Wildland Recreation Visitor Use and Experience

Roaring Fork Valley, Colorado

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Executive Summary

This report summarizes the findings of a multi-year visitor use study at fourteen recreation areas in the Roaring Fork Valley (RFV) in Western Colorado. This study was developed to understand aspects of the visitor experience, visitor demographics, and to identify the magnitude and spatial extent of recreation use at popular trails located proximate to the communities of Aspen, Snowmass Village, Basalt, and Carbondale.

The first section of this report outlines the study sampling approach and data collection methodology. The second section presents preliminary findings at the landscape level, followed by site specific analyses that include an examination of visitor motivations, visitor use levels, spatial behavior of visitors, and other visitor experience dimensions. This report concludes with appendices containing supplementary materials.

Highlights of Survey Research Findings

A key component of understanding the visitor experience is to understand visitor motivations for recreating. Factor analysis resulted in visitor motivations being grouped into six key factors with a diversity of primary and secondary motivations emerging across sites and site types. Another component of the visitor experience to consider is the crowding evaluations and coping behaviors visitors engage in at recreation areas across the valley. It is notable that visitors do not report experiencing conflict at any site or site type in the study area; however, visitors to more remote sites indicate heightened sensitivity to crowding conditions. To cope to these adverse conditions, visitors to more remote sites indicate engaging in behaviors that shift the season and location of their recreation activity. There is variation in the spatial patterns of use exhibited from visitors across all sites. Overall, the high, cumulative participation rate of this two year study illustrates the shared appreciation for the recreation areas throughout the Roaring Fork Valley.

Contents

Nomenclature

Abbreviations

Abbreviation	Definition
AMLA	American Lake
ARBK	Arbaney Kittle
AVCR	Avalanche Creek
CAPC	Capitol Creek
GLOS	Glassier Open Space
GROT	Grottos Day Use Area
LOLO	Lower Lost Man
RFOC	Roaring Fork Outdoor Coalition
RFV	Roaring Fork Valley
SMUG	Smuggler Mountain
SNOL	Snowmass Lake
SRIM	South Rim Trail
THLA	Thomas Lakes
TOBL	Tom Blake Trailhead
UPLO	Upper Lost Man
UTET	Ute Trail

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Introduction

1.1. Conceptual Approach

The Roaring Fork Valley (RFV) in Western Colorado, which includes the communities of Aspen, Snowmass Village, Basalt, Carbondale, and Glenwood Springs, provides a broad range of recreation opportunities. In 2020, Colorado Parks and Wildlife established the Regional Partnerships Initiative to promote collaborative strategies for the sustainable management of habitat and outdoor recreation. As part of this statewide initiative, Pitkin County Open Space and Trails (OST) organized a coalition of land management agencies in the RFV to form the The Roaring Fork Outdoor Coalition (RFOC). The initial focus of RFOC was to inform strategic planning efforts by developing a comprehensive understanding of recreation use throughout the RFV. In support of this effort the Utah State University Recreation Ecology Lab conducted a program of research to support RFOC planning by studying fundamental aspects of recreation management, such as the amount of recreation use and spatial behavior and provide assessments of management concerns related to visitor perceptions of crowding and conflict.

The study was developed in partnership with OST staff in order to address both descriptive and evaluative aspects of the recreation experience. The descriptive element of this study assessed visitor characteristics (e.g. activity type, duration of visit), visit characteristics (e.g. motivations, group size), and setting characteristics (e.g. mode of transportation, information sources). The evaluative element of this study focuses on visitor perceptions of crowding and conflict, as well as visitor assessments of resource conditions. The third element of this study assessed visitor use and spatial behavior through the use of GPS tracking and TRAFx trail counters (Figure 1.1).

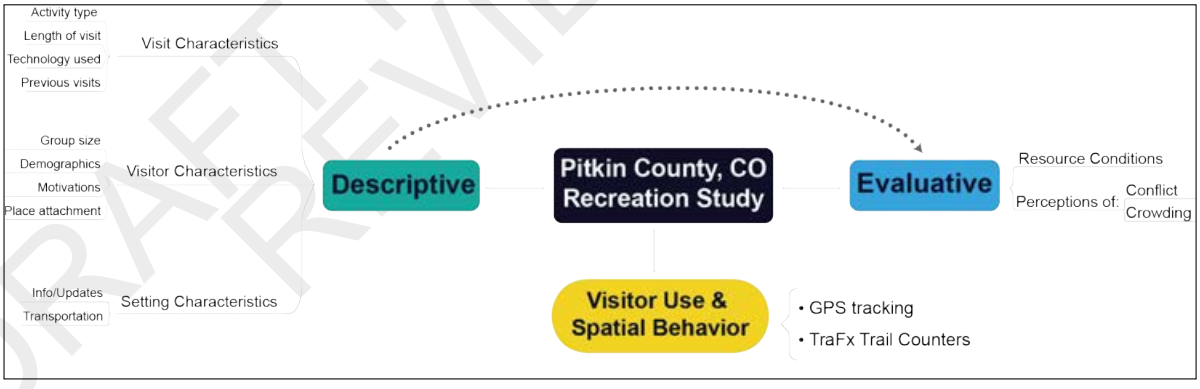


Figure 1.1: Conceptual model of the recreation study.

We organized our approach by categorizing the fourteen study sites according to their setting characteristics and recreation opportunities along a continuum of site development ranging from primitive to urban proximate (Figure 1.2). This approach was modeled after the Recreation Opportunity Spectrum (ROS) (Brown et al., 1978; Clark & Stankey, 1979), a planning and zoning framework developed for the United States Forest Service (USFS) that encourages a diversity of recreation opportunities by linking setting characteristics with desired recreation experiences. This organizing framework provides the

ability to contextualize survey responses, and compare and contrast evaluations between site categories and among sites.

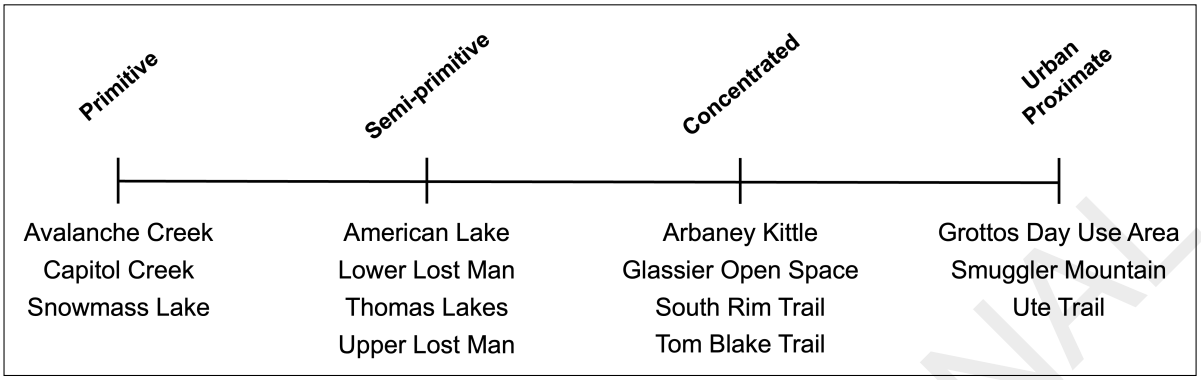


Figure 1.2: Fourteen locations of interest organized along the Recreation Opportunity Spectrum

This report provides the key findings from the 2022 and 2023 data collection efforts. Visitor survey results are summarized across sites, including visitor motivations for recreating, and experience characteristics such as crowding and conflict in Section 3.1. Additionally, visitor use levels and behavior are assessed using spatial and temporal metrics in Section 3.2. These sections are followed by a breakdown of key information for each site (Chapter 4). Visitor use counts and additional analyses are presented in the appendices A - D.

2

Approach & Methods

2.1. Study Methods

This study used a combination of visitor-intercept surveys, GPS-based tracking of spatial behavior, and visitor use counts to develop a comprehensive understanding of recreation use and visitor experience within the RFV (Table 2.1).

Table 2.1: A summary of the sampling methods and approaches utilized across the two study years.

Method Type	Information Needed	Data Collection Method	Sampling Approach	Sampling Year
Visitor Use Estimation	Parking lot turnover	Observational counts	Hourly counts during sampling period	2022, 2023
Recreation Monitoring	Use level on trails	Automatic trail counters	Continuous on sampling days	2022, 2023
	Visitor spatial behavior	GPS-based tracking	Random sample of visitors on sampling days	2022, 2023*
	Visitor experience	Visitor intercept post-experience surveys	Random sample of visitors on sampling days**	2022, 2023

*2023 GPS-based sampling expanded to include overnight users.
**Sampling strategy differed at Arbaney Kittle and Glassier Open Space in 2023 due to variable peak use periods.

2.2. Study Sites

Recreation opportunities within the RFV range from primitive wilderness access trailheads with backpacking opportunities, to urban-proximate day-use sites with multi-use trail networks. Working in conjunction with members of Pitkin County OST, we selected fourteen study sites that represent a continuum of urban-proximate to primitive wilderness settings that were identified as high priority (Figure 2.1). In 2022, the first year of this study, we tested our methods at five sites (Table 2.2). In 2023, we used the same methods to assess visitor experience and behavior at nine additional sites. One site, Capitol Creek Trailhead, was sampled during both data collection periods due to interest in understanding overnight use patterns at the site.

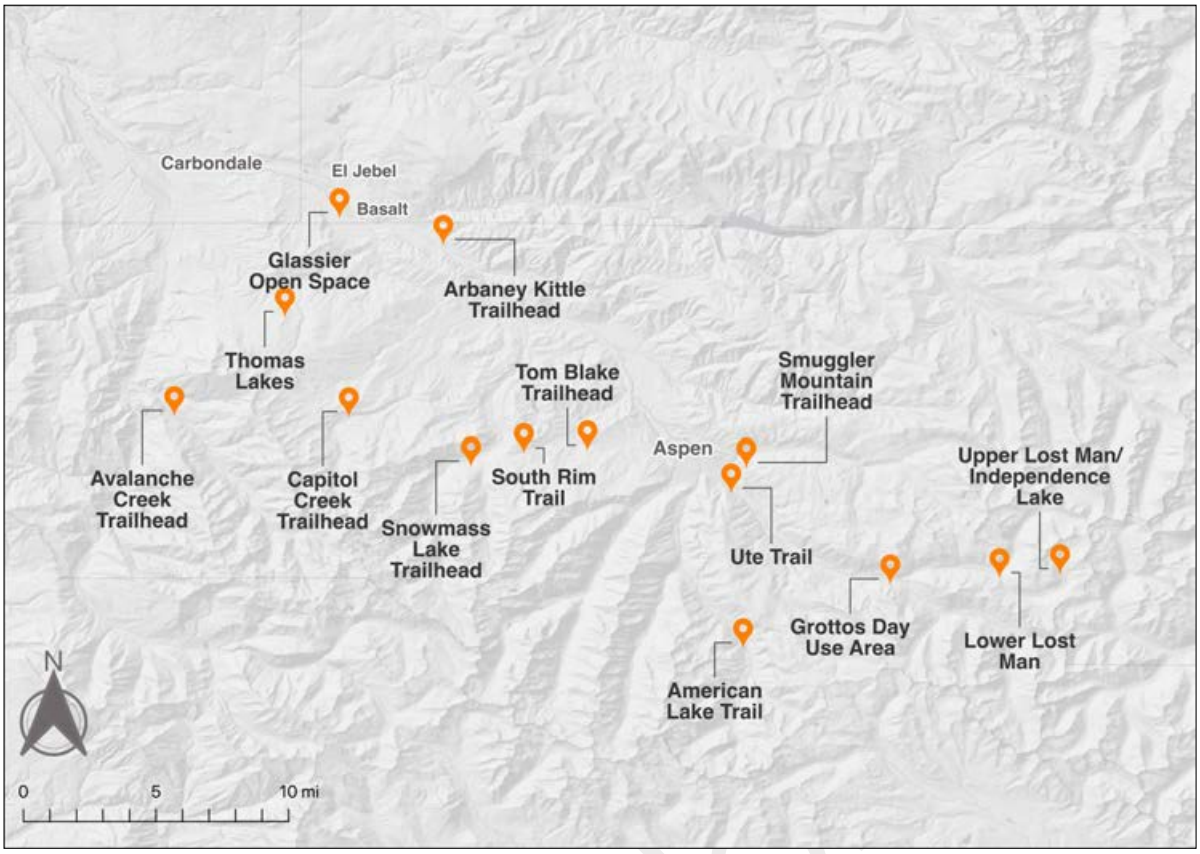


Figure 2.1: The fourteen sampling locations included in this study.

Table 2.2: Sampling locations and sampling dates.

Sampling Location	Date Sampled	
	2022	2023
American Lake	Jul 22, 29, 31	–
Arbaney Kittle	–	Jul 7, 12, 16, 19
Avalanche Creek	–	Jul 8, 11, 20, 22
Capitol Creek	Jul 21, 23, 28	Jul 12, 16, 19, 23
Glassier Open Space	–	Jul 7, 13, 15, 24
Grottos Day Use Area	July 24, 27; Aug 2	–
Lower Lost Man	–	Jul 6, 9, 13, 15
Smuggler Mountain	July 23, 25; Aug 1	–
Snowmass Lake	–	Jul 8, 11, 20, 22
South Rim Trail	–	Jul 12, 16, 19, 23
Thomas Lakes	–	Jul 7, 9, 17, 23
Tom Blake Trailhead	Jul 22, 24	–
Upper Lost Man	–	Jul 6, 9, 13, 15
Ute Trail	–	Jul 8, 11, 17, 22

2.3. Data Collection

2.3.1 Sampling Strategy

The data collection approach followed standard statistical procedures to capture a sample of visitors that would be generalizeable to the larger population of visitors to the study sites. Data collection occurred during the peak-use period of the summer months (i.e., July and August). Sampling was stratified across days of the week (i.e., weekdays and weekends) and across hours of the day to capture a broad spectrum of recreation use. We sampled four days at each site, with the exception of Tom Blake Trail which only was sampled on three days due to construction which closed the site.

