

OUTDOOR RECREATION USE OF THE CENTRAL WASATCH: RESULTS FROM THE 2021-2022 VISITOR USE SURVEY

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About the Institute

The Institute of Outdoor Recreation and Tourism at Utah State University does research, outreach, and teaching focused on outdoor recreation and tourism management – inside Utah and beyond its borders. Our work focuses on the social and economic trade-offs associated with providing outdoor recreation opportunities on public lands.

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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 national forest lands within 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, Central Wasatch visitors are quite satisfied with their experiences

and the conditions in the canyons. Results also show visitors frequently recreate in the canyons, on average, once per week. Additionally, perceived crowding across all site types is generally low, likely reflecting people's expectations for the kinds of sites they visit, the types of activities they participate in, and the capacity of the area to accommodate more visitation. These data and findings serve as a base of information that can be used to inform the decisions of 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.



Introduction

This short report details the findings of a survey effort designed to better understand the visitors and visitor experiences offered on national forest lands 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 within national forests. 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.
- 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.

The survey effort does not quantify or characterize non-recreation visits. This includes employee travel, delivery services, etc. as well as all non-outdoor activities such as traveling to a resort solely for the purposes of visiting a restaurant.

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 method 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 roads, trailheads, and parking areas used for hiking, biking, OHV use, and other outdoor recreation activities.
- **Wilderness Areas** include Congressionally designated Wilderness areas.

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 proportionally and randomly assigned within these strata. For some sites, such as campgrounds and ski resorts, the Forest Service has data on the total number of visitors using that site on any given day. These data can come from the agency's online

reservation system, fee slips, or resort operators. Sites for which these additional data on total visits are available are referred to as "proxy" sites. For these sites, survey data are weighted based upon the external visitation numbers. For example, if a forest visitor is surveyed at a ski resort (where

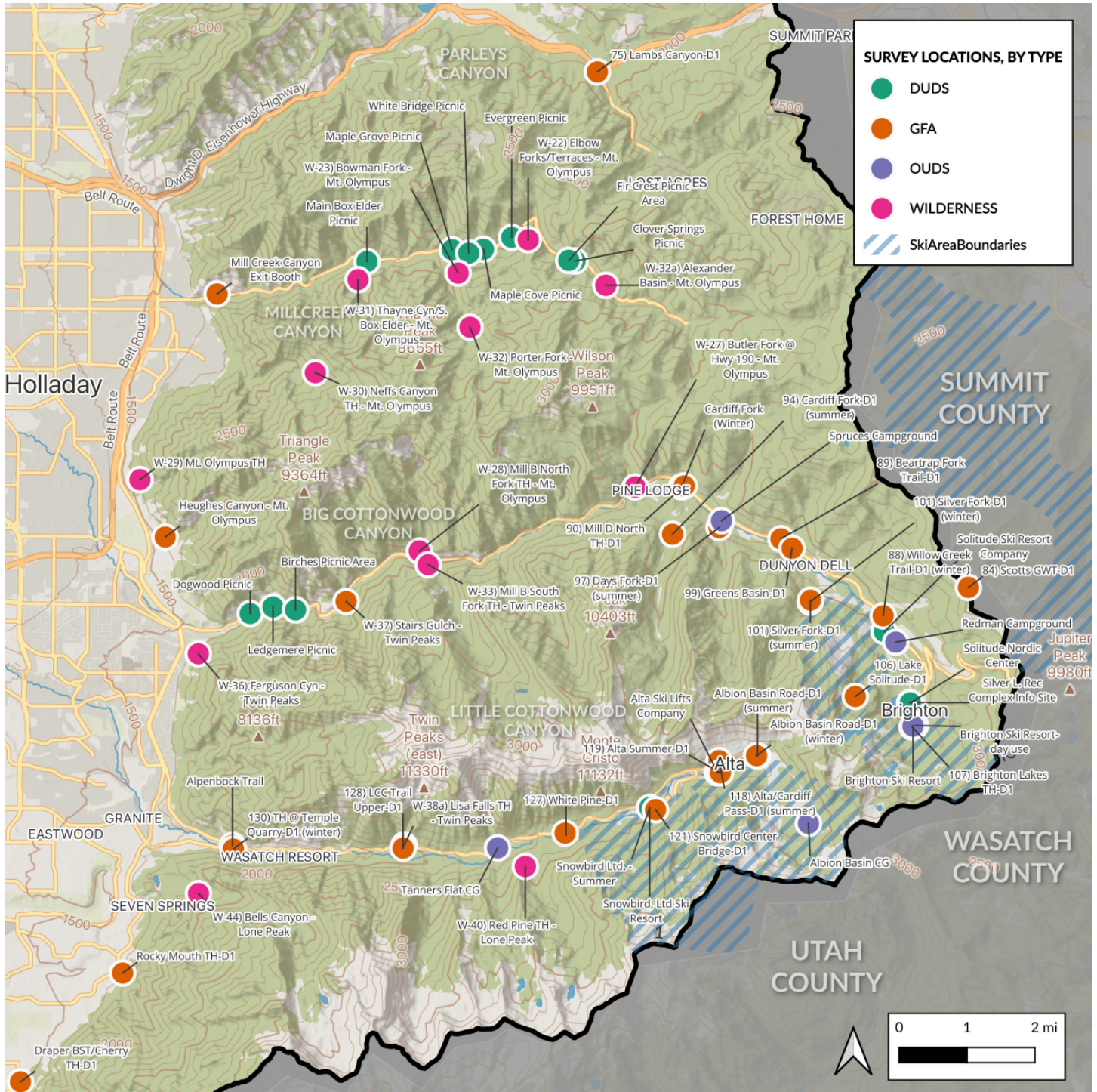


Figure 1
 Survey locations, by site type (DUDS = Day Use Developed Sites, GFA = General Forest Area; OUDS = Overnight Use Developed Area; WILDERNESS = Site in Congressionally Designated Wilderness)

Table 1
Sampling days and completed surveys, by canyon

Site Type	Big Cottonwood Canyon		Little Cottonwood Canyon		Millcreek Canyon		Rest of the Uinta-Wasatch-Cache National Forest	
	Survey Days	Completed Responses	Survey Days	Completed Responses	Survey Days	Completed Responses	Survey Days	Completed Responses
All sites	138	1,197	85	692	82	408	204	1,404
Day use				126		130	59	440
developed sites	51	625	11		28			
Overnight use				28		6	40	127
developed sites	17	55	5		6			
General forest				330		166	80	648
area sites	36	235	46		27			
Wilderness sites	34	282	23	208	21	106	25	189

resort operators track visitation), their responses are weighted more heavily than a forest visitor surveyed at a Wilderness site (where no external visitation data is available).

Sampled sites and the types of sites from which they were drawn, are shown in Figure 1 and listed in Appendix A.

