

Characteristics of Visitor Use in the Central Wasatch

Outdoor recreation use and indicators of the ecological, physical, and social characteristics of recreation settings in the Central Wasatch: Phase 2 visitor survey report

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Executive Summary

The outdoor recreation opportunities offered in the canyons of the Central Wasatch are some of the most iconic in Utah. This short report details the findings of a year-long survey effort designed to better understand the visitors and visitor experiences offered within Big and Little Cottonwood Canyons and Millcreek Canyon. The analysis shows the canyons of the Central Wasatch receive roughly 3.2 million visits a year. In comparison, Arches National Park, which is nearly equal in size, receives roughly 1.8 million visitors per year. Despite the high level of use, the Central Wasatch visitors are quite satisfied with their experience and the conditions canyons. Results also show visitors recreate within the canyons very often, on average, once per week. Additionally, perceived crowding across all site types is generally low, likely reflecting people's expectations for the kinds of areas they visit and the capacity of the area to accommodate visitation. These data and findings serve as a base of information that can be used to inform the decisions of both the USDA Forest Service, the many entities represented on the Central Wasatch Commission, and other stakeholders interested in the future of outdoor recreation in the Salt Lake Valley.

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Introduction

The outdoor recreation opportunities offered in the canyons of the Central Wasatch are some of the most iconic in Utah. This short report details the findings of a survey effort designed to better understand the visitors and visitor experiences offered within Big and Little Cottonwood Canyons and Millcreek Canyon. The data and findings serve as a base of information that can be used to inform the decisions of both the USDA Forest Service as well as the many entities represented on the Central Wasatch Commission.

The design and administration of the survey follows the USDA Forest Service's National Visitor Use Monitoring program. As such, the survey provides data that are scientifically defensible and grounded in the agency's best-practices for quantifying and characterizing outdoor recreation use. The survey provides a variety of insights regarding outdoor recreation use of the canyons that, to date, have not been quantified in a systematic way. Specifically, the survey effort provides:

- The total recreational visits by canyon.
- The total recreational visits to different types of sites within the canyons.
- The proportion of visits involving different outdoor recreation activities.
- The total time visitors to the canyons spend participating in different activities.
- The average number of times visitors recreate in the canyons each year.
- Characterize the variation in use across individual trails within the region.
- Visitors' perceptions of crowding in the canyon.
- Visitors' overall satisfaction with their visits to the canyons.
- The importance and satisfaction with site-specific attributes of recreation settings.
- The distance traveled to recreate in the canyons.
- The sociodemographic characteristics of visitors to each of the canyons.

Methods

Sampling Design

The sampling and survey design follow exactly the USDA Forest Service's National Visitor Use Monitoring Program (NVUM) protocols. The NVUM protocols provide a systematic and statistically-grounded sampling protocol for reliably characterizing the volume and characteristics of outdoor recreation use across an entire national forest, or sub-unit such as an individual canyon.

The sampling protocol is both spatially and temporally explicit. The spatial dimension stems from USDA Forest Service staff defining all access points to a forest; these access points are characterized as either Day Use Developed Sites, Overnight Use Developed Sites, General Forest Areas, and Wilderness Areas.

- **Day Use Developed Sites** include ski areas, picnic areas, and other access points with a moderate to high level of development.
- **Overnight Use Developed Sites** include campgrounds, lodges, and privately operated resort facilities on Forest Service lands.
- **General Forest Areas** include all access points such as trailheads and parking areas used for hiking, biking, and other outdoor recreation activities.
- **Wilderness Areas** include Congressionally designated Wilderness areas.

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For all access points within the four site types noted above, Forest Service staff determine the accessibility (open versus closed) and relative use levels (very high/high/medium/low) for each site for each day of the year. The combination of site types and use levels define distinct sampling strata; survey days are assigned randomly within these strata.

Each survey day consists of a 6-hour window (either 8am-2pm or 2pm-8pm) during which a survey technician approaches outdoor recreationists and asks them to complete the survey. All surveys are administered on a tablet computer. Further details on the NVUM sampling protocol can be found in English et al. (2020).

Data Collection and Analysis

Table 1 shows the breakdown of the sampling days within each strata across the Central Wasatch used in this study. Collectively, we received 1,197 completed surveys from Big Cottonwood Canyon, 692 from Little Cottonwood Canyon, and 408 from Millcreek Canyon.

Table 1
Sampling days and completed surveys, by canyon

Site Type	Big Cottonwood Canyon		Little Cottonwood Canyon		Millcreek Canyon	
	Survey Days	Completed Responses	Survey Days	Completed Responses	Survey Days	Completed Responses
All sites	149	1,197	86	692	89	408
Day use developed sites	56	625	10	126	33	130
Overnight use developed sites	16	55	16	28	16	6
General forest area sites	42	235	46	330	28	166
Wilderness sites	35	282	24	208	22	106