2.3.2 Visitor Survey

The survey instrument was designed to address visitor experiences and characteristics (i.e. demographics, information sources, trip purpose), using the National Park Service Pool of Known Questions as a guide (NPS, 2020), primarily addressing key questions to inform recreation use management. Questions asked in the survey included demographics (e.g., age, gender, education), trip characteristics (e.g., mode of transportation and activity-type), and experience use history (e.g. frequency of site use at different time scales) (Appendix D).

Visitors also responded to a 28 question Recreation Experience Preference (REP) scale to understand site visit motivations (Manning, 2022; Vaske, 2008). Respondents then evaluated how a suite of conditions related to crowding affected their experience, how frequently they modified their behavior (i.e. coping) to contend with sub-optimal conditions, and whether they observed any recreation-related use impacts and the effect it had on their experience. The full survey instrument is included in Appendix D.

We deployed a systematic random sampling technique, by inviting the next visitor (or group) at randomly selected minutes-on-the-hour to participate in the survey. Approximately 5 visitors (or groups) were intercepted per hour to avoid oversampling at high-use sites. Visitors entering the site were invited to participate in the survey by carrying a GPS unit for the duration of their visit and completing a survey at the end of their visit. The survey was self-administered by respondents via iPad tablets using Qualtrics survey software (Qualtrics, 2023).

2.3.3 Spatial and Temporal Patterns of Visitor Use

Visitor Use-Level Estimation

During sampling periods, visitor use levels were assessed using TRAFx automated trail counters. For one hour during data collection, a research technician counted and recorded the number of visitors passing by the TRAFx counter to quantify the measurement error and later produce more accurate use-estimates (Pettebone et al., 2010). Research technicians counted the vehicles parked in the designated or adjacent parking areas, as well as parking that occurred on “non-designated” parking areas at the top of each hour throughout the day. TRAFx counter data at each study site were aggregated to provide estimates of mean (average) use levels across a day (see Appendix C).

GPS-Based Tracking

In 2022, only day-use visitors were asked to participate in the GPS tracking portion of the study because of limitations with battery longevity with the GPS units. In 2023, this effort was expanded to include overnight users in Wilderness areas to broaden understanding of the spatial use patterns of visitors in the RFV. We generated a unique alpha-numeric code for each respondents’ GPS track that was also included with their survey response so that the spatial data could be paired with the survey response. We set the sampling rate of GPS track points to 10-second intervals for day-use visitors which is typical and sufficient for pedestrian and cyclist use in PPAs (D’Antonio et al., 2010). For overnight or multi-day visitors, the sampling rate was set to 10 minute intervals to extend the battery life of the data collection and capture the entirety of the trip. Following data collection, GPS tracks were processed and cleaned by removing erroneous points. We summarized the spatio-temporal behavior for each track to provide metrics such as total time, total distance, average speed, and total number of stops. Finally, we calculated a use-density estimate to summarize the intensity and spatial patterns of use across sites.

2.4. Data Analysis

Data from visitor surveys and GPS tracks were summarized and analyzed using statistical and geospatial packages in Python. Survey data analysis consisted of both descriptive analysis of survey variables, as well as comparative and multi-variate analysis of visitor motivations, coping behaviors, and crowding evaluations. Spatial analysis consisted of summarizing spatio-temporal use metrics (i.e. total time on trail, total number of stops, etc.) for each site and estimating the density, or relative level of use across sites at the landscape level.

2.4.1 Visitor Motivations Analysis

To identify primary motivations for visiting each site, we used a standard data reduction technique to that reduced the 28 item REP scale into a six latent variables (i.e. primary motivations). First, scale reliability was assessed for the 28 REP items using Cronbach's Alpha, removing variables with α<.55 (Cronbach, 1951). We assessed the fit of the data for this factor analysis technique with a Kaiser-Meyer-Olkin (KMO) test statistic (.857), which indicated the data were well-suited for this analysis (Kaiser, 1974). Next, we conducted this exploratory factor analysis which returned six distinct latent factors or motivations: Nature/Tranquility, Family/Friends, Risk/Adventure, Spiritual/Introspection, Socialization, and Exercise/Fitness.

2.4.2 Coping and Crowding Analyses

Visitor crowding perceptions and associated coping behaviors were analyzed using one-way analysis of variance tests (ANOVAs). The purpose of the ANOVAs was to assess whether visitor responses to each question set differed between the four site types (Figure 1.2). If the result of the ANOVA revealed that there were significant differences between sites, we performed post-hoc tests to determine which sites differed between each of the crowding or coping statements. We evaluated the distributions of the crowding and coping variables and elected to use the Games-Howell post-hoc test which is best-suited to provide robust comparisons for data with unequal variances. Further discussion of these analyses can be found in Chapter 3.

2.4.3 Spatio-Temporal Analysis

We calculated a correction coefficient for TRAFx data for each site by comparing the raw data to the observations gathered in the field. This correction coefficient was then applied to the raw data to produce more accurate and reliable estimates of visitor use. These data were then aggregated to calculate the mean (average) number of visitors for each hour of the day at each site. Similarly, the parking area vehicle counts were aggregated and we calculated the mean (average) number of vehicles for each hour of the day at each site.

We calculated the density of visitor use across all sites and normalized these use-density estimates on a scale of 1 to 100 to provide across-site comparisons of use. Additionally, we plotted these use density estimates within hexagonal grids along with the designated trail to visualize the spatial patterns of use within each site. Finally, we summarized the spatial behavior from each GPS track, separating day-use and overnight visitors, to calculate the average duration of the visit, distance from the trailhead, and number of stops for each site.

3

Findings

3.1. Visitor Intercept Survey

The cumulative response rate across sampling periods was 94% (2022 - 95.4%; 2023 - 94.1%). This high response rate signals the enthusiasm of survey respondents to contribute to informing recreation management strategies in the Roaring Fork Valley. The following subsections will present survey results to address the following questions:

1. Who are the visitors recreating at the Roaring Fork study sites?
2. What are their principal motivations/goals for the recreation experience at those sites?
3. How do visitors at those sites evaluate conditions as a function of the number of other visitors?
4. Are those visitors modifying their behavior to contend with those conditions?

3.1.1 Demographics

Visitor characteristics were gathered by asking respondents their gender, age, highest education level completed, and ethnicity. Across sites, gender was almost equally distributed with 50% of respondents reporting male, 49% reporting female, an additional 1% preferred not to answer. Respondents' age ranged from 18 to 84 years old, with a mean of 45 years old (Figure 3.1). A majority (84%) of respondents had a Bachelor's degree or higher, indicating a highly educated respondent base (Figure 3.2). Eighty eight percent of visitors to all sites identified as white (Figure 3.3). Specific demographics for each site can be found in site specific analyses (Chapter 4, pages 19-47) .

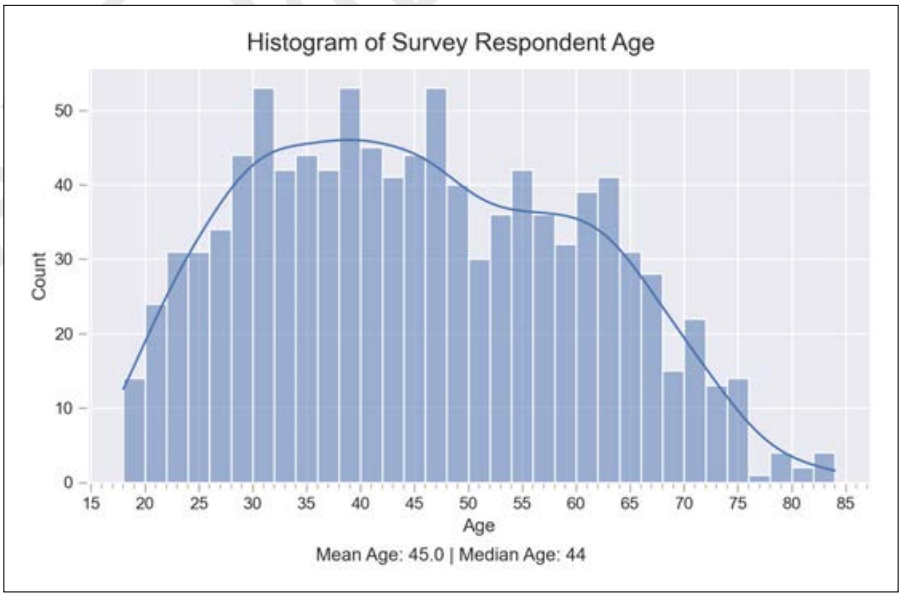


Figure 3.1: Visitor age (years)

