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Visitor Use Management Protocol

# People at One Time (PAOT) Protocol to Monitor Visitor Density

Troy E. Hall, Ashley D'Antonio, and Madeline Aberg

Department of Forest Ecosystems & Society, Oregon State University



## Overview

This protocol describes a process for counting the number of visitors present at one time within specified areas at selected locations within a park. This indicator can be useful for monitoring conditions related to crowding. It can also be used in conjunction with other measures.

## Considerations

- 1) This protocol describes a process for **static counts**, either of the number of people present at one time in a **zone** or of the number of people who cross a threshold (**flow**). For roving counts (e.g., along a , see the Visitor Encounter Monitoring Protocol.
- 2) This protocol can be used to measure more than people. For example, it can be adapted for counts of **dogs at one time** or for counts of **different types of users at one time**. If you are measuring the number of individuals in multiple groups, ensure that you can accurately track counts of both groups.
- 3) **Sampling the area**. Instead of randomly sampling from all possible observation locations, you may choose to select key observation points or zones within selected units. Clearly delineating observational spaces helps to ensure the comparability of data over time and significantly increases the efficiency of field data collection. We suggest considering the following when selecting observation locations:
  - Locations where use concentrates or where problematic behaviors would be most likely to occur.
  - Locations that can serve as representatives of conditions within an entire site.
  - Locations where field staff can make observations without being obtrusive.
  - The area delineated should be an appropriate size for the observer to be able to see all events within it.

## Protocol

1) Record the following information in the header fields on a **People At One Time** datasheet in the associated fields. If multiple data sheets are required for an observation session, complete this information on every sheet. In the list below, the fields are bolded with definitions for the type of information to record for each field.



**Figure 1.** Visitors at Muir Beach in Golden Gate National Recreation Area. Photo credit: Troy Hall.

- **Unit:** The park unit in which you are monitoring.
- **Name:** Your first and last name.
- **Date:** The date of your observation (MM/DD/YYYY).
- **Precipitation:** Check one, either “present” or “absent,” depending on the predominant precipitation conditions during the data collection event.
- **Sky Cover:** Check one, “Sunny,” “P Cloudy (partly cloudy),” or “Overcast,” depending on the predominant conditions during the data collection event.
- **Temperature:** Check one (check boxes are provided in 10-degree increments from 40°F to 90+ °F) that represents your best estimate of the predominant temperature conditions during the data collection event.

2) Arrive at the predefined stationary observation point or starting rove position as described below. In the first column of the data sheet, record the name of the **monitoring location**.

3) Identify the **type of observation**:

- *Rove:* You will walk a predetermined path as quickly as you can while still being able to observe and count all dogs and people.
- *Zone:* You will stand in a predetermined location and scan a polygon to count all people present at one time.
- *Flow:* You will stand at a predetermined location where you can observe and count the number of people that cross an imaginary line on the path within a 2-minute period. People traveling in both directions across the threshold will be counted, though each individual person should be counted only once, because the goal is to obtain an estimate of unique individuals.

- 4) Record the **Count Time** (HH:MM).
- 5) Count the number of people observed, using the following guidance.
  - For *Rove* and *Zone* counts, using one handheld clicker, count all people in the observation area. If you are counting separate groups (e.g., people and dogs) use as many clickers as there are groups. Following the instructions for the particular observation area, look at each person. Each time you identify a unique person, click the clicker.
    - People will be moving in and out of the observation area during the count. It is important to conduct the count as quickly as possible to generate an “instantaneous snapshot” of the number of people in the observation area at one time. This may be done by scanning the area in segments. If you have already observed a portion of the area and a new person enters that area, do not include the new entry in your count. *It is important to conduct the count the same way each time.*
    - Only count each person one time during the observation period. If you think you have accidentally counted visitors or dogs more than once or have made any other mistake, make a note in the **Comments** column.
    - Do not try to mentally count numbers of people. This may lead to error. Instead, rely on the tally counters to record counts.
    - At the end of the count, record the numbers reflected on the tally counters into the appropriate log form fields (i.e., **# People**).
  - For *Flow* counts:
    - Randomly select one of the two flow count locations by flipping a coin. Begin with that location.
    - Observe the predetermined (imaginary) line intercept at the location identified for your location for precisely 2 minutes.
    - Use handheld clickers to count the number of visitors crossing the intercept line (regardless of activity) traveling in both directions. Use one clicker for each group you are recording.
    - Visitors may be engaging in a variety of activities, including walking, jogging, cycling, roller blading, or using a stroller. Count all people who cross the imaginary line during the 2-minute period, regardless of mode of transportation or activity.
    - At the end of the count period, record the numbers reflected on the tally counter(s) into the appropriate log form fields (i.e., **# People**).
    - Record any uncertainty in the **Comments** column.

