

Environmental Intervention Handbook for Resource Managers
A Tool for Proenvironmental Behavior Change, 2nd Edition



Pacific Southwest Research Station, USDA Forest Service
4955 Canyon Crest Drive, Riverside, CA 92507
PSW-96-0024



DESIGN
GAIA GRAPHICS & ASSOCIATES
WWW.GAIAGRAPHS.COM
(805) 544-9676

Environmental Intervention Handbook for Resource Managers

2ND EDITION 2007



A TOOL FOR PROENVIRONMENTAL BEHAVIOR CHANGE



WRITTEN BY

Shawn M. Burn, Ph.D.

IN COOPERATION WITH

Patricia L. Winter, Ph.D.

Introduction to the Handbook 4

- TABLE I **Five Common Barriers to Proenvironmental Behaviors 5**
- TABLE II **A Sampling of Handbook Interventions 7**

STEP 1 Specify the Problem Behavior(s) 8

- EXAMPLE 8
- WORKSHEET 1-1 **Specify the Problem Behavior(s) 9**

STEP 2 Identify Barriers 10

- WORKSHEET 2-1 **Identify Social Norm Barriers 11**
- WORKSHEET 2-2 **Identify Competing Attitudes Barriers 12**
- WORKSHEET 2-3 **Identify Setting Design Barriers 13**
- WORKSHEET 2-4 **Identify Ignorance Barriers 14**
- WORKSHEET 2-5 **Identify “Bad Habit” Barriers 15**
- EXAMPLE 15

STEP 3 Design Interventions 16

- Social Norm Interventions Key Features 17**
- EXAMPLES 17
- WORKSHEET 3-1 **Social Norm Interventions 18**
- Competing Attitudes Interventions Key Features 22**
- EXAMPLES 22
- WORKSHEET 3-2 **Competing Attitudes Interventions 22**
- Setting Design Interventions Key Features 23**
- EXAMPLES 23
- WORKSHEET 3-3 **Setting Design Interventions 24**
- EXAMPLES 25
- Ignorance Interventions Key Features 26**
- EXAMPLES 26
- WORKSHEET 3-4 **Ignorance Interventions 27**
- Bad Habit Interventions Key Features 28**
- EXAMPLES 28
- WORKSHEET 3-5 **Bad Habit Interventions 29**

STEP 4 Implement Interventions 31

- WORKSHEET 4-1 **Intervention Implementation for: [PROJECT] 32**

A P P E N D I X **A**

Prompts & Reminders 33

- CHECKLIST **Prompt Strategy 34**
- WORKSHEET **Prompts 35**
- EXAMPLE 35

A P P E N D I X **B**

Commitment Strategies 36

- EXAMPLES 37
- CHECKLIST **Commitment Strategy 38**
- WORKSHEET **Commitment Strategy 39**
- EXAMPLE 39

A P P E N D I X **C**

Informational & Persuasive Communications 40

- EXAMPLES 41
- CHECKLIST **Informational and Persuasive Strategy 42**
- EXAMPLE 43

A P P E N D I X **D**

Using Surveys, Focus Groups, and Interviews 44

Space for Notes 46



Introduction to the Handbook

Changing recreationists' undesired behaviors and creating desired ones requires an approach tailor-made to the setting and its users. Effective interventions address the specific barriers to the desired behavior that operate in your particular setting. This handbook provides you with a 4-STEP method and worksheets so that you can more easily modify undesirable recreationist behaviors and promote proenvironmental ones.

The **4 STEPS** described in this handbook are:

STEP 1 Specify the Problem Behavior

Describe the problem behavior and the desired behavior. Specify who, what, where and when the behavior occurs.

STEP 2 Identify Barriers

Identify barriers to the performance of the desired behavior and the things promoting and maintaining the undesired one. Most recreationists care about the environment but there are barriers to their performance of proenvironmental behaviors. See Table I for a brief description of proenvironmental behavior barriers addressed in this handbook.

STEP 3 Design Interventions

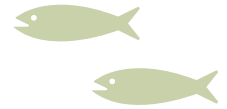
Design your interventions based on the types of barriers operating in your setting. The environmental interventions suggested in this handbook are based on psychological principles and research although many also fit under the category of good old common sense. See Table II for a brief description of some of the interventions discussed in the handbook.

STEP 4 Implement Interventions

Construct and implement a plan of action for your interventions.

