



# Monitoring Procedures for the Recreation Sites Element of the Forest Service's Wilderness Stewardship Performance

## Minimum Recreation Site Monitoring Protocol

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### Introduction

The objective for developing this Minimum Recreation Site Monitoring Protocol is to provide a consistent process for monitoring of recreation sites in wilderness areas in the national forests. The most common and potentially important types of impact have been included in this minimum protocol but, due to differences in ecosystems and other parameters, not all sites will have all indicators (i.e. trees on site). Where this occurs, managers may wish to develop additional monitoring indicators and procedures to adequately monitor recreation site conditions.

### Standards

1. For full credit, all likely locations in the entire wilderness must be visited—not just likely locations in a portion of the wilderness. Partial credit within Wilderness Stewardship Performance reporting can be obtained for a census of a substantial portion (>50%) of the wilderness. Criteria for likely locations can be developed locally but the goal should be that >95% of recreation sites (campsites or other impacted areas) are located.
2. Recreation sites (sites demonstrating observable impacts from repeated visitation, including campsites, day use sites and other recreation destinations, such as climbing areas) within likely locations must be censused—it is not sufficient to monitor only a sample of recreation sites.
3. Data cannot be older than 5 years for credit.
4. Data for each site must include: (a) location (site coordinates—derived from GPS, a dot on a topographic map and supplemented with a photo is best); (b) site condition; and (c) presence/absence of administrative structures.

### Procedures for inventorying recreation sites

Identify all the locations where recreation sites are likely to be located on a map and develop a plan to visit all these places. This would include all trail corridors as well as off-trail routes and destinations that receive regular use. The inventory can be conducted in a single field season or it can be done over several seasons. For example, a large wilderness might plan to inventory 1/5 of the area every year repeatedly, accomplishing a complete inventory every 5 years.

Areas that are searched for recreation sites need to be documented so it is clear -- when a new site is found -- whether it is really a new site or simply a preexisting site in a place that was never been searched before. Every place that has been clearly impacted by recreation should be inventoried, even if the site is to be restored. Where campfires are allowed, campfire remains (e.g. scattered charcoal) provide the most reliable indication of campsite

impact on very lightly-impacted campsites. Where campfires are not allowed, other criteria will have to be developed for identifying lightly impacted recreation sites. At each inventoried site, either use a GPS to obtain site coordinates or carefully place a dot on a topographic map and obtain site coordinates from the map. Particularly if a GPS is **not** used, take a photograph to facilitate future relocation of the site.

### Procedures for assessing recreation site condition

Independently assess (1) groundcover disturbance of the main portion of the site, (2) impact to standing trees and roots, and (3) size of disturbed area (including satellite tent pads, use areas, and stock-holding areas). Each of these three parameters should be separately assessed. They are combined in a single impact index, but the individual ratings will be kept separate as well. In addition, any administratively provided structures are recorded.

**Record disturbance to the groundcover of the central portion of the site** (disregarding satellite disturbed areas) as one of the following classes. Select a midpoint when the condition is close to the boundary between classes.

- 1 Ground vegetation flattened but not permanently injured. Minimal physical change except for possibly a simple rock fireplace.
- 2 Ground vegetation worn away around fireplace or center of activity.
- 3 Ground vegetation lost on most of the site, but humus and litter still present in all but a few areas.
- 4 Bare mineral soil widespread over most of the site.

As a general rule, if bare area (without vegetation) is virtually absent, assign a rating of 1. If bare area is obvious at the center of the site, extending out somewhat from a fire ring, but a single 2-person tent would extend onto portions of the site that are still vegetated (i.e. the bare area cannot accommodate both a fire ring and a single tent), assign the site a rating of 2. If the central bare area is large enough to accommodate a fire ring, as well as two 2-person tents, assign a rating of 3 (if most of the bare area still retains a humus/litter cover) or a rating of 4 (if the humus/litter cover is gone from most of the site). A site with enough bare area to accommodate a fire ring and one adjacent 2- person tent would be given a rating of 2.5.

*Note – see ([Condition Class Ratings for Eastern Wilderness](#)) and ([Condition Class Ratings for Western Wilderness](#)) for images that may be useful for determining ratings for disturbance to groundcover.*

**Record tree damage** as one of the following classes, depending on the number of trees that have been severely damaged. Assess damage off-site as well as on-site, particularly in stock-holding areas associated with the site. Include any trees judged to have been damaged as a result of camping activities at the site being monitored. Severely damaged trees are those that (1) have been felled and are at least 10 cm (4 inches) in diameter where felled (if trees have multiple stems, consider the tree felled if any stem at least 10 cm (4 inches) in diameter has been cut off); (2) have scarring that exceeds 1000 cm<sup>2</sup> (1 ft<sup>2</sup>) in total area or (3) have highly exposed roots (more than 1 m (3 feet) of root sticks out at least 2.5 cm (1 inch) above the ground surface). Select a midpoint when the condition is close to the boundary between classes.

- 0 – No more than 3 severely damaged trees. 1 – 4 to 10 severely damaged trees.
- 2 – More than 10 severely damaged trees.