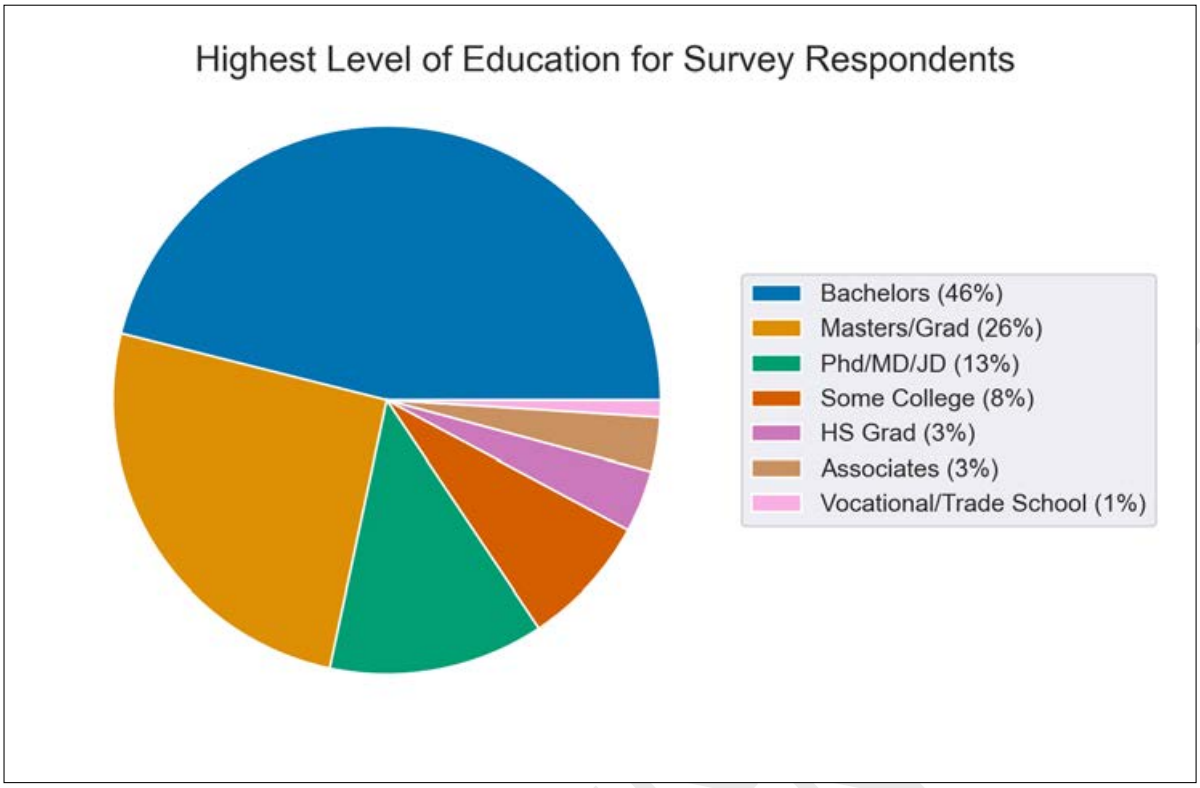


Figure 3.2: Visitor highest level of education

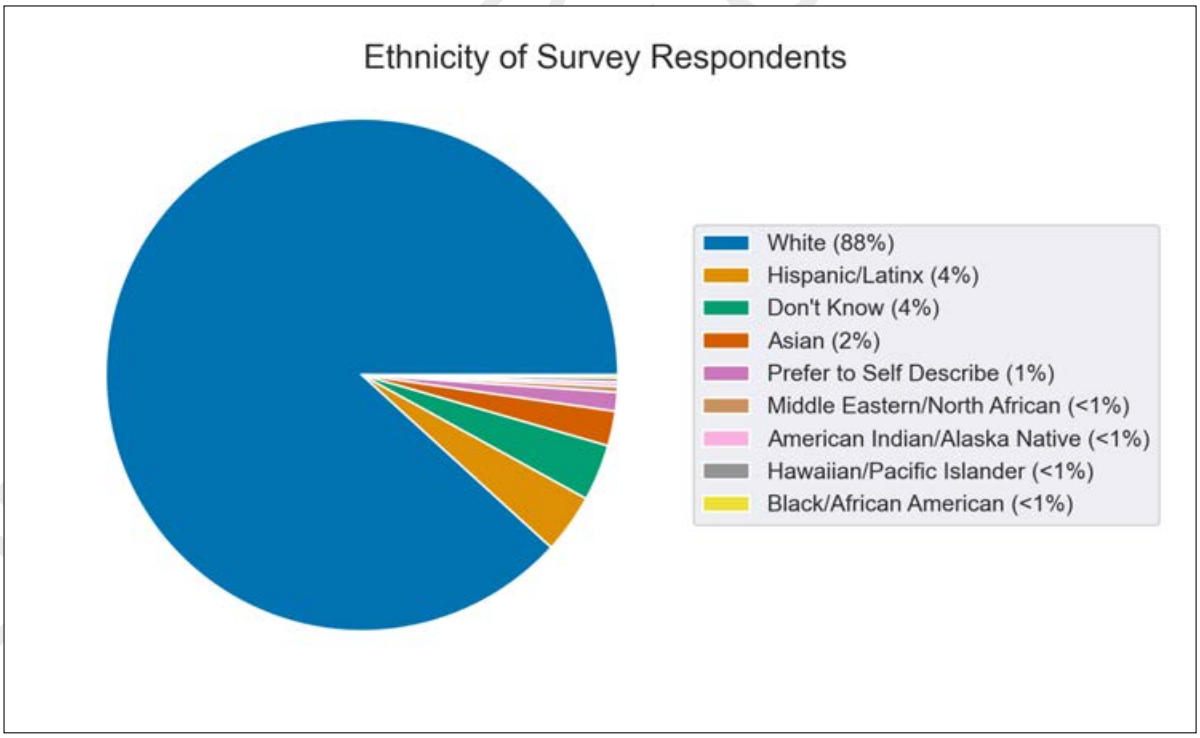


Figure 3.3: Visitor race/ethnicity

3.1.2 Visitor Motivations

The exploratory factor analysis returned six distinct motivation categories: *Nature and Tranquility* (e.g. to enjoy the sounds and smells of nature), *Family and Friends* (e.g. to spend time with friends and family), *Risk and Adventure* (e.g. to test one's abilities), *Spirituality and Introspection* (e.g. to grow and develop spiritually), *Socialization* (e.g. to meet new people), and *Exercise and Fitness* (e.g. to feel good after being physically active). Table 3.1 shows the factor loading scores which indicate the strength of the relationship between the REP scale item and the associated motivation. Overall, this approach explained approximately 53% of the total variation in survey responses. This was determined to be a satisfactory level of variance given the complexity of motivations as a psychological construct.

Table 3.1: Factor loadings for the six motivation factors

	Factors					
Motivations	*Nature/Tranquility*	*Family/Friends*	*Risk/Adventure*	*Spiritual/Introspection*	*Socialization*	*Exercise/Fitness*
To enjoy the smells and sounds of nature	0.728					
To experience tranquility	0.678					
To learn more about yourself	0.464					
To have your mind move at a slower pace	0.617					
To be away from crowds	0.605					
To learn more about nature	0.538					
To get away from the usual demands of life	0.582					
To view the scenery	0.456					
To experience new and different things	0.406					
To bring your family closer together		0.873				
To do something with your family		0.858				
To be with friends		0.506				
To bring back pleasant memories		0.452				
To be with others		0.412				
To take risks			0.823			
To experience risky situations			0.796			
To test your abilities			0.507			
To gain a sense of self confidence				0.611		
To think about good times you've had in the past				0.474		
To be where things are fairly safe				0.468		
To meet other people in the area					0.835	
To meet new people					0.734	
To feel good after being physically active						0.705
To get exercise						0.736
Cumulative Proportion Variance Explained	14%	25%	34%	40%	47%	53%

The motivations exploratory factor analysis helped us to understand which motivations were most important across site categories (i.e., primitive, semi-primitive, concentrated, and urban proximate). This analysis also allowed for an assessment of primary motivations by survey location. To visualize the primary motivations by site category, and the similarities and differences between sites in that category, polar plots were created (Figures 3.4 - 3.7).

Motivations for Visiting Primitive Sites

The sites classified as primitive (Avalanche Creek, Capitol Creek, and Snowmass Lake) are primarily backcountry/Wilderness access areas with minimal trailhead services and amenities. These sites are accessible only through unpaved roads, and use is restricted to non-motorized activities (e.g. hikers and equine users). Overall, the primary motivations for visiting these primitive sites were: risk/adventure and nature/tranquility. Beyond primary motivations, there was some variation in secondary motivations between primitive sites. For example, at Capitol Creek spiritual/introspection, exercise/fitness, and socialization were often identified motivations. At Snowmass Lake, socialization and exercise/fitness were common motivations for visiting. Avalanche Creek did not share any secondary motivations with the other two sites, rather, family/friends was identified as important (Figure 3.4).

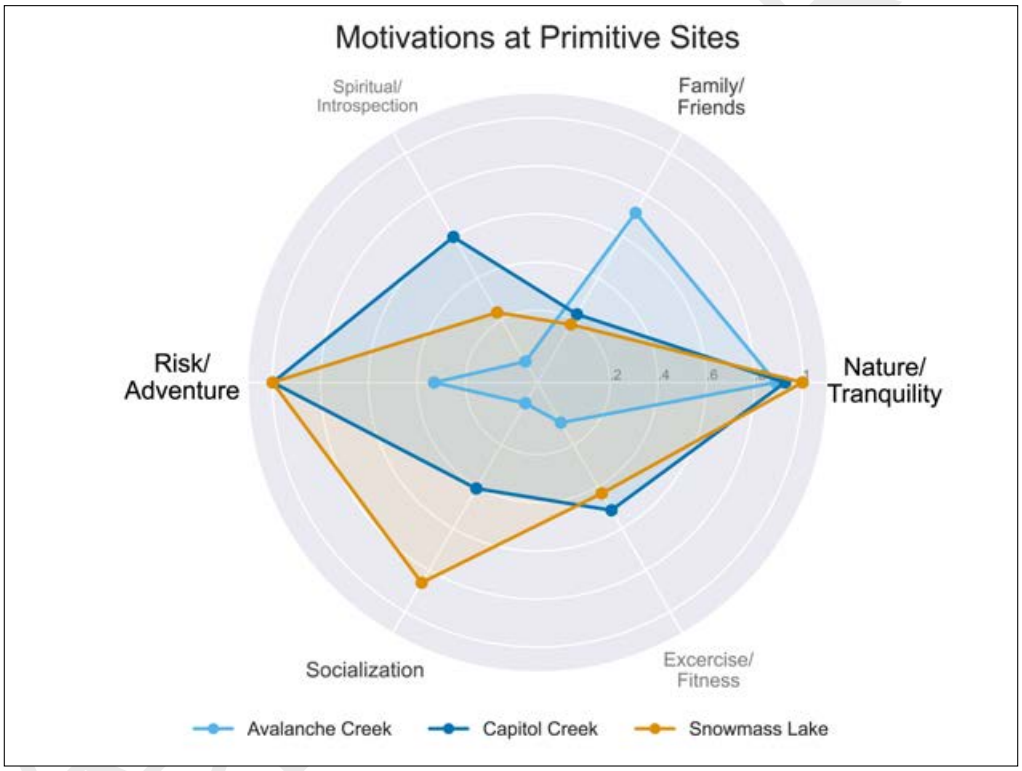


Figure 3.4: Primitive site visitor motivations - bold font represents primary motivations

Motivations for Visiting Semi-Primitive Sites

The sites classified as semi-primitive (American Lake, Lower Lost Man, Thomas Lakes, and Upper Lost Man) are more accessible than the primitive sites, with developed access roads. These trailheads have minimal facilities and amenities, and venture into wilderness areas. For the most part, use is restricted to hiking and equine users; however, there is a set of designated mountain biking trails accessible from the Thomas Lakes trailhead. Overall, the primary motivations for visiting these semi-primitive sites were: nature/tranquility and spiritual/introspection. Motivations for visiting American Lake were varied, with exercise/fitness, socialization, and family/friends all being important to visitors. Similar to American Lake, visitors to Upper Lost Man reported a variety of motivations including risk/adventure and family/friend. At Lower Lost Man exercise/fitness and family/friends were important motivations. Exercise/fitness was also a motivator for visiting Thomas Lakes (Figure 3.5).

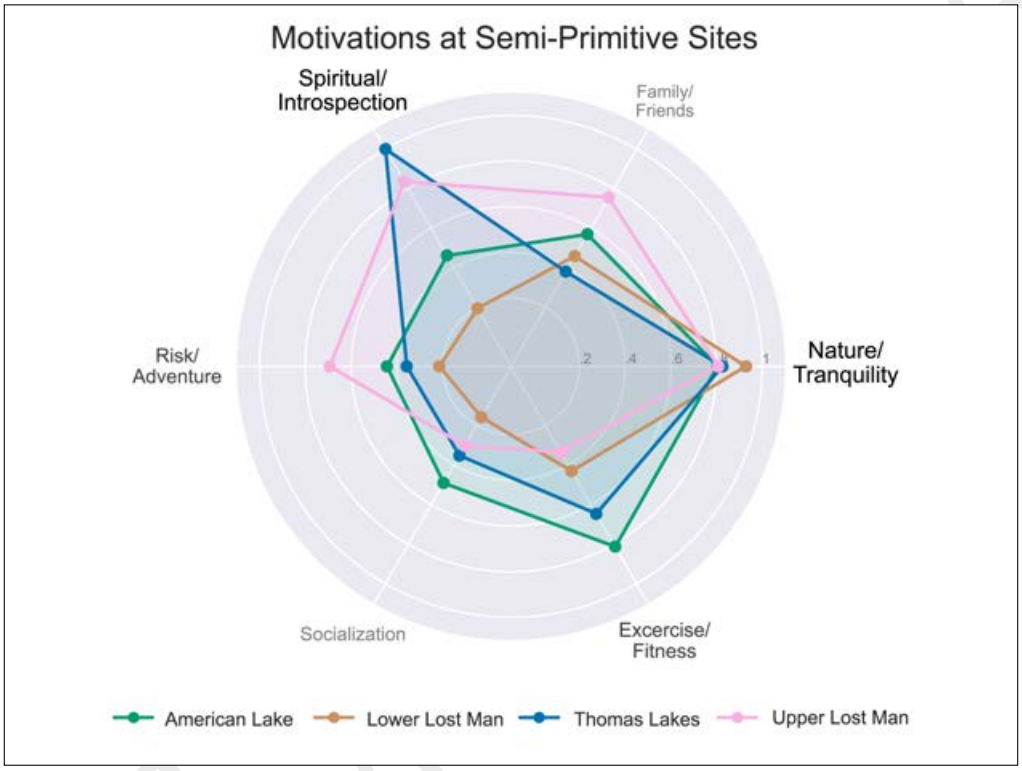


Figure 3.5: Semi-primitive site visitor motivations - bold font represents primary motivations

Motivations for Visiting Concentrated Sites

Sites classified as concentrated (Arbaney Kittle, Glassier Open Space, South Rim Trail, and Tom Blake Trailhead) have minimal amenities and facilities but are located closer to developed areas making access easier than primitive or semi-primitive sites. These sites provide opportunities for a variety or activities including mountain biking and hiking. The primary motivations for visiting these sites were: socialization and exercise/fitness. Secondary motivations varied across sites, at Arbaney Kettle spiritual/introspection and nature/tranquility were frequently cited motivations. Spiritual/introspection was also a motivator at Glassier Open Space, in addition to risk/adventure. Visitors to the South Rim Trail had diverse motivations, including nature/tranquility and family/friends. Secondary motivations for visiting Tom Blake Trailhead included family/friends (Figure 3.6).

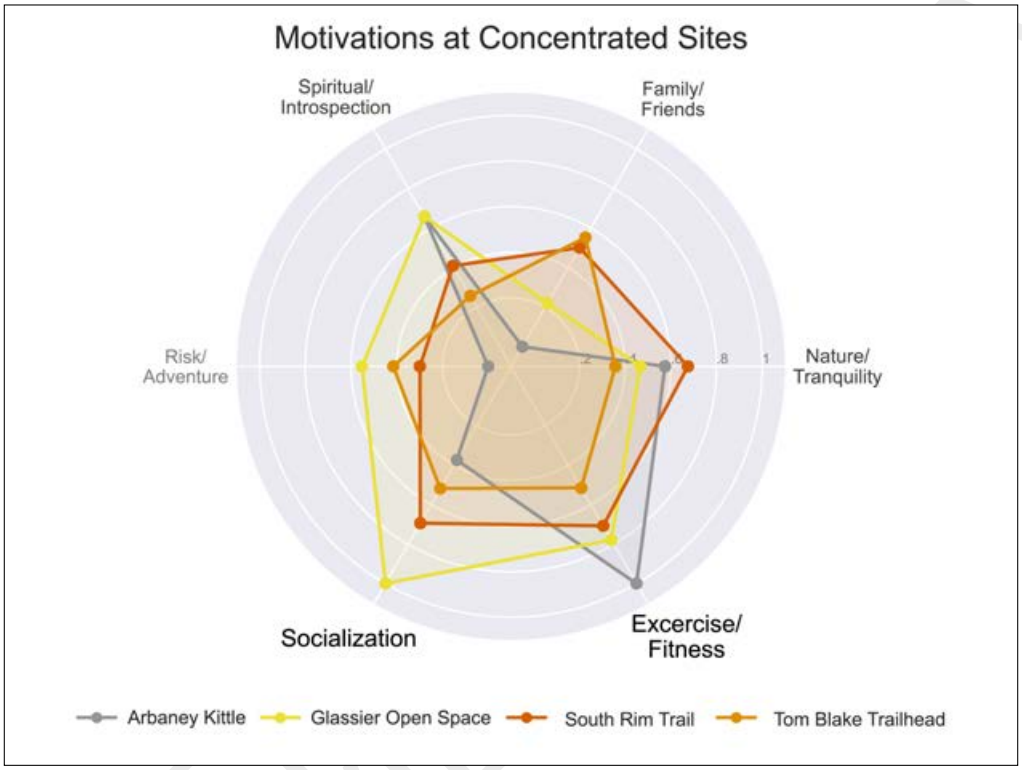


Figure 3.6: Concentrated site visitor motivations - bold font represents primary motivations

Motivations for Visiting Urban Proximate Sites

The urban proximate sites (Grottos Day Use Area, Smuggler Mountain, and Ute Trail) provide the easiest access and are often located adjacent to communities in the RFV. These sites also have more amenities and development than the other areas. The Grottos Day Use Area provides opportunities to access water, climb, or hike. Both Smuggler Mountain and Ute Trail are easily accessible trails located within the town of Aspen, providing hiking and mountain biking opportunities. The primary motivations for visiting these sites were: family/friends, exercise/fitness, and socialization. Motivations were more diverse for this category than others, with a wide variety of secondary motivations. At the Grottos Day Use Area risk/adventure and nature/tranquility were common motivators. This reflects the wide variety of recreation opportunities at this location from walking to climbing (Figure 3.7). Visitors at Smuggler Mountain indicate some motivation for spiritual/introspection. Visitors at the Ute Trail presented a variety of motivations, including spiritual/introspection, and risk/adventure.

