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Theme 3

***NATIONAL PARKS AS VITAL COMPONENTS OF RURAL AREAS:
DEFINING, MEASURING, AND MANAGING CARRYING CAPACITY***

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Main Theoretical Framework and Contextualization of the Research Problem

National parks are vital components of many rural areas. These parks protect important natural and cultural resources, offer recreation and leisure opportunities to visitors and local residents, and serve as economic engines for rural areas. But recreational use of national parks can cause impacts to park resources (e.g., soil compaction and erosion, destruction of vegetation, and disturbance of wildlife) (Hammit, Cole, & Monz, 2015) and the quality of the visitor experience (e.g., crowding and conflicting uses) (Manning, 2011). How should national parks be managed to address these problems? This study addresses this question by employing two theoretical frameworks: carrying capacity and social norms.

Carrying capacity is borrowed from wildlife and range management and addresses the question of how much use is too much? Contemporary approaches to carrying capacity focus on an adaptive management-by-objectives framework that requires formulation of indicators and standards of quality (Manning, 2007). Indicators are measurable, manageable variables that are proxies of management objectives (e.g., protection of natural/cultural resources and the quality of the visitor experience), and standards define the minimum acceptable condition of indicator

variables. Once indicators and standards have been formulated, indicators are monitored and management actions are taken (e.g., use is limited, resources are hardened) to ensure that standards are maintained.

Norms are a theoretical construct that have a long tradition and are widely used in sociology and the social sciences more broadly (Vaske & Whittaker, 2004; Manning, 2011). As the word suggests, norms represent what is “normal” or generally accepted within a cultural context. Norms have been adopted in management of parks and outdoor recreation by asking park visitors and other stakeholders to evaluate the acceptability of a range of ecological and social conditions in parks and related areas.

Research Problem and Main Aims of the Paper

The research problem addressed is determining the carrying capacity of national parks in rural areas. The objectives of this research are to help define, measure, and manage the carrying capacity of national parks in rural areas by answering the question: how much use is too much? By answering this question, national parks can continue to play a vital role in rural areas by protecting natural and cultural resources, providing rewarding recreation and leisure services to visitors and local residents, and serving as economic engines for rural areas. Application of normative theory and methods helps to ensure that management of carrying capacity includes consideration of park visitors and local residents and other stakeholders.

Methodology and Techniques Used to Address the Research Problem

A two-phase program of research was conducted to help formulate indicators and standards at Arches National Park, located in a large rural region of the southwestern United States. Phase one included a survey of park visitors and focus group sessions with community residents to identify indicators for the experience of visiting the park. Open and closed-ended questions were used to identify the most important qualities of visiting the park. Phase two included a second survey that incorporated a series of normative questions in which respondents were asked to evaluate the acceptability of a range of conditions for several indicator variables identified in phase one. A series of visual simulations (computer-generated photographs) were prepared for this survey to represent a range of park conditions to respondents. Figure 1 shows four sample

simulations for a range of use levels at Delicate Arch, an important feature in the park. Respondents were asked to rate the acceptability of each photo on a scale of -4 (“Very Unacceptable”) to +4 (“Very Acceptable”).

Main Findings

The survey conducted in phase one identified several important indicators of quality, including the number of people along trails and at attraction sites, the number of social trails (visitor-created trails), level of trail development, and visitor knowledge of regulations regarding off-trail hiking. The survey in phase two identified the minimum acceptable condition of indicator variables through development of a series of social norm curves such as the one shown in Figure 2. This social norm curves plots the mean acceptability scores of respondents for the sixteen simulations of a range of use levels at Delicate Arch. The norm curve falls out of the acceptable range and into the unacceptable range (crosses the neutral point on the evaluation scale shown on the Y axis) at approximately 30 people-at-one-time (PAOT) at Delicate Arch. Based on these findings, a standard of 30 PAOT was established for this site. Using study findings, other standards were set for other sites within the park. The park uses a variety of management practices to ensure that standards are maintained. For example, the parking lot that serves the trail to Delicate Arch has been sized to ensure that there are no more than 30 PAOT at the arch.

This study provides a theoretical and empirical foundation for defining, measuring and managing the carrying capacity of national parks in rural areas. In doing so, the study addresses the conferences themes of “Rural Development Policies, Strategies and Actors” and “Consumptions of the Rural”. With regard to the former, the study addresses “rural development paradigms, issues and orientations”, “the role of diverse actors and agencies in rural development”, “the main challenges in rural planning and management”, and “what kind of methodologies can be developed and applied to support decision-making and evaluation”. With regard to the latter, the study addresses “processes of demanding and consuming the rural, namely through leisure and tourism”, “the impacts of the consumptions of the rural”, and “how do visitors and residents live and co-create integral rural destination experiences.”

