

ENCOUNTER LEVEL MONITORING REPORT

BROKEN ARROW ROAD
SCHNEBLY HILL ROAD
SOLDIERS PASS ROAD
VULTEE ARCH ROAD

RED ROCK RANGER DISTRICT COCONINO NATIONAL FOREST

November 2011



INTRODUCTION

In 2010, the Red Rock Ranger District analyzed the results of a district-wide recreation use and capacity analysis. The District concluded that recreation use fell within capacity for most of the District. However, there were four areas where the analysis indicated that use may exceed capacity. These areas were: Broken Arrow Road, Schnebly Hill Road, Soldiers Pass Road, and Vultee Arch Road.

To make an accurate determination of use levels in these areas, more data was needed. The District contracted a Forest Service social scientist to design a set of protocols for collecting this data. This information would be used to verify use levels in relation to capacity and would inform future management decisions for these four areas.

ENCOUNTER LEVELS AND MANAGEMENT PRESCRIPTIONS

For linear features such as roads and trails, recreation capacity is best analyzed in terms of social encounters. Encounters occur when people or groups of people recreating see each other on a trail, road, or other location within the landscape. Management prescriptions for encounter levels are determined in the Forest Plan and are established for each Recreation Opportunity Spectrum (ROS) class on the forest. The levels established by the Coconino Forest Plan are described in Table 1.

The basic definition of an encounter is also established in the Forest Plan. Due to the predominance of vehicular motorized use on the Red Rock Ranger District, an encounter is defined as a party of six (or fewer) people or one vehicle.

Table 1. Encounter Levels per ROS Class

ROS Class	Encounter Level
Primitive	15/day
Semi Primitive Non-Motorized (SPNM)	15/day
Semi Primitive Motorized (SPM)	15/day
Roaded Natural (RN)	15/hour
Rural (R)	15/hour

For Primitive, SPNM, and SPM classes, the encounter levels are for all users combined. For Roaded Natural and Rural classes, the encounter level only applies to commercial users; non-

commercial users are expected to have high to frequent contact frequencies, but no numerical limit is prescribed.

All four roads in this study are classified as Semi-Primitive Motorized. However, Broken Arrow, Schnebly Hill, and Vultee Arch Roads have management exceptions in the Forest Plan. This means that while their ROS class is Semi-Primitive Motorized, the prescription for social encounters is that for Roded Natural (15 commercial encounters per hour). Soldiers Pass Road does not have an exception; its management prescription is 15 encounters per day.

METHODOLOGY

To ensure the collection of meaningful, consistent data, the protocols (hereafter referred to as “monitoring program”) needed to meet several requirements:

- The data collected must be statistically and scientifically sound.
- The data must reflect the actual experience of typical forest users.
- The data must be recorded in terms of encounter levels.
- The data must capture commercial versus non-commercial use.

A Forest Service social scientist designed a monitoring program that required Forest Service employees to drive the four roads the same way they are typically driven by forest visitors; this would provide more meaningful data than the “person on a rock” method (where an employee would sit in one spot for a period of time) because it mimics how people actually use the forest and therefore captures a more realistic image of encounter levels. Employees recorded encounters along the way and whether they were commercial, non-commercial, motorized, or non-motorized. The dates for the surveys were randomized using a computer program.

The District collected data for a full year, from October 2010 to October 2011. This provided the ability to observe seasonal differences and provided enough time to gather sufficient data to make quality statements about encounter levels in general.

Two agency social scientists subsequently compiled and analyzed the data. For each of the four roads, data was analyzed in terms of:

- Total encounters
- Commercial versus non-commercial encounters
- Motorized versus non-motorized encounters
- Commercial motorized versus non-commercial motorized encounters
- Seasonal variations

All use was analyzed in terms of encounters per hour.

RESULTS

Each road will be discussed in its own section. While the data yielded a variety of information, only that pertinent to capacity is presented here. The implications of this data are discussed in the following section.

