

# Wilderness and Persons with Disabilities

## *Transferring the Benefits to Everyday Life*

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and DAVID KLENOSKY

**Abstract:** Persons with disabilities are using the National Wilderness Preservation System, and they are receiving a range of benefits from such wilderness use. The means-end theoretical and analysis perspective was used to explore the outcomes and related meanings associated with participating in a wilderness experience program for people with disabilities as well as those without disabilities. Data were collected through a questionnaire completed by 193 trip participants (74 with disabilities and 119 without disabilities) immediately after their wilderness experience, and a telephone interview with 29 of those same participants conducted six months later. The wilderness visitors with disabilities are able to transfer the outcomes gained on the wilderness trip into parts of their lives when they return home—parts of their lives such as family, work, and their general perspective on life. The results show that participation in these inclusive wilderness trips results in a higher appreciation of nature and the wilderness for persons with disabilities. In fact, the wilderness environment is an integral component that generates these benefits.



Article co-authors from left: Leo McAvoy, Tom Holman, Marni Goldenberg, and David Klenosky.

### Background

The personal benefits that people in general gain from wilderness and wilderness activities have been documented in a number of studies. Extensive reviews of this literature are available in papers published by Easley, Passineau, and Driver (1990); Ewert and McAvoy (2000); Hattie, Marsh, Neill, and

Richards (1997); and Roggenbuck and Driver (2000). Having a disability does not preclude persons from visiting wilderness, and persons with disabilities are using wilderness and other primitive environments (Lais, McAvoy, and Frederickson 1992; McCormick 2001). The goal of the study reported here was to develop a better understanding of the

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Figure 1a and b—Recreationist transferring from wheelchair into a canoe in the Boundary Waters Canoe Area Wilderness. Photo by L. McAvoy-Wilderness Inquiry.



Figure 2—Lake and mountain view in Yellowstone National Park. Photo by K. Beckman-Wilderness Inquiry.

outcomes that persons with disabilities associate with participation in a wilderness experience (see figure 1).

### **Research on Persons with Disabilities and Wilderness**

Persons with disabilities are participating in outdoor recreation activities typically associated with wilderness. A large national survey, the National Survey on Recreation and the Environment (NSRE), included 1,252 persons with disabilities (Cordell 1999). Those with disabilities indicated they participate in a wide range of outdoor recreation activities, including: walking, family activities, sightseeing, picnicking, fishing, bird-watching, camping, hiking, boating, and hunting (see figure 2). McCormick (2001) further analyzed the Cordell study data for those with

disabilities, and found that their levels of participation in outdoor recreation activities were equal to and in some instances greater than participation rates for those without disabilities. As an example, persons with disabilities who were under age 65 participated in primitive camping at a higher rate than did those without disabilities. Studies by Anderson, Schleien, McAvoy, Lais, and Seligmann (1997); McAvoy, Schatz, Stutz, Schleien, and Lais (1989); and Robb and Ewert (1987) all have indicated that persons with disabilities participate in even the most challenging outdoor activities, including wilderness activities.

Person with disabilities go to wilderness for a variety of reasons. Lais et al. (1992) questioned a sample of 80 persons with disabilities from across the country who had visited units of the National Wilderness Preservation System about their motivations for going to wilderness. Their responses were very similar to responses obtained from persons without disabilities in a number of larger studies (Roggenbuck and Driver 2000). Those motivations were (1) to experience scenery/natural beauty, (2) to experience nature on its own terms, and (3) to experience a personal challenge (see figure 3).

The value of wilderness participation for persons with disabilities is best

expressed by those for whom wilderness is a very important part of their lives. Janet Zeller (1992), a person with quadriplegia who uses a wheelchair, commented on her experience on a wilderness canoe trip in Maine:

I was back to feeling the quiet of the lake, listening to the loons at night as the sun goes down, the sounds of the night, living with the land—it was something that I had sadly missed. It was that place in my soul that needed to be refilled. And it was. At the end of that week I could say that I felt less disabled than I usually do. And it certainly was not because there were fewer barriers. It was the wilderness, that peace you can't get anywhere else. (p. 45)

In general, most persons with disabilities do not want the wilderness environment altered in order to make it more accessible. In the Lais et al. study (1992), 76% of those with disabilities did not believe the restrictions on mechanized use diminished their ability to use the wilderness. The larger McCormick (2001) study found that those with disabilities favored preservation of the wilderness environment over accessibility, even though some in the study favored increased access for those with disabilities.



