

# Wilderness at Arm's Length: On the Outside Looking in at Special Provisions in Wilderness

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**Abstract**—While there is a long history of research on factors influencing wilderness recreation visitor experiences, there has been little focused research to understand the experiences of users visiting wilderness under legislative special provisions or the impact of these special provisions on wilderness recreation visitors. There are some exceptions. For example, contrasting motorboat user and canoeist experiences and their impacts on each other in the Boundary Waters Canoe Area Wilderness were topics of research even before the Wilderness Act was passed. Livestock grazing in wilderness is a particular kind of commercial special provision which impacts visitor experiences and has been studied in Colorado wildernesses. River floaters in at least one Idaho Wilderness can encounter motorized jet boats (a special provision use). We know these are often negative encounters for floaters. We commonly approach the jet boat user as a nonconforming user and thus a source of the conflict rather than trying to understand the experiences they are receiving and how to manage encounters to benefit both types of users. Aircraft, a unique special provision providing access in a few places in the Lower 48 and broadly in Alaska, play different roles in experiences in different places. Commercial use, though it is sometimes described as a traditional use of wilderness in the U.S., is actually a special provision in the Wilderness Act to the extent necessary for realizing recreational or other wilderness purposes. There is not a great deal of evidence that non-commercial visitors are influenced negatively by encounters with commercial visitors, though commercial and non-commercial user experiences are believed to be very different. Some limited research has begun to look at combinations of commercial and access special provisions (such as Denali visitors who use air taxis to reach remote glaciers, or Denali visitors who take a bus on a road bordered by the Wilderness). This research describes unique experiences associated with wilderness dependent activities that may be only “near wilderness” experiences or experiences that keep wilderness at arm’s length, in the process revealing some values of protecting these places as wilderness not previously described.

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## Introduction

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There is a long history of studies to understand some aspects of wilderness visitor recreation experiences (Cole and Williams in press). Hende and others (1978) described one of the central themes of the wilderness movement as a focus on solitude experiences offered by unmodified natural settings. There has been a great deal of research to understand these solitude experiences to assure that managers are protecting them in wilderness. Some of that research continues to be replicated in 2012, often with a need for place-based guidance to protect unique experiences or protect experiences from unique threats. Guided by direction within the Wilderness Act to protect these places for enjoyment as wilderness, work by pioneering scientists in the 1960s and 1970s was largely focused on exploring the implications of specific terminology (such as, opportunities for solitude) within the Wilderness Act to guide management decisions (such as, use limits) and monitoring (such as, crowding). Understanding how this enjoyment was impacted for visitors has been a significant task, particularly because people do not generally agree on evaluations of influences on visits to these places. Some people may have specific social characteristics they know they desire, such as true solitude or opportunities to interact with their small group in relative isolation and natural conditions, and some may be more focused on the environmental attributes or activities they engage in there (Watson and others 1993).

Early scientific exploration of wilderness purism and wilderness values extended across visitor perceptions of the importance of a broad array of attributes. Research to define influences on experiences in wilderness focused mostly on things that influenced solitude such as crowding, or on visitor impacts, such as heavily used campsites, that defined low-impact concerns and depicted how wilderness was going to be different from other public lands places. Hende and others (1978), however, suggested there were many aspects of wilderness experiences, including nature appreciation, education, freedom, solitude, and simplicity, as well as spiritual, aesthetic, and mystical dimensions of a wilderness experience. But the only one of these experiences specifically listed in the Wilderness Act was solitude. Hende and others (1978), in the first edition of the *Wilderness Management* textbook, concluded, however, that the listing of solitude, along with primitive and unconfined type of recreation in the definition of wilderness in Section 2(c) of the Wilderness Act was to help Congress

clarify its intent, not as specific requirements for inclusion as wilderness. But they also concluded, in 1978, that naturalness and solitude were distinguishing qualities of classified wilderness, differentiating it from other public lands. These scientists certainly influenced the focus of wilderness experience science on solitude as the most important aspect of visitor experiences for research and for management strategies. Dawson and Hende (2009), in the fourth edition of the *Wilderness Management* textbook, continue to emphasize solitude and naturalness as the defining qualities of wilderness conditions.

This solitude research manifested itself in studies of crowding and response to human encounters for many years. By the 1990s, however, Watson and Williams (1995) emphasized the need to look beyond the concept of crowding more to define wilderness experiences; there were many things influencing visitor experiences and scientists had only recently begun to study some of them—at that time, mostly only primitive and unconfined aspects of experiences (such as, Shafer and Hammit 1995). Watson and Williams (1995) demonstrated that while wilderness experience research had mostly been studied from the perspective of interaction with other wilderness recreation and its management, there are many more influences on wilderness experiences that need to be understood, monitored and managed (Figure 1). This discussion extended to such examples as the impact of livestock on wilderness experiences, encountering mining or water projects, and “other.” If we developed this matrix today, we would probably more likely, and more appropriately, lump these examples into legislative special provision uses, or legal exceptions. At that time we had not developed the interest or a strategy for studying special provisions and their role in wilderness experiences.

Watson and Williams (1995) concluded that with such a broadened perspective of potential influences on wilderness experiences, desirable wilderness experiences were yet to be defined and agreed upon and, as such, the benefits, meanings and values of wilderness and wilderness experiences were poorly understood. More research to address a broader range of threats to wilderness experiences was encouraged and a significant need was evident to extend research beyond “conforming” uses and acknowledge there were many things going on in wilderness that were not defined within the Wilderness Act definition in part 4(c), which prohibited commercial enterprise, permanent roads, motor vehicles, motorized equipment, aircraft landing, mechanical transport, structures, and installations. These things were sometimes allowed as special provisions in specific places and likely influenced wilderness experiences substantially.

Sometimes referred to as “nonconforming uses,” Section 4(d) of the Wilderness Act includes eight special provisions that apply to all of the Wilderness designations in 1964 as well as all subsequently designated wilderness. Browning and others (1988) defined special provisions as “specific guidelines for allocation and management based upon unique circumstances of local or regional concern.” When included in wilderness legislation, special provisions or other specific management directions establish legal direction for designation and also for management of use of a wilderness (Dawson and Hende 2009).

