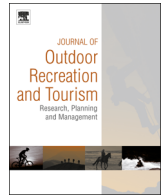




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## Day and overnight visitors to the Olympic Wilderness



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## ABSTRACT

Wilderness visitors are comprised of day and overnight users. Research suggests that day use of wilderness is increasing and that day visitors may be different than more conventional overnight visitors in potentially important ways. This study examined this issue at Olympic National Park, USA. An on-site survey of wilderness visitors was conducted in the summer of 2012, achieving a response rate of 50.4% and yielding 1019 completed questionnaires. Four categories of variables were included in the survey: (1) demographic characteristics of visitors, (2) sensitivity to crowding, (3) preferences for wilderness conditions, and (4) support for wilderness management practices. *T*-tests of differences between means of day and overnight visitors and principal component analysis were used to analyze resulting data. The study found many similarities between day and overnight visitors. For example, there was little racial/ethnic diversity in either group and the vast majority of all visitors was highly educated. Both types of visitors reported an aversion to encountering other visitors on trails and at attraction sites, and most visitors tended to prefer some level of development that facilitated recreation use, such as bridges over streams. However, there were also some potentially important differences between day and overnight visitors. For example, day visitors were significantly less sensitive to crowding and more strongly supported management that allows access for recreation as opposed to providing opportunities for solitude. Moreover, day visitors constituted more than twice the number of overnight visitors, suggesting that day visitors represent a large majority of wilderness use. Study findings are being used to support development of a Wilderness Stewardship Plan for Olympic National Park and suggest that day use be given more explicit attention in wilderness planning and management.

## MANAGEMENT IMPLICATIONS

An important objective of wilderness and related outdoor recreation areas is to provide high quality visitor experiences. Thus, wilderness management must be informed by information about and from wilderness visitors. Day and overnight visitors constitute two important groups of wilderness users. Findings from this survey of visitors to the wilderness portion of Olympic National Park suggest that there are both similarities and differences between these groups. Day visitors tend to be less sensitive to crowding and less supportive of management that restricts wilderness use based on concerns for solitude. Day visitors also tend to report more favorable attitudes toward some types of recreation development (e.g., steel bridges over streams). These types of differences suggest that wilderness managers should consider providing a spectrum of wilderness recreation opportunities, some of which may be different than conventional interpretations of wilderness that emphasize solitude and naturalness. Study findings also suggest that day use be more explicitly addressed in wilderness planning and management.

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## 1. Day and overnight wilderness visitors

There are many types of wilderness visitors (e.g., different recreation activities, levels of wilderness experience), but two major

groups are day and overnight visitors. It may be conventional to think of wilderness visits as requiring one or more overnight stays to fully capture wilderness benefits such as solitude and intimacy with nature, but a growing number of studies suggest that day use represents an increasing majority of visitors in many wilderness areas (Watson & Cole, 1999; Chavez, 2000; Taylor, 2000; Abbe & Manning, 2007). However day visitors are often neglected in wilderness management plans (Marion, Roggenbuck & Manning, 1993; Roggenbuck, Marion & Manning, 1994). For example, very

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few wilderness areas require permits for day use, while many require permits for overnight use.

Lack of management attention to day use may be a problem as many wilderness managers report that day use creates substantial resource and social impacts in wilderness areas (Abbe & Manning, 2007). Furthermore, some studies have suggested that day visitors may be less knowledgeable about wilderness than their overnight counterparts (Fazio, 1979). Research also suggests that day and overnight visitors may hold differing opinions on many issues, including perceived crowding (Cole, 2001; Cole & Hall, 2008), the importance of solitude (Cole & Hall, 2008), preferences for management actions (Vogt & Williams, 1999; Cole, 2001; Cole & Hall, 2008), perceptions of wilderness (Abbe & Manning, 2007), motivations for wilderness use (Papenfuss, Roggenbuck & Hall, 2000; Cole & Hall, 2008), and expectations for and tolerance of visitor-caused impacts (Cole, 2001; Cole & Hall, 2008). These issues can influence the quality of the wilderness experience and have the potential to cause recreational conflict if preferred and expected conditions of day users are at odds with those of overnight visitors (Roggenbuck, Hall & Moldovanyi, 2006).

