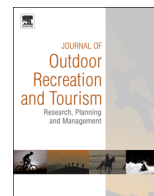




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Linking visitor motivation with attitude towards management restrictions on use in a national park



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ABSTRACT

The increasing demand for visiting wilderness areas often requires management actions that both conserve the natural resources and ensure a high quality visitor experience. Many of the alpine national parks in southern Norway hold the last remaining populations of wild reindeer (*Rangifer tarandus tarandus*) in Europe. Therefore management needs more effective tools to reduce or remove recreational impact on wild reindeer populations. Management actions should also consult research-based knowledge on visitors. Therefore, this study explores the link between visitor motivations and their attitudes towards management actions on track-related (trail, path, trampling, track) and area-related (zoning, legal restrictions) use. The results show that two of the visitor motivations (i.e. hiking and place attachment) affect visitors' attitudes towards management restrictions on use significantly. For instance, those visiting the national park for hiking are more positive to area-related restrictions while individuals attached to the place are more positive to track-related restrictions. Practical and theoretical implications are also discussed.

MANAGEMENT IMPLICATIONS

When attempting to find socio-ecological solutions for conflicts between a wild reindeer population and recreational use, the following management recommendations should be considered:

- A management solution should regard the fact that local users differ significantly from non-local visitors.
- The strategy of 'area restriction' is highly controversial for local communities, due to their long tradition with subsistence harvesting, grazing and traditional agriculture; therefore such a strategy will receive only low approval among the locals and leave the management with low legitimacy at the local level.
- The strategy of 'management of the track system' will affect most non-local visitors, but these visitors are more flexible in adapting to a new trail system in the area, or may shift to another area.
- Visitors with strong place attachment, as well as wilderness seekers who desire solitude are difficult to influence with physical management actions.
- A management strategy that will limit the area of use and behaviour of off-track visitors should include information about ecosystem vulnerability.

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1. Introduction

Norwegian national parks represent a specific type of wilderness area which attracts both local and international visitors (Hammer, 2008). National parks in general, and wilderness parks in particular, face the continuous challenge of balancing the legally mandated

ecological integrity with satisfactory visitor experiences (Cole, 2004; Shin & Jaakson, 1997; Glorioso & Moss, 2007; Fredman, Friberg, & Emmelin, 2007). Their decisions should also include knowledge about the wilderness users, such as their motivations, attitudes, and preferences.

Many of the alpine national parks in southern Norway hold the last remaining populations of wild reindeer (*Rangifer tarandus tarandus*) in Europe, and recreational use can affect their distribution, population dynamics and general conditions in several ways

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(Vistnes, Nellemann, Jordhøy, & Strand, 2004; Vistnes & Nellemann, 2008; Reimers & Colman, 2009; Forbes & Kumpula, 2009). Recently these reindeer have received considerable national and international attention (e.g. Kofinas, Osherenko, Klein, & Forbes, 2000; Festa-Bianchet, Ray, Boutin, Coutin, & Gunn, 2011; Panzacchi, Van Moorter, Jordhøy, & Strand, 2012). The establishment of Norwegian national parks since the 1960s has changed the land use, management and development options for many mountain communities in this region considerably (Haukeland, Daugstad, & Vistad, 2011; Kaltenborn, Hongslo, Gundersen, & Andersen, 2014). Legal direct restrictions have been imposed on the recreational use in wild reindeer migration corridors and in calving areas during critical periods of the year in some national parks (e.g. Hardangervidda), but this kind of direct regulation has been neglected by many users and the regulations have been discontinued after a short period of time. Instead, many indirect measures including manipulation of infrastructure and visitor facilities have been introduced in many parks in southern Norway (e.g. Rondane, Dovrefjell-Sunndalsfjella, Hallingskarvet, Hardangervidda) (Gundersen, Andersen, Kaltenborn, Vistad, & Wold, 2011; Nellemann, Vistnes, Jordhøy, Strand, & Newton, 2003; Nellemann et al., 2010). The wilderness experience may be diminished by sanctions, and indirect and nonregulatory management is preferred to direct or regulatory management of wilderness visitors (Vistad & Vorkinn, 2012). However, so far no systematic research has been undertaken on the effects of these management measures, both regarding the visitors' satisfaction and the ecological effects on wild reindeer (Strand et al., 2010; Strand, Flemsæter, Gundersen, & Rønningen, 2013). Obviously, new tools would be useful which can assist managers to reduce or remove recreational impact on wild reindeer populations (Strand et al., 2013), while at the same time ensuring the continuous freedom for visitors to roam and enjoy nature experiences satisfactorily.