Results

Forest Visits in the Central Wasatch

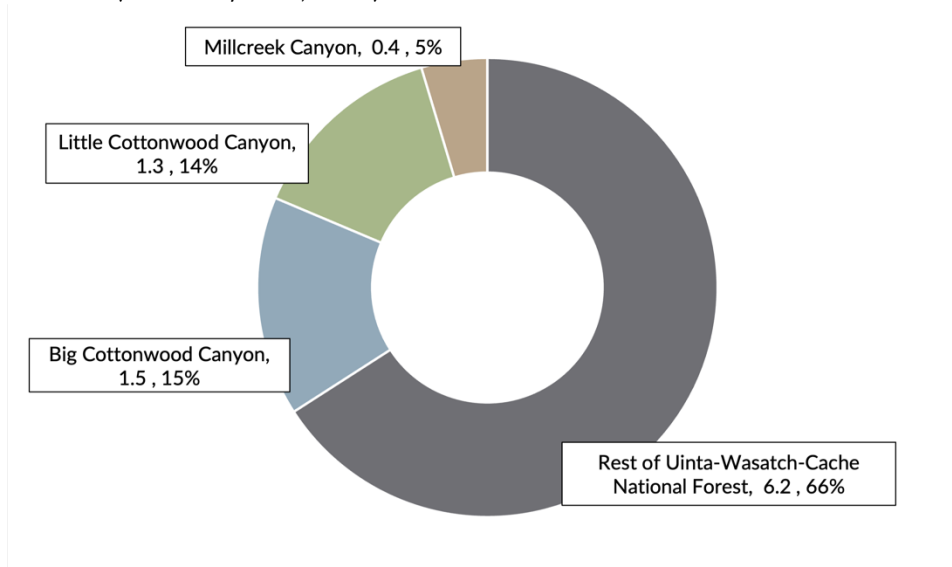
Forest Visits by Canyon

The Uinta-Wasatch-Cache National Forest received roughly 9.4 million visits between October 1, 2021 and September 30, 2022. The Central Wasatch received 3.2 million recreational visits during the same timeframe. Visitation to the Central Wasatch accounts for slightly more than one-third of all forest visits across the entirety of the Uinta-Wasatch-Cache during the same time (Figure 1). Big Cottonwood Canyon was the most heavily used canyon within the Central Wasatch, receiving 1.45 million forest visits. Little Cottonwood Canyon received nearly as many recreational visits, 1.31 million. Millcreek Canyon received 434 thousand recreational forest visits.

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Figure 1

Proportion of forest visits to each canyon of the Central Wasatch relative to the rest of the Uinta-Wasatch-Cache National Forest (Millions of visits; FY22)



Visits by Site Type

Figure 2 shows the break down in forest visits by site type across each canyon within the Central Wasatch. Both Little and Big Cottonwood Canyon receive the vast majority (70-75%) of their use at day use sites, this includes all visits to the ski resorts within both canyons. Big Cottonwood Canyon received just over 1.2 million day use site visits, while Little Cottonwood Canyon received just over 1.0 million.

Only a marginal proportion (1-3%) of the visits to Big and Little Cottonwood Canyon are from overnight site visits. Little Cottonwood Canyon received 22 thousand overnight site visits, while Big Cottonwood Canyon received over 50 thousand.

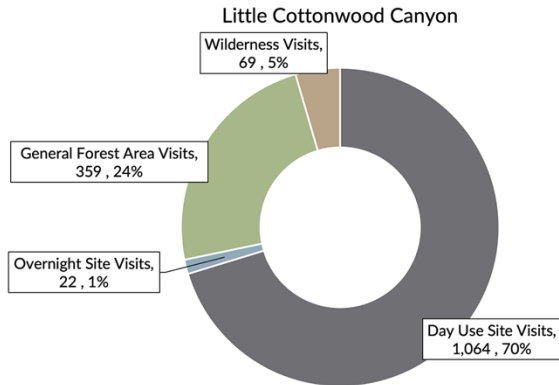
A substantial portion of the visitation to both Big and Little Cottonwood Canyons comes from general forest area visits. This includes all visitation from access points such as non-Wilderness trailheads as well as parking areas used for hiking, mountain biking, road cycling, and other outdoor recreation activities. Little Cottonwood Canyon received 359 thousand general forest area visits over the 12-months of the study while Big Cottonwood Canyon received 288 thousand. Notably, Millcreek Canyon received the most general forest area visitation of all three canyons in the Central Wasatch (383 thousand visits). This difference are largely attributed to the sites available (i.e., Millcreek does not have ski resorts) and the kinds of outdoor recreation they support relative to Big and Little Cottonwood Canyon.

Visitation to Congressionally designated Wilderness is also a significant proportion of the recreational use of each of the three canyons of the Central Wasatch. Big Cottonwood Canyon received notably more visits (118 thousand) to Wilderness areas relative to both Little Cottonwood Canyon (69 thousand) and Millcreek Canyon (56 thousand).