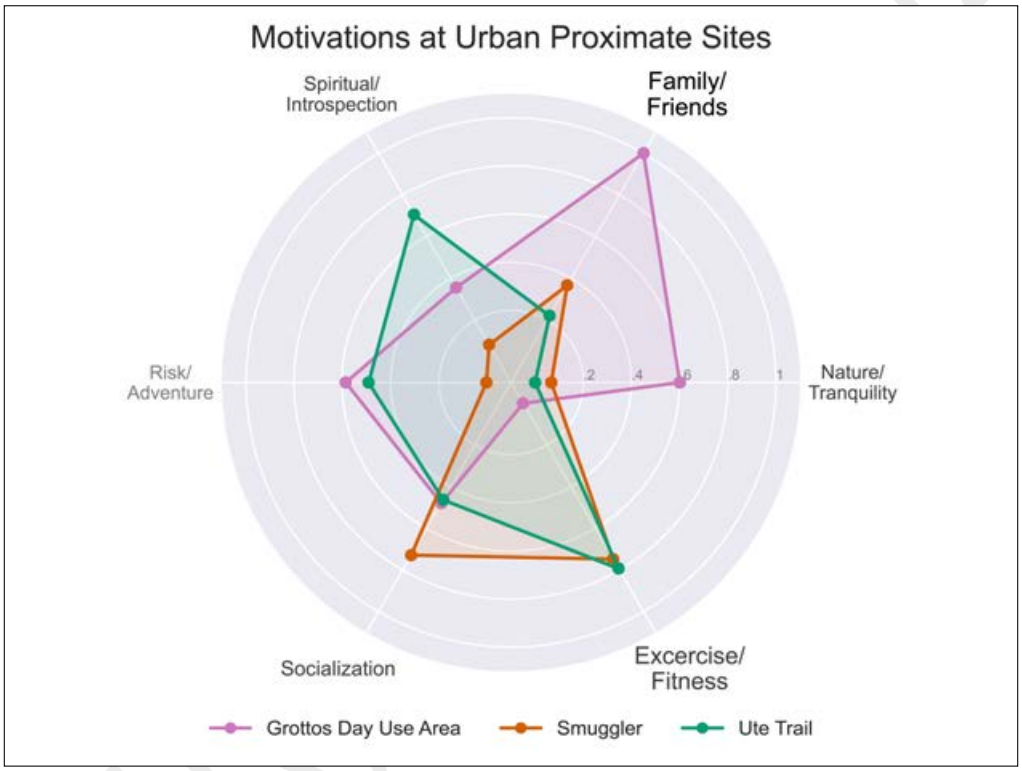


Figure 3.7: Urban proximate site visitor motivations - bold font represents primary motivations

Across site categories there were diverse primary motivations for visiting. Generally, risk/adventure and nature/tranquility were most salient at the primitive/semi-primitive sites while socialization and exercise/fitness were primary motivations for using the concentrated and urban proximate sites. For example, nature/tranquility was a primary motivation at both the primitive and semi-primitive sites. Risk/adventure was also a primary motivation at the primitive sites, and a secondary motivation at the semi-primitive sites. Alternatively, at concentrated and urban proximate sites, exercise/fitness was a primary motivation. Socialization and family/friends were also principal motivations at the concentrated and urban proximate sites.

3.1.3 Crowding Evaluations

Respondents were asked to rate their agreement with ratings of site conditions and crowding experienced. These evaluations included signage, parking, and facility conditions, as well as crowding, conflict and safety perceptions. Responses were on a five-point Likert scale where 1 = Strongly disagree, 3 = Neither agree nor disagree, and 5 = Strongly agree. Responses to these questions are plotted to show mean differences between site types. The lines above and below each point represent estimates of ± 2 standard error about the mean (Figure 3.8).

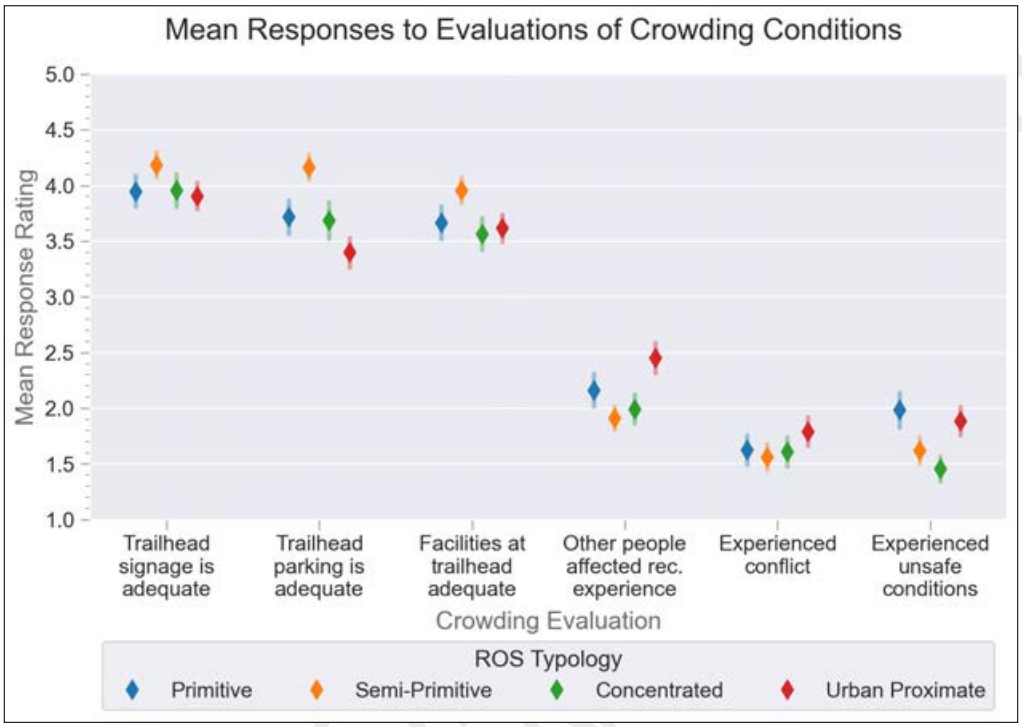


Figure 3.8: Mean responses to crowding evaluations by site type

Table 3.2: Results of one-way ANOVAs comparing crowding evaluations across site types

Crowding Evaluation	*F statistic*	*P-value*
Tailhead signage is adequate	4.12	**.011**
Trailhead parking is adequate	22.62	**<.001**
Facilities at trailhead is adequate	7.47	**<.001**
Other people affected my recreation experience	14.93	**<.001**
Experienced conflict	2.63	**.049**
Experienced unsafe conditions	13.35	**<.001**

Due to the statistically significant differences presented in the crowding evaluation one-way ANOVAs (Table 3.2), a Games-Howell post-hoc test was performed to identify which site types presented differing responses. Visitors to primitive, semi-primitive, and concentrated sites indicated that existing site amenities (i.e. signage, parking, and facilities) are adequate. Whereas visitors to urban proximate sites reported a marginally lower quality of parking at front-country trailheads. Although means for crowding (i.e., other people affected my recreation experience) were low across site types, respondents at urban proximate sites indicated higher agreement with this item. This indicates that crowding is more of an issue at the sites adjacent to communities. Across site types, visitors indicated that they did not experience conflict with other users on the trail, or feel like their safety was impacted. Though conflict was not reported by visitors, it could be informative to assess conflict in more detail at front-country multi-use sites where visitors can participate in different activity types. The mean response scores for each site and site type can be found in Appendix B.

Table 3.3: Crowding evaluation mean response score by site type

Crowding Evaluation[1]	Site Type			
	Primitive	Semi-Primitive	Concentrated	Urban Proximate
Trailhead signage is adequate	3.9_{a}	4.2_{b}	$4.0_{a,b}$	3.9_{a}
Trailhead parking is adequate	3.7_{a}	4.2_{b}	3.7_{a}	3.4_{c}
Facilities at trailhead is adequate	3.7_{a}	4.0_{b}	3.6_{a}	3.6_{a}
Other people affected my recreation experience	2.2_{a}	1.9_{b}	$2.0_{a,b}$	2.5_{c}
Experienced conflict	$1.6_{a,b}$	1.6_{a}	$1.6_{a,b}$	1.8_{b}
Experienced unsafe conditions	2.0_{a}	1.6_{b}	1.5_{b}	1.9_{a}

[1] Note: Means in a row followed by the same letter are not statistically significantly different at the p<.05 level. Means in a row that do not share the same subscript are significantly different at the p<.05 level.

3.1.4 Coping Behaviors

Following the questions regarding site condition evaluations and crowding experienced, respondents were asked how often they may use coping strategies respond to sub-optimal conditions. These coping behaviors included altering the time and/or day of their visit, and avoiding sites with reservations and limited parking. Responses were on a five-point Likert scale where 1 = Never, 3 = About half the time, and 5 = Always. Responses to these questions were plotted to visualize the differences in mean responses across the spectrum of site types. The lines above and below each point represent estimates of ± 2 standard error about the mean (Figure 3.9).

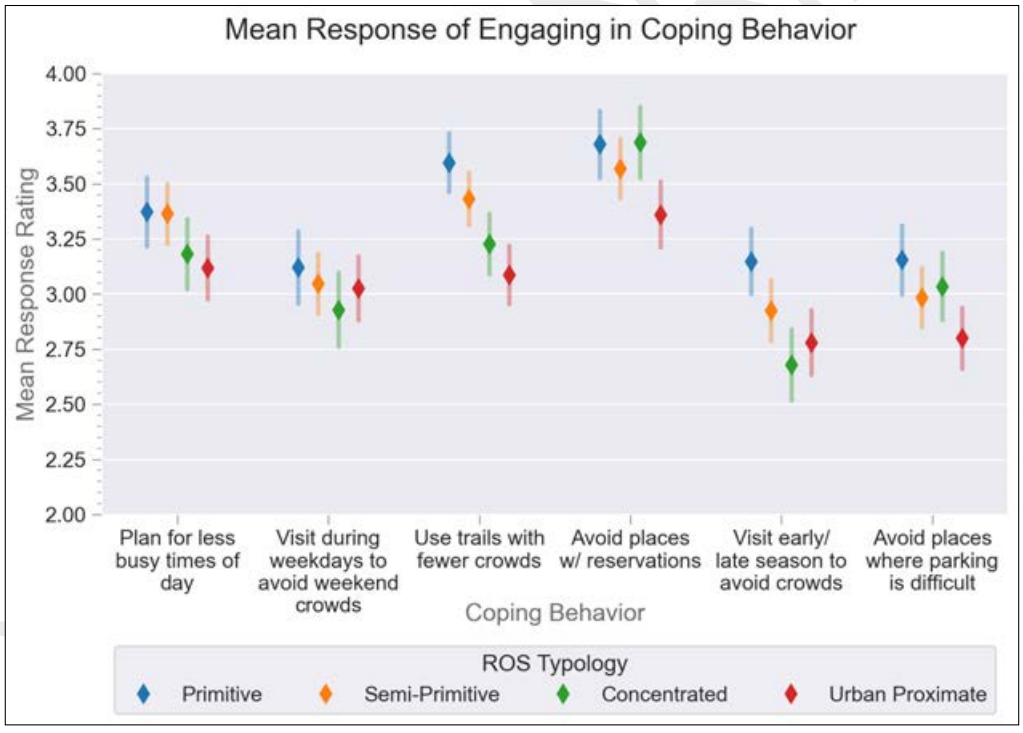


Figure 3.9: Mean responses to coping behaviors by site type

Table 3.4: Results of one-way ANOVAs comparing coping behaviors across site types

Coping Behavior	F statistic	p-value
Plan visit for less busy times of day	3.05	**.028**
Visit during weekdays to avoid weekend crowds	0.99	.397
Use trails with fewer crowds	11.36	**<.001**
Avoid places with reservations	4.29	**.005**
Visit earlier or later in the season to avoid crowds	6.75	**<.001**
Avoid places where parking is difficult	4.05	**.007**

With the exception of one scale item, *Visit during weekdays to avoid weekend crowds*, statistically significant differences were found in the coping behavior one-way ANOVAs. Because of these differences, a Games-Howell post-hoc test was performed to investigate which site types presented differing responses. Visitors to all site types similarly engage in behaviors that influence the time and day they elect to use recreation sites (i.e. plan for less busy times of day, and visit during weekdays to avoid weekend crowds). Visitors to primitive and semi-primitive sites report marginally higher engagement in avoiding trails with crowds and shifting the season of their visit to avoid crowds compared to visitors to urban proximate sites. This suggests that visitors at more developed recreation areas are less sensitive to crowding, potentially related to their primary motivations for socialization and a desire to spend time family and friends (see Figures 3.6 and 3.7). Visitors to primitive, semi-primitive, and concentrated sites indicate avoiding areas with reservations and areas where parking is difficult slightly more than visitors at urban proximate sites. This suggests that visitors across the landscape may shift their recreation activities to other trail networks to avoid crowds. The mean response scores for each site and site types can be found in Appendix B.

