

A Manual for the Assessment of Backcountry Recreation Sites

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BACKCOUNTRY RECREATION SITE CONDITION MONITORING MANUAL
(designated and undesignated sites)

This manual is a guide to surveying or assessing backcountry campsites and similar areas. 'Backcountry' refers to largely undeveloped or predominately natural wildlands. The following methods may also apply during assessments of areas that are not as remote as a backcountry location, such as full-scale campgrounds or multiple site picnic areas.

What is a backcountry campsite?

A BACKCOUNTRY CAMPSITE IS . . . AN AREA OTHER THAN A TRAIL THAT HAS BEEN DISTURBED BY PEOPLE RECREATING, AS MIGHT RESULT FROM EITHER OVERNIGHT CAMPING OR DAYTIME ACTIVITIES. THE DISTURBED AREA IS NEITHER TOO STEEP NOR TOO SMALL FOR CAMPING. THE CAMPSITE IS NOTICEABLE BECAUSE ITS VEGETATION, SURFACE LITTER, OR SOILS HAVE BEEN CHANGED COMPARED TO CONDITIONS ON SIMILAR, UNDISTURBED, AND ADJACENT AREAS. A VISIBLE BOUNDARY MUST EXIST BETWEEN THE CAMPSITE AND ADJACENT AREAS.

Sometimes, campsites are not separated by undisturbed areas, so you may have to distinguish between sites based upon fairly subjective criteria. Surveyors should note and explain on the associated campsite survey forms whenever any such case occurs so that later surveys can understand and repeat your distinction before resurveying.

Clearly defining what is meant by 'backcountry campsite' is helpful for several reasons. If you do field survey work, a clear understanding helps you decide when to evaluate a site. If you analyze survey information or make management decisions based upon the survey information, a clear definition means the information is more consistent. During future surveys, a clear and consistent definition means greater comparability between surveys conducted at different times. Consistency between surveyors and from one survey to another is important to ensure that the information is comparable. For all these reasons, this manual begins by defining 'backcountry campsite.'

Why assess conditions at backcountry campsites?

Camping is a common recreational activity in backcountry areas. Camping can change soil and vegetation. It can also affect other visitors, local residents, and managers. For these reasons and others, backcountry campsites are some of the more important locations for public land managers to address.

Backcountry campsite conditions are meaningful for many reasons. When a person camps in a backcountry setting, a campsite is her or his home for the night, so **campers** care because their experience is generally more significantly affected by campsite conditions than it is by trail conditions. In addition, campsite conditions can conflict with management purposes for an area, so **managers** care, too. Similarly, conditions can reflect management actions or policies. Two campsites located in similar physical environments may have different conditions simply because of past local management actions. Conditions at backcountry campsites reflect the combined effects of the number of visitors, how they behave, where they camp, and when they camp, each a reason that someone will find important.

By comparing campsite surveys conducted at different times, it is possible to track changes in condition that occur because of visitation or management actions. Information from such surveys, when compared with information about what visitors expect or managers intend to provide, offer a way to compare actual conditions against intended or expected conditions. Another purpose for assessing conditions at backcountry campsites is to gauge the effectiveness of management actions taken to address physical, biological, or social effects of camping.

How do I find backcountry campsites?

Sometimes people camp in remote, hard to find locations. Three approaches will help you find backcountry campsites. Depending upon the purpose for the assessment, the amount of time you have available, and the design

of the survey (i.e., is it a sample of selected areas or a census of all possible campsites), you may apply all three approaches or only one or two. Here are the three suggestions:

- 1) Talk with experienced backcountry staff members (rangers, trail crew members, information or education program staff members, etc.) to identify potential camping areas,
- 2) Hike each trail, however faint; drive all passable backcountry roads, and
- 3) Search all areas identified on maps as likely or reasonable camping locations (areas with low slopes near water, roads, or formal trails).

If you are a surveyor, once you recognize that:

- 1) a campsite exists (i.e., it fits the definition we just discussed) and
- 2) it has a boundary between disturbed and undisturbed areas,

then you can begin surveying it by selecting an evaluation form appropriate for the type of campsite and the purposes of the survey. A detailed form is provided in this manual and each component is explained.