The special provision data base on *wilderness.net* (a web site provided by the U.S. federal wilderness management agencies through The University of Montana), described by Craig and others (2010) provides access to legislative content for several

**MONITORING TO PROTECT AND PRESERVE  
WILDERNESS CHARACTER**

Attributes of Wilderness Character	Potential Threats									
	Recreation	Fire	Pollutants	Domestic Livestock	Adjacent Lands	Water Projects	Mineral Activities	Exotic Species	Other	
Air										
Aquatic Systems										
Rocks/ Land Forms										
Soil										
Plants										
Animals										
Ecosystem/ Landscape										
Cultural Sites										
Wilderness Experiences										

**Figure 1**—A monitoring framework from the early 1990s illustrates the complex set of hypothesized influences on wilderness experiences (Landres and others 1994, Cole 1994, Watson and Williams 1995).

categories of special provisions or specific management directions contained in legislation: access, commercial use, general administration, motorized/mechanized use, public use and facilities, natural and cultural resource management and water (see Table 1) or by wilderness area. This data set is simply an electronic form of the special provisions collected across all legislation, in one place. There is no listing of associated research or any visible presentation of information under any of these categories to guide interpretation of the legislation for managing to protect or enhance visitor experiences in the context of special provisions.

Dawson and Hendee (2009) concluded that legislative intent is a complex matter that often requires additional understanding about the situations that led to the need for the special provision in order to make management decisions. Since 1964, and passage of the original Wilderness Act, 170 additional laws have been passed that set aside more than 700 areas and 107.4 million acres in forty-four states (Dawson and others 2010). These analysts predict that there will be a continuing trend in wilderness laws toward omnibus legislation covering more than one area, often in individual states, and the inclusion of more language to affirm and clarify management direction to address local concerns. Congress will likely hold the line, however, on proposals for major exceptions and unique provisions in wilderness laws or amending the Wilderness Act (Dawson and others 2010).

## A Process for Incorporating Special Provision Intent into Management Decisions

Watson and others (2004a) argued we should work to understand these special provisions and the people who they serve and we should work to both protect these legislated public purposes of wilderness outside the definition of Section 4(c) of the Wilderness Act and to minimize impacts of these special provisions on wilderness use and users that are described in Section 4 (c) of the Wilderness Act. Watson and others (2004a) acknowledged that while there was very little research on special provisions, more than half of our National Wilderness

Preservation System (NWPS) at that time had entered into the system in Alaska under the Alaska National Interest Lands Conservation Act (ANILCA), which is itself very much like a special provision, and also has many special provisions. This analysis provided a foundation for several studies to take an open-ended approach to define wilderness experiences that were not well defined in the Wilderness Act (such as, Patterson and others 1998, Watson and others 2004b, Glaspell and others 2003, Knotek and others 2007, Watson and others 2008), as well as complimentary work in the eastern arctic of Canada (Watson and others 2007), in South Africa (Shroyer and others 2003), and Brazil (Magro and others 2007) to further explore place-based wilderness attributes and experiences in other cultures.

Watson and others (2004a) outlined a science process for investigating special provisions and then demonstrated that process through a series of studies on jet boat users on the Main Fork of the Salmon River in Idaho (Table 2). Jet boat use preceded wilderness designation of the Frank Church – River of No Return Wilderness (FC-RNRW )by the Central Idaho Act of 1980 and therefore jet boat use was “provisioned in” at a level “...not less than that in existence in 1978.” Although the Main Fork of the Salmon River is running through the middle of the Frank Church – River of No Return Wilderness, it is classified as a Wild and Scenic River with a recreation emphasis. The amount of both floater and jet boat use is limited during the high use season. In the process described by Watson and others (2004a), incorporating guidance from Meyer (1999), the legislative history of this special provision is first documented. Meyer described a process for approximating the judicial review hierarchy to fully understand legislative intent. The content of a statement during legislative negotiation may not be as important as where and when it is said. Context is everything, so to speak.

Next, a study that focused on understanding the relationship between jet boat community leaders, the place and the activity, was undertaken to develop a baseline understanding of the things they would like to have protected about their experiences and use, whether they are called for in the special provision legislative history specifically, or not. These jet boat

**Table 1**—Categories of special provisions database on wilderness.net (Craig and others 2010)

Special provision category	Examples
Access	easements, motorized, tribal
Commercial Use	grazing, mining, recreation, timber
General Administration	buffer zones, administration, inholdings, pre-existing uses/rights
Motorized/Mechanized Use	aircraft, motorboats, vehicles
Public Use and Facilities	structures, roads, signs, hunting
Natural and Cultural Resource Management	fire management, insects, invasives, fisheries, monitoring, wildlife management
Water	facilities, resources, rights/laws

**Table 2**—A sequential process for investigating special provisions, used with jet boat use on the Main Fork of the Salmon River in Idaho by Watson and others (2004a).

<b>Essential steps to understand special provisions</b>
1. Document and determine legislative intent
2. Develop understanding of the relationship special provision users have with the place and the activity (deep meanings) through qualitative studies
3. Develop understanding and test hypotheses with the larger population of special provision orientation through quantitative studies
4. Examine impact and causes of that impact on other (conforming) visitor experiences

community leaders needed to establish better understanding of the standing of their demands, as well as establish common ground with federal managers about the things they value about this place and activity. Hypotheses were developed from this in-depth understanding and a whole set of questions were posed to a much larger population (everyone who could be identified as ever being on a jet boat on the Salmon River inside the FC-RNRW) of visitors in order to understand how consistent the important things jet boat association leadership perceived were to the larger participating public. And finally, as part of a study of floaters, scientists developed knowledge about what aspects of jet boat use affect floaters in what ways. While managers do not generally have the luxury of this level of knowledge about every special provision use in wilderness, there is some knowledge about some of these uses and the impacts on them and their impacts on other users.

The purpose of this paper is to briefly describe research knowledge accumulated about several special provision uses in wilderness. Specific interest is in understanding first if there are unique experiences of the participants in these special provision activities, whether or not specified in the Wilderness Act, but important to protect. Second, what do we know about how implementation of these special provisions interacts with other attributes of wilderness to influence “conforming” user experiences? A third purpose of this paper is to identify important potential research areas needed to guide management decisions better into the future.

## Special Provision Case Studies

Six specific uses that are enabled through special provisions legislation have been studied enough in the wilderness context to contribute to development of a common body of knowledge. This paper will present some examples of research on motorboats, livestock, jet boats, aircraft, ANILCA (with its own set of special provisions), and commercial use. While there are some studies that have included individual questions to assess public opinion about some of these and other special provisions, it is difficult to find additional studies or papers that contribute collectively to our knowledge on these topics.