## Data Analysis

### Measures:

- People at one time (PAOT) counts in open-space recreational areas.
- Dogs at one time (DAOT) counts in open-space recreational areas.
- Flow counts on walkways.

### Statistics

- The number of people at one time per observation zone
- The number of dogs at one time per observation zone
- The number of visitors per minute that cross a predetermined intercept line along a walkway

## Site Descriptions

This protocol should include clear descriptions of where counts will take place at each site. An example is shown for Crissy Field and Fort Funston in Golden Gate National Recreation Area (Hall et al. 2022).

### Crissy Field

Flow counts will be conducted in two flow count locations on the Promenade (Figures 2 and 3) by a stationary observer who counts people who cross an imaginary line. They will only count individuals observed on the Promenade itself, not in adjacent sand or vegetation.



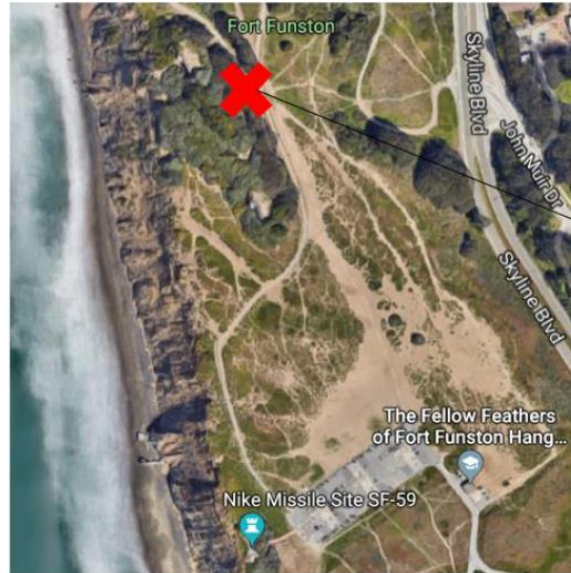
**Figure 2.** Observation location for flow counts of people on the Promenade near East Beach. Source imagery: Aerial imagery publicly available from Google Maps. Example from Hall et al. 2022.



**Figure 3.** Observation location for flow counts of people on the Promenade near the West Picnic Area. Source imagery: Aerial imagery publicly available from Google Maps. Example from Hall et al. 2023.

Fort Funston

At Fort Funston, counts of people will be made with the zone observation approach. A stationary observer will conduct counts of people in the polygon delineated at the water fountain and trail junction area (Figures 4, 5). This location is north of the North Parking Area. It is accessed by walking through the Dog Run Area to the main trail and traveling north to the water fountain, where the main trail splits into east and west fork. The observation location is on the west side of the main trail (Figure 4).



**Figure 4.** Aerial view of the water fountain/trail junction location for visitor counts at Fort Funston. Source imagery: Aerial imagery publicly available from Google Maps. Example from Hall et al. 2022.



The north side of the observation zone extends to the trash cans. Anyone using the trash cans is considered within the area.

The observation area ends on the west and east trail forks at the red lines drawn across the trails. These imaginary thresholds should be perpendicular to each trail fork.

**Figure 5.** North boundaries of observation zone for visitor counts at the water fountain and trail junction area at Fort Funston. Photo credit: Susan Sidder, June 2019. Example from Hall et al. 2022.



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## RESOURCES

- Hall, T. E., Engebretson, J. M., & D'Antonio, A. (2022). Visitor Use Monitoring Field Protocols for Golden Gate National Recreation Area. Report prepared for the National Park Service. Corvallis, OR: Oregon State University, Department of Forest Ecosystems & Society.
- Hall, T. E., Engebretson, J. M., & D'Antonio, A. (2023). Visitor Use Monitoring Program for Golden Gate National Recreation Area. Report prepared for the National Park Service. Corvallis, OR: Oregon State University, Department of Forest Ecosystems & Society.

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## SUGGESTED PROTOCOL CITATION

Hall, T. E., D'Antonio, A., & Aberg, M. (2023). People at One Time (PAOT) Protocol to Monitor Visitor Density. Protocol prepared for the Visitor Use Management Toolkit. Corvallis, OR: Oregon State University, Department of Forest Ecosystems & Society.