NOTE: Documenting your methods for finding campsites is important for ensuring comparability between what you find and what another person may find during future campsite assessment projects. Only with consistent methods can you assume that the information gathered is consistent. ***This is really important for reasons that have as much to do with management as science. Any management decision becomes suspect if it is based even slightly upon information gathered in an inconsistent manner.*** Consistent rigor is essential and entirely dependent upon you, the surveyor.

**For these reasons, each surveyor should keep careful notes while
searching for and assessing sites.**

Some Advice on Completing the Campsite Assessment Form

The campsite assessment form associated with this manual allows you to assess and record relatively detailed information about a campsite. Completing the form requires 5-20 minutes for a typical site. As you become more experienced, the time you need will go down. This investment of time on each site is much less than the time needed to travel to the sites, so take the time you need to assess each site well. Experience with this and similar assessment manuals suggests that you should develop a consistent personal rhythm for how you will approach campsites. Work with a few sites and decide the order you prefer for completing each section of the form.

Acknowledgments and Other Resources

This survey manual adapts material from Jeffrey L. Marion's 'Developing a Natural Resource Inventory and Monitoring Program for Visitor Impacts on Recreation Sites: A Procedural Manual' published in 1991 by the National Park Service as Natural Resources Report NPS/NRVT/NRR-91/06. Results from the following procedures are largely comparable to those produced by Marion's. Another good resource is David N. Cole's 'Wilderness Campsite Monitoring Methods: A Sourcebook' published in 1989 by the US Forest Service as General Technical Report INT-259. Both documents review additional background information about campsite evaluation methods.

BACKCOUNTRY CAMPSITE SURVEY FORM GUIDELINES

Site Identification

- 1) **Tag number:** Record the unique number associated with the aluminum tag that you will bury on the campsite. Assigning numbers to each campsite allows future surveyors to be certain that they have found the same site and the results will identify changes occurring over time. Bury each aluminum tag together with a large (16 p.) nail that is detectable by a metal detector (i.e., a ferrous nail of galvanized steel). Future surveyors can then find the nail and tag by using a magnetic pin locator. ***If you are not installing tags, then this indicator does not apply.*** Aluminum tags are available through many forestry supply stores.
- 2) **General Area:** Record the general area where this campsite is located. This may be a compartment name, drainage or watershed, management area or district, or some other fairly common name. If no general name for the area is known, just record an area name that applies from the USGS quad map.
- 3) **Trail or Road Name (closest):** Record the closest trail or road used for access to the campsite.
- 4) **USGS Quad:** Record the quad sheet showing where the site is located.
- 5) **Locate/Label on Map:** Mark the quad sheet with a dot at the campsite location. Label the dot with the campsite number. Draw a short line to the label in areas with a high density of campsites. Be as accurate as possible and, when necessary, supplement the quad map with either copier enlargements of the quad (for high density areas) or informal maps quickly sketched on the back of the survey form. (Place a scale on the original prior to any copier enlargements.)

UTM COORDINATES Universal Transverse Mercator (UTM) Coordinates provide relatively exact surface location information and may come from either a USGS map or a Geographic Positioning System (GPS) receiver. In either case, proper training by experienced personnel is essential.

- 6) **E:** Record the UTM Easting.
- 7) **N:** Record the UTM Northing.
- 8) **UTM Source (Map or GPS):** Record the source for the UTM coordinates
✍ If a map is the source, do not gather the UTM coordinates in the field. Do it in the office for many campsites at once.)
- 9) **Describe Site Location:** Describe the location with brief references to nearby features (e.g., trail intersections, stream crossings, water sources, archeological sites, or large boulders or trees) and paced distances. (See pacing procedures in Table 3). Use sufficiently descriptive detail and additional local area maps as necessary so that someone else could find the site with no other guide.
- 10) **Date Assessed:** Record the date of the Assessment.
- 11) **Assessed By:** Record the initials of the person responsible for completing the form.

Note about Future Campsite Assessment:

Plant growth and backcountry visitation change over the course of each year (i.e., seasonal growth or visitation).

It is critical that future assessments occur as closely to the initial assessment's day-of-the-year as possible, preferably within 1 to 2 weeks. Explaining results is unnecessarily difficult when trying to compare conditions assessed at different times of the year because recorded conditions reflect vegetation growth and visitation that has occurred by the time a campsite is assessed, as opposed to reflecting possible changes in condition that are more long-term. Because the purpose of assessing campsites is to identify changes occurring over time and due to camping, you want to avoid what is called *confounding information* that may hide or exaggerate those changes. Consistent timing of assessments will reduce the effect of information that could possibly confound itself with the information you want.