**Figure 3—Kayak trip on Lake Powell. Photo by B. Moritz-Wilderness Inquiry.**

Anderson et al. (1997), studying persons with disabilities who go to wilderness areas, found that the wilderness environment itself was a major contributing factor to persons with disabilities realizing some of the major benefits of wilderness. Study participants indicated that the wilderness environment intensified their individual efforts, producing a dramatic positive impact on group development. Research by Brown, Kaplan, and Quaderer (1999)

studied the preferences for natural settings for person with and without disabilities. They found that persons with disabilities had the same preference for undeveloped natural settings as did those without disabilities. Persons with disabilities valued the undeveloped, wild elements of wilderness, as did persons without disabilities (see figure 4). Indeed, research by Cordell, Tarrant, and Green (2003) indicated that a large majority of



**Figure 4—Teaming up on the trail. Photo by G. Lais-Wilderness Inquiry.**

Americans value the wild aspects of wilderness, and favor protecting the lands within the wilderness system from development and exploitation.

Mike Passo, wilderness user and advocate, injured his spinal cord and now uses a wheelchair. He expressed his view of the need to keep wilderness wild:

Wilderness is the great equalizer, it takes everyone down a notch because everyone is leaving their comfort zone. That leaves everyone on a wilderness trip at about the same level. It lets everyone see people for what they really are rather than how they get around. (personal communication, October 23, 2002)

Persons with disabilities also realize a full range of benefits from wilderness and from participating in wilderness activities. A number of studies have documented that persons with disabilities who participate in wilderness trips experience positive changes as a result of their wilderness experience, changes such as increased self confidence, increased likelihood of pursuing new challenges, and increased appreciation of diversity. Studies by Anderson et al. (1997), McAvoy et al. (1989), Scholl, McAvoy, Rynders, and Smith (2003), and Stringer and McAvoy (1992) show these benefits to include: increased self-efficacy, increased leisure skills, increased social adjustment, enhanced relationships, increased self-understanding and awareness of capabilities, increased self-directed activity, increased family satisfaction, increased appreciation for nature and the wilderness, and spiritual benefits.

### ***Theoretical Framework***

The theoretical frame for this study was provided by means-end theory, which was developed by marketing/advertising researchers (Gutman 1982;



**Figure 5—Kayak camp in Queen Charlotte Islands, British Columbia. Photo by L. McAvoy-Wilderness Inquiry.**

Reynolds and Gutman 1988) to better understand consumer decision-making behavior. Means-end theory has been applied to examine decision making in a variety of traditional product and service settings. Recently the approach has been used to examine the outcomes associated with outdoor recreation activities, including participating in a ropes/adventure course program (Goldenberg, Klenosky, O’Leary, and Templin 2000) and an Outward Bound program (Goldenberg, McAvoy, and Klenosky 2005).

Means-end theory posits that people think about the products and services they purchase, consume, and experience in terms of three key types of product meanings: (1) attributes, (2) consequences, and (3) personal values (Gutman 1982; Reynolds and Gutman 1988). Attributes refer to the characteristics or features of the product or service in question. In the context of a wilderness trip, relevant attributes would include a wilderness setting, the type of activities experienced while on the trip, and the other people on a group wilderness trip. Consequences refer to outcomes or benefits that are desired from the product or service experience, as well as undesirable outcomes or costs/risks to be avoided. Examples of consequences for a wilderness trip would include the ben-

efits of experiencing nature, developing skills and abilities, and reflecting on one’s life or situation, as well as potential costs/risks such as wasting time and money, feeling embarrassed, or risking physical injury. Personal values refer to enduring beliefs about desired or undesired modes of conduct or end states of being, in short, what a person wants in life or in living their life (Klenosky, Gengler, and Mulvey 1993). Values relevant to a wilderness experience might include a sense of accomplishment, self-awareness, and warm relationships with others.