## Motorboats

Lands and water on the Superior National Forest in northern Minnesota have been managed for wilderness qualities for a long time. Even prior to wilderness designation, Lucas (1964) was surveying visitors there to explore differences in perceptions of wilderness attributes among motorboat and canoe paddlers in what was later designated the Boundary Waters Canoe Area Wilderness. Just prior to the initial designation of lands and water there as wilderness, 75% of paddlers and 62% of motorized users were able to describe the “wilderness qualities” of their visits there. Motorized boat users, however, tolerated heavier use, more roads and more developments within their definition of wilderness experiences (Lucas 1964). Lucas (1964) also reported that canoeists in the Boundary Waters Canoe Area preferred much lower use levels than did motorboat users. He also concluded that the level of use people report as preferred or tolerable is not independent of the type of use involved. Similar to the long standing and replicated research at the Boundary Waters Canoe Area that demonstrated asymmetric conflict between these two groups (such as, Adelman and others 1982, Ivy and others 1992, Lucas 1964), it appears that these two groups experience and evaluate wilderness attributes at the same place very differently.

While there are not many places where motorboats are a special provision in wilderness, the Boundary Waters Canoe Area Wilderness presents an opportunity for longitudinal understanding of this special provision and how it likely interacts with wilderness experiences (Lucas 1967, Cole and others 1995, Watson 1995, Dvorak and others in press). Visitor studies in 1991 and 2007 displayed very different proportions of private motorboat users, with a decrease from 11% to 5% at the BWCAW. Possibly related, across all users, the proportion fishing decreased from 83% to 77%. The motorized use there is mostly connected to fishing. Those indicating fishing was a priority for the trip decreased from 47% to 35%. There were many changes evident at the BWCAW from studies in the 1960s to 2007, including an older group of visitors, slightly smaller group sizes and higher education and income levels. Trip length demonstrated a slight increase trend for overnight visitors. Among the most dramatic changes, however, were perceptions of being overcrowded at this, the most heavily

used wilderness in the U.S. In 1969, 73% reported not being overcrowded; that level fell to 44% in 1991 and further dropped to 38% in 2007. Impacts from encounters with motorboats seem to be a fairly small problem at this area and likely decreasing, with an historic motorboat use segment in only a couple of areas authorized under a special provision.

### Cattle/Livestock Grazing

The Wilderness Act included a special provision that allowed livestock grazing to continue where it existed prior to the designation of an area as wilderness. The 1980 Colorado Wilderness Act further clarified that livestock grazing could not be curtailed because of wilderness designation. In the 1980s, more than 35% of U.S. wilderness areas had active commercial grazing rights established (Reed and others 1988), and at that time it was predicted that grazing was likely to increase as mid and lower elevation BLM roadless areas were added to the NWPS. Dawson and others (2010) found 19 wilderness designation laws that included similar management direction as the Colorado Wilderness Act of 1980, concerning grazing activities and facilities on U.S. Forest Service and Bureau of Land Management wilderness lands.

As early as 1949, scientists were trying to understand public attitudes toward grazing in areas publicly protected as wilderness (Johnson and others 1997). Well before passage of the Wilderness Act, these studies found qualified acceptance for grazing as a nonconforming use “only by sufferance and with a view to its eventual elimination” (Johnson and others 1997). Livestock grazing was never suggested as a value or use protected by the Wilderness Act, but in fact, has always been acknowledged to be nonconforming and a negotiated commercial interest compromise in order to protect other wilderness attributes of these areas. While livestock grazing has been categorized (Craig and others 2010) as a commercial special provision, there has been some limited research on public response to it more as a nonconforming use than just a commercial activity. Encountering cattle in an area protected

for enjoyment as wilderness is more than just encountering a commercial activity, probably due to the widespread physical impacts very evident from cattle and sheep.

Brunson and Steele (1994), for example, found the public believed overgrazing and poor water quality due to livestock impacts were important problems on public rangelands. A majority of the public supported the establishment of more rangeland areas as wilderness but did not support livestock grazing in established wilderness. In addition to the ecological impacts that concerned the public, grazing impacts have been found to affect aesthetics perceptions for visitors (Sanderson and others 1986).

Johnson and others (1997) reported from a sample of nearly 600 visitors to several wildernesses in Colorado that 40% considered livestock grazing in wilderness to be unacceptable (Table 3). Only 32% could accept grazing in wilderness with improved range conditions and responsive adjustments in livestock numbers and management methods; the rest either thought grazing was okay (11%) or did not have clear positions on the issues (17%). A majority of the wilderness visitors surveyed reported that direct encounters and livestock impacts detract from a wilderness experience. Johnson and others (1997) also found some specific things about cows that had negative impacts on visitor experiences: cows near camp (87% said it was negative), manure in camp (88% said it was negative), and cows or their impacts near streams (82% said it was negative). However, the public did identify some things that they might enjoy about encountering cows, including calves with mothers (18% said it added to the experience), cattle in the distance (15% said it added to the experience), and cowboys with cattle (16% said it added to the experience). Although these are the most positive things about encountering cattle, even these things had even higher percentages of visitors who considered them a negative impact on experiences (52%, 54%, and 47%, respectively). There seems to be nothing about cattle grazing in wilderness, except seeing cowboys with cattle, that does not detract from the experience of the majority of visitors (Johnson and others 1997).

**Table 3**—Wilderness visitor agreement with position statements regarding livestock grazing in wilderness. (Johnson and others 1997)

Position statement	Percent (%) agree
Grazing in this wilderness, as it is now managed, is acceptable. Numbers of livestock and grazing fees should be kept at current levels.	11
Grazing in this wilderness is acceptable as long as management continues to improve the range condition; protection of streams, lakes, and native flora and fauna, and reduces conflicts with other users. Adjustments in livestock numbers and management maybe be necessary	32
Grazing is not an acceptable use of this wilderness. It degrades the land, favors livestock over wildlife, is not cost-effective, and conflicts with other uses.	40
I do not know enough about grazing in this wilderness and therefore cannot make a fair judgment about any of the positions stated above.	17

Biophysical impacts of grazing were more objectionable than were the social impacts of cattle (Johnson and others 1997). Eighteen per cent of visitors said their experiences were interfered with by other visitors (crowding, litter, inappropriate behavior) while 15% reported livestock to be a problem with their experience. Nineteen per cent of visitors attributed problem resource impacts to people, 17% to livestock. Two-thirds reported direct encounters with cattle detracted from a wilderness experience. But they also reported that their wilderness experiences were negatively impacted by encounters with outfitters (65%), cowboys with cattle (63%), other visitors (54%), horses or mules (51%), and dogs (48%). The cows have never seemed to mind the recreation visitors, though ranchers are sometimes nervous about potential impacts to grazing areas from potential increases in recreation users due to designation of areas as wilderness.

