Campsite Condition Monitoring—San Rafael Wilderness—April 1999

David N. Cole and David R. Spildie

Aldo Leopold Wilderness Research Institute, Missoula, MT 59807

Introduction

Wilderness areas are to be managed in such a manner that natural conditions are maintained and the impacts of humans kept to low levels. Recreational activities, particularly camping, cause impacts to wilderness ecosystems, conflicting to some degree with the preservation mandate for wilderness areas. Consequently, recreational activities need to be managed to the degree necessary to keep impacts within acceptable levels. This requires periodic monitoring of the condition of wilderness campsites.

Prior to 1999, no baseline data on campsite conditions was available for the almost 200,000 acre San Rafael Wilderness. As an initial step toward rectifying this information gap, David Cole and Dave Spildie (from the Aldo Leopold Wilderness Research Institute) spent 9 days assessing campsite conditions in the San Rafael Wilderness in April 1999. They hiked about 80 miles of trail, covering the popular Nira Loop trail, as well as much of the Upper Sisquoc River drainage (to Heath Camp) and upper Manzana Creek (to Big Cone Spruce Camp). They visited all but one of the 22 semi-developed camping areas (long-established campsites, with stoves, located on maps of the area) and looked for informal campsites in places that appeared amenable to camping. They located and assessed a total of 91 campsites over the 9-day period. One semi-developed campsite (Cliff Camp) was missed along the Nira Loop and one popular informal camping area (near Horseshoe Meadows along Manzana Creek) was bypassed.

With this trip, the most-popular central portion of the San Rafael Wilderness has been surveyed (with the exception of Hurricane Deck, which probably has few campsites given lack of water). That leaves the northwestern and southeastern portions of the wilderness lacking a campsite condition baseline survey. The northeastern portion of the wilderness is very lightly-used, with less than 10 miles of trail and only 2 semi-developed camping areas. The southeastern portion of the wilderness has 35-40 miles of trail and 9 semi-developed camping areas. Most of this trail system is away from water, suggesting that there are probably few informal campsites. This leads us to believe that, after our April 1999 survey of campsites in the central portion of the wilderness, at least 75% of the campsites in the San Rafael Wilderness have been located and assessed. The baseline could probably be completed with another week of work.

The 1999 Assessment

We used a combination of rapid survey techniques and more detailed campsite assessments. We hiked along trails, exploring places that appeared amenable to camping. For example, we would leave the trail to search for sites on flat grassy terraces. The information we collected on each campsite varied with the type of site. At 19 of the 21 semi-developed camping areas, we selected at least one of the individual campsites and established permanent measurement plots on that site. We did not take detailed measures at Manzana Schoolhouse Camp, because the more heavily-used sites were outside the wilderness, or at Mormon Camp, because the campsite was minimally impacted. The use of permanent plots allowed us to take more detailed measurements from which we will be able, in the future, to identify even subtle changes.

In addition we filled out a rapid inventory form for each of these campsites. We also filled out a rapid survey form for other individual campsites in the semi-developed camping areas (sites at which we did not establish permanent plots), as well as for informal sites away from semi-developed camping areas. These forms contain information about many different types of campsite impact but the precision of this information is low. On sites with minimal long-term impact we simply recorded the location of the campsite. On most of these campsites, the only evidence of use is an old firering. If the firering was scattered, there would be no further evidence of impact.

In sum, we established permanent plots at 21 campsites. (At two camping areas--Potrero and Lost Valley--2 campsites located adjacent to each other are recorded on the same form. Therefore, there are only 19 forms for the 21 individual campsites with permanent plots). We have rapid survey forms for these 21 campsites, as well as another 29 campsites. We also located another 41 minimally-impacted campsites, for which we have no information other than location.

Methods

On the campsites for which we established permanent plots we measured the following impact parameters: (1) disturbed campsite area, (2) barren core area, (3) tree damage, (4) root exposure, (5) vegetation loss, (6) mineral soil exposure, and (7) soil compaction (penetration resistance). Detailed instructions for taking measurements are included with the completed forms.

The rapid survey forms consisted of both general site description information and impact evaluations. General site descriptors include elevation, vegetation, landform,

distance to trail, water and other campsites, and facilities present. Impact parameters were (1) vegetation loss, (2) mineral soil exposure, (3) tree damage, (4) root exposure, (5) development, (6) cleanliness, (7) social trails, (8) camp area, and (9) barren core area. Many of these are the same parameters as were measured on the sites with permanent plots. For the rapid survey, parameters were rapidly estimated rather than carefully measured. We also counted sites with toilet paper and human waste and assigned each site an overall condition class rating between 1 and 4. Finally, we took a photograph of each site. Detailed instructions are included with the completed forms.