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Figure 2

Proportion of forest visits to different site types within each canyon of the Central Wasatch (Thousands of visits; FY22)

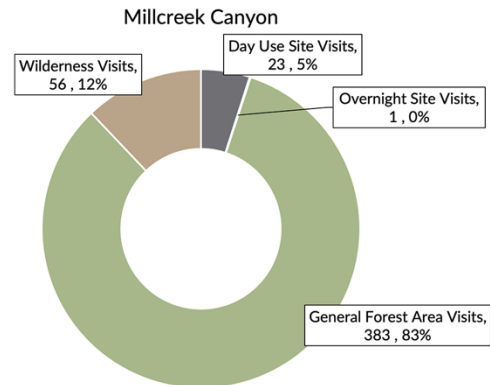
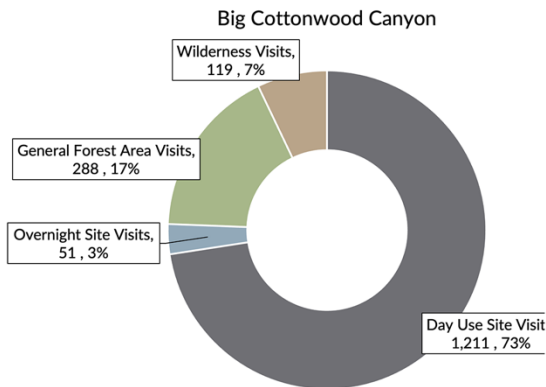


Day Use Areas = Ski and picnic areas

Overnight Sites = Campgrounds, privately operated resort facilities on Forest Service lands

General Forest Areas = Access points such as trailheads and parking areas used for hiking, biking, and other outdoor recreation activities

Wilderness Areas = Congressionally designated Wilderness Areas.



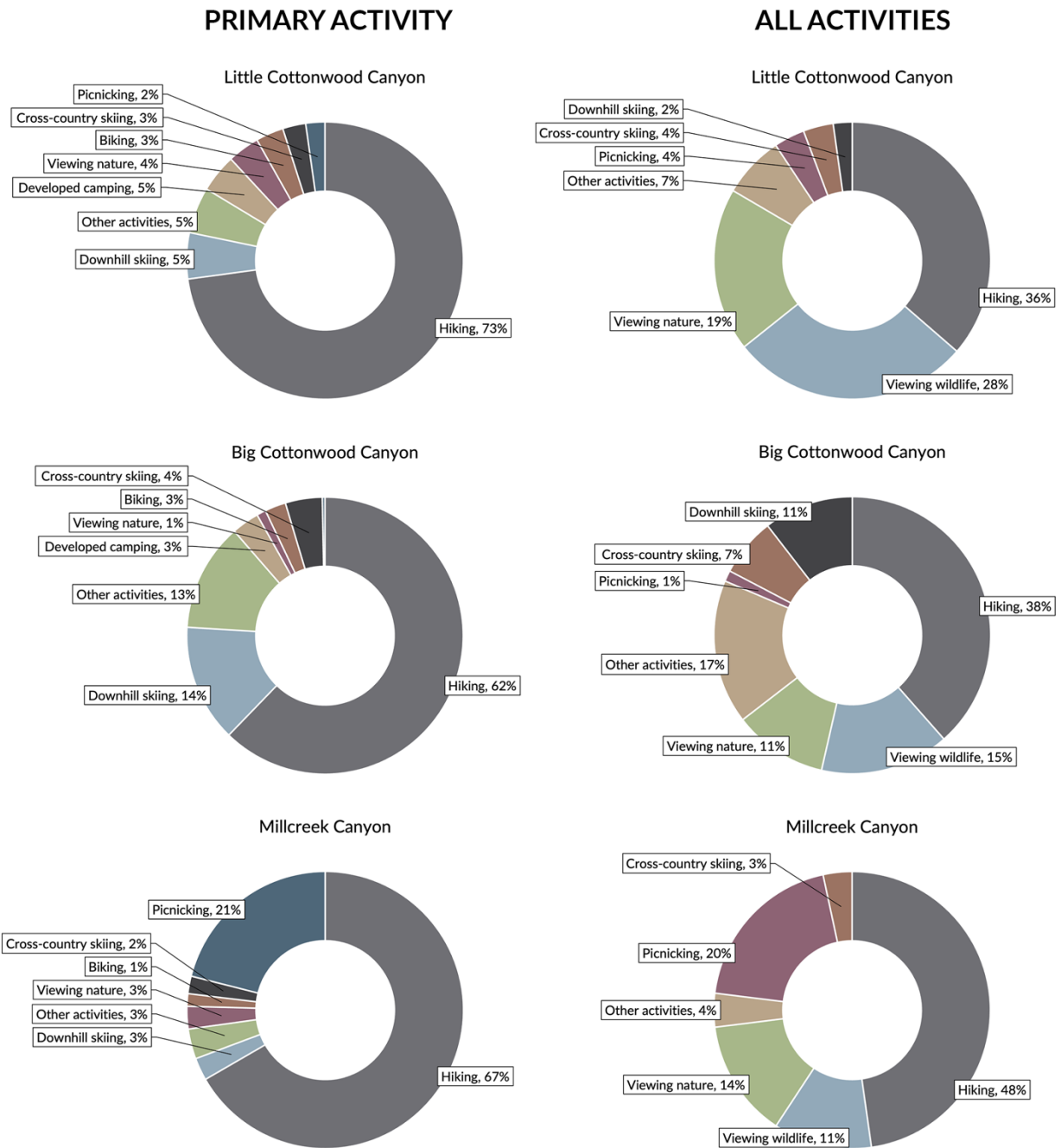
Visits by Activity

The survey solicited information about all of the recreational activities respondents participated in during their visit, including which of those was their primary reason for visiting the national forest. The proportional breakdown across the most common outdoor recreational activities are shown in Figure 3. Hiking is by far the most common recreational activity in the Central Wasatch, with over one-third of all forest visits involving the activity. Viewing wildlife and viewing nature were also fairly common activities, although they are very rarely the *primary* activity of visitors. Downhill skiing was the second most common primary activity for both Little Cottonwood Canyon (5% of all visits) and Big Cottonwood Canyon (14% of all visits). The second most common *primary* activity in Millcreek Canyon was picnicking, which was 21% of all visits.