Location Characteristics

NOTE: This section of the form records general descriptive information about a campsite's location. The information helps distinguish between similar and dissimilar campsites during statistical analyses.

Campsite is (Y or N):

- 12) **< ½ mile from road?** - Examine map, note scale, and determine proximity of campsite to road.
- 13) **< 100 yards from obvious archeological site?** - An obvious archeological site is one that is either well known or clearly an historic or prehistoric site, not one that would be overlooked by someone with no training. If necessary, pace this distance (see "Feet per Pace" [#24] and Table 3 for a definition of pace and its measurement).
- 14) **Closed area?** - Check "yes" if the campsite is in an area closed for a reason other than the two previous reasons.
- ✍ Note the closure reason in the 'Comment/Recommendation' section.
- 15) **Elevation:** Determine the campsite's elevation to the nearest map contour line (check map scale).
- 16) **Aspect:** With your back to the terrain slope, sight your compass in the direction of downslope and record the compass bearing in degrees.
- 17) **Site Position:** Depending upon the campsite's topographic location, record one of the following codes.
- "F"** For "Flood plain" or riparian zone if the campsite is within a flood plain or riparian zone of a permanent or intermittent stream or river.
- "P"** For "Plain" if the campsite is outside a flood plain or riparian zone, yet not on a slope.
- "M"** For "Midslope" if the campsite is above a plain or flood plain, yet not on a ridge.
- "R"** For "Ridgetop" if the campsite is on a ridge or summit.
- 18) **Distance to Water:** With the following categories, indicate the distance between the campsite boundary and the closest water source along the most direct route:

1=<25 yds 2=26-75 yds 3=76-100 yds 4=>100 yds/calculate from maps if needed

- 19) **Water Source:** Using the following codes, indicate the type of water source.

S = Spring or spring outflow R = River/stream N = Ephemeral course or None within a 5 minute walk

20) **Canopy Cover:** With the following codes, indicate the percentage of tree canopy cover:

0 = <1% **1** = 1-5% **2** = 6-25% **3** = 26-50% **4** = 51-75% **5** = 76-95% **6** = 96-100% ¹

¹ These percentage categories are consistent for all similar indicators throughout this manual

- 21) **Vegetation Community:** Based on definitions described in **Table 1**, record the vegetation community type surrounding the campsite. If these categories do not adequately describe vegetation communities in the study area, modify the categories as appropriate and record the changes in your manual.

Table 1 Vegetation Community Descriptions

Woodland	This type is associated with trees but the canopy need not be closed. Most often associated with moderate to steep slopes, but not always.
River Flood plain/ Riparian	Immediately associated with rivers and streams. Common species may appear as mixed together or in distinct growth areas; grasses are common, although the community is defined by flooding.
Meadow/ grassland	Typically located between the woodland and flood plain formations, this type is marked by fairly continuous grasses and an assortment of shrub species. Grasses best define the type.
Desert	Sparse vegetation comprised often of cacti, shrubs, and grasses, with larger trees near consistent water sources. Slopes and elevation may vary.
Island	A small area of one type surrounded by one or more types, as might be found around a spring.
Bare	An area generally lacking any vegetation regardless of camping effects

- 22) **Trail or Road?:** Record a “T” if campsite is most likely accessed on a trail and an “R” if a road is more likely.

- 23) **Trail/Road Type:** Record the category that best describes the trail or road closest to the campsite, not considering the access route.

Table 2 Types of Trails & Roads

1) Major	Well marked and well traveled. Constructed to the highest standard and maintained to the highest level. Signs are sufficient for inexperienced visitors. Some signs may be interpretive, as well. These are the main thoroughfares for backcountry travel.
2) Minor	Constructed to a more minimal standard and maintained less intensively than Major trails. Compared with Major trails & roads, sections of Minor trails & roads are often narrower, steeper, and with fewer constructed items such as steps or walls. Basic navigation signs, but not interpretive displays, may be present.
3) Primitive	Virtually no constructed sections exist. These trails & roads may be difficult to follow at times. Often located in remote, seldom visited areas. Steep, rugged conditions are common, often requiring map reading to find and negotiate these routes.
4) None	No established trail or road exists, as when a route to a destination simply follows a drainage or traverses cross-country with no formal recognition of the route as a trail or road.