TABLE I

Five Common Barriers to Proenvironmental Behaviors

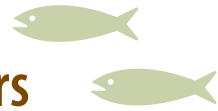


<p>Social Norm Barriers</p>	<p><i>Social norms may support depreciative behaviors.</i> People desire social approval and belongingness, so they are motivated to do what is “socially correct” as defined by their group. Some groups have norms at odds with environmentally responsible behavior. For instance, it may be a social norm to vandalize, litter, or modify campsites inappropriately. Also, when people do not know what to do, they will take their cues from others. Recreationists often get their ideas about what is acceptable from other recreationists. Evidence that other recreationists behave in a particular manner (however inappropriate by resource management standards) may signal to others that the degrading behavior is acceptable.</p>
<p>Competing Attitudes Barriers</p>	<p><i>Some attitudes and values may override proenvironmental attitudes and lead to depreciative behaviors.</i> Research indicates that although most people believe in preserving the natural environment, other competing attitudes and values may dominate. For instance, if an environmentally responsible behavior such as packing one’s trash out of the wilderness is too inconvenient, a pro-convenience attitude may override a proenvironmental one. Campers who gather their own firewood may do so because the cost of firewood is prohibitive. They may care about the environment, but attitudes toward saving money prevail. A motocross rider’s desire to have a challenging experience can override a desire to avoid breaking stated rules.</p>
<p>Setting Design Barriers</p>	<p><i>The design of the physical environment may discourage desirable behaviors or promote undesirable ones.</i> Recycling receptacles may be located too far from campsites. Trash receptacles may not be emptied often enough or are difficult to locate. Toilets may be scarce or locked. Designated trails may be hard to distinguish from undesignated ones.</p>

CONTINUED NEXT PAGE

TABLE I CONTINUED

Five Common Barriers to Proenvironmental Behaviors



<h3>Ignorance and Misinformation Barriers</h3>	<p><i>Lack of knowledge about environmental impacts or how to perform responsible behavior may increase depreciative behavior.</i> Some users may perform degrading environmental behaviors out of ignorance and do not realize that their behavior is a contributor to environmental problems. For instance, recreationists may not know that the collecting of tinder may disturb the ecological balance of some settings, may not realize the damage caused by damming streams, or may not know that cutting their own trails to the water causes erosion. Or, the individual may be inclined to behave in an environmentally responsible fashion but may not know how. For example, s/he may be unsure where to purchase firewood; unclear on how to build safe fires; or may be unfamiliar with waste disposal procedures in the absence of toilets.</p>
<h3>Bad Habit Barriers</h3>	<p><i>Depreciative behavior may be a routine practice that is automatically performed.</i> People may unthinkingly perform environmentally degrading behaviors out of habit or tradition. This is especially likely when the rules change regarding behavior acceptability. For instance, during fire season, fires may not be permitted for safety reasons. Campers accustomed to having fires may forget about the change of rules. Littering may be a bad habit that a person performs thoughtlessly. Riders may be used to riding where they want and have a hard time sticking to newly designated trails.</p>

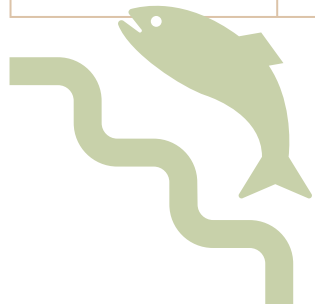
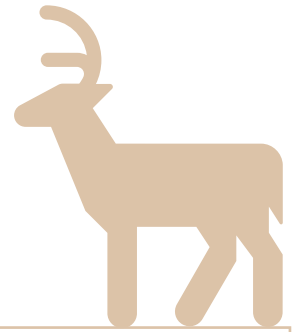


TABLE II

A Sampling of Handbook Interventions



TYPE OF BARRIER	INTERVENTIONS
<h3>Social Norms</h3>	<ul style="list-style-type: none"> • Prompts/signage to communicate desired behaviors. • Quick rehabilitation of degraded areas. • Role models to show desired behavior. • Reminders emphasizing desired behavior is normative; most people behave responsibly.
<h3>Competing Attitudes, Values, or Motives</h3>	<ul style="list-style-type: none"> • Persuasive communications to strengthen proenvironmental intentions. • Link desired behavior to important attitudes and values. • Commitment strategies to increase power of proenvironmental attitudes or values. • Changes that eliminate competition between desired and undesired behavior (e.g., reduce cost or inconvenience of desired behavior).
<h3>Setting Design</h3>	<ul style="list-style-type: none"> • Identify setting features that interfere with desired behavior and remove. • Alter setting to make desired behavior obvious and easy, and undesired one more difficult.
<h3>Ignorance and Misinformation</h3>	<ul style="list-style-type: none"> • Identify information gaps and educate. • Maximize impact of education with prompts, commitment strategies, environmental alteration, and persuasive elements.
<h3>Bad Habit Barriers</h3>	<ul style="list-style-type: none"> • Use prompts or setting changes to trigger desired behavior. • Positive or negative incentives to motivate new behavior. • Public commitments to perform new behavior.

