



Final Report

# Understanding Our Visitors

## 2017-18 Larimer County Visitor Use Study

Horsetooth Mountain and Red Mountain Open Spaces  
and Horsetooth Reservoir

April 2019

Larimer County  
Department of Natural Resources

Colorado State University  
Human Dimensions of Natural Resources Department



Colorado State University

# **Understanding Our Visitors**

## **2017-18 Larimer County Visitor Use Study**

### **Colorado State University** **Human Dimensions of Natural Resources Department**

Professor, Jerry J. Vaske  
Affiliate Professor, Jay Beaman

### **Larimer County Natural Resources** **Department Staff**

Visitor Study Project Manager  
Jennifer Almstead, Fund Development & Projects Specialist

Visitor Study Core Team  
Mark Caughlan, Horsetooth Reservoir District Manager  
Steve Gibson, Red Mountain District Manager  
Zac Wiebe, Resource Specialist II

Visitor Study Project Coordinators (Seasonal)  
Sidney Michl; 2018  
Lexie Sorenson; 2017

### **Acknowledgements**

Larimer County would like to recognize our dedicated Larimer County volunteers whose contributions toward the study were significant and who collectively contributed 1,000 hours toward the study, valued at almost \$27,000.

Special thanks to the City of Fort Collins Natural Areas for their partnership and support throughout this study. The project team would like to thank Boulder County Parks and Open Space, National Park Service, and City of Boulder Open Space and Mountain Parks for taking the time to discuss best practices and lessons learned before undertaking this important study.

*Cover photos provided by Brendan Bombaci, Harry Strharsky, and Herb Saperstone*

## Executive Summary

Over the past decade, visitation has steadily increased at Larimer County's Department of Natural Resources (LCDNR) open space and reservoir park properties, with increased episodes of visitor capacity especially near urban areas. The Department prioritized the need to better understand visitation and launched a visitor study to take place at several locations. Primary objectives of the study are to gain accurate visitor numbers as well as better understand who is visiting and what type of experience is taking place. The data collected and methods used from this study will serve as a model for future visitor studies managed by LCDNR.

Three locations were selected to be a part of the 2017-18 Visitor Study. As an extremely popular destination for hikers, bikers, and equestrians, **Horsetooth Mountain Open Space (HTMOS)** was selected because of increased episodes of visitor capacity, as well as a pending management plan update that will incorporate newly acquired land. **Red Mountain Open Space (RMOS)**, a more remote destination for visitors who prefer a less crowded outdoor experience, was selected because it will also undergo an updated management planning process. Third, as the busiest property in the entire Department's system, **Horsetooth Reservoir** was included to better understand annual visitation figures.

**Visitor Count Data:** This component of the study sought to accurately estimate the total number of annual visitors, better understand where and distance traveled within the trail systems with approximate percentages of each user type, estimate the number of vehicles frequenting each property, determine how often trailhead parking spaces turn over, and how often parking areas reach capacity. Industry standard tools including vehicle counters, webcams, wildlife cameras, and human observations were used to collect this information.

**Visitor Surveys:** Exit surveys were conducted at the two open space properties from June 2017 to May 2018. This component aimed to better understand visitors' overall experience, satisfaction of services, and their various preferences. The surveys were administered at three locations; the Main and Soderberg trailheads at HTMOS and the RMOS trailhead. To achieve a random sampling of visitors, a stratified-cluster sampling method was used to determine the sampling proportions at all three locations during weekdays and weekends. A total of 1,466 visitors completed the survey; 1,002 surveys were collected at HTMOS and 464 at RMOS. The survey results focus on indicators of standards of quality for visitor satisfaction, perceived conflict, perceived crowding, and norm tolerances.

## Key Findings

### Estimated Annual Person Visits

- Horsetooth Mountain Open Space - From November 2017 to October 2018 visitation was estimated between **213,000 and 235,000-person visits** (Table 2). This estimate included the two parking areas (Main and Soderberg) and 24,000 trail walk-ins from Lory State Park adjacent to HTMOS.
- Red Mountain Open Space - From September 2017 to August 2018, visitation was estimated between **19,700 to 22,300-person visits** (Table 8).
- Horsetooth Reservoir - From October 2017 to September 2018, visitation was estimated between **789,000 to 918,000-person visits** (Table 11). This included all six parking areas: Inlet Bay, South Bay, Rotary, Satanka, Skyline, and Sunrise.

### Parking Lot Capacity

Parking lots were determined to be full (at capacity) defined by the Department when five or fewer parking spaces remained open within a given lot. Observations of the parking lots were recorded at Inlet Bay, Satanka Bay and South Bay at Horsetooth Reservoir during the peak season (May-September). At Horsetooth Mountain Open Space, observations were recorded at the Main and Soderberg trailheads over a twelve-month period.