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Figure 3

Proportion of forest visits by activity type within each canyon of the Central Wasatch (Thousands of visits; FY22)



Note. The survey solicited information about the **primary activity** on the visit during which the respondent was surveyed as well as **all activities** participated in during that trip.

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Time Spent Participating in Primary Activities

The mean time visitors spent participating in different outdoor recreation activities is shown in Table 2. As would be expected, visitor spent the most time participating in overnight outdoor recreation activities, if those were noted as the primary reason for their visit to the canyons. Visits involving downhill skiing lasted roughly twice as long in Big Cottonwood Canyon (14.1 hours) than they did in Little Cottonwood Canyon (7.4 hours). Of note, visits where hiking was the primary activity lasted an average of roughly 3 hours.

Table 2

Mean hours spent participating in primary activity, by canyon (Thousands of visits; FY22)

Primary Activity	Little Cottonwood Canyon (n = 1,145)	Big Cottonwood Canyon (n = 662)	Millcreek Canyon (n = 383)
Biking	2.2	5.0	n/a
Developed camping	28.2	22.1	n/a
Downhill skiing	7.4	14.1	n/a
Driving	n/a	2.0	1.1
Fishing	n/a	3.6	n/a
Relaxing	10.1	3.4	2.4
Hiking	2.8	3.1	3.2
Picnicking	n/a	2.8	2.8
Viewing nature	n/a	1.8	n/a
Viewing wildlife	n/a	3.5	n/a
Cross-country skiing	3.8	2.4	n/a
Other activities	3.2	5.7	3.0

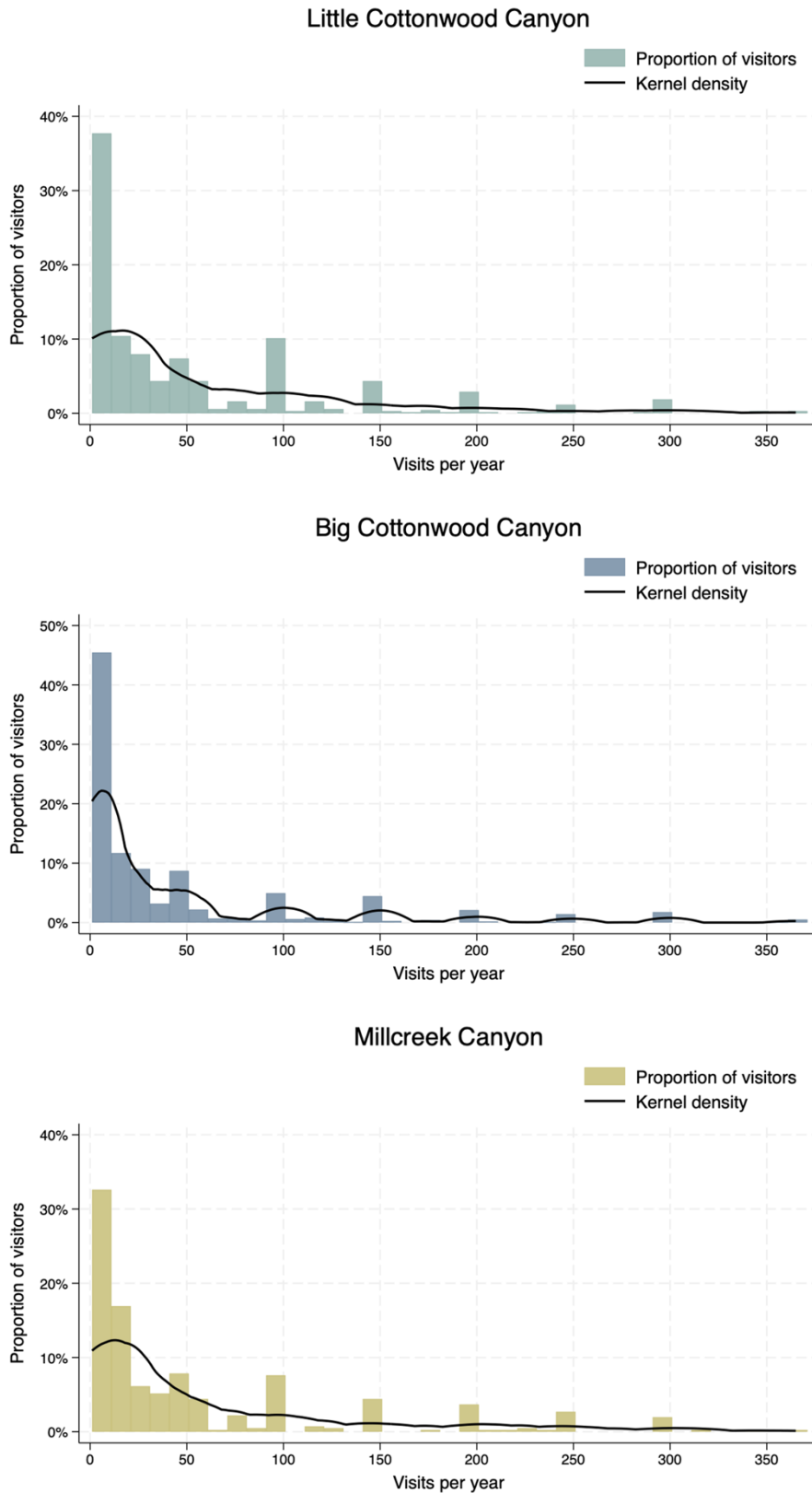
Note. Only primary activities with $n \geq 10$ shown.