- 24) **Feet per Pace:** Record the number of feet per pace of the person measuring paced distances. This is important for converting paced distances to estimated distance in units of feet.
- 25) **Distance to Formal Trail or Parking Area:** Pace the distance to the nearest formal trail or established parking area. Follow the most obvious footpath, if one is present, and record the number of paces. If over a 5 minute walk record a "-1". Record a 0 (zero) if people seem to park vehicles in the campsite. *This indicator does not refer to access paths leading from the campsite to the formal trail or parking area.*

Table 3 Pace defined and measured.

A walking pace is...

...the distance from where a foot leaves the ground to where it next strikes the ground.

To measure this distance, lay ten feet of the tape measure out on the ground, marking a starting line at the beginning of the tape. Start walking one or more paces behind the start line, walk toward the line, step so that your toe hits the line, and then complete a pace. Record the distance from the starting line to where the same toe that stepped on the line strikes the ground a second time. Do this several times and calculate an average value. It is important to walk naturally, not with an overextended or under-extended gait.

NOTE THE 'FEET-PER-PACE' WHENEVER A PACED MEASUREMENT APPEARS.

- 26) **Inter-site visibility:** Record the number of other campsites visible from the current one, an indication of how crowded an area can be and of how likely it is that campers might feel a sense of solitude. Do not include satellites associated with the current campsite (see Table 4 for definitions).

Table 4 Definitions of "Satellite" and "Island"

Satellite	Small areas of disturbance likely created by campers dispersing tents outside the main campsite or another similar reason. Access trails between the satellite and main site are often obvious. A satellite much smaller than a tent "footprint" should not be counted (minimum size of approximately 5 ft by 4 ft [20 ft ²]). Larger 'satellites' might be separate campsites. ✍ Satellites <u>are</u> treated as part of the campsite.
Island	Small undisturbed areas within the main campsite boundaries, as might occur when a cluster of shrubs or cacti is not removed. Do not measure areas that are less than 3 ft. across or single large plants. ✍ ✍ Islands are <u>not</u> treated as part of the campsite.

- 27) **Toilet:** Record the type of toilet available to those camping at the site.

P = Pit toilet **C** = Containment Toilet **N** = None (no constructed toilet available)

- 28-30) **Animal Effects:** Record the appropriate code describing the visibility of apparent effects for **livestock**, **packstock**, and **other**. The "other" category is intended to capture the amount or degree of effects caused by unknown animals, but not attributable to people camping at the site. The purpose of this indicator is to distinguish between the effects of campers and those of animals. The codes are:

N = None No visible effects
S = Some Some noticeable effects
M = Much The campsite condition has been greatly affected by animals



Condition Indicators

NOTE: This section of the form records descriptive information that is indicative of a specific campsite's condition. Condition indicator information helps allow statistical analysis to distinguish between campsites that have similar or dissimilar conditions. *BE AS CONSISTENT AS POSSIBLE!*


Assessment of campsite condition begins by applying the **Geometric Figure Method**.

- 1) if needed, install temporary flags that delineate the boundary between on-site and off-site areas,
- 2) if appropriate, establish permanent campsite centerpoint where a nail and tag eventually are buried,
- 3) determine whether a circle, square, rectangle, or triangle best approximates the campsite area and measure that geometric figure.
- 4) measure the "islands" and "satellites" associated with each campsite, again with a geometric figure method that applies the most appropriate figure to approximate the campsite boundary.
- 5) record all the measurements on the back of the survey form.

Table 5 Calculations for Geometric Figure Method

?	Circle	πr^2	[or $3.14 \times \text{radius}^2$]
	Square	Length x Height	[or length^2]
	Rectangle	Length x Height	[not length^2 !]
?	Triangle	$(\text{Base} \times \text{Height}) / 2$	[only for a right (has a 90° corner $_$) triangle];
Otherwise, measure the three sides of the approximate triangle and compute the following:			
A) $s = 0.5 * (a + b + c)$, where a, b, and c are the three triangle sides.			
B) $\text{area}_1 = s * (sa) * (sb) * (sc)$, using “s” from step A.			
C) $\text{area}_{total} = \sqrt{\text{area}_1}$, which is the campsite's total area.			
Note: These calculations can be done very quickly by computer database programs.			



