



Research Report

A behavioral intervention tool for recreation managers

By Shawn Meghan Burn and Patricia L. Winter

Introduction



USDA Forest Service

Figure 1. Common depreciative environmental behaviors include littering and defacing natural objects with graffiti.

Depreciative behaviors and other undesirable recreationist actions continue to be a topic of great interest for recreation management (fig. 1, above). Maintaining park ecosystems involves responding to and preventing damage from depreciative recreationist behavior, and recreation managers are charged with developing and selecting effective tools to address the costly and perplexing impacts of undesirable recreationist behavior.

This article describes the *Environmental Intervention Handbook for Resource Managers* (EIH), a tool we designed to help managers modify depreciative recreationist behavior. The handbook is based on a model of pro-environmental behavior change derived from social science research. It provides “treatments” of depreciative behavior following a “diagnosis” of the barriers to the desired behavior. We use the term “pro-environmental behavior” to refer to those behaviors that promote environmental sustainability and do not contribute to environmental degradation. The handbook is self-guided and draws from the expertise of managers in their own settings. It provides guidelines,

checklists, and worksheets for barrier identification and intervention design.

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Barriers to pro-environmental behavior

The EIH begins with a description of five barriers to pro-environmental behavior along with barrier identification worksheets, summarized as follows:

1. Social norms barriers occur when recreationists perceive that depreciative behaviors are socially acceptable (Burn 1991; Schultz 1998; Winter and Koger 2004). Not knowing what to think or do, or seeking social approval, recreationists may behave as they see other recreationists do, or as they perceive past recreationists did (Cialdini et al. 1990). For example, the remains of a fire ring may suggest that building a fire is acceptable when it is not. Recreationist groups may have norms consistent with depreciative behavior. To identify social norms barriers, managers are encouraged through the worksheet to (1) describe any social norms that suggest the desired behavior is appropriate and consider whether these vary for different groups of users, and (2) describe any evidence in the setting of current or past misuse that may communicate to new users that the inappropriate behavior is commonplace and accepted, and (3) ask, “Even if social norms don’t clearly support depreciative behavior, do they fail to clearly support desired behavior? In other words, is it clear to people that admired recreationists or recreationists similar to themselves behave in the desired pro-environmental way?”
2. Competing attitudes barriers operate when the depreciative behavior is more convenient or lower in cost than the desired behavior, or because it better meets recreationists’ perceived needs (Cheung et al. 1999; Cottrell and Graefe 1997). For example, recreationists may ride horses, bikes, or all-terrain vehicles (ATVs) off-trail because off-trail riding provides a greater challenge or access to exceptional scenery. This barrier identification worksheet asks recreation managers to describe ways in which the undesired behavior is more convenient or rewarding than the desired one, and to identify other competing attitudes, values, or motives interfering with performance of the environmentally responsible behavior.
3. Setting design barriers occur when the physical features of the setting make the desired behavior difficult or pose little barrier to depreciative behavior (Guaguano et al. 1995). For example, improper waste disposal is likely when trash receptacles are few or full, and driving in undesignated areas may occur if there are no fences, gates, or strategically placed boulders to prevent it. This barrier identification worksheet asks recreation managers to specify how the setting’s features may encourage the undesirable behavior and how they make the desired behavior difficult or unlikely.
4. Ignorance and misinformation barriers occur when people are unaware of the negative environmental consequences of their actions, or do not know how to do the things managers want them to (Lindsay and Strathman 1997). For example, children may be allowed to dam a stream because parents are unaware of the impact on riparian habitats. Recreationists may know that fire safety is important but not how to accomplish it. Recreationists are also sometimes unaware of changes in recommended recreational practices. To identify ignorance and misinformation barriers, recreation managers are asked to specify the ways in which the inappropriate behavior may be due to ignorance or misinformation, including the types of users who may be in need of information and what type of information they are lacking.
5. Habit barriers operate when recreationists unthinkingly perform depreciative behaviors out of

habit or tradition. For example, some individuals may continue to use outdated camping techniques although rules or forest practices have changed. To evaluate this barrier, recreation managers are prompted to think about whether the undesired behavior may be engaged in by recreationists out of habit or tradition.

Interventions to promote pro-environmental behaviors

After identifying barriers, managers are ready to select corresponding research-tested interventions guided by worksheets with intervention options and real examples from recreation managers. We share highlights from the intervention worksheets here.