References

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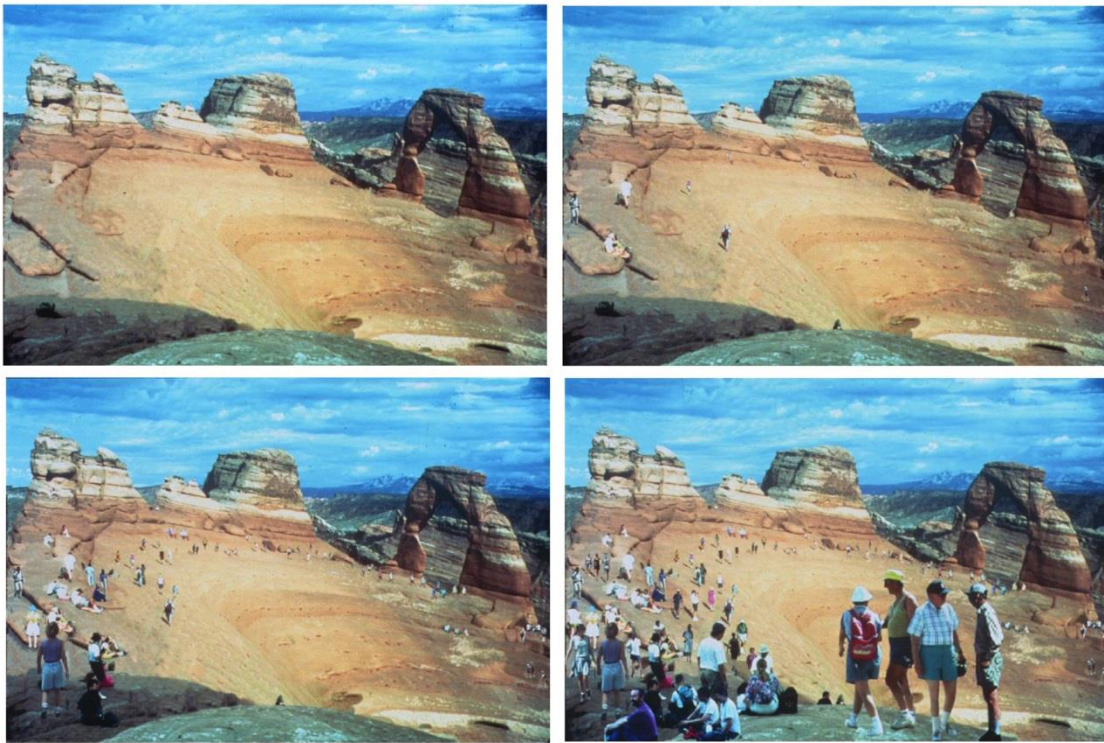


Figure 1. Sample computer-generated photographs illustrating a range of use levels at Delicate Arch.

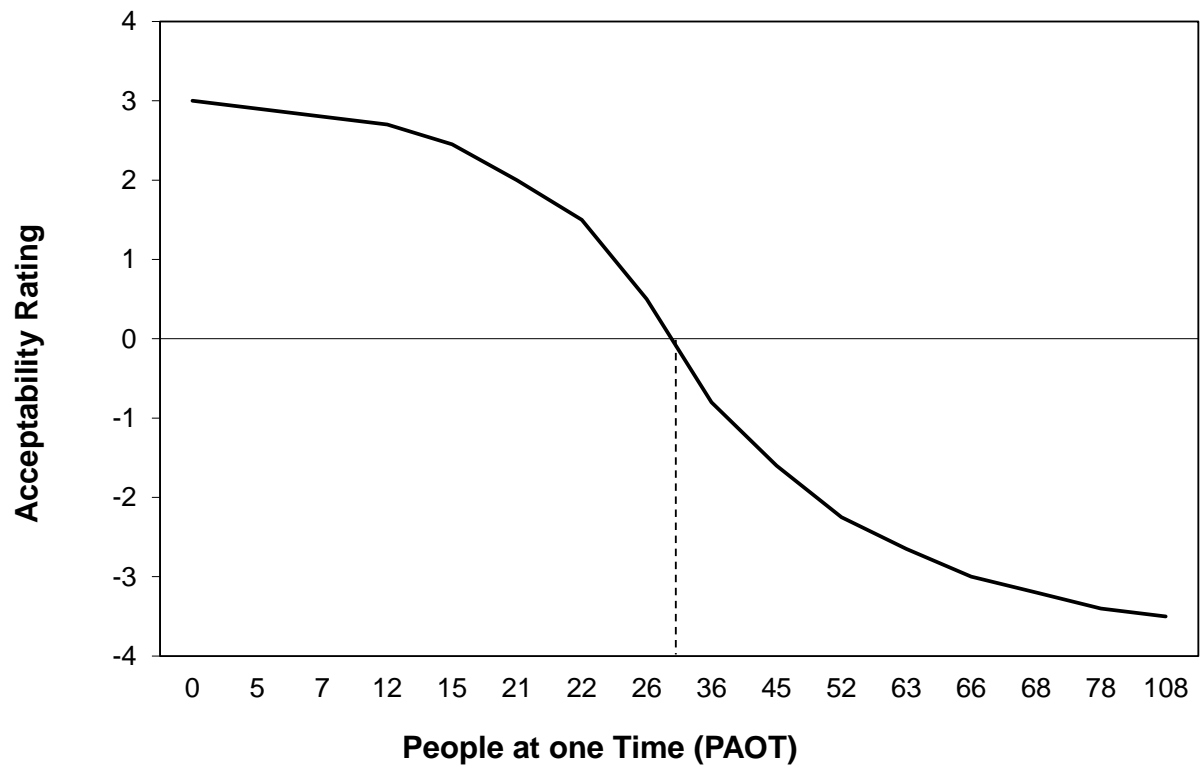


Figure 2. Social norm curve for people-at-one-time (PAOT) at Delicate Arch.