CAMPSITE MONITORING PROCEDURES-SAN RAFAEL WILDERNESS

If the campsite has NO long-term impact, merely record its location and comment on its current state. Such a site could be obliterated in less than one-half hour. It should have no vegetation loss outside the fire ring.

If the campsite does have some vegetation loss, decide whether to complete a rapid assessment form or a detailed assessment form. We have been completing a detailed assessment form for one site in each "developed" camping area.

Detailed Assessment. The detailed assessment can take between one and two hours to complete. Instructions are as follows:

1. Establish permanent points (buried nails) at opposite edges of the campsite, such that a transect between the two points would run the long way through the most impacted part of the campsite. At Poterero and Lost Valley, two campsites have merged into one and were recorded on one form, using a single transect. Elsewhere, only single sites were assessed. Document the location of the 2 permanent points, recording distance and azimuth to 3 permanent features (like trees with species and dbh=diameter at breast height noted). Use zero declination. Draw a sketch map showing the permanent points, distance and direction between them (from point 1 to point 2 on the map) and the triangulations.
2. From each permanent point, walk perpendicular to the transect between permanent points to establish corner points that contain all trees associated with the campsite within the resultant four-sided polygon. Note distances from permanent points to corners on sketch map. Examine each tree (>4.5 feet tall) within these four corner points. Classify each tree as live, dead (standing), cut (felled by humans) or a stump (from natural causes). For each tree, record the total area of tree scarring in square centimeters. Give slashes and axe marks a width of 1 centimeter and nails an area of 1 square centimeter. Also, record the length (in centimeters) of exposed roots that are > 2.5 centimeter in diameter. If the cause of root exposure appears natural, note this in the space provided.
3. Run a tape from permanent point 1 to point 2. Locate 16 quadrats (each 1 square meter) along the tape. Quadrats should be located on each side of the tape at 8 distances from point 1. On the form a quadrat at 1.0L is located on the left side of the tape, between 1.0 and 2.0 meters from point 1. Locate about one-half of the quadrats in barren, devegetated parts of the site (B) and the other half in disturbed, but partially vegetated parts of the site (D). Note whether the quadrat is barren (B), disturbed (D), undisturbed (U) or some combination. When doing repeat monitoring, locate the quadrats where they were placed the first year. In each quadrat, estimate the percent cover of vegetation and of exposed mineral soil (bare)(without vegetation or organic horizons). Estimate cover to the nearest 1%, if cover is less than 10%, or to the nearest of 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100%. If you have a pocket soil penetrometer, record penetration resistance. This is not critical.
4. Draw major bare areas on the sketch map. Potrero, Lost Valley and White Ledge were the only sites we found with more than one bare area. Triangulate from the center of each bare area to two permanent distinctive features (usually trees with species and dbh noted). Draw these in under the bare area triangulation. Nails are NOT buried at the center of each bare area-which usually is a fire grate or stove. Walk the edge of the campsite, placing flagged wire pins at locations which, when connected with straight lines, will define a polygon whose area approximates the campsite. The edge of the disturbed area can usually be defined by a change

in vegetation height or density. Sometimes an arbitrary boundary must be defined. If there are two neighboring bare areas, an arbitrary boundary between the two areas must be defined. Standing at the center of the site, record the azimuth and distance to each flag, moving clockwise around the perimeter of the site starting with the pin immediately clockwise from north. It is important to record flags in the order they occur while walking the campsite perimeter-not necessarily the flag with the next largest azimuth. If the perimeter is convoluted, it is possible to record a flag with a larger azimuth before a flag with a smaller one. For example, azimuths of flags may go 10, 34, 62, 94, 80, 110...For each transect between center point and the flag, record the distance to the edge of the barren area. This is the point where vegetation begins. If necessary this boundary can be defined as the point where vegetation cover exceeds 15% in a 0.33 x 1.0 m area. Do this for each bare area. Bare area and disturbed area can be calculated as the sum of the areas of triangles defined by adjacent transects. When conducting repeat measures, reestablish each of these transects. Record new distances to the edge of the bare area and campsite only if it is clear that the distance recorded earlier is no longer appropriate. This avoids problems resulting from the frequent need to set an arbitrary boundary.

5. If there are any satellite disturbed areas, outside the main measurement area, record their approximate location, size and percent vegetation cover and exposed mineral soil (bare).
6. Find a site close to the campsite which appears to approximate what the campsite would have looked like prior to camping. Randomly throw 5 quadrats on this site, recording percent cover of vegetation and exposed mineral soil, as well as penetration resistance.

Rapid Assessment. The rapid assessment form should take no more than about 10 minutes to complete. On one side is descriptive information about the campsite. This information is self-explanatory and much of it should not change over time. The number of other campsites that are not completely screened-or within one-quarter mile-may change over time. This may also be critical to assessing the campsite solitude in the area. Facilities on the site are also likely to change. If you are going to eliminate some existing facilities, record what was present prior to your arrival. On the back of the form, note what was removed.

On the reverse side of the form are estimates of campsite impact.