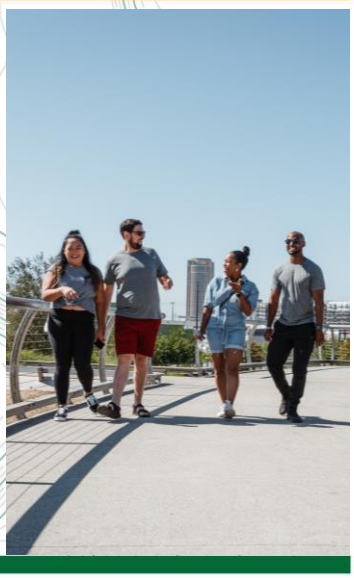
Visitor Use Management Fact Sheet

Measuring Visitor Use & Attendance

Troy E. Hall, Ashley D'Antonio, and Madeline Aberg
Department of Forest Ecosystems & Society, Oregon State University



Why collect attendance data?

- System-wide priorities
  - Gathering data across a District or larger scale
  - Long-term planning for types of facilities or recreation opportunities
- Resource allocation
  - Allocating funding according to needs for visitor services
- Visitor use management
  - Establishing capacity
  - Minimizing impacts to resources
- Calibrating or interpreting other VUM measures
  - Big data (e.g., mobile device data)
  - Representativeness of visitor surveys

Key Messages

- Attendance data can serve many purposes.
- Manay methods are avaialbe, so make sure to choose what is appropriate for the type of data needed.
- When designing monitoring, consider sampling, analysis, and leveraging partnerships.

Attendance data are not always needed for management decisions. In some cases, professional judgement is adequate, or conditions are obvious.

- Examples:
  - Visitor safety impacts, such as search and rescue delays due to road blockages
  - Sites that are clearly over capacity
  - Clear resource impacts, such as large amounts of trash
  -

Figure 1. Parking in undesignated sites and unsafe conditions at McArthur-Burney Falls are an example of a visitor use issue that likely does not require attendance data. Photo credit: Matt Teague.

Data Collection Methods

Reservations & Fees

- Advantages
  - Accurate data
  - Useful for correlational analyses
- Considerations
  - May capture only a portion of the user base.
  - Using reservation data to measure attendance requires knowing the check-in rate.

Vehicle & Trail Counters

- Advantages
  - Collect data 24/7
  - Useful for correlational analyses
- Considerations
  - Work best in areas with pinch points
  - Are less effective in open areas (e.g., beaches)
  - Count anything that passes the beam, so counts cannot be interpreted as the number of people.
  - Counts need to be calibrated, which requires staff or volunteer time.
- Automated wildlife cameras are another option, especially as AI image processing improves.

Figure 2. Checking an automatic trail counter Photo credit: Madeline Aberg.

Observation-based Lot Counts

- Types
  - Entries: total use
  - Vehicles at one time: Capacity utilization, turnover
  - People at one time: Capacity utilization
  - Encounters: Visitor experience
- Considerations
  - These methods work well if you have the ability to use staff who are already present.
  - These methods require cost and effort. They are most efficient when used in easily accessible areas.
- What resolution is needed?
  - Depending on your question, you may need to gather capacity (e.g., >80% full) or accurate counts?

Big Data (see Workshop & Fact Sheet)

Sampling

- Not an issue for fees or counters
- Important for observational methods
- Considerations
  - The amount of data – depends on how you might want to stratify your data (e.g., weekdays vs. weekends) and how precise you need to be.
  - Representativeness of the data
  - Collecting ancillary data to help answer questions.
- Strategies
  - Focus on peak times.
  - Consider a pilot effort.
  - Document dates and times of convenience samples to gauge representativeness.

Example: Fern Canyon, Prairie Creek Redwoods State Park

Why are data needed?

- Visitor use levels led to resource and safety issues.
- Data were needed for a new reservation system.

What types of data were collected?

- One road system with an entrance kiosk, so it is possible to track all cars entering the system. However, the kiosk is far from parking lots, so staff do not have time for observational counts.
- Attendance and capacity were collected to inform the reservation system.
- The reservation system resulted in a decrease in Search & Rescue and injuries.