STEP Specify the Problem Behavior

Use the STEP 1 Worksheet provided on the next page to record your answers to these questions. You may need to monitor the situation to determine the what, where, when, and who of the situation.

1. What exactly is the problem behavior?
2. Where exactly does it occur? (List locations)
3. When does it occur? Weekends? Holidays? Certain times of year? (This is important because you may want to time your interventions accordingly.)
4. Are there particular types of recreationists that engage in the behavior? (This is important because you may need to target and tailor your interventions to reach these groups.)
5. What (exactly) do you want people to do in the setting?

EXAMPLE

The resource managers note that vegetation from campsites down to the water is being trampled and an undesignated trail is emerging. After “sneak and peak” observation, they find that boat users are the offenders – they are docking their boats next to their campsites, not at the official boat launch. The problem is worse from Memorial Day through Labor Day and on weekends, and occurs less frequently when resource managers are present. Note that these details suggest that we target boat users, look at the boat launch to see why it might not be used, look at the campsites to see how they can be modified to discourage inappropriate boat docking, and suggest that increased personnel at certain times may be useful.

STEP WORKSHEET 1-1: SPECIFY PROBLEM BEHAVIORS

Specify the Problem Behavior(s)

1. What exactly are the problem behaviors?

2. Where exactly do they occur? (List locations)

3. When do they occur? Weekends? Holidays? Certain times of year? (This is important because you may want to time your interventions accordingly.)

4. Are there particular types of environmental users that engage in the behaviors? (This is important because you may need to target and tailor your interventions to reach these groups.)

5. What do you want people to do in the setting?

STEP 2 Identify Barriers

Use the questions to identify barriers to the desired behaviors and the supports for the undesired ones. Use the STEP 2 Worksheets to record your answers. If surveys or focus groups are needed to obtain the information, see Appendix D.

Summary of Barrier Identification Questions

1. Are there **social norms** supporting the environmentally deprecative act? Do they vary for different groups of users? Does the setting contain evidence of past “bad” behavior that may communicate to new users that the behavior is commonplace and accepted? Is there an absence of clear social norms supporting the desired behavior—that is, even if social norms don’t clearly support deprecative behavior do they fail to clearly support desired behavior?
2. Are there **competing attitudes, values, or motives** interfering with performance of the environmentally responsible behavior? If so, what are they?
3. In what ways does the **design of the physical environment** make the performance of the desirable behavior difficult? In what ways does the design of the setting make performance of the undesirable behavior easier?
4. Could performance of the deprecative behavior be due to **lack of information or to ignorance**? Do users know that a behavior is deprecative? Are some users in special need of information? Do users know how to perform the desirable behavior correctly?
5. Can the degrading behavior be characterized as a **“bad habit”** people are just used to performing but which is no longer acceptable due to new knowledge regarding its destructiveness?

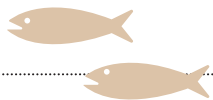
STEP 2 WORKSHEET 2-1: IDENTIFY BARRIERS

Identify Social Norm Barriers

1. Describe any social norms that suggest that the desired behavior is appropriate and consider whether these vary for different demographic groups of users. *Examples:* Off-road vehicle use in sensitive watershed areas may be acceptable behavior in some social groups. A person’s social group may condone the removal of rocks, flowers, etc. for souvenirs.

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. *Examples:* People see others camping, parking, or using OHVs right next to lakes and streams. Paths and trails inappropriately created by recreationists through sensitive areas signal to later visitors the acceptability of crossing sensitive areas.

3. Even if social norms don’t clearly support deprecative behavior, do they fail to clearly support desired behavior? In other words, is it clear to people that other recreationists or recreationists similar to themselves behave in the desired proenvironmental way?



Identify Competing Attitudes Barriers

1. Describe ways in which the undesired behavior is more convenient than the desired one. *Example:* Parking next to the campsite is more convenient than parking in the designated area.

2. Explain any ways in which the undesired behavior is rewarding in ways the desired one is not. *Example:* Off-roading in remote, sensitive areas is exciting and provides access to otherwise unreachable and beautiful vistas.