**Record disturbed area** as one of the following classes, depending on the size of the area disturbed by recreational activities, including the main campsite or use area, satellite tent pads and areas where horses are confined. Where there is a landing area for boats, include this. In most situations, disturbed places are distinguished by obvious vegetation loss (either complete lack of vegetation or sparse vegetation resulting from trampling). Places where vegetation has been flattened but is likely to recover in the short-term should **not** be included in the disturbed area. Where vegetation is naturally absent, it may be necessary to identify disturbed places on the basis of flattening of soil or litter on the forest floor (see special situation 1 below). When there are multiple separate disturbed parts of the site, do **NOT** include undisturbed areas in between. For example, if there is a main campsite, two tent pads and a stock-holding area, assess the size of each of the four areas separately and then sum them. Social trails between separate disturbed areas can be ignored. Select a midpoint when the condition is close to the boundary between classes.

- 0 – No more than 25 m<sup>2</sup> (0-250 ft<sup>2</sup>).
- 1 – 26 to 100 m<sup>2</sup> (251 - 1000 ft<sup>2</sup>).
- 2 – More than 100 m<sup>2</sup> (more than 1000 ft<sup>2</sup>).

Using this protocol, assign the site an overall impact rating between 1 and 8. This is the sum of the groundcover disturbance rating (1-4), the tree damage rating (0-2) and the disturbed area rating (0-2). **It should take no more than a minute or two to assign a rating.**

**Record the presence/absence of various administrative structures.** If structures are present, note their type (e.g. corral, table, toilet, fireplace, etc.) and the number of each. This should **not** include user-built structures, although information about the prevalence of user-built structures is one of many types of recommended information that go beyond the minimum protocol.

### Special Situations

#### **1. Procedures for campsites without much perennial understory vegetation and/or without organic soil horizons.**

On sites without organic soil horizons and/or much perennial vegetation (for example, desert sites, beaches, sites on rock, sites dominated by annual vegetation or sites in the dense shade where understory vegetation is absent), the **groundcover** class definitions must be adapted. It would be good to note whether standard or adapted groundcover classes were used.

In ecosystem types with a poorly developed organic soil horizon, use the level of soil compaction to differentiate between class 3 and class 4 sites. Where there is sparse but regularly-distributed perennial vegetation, use the size of the central area from which all perennial vegetation has been eliminated (regardless of the annual vegetation) to differentiate between class 2 and class 3. Where there is little perennial vegetation, use the size of the central area that has experienced long-term flattening of the soil surface to

differentiate between class 2 and class 3. This might involve flattening of microbiotic crusts and a hummocky or rocky surface in deserts or flattening/abrasion of forest litter in dense shade. Conversely, a site entirely confined to a vegetation-less beach or a rocky ledge would always get a rating of 1 because there is no long-term flattening of the soil.

Ratings for sites in ecosystem types that have perennial vegetation but lack organic horizons would be as follows:

- 1 Evidence of camping or use but minimal physical change except for possibly a simple rock fireplace.
- 2 Perennial vegetation gone and soil surface flattened (for the long-term) around fireplace or center of activity.
- 3 Perennial vegetation gone and soil surface flattened (for the long-term) on most of the site, but exposed mineral soil not highly compacted except in a few areas.
- 4 Mineral soil exposed and highly compacted (to a cement-like state) over most of the site.

Ratings for sites in ecosystem types that lack both perennial vegetation and organic horizons would be as follows:

- 1 Evidence of camping or use but minimal physical change except for possibly a simple rock fireplace.
- 2 Soil surface flattened (for the long-term) around fireplace or center of activity.
- 3 Soil surface flattened (for the long-term) on most of the site, but exposed mineral soil not highly compacted except in a few areas.
- 4 Mineral soil exposed and highly compacted (to a cement-like state) over most of the site.

## **2. Procedures for campsites with no trees**

These campsites would be given a rating of 0 (no tree damage).

### Procedures for wildernesses with established site monitoring protocols

Some wildernesses already have impact assessment procedures that are as effective as our proposed procedures but that are simply different. These procedures are adequate for getting credit in Wilderness Stewardship Performance reporting if they record (a) location; (b) site condition; and (c) presence/absence of administrative structures and meet the other standards described above.

### Recommended Additional Procedures

We strongly recommend that this minimum protocol be supplemented with additional data that are both more comprehensive and more precise. This minimum protocol does not provide information sufficient to be used to assess change over time on individual sites, unless the amount of change is substantial. Nor does it document all the significant types of impact occurring on recreation sites.

### Considerations for Tracking Change over Time

As wildernesses complete initial inventories and move to re-inventory recreation sites, there are several considerations that affect conclusions about trends. Some questions to consider include:

- Were the same areas searched for sites, and with the same intensity?
- Were the same criteria used to identify sites? (e.g., if only campsites were inventoried in round 1, but other recreation sites were also included in round 2, it would be inappropriate to compare the total number of sites identified.)
- Was the inventory done at the same phenological time of year in each round of inventory? If not, are there characteristics of plants or seasonality that affect measurements of groundcover or the disturbed area?

If data are deemed adequately comparable, trends over time can be explored. Some guidelines include:

- It may be helpful to explore changes in each of the three core parameters individually, as well as overall site rating, to determine whether there are particular concerns (e.g., increasing tree damage might be driving overall trends).
- Relatively high confidence can be placed in changes in the total number of recreation sites.
- Data can be used to document the number of sites that moved from one class to another (e.g., from a rating of 3 to a rating of 5, or from a rating of 6 to a rating of 5). However, sites in the more impacted classes (highest rating for any of the three measures) unlikely to register numeric changes; for example, a site whose disturbed area grew from 1000 ft<sup>2</sup> to 2000 ft<sup>2</sup> would receive the same score of “2” for both time periods. Therefore, a lack of change in the number of highly impacted campsites should not be taken as evidence that those sites are actually stable in their condition.