

WILDERNESS ENCOUNTERS

Expectations for solitude, actual numbers of people, and types of groups encountered, have been shown to have a significant effect on the quality of visitors' experiences (Patterson & Hammitt, 1990; Newman, 2002). Encounters are also an excellent way to assess visitor use and density, which can affect other Outstandingly Remarkable Values (ORVs) such as the biological, cultural, and scientific values set for a river corridor (Figure 1). This indicator monitors wilderness encounters and gauges the visitor use, density levels, and opportunities for solitude that visitors experience in designated wilderness areas.

Introduction

A wilderness encounter indicator has been included in the draft Tuolumne River Plan and is in development for the Merced River corridor for potential inclusion in the Merced River Plan. Determining encounter rates in the backcountry is one method by which wilderness managers can quantify the opportunities for solitude in a wilderness setting. An exploration of this indicator has been ongoing in Yosemite National Park since 2004 and was further developed in 2009 when researchers from the University of Idaho implemented a pilot study to determine the most effective and statistically significant methods for measuring wilderness encounters in the Tuolumne River corridor (Broom & Hall, 2010).

The pilot study informed the selection of current wilderness encounter parameters, which include the hourly average number of encounters per day with groups, individuals, and stock (Table 1). Due to the variance in trail geography and its influence on travel patterns, wilderness encounters are monitored by discreet trail segments (Table 2). While standards are still under development for most parameters, a draft standard for the parameter of "Number of Encounters with Other Groups" has been established for trails within the Tuolumne River corridor. The draft standard states that there shall be "no more than 8 encounters with other parties per hour, 80 percent of the time." Results for this parameter are reported by trail segment, with average encounter numbers, percentages, and whether or not the parameter is in standard compliance (Figure 2).



Figure 1 Dana Meadow near Tioga Pass in the Yosemite Wilderness (Photo: sierrawild.gov)

Findings and Highlights

Table 1 Wilderness Encounters: Parameters, Plan/Application, Standard & Observed Condition

Parameter	Plan/Application	Standard	Observed Condition
# of Encounters with other groups	Draft Tuolumne River Plan/ In development as a potential indicator for the Merced River corridor	Tuolumne: No more than 8 encounters with another party per hour, 80 percent of the time. Merced River corridor standard for # of encounters with other groups is in development	Tuolumne*: <i>Ireland Lake</i> —Compliant, 88% below 8pph, Overall average 6.62 parties/hr <i>Glen Aulin</i> —Out of Compliance, 77% below 8pph, Overall average 6.8 parties/hr <i>Waterwheel Falls</i> —Compliant, 100% below 8pph, Overall average 2.48 parties/hr Merced: <i>LYV</i> -1.73 parties per hour <i>Echo Valley</i> -2.13 parties/hr <i>Washburn</i> -0.68 parties/hr
# of Encounters with individuals	Draft Tuolumne River Plan/ In development as a potential indicator for the Merced River corridor	Standards for # of encounters with individuals are in development	Tuolumne: <i>Ireland Lake</i> -15.89 people/hr <i>Glen Aulin</i> —17.5 people/hr <i>Waterwheel Falls</i> —6.89 people/hr Merced: <i>LYV</i> -4.06 people/hr <i>Echo Valley</i> -5.57 people/hr <i>Washburn</i> -1.58 people/hr
# of Encounters with stock	Draft Tuolumne River Plan/ In development as a potential indicator for the Merced River corridor	Standards for # of encounters with stock are in development	Tuolumne: <i>Ireland Lake</i> -1.83 stock/hr <i>Glen Aulin</i> —1.64 stock/hr <i>Waterwheel Falls</i> —0.16 stock/hr Merced: <i>LYV</i> -1.47 stock/hr <i>Echo Valley</i> - stock/hr <i>Washburn</i> -0.09 stock/hr

*Lists average number and % of parties per hour, and whether or not they were in standard compliance

Table 2 Geographic extents of trail segments sampled in 2010.

Segment Code	Segment Description
T1	Rafferty Creek to Ireland Creek
T2	PCT/Pack Trail Junction to Glen Aulin High Sierra Camp
T3	Glen Aulin High Sierra Camp to Waterwheel Falls
M1	Little Yosemite Valley Campground to Bunnell Cascade
M2	Echo Creek to Lewis Creek

