2020). Understanding how recreationists and protected ecosystems interact is crucial in promoting the benefits of recreation on public lands and avoiding detrimental interactions. A deeper understanding of human-ecological interactions is needed at multiple landscape scales, over longer time periods, and in the context of broad environmental change (Blahna, Poe, Brown, Ryan, & Gimblett, 2017; Gutzwiller, D'Antonio, & Monz, 2017). Research in this focus area will contribute to developing a social-ecological systems framework through which recreation planning and management on public land will be more resilient to environmental and social changes.

RFA3: Assessing new drivers and characteristics of demand for outdoor experiences

Visitation trends are shaped by many factors, including population growth and movement, demographic change, consumer and technology trends, socioeconomic shifts, and environmental changes (Ghimire, Green, Poudyal, & Cordell, 2016). Central to the provision of programs, facilities, services, and the protection of natural resources on public lands is understanding drivers that shape the volume and character of public land visitation (Garber-Yonts, 2005). For example, sharing recreation information on social media is believed to be linked to surges in visitation to specific sites; the development of new recreation technology such as electric bikes suggests a need for new management protocols (Valenzuela, 2020; Sachdeva, 2020). This RFA seeks to create a more nuanced understanding of how past and future cultural changes shape patterns of visitor use and nature experiences.

RFA4: Measuring, monitoring and forecasting visitor use

New technologies and tools are emerging to improve ways of knowing how many visitors are arriving to public lands and their temporal and spatial footprint. This focus area emphasizes research to improve methods for assessing, monitoring, and forecasting visitor use to inform management actions. It explores new tools and approaches of collecting visitor data and estimating visitor volume, frequency, seasonality, demographics, group size, activities, duration, sites, and benefits of recreation. Use of big data, personal technology, socio-spatial approaches, and community science can improve spatial and temporal understanding of visitation patterns (Fisher et al., 2018; Sachdeva, 2020). This RFA also seeks to develop a system for assembling and organizing easy-to-use disambiguated data and tools for practitioners to anticipate changes in use and implications for particular settings. This data can be used to understand people's experiences and help resource managers adapt and respond to changing uses and use patterns.

RFA5: Exploring connections among people, nature, and public lands

For public lands to remain relevant, it is important to foster an array of opportunities that make the benefits of nature accessible to all. Research has shown an inequity gap in visitation to national forests among minority racial populations, when compared to majority (white) racial populations (Flores, Falco, Roberts, & Valenzuela, 2018; Floyd, Crespo, & Sallis, 2008). This gap is related to a variety of factors, including socioeconomic and logistical challenges, discrimination, and representation (Roberts, 2015; Sanchez, Cerveny, Blahna, Valenzuela, & Schlafmann, 2020). This body of research aims to improve access and connections to nature made directly through visitation, and indirectly through philanthropy, mass media, virtual reality, and environmental interpretation and education. This focus area will help identify and address financial, cultural, and institutional barriers to access, and opportunities to make public lands more welcoming and inclusive for a diverse array of experiences and visitors.

RFA6: Integrating culture and place into land management and outdoor recreation experiences

Human communities form deeply rooted attachments to place that can be an important part of their identity (Cheng et al., 2003; Masterson, Enqvist, Stedman, & Tengö, 2019). Heritage and place-connections are expressed by traditional uses, ceremonies, livelihoods, lifestyles, and stewardship practices (Eisenhauer, Krannich, & Blahna, 2000). This focus area emphasizes research to connect communities, tribes, and people to their outdoor places. When land management agencies fail to acknowledge, foster, or engage deeply held attachments, problems ensue in the planning process (Farnum & Kruger, 2008; Roenke & Lacey, 1998). Research within this focus area includes: understanding diverse community connections to public lands; engaging communities in collaborative decision-making; understanding the importance of place connections for community building, identity creation, and caretaking; recognizing the role of cultural heritage in resource planning; and improving interpretation and representation of cultural information.

RFA7: Integrating the health and well-being benefits of outdoor experiences

A growing body of research has examined the connections among the physical, mental, and social benefits of physical activity and exposure to nature and greenspaces (Frumkin et al., 2017; Twohig-Bennett & Jones, 2018). These activities often take place on public lands across the urban-wildland gradient, and managers are interested in how to better provide facilities, programs, and resources that promote positive health outcomes. This RFA calls for more research in this realm that captures the diversity and depth of outdoor experiences, their public lands contexts, the benefits conferred to participants, and the efficacy of different managerial partnerships. Furthermore, research is needed to increase understanding of how access to outdoor recreation is related to the social and environmental determinants of health. This understanding will encourage new ways to assess, communicate, and promote the varied health and well-being benefits of outdoor recreation to people.

