

The influence of place attachment on campers' evaluations of ecological impacts due to recreation use

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ABSTRACT

Impacts to ecosystem functions, structures, and aesthetics resulting from recreational use may influence the quality of outdoor recreation experiences as well as the integrity of recreation resources. Effectively managing outdoor recreation resources requires understanding impacts in addition to recreationists' perceptions of impacted conditions, particularly in high-use popular outdoor recreation areas. However, emotional bonds or feelings of attachment to a particular place may influence the relationship between impact and perception. Previous literature indicates mixed findings regarding how feelings of attachment to a place (i.e., place attachment) influence outdoor recreationists' evaluations of impacts to ecosystem elements and processes. To contribute to this literature, this study used normative theory and visual methods to examine the relationship between place attachment and evaluations of recreation-based ecological impacts at campsites in Utah's Wasatch National Forest. An onsite survey administered to 234 campers indicated that *place dependence* did not influence campers' evaluations of impacts, but as campers' *place identity* increased, their acceptance of ecological impacts born from recreational use also increased. These findings suggest that the type and level of place attachment may have a differential influence on campers' evaluations of ecological impacts and site conditions.

Management implications: This study only considers the use during peak seasons (May – August) and did not investigate all possible user groups and their different norms and thresholds for ecological impacts (e.g. people engaging in hunting, fishing, ATV, motorcycle or RV recreation).

These considerations aside, based on results of this study, there are some possible management strategies for consideration.

- First, managers might consider keeping current dispersed campsites available for recreationists to prevent further impact to other areas that would may become impacted if recreationists were denied campsites due to recovery or closure.
- Secondly, recognizing that campers have moderate to high levels of place attachment, managers might consider guaranteeing consistent maintenance, clean up, and education to sustain recreationist expectations and to prevent displacement. Finally, educational practices to inform visitors of low-impact camping techniques may provide an avenue to prevent further impact.

1. Introduction

Outdoor recreation often results in impacts to ecosystem functions, processes, and aesthetics, which may influence the quality of outdoor recreation experiences as well as the integrity of recreational resources (Hammitt, Cole, & Monz, 2015). Additionally, when recreation use is spatially concentrated, impacts to ecological components due to recreation use are often concentrated as well, resulting in soil erosion, root and rock exposure, damage to vegetation, and litter (Martin,

McCool, & Lucas, 1989). These disturbances to natural areas because of outdoor recreation are often referred to as *ecological impacts*, and the study of the magnitude and significance of these impacts is referred to as *recreation ecology* (Hammitt, Cole, & Monz, 2015). The responsibility of engaging in recreation ecology – of assessing and responding to ecological impacts – falls upon scientists and land and resource agencies at local, state, and federal levels.

Specifically, some land management agencies in the United States (U.S.) are tasked with striking equilibrium between providing access to

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recreation areas while simultaneously protecting the resources and experiences that outdoor recreationists seek to enjoy (Manning, 2011). For example, the U.S.D.A. Forest Service (USFS) strives to sustain the health of forests and grasslands while meeting the needs of present and future generations, including recreational needs on USFS lands (USFS, 2017). Similarly, the U.S. National Park Service seeks to conserve unimpaired the natural and cultural resources in the park system for the enjoyment and education of the public (NPS, 2017). To balance these missions effectively, recreation managers and planners must objectively understand current resource conditions as well as outdoor recreationists' perceptions of those conditions (White, Hall, & Farrell, 2001). It is important that land management professionals understand how outdoor recreationists perceive ecological impacts as well as what they deem unacceptable or desirable conditions since a) managers are likely to have lower tolerances for ecological impacts than recreationists (Budruk, Stanis, Schneider, & Heisey, 2008; Needham & Rollins, 2005), and b) constituent support is often necessary if managers want to enact change (Manning, Leung, & Budruk, 2005; Vistad, 2003).

Preferences for different levels of impact, or condition preferences and 'how things ought to be,' are often referred to as *norms*, which are shared beliefs among a group about important aspects of their experiences, including site conditions and what conditions are acceptable (Shelby, Vaske, & Donnelly, 1996). For a single norm, a threshold is often identified, which represents the minimal acceptable level of a specific condition related to the recreation experience. For example, in a foundational study, researchers measured crowding norms in Arches National Park, USA and a range was established for the number of people that could be present at Delicate Arch – an important feature of the park – at one time. Such a determination about an acceptable condition is often referred to as a 'normative threshold' or 'norm-informed threshold' (IVUMC, 2016).