Visits Per Year to Each Canyon of the Central Wasatch

Respondents were asked how many times they visited the Uinta-Wasatch-Cache National Forest in the 12 months prior to being surveyed. The outdoor recreationists who were surveyed in the Central Wasatch visit the national forest frequently, averaging around one visit per week. Figure 4 shows the distribution of the number of national forest visits by canyon. Visitors to Big Cottonwood Canyon use the national forest for recreation an average of 44.9 times per year (std. dev. = 69.0); this value increases to 54.7 (std. dev. = 71.0) for Little Cottonwood Canyon and 58.7 (std. dev. = 77.3) for Millcreek Canyon.

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Figure 4
Distribution of annual visits to each canyon of the Central Wasatch



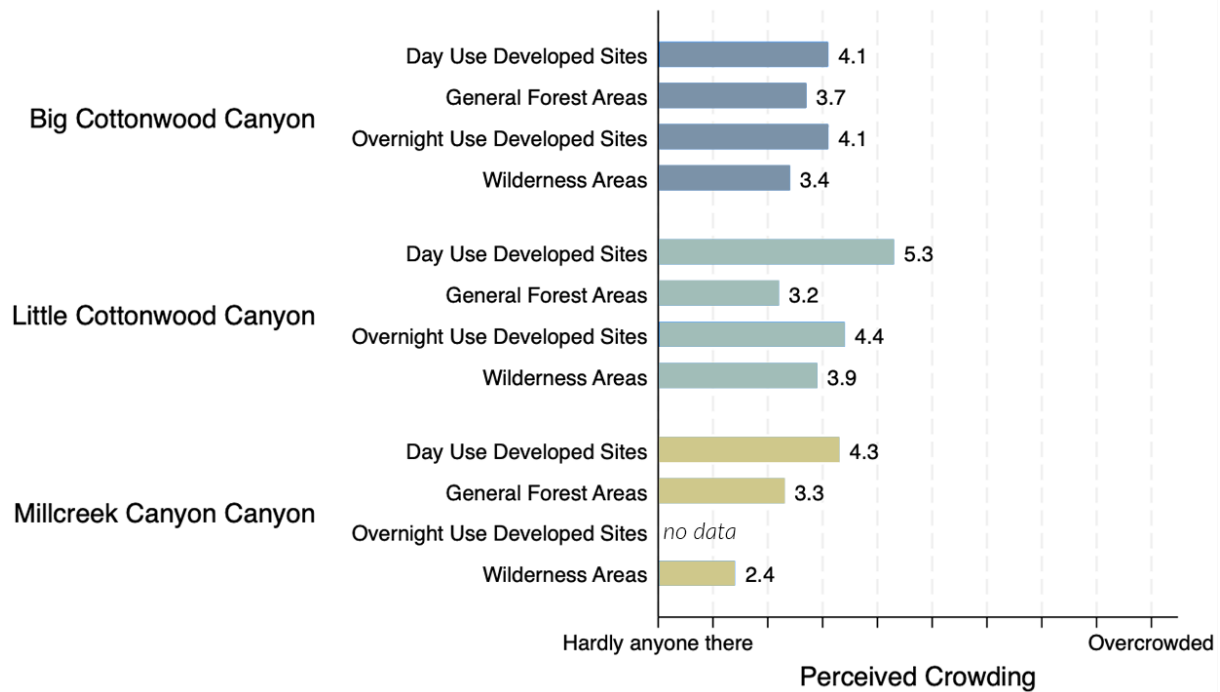
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Crowding

Despite the exceptionally high frequency of visitation to the Central Wasatch, visitors tended to report low levels of perceived crowding. The survey asks respondents to rate their level of perceived crowding on a scale ranging from 1 (*hardly anyone there*) to 10 (*overcrowded*) during the visit in which they were surveyed. The results from this question are broken out by site type and canyon in Figure 5. Little Cottonwood Canyon tended to be perceived as slightly more crowded than the other two canyons; however perceived crowding was still low.