Means-end theory links these three different meanings together in a single conceptual framework, known as a means-end chain (Gutman 1982). The attributes of a product/service are viewed as the “means” by which consumers/resource users obtain desired consequences/benefits (as well as avoid undesired consequences/costs), and achieve or reinforce important personal values or “ends” (Gutman 1982). An example of a means-end chain for a wilderness trip might link the attribute “wilderness environment” to the consequence of “appreciate nature,” and this is linked to the value of feeling a “personal or spiritual connection to nature.”

### **Transference**

Outcomes and benefits of wilderness have been studied, but there has been

little research documenting how wilderness visitors have been able to transfer into their daily lives benefits gained through wilderness experiences (Ewert and McAvoy 2000). This is especially true regarding persons with disabilities. Transference is the application of principles and attitudes learned from an experience into future experiences. Wilderness programs have the potential to create transference opportunities regarding principles and attitudes (Gass 1999).

The purpose of this study was to develop a better understanding of the outcomes that persons with disabilities associate with participation in a wilderness experience program (see figure 5). In addition, the study sought to better understand if and how participants who have a disability are able to transfer outcomes gained on a wilderness trip back into their everyday life after a program experience. The study focused on an integrated wilderness experience program where persons with and without disabilities participated in wilderness trips together. The wilderness outcomes of those without disabilities were included in the study to see if there were noticeable differences from the outcomes of persons with disabilities (see figure 6).

## **Methods**

This study focused on persons who had participated in trips to wilderness areas or wildernesslike areas in Minnesota, Wisconsin, Montana, Maine, Florida, Alaska, British Columbia, and Ontario. The trips were taken with Wilderness Inquiry, Inc. (WI), a not-for-profit wilderness outfitter that provides wilderness trip experiences for persons with and without disabilities. Since water travel is more accessible for those with mobility impairments, most WI trips are water related (i.e., involve the use of canoes, kayaks).

WI’s integrated trips combine participants with disabilities together with those without disabilities.

WI trips of at least four days in length during the summer season of 2002 were selected for this study. All participants (272) on these trips over the age of 18 were asked to participate in the study. Post-trip questionnaires were distributed to study participants on-site directly following the completion of their wilderness trip.

In the open-ended questionnaire, respondents were instructed to think about the three most important outcomes resulting from their wilderness trip experience (“think about the things you learned and the outcomes you received from participating in this trip”), and to write these outcomes in spaces provided on the questionnaire. Then they were asked to indicate in an adjacent space, for each outcome listed, why that outcome was important to them. They were then instructed to explain in another adjacent space on the questionnaire why that response was important (“and this is important to you because...”). Finally, they were asked to list the attribute or part of the trip that led them to each identified outcome. The process of having participants link a particular trip component (attribute) to one or more outcomes (consequences), and these outcomes to one or more personal values, formed a means-end chain or “ladder” of related meanings.

The concepts generated on the post-trip questionnaires indicating participants’ attributes, consequences, and values, and how they are linked together, were entered into a computer data analysis program called Ladder Map (Gengler and Reynolds 1995). This analysis procedure groups concepts from the data into categories within each of the three means-end components (attributes, consequences, and values). The researchers then created codes corresponding to the concepts grouped in each category. The



**Figure 6—The serenity of islands and the sea. Photo by L. McAvoy-Wilderness Inquiry.**

data were then analyzed again by the Ladder Map program to further sort all concepts into the coded areas. An independent coder analyzed a portion of the data to verify the accuracy and appropriateness of the codes created. The Ladder Map program summarizes the number of times each concept was associated with the other concepts included in respondents’ ladders. These links were then used as the basis for constructing a Hierarchical Value Map (HVM; for an example, see figure 7), which graphically summarizes the important concepts and associations reported by the respondents.

An HVM depicts the attributes, consequences/outcomes, and values. Each concept in the HVM is represented as a circle. Attributes are represented using white circles (and all lowercase letters), consequences/outcomes using gray circles (and a mix of lower- and uppercase letters), and values using black circles (and all uppercase letters). The larger the circle the more frequently that concept was mentioned in participants’ ladders, and the thicker the lines connecting concepts, the more frequently those concepts were linked together in the

ladders. The HVM allows the researcher to see which concepts (i.e., attributes, outcomes, and values) were mentioned most frequently; and also see the chain of meanings that help explain how and why those concepts were important to the study respondents.