M3	Lewis Creek to Hutchings Creek
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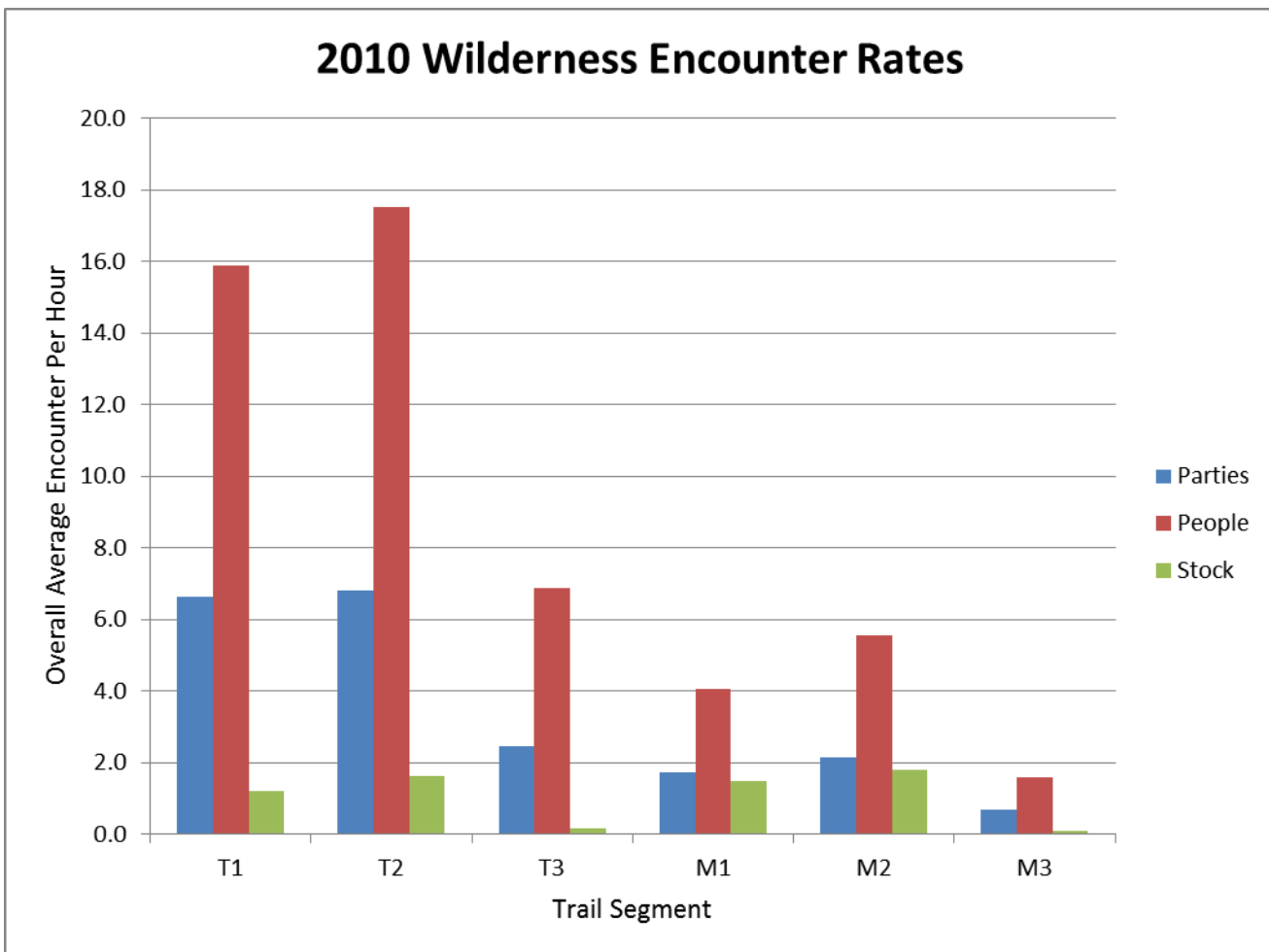


Figure 2 2010 Wilderness encounter rates: Hourly averages for encounters of different user types.

Conclusion & Future Implications

The wilderness encounter indicator has seen significant refinement in the past few seasons of data collection. The major focus for 2010 was the integration of data collection methods developed and field tested during the 2009 pilot study (Broom & Hall, 2010). Trained volunteers and Student Conservation Association interns collected encounter data on six trail segments, three each within both the Merced and Tuolumne River corridors. In addition to observing encounter rates at these locations, automated visitor counters were deployed along each trail segment to improve data collection methodology and further inform visitor use estimation. In order to confidently estimate encounter rates through automated counter data for long term monitoring, a baseline layer of observed encounter data for each segment was established for calibration purposes.

Initial analysis has shown strong relationships between automated counter data and observed average hourly encounter rates within discreet trail segments. Relationships are strongest for trail segments where use reflects traditional wilderness travel patterns, i.e. where through hikers enter the trail system

and move continuously along the trail segment, and are not as strong along trail segments that experience higher volumes of day use visitation. One possible explanation for these weaker relationships may be the increase in repeat encounters with individual groups, such as situations where a group lingers at a specific location along a trail segment. Various methods are being explored to more precisely capture observations of differing types of visitor use within the trail system. In 2011, park scientists will continue to research wilderness encounter rates along previously selected trail segments in the Merced and Tuolumne River corridors, as well as exploration into potential trail segments in the South Fork of the Merced River corridor.