Figure 5

Perceived crowding at different types of sites across each canyon of the Central Wasatch



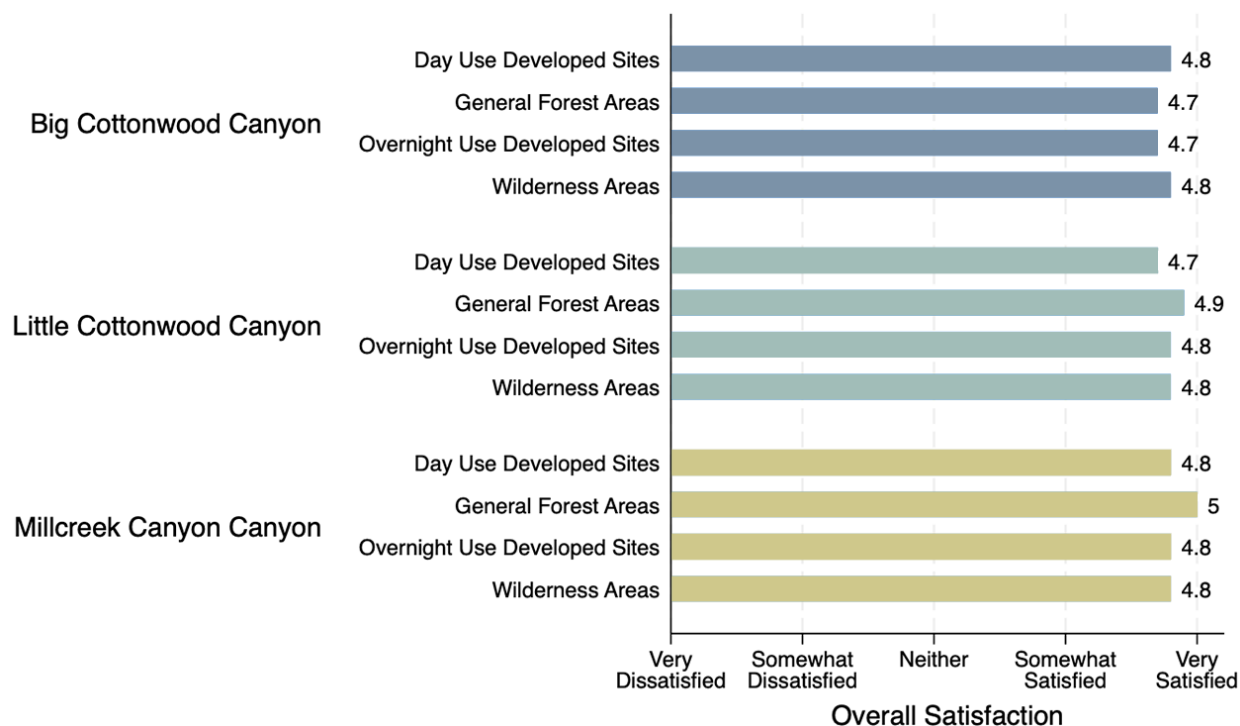
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Satisfaction

Visitors to the Central Wasatch are very satisfied with their outdoor recreation experiences. We asked respondents to rate their overall satisfaction for the visit on which they were surveyed; responses ranged from 1 (*very dissatisfied*) to 5 (*very satisfied*). Across all site types within each canyon, mean satisfaction levels were universally high (Figure 6).

Figure 6

Mean satisfaction of outdoor recreation experiences at different site types within each canyon of the Central Wasatch.



Note. Response options ranged from 1 (very dissatisfied) to 5 (very satisfied).

Importance and Satisfaction with Site-specific Attributes

The survey also solicited information about the importance and satisfaction with a variety of factors that could impact visitors' experiences; the full list of factors is shown in Table 3. These data were used to construct an importance/performance matrix for each canyon (Figure 7). The data show that each of the factors asked about tend to be important to visitors *and* that visitors are satisfied with them. Each of the factors asked about fall within the "keep up the good work" quadrant of the important performance matrix.

We subsequently determined if there were any factors for which importance exceeds satisfaction for each canyon (Table 3). The intent being to highlight areas where managers like the USDA Forest Service and partners (e.g., member organizations of the Central Wasatch Commission) could focus their efforts to improve upon the high-quality outdoor recreation opportunities offered within the canyons now. Conditions of the natural environment, the availability of parking, and the cleanliness of restrooms all had mean importance ratings exceeding satisfaction for all three canyons. These are areas where future investments (e.g., ecological restoration, more frequent restroom cleaning, etc.) or strategic messaging (e.g.,

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information about when parking lots are more likely to be full) could further improve outdoor recreation experiences within the Central Wasatch.