## Jet Boats

A special provision that did not include regular motorboats or jet ski use on the Salmon River, did make a provision for jet boats. Rafters on the Main Fork of the Salmon River, floating through the heart of the Frank Church – River of No Return Wilderness (FC-RNRW), were asked hypothetically about their likely response to the number of jet boats they might see. The number of jet boats to be seen was ranked seventh in whether it would matter to their wilderness experience, behind human waste, litter, tree damage, number of wild animals seen, groups camping within sight or sound, and human caused vegetation loss they encountered. The number of delays to their downriver

trips caused by jet boaters (while coming up through rapids or passing rafts) was tenth, immediately after the size of float parties seen, and amount of time spent within sight of floaters while moving down the river (Hunger and others 1999).

When asked about problems they had on their specific trips, however, jet boat encounters was ranked first, followed by number of modern structures and low-flying aircraft. Overall, Main Fork floaters desired visitor experiences centered on perceived naturalness (getting away from crowds, feeling a part of nature, experiencing peace and tranquility, escaping noise, leisure, seeing wildlife). This was more important than personal wilderness challenges, health and spirituality, historical and cultural influences, but not higher than being with friends. For jet boaters, 66% also indicated they enjoy solitude while jet boating, although 52% indicated the number of other people they meet on the river is not important to the experience they have, 70% said the number of structures they might see is not important and 85 percent said their experience is not influenced by seeing small aircraft flying overhead. Of these jet boat users, 85% think of this time as an important family experience and 98% consider it important or very important to protect access to this activity at this place for future generations. Seventy-nine percent agreed that their experience while jet boating on the river was the same as the experience of nonmotorized floaters and 76% thought it was the same as those riding horses. Only 33% would go on the river if they couldn't go on jet boats, however. Some people might interpret special provisions like this one as creating "exceptions" to true wilderness, whereas others, like these jet boaters, interpret them as means of accommodating different orientations toward wilderness (Table 4).

**Table 4**—Propositions generated from in-depth interviews of jet boat association leadership and tested through quantitative survey of jet boat community.

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**Propositions:**

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1. Being close to nature is important to jet boaters.
  2. Opportunities to experience solitude in a remote setting is valued by jet boaters.
  3. Jet boating is a family experience, or an opportunity to pass on important values to others.
  4. Jet boaters exhibit strong attachment to place, or opportunities to spend time in the Salmon River Canyon is important to them (they have a strong personal history, are deeply involved).
  5. Jet boating is challenging, with a certain amount of risk as in any whitewater activity, and current regulations influence the perception of safety by limiting the ability of boaters to travel in groups.
  6. Jet boats are consistent with wilderness and wild and scenic values to jet boaters.
  7. Jet boaters appreciate the cultural history of the river corridor.
  8. Jet boaters perceive some other users as having unrealistic expectations about their journeys along the Salmon River.
  9. River planning should be addressed from a regional perspective, not river by river.
  10. Jet boaters believe that environmentally responsible behavior by all users is important in order to protect the resource.
  11. It is important to teach river etiquette to all users.
  12. Jet boaters believe in "responsible shared use" – fair, equitable access to the resource and opportunity for growth with other user groups.
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The Central Idaho Act of 1980 was silent on the nature of the experience to be provided to these jet boaters. Research on jet boaters, however, focused on understanding user experiences and relationships to place (Watson and others 2004a). On the one hand, results suggest that jet boaters seek traditional wilderness values, but on the other, it reveals apparent contradictions. However, rather than reflecting a unique situation, these sorts of contradictions or tensions are evident among other wilderness uses at other places as well (Glaspell 2002).

## Aircraft

The Wilderness Act states that “...within wilderness areas designated by this Act the use of aircraft or motorboats where these practices have already become established may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable” (section 4(d)1). Three wildernesses outside of Alaska have active airstrips, in Montana and Idaho (Meyer 1999). These provisions provide access for hunting, fishing, boating, wilderness administration and scientific research. In addition, touchdowns, where pilots land on backcountry airstrips for the challenge of the landing rather than for access to the wilderness, are popular among some pilots.

In 1999 the FC-RNRW had 31 operational airstrips within its boundaries, 12 on federal land. “The sights and sounds of aircraft operating at or near landing strips and the noise of low level overflights probably disturb the quiet of the wilderness, and aircraft activities have the potential to affect wildlife species, particularly those at landing sites located on or near key wildlife habitat” (USDA Forest Service 1998:1-37). In the FC-RNRW, jet boaters were not bothered by overflights. On

the Middle Fork, private boaters, however, rated low flying aircraft as a big problem for 29% of the people, while only 5% of commercial boaters rated them a big problem.

There have been no known studies specifically focused on the experience motivations of wilderness pilots or aircraft passengers in the lower 48 wildernesses, though some studies in Alaska have touched on this topic. In Alaska, these special provisions provide access for flightseers that might touch down in Wilderness or not, glacier landings in remote locations, private recreation pilots, subsistence users, and commercial flight access for backpackers, rafters, and hunters and anglers. Aircraft access is a large part of access to remote locations in Alaska.

Fidell and others (1996) suggested that the prevalence of aircraft noise-induced annoyance (in any degree) among respondents in several wilderness areas ranged from 5% to 32%. So, annoyance of people and how that might interact with wilderness experiences is still unclear, but Tarrant and others (1995) suggested that overflights have a greater effect on visitor solitude and tranquility than on annoyance—that whatever the annoyance level might be, impacts on solitude experiences is much higher.

## Alaska National Interest Lands Conservation Act (ANILCA)

Watson and others (2004b), in an attempt to illustrate unique aspects of wilderness experiences in Alaska, cited one student at the University of Alaska – Anchorage, who commented that “In the Lower 48, if you can drive there it isn’t wilderness, you have to walk. In Alaska if you can walk there it isn’t wilderness, you have to fly” (Figure 2). Another quote from a



**Figure 2**--One Alaska student commented “In the Lower 48, if you can drive there it isn’t wilderness, you have to walk. In Alaska, if you can walk there it isn’t wilderness, you have to fly” (Watson and others 2004). US Forest Service photo.

different student trying to express perceptions of unique aspects of Alaska wilderness was “In the lower 48 the wilderness is surrounded by development, in Alaska the development is surrounded by wilderness, and that is surrounded by wilderness.” Both of these quotes are intended to help people understand that while the Wilderness Act was mostly aimed at protecting threatened lands in the continental 48 states, there is tremendous wild country in Alaska, some of which is protected and some of which is not. When the Alaska National Interest Lands Conservation Act (ANILCA) was passed in 1980, establishing over 50 million acres of wilderness protection in Alaska, not only was the geography different, but the relationships people have with these places were different, too. ANILCA acknowledged these differences by providing for motorized access, subsistence benefits and some continued mineral extraction and other commercial uses.