 **HINT:** Prior to continuing to assess condition indicators, surveyors should install temporary flags around the boundaries of larger, more complex campsites. Whether one completely applies the other assessment steps (site identification and location characteristics) before continuing is less important. Surveyors are encouraged to develop their own rhythm, as long as efficiency and consistency are retained.

31) **Condition Class:** Select the Condition Class that most closely describes the campsite (see **Table 6**).

Table 6 Campsite Condition Class Definitions

Class 1: Campsite Barely Distinguishable

Soil surface only slightly disturbed. Vegetation cover barely altered. Organic litter barely disturbed, compared to litter present outside of campsite boundaries in similar, adjacent areas. *Clear boundary between disturbed and undisturbed areas is evident.* This is the minimal campsite to still have a boundary.

Class 2: CAMPSITE APPARENT, EFFECTS CONFINED:

Large stones absent from soil surface in areas where primary activities occur, and any previous vegetation cover or organic litter is either lost, crushed, or pulverized. Obvious effects concentrated with effects tapering toward boundary. Bare soil may exist if also found on similar surrounding ground.

Class 3: CAMPSITE OBVIOUS, EFFECTS THROUGHOUT SITE:



A distinct boundary exists between the campsite and undisturbed adjacent areas. Vegetation cover or organic litter is lost or pulverized on much of the site. Few stones or gravel remain in areas where primary activities occur. Most gravel or stones present on the site are outside primary activity areas. Noticeably more bare soil exists on campsites in this class than is seen in similar, adjacent areas.

Class 4: CAMPSITE OBVIOUS, EFFECTS WIDESPREAD:

Distinct boundary exists between campsite and undisturbed areas. Nearly complete or total loss of vegetation cover and organic litter. Bare soil widespread with little gravel or few stones present anywhere within boundaries.

Class 5: CAMPSITE OBVIOUS, EFFECTS WIDESPREAD AND CONDITION GREATLY DIFFERENT FROM ADJACENT AREAS:

Soil compressed and may show small gullies. Vegetation absent within boundaries, roots are exposed, and little gravel or few stones present.

NOTE:  Condition class is **NOT** affected by size, trash, or tree damage other than exposed roots
 Condition class **IS** determined by soil exposure and vegetation coverage.

32) **Vegetative ground cover Offsite:** Estimate the percentage of live, non-woody, vegetative ground cover (include herbs and mosses; exclude grasses, sedges, tree seedlings, saplings, and shrubs) in an adjacent but largely undisturbed "control" area. The 'control site' should be similar to the campsite in most ways, including slope and other environmental conditions. The intent is to locate an area closely resembling the campsite area had camping never occurred there. **In instances where you cannot decide between two categories, select the category with less vegetative cover.** The rationale for this is that, all else being equal, the first campers would have selected a site with the least amount of vegetation cover. For this and similar indicators, it is often helpful to narrow your decision to two categories and consider their difference. For example, if the vegetation cover is either category 2 (6-25%) or category 3 (26-50%), you can simplify your decision by focusing on whether vegetative cover is greater than 25%.

0 = <1% 1 = 1-5% 2 = 6-25% 3 = 26-50% 4 = 51-75% 5 = 76-95% 6 = 96-100% ²

33) **Grass/sedge cover Offsite:** Following the procedures and categories for "Vegetative ground cover Offsite" (#32), assess the combined percentage of grasses and sedges seen in adjacent, similar areas outside the campsite.

34) **Vegetative Ground Cover Onsite:** Estimate the percentage of live non-woody vegetative ground cover (include herbs and mosses; exclude grasses, sedges, tree seedlings, saplings, and shrubs) within the flagged campsite boundaries. Use the categories listed with #32. **Include any disturbed "satellite" use areas and exclude**

² These percentage categories are consistent for all similar indicators throughout this manual.

undisturbed "islands" of vegetation (see Table 4 for definitions).