Each survey day consists of a 6-hour window (either 8am-2pm or 2pm-8pm) during which a survey technician counts and then 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 by site type 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. The table also shows the breakdown of sampling days by site type across the rest of the Uinta-Wasatch-Cache National Forest. Data were simultaneously collected across the broader Forest during the same timeframe as the Central Wasatch. Where appropriate, we draw comparisons between not only the three major canyons of the Central Wasatch but also between these canyons and the broader Forest.

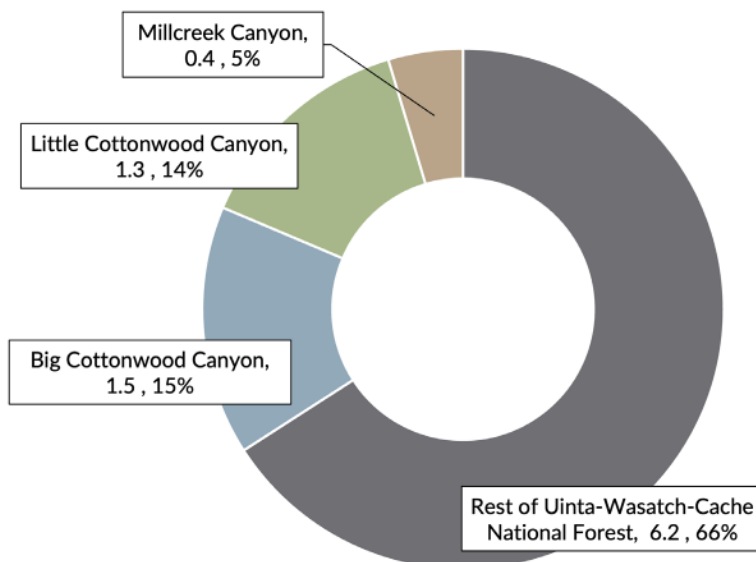


Figure 2
Proportion of national forest visits to each canyon of the Central Wasatch relative to the rest of the Uinta-Wasatch-Cache National Forest (millions of visits; FY22)

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. Of those visits, roughly 3.2 million occurred within the Central Wasatch, which accounts for slightly more than one-third of all forest visits across the entirety of the Uinta-Wasatch-Cache during the same time (Figure 2). 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.

Visits by Site Type

Figure 3 shows the break down in forest visits by site type across each canyon within the Central Wasatch.

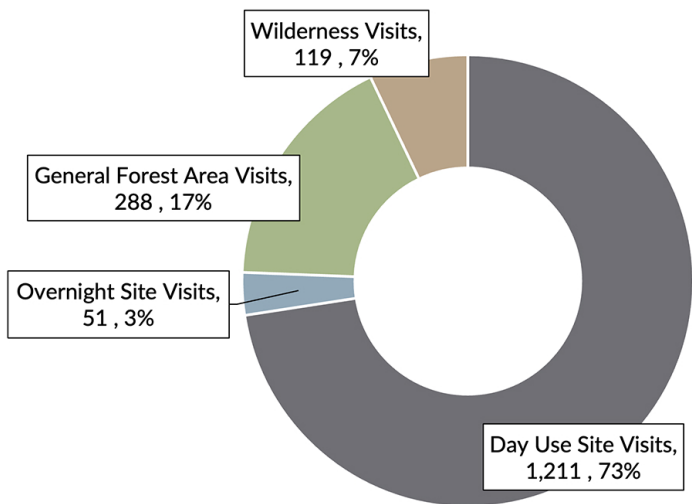
Both Big and Little Cottonwood Canyon receive the vast majority (70-75%) of their use at day use sites, this includes all visits to the ski resorts within both canyons. Big Cottonwood Canyon received just over 1.2 million day use site visits, while Little Cottonwood Canyon received just over 1.0 million.

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.

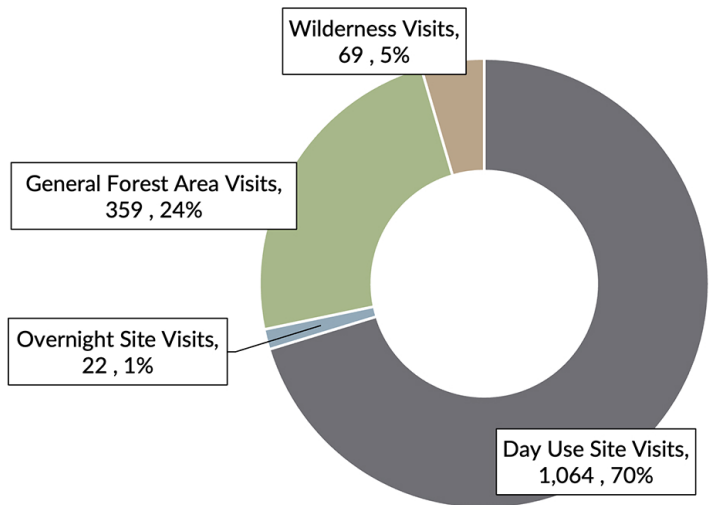
A substantial portion of the visitation to both Big and Little Cottonwood Canyons comes from general forest area visits. This includes all visitation to undeveloped areas in the national forest, excluding Congressionally designated Wilderness. General forest areas are commonly used for hiking, mountain biking, undeveloped camping, and other outdoor recreation activities. Little Cottonwood Canyon received 359 thousand general forest area



BIG COTTONWOOD



LITTLE COTTONWOOD



Day Use Areas = Ski and picnic areas

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

General Forest Areas = Undeveloped areas of the forest, excluding Congressionally designated Wilderness

Wilderness Areas = Congressionally designated Wilderness Areas

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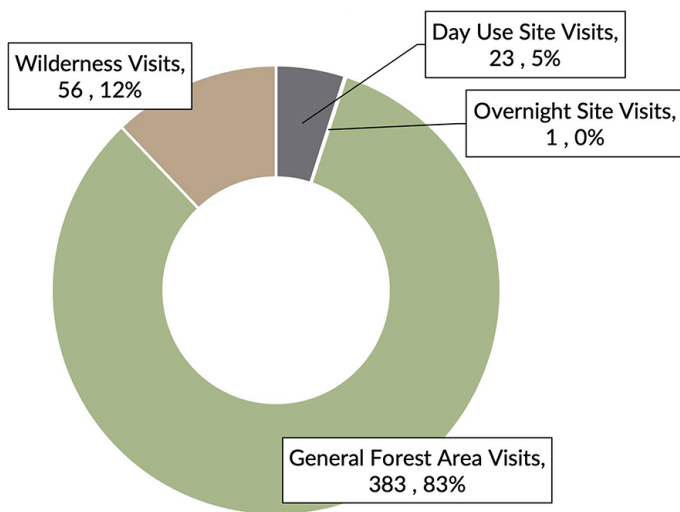


Figure 3
Proportion of forest visits to different site types within each canyon of the Central Wasatch (thousands of visits; FY22)

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 is largely attributed to the kinds of outdoor recreation Millcreek Canyon supports relative to Big and Little Cottonwood Canyons (i.e., Millcreek does not have ski resorts).