The questionnaire also asked participants if they were willing to be contacted by phone to further discuss their trip experience. Of the 111 participants who indicated they were willing to be interviewed, 30 subjects were selected in a stratified random sample to be contacted by phone for an interview six months after their wilderness trip. The phone interview consisted of questions related to the possible transference of outcomes into a person’s life after the trip experience. Twenty-nine interviews were completed (14 with persons with disabilities and 15 with persons without disabilities), audiotaped, and then transcribed. The interview data were analyzed through qualitative techniques (Glaser and Strauss 1967), including reading all responses, establishing themes, coding narrative data to develop patterns, summarizing theme areas, and using respondent

statements to illustrate themes. Coding reliability was achieved by having a second coder analyze 25% of the interview data, and agreement was reached on coding themes and categories.

## Results and Discussion

A total of 193 questionnaires were returned (71% response rate). Of the 193 respondents, 74 had at least one of a number of different disabilities, including cerebral palsy, spinal cord injury,

multiple sclerosis, head injury, blindness, deafness, amputation, developmental disabilities, diabetes, and stroke. Respondents did not include anyone with a severe cognitive disability.

### *Consequences, Values, and Attributes*

Thirty-one content categories were generated from the questionnaire data: nine referred to attributes, 14 to consequences, and eight to values (see

table 1). Two Hierarchical Value Maps were generated from the content codes: one for people with disabilities (n=74), and one for people without disabilities (n=119). There were few differences between those with and those without disabilities, and these differences will be explained.

The HVM generated from the responses of those with disabilities appears in figure 7. The consequences mentioned most frequently by persons with disabilities included: Awareness (increased awareness of things in their lives and understanding of themselves), Relationships with Others (developing personal relationships with others), Personal Growth/Challenge (growing as a person and succeeding at a personal challenge), Nature Appreciation (increased awareness and appreciation for nature and wilderness), and New Opportunities (experiencing something new or different). The primary values associated with these outcomes included: Transference (a sense that the outcomes of the trip would transform or enhance aspects of daily life or life back home), Self-Awareness/Improvement/Fulfillment (feelings of being more aware, improved, or fulfilled in one's life), Value Personal/Spiritual (feeling or valuing a personal and spiritual connection to people and nature), Warm Relationships with Others (developing warm relationships with others on the trip), and Personal Goal (achieving one or more personal goals). The attributes or wilderness trip components that contributed most to the outcomes were Interactions (interactions with other participants during the trip), Trip Overall (the overall experience of taking the trip), and Wilderness Experience (being in a wilderness environment/setting).

There were several links worth noting among the attributes, outcomes, and values on the HVM for persons with

**Table 1. Number of Times Concepts Mentioned in Respondents' Ladders**

	Number of Respondents Mentioning Concept at Least Once	Percent of Respondents Mentioning Concept at Least Once
<b>ATTRIBUTES MENTIONED</b>		
Interactions	134	69.4
Trip overall	119	61.7
Wilderness experience	96	49.7
Canoeing	54	28.0
Program staff	38	19.7
New experiences	31	16.1
Kayaking	28	14.5
Camping	22	11.4
Hiking/horsepacking	6	3.1
<b>CONSEQUENCES MENTIONED</b>		
Relationships with others	190	98.4
Awareness	164	85.0
Personal Growth/challenges	135	69.9
Nature appreciation	117	60.6
New opportunities	78	40.4
New/improved skills	57	29.5
Rest/relaxation	41	21.2
Reflection	40	20.7
Physical fitness	31	16.1
Awareness of abilities	30	15.5
Family relationships strengthened	27	14.0
Knowledge	18	9.3
Achievement	16	8.3
Appreciation	16	8.3
<b>VALUES MENTIONED</b>		
Transference	175	90.7
Self-awareness/improvement/fulfillment	91	47.2
Personal goal	78	40.4
Value (personal/spiritual)	66	34.2
Warm relationships with others	64	33.2
Fun and enjoyment of life	31	16.1
A sense of accomplishment	25	13.0
Self-confidence	15	7.8
Note. n=193		