In recent years, several studies have tried to capture some of the unique aspects of wilderness experiences in Alaska (for example Glaspell and others 2003, Watson and others 2004b) and in some cases some of these special provisions have been found to be especially important parts of the experiences. For instance, at Gates of the Arctic National Park and Preserve, “access” and “risk and uncertainty” were found to be important dimensions of current park experiences that managers may find unique enough to try to protect. In fact, these dimensions may represent what is most unique about the experience opportunities at Gates of the Arctic (Glaspell and others 2003).

While these proceedings are intentionally focused on recreation visitors to wilderness, it is the intent of this paper to explore research conducted on the experiences of people engaged in these special provision activities. In Alaska, subsistence users are not only Alaska Native people, but rural people following a traditional path of survival and relationships with nature (see for example Collins and Collins 2005, Whiting 2004). Whiting (2004), in particular, describes data obtained from active hunting and gathering families in the Western Arctic of Alaska that suggests their experiences, while in federal wilderness (or any other areas where they engage in traditional hunting and gathering activities), are centered on identity, traditional way of life, survival, opportunities for personal growth, expression of humility, maintaining mental and physical health, and expression of independence associated with self-sufficiency. While other segments of society may also attribute some of these meanings to wilderness, they are not terms used within the Wilderness Act and management to protect these benefits is not commonly prescribed.

The things they suggest impact these experiences are sometimes more unique to federal protected lands, such as agency restrictions and regulations—the National Park Service not understanding the Qikiktagrugmiut “way of life,” their perception of competition with the National Park Service for land in-holdings, trash, lack of respect shown by outsiders, NPS employees camping nearby when native people are on the land, airplanes, sport hunting, and the increasing number of visitors to these areas. But they also acknowledge threats to their experiences from modern technology, global warming, and their own lack of teaching land ethics to their young

people. Research on wilderness visitor experiences in Alaska has mostly been separate from management of subsistence use and users. More recent examples, however, suggest the value of combining these purposes, though with sometimes different methodologies, to explore the interaction between these two very different orientations with wilderness and other wild places in Alaska (see for instance Christensen and others 2006).

## Commercial Use

In the Wilderness Act, section 4(c) states “Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise . . . within any wilderness area designated by this Act.” But in section 4(d), among the special provisions listed is item 6: “commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.” Dawson and Hendee (2009, p. 360) suggest that outfitting in some areas has drawn criticism for stressing comfort, convenience, and excessive facilities and technology that conflict with wilderness values, though they also describe commercial outfitting not as a special provision, but as “. . . a traditional use of wilderness permitted by the Wilderness Act and encouraged by wilderness managers in some areas.” In many areas, these commercial activities can be seen as both protecting traditional American wilderness values and being allowed under special provisions to accommodate existing uses and potentially impacting Wilderness values of other, non-commercial visitors.

Nationwide, the wilderness outfitting business is believed to be responding to the need for wilderness use that is light on the land, leaving no trace of use, and responsive to wilderness values and other users (Dawson and Hendee 2009). Some outfitters and some wilderness areas reflect this trend more than others. Outfitters can serve as educators of wilderness users to enhance visitor experiences and to promote wilderness stewardship. But there is suspicion that commercial visitors are very different people than private users. They may be there for different reasons and evaluate impacts on their experiences very differently.

Research at the FC-RNRW found that commercial floaters were about the same age as private floaters, but come from much more urban areas now, grew up in more urban areas, have much higher education levels, tremendously higher incomes, much less experience on the Salmon River, much less experience on any river, lower experience with commercial guides, far fewer trips where they guided their own boat and many less years since their first overnight float trip. They were more likely to self-evaluate themselves as beginner or novice (71%) rather than as intermediate or advanced or expert, to float in substantially larger groups and take shorter trips (Hunger et al. 1999) (Table 5). Commercial boaters were more likely to report fewer larger groups seen, more time within sight of other float parties and less time delayed at major rapids. They were less observant of modern structures each day, less observant of

**Table 5**—Launch-point survey results comparing characteristics of private and commercial floaters on the Salmon River, Frank Church – River of No Return Wilderness (Hunger and others 1999).

Characteristics	Private floaters	Commercial clients
Age (average years) <sup>a</sup>	41.9	42.9
Grew up in major metropolitan center of over one million people (%) <sup>b</sup>	12.0	21.7
Now live in major metropolitan center of over 1 million people (%) <sup>b</sup>	11.5	26.5
Educational achievement equip. to Ph.D. (%) <sup>a</sup>	13.8	20.6
Household income above \$100,000/year (%) <sup>b</sup>	14.0	43.4
Previous overnight float trips on any segment of the Salmon River (average) <sup>a</sup>	5.1	.5
Previous overnight float trips on any river (average) <sup>a</sup>	27.4	3.9
Previous trips with a commercial guide (average) <sup>a</sup>	5.8	2.4
Previous trips where you guided your own boat (average) <sup>a</sup>	33.5	4.0
Years since first overnight float trip (average) <sup>a</sup>	12.2	5.8
Self-evaluation of river-running skills <sup>b</sup>		
a. Beginner or Novice (%)	33.6	71.0
b. Intermediate or Advanced (%)	53.7	28.1
c. Expert (%)	12.8	.8
Float party size (average) <sup>a</sup>	12.0	16.0
Length of trip in days (average) <sup>a</sup>	6.5	5.6

<sup>a</sup> means were significantly different for the two groups at  $p \leq .05$  (Student t-test)

<sup>b</sup>Distributions of responses were significantly different for the two groups at  $p \leq .05$  (Chi-square analysis)

low-flying aircraft. They noticed less human-caused vegetation loss and bare ground at campsites, saw less human-damaged trees at campsites, and less litter, though it is difficult to believe they are really exposed to less of these things than private boaters. More likely, due to less experience and the dependence on guides to tell them what to do and how to evaluate what they see, they simply do not focus on the same things as private floaters.

It is easy to conclude that these commercial users, probably due to less experience and a much more casual relationship with wilderness and this river, have very different experiences when they encounter the same attributes as non-commercial visitors. But since their experiences are different, their attitudes toward management options are also different. Commercial users are much more likely to say number of people seen each day is not a problem. They say that camping within sight or sound of another party was not a problem, report less of a problem arising from human-caused vegetative loss and bare ground at camps, the number of modern structures seen, the amount of litter seen daily and the number of low-flying aircraft seen (Table 6). They are also much less supportive of reducing the allowable number of people per party or most other regulations aimed at protecting the wilderness character of this river.

Commercial user experiences as something we need to protect or as a specific influence on wilderness experiences (either of the outfitted or the guided or the effect of these outfitted or guided on noncommercial visitors) has not been explored nearly enough. Determining methods of judging “the extent

necessary” is a high priority in wilderness management at the current time. Cable and Watson (1998) determined there were many proposed models for commercial use allocation decision-making, but very few are articulated well and many are not tested at all.