Recreationists often have well-developed norms for preferred and acceptable conditions (Manning, 2011). Consequently, managers are often implored to understand outdoor recreation norms because users' preferences, expectations, and evaluations of conditions can be used for better managing outdoor recreation experiences (Heywood, 1996; McDonald, 1996; Needham & Rollins, 2005). Once normative thresholds for social (e.g., crowding) and ecological (e.g., damaged vegetation) conditions have been identified, managers can enact strategies and practices to attend to outdoor recreationists' preferences while protecting the resources and experiences those recreationists seek to enjoy (Manning et al., 2004; Shelby & Shindler, 1992).

However, it may be insufficient to merely identify outdoor recreationists' normative thresholds for conditions and impacts (Heywood, 1996). Researchers and managers must also identify salient factors that influence those thresholds. These factors may include affective elements such as recreationists' place attachment, which is the emotional bond a person has with a place (White et al., 2001). Researchers and managers suggest that incorporating place attachment into studies that aim to identify norms may improve understanding of the factors that influences recreationists' evaluation of site conditions (Kyle, Graefe, Manning, & Bacon, 2004).

Despite recognizing the importance of recreationists' perceptions of impacts and their normative thresholds, the existing literature is not specific about how place attachment influences norms for ecological impacts (D'Antonio, 2010; Kyle et al., 2004; Manning, 2011; White, Virden, & Van Riper, 2008). To address this deficiency, this study used normative theory to explore how place attachment influences campers' evaluations of ecological impacts. Revealing such influences provides managers with additional information for data-driven solutions, especially since, understanding subjective experiences of place can help identify appropriate management strategies that incorporate the uniqueness of a setting and its user population (Manning, 2011). Ultimately, identifying how place attachment influences normative thresholds for ecological impacts may provide additional information to understand how recreationists assess conditions (Eder & Arnberger,

2012; Manning, 2011; White et al., 2008). Therefore, the purpose of this study was to use normative theory to explore how the level and type of place attachment may influence campers' evaluations of ecological impacts in an area.

2. Literature review

Previous research in outdoor recreation has arrived at different conclusions regarding outdoor recreationists' perceptions of ecological impacts. To highlight this point, the following literature review provides background on how place attachment may (or may not) influence recreationists' norms and thresholds for ecological impacts. This review concludes with research questions that appear to be previously unanswered.

2.1. Normative theory

Normative theory suggests that recreationists have shared beliefs about important aspects of their experiences (i.e., norms; Manning, 2011). Identifying and measuring outdoor recreationists' norms for physical, social, and managerial conditions often incorporates the concepts of indicators and thresholds. According to the *Interagency Visitor Use Management Framework* (2016), an *indicator* is a measurable, manageable variable that helps define the quality of a recreation experience, whereas a *threshold* (or standard) of quality is the minimum acceptable condition of an indicator. An example of an indicator is 'the number of tents within view at a campsite' with an associated threshold, such as '3' (Manning, 2011). Applications of normative theory in outdoor recreation management often uses 'evaluative dimensions' other than 'acceptability' to determine important perceptions of users. For example, visitors to an area may be asked to report norms regarding the conditions they would 'prefer to experience,' the conditions they think 'managers should maintain,' and the conditions under which they would 'no longer visit the area' (i.e., displacement).

Researchers and managers often display a threshold and associated evaluative dimensions on a social norm curve (see Manning, 2007 for a review of this approach). Specifically, the evaluation of various conditions (e.g., acceptability level) are displayed on the y-axis whereas a range of indicator conditions are represented on the x-axis (see Fig. 1 for a hypothetical example of a social norm curve depicting the acceptability of tents within view at a campsite). Generally, the highest point on the curve represents the preferred or optimal condition. Researchers and managers often consider the neutral line on the social norm curve a threshold (e.g., minimal acceptable condition), although other prescribed thresholds may exist along the curve as well (IVUMF, 2016). All points above the neutral line are often considered the range of acceptable conditions, while points below the neutral line represent conditions that are unacceptable or violate the threshold of the

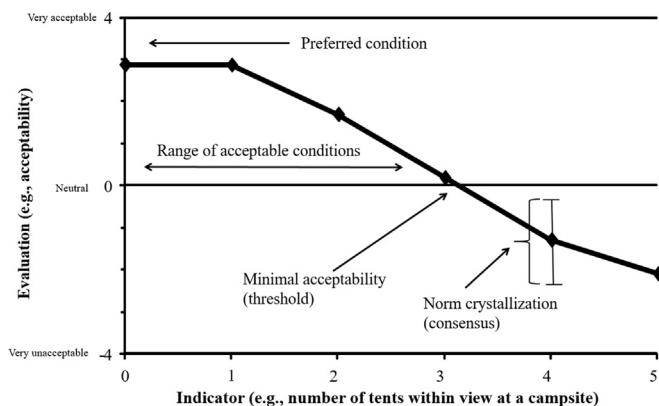


Fig. 1. Hypothetical example of a Social Norm Curve displaying acceptability of number of tents within view at a campsite.

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