- 35) **Grass/sedge cover Onsite:** Following the procedures and categories for "Vegetative ground cover Onsite" (#34), assess the combined percentage of grasses and sedges seen in adjacent, similar areas outside the campsite. **Include** any disturbed "satellite" use areas and **exclude** undisturbed "islands" of vegetation (see Table 4).
- 36) **Primary ground surface Offsite:** Select the category from Table 7 that best describes the ground in similar undisturbed areas adjacent to the campsite.

Table 7 Common soil description categories with generic

"B" for Bedrock	if the surrounding soil is exposed bedrock with few examples of other soil types.
"L" for Large stones & soil	if the surrounding soil is marked by large stones (>4" dia.).
"C" for river or wash Cobble	if the surrounding soil is mostly rocks and stones worn smooth by water.
"G" for Gravel	if the surrounding soil is more rocky than sandy (<4" dia. rocks but not all sand).
"M" for Mineral soil	if the surrounding soil is mostly sand or other fine minerals, but not packed hard.
"H" for Hardpan	if the surrounding soil is packed hard outside the campsite.
"O" for Organic	if the surrounding soil is mostly organic deposits such as old leaves, dead grasses, etc., usually noted by the "dirt" texture.
"Y" for crYptogamic pedestals.	if the surrounding soil has extensive growth of cryptogamic crusts or

- 37) **Primary ground surface Onsite:** Select the category from Table 7 that best describes the ground within the campsite boundaries.
- 38) **Soil exposure Onsite:** Estimate the percentage of soil exposure, defined as ground with very little or no organic litter (partially decomposed leaf, needle, or twig litter) or vegetation cover, within the campsite boundaries and within satellite use areas (see Table 4). Dark organic soil, the decomposed product of organic litter, should be assessed as bare soil when its consistency resembles peat moss. Assessments of soil exposure may be difficult when organic litter forms a patchwork with areas of bare soil. If patches of organic material are relatively thin and few in number, the entire area should be assessed as bare soil. Otherwise, the patches of organic litter should be mentally combined and excluded from assessments. Code with categories from "vegetative ground cover Offsite" (#32).

39-42) **Tree damage:** [See note that follows] Assess each live tree (>1 in. diameter at 4.5 ft.) within or on the campsite boundary. Assign the tree to one of the three following categories and tally it. **Include** trees within undisturbed 'islands' and **exclude** trees in disturbed 'satellite' areas (see Table 4). Assessments are restricted to all trees within the flagged campsite boundaries in order to ensure consistency with future measurements. Multiple tree stems from the same species which are joined at or above ground level should be counted as one tree when assessing damage to any of its stems. Assess a cut stem on a multiple-stemmed tree as tree damage, not as a stump. Do not count tree stumps as tree damage. Take into account tree size. For example, damage for a small tree would be considerably less in size than damage for a large tree. Where obvious, assess trees with scars from natural causes (e.g., lightning strikes) as None/Slight.

NONE/SLIGHTNO OR SLIGHT DAMAGE SUCH AS BROKEN OR CUT SMALLER BRANCHES, ONE NAIL, OR A FEW SUPERFICIAL TRUNK SCARS.

MODERATENUMEROUS SMALL TRUNK SCARS AND/OR NAILS OR ONE MODERATE-SIZED SCAR.

SEVERETRUNK SCARS NUMEROUS WITH MANY THAT ARE LARGE AND HAVE PENETRATED TO THE INNER WOOD; ANY COMPLETE GIRDLING OF TREE (CUTTING THROUGH TREE BARK ALL THE WAY AROUND TREE).

N/ANOT APPLICABLE BECAUSE THERE ARE NO TREES WITHIN CAMPSITE BOUNDARIES. CHECK IF APPROPRIATE.

✍ *Future Site Assessment:* Begin by assessing tree damage on all trees within the site boundaries identified in the last measurement period. Place boxes around each tally for trees in areas where boundaries have moved closer to the centerpoint, i.e., former site areas which are not currently judged to be part of the site. Next, assess tree damage in areas where boundaries have moved further from the centerpoint, i.e., expanded site areas which are newly impacted since the last measurement period. Circle these tallies. These additional procedures are necessary in order to accurately assess changes in tree damage over time.