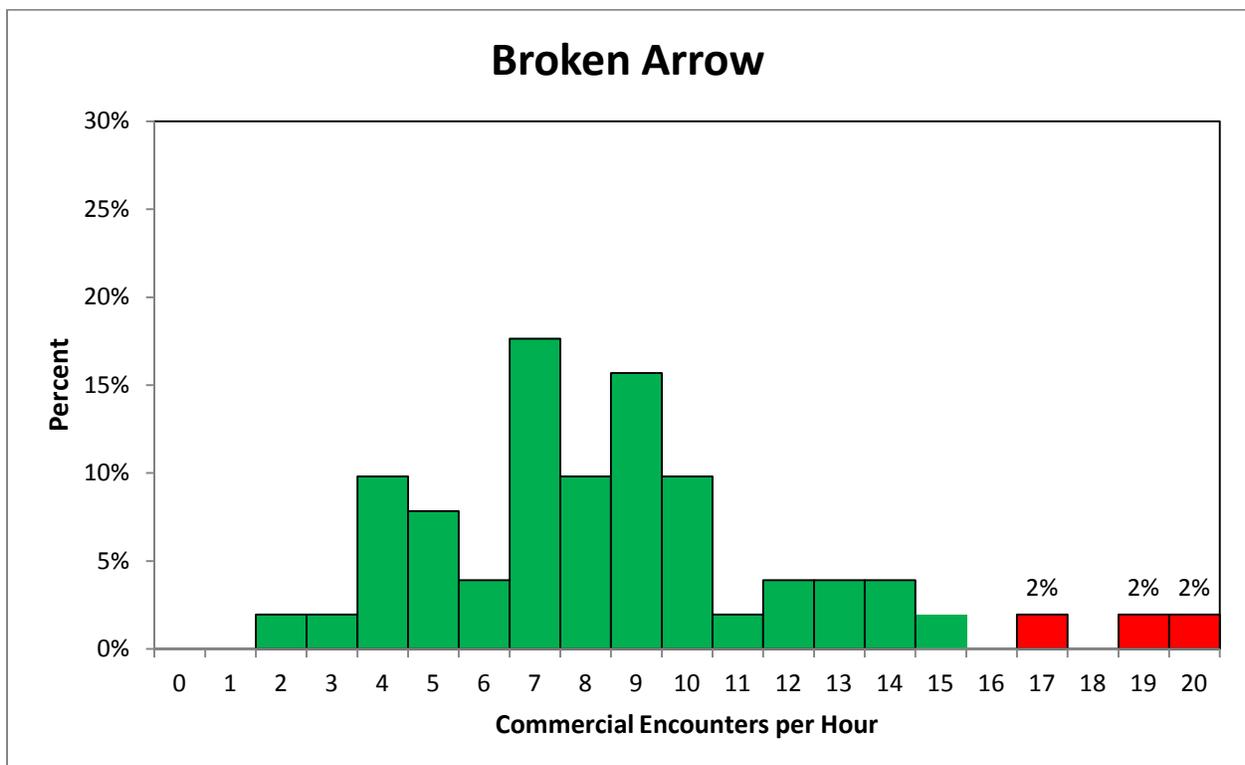
BROKEN ARROW

The Forest Plan management direction for encounter levels on Broken Arrow Road is 15 commercial encounters per hour. There is no limit for non-commercial encounters; therefore, use and capacity are discussed primarily in terms of commercial encounters.

Commercial use on Broken Arrow was within capacity 94% of the time (Table 2). The average commercial encounter rate was 9 encounters per hour. Commercial encounters comprised 60% of all recorded encounters. While spring had slightly higher encounter levels, use was relatively constant throughout the year.

Table 2. Encounter Levels on Broken Arrow Road

Encounter levels are expressed in terms of falling within capacity (green) and exceeding capacity (red). The vertical axis represents the percent of time that each encounter rate occurred.