3. Describe any ways in which the desired behavior is more unpleasant than the undesired one. *Example:* In areas without toilets, recreationists may not dispose of waste properly due to the unpleasantness of this task.

4. Are there competing attitudes, values, or motives interfering with performance of the environmentally responsible behavior? If so, what are they? *Examples:* Recreationists may resent government regulation. The desire for a souvenir may override the attitude that such actions have negative long-term consequences.

Identify Setting Design Barriers

1. Describe the ways in which the setting's features make performance of the desirable behavior difficult. *Examples:* There are no trashcans at sites making garbage disposal more difficult. Vegetation around boat launch makes it difficult to tie up so people tie up near campsites and create paths from the water to their camp or picnic site.

2. Specify how the setting's features foster performance of the undesirable behavior. *Examples:* A lack of designated trail signs and the presence of user-created paths support recreationists' continued use of unofficial trails. There is nothing discouraging or preventing users from driving right up to the site, but this leads to crushed vegetation and erosion.

STEP 3 Design Interventions

Intervention options depend on the types of barriers in your setting. Look at your barrier list and at the corresponding STEP 3 Interventions and Worksheets. Use the worksheets to identify interventions that are a possibility and jot down some ideas for their implementation. Ideally, use a variety of interventions as some will be effective with some people, while different interventions will work with others.

BARRIER	INTERVENTION FEATURES and EXAMPLES	INTERVENTION WORKSHEETS
Social Norms	Page 17	Pages 18-20
Competing Attitudes, Values, or Motives	Page 21	Page 22
Setting Design	Page 23	Pages 24-25
Ignorance and Misinformation	Page 26	Page 27
Bad Habit	Page 28	Pages 29-30



STEP 3 Social Norm Interventions

Key Features

- People's intentions to perform a behavior are influenced by their perceptions that social norms support the behavior, so enlist the support of clubs, peers, and group members.
- People often learn norms from observing what others do or have done in the setting, so provide positive role models and rehabilitate areas promptly such that people don't get the wrong idea about what is normative.
- In interpretative situations, point out damage caused by recreationists, but **emphasize that most people do the right thing and agree that it is the right thing.**

EXAMPLES

- "We had a horseback club adopt a trail and take care of signs, clear the trail, and encourage peers to follow guidelines such as using the official posts to tie their horses, not trees."
- "We require visitors watch a video before they are permitted on the island. It shows typical visitors engaging in proper camping and safety behavior."
- "We had a volunteer group to give out information about rules and maps about where to ride. If someone was doing something wrong they would apply peer pressure ("We'll lose our riding privileges if you don't follow the rules."). We gave them a jersey and plate for their motorcycles, they didn't have to pay to come into the park and could write off other expenses on their taxes."
- "We have a campaign using motocross stars that say things like, "When I'm racing on the track anything goes but when I'm in the forest I follow the rules."
- "We try to repair fences as soon as they are torn down."

Social Norm Interventions

For each option consider: Could I use this intervention, or some variation, in my setting? If yes, check the box next to it and make some notes about how you might use it.

- Use verbal or written prompts, including signage to make “good” norms override “bad” ones – in other words, to remind visitors what they should do.** See Appendix A for guidelines for the development of effective reminders (prompts).

- Clean up and rehabilitate degraded areas as quickly as possible.** For example, some research indicates that the presence of litter or graffiti suggests to some people that these behaviors are socially appropriate; cleaning it up removes that message.

- Use live role models.** Boy Scouts, Girl Scouts, or other volunteers may model and share appropriate recreationist behavior. Repeat local visitors may be trained as models. For instance, peer communicators passed through the recreation area talking with recreationists in the Mount Baldy ranger district in southern California. Appendices B and C may be helpful in coming up with strategies to gain role model assistance.

Social Norm Interventions

- Enlist the help of respected and influential group members in cases where a group who regularly visits the site performs the undesired behavior.** For example, at entrance booths or when visiting sites, resource managers can ask who is responsible for the group, remind them of appropriate practices, and get their commitment to comply with these and share them with the group. At the Allegheny National Forest, equestrian use had caused serious erosion and resource managers successfully enlisted help from the leadership of local equestrian groups. Appendices B and C include some ideas for obtaining commitments.

- Use role models in media education.** Videos, posters, or photographs of individuals performing the desired behavior can be shown in visitor information centers. Choose “models” from the group you wish to target.