Important footnote:

Surveyors tend to assess this set of indicators in an inconsistent manner (i.e., they do not tend to agree about numbers and condition of trees). Collecting the information can take a large amount of the time usually spent completing a campsite assessment. For this reason, eliminating this indicator from a survey can reduce field time without reducing the quality of data collected. Tree damage is often mentioned as a topic for concern among managers, campers, and others. Still, data collected is often not as high-quality as one would like for management decisions. *Include the indicator if you like, but realize that survey results for it can be poor quality and the amount of time spent collecting the information can be great.*

43-46) **Root Exposure:** [See note that follows] Assign and tally each live tree (>1" in diameter at 4.5 ft. trunk height) within or on campsite boundaries to one of the root exposure rating classes that follow. **Include** trees within undisturbed "islands" and **exclude** trees in disturbed "satellite" areas (see table 4). Assessments are restricted to all trees within the flagged campsite boundaries in order to ensure consistency with future measurements. Where obvious, assess trees with naturally exposed roots (e.g., flooding) as None/Slight.

None/Slight.....NO OR SLIGHT ROOT EXPOSURE SUCH AS IS TYPICAL IN ADJACENT OFFSITE AREAS.

Moderate.....TOP HALF OF MANY MAJOR ROOTS EXPOSED MORE THAN ONE FOOT FROM BASE OF TREE.

SevereTHREE-QUARTERS OR MORE OF MAJOR ROOTS EXPOSED MORE THAN ONE FOOT FROM BASE OF TREE; SOIL EROSION OBVIOUS.

N/ANOT APPLICABLE BECAUSE THERE ARE NO TREES WITHIN CAMPSITE BOUNDARIES. CHECK IF APPROPRIATE.

✍ *Future Site Assessment:* Begin by assessing root exposure on all trees within the site boundaries identified in the last measurement period. Place boxes around each tally for trees in areas where boundaries have moved closer to the centerpoint, i.e., former site areas which are not currently judged to be part of the site. Next, assess root exposure in areas where boundaries have moved further from the centerpoint, i.e., expanded site areas which are newly impacted since the last measurement period. Circle these tallies. These additional procedures are necessary in order to accurately analyze changes in root exposure over time.

Important footnote:

As with tree damage, surveyors tend to assess this indicator in an inconsistent manner (i.e., they do not tend to agree about numbers of trees or exposed roots). For this reason, eliminating this indicator from a survey can reduce field time without reducing the quality of data collected. Tree damage and root exposure are often mentioned as topics for concern among managers, campers, and others. Root exposure can provide a good indication of soil compaction and erosion. Still, because of inconsistency among surveyors, data collected is often not as high-quality as one would like for management decisions. *Include the indicator if you like, but realize that survey results for it can be poor and the amount of time to collect the information can be significant.*

- 47) **Fire Sites within boundary or satellite areas (#):** Count each fire site within campsite boundaries, including satellite areas (see Table 4). Include old inactive fire sites as exhibited by blackened rocks, charcoal, or ashes. Do not include locations where charcoal or ashes have been dumped. *However, if it is not clear whether or not a fire was built on the site, always count questionable sites that are within site boundaries and exclude those that are outside site boundaries.*

- 48) **Human waste in likely areas:** Assess the amount of human waste visible with only a slight search of the immediately surrounding areas. Look at only those areas that are likely to fulfill this need. The purpose for this indicator is to identify human waste that a camper might see or discover at the site.

None=No waste visible in likely areas Some=few distinct examples (<5)
Much=Many distinct examples (>5)

- 49) **Litter visible from boundary:** Categorize the amount of litter visible without searching beyond the campsite boundary. Again, the purpose is to assess the indicator from the perspective of a camper.

None=No litter visible Little=less than a handful Some=less than a quart sized bagful
Much=More than a small bagful

- 50) **Number of satellite sites:** Count and record the number of satellite sites associated with this campsite (see Table 4 for a definition if necessary).

- 51) **Total Campsite Area (calculated from geometric figure method):** Using the formulas provided earlier (Table 5), calculate the Total Campsite Area. It may be easiest and most accurate to complete the calculations back in an office, perhaps with a computer calculating the size. If necessary, draw a thumbnail sketch of the site with islands and satellites shown together with the dimensions of each. The sketch can provide numbers for the calculations and you can make those calculations in the office (i.e., out of the field).

- 52) **Comments / Recommendations:** Write any comments about the campsite that would assist interpretation of your work or would help someone assessing the campsite in the future. Use this section to note whether a sketch-map of the site is included on the back of the survey form.