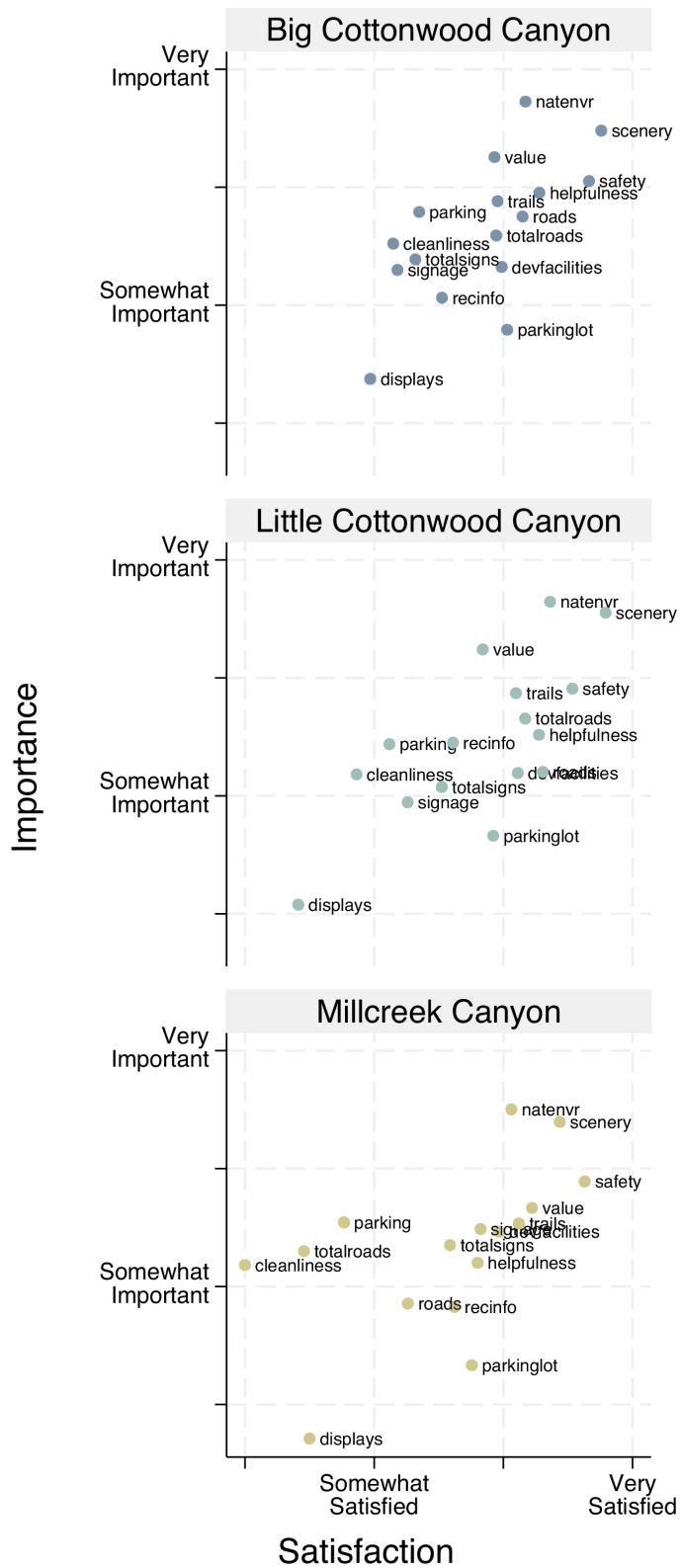
Table 3
Factors affecting visitor experiences asked about in the survey

Factor	Importance/Performance Classification			Importance Exceeds Satisfaction		
	BCC	LCC	MCC	BCC	LCC	MCC
Developed facilities conditions	Keep up the good work	Keep up the good work	Keep up the good work	No	No	No
Employee helpfulness	Keep up the good work	Keep up the good work	Keep up the good work	No	No	No
Information about recreation opportunities	Keep up the good work	Keep up the good work	Keep up the good work	No	No	No
Interpretive displays	Keep up the good work	Keep up the good work	Keep up the good work	No	No	No
Natural environment conditions	Keep up the good work	Keep up the good work	Keep up the good work	Yes	Yes	Yes
Parking availability	Keep up the good work	Keep up the good work	Keep up the good work	Yes	Yes	Yes
Parking lot conditions	Keep up the good work	Keep up the good work	Keep up the good work	No	No	No
Perceived safety	Keep up the good work	Keep up the good work	Keep up the good work	No	No	No
Restroom cleanliness	Keep up the good work	Keep up the good work	Keep up the good work	Yes	Yes	Yes
Road conditions	Keep up the good work	Keep up the good work	Keep up the good work	No	No	No
Road conditions across the entire canyon	Keep up the good work	Keep up the good work	Keep up the good work	No	No	Yes
Scenery quality	Keep up the good work	Keep up the good work	Keep up the good work	No	No	No
Signage adequacy	Keep up the good work	Keep up the good work	Keep up the good work	Yes	No	No
Signage adequacy across the entire canyon	Keep up the good work	Keep up the good work	Keep up the good work	Yes	No	No
Trail conditions	Keep up the good work	Keep up the good work	Keep up the good work	No	No	No
Value received for any fees paid	Keep up the good work	Keep up the good work	Keep up the good work	Yes	Yes	No

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Figure 7

Importance/satisfaction matrix for factors affecting visitor experiences asked about in the survey