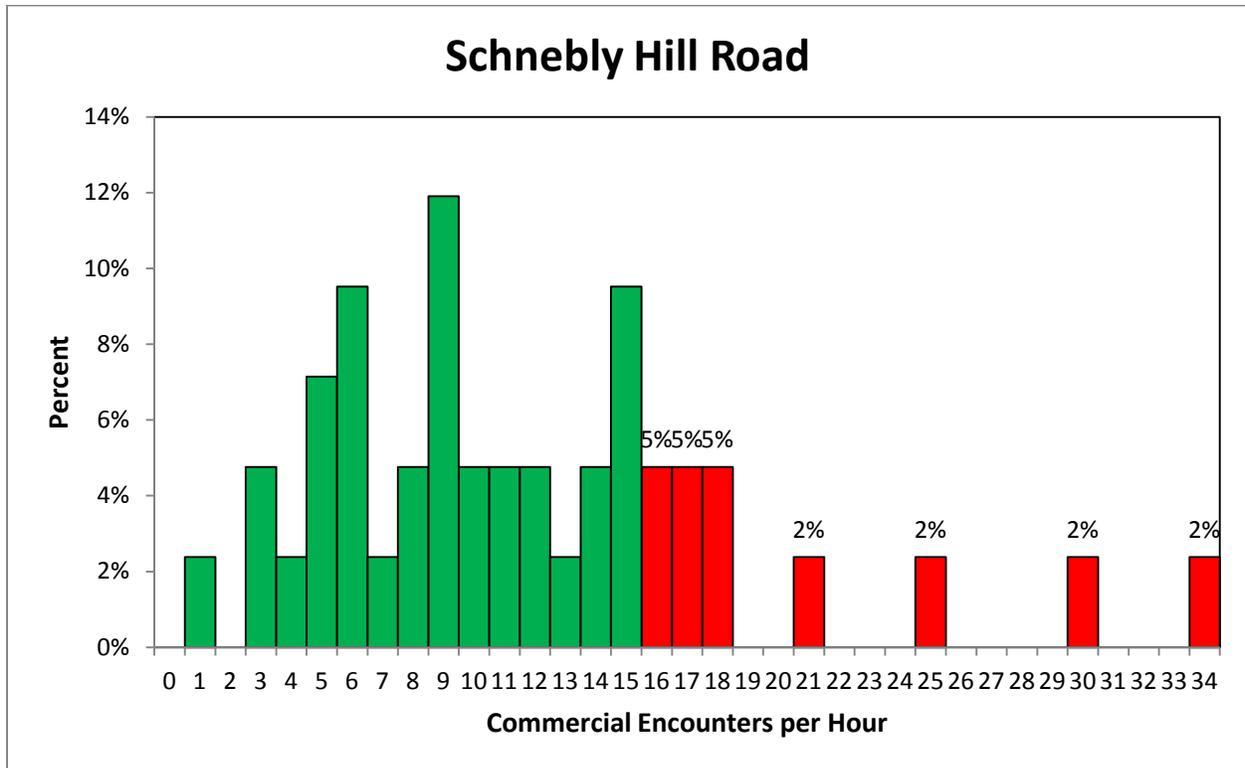
SCHNEBLY HILL ROAD

The Forest Plan management direction for encounter levels on Schnebly Hill Road is 15 commercial encounters per hour. There is no limit for non-commercial encounters; therefore, use and capacity are discussed primarily in terms of commercial encounters.

Commercial use on Schnebly Hill was within capacity 77% of the time (Table 3). The average commercial encounter rate was 12 encounters per hour. Commercial encounters comprised 40% of all recorded encounters. Spring and fall show higher levels of both commercial and non-commercial use, with a noticeable increase in spring commercial encounters.

Table 3. Encounter Levels on Schnebly Hill Road

Encounter levels are expressed in terms of falling within capacity (green) and exceeding capacity (red). The vertical axis represents the percent of time that each encounter rate occurred.



