

Research paper

Wilderness perceptions versus management reality in the Adirondack Park, USA



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HIGHLIGHTS

- User wilderness perceptions are poorly represented in protected areas planning.
- Adirondack Park wilderness perceptions and classified *Wilderness* differ spatially.
- Stakeholders perceived large tracts of private working forests as wilderness.
- Conservation easements on working forests promote informal wilderness character.
- Map overlays of perceived and classified wilderness can inform land use planning.

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ABSTRACT

Wilderness perception studies provide valuable insights on the relationship between recreational or cultural experiences and natural settings. Although this approach has been little used in the management and planning of protected areas, it has potential to investigate and inform land use policy and planning that achieves a better fit among multiple user or stakeholder groups and the natural landscape. We applied the wilderness perception mapping methodology to the Adirondack Park, a six-million acre protected area in New York State (USA) that consists of mixed private and public land use classifications designed to promote wilderness character while maintaining a permanent residential population. Using a regional survey coupled with a GIS, we created spatial models of the areas perceived as wilderness by three Adirondack Park stakeholder groups in four communities: permanent residents, seasonal residents and visitors. Wilderness perception maps were then compared with current land use classifications in a spatial overlay. Roughly half of the area perceived as 'strong purist' wilderness (i.e., the most restrictive definition) overlapped with classified Wilderness lands. The remaining areas were mostly private lands managed as working forests, many under state-owned conservation easements – indicating their potential value for wilderness recreation and amenities. Stakeholder groups differed little in the total area perceived as wilderness, but map overlays identified local patterns of agreement and disparity useful for land planning and conflict management. With further development, wilderness perception models can support an integrative approach to protected area management by considering user perceptions while also meeting legal protection mandates.

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1. Introduction

Managers of protected areas are challenged to preserve the natural character and ecological integrity of a landscape while meeting the demands of multiple stakeholders and policy mandates. Protected area planning requires weighing trade-offs between conservation and human use, and managing conflicts among

multiple values, uses, and non-use (Dawson & Hendee, 2009). Such decision-making typically occurs without an explicit understanding of how stakeholders view or value the landscape, or how land use policies and planning decisions may affect different user groups (Roggenbuck & Lucas, 1987; Shin & Jaakson, 1997). In navigating the conflicts and tradeoffs in protected area planning, an understanding of how recreationists and other stakeholders frame alternative constructs of 'natural' and 'wild' is regularly needed, but has often been absent (Williams, 2000).

Wilderness areas are valued, protected, and managed for the experiential and cultural amenities they provide current and future

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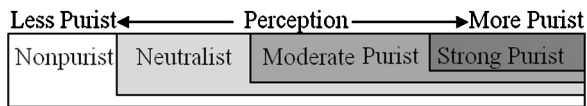


Fig. 1. Four classes of the U.S. Wilderness Purism Scale.

Adapted from Stankey (1973).

generations. In the United States, legal *Wilderness* is defined by the US Wilderness Act (1964) and 170 additional acts of legislation (Dawson & Hendee, 2009), including state-level definitions of *Wilderness* (Dawson & Thorndike, 2002). *Wilderness* is more broadly understood as a dynamic social construct that derives meaning from current settings and cultures, and can be understood as a relative condition across a landscape (Cronon, 1996; Kliskey, Alessa, & Robards, 2004; Leopold, 1925; Nash, 1982). In recent years, scholars and practitioners have sought to define wilderness in more quantitative and spatially explicit ways. Using geographic information systems (GIS), expert-informed models represent wilderness based on landscape attributes at the local and global scale (Aplet, Thomson, & Wilbert, 2000; Carver, Comber, McMorran, & Nutter, 2012; Sanderson et al., 2002). Participatory GIS models have engaged the public to describe wilderness with weighted landscape attributes through interactive mapping exercises (Carver, Evans, & Fritz, 2002), and more broadly by locating values, preferences, or experiences on a landscape (Alessa, Kliskey, & Brown, 2008; Brown & Weber, 2011).

Wilderness perception mapping (WPM) geographically represents perceptions of wilderness across a landscape based on Stankey's Purism Scale (1973). The WPM methodology models wilderness perceptions by conducting surveys to identify undesirable landscape features in a wilderness setting and using a GIS to 'remove' these features from the landscape (Flanagan & Anderson, 2008; Kliskey & Kearsley, 1993). The area remaining is considered acceptable as wilderness to the survey population, which is categorized by purism classes (strong purist, moderate purist, neutralist, nonpurist; Fig. 1), and then may be compared across recreation types, user groups, or demographic variables. In New Zealand, Kliskey and Kearsley (1993) found 42% difference in the area perceived as wilderness by different recreation users; while in the San Juan National Forest (USA), Flanagan and Anderson (2008) found a much higher disparity (88%) in perceived wilderness areas among users. Such results help to translate the diversity of stakeholder preferences into maps that can be directly incorporated into planning processes.