Social Norm Interventions

- Remind visitors that environmentally responsible behavior is the socially agreed-upon behavior.** In verbal and written communications indicate that most people care about the environment and agree that certain behaviors are appropriate in the setting. For example, on an interpretative walk a resource manager says: “Once people learn that damming the stream disrupts critical breeding habitats for the fish and frogs, they agree that people shouldn’t disrupt the stream by making dams.”

- Emphasize that a minority of recreationists causes the most damage.** In written or verbal communications with recreationists, make sure that you do not emphasize that a large number of people are performing the undesirable behavior. To do so is to inadvertently suggest its acceptability. On nature hikes led by resource managers for instance, pointing out the presence of a single piece of litter or instance of tree carving and how most recreationists do not engage in such behaviors, will communicate to recreationists the dominant norm of not performing these degrading acts. For instance, speeding was reduced at one site by posting signs stating, “Percentage of cars not speeding yesterday: 90.”

Key Features

- Other more “potent” attitudes, such as a desire for convenience, can override people’s proenvironmental attitudes.
- “Desired” behavior is determined in part by the perceived barriers or costs to the behavior and whether it meets people’s perceived recreational needs.
- To intervene, identify competing attitudes and then:
 - Strengthen proenvironmental intentions and weaken competing motives.
 - Make the desired behavior convenient and low-cost and the undesired one less convenient and high-cost.
 - If possible, make changes to meet the recreationist “needs” that led to the depreciative behaviors.

EXAMPLES

- “We know people want to ride in certain parts of the Forest so we remind them that these areas will stay open as long as riders adhere to the rules.”
- “We found that OHV users sought variety and challenge and if we didn’t provide it, then they would create it themselves. So, we designed our trails with the challenge built-in.”
- “We had a problem with animal-lovers feeding the wildlife and had to educate them to understand that not feeding them was actually more compatible with loving them.”
- “At our wilderness park, a permit includes a declaration, “We will stay on trail, erect no structures, etc.” Recreationists must fill it out and sign it in front of personnel.”

Competing Attitudes Interventions

For each option consider: Could I use this intervention, or some variation, in my setting? If yes, check the box next to it and make some notes about how you might use it.

- Make the desirable attitude dominate behavior by using the commitment techniques described in Appendix B.** For example, remind visitors of their pro-environmental attitudes upon entrance to the setting and have them publicly commit to them. Increase personnel (using volunteers if necessary). They will make the desired attitude more dominant.

- Use common sense, focus groups, surveys, or informal interviews to identify and eliminate competing attitudes, values, or motives.** Is the desired behavior too costly, inconvenient, time-consuming, or unpleasant? What can you do to reduce the inconvenience, cost, etc.?

- Link the desired environmentally responsible behavior to values and attitudes important to the particular user group in question.** Consider the values and cultures of the different groups operating in the setting. Consult with cultural experts for advice.

Key Features

- The more convenient it is to behave proenvironmentally, the more likely it is.
- People may be inclined to behave proenvironmentally but may not if the setting does not make it easy to do so.
- Sometimes the design of the physical setting provides more support for doing the wrong thing than it does for doing the right thing.
- Make setting alterations that make it easier to behave proenvironmentally.
- Make setting alterations that make it harder to behave destructively.

EXAMPLES

- “We found that we need to provide attractive, legal opportunities for OHV users to ride the way they want; otherwise they will create an interesting trail for themselves.”
- “We added “highlines” so that people would tie horses there, instead of to trees where the ropes wore away the bark and the horses scuffed their feet, uncovering and damaging the roots.”
- “We built boardwalks at highly visited cultural sites to keep visitors on the trail and to limit impact.”
- “We use gates and fences to keep riders out of certain areas.”
- “We built a boardwalk across the meadow to discourage going through thicker, taller vegetation.”
- “Barrier rocks are my signs. We use barrier rocks to define where we want people to go.”
- “We use a lot of mulch to define the official trails so it’s easy for people to know where the trail is.”

Setting Design Interventions

For each option consider: Could I use this intervention, or some variation, in my setting? If yes, check the box next to it and make some notes about how you might use it.

- Determine what setting features interfere with performance of the *desired behavior* and remove these barriers if possible.** Do an inspection or talk with field personnel. Use common sense, focus groups, surveys, or informal interviews. At the Colville National Forest, for example, an inspection by resource managers indicated that the overgrowth of lake vegetation made it difficult for visitors to tie their boats to the official boat launch. Removing the vegetation removed the barrier to the desired behavior.