SOLDIERS PASS ROAD

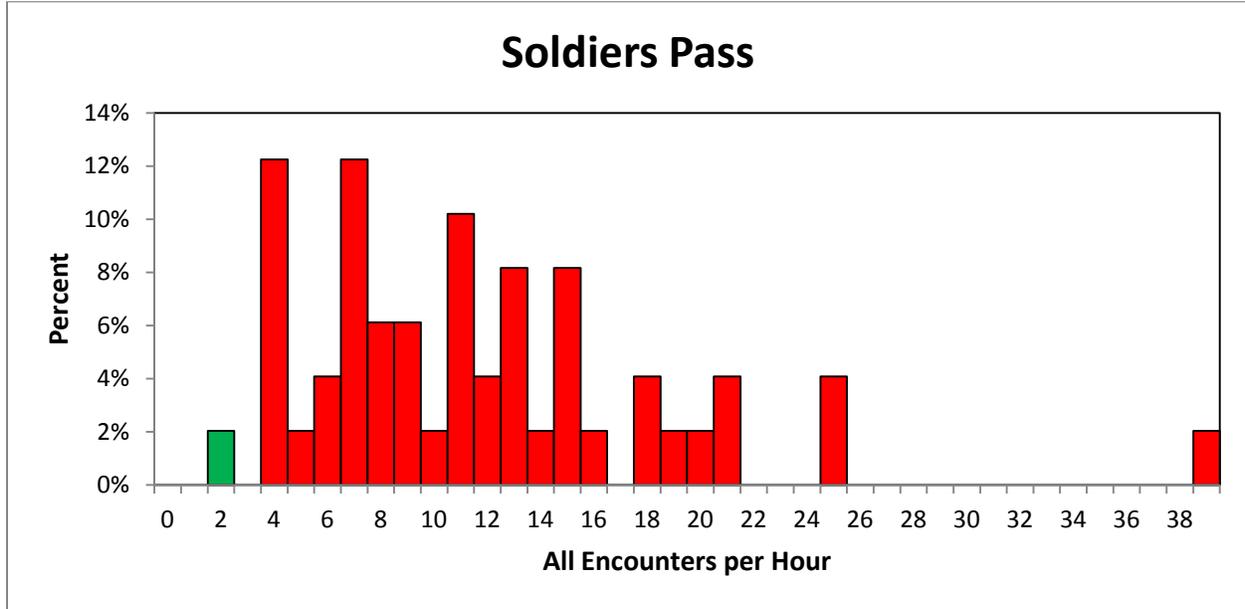
The Forest Plan management direction for Soldiers Pass Road is a maximum of 15 encounters per day. This includes both commercial and non-commercial encounters. While the prescription is per day, data was recorded as “per hour” to be provide consistency and clarity of analysis in relation to the other roads under study.

Use on Soldiers Pass Road was within capacity only 2% of the time (Table 4). The average encounter level (for all encounters) was 12 per hour. Commercial encounters comprised 29% of

total use. Commercial use showed an increase in spring, with the rest of the year being fairly level. Non-commercial use was highest in fall and only slightly lower in fall and spring; summer showed the lowest level of non-commercial encounters.

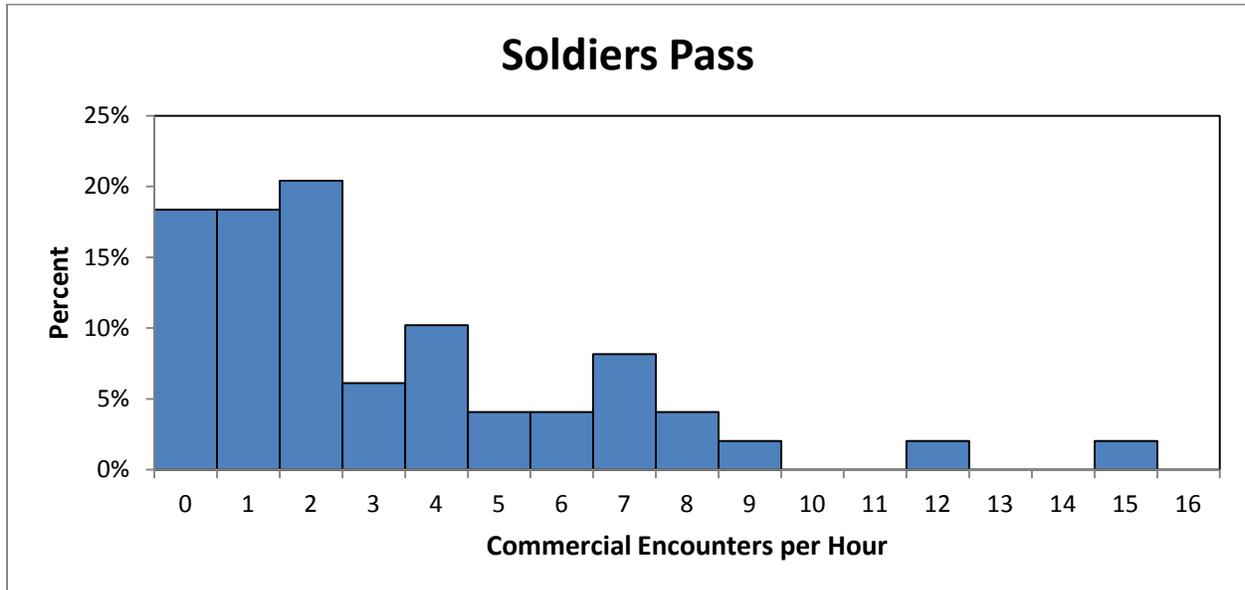
Table 4. Encounter Levels on Soldiers Pass Road