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).

Visits by Activity

The survey solicited information about all of the recreational activities respondents participated in during their visit. The proportional breakdown across the most common outdoor recreational activities are shown in Figure 4. These visitation numbers are statistical estimates based on a product of overall forest visitation within each canyon and

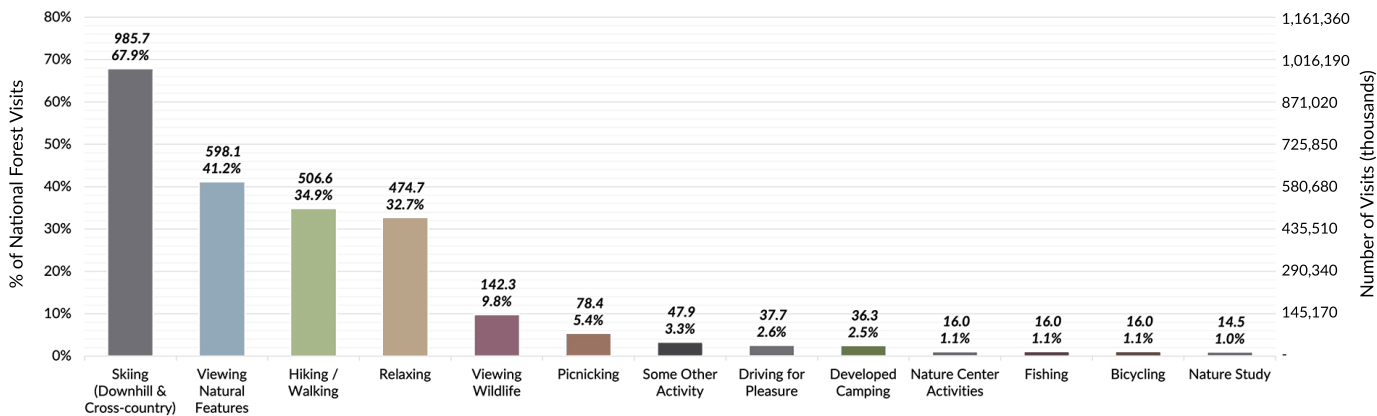
the percentage of survey respondents who reported participating in each activity. As such, they may differ slightly from visitation numbers collected by other means (e.g., skier-days based on RFID scans).

Skiing is the most common outdoor recreation activity in both Big and Little Cottonwood Canyons. There are an estimated total of nearly 1 million national forest visits (985,704) involving skiing in Big Cottonwood Canyon, with nearly as many (955,573) in Little Cottonwood Canyon. Skiing accounts for 67.9% and 72.8% of all recreational visits to the national forest recreation sites within Big and Little Cottonwood Canyons, respectively. The ski resorts within the canyons report slightly more skier visits than those reported here (Big Cottonwood Canyon = 996,767 skier visits; Little Cottonwood Canyons = 1,152,028 skier visits). The resort's values are likely more accurate given they are generated through RFIDs and other advanced monitoring technologies.

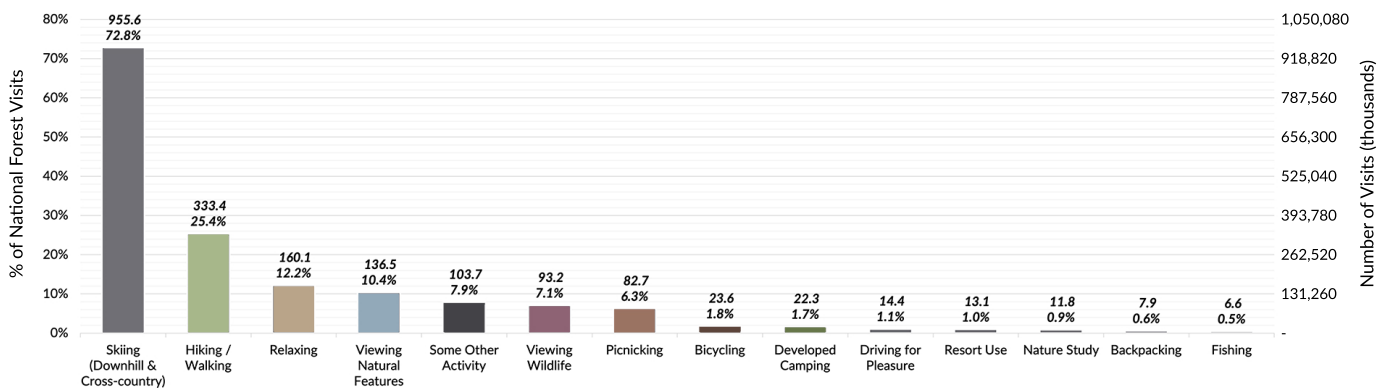
Hiking/walking is also a common activity in these canyons, with over 507 thousand visits involving the activity in Big Cottonwood Canyon and over 333 thousand visits in Little Cottonwood Canyon.



BIG COTTONWOOD



LITTLE COTTONWOOD



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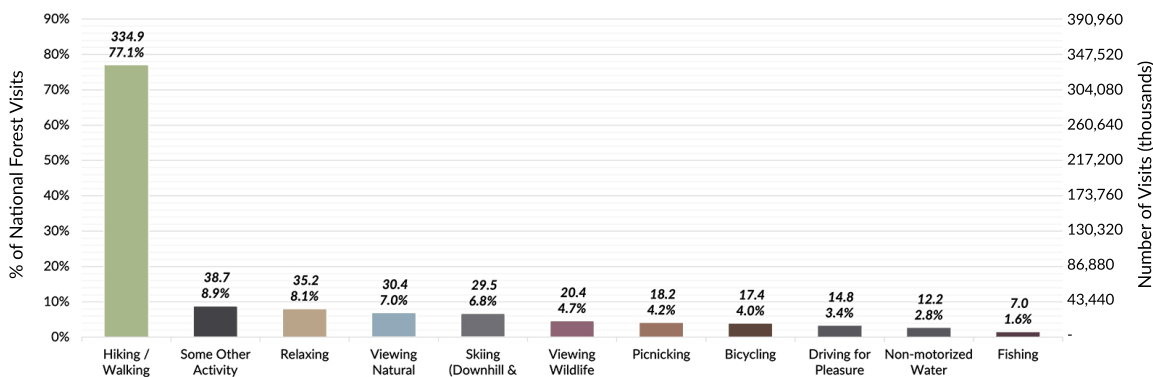
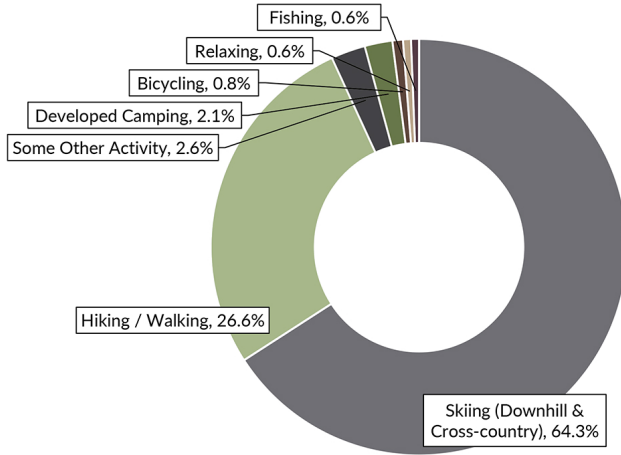