- Determine what setting features could be added to the setting to create a barrier to the undesired behavior.** Do an inspection or talk with field personnel. Use common sense, focus groups, surveys, or informal interviews. For instance, resource managers at Cerro Alto in the Los Padres National Forest placed “BFRs” (big frickin’ rocks) across campsite entrances to prevent visitors from driving their vehicles into the sites. Another example of this strategy is to plant thorny native vegetation across an undesignated trailhead.

Setting Design Interventions

Compare your setting with settings used for similar purposes that do not have the same problem. Are there design differences that can be remedied?

EXAMPLE

Setting barriers were creatively used in the Allegheny National Forest in Pennsylvania to deal with OHV use in sensitive wetland areas. Large rocks were used to prevent access. On trails, small shrubs were planted closely together and protected with white plastic protective tubes and larger shrubs were planted and surrounded by enclosures. Over 100 miles of “legal” trails were created in a less sensitive area of the forest. These trails were advertised on road signs leading into the forest.

Key Features

- Some people perform depreciative behaviors due to ignorance of negative environmental consequences, or because they don't know how to perform proenvironmental behaviors.
- Education may be effective in cases of ignorance.
- Information-providers must be trustworthy and possess relevant expertise in the eyes of recreationists.
- It is important to include specific behavioral recommendations in educational strategies.
- Prompts, commitment strategies, and setting alterations make proenvironmental behavior more likely following education.

EXAMPLES

- “People view a video and take a quiz to obtain access to our wilderness area.”
- “Our forest visitor guide provides information. We also have a website and a lot of signage at the site.”
- “Volunteers talk with Boy Scouts and church groups about low-impact camping techniques.”
- “Our comprehensive media program for responsible OHV use includes booklets, mailings, radio, billboards, and press releases.”
- “Our safety training for youth and adults is provided in an on-line at-home student kit.”
- “We attend meetings and conventions of OHV users and provide information there.”
- “We do outreach in driver’s ed classes and use a variety of ways to inform people where they are allowed to go, including maps at trailheads, blurbs in newspaper, maps for free at district office, maps to retailers, tourism councils, etc.

Ignorance Interventions

For each option consider: Could I use this intervention, or some variation, in my setting? If yes, check the box next to it and make some notes about how you might use it.

- Identify information gaps and educate recreationists.** This may be done with verbal or posted prompts at the site, information prominently displayed or communicated in visitor information centers, or at site entry points. See Appendix A on the development of effective information prompts, and Appendix C on the development of informational strategies.

- Maximize the impact of your educational interventions with the use of additional behavior change strategies.**

- Remember that education is unlikely to translate into behavior if barriers to behavior remain.** Education alone is most effective with low-cost, easy-to-perform actions. Refer to the barrier identification and intervention reference to identify barriers and remove these if possible.

Key Features

- Some depreciative acts are performed out of habit. This is especially likely when practices or regulations change.
- Verbal or written prompts can be used to remind people of new desired behavior.
- Commitment strategies may strengthen intentions to perform proenvironmental behavior.
- Incentives (raffle tickets, discount coupons) or disincentives (such as fines) can be used to create new habits.

EXAMPLES

- “We have signs reminding people of the regulations and of the police presence.”
- “When resource managers tour sites they remind recreationists of new rules and practices. We are considering having them give out rewards when they are touring sites.”
- “Junior Rangers are given badges for cleaning up degraded areas or improving areas. Park knick-knacks are awarded to evening participants who answer questions correctly. Kids are given a workbook on resource education and are given rewards based on how many activities they complete.”
- “We give out citations for egregious violations of park rules, but mostly verbal warnings to remind people what to do and what will happen if they don’t.”
- “Threats of fines don’t work unless users know it’s a real possibility. We made enforcement a priority and word spread through the OHV community.”
- “We improved our signage to remind people of changes.”

Bad Habit Interventions

For each option consider: Could I use this intervention, or some variation, in my setting? If yes, check the box next to it and make some notes about how you might use it.

- Make setting changes such that the desired behavior is “triggered.”** For example, reminder signage and setting alterations may serve as triggers. See the section on interventions for setting design.

- Use positive incentives for behavior change in verbal or written communications.** Positive consequences include material rewards, praise, the avoidance of negative consequences such as punishments, guilt, or feelings of immorality, and the internal satisfaction that comes from doing the right thing.

- Obtain a public commitment to perform the desired behavior.** See Appendix B on creating desirable behaviors with commitment strategies.