Table 3.5: Coping behavior mean response score by site type

Coping Behavior[1]	Site Type			
	Primitive	Semi-Primitive	Concentrated	Urban Proximate
Plan visit for less busy times of day	3.4_{a}	3.4_{a}	3.2_{a}	3.1_{a}
Visit during weekdays to avoid weekend crowds	3.1_{a}	3.0_{a}	2.9_{a}	3.0_{a}
Use trails with fewer crowds	3.6_{a}	$3.4_{a,b}$	$3.2_{b,c}$	3.1_{c}
Avoid places with reservations	3.7_{a}	$3.6_{a,b}$	3.7_{a}	3.4_{b}
Visit earlier or later in the season to avoid crowds	3.1_{a}	$2.9_{a,b}$	2.7_{b}	2.8_{b}
Avoid places where parking is difficult	3.2_{a}	$3.0_{a,b}$	$3.0_{a,b}$	2.8_{b}

[1] Note: Means in a row followed by the same letter are not statistically significantly different at the p<.05 level. Means in a row that do not share the same subscript are significantly different at the p<.05 level.

3.2. Spatial & Temporal Patterns of Visitor Use

As a part of this study, visitors were asked to participate in a GPS tracking portion of the study. In 2022 and 2023, day-use visitors were intercepted and this effort was broadened in 2023 to include overnight use.

3.2.1 Day Use

In 2022 and 2023, day use visitors (i.e. hikers, bikers, and equine users) were asked to participate in a GPS tracking portion of the study to assess spatial and temporal use patterns across the study area. Visitors to semi-primitive sites demonstrate the highest total mean time and distance spent on site; primitive sites have the next highest highest use metrics, followed by concentrated and urban proximate sites (Table 3.6). It is important to note that the mean distance travelled at Glassier Open Space is notably higher than the means of other concentrated sites. This is likely because biking is the primary activity type of visitors at Glassier Open Space (77%); additionally, visitors must travel at least one mile to access the network of established trails on BLM land adjacent to the site (see 37). Visitors at primitive, semi-primitive, and urban proximate sites may stop along trails more frequently due to the presence of attractions (e.g. lakes, scenic views) along the trail, whereas visitors at concentrated sites may stop less frequently due to a primary motivation for exercise and fitness (see Figure (3.7).

Though use is primarily concentrated along established trail networks, there is evidence of significant dispersal of use off established trail networks at select sites, specifically the Lower and Upper Lost Man trails and the Grottos Day Use Area (see pages 29, 33, and 43). This is significant for managers to know as unplanned visitor use can cause disturbance to sensitive ecological systems in areas that may be not be directly managed for recreating. There is also evidence of diffuse and concentrated use around the lake(s) at sites like American Lake, Thomas Lakes, and the Upper and Lower Lost Man trails (see pages 27, 31, 29, 33). This is significant for managers as these areas are susceptible to ecological disturbance caused by recreation use.

Table 3.6: Spatial and temporal metrics for each site type and each site type

Site Type	Site	Spatial and Temporal Metrics			
		# of Tracks	Mean Total Time (hrs)	Mean Total Distance (mi)	Mean # of Stops
Primitive	Avalanche Creek	38	2.4	3.97	6
	Capitol Creek	43	3.5	6.69	5
	Snowmass Lake	13	2.7	5.51	3
	Total/Mean	94	2.9	5.39	5
Semi-Primitive	American Lake	58	3.4	5.96	14
	Lower Lost Man	64	3.0	4.84	6
	Thomas Lakes	57	4.4	7.70	7
	Upper Lost Man	67	2.9	3.51	7
	Total/Mean	246	3.4	5.50	9
Concentrated	Arbaney Kittle	61	1.6	3.44	1
	Glassier Open Space	33	1.5	7.91	1
	South Rim Trail	82	1.4	3.08	2
	Tom Blake Trailhead	26	3.4	4.65	9
	Total/Mean	202	2.0	4.77	3
Urban Proximate	Grottos Day Use Area	102	1.1	0.87	12
	Smuggler Mountain	82	1.3	3.59	3
	Ute Trail	88	1.7	1.99	3
	Total/Mean	272	1.4	2.15	6

3.2.2 Overnight Use

During the 2023 study period, overnight use was investigated at all primitive sites: Avalanche Creek, Capitol Creek, and Snowmass Lake. Seven groups from Capitol Creek and eight groups from Snowmass Lake participated in this component of the survey; no users at Avalanche Creek opted to participate in the GPS tracking component of the study though overnight use was observed. Users at Capitol Creek stayed overnight for one day, while users at Snowmass Lake stay overnight for more than one day (Table 3.7). Due to a limited sample size, additional studies should be performed to thoroughly assess the expanse of overnight use at these sites.

Table 3.7: Spatial and temporal metrics for overnight use

Site	Spatial and Temporal Metrics			
	# of Tracks	Mean Total Time	Mean Total Distance (mi)	Mean # Stops
Capitol Creek	7	1 day, 2.2 hrs	12.94	26
Snowmass Lake	8	1 day, 14.2 hrs	18.84	30

4

Site Specific Analyses

This section provides summaries of visitor characteristics (i.e. demographics and activity type), visitor motivations, and use estimations for each site. Following each summary are maps of the use density along established trail networks, as well as the spatial and temporal use metrics of day-use activities for each site. The scale for density of visitor use across all sites has been normalized to provide across-site comparisons of use.

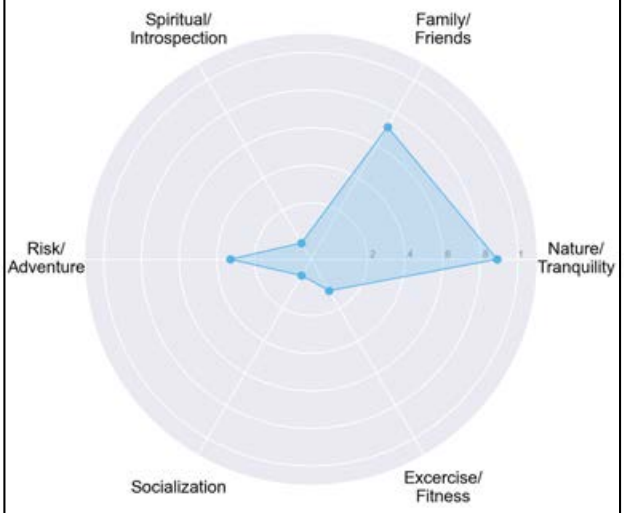
Avalanche Creek

Primitive

Summary:

- Users highly motivated by nature/ tranquility and family/friends
- Trail use and vehicle use steady throughout day, both peaking during midday
- 69% of users are returning visitors
- 66% of users are primary residents
- 92% of visitors arrive via personal vehicle
- See Appendix A for additional figures and details

Motivation Polar Plot:

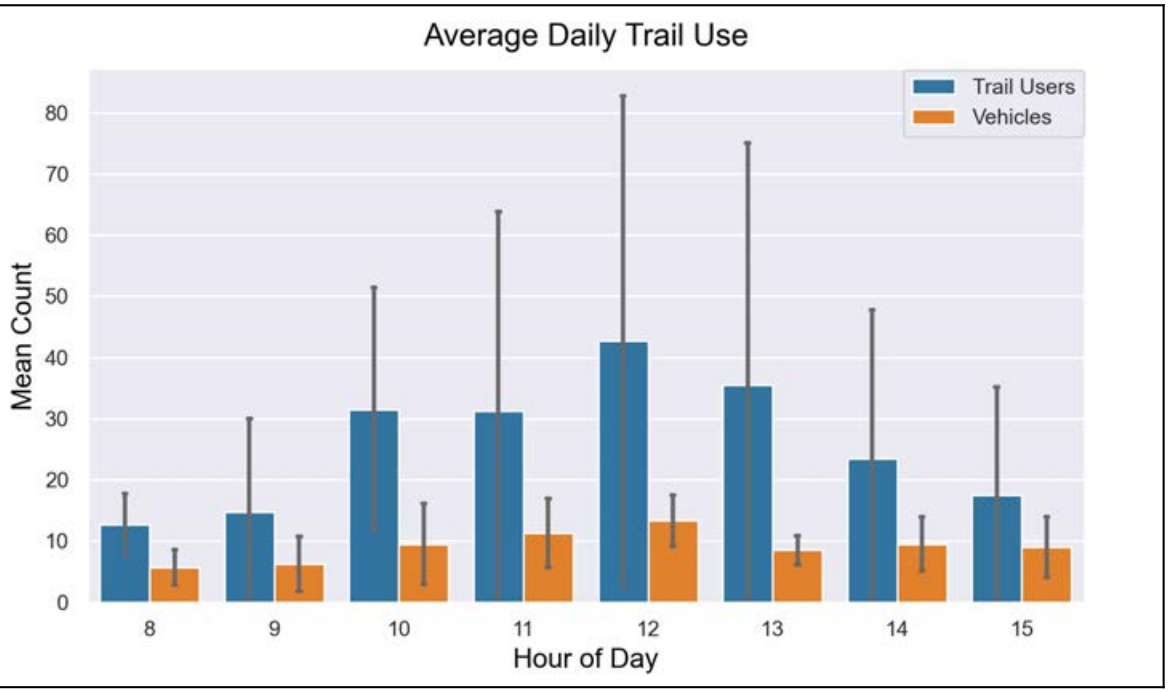


Visitor Demographics:

84%	White
7%	Don't Know
3%	Hispanic/Latinx
3%	Self Describe
2%	Asian

Activity Type:

81%	Walking/Hiking
5%	Other (Backpacking)
5%	Running
3%	Camping
2%	Dog Walking
2%	Fishing
2%	Horseback Riding



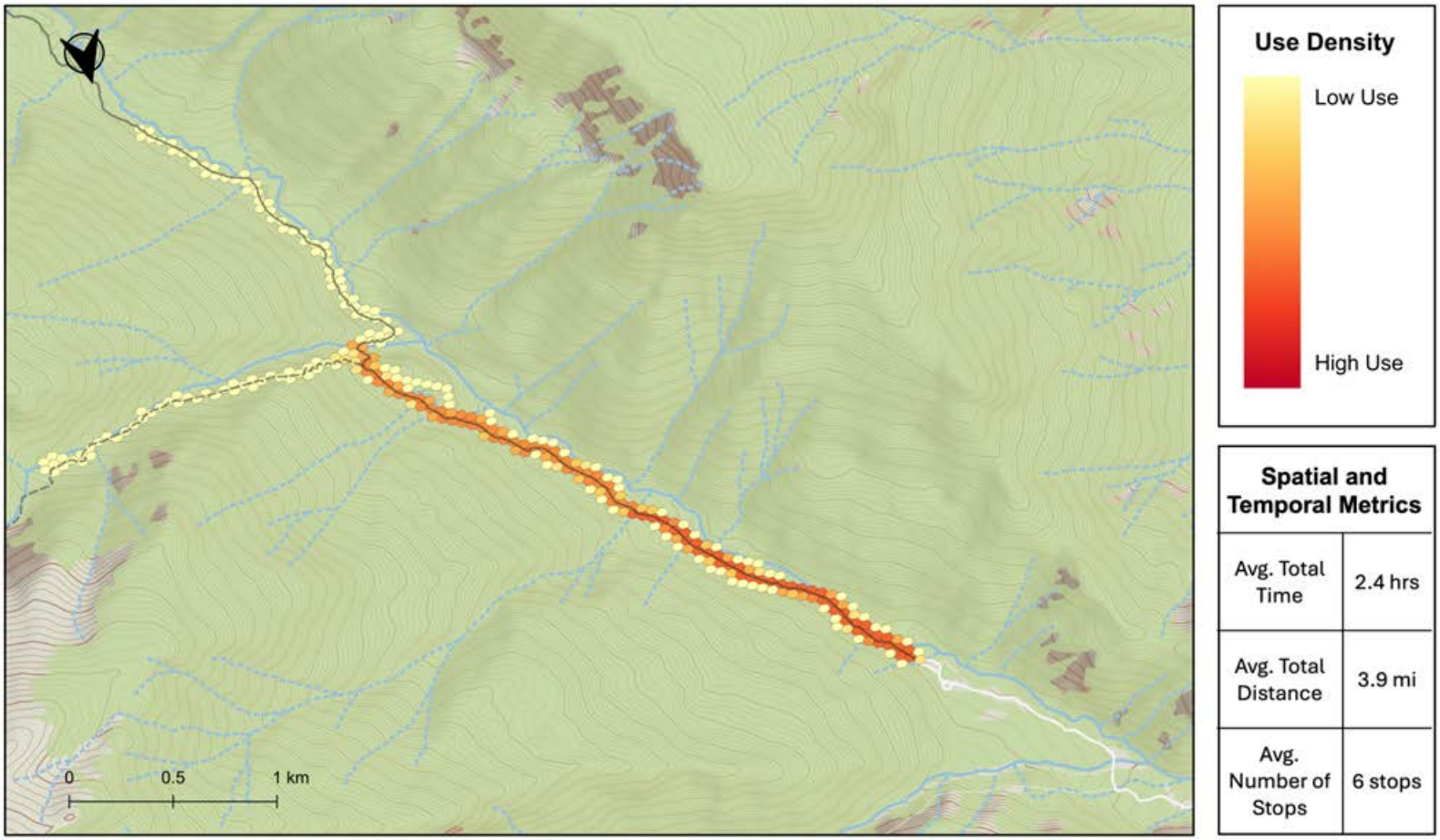


Figure 4.1: Map of the use density and spatial extent of visitors at Avalanche Creek.