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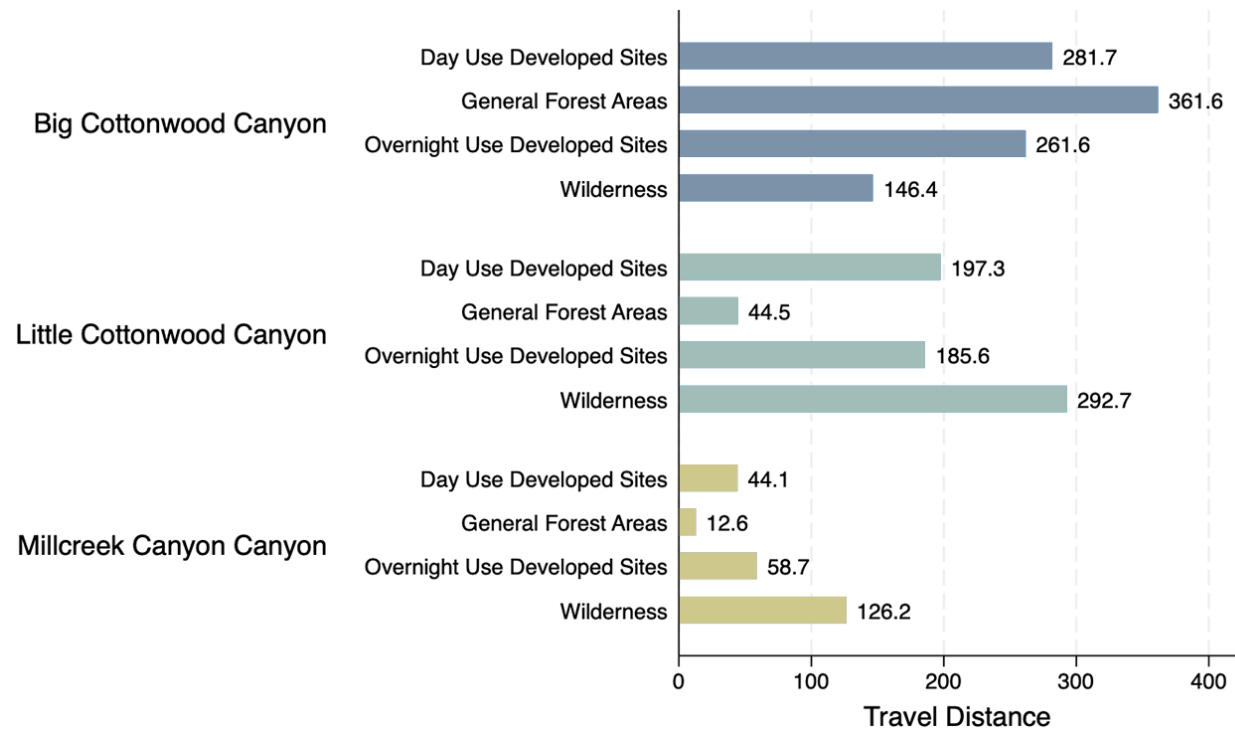
Distance Traveled

Each canyon of the Central Wasatch serves a somewhat unique geographic market, as illustrated by the mean distances traveled to reach different types of outdoor recreation settings (Figure 8). Both Big and Little Cottonwood Canyon provide opportunities for a much larger geography relative to Millcreek Canyon, which predominantly services local visitors. These differences are almost certainly attributable to the large proportions of non-local visitors who ski, snowboard, and visit the resorts within Big and Little Cottonwood Canyons.

The mean distance traveled to reach outdoor recreation destinations in Big and Little Cottonwood Canyons were 250 miles (*std. dev.* = 758 miles) and 215 miles (*std. dev.* = 796 miles), respectively. By comparison, the mean distance traveled to reach outdoor recreation destinations in Millcreek Canyon was 71 miles (*std. dev.* = 437.1 miles).

Figure 8

Mean distances traveled to reach different types of outdoor recreation settings in the canyons of the Central Wasatch



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Sociodemographic Characteristics

The sociodemographic characteristics of visitors to each canyon of the Central Wasatch are shown in Table 4.

Table 4

Sociodemographic characteristics of visitors to each canyon of the Central Wasatch

Sociodemographic Characteristic	Big Cottonwood Canyon (%)	Little Cottonwood Canyon (%)	Millcreek Canyon (%)
Age			
16-19	3.8	5.2	3.6
20-29	22.6	26.0	17.0
30-39	23.6	19.1	28.5
40-49	18.2	18.6	19.3
50-59	14.6	14.6	14.4
60-69	11.6	10.7	10.0
70+	5.6	5.8	7.2
Sex			
Female	40.3	40.8	46.3
Male	59.7	59.2	53.7
Hispanic (yes)	9.4	4.7	7.5
Race			
Native American	0.8	0.3	0.0
Pacific Islander	0.7	1.2	0.3
Asian	3.9	5.1	2.2
Black	1.0	1.3	0.0
White	88.1	89.5	89.2
Income			
Under 25k	5.3	6.0	5.0
25-49k	12.0	9.3	12.0
50-74k	14.3	14.8	16.0
75-99k	16.3	16.4	19.0
100-149k	27.6	16.4	16.0
More than 150k	24.6	37.2	32.0

Discussion

The Central Wasatch provides a diverse spectrum of recreation opportunity and receives a large number of visitors. There are approximately 80,000 acres in the Central Wasatch, and data from this study show the area receives roughly 3.2 million visits a year. In comparison, Arches National Park, which is nearly equal in size, receives roughly 1.8 million visitors per year. Despite the high level of use, the Central Wasatch visitors are quite satisfied with their experience and the conditions in the Central Wasatch. Results show visitors are overwhelmingly satisfied with their overall experience, and visit the area, on average, once per week. Perceived crowding across all site types is generally low, which likely reflects people's expectations for the kinds of areas they visit and the capacity of the area to accommodate visitation.

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Reference

English, D. B. K., White, E. M., Bowker, J. M., & Winter, S. A. (2020). A review of the Forest Service's National Visitor Use Monitoring (NVUM) program. *Agricultural and Resource Economics Review*, 49(1), 64–90. <https://doi.org/10.1017/age.2019.27>