Bad Habit Interventions

- Use negative consequences such as citations, fines, and social disapproval to motivate behavior change.** Locate employees at sites most vulnerable to damage since people must believe that the likelihood of getting caught is high. To reduce anger or rebellion, employees should be firm yet non-aggressive. Also, visitors are more accepting of threats of punishment when given a brief explanation, written or verbal, for the importance of the desired action, and when they are given options (e.g., “Please do not use shrubs or dead branches for firewood as these provide homes for birds. Firewood may be purchased for a small fee at the store”).

- Use prompts, informational interventions, and role models to remind individuals of appropriate behavior.** See Appendix A for information on the design of prompts. Appendix C describes informational interventions and role models.

STEP 4 Implement Interventions

- Look back at your Interventions (STEP 3) worksheets.
- For each intervention you are considering, map out a plan of action.
- Make a chronological, detailed list of what it would take to accomplish it.
- Record your answers on a copy of the STEP 4 worksheet.
- Your list of actions may include consultation with field personnel, contacting district managers for resources or approval, designing informational materials, duplicating informational materials, posting informational materials, cleaning up sites, planting barrier plants, etc.
- On your worksheet record target dates for completion of tasks and phone numbers and other such information that may be needed as part of your actions.
- Begin implementation.



Intervention Implementation for:

Action Description and Information Relevant to Completion	Targeted Completion Date	Date Action Finished
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Prompts & Reminders

Key Features

- Prompts are written, graphic, or verbal messages that remind people of what they should or should not do.
- Prompts are useful for specific, low-effort proenvironmental behaviors with few barriers to their performance.
- Polite, but negatively worded prompts saying what people should not do appear most effective (e.g., “Please don’t litter.”).
- Prompts giving specific instructions about where and how to perform the desired behavior are more effective than general prompts. “Put your litter in the trash receptacle near the restroom” will be more likely to produce the desired behavior than “Please dispose of your trash properly.”
- The use of frequent prompts is effective, especially when combined with feedback.
- Use culturally appropriate messages designed to fit the audience. Language should be tailored to users, and in some cases, graphics may be more effective than words.
- Present the prompt as close in time and space as possible to the targeted behavior. For example, signs reminding recreationists to buy their firewood should be placed in areas where tree cutting is prevalent or, where wood may be purchased.
- The prompts should be self-explanatory: explain simply what the person is to do or not do.
- Prompts should be polite. Overly negative signs are more likely to be subjected to vandalism.
- Avoid posting too many signs in one location as they are likely to overwhelm and be ignored.
- Prompts should be noticeable – easily seen or heard but not so large or loud as to be perceived as overly forceful.

Prompt Strategy

- I have considered the audience when wording my message and my prompt will not trigger a negative reaction from them.
- My prompt provides specific instructions about where and how to perform the desired behavior.
- My prompt will be understood by the “audience” because I have considered the qualities and culture of the group I wish to target.
- My prompt is located close in space and time to the desired behavior and is likely to reach a large portion of the intended audience.
- I have posted enough prompts to remind visitors but not so many that visitors become irritated by them or that they compromise the natural setting.
- My prompt is self-explanatory, specifying simply what the visitor should or should not do.
- My prompt is polite.
- My prompt is noticeable.
- If possible, I have addressed other barriers to the performance of the desired behavior.



Prompts



Use the spaces below to draft your prompts:

EXAMPLES

Example from the Divide Ranger District in Del Norte, Colorado:

- Horses prohibited in Campground. Unload horses ¼ mile down the road at the designated site.

Example from Allegheny National Forest in Warren, Pennsylvania:

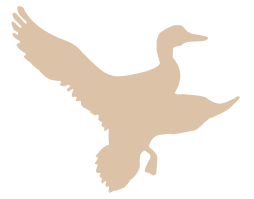
- Walk-in use is welcome. Closed to motor vehicles.

Commitment Strategies

Key Features

- When individuals publicly pledge to do something, they are more likely to do it. This is because consistency is socially valued and behaving consistently saves considerable thought—the individual need only do what s/he did before, or that which is consistent with past actions.
- Commitments may be verbal or written agreements.
- Obtain a public commitment if possible.
- Commitments made in front of other people are more effective because we do not like to break promises or appear inconsistent in front of others.
- Consider various contact points with recreationists to identify potential commitment opportunities.
- Use small commitments to build larger ones (the foot-in-the-door technique).
- First ask them to do some small action or commit to a small thing (for instance, that “Leave no trace” is a good idea), and then make a larger, related request of them.
- Request commitments in a way that requires some effort, such as signing something or reading something out loud, since effortful commitments are more powerful.
- Don’t force a commitment. If individuals do not freely choose to commit, they do not feel as compelled to behave consistently with their promises.