RECREATION SITE GROUP MONITORING FORM

NOTE: Use this form to collect information about a group of campsites and complete it only in addition to individual assessment of the campsites within the group.

SITE IDENTIFICATION

- 1) **Associated tags (List tag numbers of campsites in this group):** Self-explanatory.
- 2) **General Location:** Record the general area where this campsite is located. This may be a compartment name, drainage or watershed, management area or district, or some other fairly common name. If no general name for the area is known, just record an area name that applies from the USGS quad map.
- 3) **Trail or Road Name (closest):** Record the name of the closest trail or road used for access to campsite.
- 4) **USGS Quad:** Record the name of the quad sheet showing where the site is located.
- 5) **Describe Site Location:** Describe the campsite location with brief references to local features (e.g., trail intersections, stream crossings, water sources, archeological sites, or large boulders or trees) and paced distances. (See pacing procedures in Table 3). Use sufficiently descriptive detail and additional local area maps as necessary so that someone else five years from now could find the site.
- 6) **Date Assessed:** Record the date of the Assessment.
- 7) **Assessment By:** Record the initials of the person responsible for completing the form.

CONDITION INDICATORS

- 8) **Number of campsites in the general area (how many in group)?** Self-explanatory.
- 9) **Is this general area in need of attention this season? Within 1-2 years? Within 5 years?** Provide your opinion about when this group of sites should need management attention. The purpose for this indicator is to draw the attention of managers to any campsites needing attention and provide a general sense of priority.

10) **General tree damage outside of campsites and in general area?** Assess each live tree in the immediate area of the campsite group and outside all campsite boundaries (note that this is the opposite of the campsite version of this indicator). Assign the tree to one of the three following categories and tally it. Include trees within undisturbed "islands" and exclude trees in disturbed "satellite" areas (see table 4). Unlike assessment of individual campsites, the group assessment should capture all trees outside the flagged campsite boundaries in order to ensure consistency with future measurements. Focus only on the most obvious examples (moderate and severe damage); limit the search to the immediate area of the campsite. *The purpose for this indicator is to characterize damage to trees that would be missed if we only relied upon assessment protocol for individual campsites. It is not to find every tree that might have any damage.*

- ?? Multiple tree stems from the same species which are joined at or above ground level should be counted as one tree when assessing damage to any of its stems.
- ?? Assess a cut stem on a multiple-stemmed tree as tree damage, not as a stump.
- ?? Do not count tree stumps as tree damage.
- ?? Take into account tree size. For example, damage for a small tree would be considerably less in size than damage for a large tree.
- ?? Do not tally trees with obvious scars from natural causes (e.g., lightning strikes, animals, etc).

MODERATENUMEROUS SMALL TRUNK SCARS AND/OR NAILS OR ONE MODERATE-SIZED SCAR.

SEVERETRUNK SCARS NUMEROUS WITH MANY THAT ARE LARGE AND HAVE PENETRATED TO THE INNER WOOD; ANY COMPLETE GIRDLING OF TREE (CUTTING THROUGH TREE BARK ALL THE WAY AROUND TREE).

N/ANOT APPLICABLE BECAUSE THERE ARE NO TREES IN THE IMMEDIATE AREA.

Important footnote:

Surveyors tend to assess this indicator in an inconsistent manner (i.e., they do not tend to agree about numbers and condition of trees). For this reason, eliminating this indicator from a survey can reduce field time without reducing the quality of data collected. Tree damage is often mentioned as a topic for concern among managers, campers, and others. Still, data collected is often not as high-quality as one would like for management decisions. Include the indicator if you like, but realize those survey results for it can be poor.

11) **General description of area (Anything of possible management concern? If you think the area needs attention, why? Is something especially nice about area?):** Write a comment if one seems appropriate to give managers or help during the analysis and reporting of the survey work. If no comment seems necessary, then leave this blank.

12) **Quick Sketch of Camping Area showing relative placement of campsites to each other and to landmarks such as trails, roads, large trees or rocks, etc. Show the bearing between each centerpoint.** Draw a quick sketch of the campsites in the immediate area. Show each site in relation to the others and provide any reference points that might help someone orient themselves to the location. *Do not spend more than 5 minutes on this sketch.* The purpose is to orient someone in the future, not to depict the area's condition.