While commercial users and guided visitors to wilderness have not been studied extensively, there is a considerable literature on the role of guides in commercial ecotourism. Ecotourism is a subset of nature-based tourism with focus on raising awareness of the environment and its natural and cultural values. Guided ecotourism is often successful at gaining understanding about the environment for visitors and motivating visitors towards environmentally responsible behaviors (Haig and McIntyre 2002). While there are examples of studies that show a benefit of having guides to protecting the resource (Boren and others 2009), there is a large gap in the literature about the role of tour operators in protected area management, in terms of accomplishment of visitor management and resource protection objectives (Armstrong and Weiler 2010). In recent analyses of the role of tour guides, however, it is believed the potential contributions of their work can be described in four ways: instrumental (reaching their destination with safety and providing access), social (responding to tourist preferences to increase trip satisfaction), interactionary (promoting interaction between tourists and the environment) and communicative (instructing on what to see and how to behave) (Reisinger and Steiner 2008). Different types of guides tend to focus on different roles, but the aim generally is to produce mindful

**Table 6**—Take-out survey results indicating problems for private and commercial floaters on the Salmon River, Frank Church – River of No Return Wilderness (Hunger et al. 1999).

Potential Problem	Private floater no problem (%)	Commercial client no problem (%)
Number of people seen each day*	46.0	65.3
Amount of time within sight of other float parties	41.9	54.2
Number of times delayed at rapids by other float parties	78.4	79.2
Number of float parties that pass campsite	61.6	75.8
Camping within sight or sound of another party*	75.6	89.0
The amount of human-caused vegetative loss and bare ground at camps*	39.5	59.7
The amount of trees around a campsite damaged by people	54.8	68.6
The number of modern structures seen*	44.4	58.5
The amount of litter seen daily*	46.8	75.8
The number of low-flying aircraft seen*	46.8	56.7
Encountering human waste	68.5	80.7

\*Distributions are different for the two groups

visitors (Reisinger and Steiner 2008), with higher satisfaction achieved on nature-based trips and greater support for protected area objectives.

For some time, the Forest Service has had a priority of better management of commercial uses in wilderness, but research topics have been difficult to define and resources hard to assemble. Recent interactions with wilderness-oriented membership associations have suggested that our managers must come up with better ways to evaluate “extent necessary” and consciously weigh benefits of wilderness special provision management alternatives for decision making.

Very closely related, recent research at Denali National Park and Preserve on commercial use has investigated the experiences of two kinds of primarily commercial users. Both have complex relationships with access provisions. At Denali, Hallo and Manning (2010) have described the near-wilderness experience of visitors who pay to ride a Park bus, a commercial bus, or drive their own recreation motorhomes along the 90 mile stretch of Denali Park Road (Figure 3). While nearly 2 million acres of Denali National Park are designated as wilderness, this 300-foot-wide corridor is excluded from this designation. The vast majority of visitors who venture beyond



**Figure 3**—The vast majority of visitors to Denali National Park and Preserve who see the wilderness see it from the park road, most on a commercial bus. US Forest Service photo.

the visitor center to actually see the wilderness of the park, see it from this road. Even most visitors who backpack, first travel to their trailhead via the park bus system. Well over half of the road users affirmed a feeling of being in the wilderness while traveling or stopping along this road. They described the road as surrounded by a vast, natural landscape. There was not much traffic or use along the road, few buildings and lots of wildlife while on the road. The wilderness dependency of experiences here are obvious, even though Hallo and Manning (2010) differentiated it from a normal wilderness recreation visitor experience as “on the edge, peering in.”

Similarly, Watson and others (2008) studied commercial customers of air taxi operators at Denali. These flights were over very remote parts of the park, including wilderness, and landed at backcountry locations, managed under ANILCA for their wilderness recreation values. They found that gaining perspective of one’s size and scale relative to their environment, seeing climbers, and landing on a glacier were among some of the potential factors important to flightseers’ experiences. Again, while these experiences were not the typical, self-sufficient, self-reliant visits of many wilderness visitors, they were very dependent upon the wilderness resource. In this case, Watson and others (2008) described this wilderness dependent experience as “on the outside looking in” or “wilderness at arm’s length,” to differentiate it from other types of wilderness experiences, but emphasizing the wilderness dependency of the experience (Table 7). Fortunately, both of these studies were able to discover many of the things that influence these experiences, besides wilderness dependency. Hallo and Manning (2010) advocate for more research and better knowledge about the perceived but authentic wilderness experiences that many visitors receive in these near-wilderness provisions.

## Conclusions

Special provisions sometimes facilitate wilderness-dependent, wilderness recreation, or near-wilderness experiences, though not exactly the wilderness experiences most specifically prescribed in the Wilderness Act. However, many activities allowed through special provision terminology in legislation are in contrast to the activities described in the Wilderness Act

and do not conform to the purposes of this Act. Some non-conforming wilderness dependent activities and experiences are occurring outside the boundaries of officially protected wilderness. Most wilderness special provisions have negative impact on conforming wilderness recreation visitor experiences, sometimes the largest impact of things they encounter on wilderness trips. Recent research illustrates that the cumulative number of wilderness laws with special provisions or management directions is relatively high and management direction and special provisions tend to repeat themselves in subsequent legislation. It is unlikely that radically different exceptions, or special provisions, are going to be supported for legislative approval, however.

There was some increase in interest in exploring special provisions and conflict implications for wilderness experiences in the 1990s, but that has come to fruition in only isolated studies without a clear strategy or support for coordinated addressing of major questions identified. Probably the most visible application has been to initiate new research as part of a large initiative in Alaska. Coordinated international projects were also initiated to try to understand experience dimensions and influences on experiences on lands that were created to protect wilderness experiences or provide opportunities for wilderness recreation activities. In both Alaska and in other countries, either special provisions allow non-conforming uses, or commercial services somehow mediate the wilderness experience to such an extent that it does not meet the true purpose of wilderness visitation as “enjoyment of wilderness as wilderness” as described in the U.S. Wilderness Act.

There are a high number of experiences, however, that have been defined as wilderness dependent, or near wilderness, or wilderness recreation experiences that warrant protection and could even be among the most unique aspects of visits to some places. The impacts of these wilderness dependent experiences that are mediated by commercial services, or other special provisions, on other users, however, continue to challenge managers. A vocal wilderness constituency often expresses concern that management of these special provisions, particularly commercial outfitting and guiding, is not evaluated on the basis of their impact to the resource or other visitor experiences and these voices from the wilderness are being heard in louder calls for action.