Figure 4

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

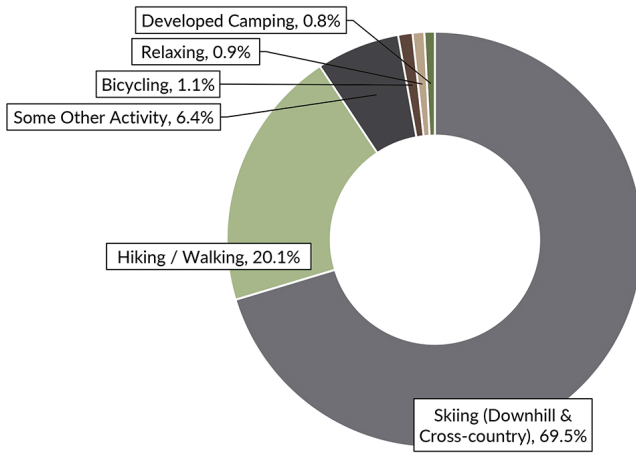
Note. The figures only show activities with > 0.1% of all the national forest visits within each canyon. Percentages do not sum to 100% because individuals could have participated in multiple activities on a single trip. The activities described by respondents if they indicated participating in “some other activity” are reported in Appendix B.

BIG COTTONWOOD



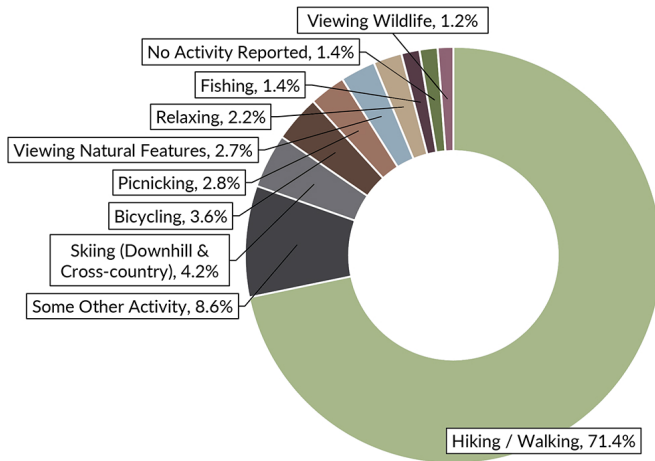
Activity	Percent of National Forest Visits	National Forest Visits (thousands of visits; FY22)	Mean Hours Doing Activity
Skiing (Downhill & Cross-country)	64.3%	933.4	3.2
Hiking / Walking	26.6%	386.2	2.2
Some Other Activity	2.6%	37.7	4.0
Developed Camping	2.1%	30.5	22.0
Bicycling	0.8%	11.6	4.1
Relaxing	0.6%	8.7	4.4
Fishing	0.6%	8.7	4.0
Viewing Natural Features	0.4%	5.8	1.7
Picnicking	0.4%	5.8	3.2
Viewing Wildlife	0.4%	5.8	2.5
Driving for Pleasure	0.3%	4.4	1.4
Other Non-motorized	0.2%	2.9	2.4
No Activity Reported	0.2%	2.9	.
Nature Study	0.1%	1.5	2.0
Nature Center Activities	0.1%	1.5	1.0
OHV Use	0.1%	1.5	3.0
Gathering Forest Products	0.1%	1.5	2.6
Resort Use	0.0%	-	2.8
Backpacking	0.0%	-	.
Primitive Camping	0.0%	-	12.0
Visiting Historic Sites	0.0%	-	.
Hunting	0.0%	-	12.3
Snowmobiling	0.0%	-	.
Motorized Water Activities	0.0%	-	.
Other Motorized Activity	0.0%	-	.
Horseback Riding	0.0%	-	.
Non-motorized Water	0.0%	-	2.5
Target Shooting	0.0%	-	.

LITTLE COTTONWOOD



Activity	Percent of National Forest Visits	National Forest Visits (thousands of visits; FY22)	Mean Hours Doing Activity
Skiing (Downhill & Cross-country)	69.5%	912.3	3.3
Hiking / Walking	20.1%	268.8	2.3
Some Other Activity	6.4%	84.0	3.0
Bicycling	1.1%	14.4	1.5
Relaxing	0.9%	11.8	8.3
Developed Camping	0.8%	10.5	26.8
Viewing Natural Features	0.4%	5.3	1.5
Driving for Pleasure	0.3%	3.9	1.7
Resort Use	0.2%	2.6	1.0
Backpacking	0.1%	1.3	25.0
Picnicking	0.1%	1.3	13.5
Nature Study	0.1%	1.3	1.0
Fishing	0.1%	1.3	0.5
Primitive Camping	0.0%	-	.
Visiting Historic Sites	0.0%	-	.
Nature Center Activities	0.0%	-	.
Hunting	0.0%	-	.
OHV Use	0.0%	-	.
Snowmobiling	0.0%	-	.
Motorized Water Activities	0.0%	-	.
Other Motorized Activity	0.0%	-	.
Horseback Riding	0.0%	-	.
Non-motorized Water	0.0%	-	.
Other Non-motorized	0.0%	-	.
Gathering Forest Products	0.0%	-	1.0
Viewing Wildlife	0.0%	-	.
Target Shooting	0.0%	-	.
No Activity Reported	0.0%	14.3	.