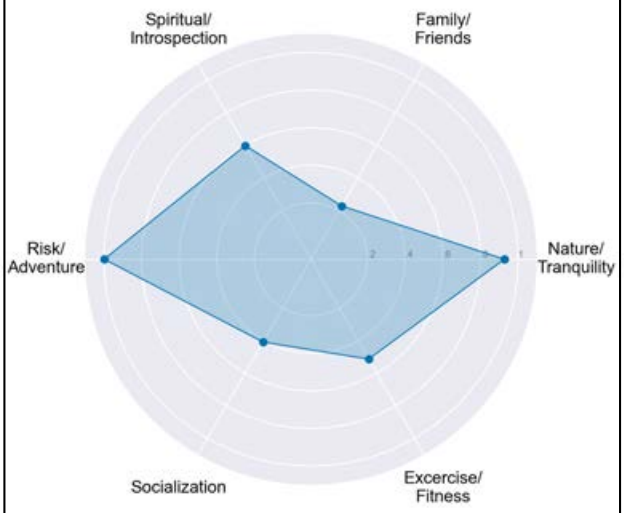
Capitol Creek

Primitive

Summary:

- Users are highly motivated by risk/ adventure and nature/tranquility
- Trail use variable throughout day, vehicle counts high throughout day
- 58% of users are returning visitors
- 60% of users are not primary residents
- 89% of visitors arrive via personal vehicle
- See Appendix A for additional figures and details

Motivation Polar Plot:

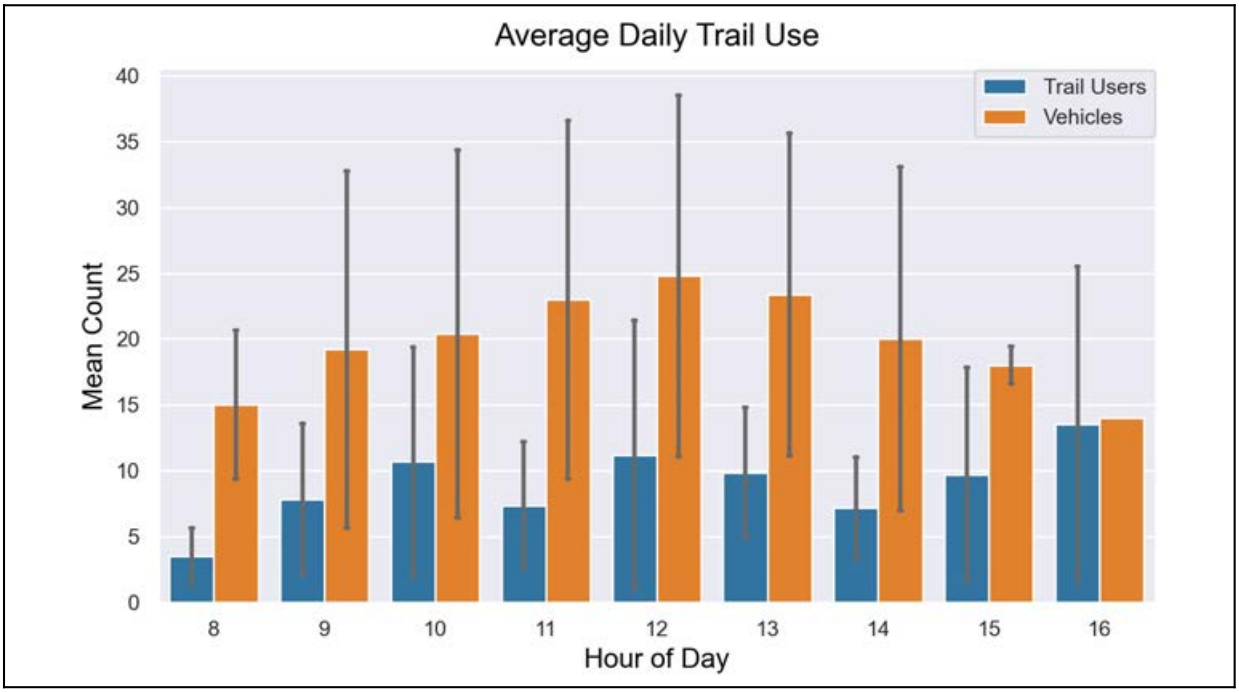


Visitor Demographics:

93% White
6% Don't Know
1% Hispanic/Latinx
1% American Indian/Alaska Native

Activity Type:

59% Walking/Hiking
16% Other (Backpacking, mountaineering)
9% Camping
9% Running
2% Birding/Wildlife Viewing
2% Horseback Riding
2% Photography



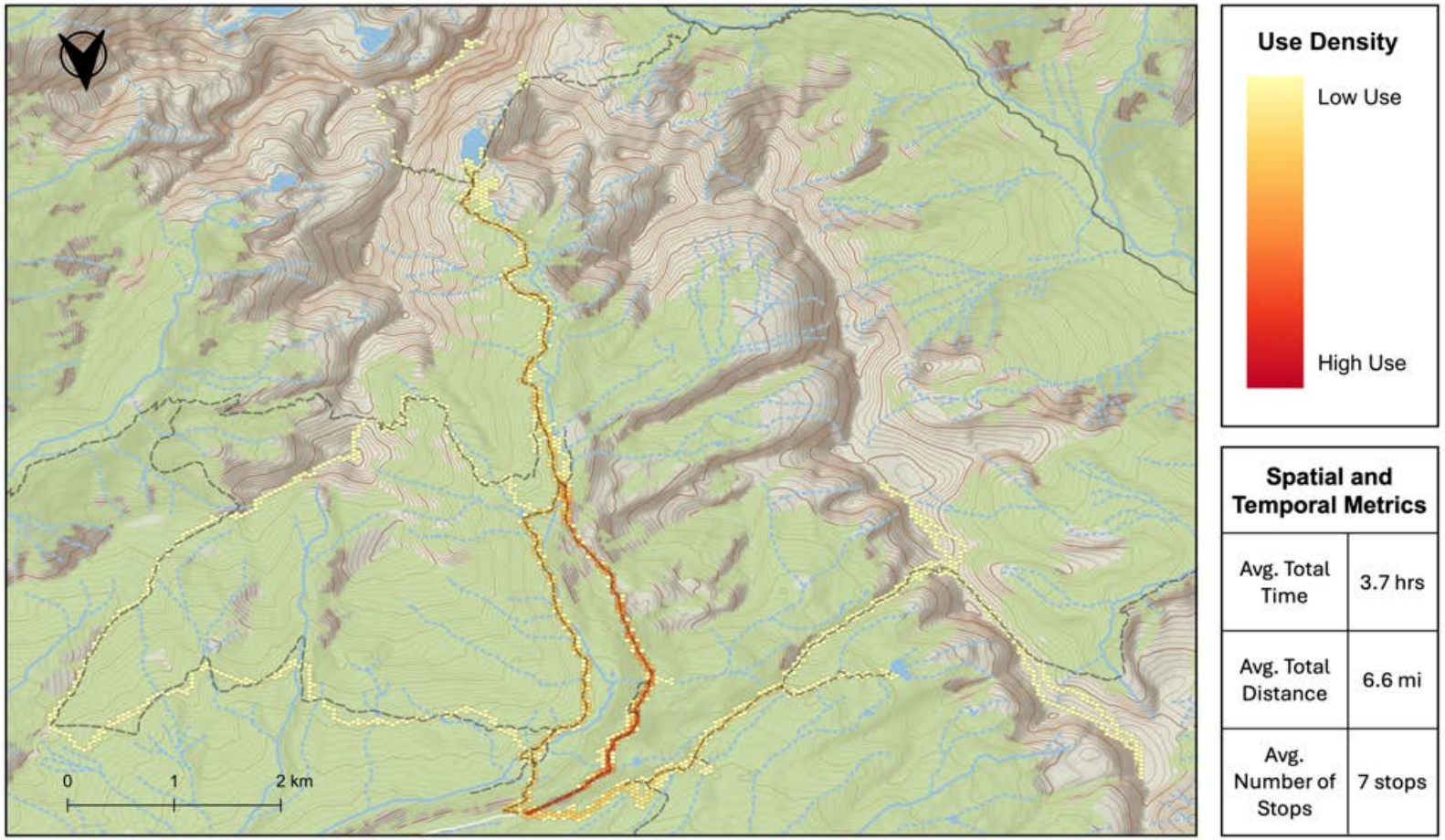


Figure 4.2: Map of the use density and spatial extent of visitors at Capitol Creek.

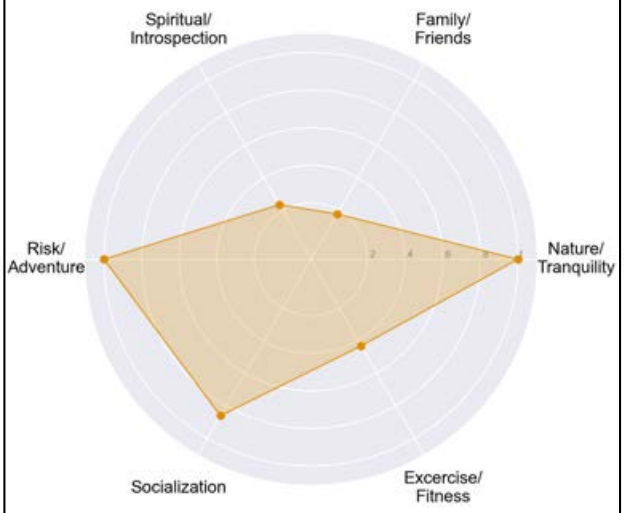
Snowmass Lake

Primitive

Summary:

- Users are highly motivated by risk/ adventure, nature/tranquility, and socialization
- Trail use variable throughout day, vehicle counts high throughout day
- 56% of visitors are returning users
- 57% of visitors are not primary residents
- 96% of visitors arrive via personal vehicle
- See Appendix A for additional figures and details

Motivation Polar Plot:

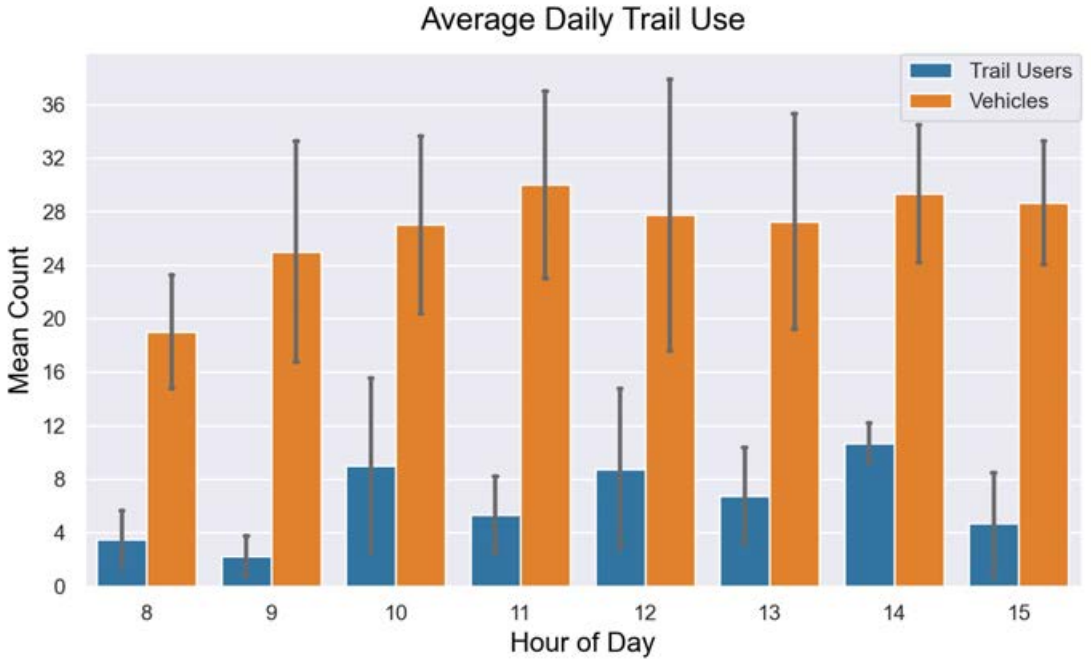


Visitor Demographics:

86%	White
8%	Don't Know
2%	Hispanic/Latinx
2%	Middle Eastern/N. African
2%	Asian

Activity Type:

61%	Walking/Hiking
18%	Running
16%	Camping
4%	Other (Backpacking)