- Horsetooth Mountain Open Space: On average, parking at the Main trailhead was at capacity 17% of the time and at Soderberg trailhead 8% of the time. On weekends, the Main trailhead (7 a.m. to 4:00 p.m.) was at capacity 43-48% and Soderberg 19% -24% (5 a.m. to 9:00 p.m.) of the time. (Table 12).
- Horsetooth Reservoir: On average, between May and September 2018, Inlet Bay (7 a.m. to 8:00 p.m.) was at capacity 1.6% of the time, Satanka was at capacity 5.5% of the time, and South Bay was at capacity 3.2% of the time. On weekends, Inlet Bay was at capacity 4.7% of the time, Satanka was at capacity 17.9% of the time, and South Bay was at 9.8% of the time.

## Demographics

- HTMOS visitors were on average younger than RMOS visitors (36.61 vs. 48.52 years) (Table 14).
- At HTMOS, 50% of the respondents were male and 50% were female. At RMOS the distribution was 52% male and 48% female.
- HTMOS self-identified as White (93%), had a Bachelor's (42%) or a Master's (21%) degree, and had a household income of \$50,000 to \$149,999 (66%). At RMOS, visitors also self-identified as White (96%), had a Bachelor's (37%) or a Master's (22%) degree, and had a household income of \$50,000 to \$149,999 (74%).
- Visitors to the Main and Soderberg trails at HTMOS differed in terms of gender and age (Table 15). At the Main trail, the average visitor was slightly more likely to be female (53%) than male (47%) with an average age of 35 years. At the Soderberg trail, the average visitor was slightly more like to be male (58%) than female (42%) with an average age of 40 years.
- Over two thirds (69%) of HTMOS visitors were residents of Larimer County; 31% were non-residents. Similarly, 71% of visitors to RMOS are residents of Larimer County and 29% are non-residents. There was a difference between the amount of years HTMOS visitors have lived in Larimer County (11 years) compared to RMOS visitors (15 years). (Table 17).
- Fifty-two percent (52%) of HTMOS visitors and 45% of RMOS visitors live in Fort Collins. The remaining five primary residences of open space visitors include Loveland, Greeley, Cheyenne, Denver, and Berthoud. (Table 18).

## Visitation

- When asked, 19% of visitors reported going to HTMOS for the first time in comparison to 45% for Red Mountain visitors (Table 19). There was a significant difference between the frequency of visits (in the past 12 months) at HTMOS at 17.5 visits compared with 3 visits to RMOS.
- Forty-three percent (43%) of non-residents were making their first visit to HTMOS, compared to only 7% of the residents (Table 20). Larimer County residents reported more visits, on average, to HTMOS (25.44) than non-residents (1.72). The majority (54%) of non-residents were on their first visit to Red Mountain Open Space; 41% of the residents were making their first visit (Table 21).
- At HTMOS, visitors (76%) reported exercise as their reason for visiting, followed by experiencing nature (65%) and the open space's location (55%) (Table 40).
- At RMOS, "Less crowded" was the most common response for visiting (61%), followed by "Other" comments (49%), which typically mentioned scenery or visiting the open space for the first time (Table 41)
- Nearly all (98%) of HTMOS visitors and 94% of RMOS visitors responded there are no Larimer County properties or open spaces they avoid (Table 43).

## Activities

- Fifty-five percent (55%) of HTMOS and RMOS visitors listed hiking as their primary activity on the day they completed the survey (Table 22). Mountain biking was listed as the primary activity by 15% of

HTMOS visitors and 11% of RMOS visitors. Eleven percent (11%) listed horseback riding and wildlife viewing (19%) as their primary activity at RMOS, but, not HTMOS (< 1% and 0%, respectively).

- When overall use at HTMOS was separated by trailhead, hiking was the primary activity (65%) and mountain biking was only (5%) at Main. At Soderberg, mountain biking was the primary activity (44%) and less than a quarter (24%) listed hiking as the primary activity. These percentages are based upon 746 completed surveys at Main and 256 completed surveys at Soderberg.
- At HTMOS, 27% of hikers reported their first visit in comparison with only 4% of mountain bikers (Table 25). At RMOS, 51% of hikers reported this was their first visit than 36% of mountain bikers.
- In the past 12 months, the median (middle of the scale), hikers visited HTMOS 2 times and mountain bikers visited 30 times (Table 26). At RMOS, the median was less than 1 time (hikers) and 1 time (mountain bikers).
- At the Main trailhead, the median (middle of the scale) number of visits in the past 12 months for hikers was 2 times compared to mountain bikers at 10 times. At Soderberg, the median was 2 times (hikers) and 30 times (mountain bikers).
- Horsetooth Falls Trail and Horsetooth Rock Trail were the most used trails at HTMOS, representing 48% of visitors who reported the specific trail(s) they used during their visit (Table 31).

### Group Characteristics

- At both properties, visitors are most likely to visit with a group (70% at HTMOS and 87% at RMOS). At HTMOS, the average group size was 2.5 visitors while Red Mountain yielded an average of 3.5 visitors per group. On average, these groups reported 2.13 adults at HTMOS and 3.07 adults at RMOS. At both locations, the number of children in attendance were less than 0.5 during the weekdays and weekends.
- Hiking was reported as the primary activity for those who visited alone (40%) and with a group (60%) (Table 33). Mountain biking was the second most reported activity for visitors by themselves (25%) while walking dog(s) was the second most reported activity of groups (14%).