disabilities. The attributes Wilderness Experience and Canoeing linked to the outcomes Nature Appreciation and Awareness (suggesting that being in the wilderness and appreciating nature allowed participants to become more aware of and reflect on their lives), which linked to Personal Growth/Challenge, which then linked to thoughts about Transference (i.e., transferring the outcomes of the wilderness trip back home into their everyday lives). The attribute Interactions (interactions with others on the trip) linked to outcomes associated with better relationships with others and with family members (Relationships with Others and Family Relationships Strengthened), and to the value Warm Relationships with Others. The trip component of Wilderness linked to the outcome of Rest and Relaxation and then to the value of Transference, indicating that the rest and relaxation found on a wilderness trip can be transferred back home.

The HVM for the persons without disabilities (see figure 8) appears to be very similar to the HVM for those with disabilities, but there are some differences. Some persons with disabilities identified the outcome of Awareness of Abilities, and this did not appear on the HVM of persons without disabilities. This is not unexpected. Some persons with disabilities had little history of outdoor recreation or wilderness experience before their trip and may have thought that wilderness experiences were beyond their capabilities.

In the values category, persons with disabilities named the value of Warm Relations with Others and the value of Sense of Accomplishment, and these did not show up in the HVM for persons without disabilities. Persons with disabilities saw the wilderness trip as giving them incentive to move forward in developing warm relations with others

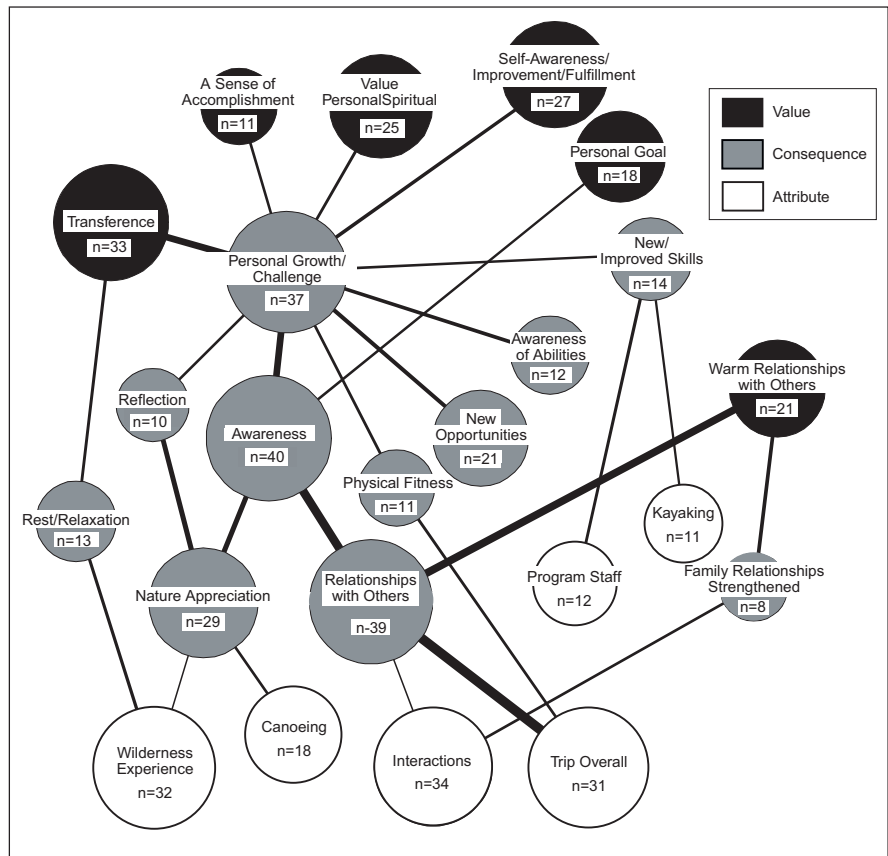


Figure 7. Hierarchical Value Map for Wilderness Inquiry participants with a disability (n=74)