Several studies have suggested the importance of incorporating place-specific wilderness perceptions in protected area management (Flanagan & Anderson, 2008; Higham, Kearsley, & Kliskey, 2000; Kliskey & Kearsley, 1993; Shin & Jaakson, 1997; Virden & Brooks, 1991). Significant disparities have been found among the wilderness perceptions of different cultural, social, and economic groups (Bertolas, 1998; Higham et al., 2000; Lutz, Simpson-Housley, & Deman, 1999; Ewert, 1998; Habron, 1998; Brown, 2002; Kliskey et al., 2004; Palso & Graefe, 2008; Vistad & Vorkinn, 2012), and between areas perceived as wilderness and areas legally defined as *Wilderness* (Flanagan & Anderson, 2008; Kliskey & Kearsley, 1993; Shultis, 1999). The disparity between perceived and legally defined *Wilderness* presented in Shultis (1999) demonstrates how a 'lack of institutional fit' (Folke, Pritchard, Berkes, Colding, & Svedin, 2007) can exist between stakeholders and decision-makers in a landscape. The explicit consideration of stakeholder perceptions, which are challenging to articulate and incorporate in planning and decision-making, can help to both assess and improve the degree of 'fit' between land use policies and stakeholder demands.

In this study, we applied WPM techniques to compare stakeholder wilderness perceptions and land use classifications in the six million acre Adirondack Park (Fig. 2) in northern New York State, USA, which has been described as an ongoing large-scale 'experiment in conservation' (Porter, Erickson, & Whaley, 2009). Established in 1892, the Adirondack Park is the largest and one of the oldest protected areas in the contiguous United States, and is the only protected area to maintain a residential population and joint regulation of private and public lands (Thorndike, 1999). State-owned Forest Preserve lands in the Park are constitutionally protected from nearly all forms of development, and include more than one million acres of classified *Wilderness* – 85% of legally recognized *Wilderness* in the US Northeast – where mechanized access is prohibited (Scrafford, 1990). The 1972 State Land Master Plan defined *Wilderness* in New York State using language parallel to the US federal Wilderness Act (Dawson & Thorndike, 2002), and determined spatial boundaries (Fig. 2) based on landscape attributes, ecosystem assessments, and estimates of carrying capacities that aligned with the legal definition (Porter & Whaley, 2009), but did not consider established recreation patterns and excluded privately owned lands. Natural amenities and recreational opportunities fostered by this 'wild' landscape support a service-based and seasonal economy dependent on visitor-based recreation and tourism (Hubacek, Erickson, & Duchin, 2002; Keal & Wilkie, 2003). Land use regulations on private lands are focused on housing density and mitigating environmental impacts of clear-cut logging, lake shore development, and point-source pollution (Porter & Whaley, 2009). Roughly 673,053 acres of state-owned conservation easements on working forestlands provide legal assurance that these lands will not be subdivided for housing developments. Although the regulation of public and private lands directly benefits nature-based recreation and tourism, the real and perceived constraints that these regulations impose on economic development remain a challenge for rural communities and the nexus of endless political debate (Booth, 1978; Gore & Lapping, 1976; Harris, Gross, & Auerbach, 2012; Jacoby, 1997; Terrie, 2008).

With 103 communities, 132,000 permanent residents, over 200,000 seasonal residents, and estimated 50 million people within a 5 h drive (LA Group, 2009), the stakeholders of the Adirondack Park are multitude and diverse, representing a broad urban-to-rural economic and cultural spectrum (e.g., from lower Manhattan to tiny mountain hamlets such as Newcomb). Dozens of non-governmental organizations engage in Adirondack Park advocacy, representing environmental, recreation, local government, tourism, and regional economic development interests, among many others (Cox, 2009). Two state agencies – the Department of Environmental Conservation and Adirondack Park Agency – are jointly charged with the protection of ecological integrity and landscape 'wild' character, while maximizing a diversity of opportunities for recreation, acquiring new lands and conservation easements, and supporting economic development opportunities in rural communities.

Planners and decision-makers must address the complexity in the Adirondack Park without much information on how different stakeholders perceive the desirability of natural and built features in a wilderness setting, or how these perceptions vary geographically or by demographic strata. Our purpose in studying Adirondack wilderness perceptions was to develop and apply this knowledge in decision-making, and was guided by several key questions:

- *Do wilderness perceptions differ among Adirondack Park stakeholder groups?* We hypothesized that permanent residents, seasonal residents, and visitors would differ in their wilderness perceptions, because of different relationships with the Adirondack

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