The social norms barrier intervention worksheets offer a variety of approaches, including creating or illuminating pro-environmental norms through modeling (Aronson and O’Leary 1983; Burn 1991). The worksheets suggest that managers enlist the help of respected and influential group members in cases where a group who regularly visits the site performs the undesired behavior, and that managers use role models in media education. For example, in one instance a horseback club adopted a trail and took care of it and its signs, and encouraged their peers to follow guidelines such as using the official posts—not trees—to tie their horses. At another site, visitors had to watch a videotaped behavior demonstration before they received access to a wilderness area. Because past recreationist behavior often leaves traces that inadvertently suggest that depreciative behavior is normative (Cialdini et al. 1990), the worksheets also recommend that managers clean up and rehabilitate degraded areas as quickly as possible. Likewise, in order to avoid inadvertently suggesting that depreciative behavior is the norm, they recommend that managers emphasize in interpretive situations and other communications that a minority of recreationists cause the most damage (Cialdini et al. 2006).

The competing attitudes intervention worksheets offer three options. One is to link the desired environmentally responsible behavior to attitudes and values important to the user group in question (Aitken et al. 1994; DeYoung 2000). For example, in one setting where recreationists fed wildlife, resource managers emphasized that not feeding the wildlife was more consistent with loving them. Commitment strategies are also recommended to make the desirable attitude dominate behavior (Burn 1991; Cobern et al. 1995). At one wilderness park, recreationists signed a pledge to adhere to recommended practices before a permit was issued. Obtaining commitments may be time-consuming and commitments made to peers may be more effective, so the worksheets recommend using “indigenous personnel” such as Scouts or club members (Burn 1991; Cobern et al. 1995). Another worksheet option is to address competing attitudes, values, or motives. For example, managers found that ATV users’ desire for challenge trumped environmental concerns. They solved the problem by designing challenging ATV trails.

The worksheet for setting barrier interventions presents two options: determining which setting features interfere with performance of the desired behavior and removing these barriers if possible, or determining which setting features could be added to create a barrier to the undesired behavior (Dwyer et al. 1993; Huffman et al. 1995). One example is a forest where overgrown lake vegetation made using official boat launches difficult; removal of this physical barrier solved the problem. Other examples are using mulch, rocks, or boardwalks to define trails clearly.

The worksheets for ignorance barriers focus on educational and informational efforts. Effective interventions actively involve participants, present credible information and knowledge effectiveness, and incorporate specific behavioral recommendations (Gardner and Stern 1996; Zelezny 1999). Worksheet examples include the resource managers who encouraged responsible ATV use through booklets, mailings, and brief radio messages. Users of the handbook are reminded that

pro-environmental communications should reflect the background attitudes and behaviors of the target audience, so that the message matches the audience, and should reflect social psychological research on factors found to increase effectiveness (Bator and Cialdini 2000; Burn and Oskamp 1986; Roggenbuck 1992). They are also reminded that education is most effective with low-cost, easy-to-perform behaviors and when other barriers to desired behaviors are addressed. The worksheets note that prompts (signage), commitment strategies, and environmental alterations may also increase the effectiveness of informational interventions.

When habit barriers are the issue, a variety of strategies may be needed. The worksheets recommend commitment strategies, verbal or written prompts, and changes in setting to remind recreationists and stimulate new pro-environmental habits. For example, resource managers at one location added signage and toured campsites to remind them of new rules and practices. The worksheets note that although incentives such as monetary rebates, raffle tickets, and discount coupons may temporarily increase pro-environmental behaviors, they are usually impractical because of the need for behavior monitoring and incentive costs (Geller 2002; Porter et al. 1995). Disincentives for depreciative behaviors (e.g., citations and fines) can work when resource managers make enforcement a priority and penalties are unpleasant enough to offset the rewards of the depreciative behavior.

Peer assessments of the handbook

After peer review of a draft in 1996, we pilot-tested the handbook at a watershed on national forest lands in Washington State at risk for closure because of human impacts. We distributed the finalized handbook to a number of people in different agencies and geographic areas.

In 2005 we conducted a follow-up evaluation to assess whether the handbook was working as the tool we intended it to be and what we might do to improve its usefulness to recreation managers. Respondents strongly agreed that depreciative behaviors were a concern in their jobs and had a negative impact on the environment, agency budgets, and resource manager time. The majority also indicated that strategies to deal with depreciative activities were useful, yet many perceived informational materials to help resource managers address depreciative behaviors as relatively unavailable and of poor quality. The handbook was evaluated favorably by respondents with regard to usefulness, practicality, straightforwardness, ease of understanding, and effectiveness. We used suggestions for improvement to revise the handbook, which is now available from the second author.

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Conclusion

Managers overseeing recreation settings and other areas open to public use should find the handbook helpful in organizing their own observations about resource damage, including how it is occurring and who is causing it. Furthermore, its guidance can lead to the development of interventions that capitalize on the manager's expertise in the setting, leading to solutions that reflect the latest findings in social psychological research and result in positive changes on the ground.

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