MILLCREEK



Activity	Percent of National Forest Visits	National Forest Visits (thousands of visits; FY22)	Mean Hours Doing Activity
Hiking / Walking	71.4%	310.2	2.1
Some Other Activity	8.6%	37.4	3.3
Skiing (Downhill & Cross-country)	4.2%	18.2	2.1
Bicycling	3.6%	15.6	1.3
Picnicking	2.8%	12.2	2.6
Viewing Natural Features	2.7%	11.7	0.8
Relaxing	2.2%	9.6	3.3
Fishing	1.4%	6.1	2.7
No Activity Reported	1.4%	6.1	.
Viewing Wildlife	1.2%	5.2	0.9
Driving for Pleasure	0.3%	1.3	0.9
Hunting	0.2%	0.9	7.5
Developed Camping	0.0%	-	.
Resort Use	0.0%	-	4.0
Backpacking	0.0%	-	.
Nature Study	0.0%	-	.
Primitive Camping	0.0%	-	.
Visiting Historic Sites	0.0%	-	.
Nature Center Activities	0.0%	-	.
OHV Use	0.0%	-	.
Snowmobiling	0.0%	-	.
Motorized Water Activities	0.0%	-	.
Other Motorized Activity	0.0%	-	.
Horseback Riding	0.0%	-	.
Non-motorized Water	0.0%	-	.
Other Non-motorized	0.0%	-	.
Gathering Forest Products	0.0%	-	1.0
Target Shooting	0.0%	-	2.0

Figure 5

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

Note. The figures only show activities with > 0.5% of all the national forest visits within each canyon; the corresponding tables show all activities. The activities described by respondents if they indicated participating in "some other activity" are reported in Appendix B.



Relaxing, viewing wildlife, and viewing natural features are also common activities in these two canyons. The proportional breakdown of outdoor recreation activities in Millcreek Canyon is distinctly different than those of Big or Little Cottonwood. Hiking/walking is the dominant activity, with nearly 335 thousand visits involving these activities during the study year. Hiking/walking accounts for over three-fourths of the outdoor recreation visits to Millcreek Canyon each year. Other less-common activities that recreationists participate in within Millcreek are shown in Figure 4.

The survey also asked individuals to identify which, of all the activities they participated in during the

visit in which they were contacted, was their primary activity. Respondents were only allowed to select one activity. The results from this question are shown in Figure 5. Activities such as “relaxing,” “viewing natural features,” and “viewing wildlife,” are not commonly identified as a primary activity. Rather, these are incidental activities to other common primary activities like “hiking/walking” and “skiing.”

Time Spent Participating in Primary Activities

The mean time visitors spent participating in their primary outdoor recreation activity is also shown in Figure 5. As would be expected, the longest participation times were for activities involving

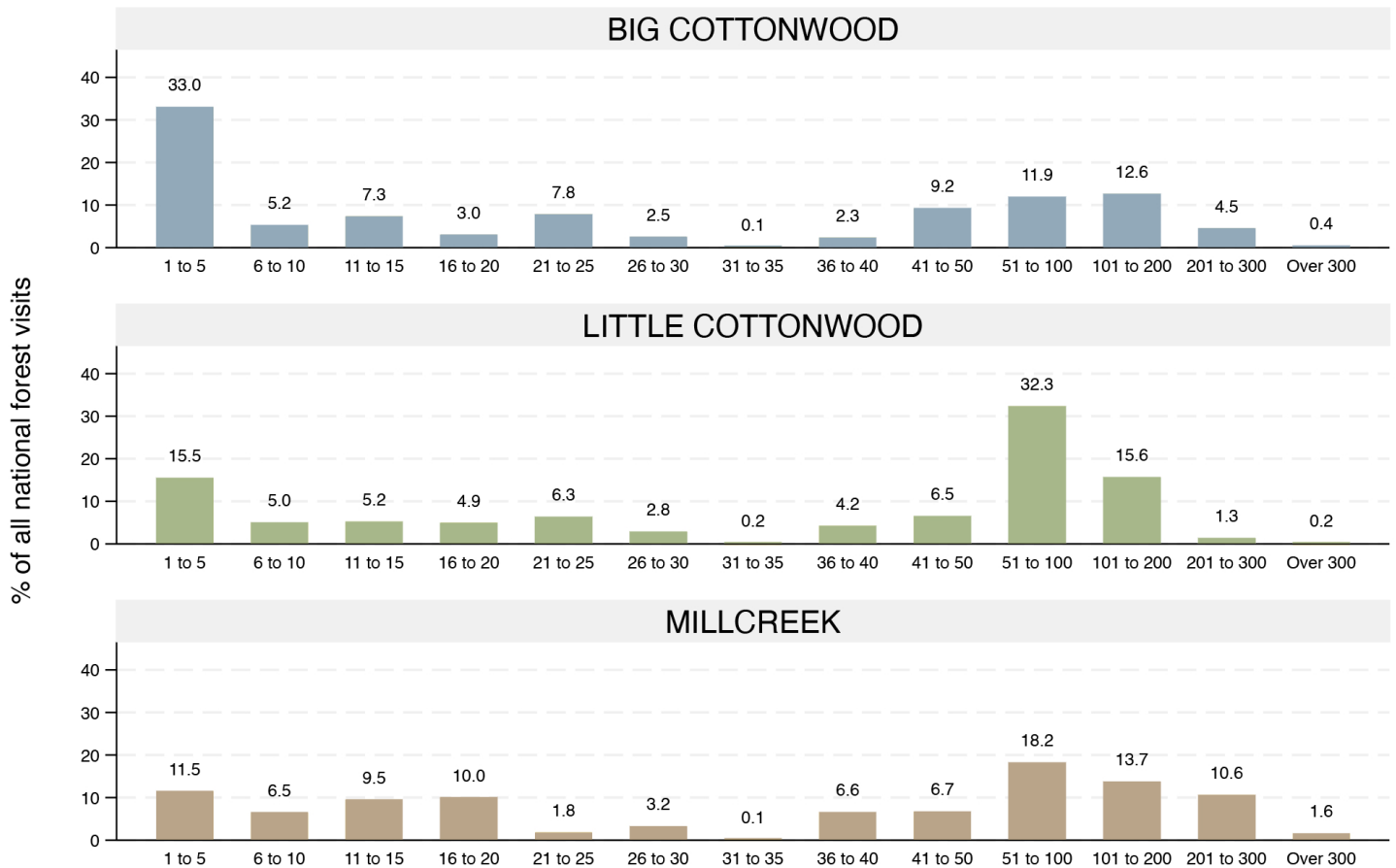
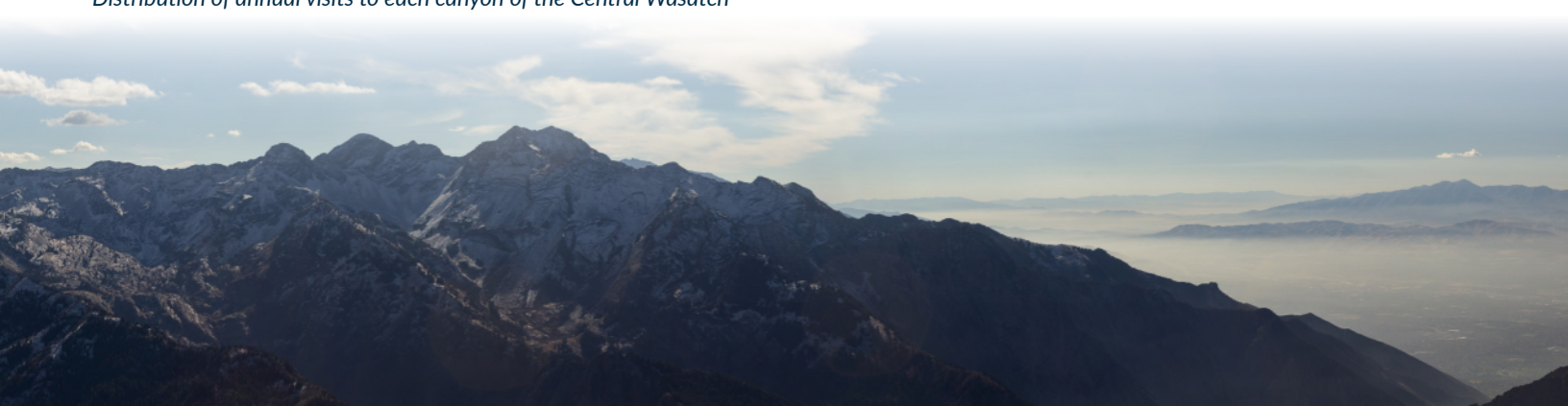