Encounter levels are expressed in terms of falling within capacity (green) and exceeding capacity (red). The vertical axis represents the percent of time that each encounter rate occurred.



For comparison to the other roads under analysis, commercial encounters were separated out and shown in Table 5. The average commercial encounter level was 3 per hour.

Table 5. Commercial Encounter Levels on Soldiers Pass Road



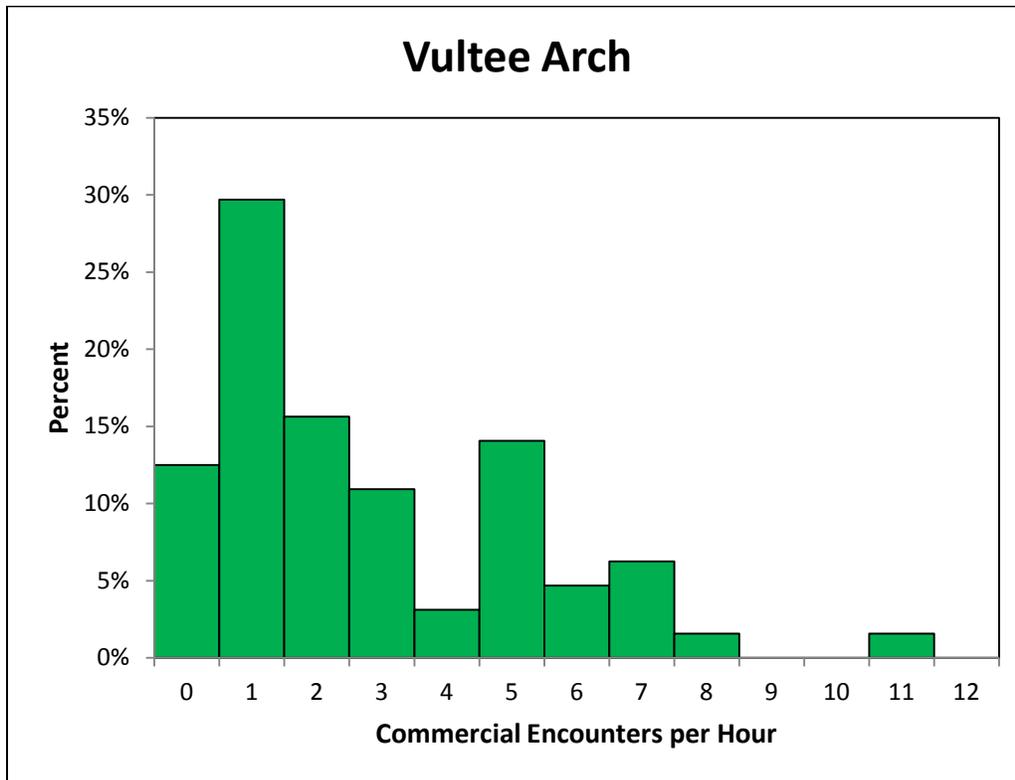
VULTEE ARCH ROAD

The Forest Plan management direction for encounter levels on Vultee Arch Road is 15 commercial encounters per hour. There is no limit for non-commercial encounters; therefore, use and capacity are discussed only in terms of commercial encounters.