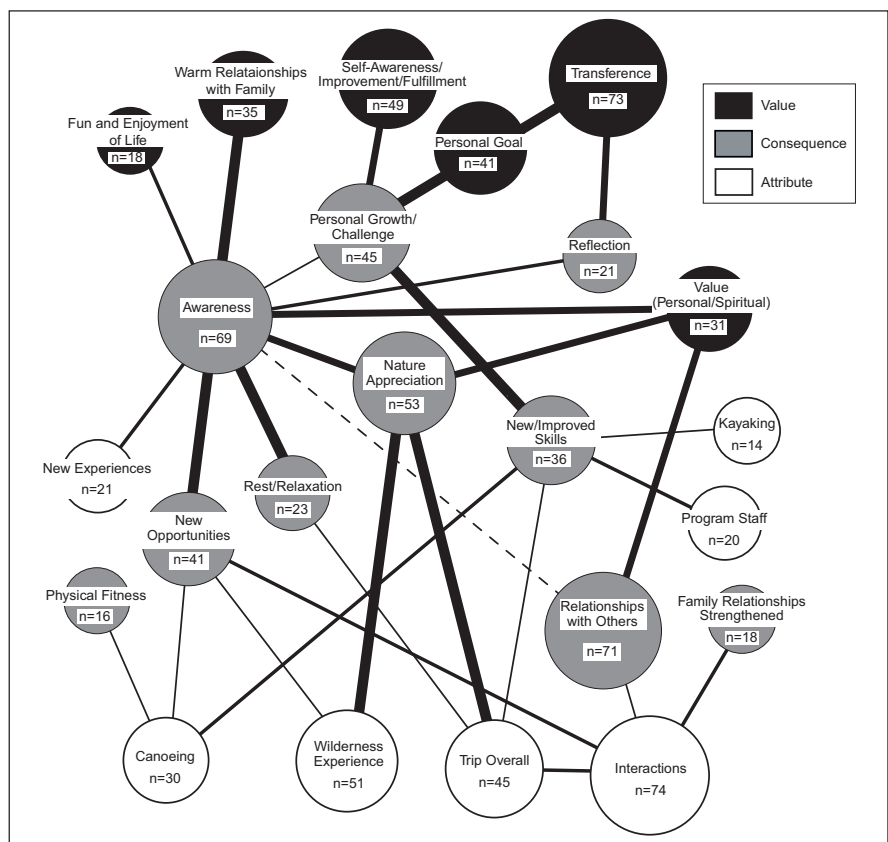


Figure 8. Hierarchical Value Map for Wilderness Inquiry Participants without a disability (n=119)

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## The research reported here indicates that persons with disabilities use and receive a range of benefits from wilderness, and the outcomes from that wilderness use have a lasting effect.

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during and after the trip. They also saw the wilderness trip as an experience that brought them feelings of personal growth and facing challenges successfully, which linked to their overall sense of accomplishment in life.

### ***Transference to Everyday Life***

When asked on the questionnaires at the end of their wilderness trips the values of the outcomes gained on those trips, persons with disabilities and those without disabilities named Transference most often as a value. The code Transference represented responses where participants indicated they believed they could integrate or incorporate the outcomes gained in the wilderness back into their everyday lives at home. In an effort to develop a better understanding of this value, and to see if transference actually occurred once participants were back in their everyday lives, we selected a group of participants to interview six months after the wilderness trip experience. Fourteen of those interviewed were persons with disabilities. Caution is needed in generalizing from 14 interviews, but the in-depth responses (each interview was over an hour in length) help us to better understand how people with disabilities can transfer outcomes from a wilderness experience back into their everyday lives.

All of the 14 persons with disabilities who were interviewed were able to transfer outcomes from the wilderness trip back into their everyday lives. Results of the interviews suggest that participants with disabilities were able

to transfer wilderness trip outcomes to their work, to outdoor skills, to their family lives, and to everyday stressful and challenging situations. Many participants also indicated overall higher levels of motivation and increased self-confidence in their regular life abilities as a result of their wilderness experience. The outcomes transferred to work included using communication skills, group interactions, teamwork, and trust at work. The transference to outdoor skills meant that participants acquired skills in lifetime outdoor recreation activities as a result of their wilderness trip experience. They learned how to camp, to canoe, to kayak, and they have continued those activities after the wilderness trip. These activities are now contributing to feelings of relaxation, peacefulness, connection to nature, and connections to other people.