Discussion

The primary value of our assessment will be its utility as a baseline for campsite conditions in the San Rafael Wilderness in 1999. In the future, wilderness managers will be able to compare conditions to what existed in 1999 and identify changes. It is a pity that we have no earlier data to suggest how things changed prior to 1999.

We have not attempted a detailed analysis of the 1999 results. However, it is clear from the data collected that campsite impacts are relatively modest in the wilderness. Of the 91 campsites we located, 47% (43 sites) were rated condition class 1.0, suggesting no long-term impact. Such sites would disappear if 10-15 minutes (or even less) were spent to obliterate an old firering. If we are correct in our estimate that 75% of the sites in the wilderness are along the Nira Loop and Upper Sisquoc, there must be a total of only 60-65 campsites in the 200,000 acre wilderness with any long-term impact.

In addition to there being relatively few campsites, few of the existing campsites are severely impacted. Only 22 campsites had condition class rating of 3.0 or more

(indicating substantial vegetation loss). Only12 campsites were given a condition class rating of 3.5-4.0 (indicating loss of soil organic horizons, in addition to vegetation loss). Moreover, 10 of these12 severely-impacted campsites were located in the 8 mile stretch of trail along Manzana Creek between Manzana Narrows (the most heavily impacted camping area in the portion of the wilderness we visited) and Potrero Camp. The two other severely-impacted sites were at the South Fork and White Ledge Camps. Wilderness-wide there are probably less than 30 campsites with substantial vegetation loss and less than 15-20 sites with significant impact to soils.

There are a number of potential explanations for this relative lack of impact. First, visitation levels appear to be quite low. For example, we encountered only 7 other groups in 9 days, despite hiking some of the most popular trails during the most popular season. Moreover, most use is concentrated along about 15 miles of Manzana Creek, upstream and downstream of Nira. In addition, site durability is generally high. There are many places to camp on sand, on heavily-shaded sites with little understory vegetation or on grassy sites, which tend to be resistant to trampling. Moreover, growing seasons are long, terrace sites are fertile and well-watered for some of the year, so resilience is high as well. This high resistance and resilience is reflected in the fact that much of the trail along the Sisquoc River is difficult to find. The trail is frequently incised but the trail surface is vegetated as densely as off-trail surfaces.

One of the unusual characteristics of the San Rafael Wilderness, shared with some other wildernesses on the Los Padres National Forest, is the presence of old stoves at most of the semi-developed camping areas. These stoves have both benefits and costs. They are an established tradition in the area and they may reduce fire danger. On the

other hand, some people are likely to consider them inappropriate in wilderness. These stoves probably serve to concentrate use. In most situations, concentration of use reduces impact because relatively few places are used and impacted, The combination of low use, numerous potential campsites and durable sites, makes the San Rafael unusual in the degree to which use dispersal might be a viable strategy for minimizing campsite impacts (particularly away from the popular sections of Manzana Creek between Manzana Narrows and Manzana Schoolhouse). This would argue against keeping the stoves and noting campsite locations on maps. However, currently few campsites are severely-impacted even with the stoves in place.

Recommendations

Our principal recommendation is to accept and store these data as a baseline assessment of conditions in 1999. The value of these data will increase over time. We will also be storing a copy of the data at the Aldo Leopold Wilderness Research Institute. We also suggest that time be allotted to extend this assessment to the northwestern and southeastern portions of the wilderness which were not included in our survey. It should take two people as little as a week or two to complete the survey. We are prepared to provide on-site training in survey methods. Then we recommend developing a monitoring program for the future. We recommend revisiting sites on about a five-year rotation. It might also be worth trying to get similar techniques adopted in developing baselines for other wildernesses on the Los Padres National Forest.

We have no specific recommendations for changes in campsite management. As noted, conditions are relatively good. Compared to many other wildernesses there are

relatively few campsites and relatively few severely-impacted campsites. The most severely-impacted campsites are not unusually damaged compared with campsites in other wildernesses. We do recommend the development of standards for campsite impact. Such standards will suggest whether or not there are impact problems that need management attention.