Commercial use on Vultee Arch was within capacity 100% of the time (Table 6). The average commercial encounter rate was 3 encounters per hour. Commercial encounters comprised 12% of all recorded encounters. Both non-commercial and commercial use were fairly consistent for most of the year, with an increase in spring.

Table 6. Encounter Levels on Vultee Arch Road

Encounter levels are expressed in terms of falling within capacity (green) and exceeding capacity (red). The vertical axis represents the percent of time that each encounter rate occurred.



FINDINGS

Based on this analysis, the District proposes the following management actions. Each action will involve public scoping and subsequent NEPA. The discussion below is intended as a starting point only; Actual Proposed Actions and Decisions will be informed by the public involvement process.

BROKEN ARROW

Commercial use on Broken Arrow Road is within, but at, capacity. Because of the unique situation of a single commercial operator and a regular tour schedule (no more than 5 entering per hour), the few overages can readily be attributed to timing; if the observer arrived at the same time and traveled the same route, he would encounter the same jeeps at the trailhead, Submarine Rock, and Chicken Point, resulting in a higher encounter level. Because this occurs with such low frequency, it may be considered negligible.

Recommended Action: Cap commercial use at existing levels.

SCHNEBLY HILL

Commercial use on Schnebly Hill Road is just below or at capacity most of the time (77%). It should be noted that an additional 15% of the time, the use only exceeds capacity by 3 or fewer encounters per hour, which could easily be attributed to seasonal peak days.

However, use significantly exceeds capacity 8% of the time. While this is a low frequency of occurrence, these overages reflect use of over 200% of maximum capacity. This extreme excess, combined with high levels of non-commercial use on the road, indicate that management action is necessary.

Recommended Action: Work with affected permittees to develop a method for reducing overages. If one cannot be found, then the District will need to do an Environmental Assessment to reduce permitted use.

SOLDIERS PASS

Because Soldiers Pass does not have separate encounter levels delineated for commercial versus non-commercial use, and because the prescribed encounter levels are significantly lower than the other roads under study (15 per day instead of 15 per hour), current use levels on Soldiers Pass Road vastly exceed capacity.

For comparison to the other roads in the study, commercial use was separated out and converted to a “per hour” rate. If Soldiers Pass had the same encounter prescriptions as the other three roads, commercial use would be within capacity (Table 5).

Management of this area entails several issues: that access is through a residential area, that rental vehicles frequent the area, and that the road itself is short and is not a loop (requiring

drivers to drive back the same way they came in). The complexity of the situation will require multiple management actions.

Recommended Action: Gather input from the general public and stakeholder groups to: provide suggestions and ideas for the management of motorized use on this road; to identify issues and their level of significance; and to draft a Proposed Action.

VULTEE ARCH

Commercial use on Vultee Arch Road is below capacity. The data do not reflect the use patterns that District anticipated based on its knowledge of commercial use in the area. However, the analysis does not indicate any potential reasons for this discrepancy.

It is also worth noting other management actions that may affect commercial use on this road in the near future. The District has plans to create a large parking area near the junction with Dry Creek Road and to create additional trail connections in the area. These could significantly alter user patterns on the road.

Additionally, the Forest has decreasing funds for the maintenance of this road to Level 3 standards (drivable by regular passenger vehicles). If the maintenance level is changed to Level 2, then the road will only be passable by high-clearance 4x4 vehicles. This could increase the need for outfitter/guide services to access the area.

Further complicating the situation are severe watershed and erosion issues, which are currently causing new archeological sites to be exposed.

Recommended Action: Hold use at existing levels, in transitional priority use status. Initiate internal discussions with Forest Service engineers and watershed specialists to discuss the future of managing this road. Once the bigger-picture issues of erosion and maintenance are addressed, determine the appropriate action to take in regards to outfitter/guide use on the road.