Commitment Strategies (continued)



EXAMPLES

- Talk with recreationists about “Leave no trace” campaigns. Ask them if they agree that leaving no trace is a good idea. Then ask them to agree to perform proenvironmental behaviors consistent with leaving no trace.
- Give children stickers to wear which condone the desired environmentally responsible behavior. Due to a desire to be consistent, they are unlikely to perform behaviors incompatible with their publicly stated support for responsible behavior.
- Ask recreationists to display placards at their site or on their windshields condoning the desired behavior. Remind “violators” of their commitment.
- Have recreationists sign something stating that they will comply with specific requests and that they agree with the reasons for requests.
- Written commitments to perform desired behavior may be attached to paperwork that recreationists have to complete to visit the site.
- Request that “lead” recreationists read regulations out loud to all those in their party.
- Have children generate slogans to increase a particular proenvironmental behavior (have them write it down along with their name).

Informational & Persuasive Communications

Key Features

- Sometimes, people need to be educated and persuaded that they need to change their behavior.
- Whom the message comes from (the source) matters.
- The source should be trustworthy and have expertise and authority in the eyes of the particular group you wish to influence.
- The source should be likeable. Likability is influenced by similarity, warmth and friendliness, and attractiveness.
- The content of the message matters.
- Vivid, dramatic information and stories are often most persuasive as long as the information is believable.
- The use of fear is only effective if it is a believable threat and if people are convinced that it may be averted through their actions.
- Include information suggesting that behavior change is socially desirable (see the earlier handbook section on social norms).
- Include acceptable reasons for asking that recreationists do or do not do something.
- To make sure that behavior change follows attitude change, individuals must be told exactly how to perform any desired proenvironmental behaviors.
- The audience matters—tailor your message to your audience.
- Source credibility differs based on audience.
- What is considered a bad consequence may vary by group.

Informational & Persuasive Communications (continued)

- Link the message to the concerns of different audiences—some care about leaving a healthy environment for future generations, some about access for specific activities.
- Wording and symbols should depend on the audience.
- Bold print, graphics, and brief overviews are more effective than lengthy written material.
- The “channel” matters—face-to-face communications are most persuasive. They increase attention, help insure comprehension, and make people feel more accountable if they publicly agree to comply.

EXAMPLES

- Use volunteers from recreationist groups to maximize credibility and the ability to communicate face-to-face.
- Include endorsements from people considered “celebrities” to the targeted recreationist group.
- Be warm and friendly when delivering messages to recreationists; play up similarities to increase likability.
- Use vivid examples from your setting to illustrate the degradation caused by a minority of users and how behavior changes can reverse it or prevent further damage.
- Use moderate levels of fear; emphasize that behavior change will be effective. “If we can’t get people to stay on the trails, we’ll have to close the area. So if you don’t want to see that happen, make sure no one in your party goes off trail.”
- Combine threats of negative personal consequences (e.g., fines) with information suggesting that such consequences are likely.
- Suggest that social norms support the desired behavior; include information suggesting that most people do the right thing.

Using Surveys, Focus Groups, and Interviews

If you determine that a survey, focus group, or interviews are needed, here are some things to remember:

- Conducting surveys, focus groups, or interviews requires special research training. A poorly constructed inquiry is more damaging than having nothing at all.
- Contact your nearest Forest Service research station and ask to be connected to a Research Social Scientist or other researcher trained in the social sciences. These individuals can consult with you throughout the information collection or can refer you to a local university contact for similar consultation.
- If you are in a Federal agency, public information collection requires approval of the Office of Management and Budget. Approval can take a year or longer, so plan ahead.
- A reference is available to resource managers. It is titled “Techniques and equipment for gathering visitor data on recreation sites.” Authored by S. Yuan, B. Maiorano, M. Yuan, S. Kocis, & G. Hoshide, it is published by the USDA Forest Service, Technology & Development Program, 9523-2838-MTDC.



Environmental Intervention Handbook for Resource Managers

A Tool for Proenvironmental Behavior Change

2 N D E D I T I O N 2 0 0 7

Written by

Shawn M. Burn, Ph.D.

California Polytechnic State University
San Luis Obispo, California 93407

In Cooperation with

Patricia L. Winter, Ph.D.



For additional copies contact:

Patricia L. Winter, Ph.D.,
Pacific Southwest Research Station
USDA Forest Service
4955 Canyon Crest Drive,
Riverside, CA 92507
pwinter@fs.fed.us