### Parking Area Capacity

- Less than a third of visitors (31%  $n = 319$ ) reported being turned away from HTMOS at some point because the parking lot was full (Table 35). Of those that reported being turned away, 25% of visitors reported 3 times or less in the past 12 months.
- Mountain bikers reported being turned away more often (43%) than hikers (26%) at HTMOS (Table 37). In the past 12 months, 31% of mountain bikers and 23% of hikers reported being turned away 1-3 times.

### Checked Conditions

- Respondents were more likely to check parking and trail conditions before visiting RMOS (38%) than HTMOS (22%) (Table 38). Of those that did check conditions, Larimer County's website was the most used source, followed by the NoCo Trail Report. Social media was the least utilized source to check conditions.
- At HTMOS and RMOS, mountain bikers (27%) were more likely to check conditions than hikers (22%) (Table 39). Sixty-nine percent (69%) of mountain bikers reported checking the NoCo Trail Report as their primary source while 59% of hikers checked the Larimer County website as their primary source.

### Visited other Larimer County Properties

- Horsetooth Reservoir was reported as the most visited LCNR property over the last 12 months by both HTMOS visitors (72%) and RMOS visitors (60%) (Table 40). The second most visited property was Devil's Backbone Open Space (45% and 42%, respectively).

## Indicators and Standards

This study worked within a framework recommended by Colorado State University (CSU) to identify and establish quantitative impact outcomes and standards for visitor experience. Outcomes are specific measurable variables that reflect the visitor's responses to the current situation at the open space. A standard of quality, the minimum acceptable condition for each outcome, was provided by CSU. These standards identify conditions that are desirable to visitors (e.g., clean restrooms), as well as conditions that managers do not want to exceed (e.g., conflicts on the trail between user groups). As such, comparing the existing conditions against the standards provides a quantitative estimate of whether or not the visitor experiences are within the standards' limits. CSU considered four sets of indicators and standards that have been used extensively in previous literature (research) as follows:

1. Visitor satisfaction
2. Perceived conflict
3. Perceived crowding
4. Norm tolerances

**Visitor Satisfaction:** The standard for Larimer County Open Space properties was set at **80% or more** of visitors should be satisfied with their experience or the services they received.

- Findings indicated positive responses of the overall perceived quality at HTMOS and RMOS; 98% of HTMOS respondents and 99% of RMOS respondents reported a “good” or “excellent” for the overall perceived quality (Table 47).
- Visitors rated the quality of facilities at HTMOS and RMOS was rated as “good” or “very good” ranging between 88-99% (Table 45). The exception was “restrooms” at HTMOS at 68%.
- Visitor satisfaction was above 80% on both peak (weekend) and off-peak days (weekdays).

**Interpersonal Conflict:** The standard for interpersonal conflict (one user group interferes with another person's efforts at achieving a goal) was set at **no more than 25%, or that if less than 25% respondents reported interpersonal conflict, then that is an acceptable level**.

- For both HTMOS and RMOS, between 58% and 84% of visitors reported no conflict. Between 16% and 33% expressed interpersonal conflict. Less than 10% noted interpersonal safety of discourteous conflicts with hikers, bikers, or horseback riders. These findings are within the standard of no more than 25% of visitors reporting interpersonal conflict.

### Perceived Crowding

The standard for perceived crowding was set at **no more than 35% visitors** should feel any level of crowding.

- At HTMOS, the percentage visitors reporting any level of crowding ranged from 7% to 30% (Table 53). At HTMOS, At RMOS, these percentages ranged from 1% to 4%. All of the percentages at HTMOS and RMOS were within the standard of no more than 35% of visitors should feel any level of crowding.
- To put the crowding scores in perspective, Appendix B ranks perceived crowding scores from 82 studies in Colorado. RMOS visitors had among the lowest crowding evaluations.

### Norm Tolerances (*HTMOS Survey Only*)

The standard for the Larimer County open spaces was set at **80% or more** of visitors should encounter fewer other visitors than their norm or what they would expect to encounter.

- Nearly half of hikers (49%) and mountain bikers (47%) at HTMOS reported it didn't matter how many other visitors they saw on the trail (Table 55).
- On average, respondents indicated that they could tolerate seeing up to 26 hikers and 11 mountain bikers while visiting HTMOS (Table 55).

- The standard was met for hiker's evaluations of mountain bikers (88%) and mountain bikers evaluations of other bikers (92%) as they exceeded the 80% standard (Table 56).
- The standard was **not met** for hikers' evaluations of other hikers (73%) or for mountain bikers of hikers (75%) at the Main trailhead at Horsetooth Mountain Open Space. These findings likely reflect the higher number of hikers as the larger user group.