Figure 6
Distribution of annual visits to each canyon of the Central Wasatch



overnight stays (e.g., developed camping). In both Big and Little Cottonwood Canyons, visits involving skiing were 3 hours long on average. Across all three canyons, visits where hiking was the primary activity lasted an average of roughly 2 hours.

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; a large proportion of visitors average around one visit per week. Figure 6 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 54.6 times per year (std. dev. = 74.6); this value increases to 69.0 (std. dev. = 62.4) for Little Cottonwood Canyon and 78.0 (std. dev. = 90.4) for Millcreek Canyon.

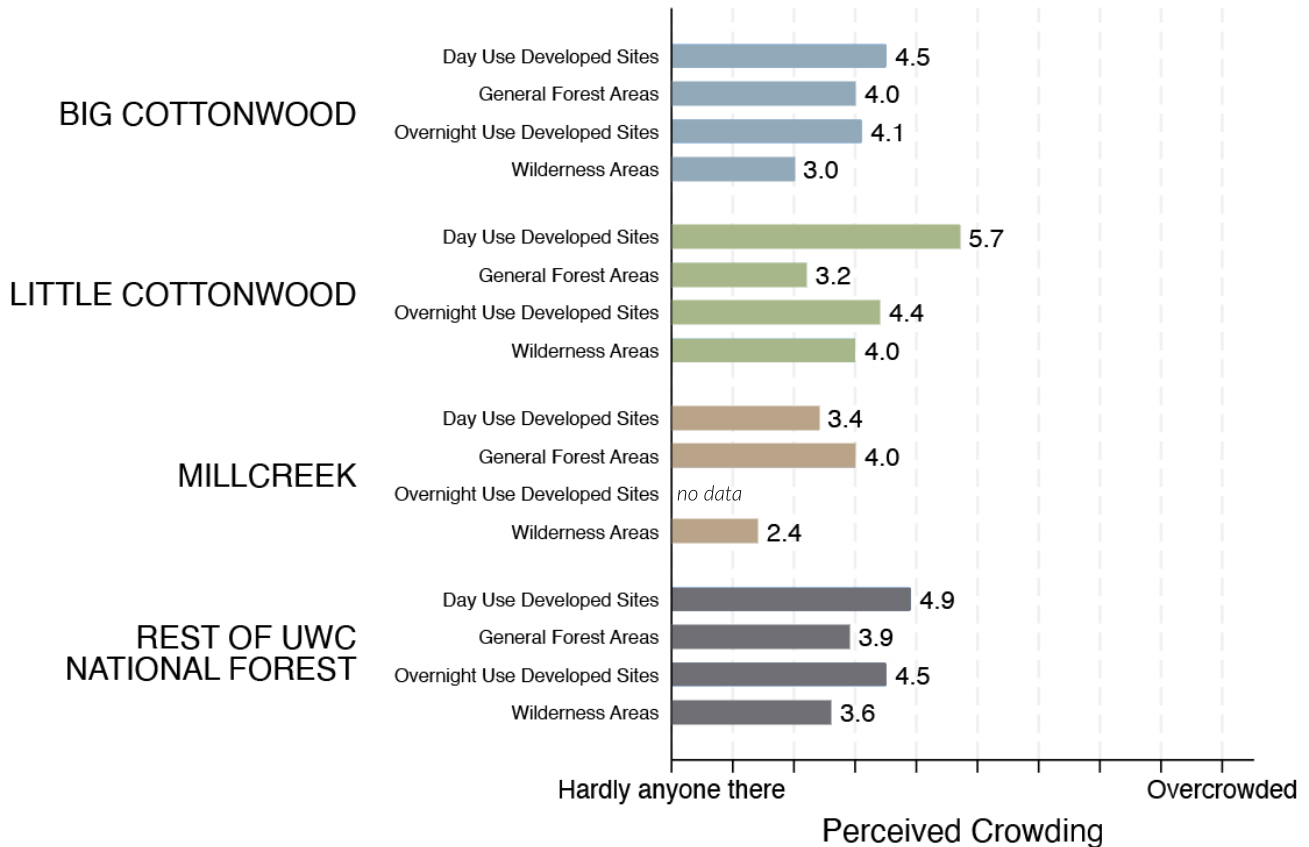


Figure 7

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

Note. Response options ranged from 1 (hardly anyone there) to 10 (overcrowded) during the visit in which the respondent was surveyed.