Some study participants went on their wilderness trip with family members. They have been able to transfer outcomes including increased awareness of important aspects of their life and developing relationships with others into a deeper understanding of family members. They also have transferred better communication among family members and a confidence that the family can now go on outdoor trips as a group. The latter outcome is very important for families that include a person with a disability. Often these families are hesitant to go on an outdoor or wilderness-oriented outing because of the logistical concerns with access, safety, and comfort. One of

the results of the wilderness experience in this study was the increased confidence that such a family feels regarding their ability to now take an outdoor-oriented trip as a family.

The participants with disabilities in this study came away with higher levels of self-confidence and motivation, and these outcomes were still present six months after the experience. Interview participants often referred to having a new outlook on what they could accomplish after their wilderness trip. An often-heard comment in the interviews was that having successfully accomplished difficult tasks on their wilderness trip, participants are now better able to accomplish other difficult tasks in their everyday life. The wilderness experience provided them with a fresh perspective on the issues of their lives. They expressed having more motivation to do more activities in daily life, including more challenging daily tasks. During an interview, one participant who was blind spoke of the wilderness trip as follows:

It was probably one of the best things I've ever done in regards to building my confidence and really stepping out on a personal ledge for me. ... And I think it has given me a lot more confidence to take on some of those really out-on-the-edge things; and just kind of say I did this so it makes me think that I can probably do anything I put my mind to.

Having been immersed in a wilderness environment during their trip, participants came away with a new or renewed appreciation for wilderness environments and wildlife. Some of those interviewed expressed having discovered a new wilderness area and valuing that discovery. Others noted seeing wildlife that the participant had never seen before and having an



increased understanding of wildlife. These outcomes transferred into the participants having a deeper appreciation for the beauty and diversity of wilderness and a deeper commitment to preserve these wilderness areas and wildlife resources.

## Recommendations for Managers

The research reported here indicates that persons with disabilities use and receive a range of benefits from wilderness, and the outcomes from that wilderness use have a lasting effect. These wilderness visitors are able to transfer the outcomes gained on a wilderness trip into parts of their lives when they return home, parts of their lives such as family, work, and their general perspective on life. This study also indicates that for persons with disabilities, participation in wilderness trips results in a higher appreciation of nature and the wilderness.

Wilderness managers are charged with the difficult task of balancing the current use and enjoyment of wilderness with the need to preserve the quality of wilderness so it is unimpaired for future use and enjoyment. Previous research has indicated that people with disabilities want wilderness to be every bit as challenging and pristine as do those without disabilities. The research reported here indicates that persons with disabilities are receiving benefits from wilderness in its undeveloped, primitive state. The wilderness environment seems to be an excellent setting to receive those benefits.

Wilderness is not intended to be a developed recreation facility. The remoteness and physical challenge of access are part of what makes wilderness what it is. Managers are not expected to solve accessibility problems for person with disabilities. On the other hand, managers can provide in-

formation about the levels of access available in wilderness areas. They can provide prospective wilderness visitors with information about outfitters and programs that provide wilderness opportunities for persons with disabilities. Managers can also enter into cooperative agreements with such outfitters and programs to provide wilderness access for a broad range of people.

As the country's demographics and wilderness use patterns continue to change, wilderness management agencies will have to continually pay attention to various constituency groups to maintain the ideal of wilderness and the existence of wilderness. Persons with disabilities care about wilderness, and receive benefits from the existence of wilderness. There are currently 43 million Americans with a disability, and that number is increasing. Wilderness agencies are going to have to continue to understand and communicate with this important stakeholder group because wilderness is important to persons with disabilities. Barry Corbet (1992), a mountaineer, editor, and person with paraplegia appropriately expressed the importance of wilderness to persons with disabilities: "We especially, with all our motor and sensory constraints, need activities which focus on the limitless, not the limitations. We need beauty to counteract the grit in our lives. We need novelty and discovery. We need wilderness" (p. 30). **IJW**

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