This study was designed to build on this small, but growing literature. The study employs visual simulations and normative theory and methods (Shelby & Heberlein, 1986; Vaske, Graefe, Shelby & Heberlein, 1986; Manning & Freimund, 2004; Manning 2011) to more closely examine the issue of crowding/solitude, a topic of special importance in wilderness (the U.S. Wilderness Act of 1964 requires that wilderness areas be managed for “outstanding opportunities for solitude”). The study also uses two batteries of questions addressing attitudes toward wilderness management, a topic that is vital to wilderness managers.

## 2. Olympic wilderness stewardship plan

U.S. national parks that include wilderness are required to develop and maintain wilderness stewardship plans (National Park Service, 2006). These plans guide the preservation, management, and use of wilderness with the goal of restoring, protecting, and enhancing their wilderness character (National Park Service, 2013a). National Park Service (NPS) policy requires that wilderness plans must determine desired future conditions and establish indicators and standards (or thresholds) that determine the point at which management actions will be taken to reduce human impacts on wilderness resources and the quality of wilderness experiences (National Park Service, 2014). In keeping with this policy, managers at Olympic National Park recently determined that it was necessary to update the park's 1980 Backcountry Management Plan with a more current Wilderness Stewardship Plan (National Park Service, 2013a).

## 3. Olympic National Park

The Olympic Forest Reserve, covering much of the Olympic Peninsula of Washington State, was established in 1897 under the auspices of the Forest Reserve Act of 1891. In 1909, President Theodore Roosevelt designated part of the reserve as Mount Olympus National Monument under the powers granted the president by the 1906 Antiquities Act, and the area was elevated to national park status by Congress in 1938. In 1988, Congress designated 95% of the park (876,669 acres) as a wilderness area under the provisions of the Wilderness Act of 1964. This area is one of the most biologically diverse wilderness areas in the United States, with three major ecosystems: a 73-mile long strip of wilderness coastline, an outer ring of temperate rainforests, and

the glaciated Olympic Mountains at the park's core (National Park Service, 2013b). The importance of the park is reflected in its designation as both an International Biosphere Reserve and a World Heritage Site. Because of its natural beauty and proximity to the large, urban areas of Vancouver (Canada), Portland, and Seattle, Olympic is one of the most popular wilderness areas in North America, accommodating an estimated nearly three million visitors in 2012 (National Park Service, 2013c).

## 4. The study

The goal of this study was to inform development of the Olympic Wilderness Stewardship Plan. In particular, the portion of the study reported here was designed to test for differences between day and overnight wilderness visitors. Study questions were:

1. Are there demographic differences between day and overnight visitors?
2. Is there a difference in sensitivity to crowding between day and overnight visitors?
3. Do overnight visitors prefer more primitive wilderness conditions than day visitors?
4. Does support for wilderness management policies vary between day and overnight visitors?

### 4.1. Study methods

A survey of visitors to the Olympic Wilderness was conducted to examine differences between day and overnight wilderness visitors as they apply to the above study questions. A questionnaire was developed and administered to wilderness visitors on 60 days from July to September, 2012 at 30 wilderness trailheads that NPS staff classified as moderate to high use areas. Each trailhead was sampled at least twice, once on a week day and once on a weekend day. Visitors were intercepted at trailheads as they completed their hike and asked to participate in the survey. All members of groups over 18 years of age who agreed to participate were given a questionnaire. Visitors completed the self-administered questionnaire on-site and returned the completed questionnaire to the survey attendant. The response rate for the survey was 50.4% (49% for day visitors and 52 % for overnight users), yielding a total of 1019 completed questionnaires (694 for day users and 325 for overnight users).

The questionnaire contained four batteries of questions that addressed the study questions noted above. First, respondents were asked about selected socio-demographic characteristics, including gender, age, ethnicity and race, education, and residence (Table 1).

The second battery of questions adopted normative theory and methods by asking respondents to rate the acceptability of a range of use levels on wilderness trails and at wilderness attraction sites (Shelby & Heberlein, 1986; Vaske et al., 1986; Manning, 2011). For trails, respondents were asked to rate the acceptability of the number of hikers encountered along trails per day; for this question, the range of encounters presented was 0, 2, 4, 6, 10, 20, 30, 40, 60, and 80 or more for trails that were classified as medium use, and 0, 2, 4, 6, 10, 20, 30, 40, 60, 80, and 100 or more for trails that were classified as high use. The response scale ranged from -4 (“highly unacceptable”) to +4 (“highly acceptable”). Respondents were also asked to report the number of encounters they preferred (“preference”), the maximum number of encounters acceptable before they would no longer use wilderness trails (“displacement”), and the maximum number of encounters that the NPS should allow before limiting use (“management

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