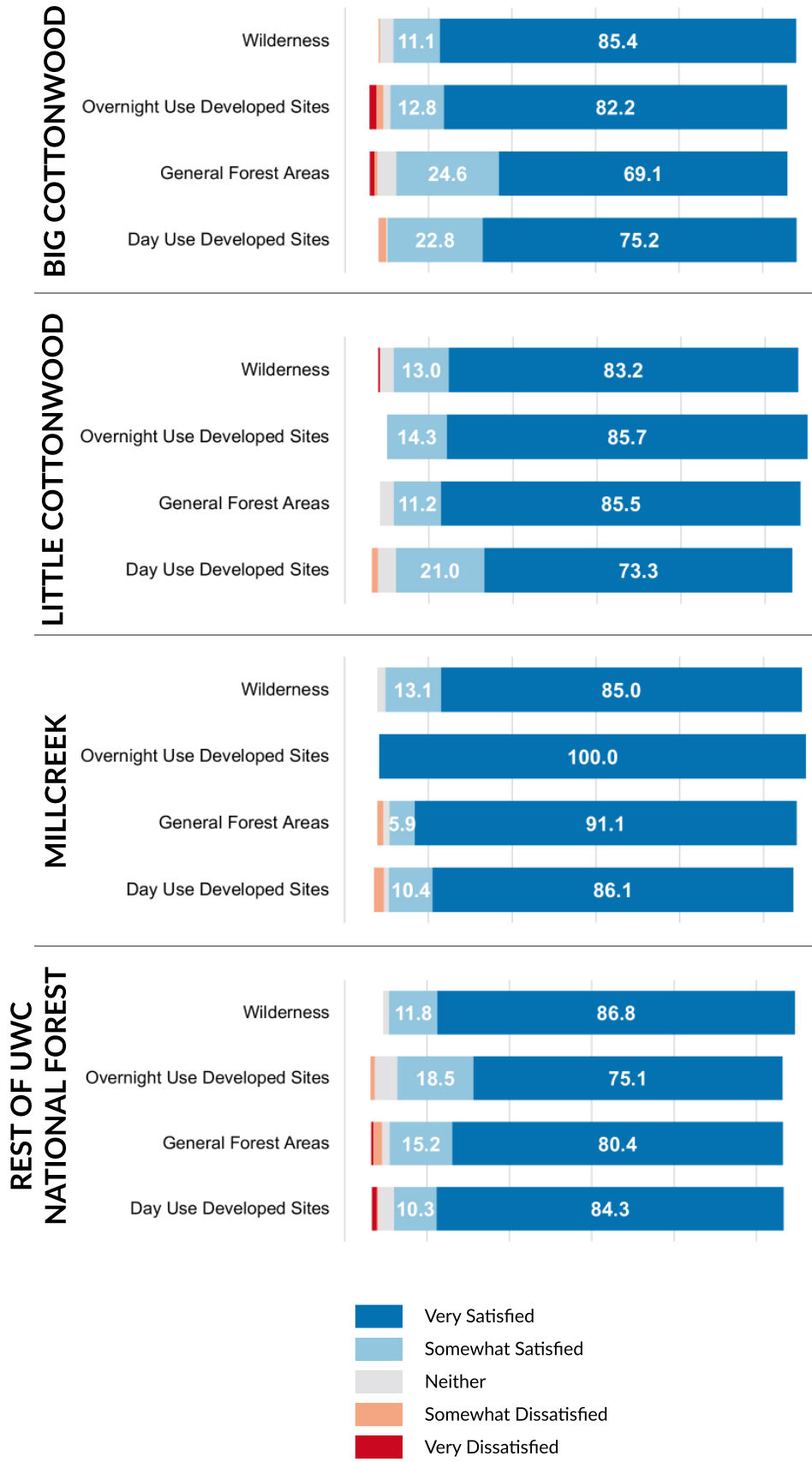


Figure 8
 Satisfaction of outdoor recreation experiences at different site types within each canyon of the Central Wasatch

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 7. Little Cottonwood Canyon tended to be perceived as slightly more crowded than the other two canyons; however perceived crowding was still low.

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 8).

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 2. These data were used to construct an importance/performance matrix for each canyon. 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 2). 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 was the only factor that had mean importance ratings exceeding satisfaction for all three canyons. The

Table 2
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	Yes	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	Yes	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	No	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	No	Yes
Road conditions	Keep up the good work	Keep up the good work	Keep up the good work	Yes	No	No
Road conditions across the entire canyon	Keep up the good work	Keep up the good work	Keep up the good work	Yes	No	No
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	No	No	Yes
Signage adequacy across the entire canyon	Keep up the good work	Keep up the good work	Keep up the good work	No	No	Yes
Trail conditions	Keep up the good work	Keep up the good work	Keep up the good work	Yes	Yes	No
Value received for any fees paid	Keep up the good work	Keep up the good work	Keep up the good work	Yes	No	No

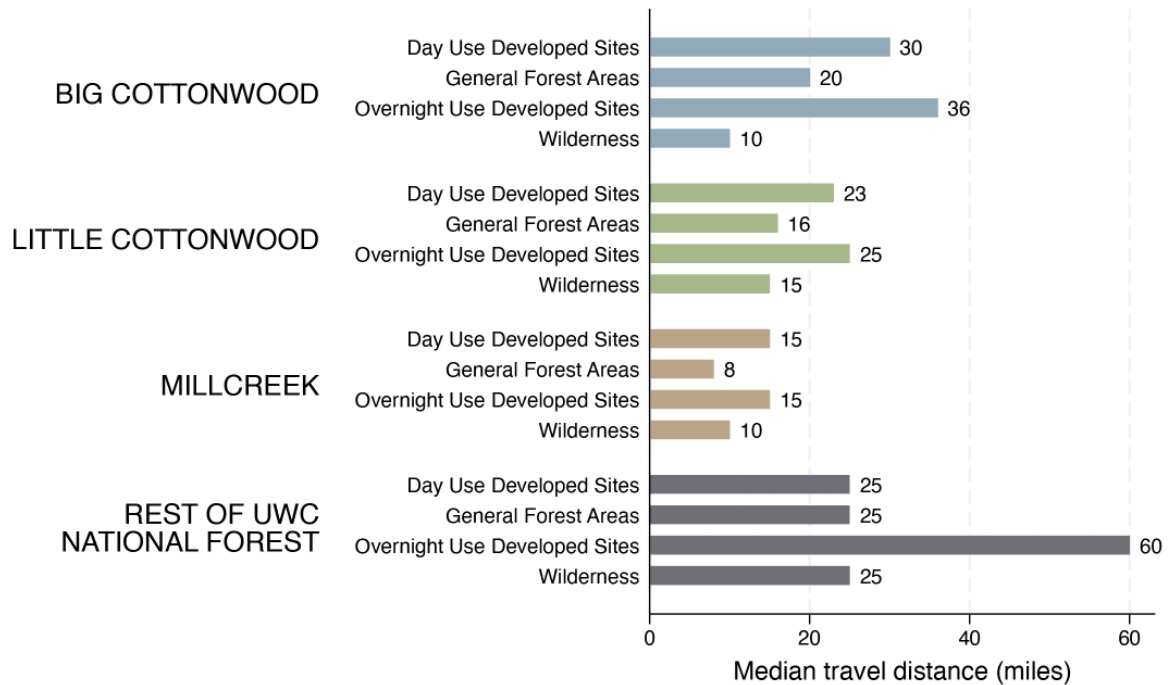


Figure 9
Median distances traveled to reach different types of outdoor recreation settings in the canyons of the Central Wasatch

availability of parking, the cleanliness of restrooms, and the conditions of trails had mean importance ratings exceeding satisfaction ratings for two of the three canyons. Collectively, these are areas where future investments (e.g., ecological restoration, more frequent restroom cleaning, etc.) or strategic messaging (e.g., information about when parking lots are more likely to be full) could further improve

outdoor recreation experiences within the Central Wasatch.

Distance Traveled

Each canyon of the Central Wasatch serves a somewhat unique geographic market, as illustrated by the median distances traveled to reach different types of outdoor recreation settings (Figure 9).