**Table 7**—Terminology used to describe wilderness-dependent experiences for access/commercial special provision users in Denali National Park & Preserve.

Qualitative research interpretation	Source
On the outside looking in	Watson and others (2008)
Wilderness at arm’s length	Watson and others (2008)
Near-wilderness	Hallo and Manning (2010)
On the edge peering in	Hallo and Manning (2010)
Wilderness dependent	Watson and others (2008)
Unconventional type of wilderness experience	Hallo and Manning (2010)

There is need for advanced research to determine in great detail how guided services are influencing the experiences of customers who choose to visit wilderness on these trips. By further contrasting the experiences of commercial and non-commercial visitors we can better understand the extent these services are necessary. This decision could focus on the instrumental purposes of commercial activity (how many people could not get to their destinations or could not get there safely, without guided assistance). It could focus on the extent the social component of commercial activities is necessary (determine the role of guides in creating more enjoyable or satisfactory trips). It could focus on the extent commercial services create more close relationships between the visitors and the environment, or it could evaluate all aspects of communication including the values of developing an itinerary, giving out correct information, and helping the visitor understand what they have seen. In addition, we must have a better understanding of the relative influence commercial use has on the experiences of conforming users. Just because special provisions in legislation may prescribe continued use of a certain nonconforming type, as a negotiated exception to achieve wilderness designation, it does not mean that these uses cannot be managed in ways to reduce their negative impact on other users or even increase wilderness benefits of their own visits. The overall public purpose of these places is still related to those benefits associated with wilderness and focus must stay on achieving these purposes.

At the 9<sup>th</sup> World Wilderness Congress in Mexico (Martin 2010), there was a continued, growing trend towards discussion and support for extending wilderness protection to marine ecosystems. While some limited marine areas are protected in combination with adjacent terrestrial zones, true wilderness protection is only now coming to the top of the discussion list. A concept paper has been developed cooperatively between the U.S., Canada and Mexico that offers justification for such designation and protection, defines the benefits and threats to be addressed, and begins to address specific aspects of uses, attributes, restoration and complimentary issues of high importance for decisions. While past analysis of special provisions suggest that extension of special provisions beyond their current types is likely limited, this example of protection of wilderness in this very fluid environment may challenge that expectation. Whether some uses on the surface might be excepted from exclusion through special provisions, whether some uses in the water column or the undersea surface might be allowed due to limitations on access, past use or commercial influences remains to be seen. But a coherent science approach to contribute to the discussion of what is to be protected, from what and why is absolutely essential at the earliest possible stage of designation discussions and policy formation.

## References

- Adelman, B. J.; Heberlein, T. A.; Bonnicksen, T. M. 1982. Social psychological explanations for the persistence of a conflict between paddling canoeists and motorcraft users in the Boundary Waters Canoe Area. *Leisure Sciences*. 5: 45-61.
- Armstrong, E. Kate; Weiler, Betty. 2010. Getting the message across: An analysis of messages delivered by tour operators in protected areas. *Journal of Ecotourism*. 1:2-3, 104-121.
- Boren, Laura J.; Gemmell, Neil; Barton, Kerry. 2009. The role and presence of a guide: Preliminary findings from swim with seal programs and land-based seal viewing in New Zealand. *Tourism in Marine Environments*. 5: 187-199.
- Browning, J. A.; Hendee, J. C.; Roggenbuck, J. W. 1988. 103 wilderness laws: milestones and management direction in wilderness legislation, 1964-1987. Bulletin 51. Moscow: University of Idaho, Idaho Forest, Wildlife and Range Experiment Station.
- Brunson, M. W.; Steel, B. S. 1994. National public attitudes toward federal rangeland management. *Rangelands*. 16(2):77-81.
- Cable, Suzanne; Watson, Alan E. 1998. Recreation use allocation: Alternative approaches for the Bob Marshall Wilderness Complex. Research Note RMRS-RN-1. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Christensen, N.; Watson, A.; Burchfield, J. 2007. Relationships to place in wildland resources management: Developing an effective research approach. In: Watson, Alan; Sproull, Janet; Dean, Liese, comps. 2007. Science and stewardship to protect and sustain wilderness values: eighth World Wilderness Congress symposium. September 30–October 6, 2005; Anchorage, AK. Proceedings RMRS-P-49. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: 470-478.
- Cole, David N. 1994. The wilderness threats matrix: a framework for assessing impacts. Research Paper INT475. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station.
- Cole, David N.; Watson, Alan E.; Roggenbuck, Joseph W. 1995. Trends in wilderness visitors and visits: Boundary Waters Canoe Area, Shining Rock, and Desolation Wildernesses. Research Paper INT-RP-483. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.
- Cole, David N.; Williams, Daniel R. In press. This proceedings. Wilderness visitor experiences: A review of 50 years of research. In: Cole, David N., comp. Wilderness visitor experiences: Progress in research and management; 2011 April 4-7; Missoula, MT. Proc. RMRS-P-66. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Collins, M.; Collins, J. 2005. Customary and traditional: A continuing way of life at Denali. *International Journal of Wilderness*. 11(2):15-18.
- Craig, David R.; Landres, Peter; Yung, Laurie. 2010. Improving wilderness stewardship through searchable databases of U.S. legislative history and legislated special provisions. *International Journal of Wilderness*. 16(2):27-31.
- Dawson, C. P.; Propst, B.; Hendee, J. C. 2010. Special provisions of Wilderness legislation in the United States, 1964 to 2009. *International Journal of Wilderness*. 16(2):32-34.
- Dawson, C. P.; Hendee, J. C. 2009. Wilderness management: Stewardship and protection of resources and values, 4<sup>th</sup> ed. Golden, CO: Fulcrum Publishing.
- Dvorak, R. G.; Watson, A. E.; Christensen, N.; Borrie, W. T.; Schwaller, A. In press. The Boundary Waters Canoe Area Wilderness: Changes in use, users and management challenges. Research Paper RMRP-RP-in press. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Fidell, S.; Silvati, L.; Howe, R.; Persons, K.S.; Tabachnick, B.; Knopf, R. C.; Gramann, J.; Buchanan, T. 1996. Effects of aircraft overflights on wilderness recreationists. *Journal of Acoustic Society of America*. 100: 2909-2918.
- Glaspell, Brian S. 2002. Minding the meaning of wilderness: Investigating the tensions and complexities inherent in wilderness visitors' experience narratives. Dissertation. Missoula, MT: The University of Montana, Department of Forestry.
- Glaspell, Brian; Watson, Alan; Kneeshaw, Katie; Pendergrast, Don. 2003. Selecting indicators and understanding their role in wilderness experience stewardship at Gates of the Arctic National Park and Preserve. *George Wright Forum*. 20(3): 59-71.
- Haig, Ian; McIntyre, Norman. 2002. Viewing nature: The role of the guide and the advantages of participating in commercial ecotourism. *The Journal of Tourism Studies*. 13: 39-48.
- Hallo, J. C.; Manning, R. E. 2010. On the edge, peering in: Defining and managing the near-wilderness experience on the Denali Park Road. *The International Journal of Wilderness* 16(3): 28-34.
- Hendee, J. C.; Stankey, G. H.; Lucas, R. C. 1978. Wilderness management. Miscellaneous Publication No. 1365. Washington, DC: U.S. Department of Agriculture, Forest Service.