RFA8: Understanding tourism economies and systems for public lands planning

Public lands play a critical role in the tourism system, serving as a destination for visitors and driving local economies. For tourism to be sustainable, we need to ensure that proposed management actions contribute to community well-being, enhance cultural ties, and support the regional economy, while protecting the environment (Bushell & Bricker, 2017). Research is needed to explore tourism industry structures and connections to public lands, and its role in sustainable recreation planning (Cerveny & Miller, 2019). This includes examining the value of outdoor recreation benefits (Santiago & Loomis, 2009); understanding links between tourism, community dynamics and regional economies (Bushell & Eagles, 2006); understanding the distribution of economic benefits of recreation and tourism (Lee & O'Leary, 2008); and exploring social and cultural effects of tourism on destination communities.

Discussion

A meta-analysis of the RFAs, workshop notes, and survey results reveals important themes that point to new ways of thinking about outdoor recreation and tourism on public lands. These themes, summarized below, point to the need for new conceptual frameworks in our research and management.

Expand the Concept of Recreation

As conceived, the RFAs suggest the integration of a broader conception of nature experiences into land management agencies' practices to include the diverse ways that people connect with and benefit from nature and public lands. Our traditional definition of "recreation," has proven exclusionary and can partially explain the lack of socio-economic and cultural diversity of visitors to public lands (Armstrong & Derrien, 2020; Blahna et al., 2020; Flores et al., 2018). Agency silos focus on a few relevant recreation activities, and omit many important public uses and cultural ecosystem services. A new definition of "outdoor experiences" will expand the relevance of recreation to a greater diversity of individuals and stakeholders, which is essential for increasing agency budgets, community support, and political backing for recreation management

(Collins & Brown, 2007). It is also needed to address equity and justice concerns, and broaden available outdoor experiences and ecosystem benefits.

Strengthen Interdisciplinary Connections between Researchers and Managers

All RFAs emphasize the importance of interdisciplinary approaches to solving problems related to outdoor recreation and tourism. Although outdoor recreation is inherently multidisciplinary, the planning processes that support recreation, and research designed to better understand recreation, often lack integration across scientific disciplines (Blahna et al., 2017; Poe & Gimblett, 2017). Beyond investing in existing interdisciplinary connections, more disciplines need to be incorporated, such as public health, organizational behavior, and business. Considering recreation as part of a broader social-ecological system would set the tone for greater integration.

Enhance Communication and Co-production of Knowledge

The importance of enhanced communication among researchers, managers, and other partners and practitioners, along with improved opportunities and mechanisms for knowledge co-creation, are highlighted across all RFAs. Disconnections sometimes stem from a lack of understanding of different skill sets, disciplinary language barriers, and rewards systems, along with gaps in reporting metrics and requirements (Selin, 2017, 2018). However, complex social-ecological systems, such as outdoor recreation and tourism on public lands, require a systems thinking approach (McCool & Kline, 2020), for which communication and co-creation of knowledge is imperative.

Consider Multiple Spatial and Temporal Scales

Outdoor recreation and tourism management issues arise at a range of spatial and temporal scales. Historically, recreation research has been conducted at the site level. Most RFAs note the importance of considering management issues at a landscape scale, which is where many challenges and dynamics occur (Blahna et al., 2017; Gutzwiller et al., 2017). There is a need for innovative decision tools and frameworks that consider cross-boundary issues at multiple scales.

Develop and Expand Partnerships

Partnerships are needed to implement the ISOR Research Strategy to expand our collective capacity for research and provide opportunities for science-co-production and knowledge integration. Researchers who specialize in systems thinking, organizational behavior and change, decision sciences, big data analytics, transportation planning, cultural heritage, and public health need to be involved in the research programs described. And most importantly, these research programs need to be co-produced with managers who will use the newly produced knowledge and tools to better serve the public (Seekamp & Cerveny, 2010; Selin, 2017, 2018). Without these partnerships, neither the vision nor the goals of the Research Strategy will be achievable.

Future Work

The research directions and framework described in this article will be developed and published in two forthcoming publications: (1) "Igniting the Science of Outdoor Recreation: A Research Strategy for Sustainable Recreation and Tourism on Public Lands" (Cerveny, Derrien, & Miller, in prepartion), and (2) "Igniting Research for Outdoor Recreation: Linking Science, Policy, and Action" (Selin et al., 2020). The ISOR

core team envisions regional and national meetings that convene practitioners and researchers as well as field visits and case study reviews to improve our shared understanding of critical problems and potential solutions.

Capacity-building around outdoor recreation and tourism management in public lands is important for implementing this program. Through the highly collaborative process used in developing the ISOR Research Strategy, connections were made between practitioners and researchers working on complementary topics. We wish to expand the existing network to build a diverse community of practice and include others who share the vision of invigorating outdoor recreation research. We welcome new partners to participate in the next steps, seek funding for projects that build strong collaborations between researchers and practitioners and to address management issues through innovative, interdisciplinary research and models of science co-production.

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