Both Big and Little Cottonwood Canyon provide opportunities for a 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 median distance traveled to reach all outdoor recreation destinations in Big and Little Cottonwood

Canyons were 25 miles (IQR = 16 - 152) and 20 miles (IQR = 15 - 30), respectively. By comparison, the median distance traveled to reach outdoor recreation destinations in Millcreek Canyon was only 8 miles (IQR = 5 - 15).

Sociodemographic Characteristics

The sociodemographic characteristics of visitors to each canyon of the Central Wasatch are shown in Table 3.

Table 3
Sociodemographic characteristics of visitors to each canyon of the Central Wasatch

Sociodemographic Characteristic	Big Cottonwood Canyon (%)	Little Cottonwood Canyon (%)	Millcreek Canyon (%)
Age			
Under 16	7.4	14.2	10.3
16-19	1.4	5.8	2.9
20-29	24.0	29.7	12.7
30-39	25.2	15.9	22.6
40-49	18.5	13.1	17.0
50-59	11.0	11.7	15.5
60-69	11.2	6.9	12.9
70+	1.2	2.7	6.0
Sex			
Female	39.9	36.6	47.7
Male	60.1	63.4	52.3
Hispanic (yes)	5.2	3.7	3.6
Race			
Native American	0.5	0.2	0.0
Pacific Islander	0.2	0.5	0.0
Asian	5.2	6.9	1.7
Black	4.2	0.7	0.0
White	91.5	95.2	98.5
Income			
Under 25k	6.4	5.2	4.4
25-49k	9.4	14.4	10.1
50-74k	17.8	9.2	11.8
75-99k	23.5	14.0	15.1
100-149k	21.9	13.8	21.7
More than 150k	21.0	43.3	36.9

Discussion

The Central Wasatch provides a diverse spectrum of recreation opportunities and receives many 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 recreational experiences 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 sites they visit, the types of activities they participate in, and the capacity of the area to accommodate more visitation.

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>



Appendix A

List of National Forest Sites Sampled

SITETYPE

DUDS = Day Use Developed Site

GFA = General Forest Area

OUDS = Overnight Use Developed Site

Wilderness = Congressionally Designated Wilderness

* = Proxy Site (i.e., survey responses are weighted by data on the total number of visits as measured by either online reservations, fee slips, or ski-resort operators).

BIG COTTONWOOD CANYON		LITTLE COTTONWOOD CANYON	
SITETYPE	SITENAME	SITETYPE	SITENAME
DUDS	Silver L. Rec Complex Info Site	DUDS	Alta Ski Lifts Company *
DUDS	Birches Picnic Area *	DUDS	Snowbird Ltd. - Summer *
DUDS	Brighton Ski Resort- day use *	DUDS	Snowbird, Ltd Ski Resort *
DUDS	Dogwood Picnic *	GFA	118) Alta/Cardiff Pass-D1 (summer)
DUDS	Ledgemere Picnic *	GFA	119) Alta Summer-D1
DUDS	Solitude Nordic Center *	GFA	121) Snowbird Center Bridge-D1
DUDS	Solitude Ski Resort - Summer *	GFA	128) LCC Trail Upper-D1
DUDS	Solitude Ski Resort Company *	GFA	130) TH @ Temple Quarry-D1 (winter)
DUDS	Spruces CG/Group DUDS *	GFA	Alpenbock Trail
GFA	101) Silver Fork-D1 (summer)	GFA	Draper BST/Cherry TH-D1
GFA	106) Lake Solitude-D1	GFA	Rocky Mouth TH-D1
GFA	107) Brighton Lakes TH-D1	GFA	W-38a) Lisa Falls TH - Twin Peaks
GFA	84) Scotts GWT-D1	GFA	127) White Pine-D1 *
GFA	89) Beartrap Fork Trail-D1	GFA	Albion Basin Road-D1 (summer) *
GFA	90) Mill D North TH-D1	GFA	Albion Basin Road-D1 (winter) *
GFA	97) Days Fork-D1 (summer)	OUDS	Albion Basin CG *
GFA	99) Greens Basin-D1	OUDS	Tanners Flat CG *
GFA	Cardiff Fork (Winter)	WILDERNESS	W-44) Bells Canyon - Lone Peak
GFA	Heughes Canyon - Mt. Olympus	WILDERNESS	W-40) Red Pine TH - Lone Peak *
GFA	W-37) Stairs Gulch - Twin Peaks		
OUDS	101) Silver Fork-D1 (winter) *		
OUDS	88) Willow Creek Trail-D1 (winter) *		
OUDS	94) Cardiff Fork-D1 (summer) *		
OUDS	Brighton Ski Resort *		
OUDS	Jordan Pines Group CG *		
OUDS	Redman Campground *		
OUDS	Spruces Campground *		
OUDS	Spruces Group CG *		
WILDERNESS	W-28) Mill B North Fork TH - Mt. Olympus		
WILDERNESS	W-29) Mt. Olympus TH		
WILDERNESS	W-36) Ferguson Cyn - Twin Peaks		
WILDERNESS	W-27) Butler Fork @ Hwy 190 - Mt. Olympus		
WILDERNESS	W-33) Mill B South Fork TH - Twin Peaks		
MILLCREEK CANYON			
SITETYPE	SITENAME		
DUDS	Clover Springs Picnic		
DUDS	Evergreen Picnic		
DUDS	Fir Crest Picnic Area		
DUDS	Main Box Elder Picnic		
DUDS	Maple Cove Picnic		
DUDS	Maple Grove Picnic		
DUDS	White Bridge Picnic		
DUDS	Church Fork Picnic *		
DUDS	Terraces Picnic Area		
GFA	75) Lambs Canyon-D1		
GFA	Mill Creek Canyon Exit Booth *		
OUDS	Big Water Winter Yurt *		
WILDERNESS	W-22) Elbow Forks/Terraces - Mt. Olympus		
WILDERNESS	W-23) Bowman Fork - Mt. Olympus		
WILDERNESS	W-30) Neffs Canyon TH - Mt. Olympus		
WILDERNESS	W-31) Thayne Cyn/S. Box Elder - Mt. Olympus		
WILDERNESS	W-32) Porter Fork - Mt. Olympus		
WILDERNESS	W-32a) Alexander Basin - Mt. Olympus		

Appendix B

Other Activities Respondents Participated in, by Canyon

BIG COTTONWOOD CANYON	LITTLE COTTONWOOD CANYON	MILLCREEK CANYON
ACTIVITY Backcountry skiing Backpack prep Chairlift Ride Climbing Disk golf Dog exercise Dog hike Electric motorized assistant Fixing mailbox on top Getting water Just doing nothing Mental health day Painting Proposal Ski lift Sledding Trail running Wedding Work	ACTIVITY Backcountry skiing Bouldering Climbing Driving toy trucks Oktoberfest Summer activities Trail running Tram ride Yoga	ACTIVITY Camp Tracy Fire Forest Bathing Hammocking Journaling Mushroom hunting Photography Running Sledding



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