Strategies for additional data collection?

- Parking lot turnover rate could help to refine the reservation system. This information could be collected by counting exiting vehicles.
- A visitor survey could provide information on length of stay to inform the reservation system but may have a bias toward visitors with longer stays.

Example: State Beaches

Why are data needed?

High amounts of unpaid visitation and access from non-State Parks parking. Example of parks with porous access.

Strategies for data collection?

Mobile device may be problematic because the site is near neighborhoods, and visitors may leave their devices in the car.

Trail counters do not work for all entrances.

Counts on beaches (People At One Time) done by human observers could be used.

There is potential to use automatic cameras and correlate the number of people in photos with on-site instantaneous counts.

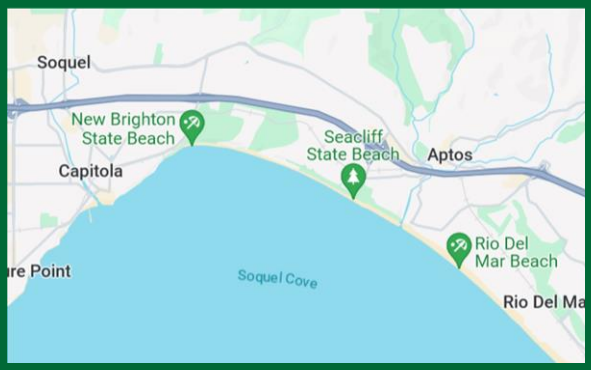


Figure 3. Seacliff State Beach is an example of a State Beach with porous access. Day use fees are less accurate in this type of system.

Example: Torrey Pines State Park

Why are data needed?

- Need for accurate counts for the beach and Natural Area.
- Large amounts of unpaid use.

What types of data were collected?

- Correlation approach: Relationship between observational count data collected on 16 days and paid vehicles.
- Found a vey strong relationship between paid use and counts.
- 59% of visitors were non-paid.

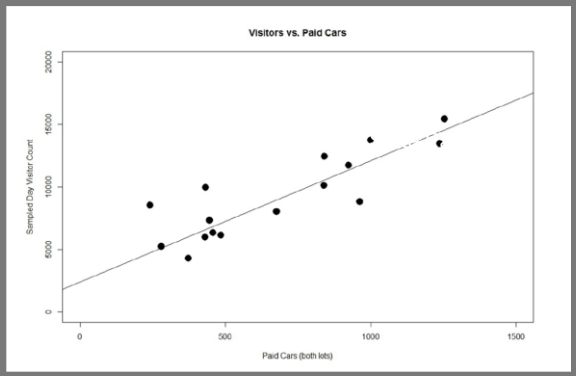


Figure 5. Relatiohnship between paid day use (x-axis) and observational counts (y-axis). Photo credit: Torrey Pines State Park.

Example: US Forest Service Visitor Use Monitoring

Why are data needed?

System-wide data.

What types of data were collected?

Stratified data collection

- 4 site types
- 5 use level strata

20% of forests sampled per year

Paired observations and visitor survey

Data Management & Analysis

- Data Management Plan
  - Consider in advance.
  - Use caution when combining data types.
- Analysis can be straightforward.
- Analysis platforms:
  - Excel
  - Software provided (e.g., TRAFx automatic counters)
  - Statistical software (e.g., R, SPSS)
- Expanding data collection capacity
  - Interns
  - Volunteers
  - Conservation Corps

Example: Chatbot Survey

Lia et al. 2023. *Digital Geography & Society.*

Automated survey collection

Good for remote areas or low use areas.

Used for

- Parking lot counts
- Survey questions

RESOURCES

Chatbot Example

Lia, E. H., M. M. Derrien, S. G. Winder, E. M. White, and S. A. Wood. 2023. A text-messaging chatbox to support outdoor recreation montiroing througho community scientce. *Digital Gegraphy and Society* 5: 100059. https://doi.org/10.1016/j.diggeo.2023.100059

National Monitoring Example

U.S. Forest Service National Visitor Use Monitoring Program https://www.fs.usda.gov/about-agency/nvum

SUGGESTED FACT SHEET CITATION

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