- Hunger, Donald H.; Christensen, Neal A.; Becker, Kurt G. 1999. Commercial and private boat use on the Salmon River in the Frank Church-River of No Return Wilderness, United States. *International Journal of Wilderness*. 5(2): 31-36.
- Ivy, M. I.; Stewart, W. P.; Lue, C. 1992. Exploring the role of tolerance in recreational conflict. *Journal of Leisure Research*. 24: 348-360.
- Johnson, Laura C.; Wallace, George N.; Mitchell, John E. 1997. Visitor perceptions of livestock grazing in five U.S. wilderness areas—a preliminary assessment. *International Journal of Wilderness*. 3(2): 14-20.
- Knotek, K.; Watson, A.; Christensen, N. 2007. Diverse recreation experiences at Denali National Park and Preserve. *Alaska Park Science: Crossing Boundaries in a Changing Environment*. 6(2): 93-95.
- Landres, Peter; Cole, David; Watson, Alan. 1994. A monitoring strategy for the National Wilderness Preservation System. In: Hendee, John C.; Martin, Vance G., eds. *International wilderness allocation, management, and research*. Fort Collins, CO: International Wilderness Leadership (WILD) Foundation: 192-197.
- Lucas, R. C. (1964). The recreation capacity of the Quetico-Superior area. Research Paper LS-15. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Lake States Experiment Station.
- Lucas, R. C. 1967. The changing recreational use of the Boundary Waters Canoe Area. Research Note NC-42. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station.
- Magro, T.C.; Watson, A.; Bernasconi, P. 2007. Identifying threats, values, and attributes in Brazilian wilderness areas. In: Watson, Alan; Sproull, Janet; Dean, Liese, comps. 2007. *Science and stewardship to protect and sustain wilderness values: eighth World Wilderness Congress symposium*. September 30–October 6, 2005; Anchorage, AK. Proceedings RMRS-P-49. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: 319-322.
- Martin, V. G. 2010. The 9<sup>th</sup> World Wilderness Congress, Mexico, 2009. *International Journal of Wilderness*. 16(1): 37-42.
- Meyer, Shannon S. 1999. The role of legislative history in agency decision making: A case study of wilderness airstrip management in the United States. *International Journal of Wilderness*. 5(2): 9-12.
- Patterson, Michael E.; Watson, Alan E.; Williams, Daniel R.; Roggenbuck, Joseph R. 1998. An hermeneutic approach to studying the nature of wilderness experiences. *Journal of Leisure Research*. 30: 423-452.
- Reed, P. C.; Haas, G.; Sherrick, L. 1988. Nonrecreational uses of the National Wilderness Preservation System. In: *Wilderness benchmark: Proceedings of the National Wilderness Colloquium*. General Technical Report SE-51: Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station 220-228.
- Reisinger, Yvette; Steiner, Carol. 2008. Reconceptualising interpretation: The role of tour guides in authentic tourism. *Current Issues in Tourism*. 9: 481-498.
- Sanderson, R. H.; Megank, R. A.; Gibbs, K. C. 1986. Range management and scenic beauty as perceived by dispersed recreationist. *Journal of Range Management*. 39:100-103.
- Shafer, C. S.; Hammit, W. E. 1995. Congruency among experience dimensions, condition indicators, and coping behaviors in wilderness. *Leisure Sciences*. 17: 263-79.
- Shroyer, Maretha; Watson, Alan; Muir, Andrew. 2003. Wilderness research in South Africa: Defining priorities at the intersection of qualities, threats, values and stakeholders. *International Journal of Wilderness*. 9(1): 41-45.
- Tarrant, M. A.; Haas, G. E.; Manfredo, M. J. 1995. Factors affecting visitor evaluations of aircraft overflights of wilderness. *Society and Natural Resources*. 8:351-360.
- USDA Forest Service. 1998. Frank Church – River of No Return Wilderness programmatic and operational management plans, Vol. I and II, Draft Environmental Impact Statement (DEIS). Bitterroot, Boise, Nez Perce, Payette, and Salmon-Challis National Forests. Intermountain and Northern Regions.
- Watson, Alan E. 1995. Opportunities for solitude in the Boundary Waters Canoe Area Wilderness. *Northern Journal of Applied Forestry*. 12: 12-18.
- Watson, Alan E.; Niccolucci, Michael J.; Williams, Daniel R. 1993. Hikers and recreational stock users: predicting and managing recreation conflicts in three wildernesses. Research Paper INT-468. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station.
- Watson, Alan E.; Williams, Daniel R. 1995. Priorities for human experience research in wilderness. *TREND/Wilderness Research*. 32(1): 14-18.
- Watson, Alan E.; Patterson, Michael; Christensen, Neal; Puttkammer, Annette; Meyer, Shannon. 2004a. Legislative intent, science, and special provisions in wilderness: A process for navigating statutory compromises. *International Journal of Wilderness*. 10(1): 22-26.
- Watson, Alan E.; Kneeshaw, Katie; Glaspell, Brian. 2004b. A taste of the north: voices from the wilderness about the wilderness character of Alaska. *International Journal of Wilderness*. 10(2): 4-7.
- Watson, A.; Glaspell, B.; Christensen, N.; Lachapelle, P.; Sahanatien, V.; Gertsch, F. 2007. Giving voice to wildlands visitors: Selecting indicators to protect and sustain experiences in the eastern Arctic of Nunavut. *Environmental Management*. 40:880-888.
- Watson, Alan; Knotek, Katie; Christensen, Neal. 2008. On the outside looking in: Fly-in recreation day use visitor experiences in the South District of Denali National Park and Preserve. *International Journal of Wilderness*. 14(2):19-23.
- Whiting, Alex. 2004. The relationship between Qikiktagrugmiut (Kotzebue Tribal members) and the Western Arctic Parklands, Alaska, United States. *International Journal of Wilderness*. 10(2): 28-31, 8.