In Norway and internationally, the present knowledge about wilderness use and users is insufficient (e.g. Vistad & Vorkinn, 2012; Shin & Jaakson, 1997). Hall, Seekamp and Cole (2010) argue that most research on wilderness users has stopped at examining motivations and perceptions, while rarely relating these to management preferences. They hypothesize that meaningful segments (for management purposes) will emerge when visitors are clustered on their motives (and wilderness involvement) and that the resulting clusters will support management actions that provide setting characteristics with a potential to fulfil their motives. Thus the purpose of the current study is to examine whether wilderness users' attitudes toward management actions (e.g. restrictions on use) vary depending on their motives for visiting the national parks and wildernesses, as proposed by some previous research (Brown & Haas, 1980; Virden & Schreyer, 1988; Shultis, 1999). Our empirical data come from a sample of visitors to Dovrefjell-Sunndalsfjella National Park in southern Norway. We examine three research questions:

- How do visitors perceive different direct (area restrictions) and indirect (e.g. track restrictions) management measures in national parks?
- Can different visitor segments be identified and are at least some of them flexible to adapt new track management systems or relocate their activity to another mountain area?
- What kinds of management measures are most adequate for meeting the preferences of the traditional users from the communities adjacent to the national parks?

Results of this research will be relevant for wilderness managers who may initiate or implement different types of use restrictions and/or site management in their areas.

2. Background

2.1. National park management in Norway

Most Norwegian mountain areas and national parks receive few visitors (but their numbers are increasing) compared to national parks worldwide (Gundersen et al., 2011). Most Norwegian national parks are located in remote areas far from settlements and, by definition, they are without roads and other heavy infrastructure (Nature Diversity Act, 2009). Thus, by international comparison their physical appearance and service level usually matches the IUCN category I, wilderness areas, rather than the category II, national parks (Holt-Jensen, 1978). In addition, the principle of common access rights to all uncultivated land in Norway (Outdoor Recreation Act, 1957) is undisputable, and includes all protected areas (Nature Diversity Act, 2009). Public right of access and the tradition of outdoor recreation in Norway is much simpler, or more primitive, than the commercialized and specialized outdoor recreation activities in North America (Kaltenborn, Haaland, & Sandell, 2001). "Every man's right" (*allemannsretten*) grants anyone the right, within certain restrictions, to move freely across private and public land, and to pick wild berries, mushrooms and flowers, collect dry wood for campfire, and put up a tent, although no closer than 150 m from private homes and cabins (50 m in the coastal zone). These individual rights to enjoy nature include of course related responsibilities, and assume good judgment by all involved (Sandell, 2006; Puhakka, 2011). In short, *allemannsretten* is considered an intrinsic component of local Nordic culture (Kaltenborn et al., 2001).

The type of visitors to alpine national parks in the Nordic area has changed over the past decades (e.g. Wall-Reinius & Bäck, 2011; Gundersen, Nerhoel, Strand, & Panzacchi, 2013). For visitors' adventure and risk taking, the provision of basic services, marked hiking tracks and easy accessibility through designated entrances and visitor centres has become more important. Now, the average age of hikers has increased while their length of stay has decreased (e.g. Gundersen et al., 2013). Overall, the majority of hikers accepts and uses recreational infrastructure to a greater extent today, and significant visitor segments have strong preferences for more modern management measures like infrastructure and services (Haukeland, Grue, & Veisten, 2010). Recreation in its most simple and traditional way is a legitimate and publicly desired use of national parks in Norway. At the same time, all national parks declare conservation as an overall objective, but usually in a rather general statement only. At the same time, most visitors to the Norwegian national parks expect a promotion of wilderness that would be more typical internationally (e.g. Hendee, Stankey, & Lucas, 1990; Hallikainen, 1998; Sæþórsdóttir, 2011), i.e. based on landscape naturalness, few other visitors, visitors who walk or ski, and little infrastructure (Haukeland et al., 2010). In this context the strict protection enjoyed by national parks constitutes important motivational factors for visiting the area.

Due to the right of common access, direct visitor management measures such as zoning and spatial regulations, or quota restrictions are rarely applied in Norwegian national parks. On the other hand, indirect approaches and site-specific management measures are more common. One approach is to use physical infrastructure strategically for visitor guidance. For example, visitor centres, viewpoints, information plates, marked trails, campsites and bridges will attract and concentrate visitors in particular areas, while protecting valuable natural resources at the same time. Such facilitation may, however, impact negatively on the experience of those who are seeking "authentic" experience in nature, and who prefer solitude (Virden & Schreyer, 1988; Raadik, Cottrell, Fredman, Ritter, & Newman, 2010). To balance the need for resource protection and visitor satisfaction in national parks, it is vital to understand visitor tolerance/preferences for such facilitation and for values such as solitude, remoteness and isolation (Roggenbuck, Williams, & Watson, 1993; Floyd, Jang, & Noe,

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