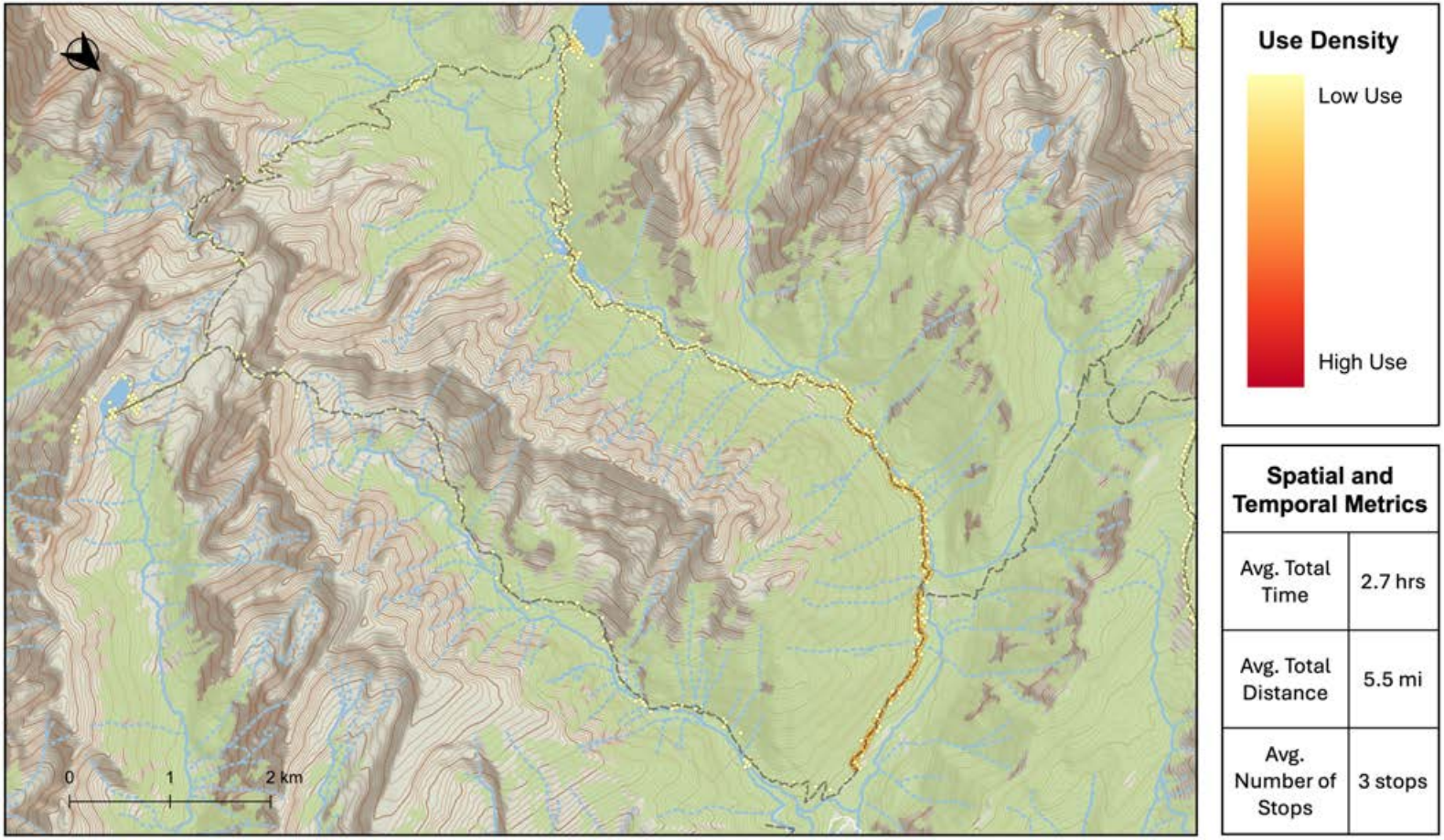


Figure 4.3: Map of the use density and spatial extent of visitors at Snowmass Lake.

American Lake

Semi-Primitive

Summary:

- Users highly motivated by nature/ tranquility and exercise/fitness
- Visitors demonstrate higher use during midmorning, vehicle traffic peaks during midday
- 52% of users are returning visitors
- 54% of users are not primary residents
- 99% of visitors arrive via personal vehicle
- See Appendix A for additional figures and details

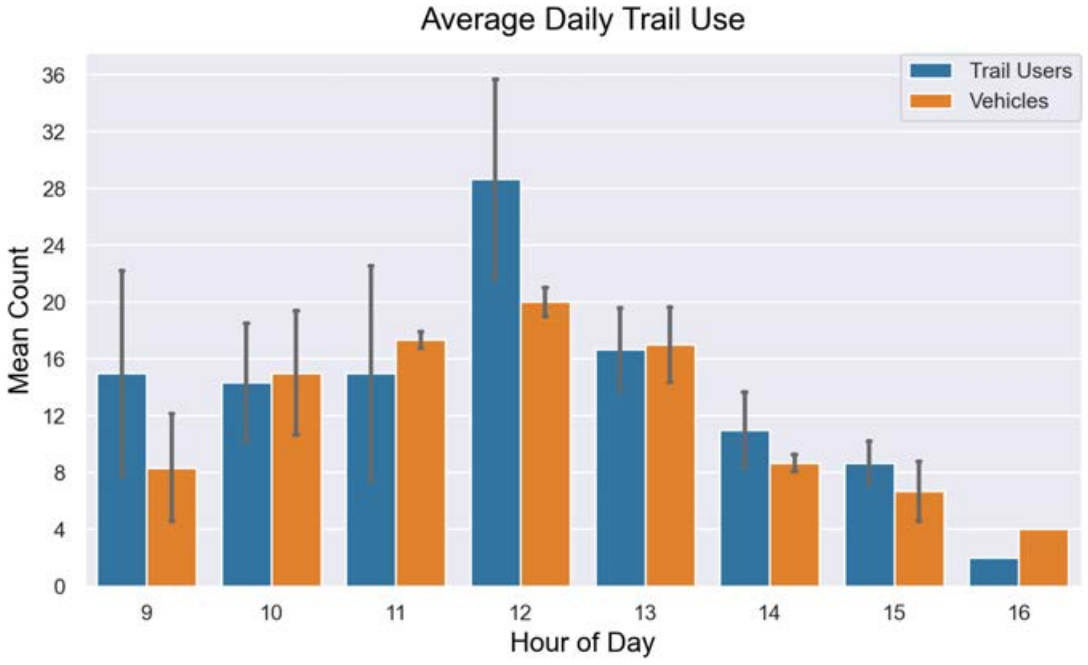
Motivation Polar Plot:

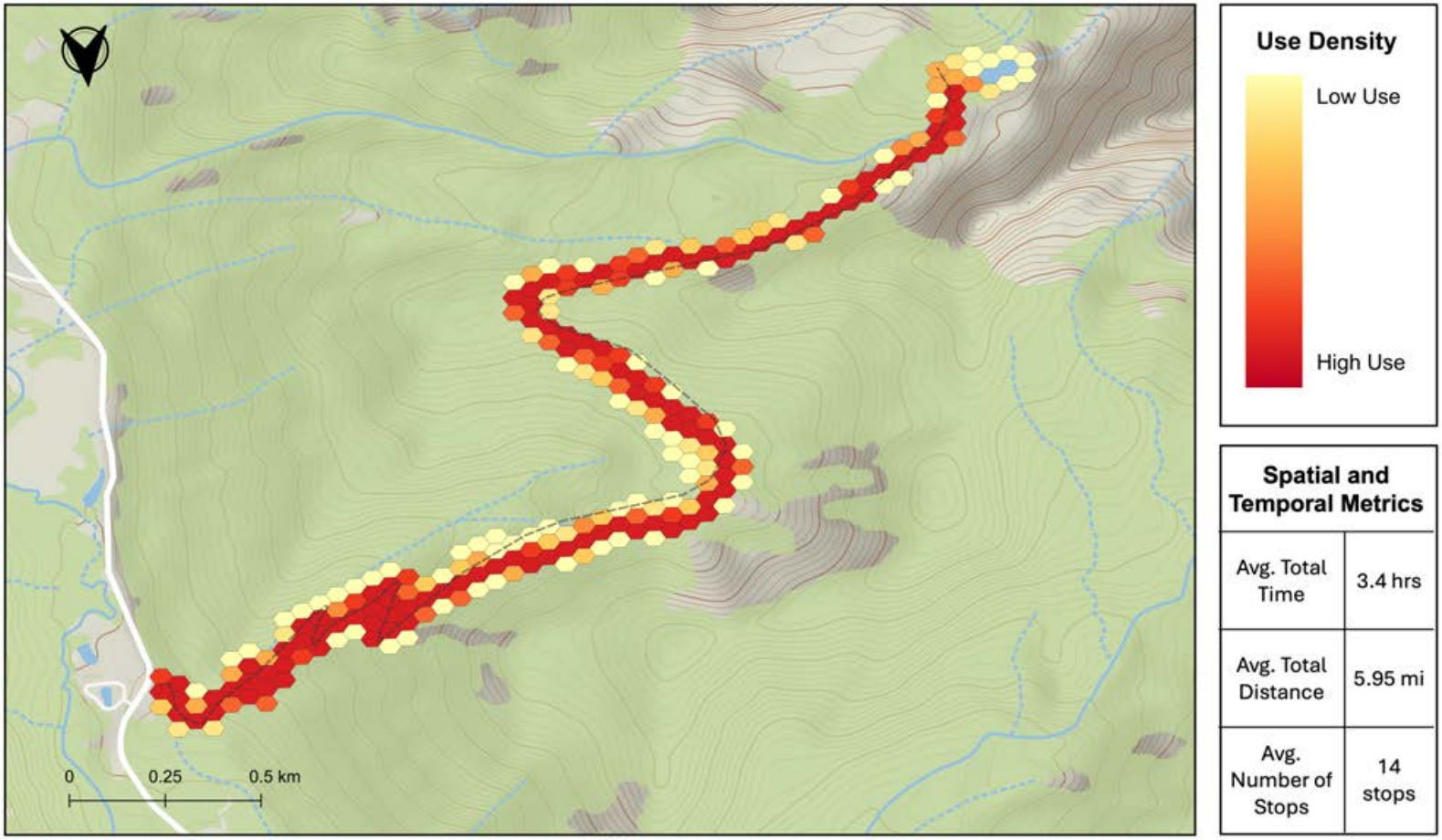
Visitor Demographics:

85%	White
4%	Asian
3%	Hispanic/Latinx
3%	Self Describe
1%	American Indian/Alaska Native
1%	Don't Know

Activity Type:

94%	Walking/Hiking
1%	Running
1%	Other (Flower Watching, Fishing)





Spatial and Temporal Metrics	
Avg. Total Time	3.4 hrs
Avg. Total Distance	5.95 mi
Avg. Number of Stops	14 stops

Figure 4.4: Map of the use density and spatial extent of visitors at American Lake.

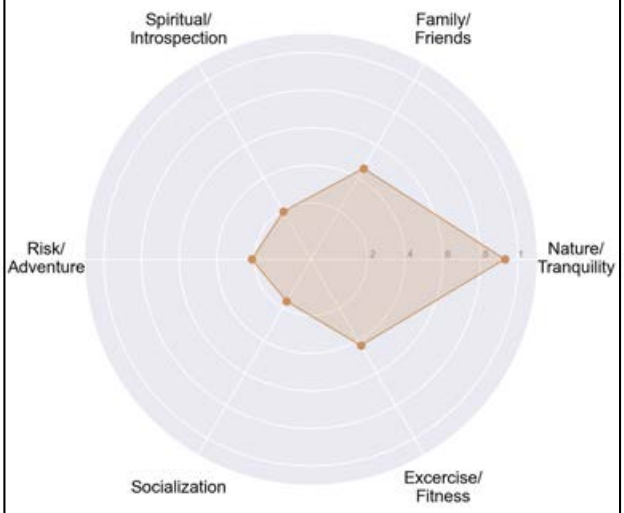
Lower Lost Man

Semi-Primitive

Summary:

- Users highly motivated by nature/ tranquility
- Visitors demonstrate higher use during morning, vehicle traffic peaks during midday
- 67% of users are returning visitors
- 43% of users are not primary residents
- 96% of visitors arrive via personal vehicle
- See Appendix A for additional figures and details

Motivation Polar Plot:

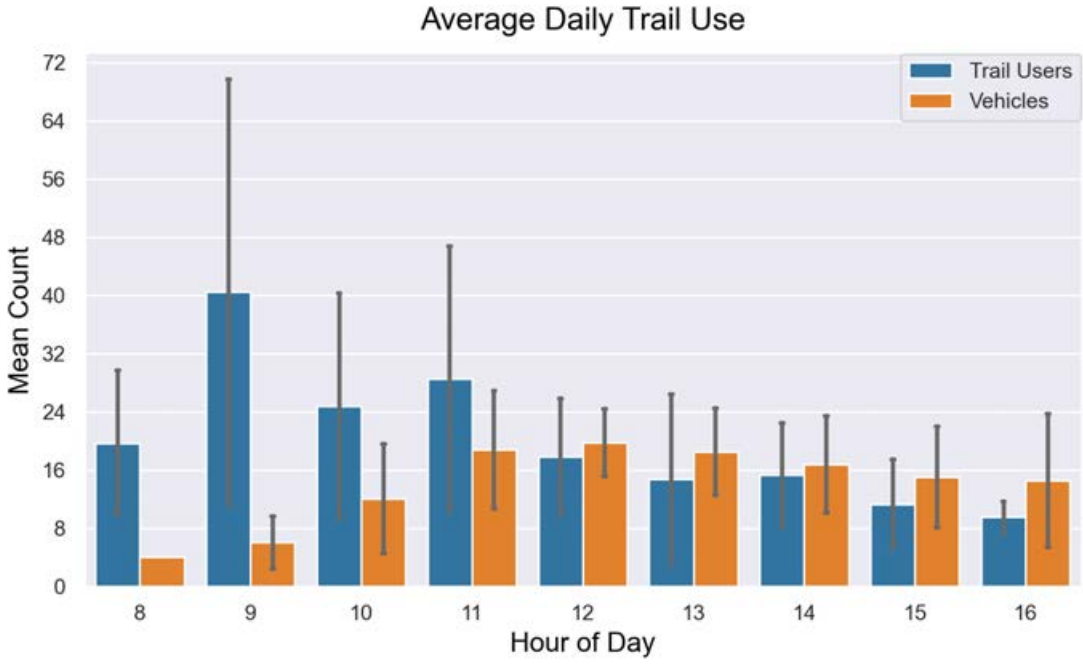


Visitor Demographics:

95%	White
4%	Self Describe
1%	Hawaiian/Pacific Islander

Activity Type:

84%	Walking/Hiking
5%	Fishing
3%	Camping
3%	Other (Pack Rafting, Backpacking)
3%	Photography
3%	Running
1%	Dog Walking



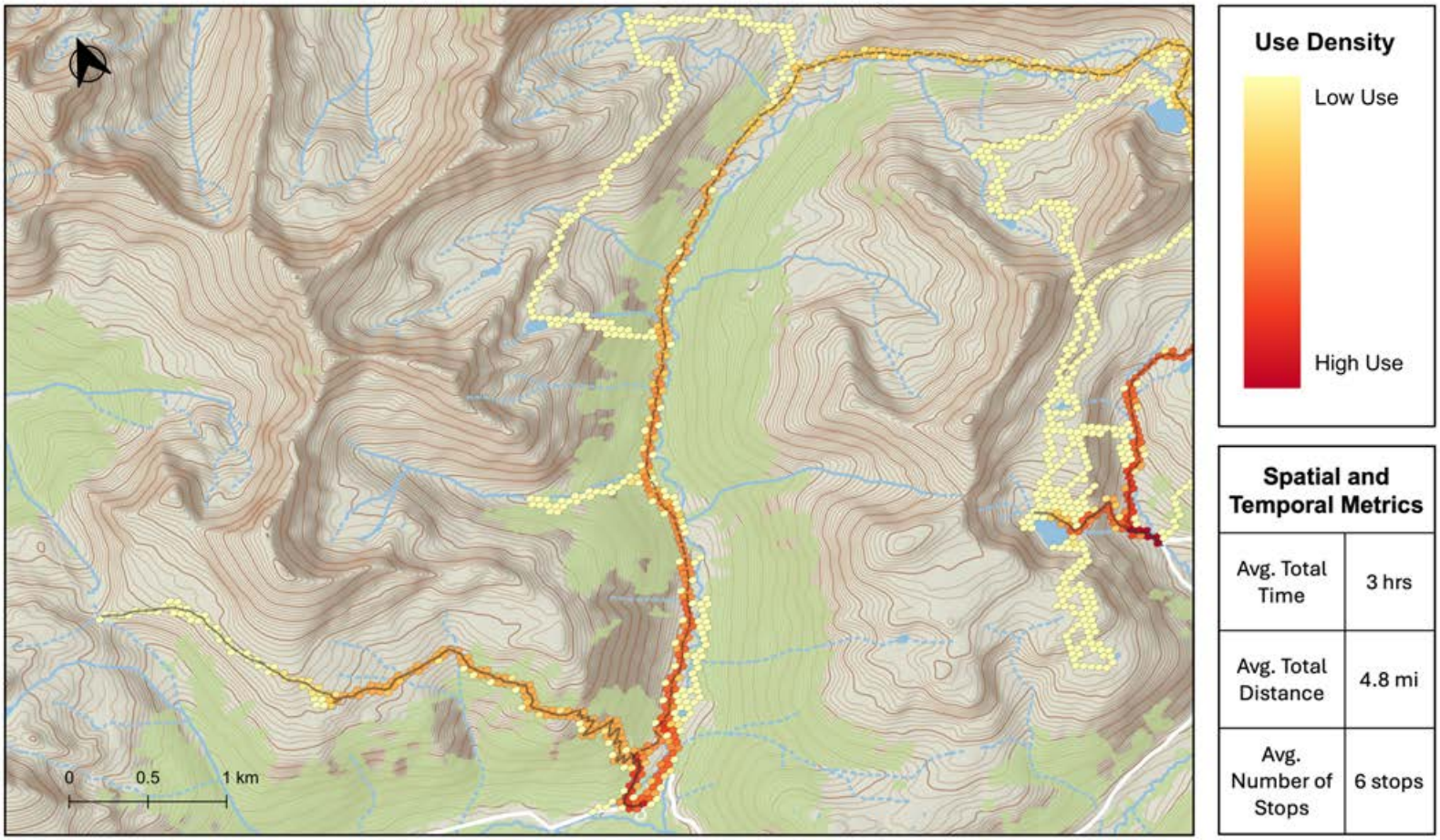


Figure 4.5: Map of the use density and spatial extent of visitors at Lower Lost Man.

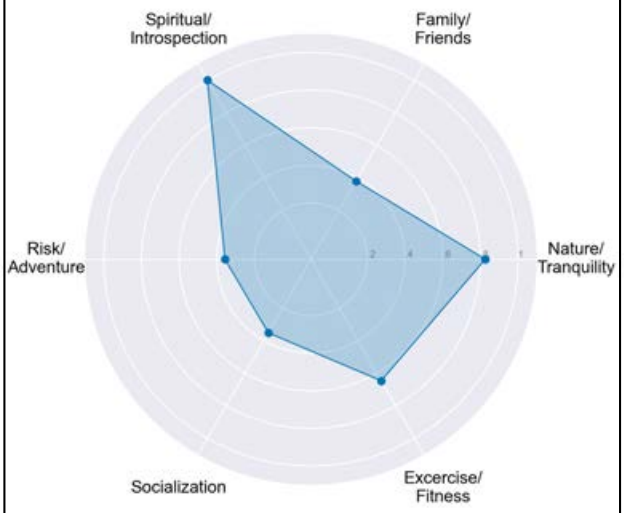
Thomas Lakes

Semi-Primitive

Summary:

- Users highly motivated by introspection, nature/tranquility
- Trail users and vehicles steadily increasing use, vehicles peak during midday
- 68% of users are returning visitors
- 60% of users are primary residents
- 96% of visitors arrive via personal vehicle
- See Appendix A for additional figures and details

Motivation Polar Plot:

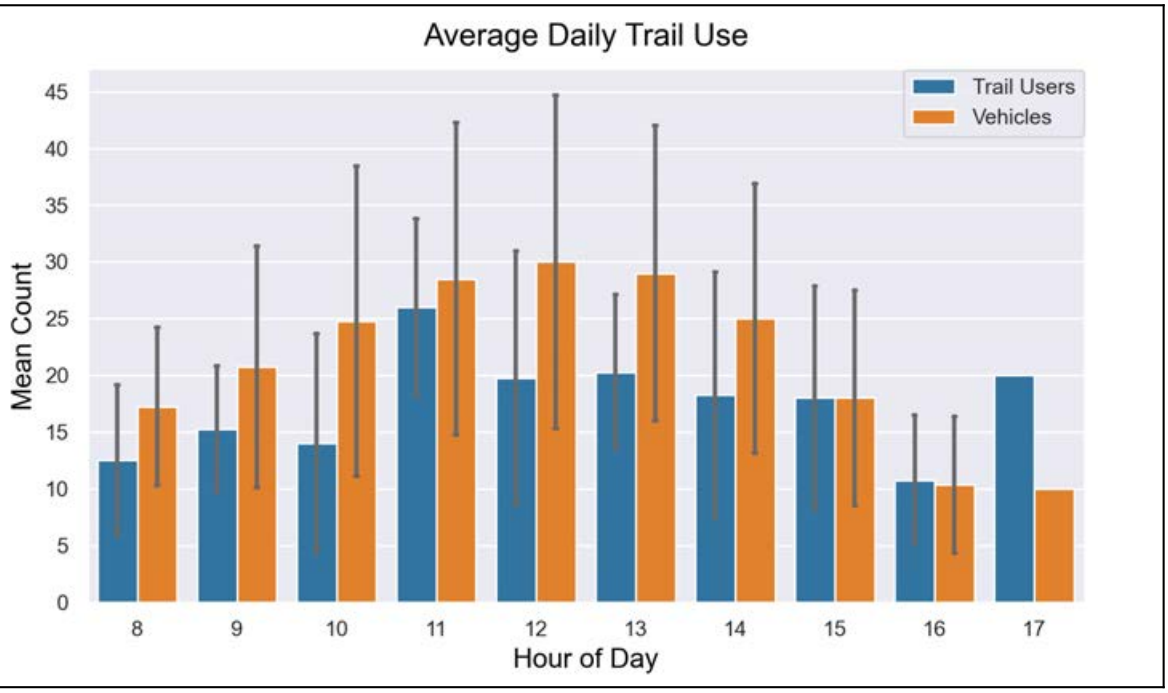


Visitor Demographics:

92%	White
3%	Hispanic/Latinx
3%	Asian
1%	Don't Know
1%	Self Describe

Activity Type:

81%	Walking/Hiking
11%	Running
4%	Other (Watersports)
1%	Biking
1%	Dog Walking
1%	Horseback Riding



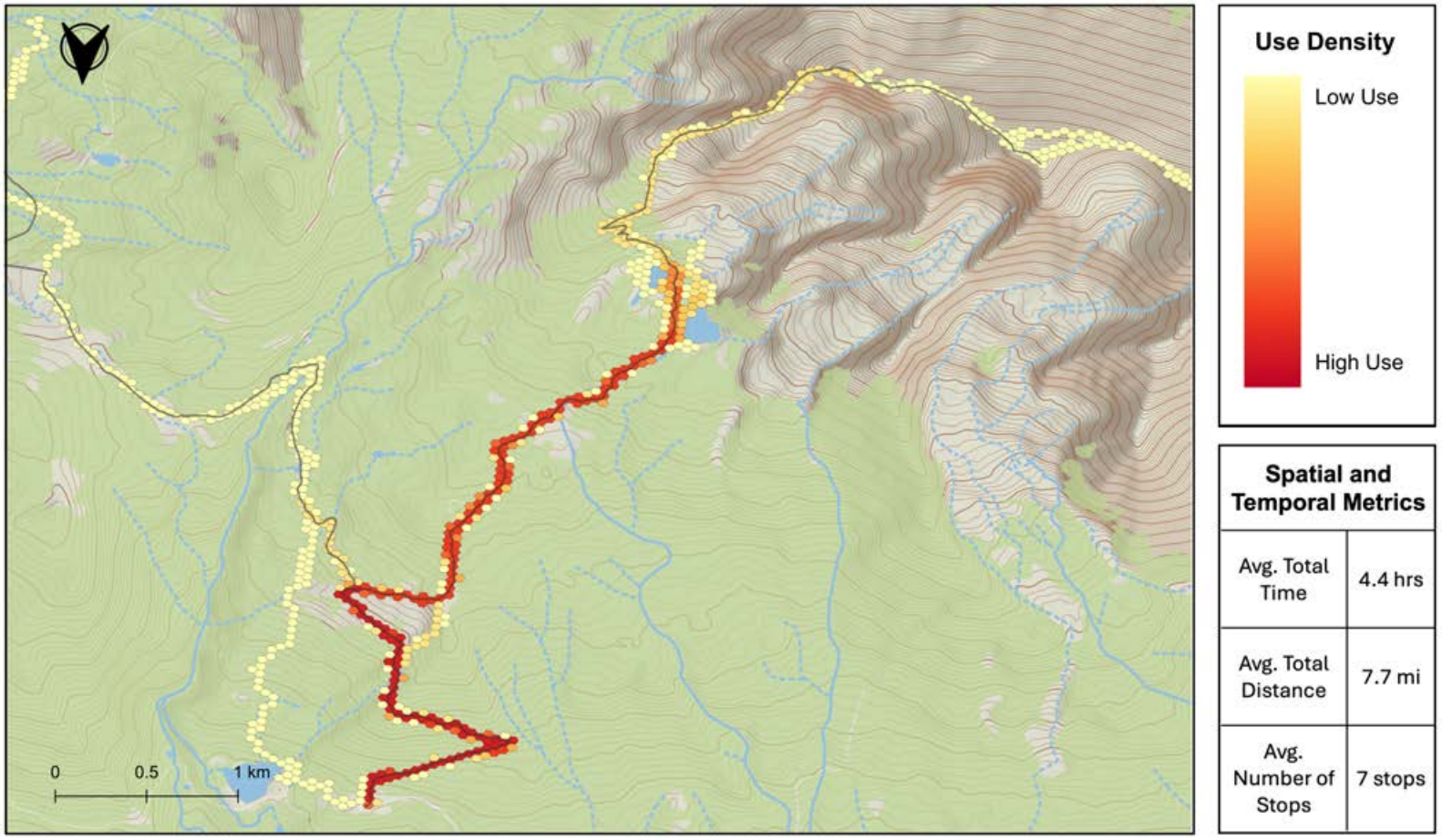


Figure 4.6: Map of the use density and spatial extent of visitors at Thomas Lakes.

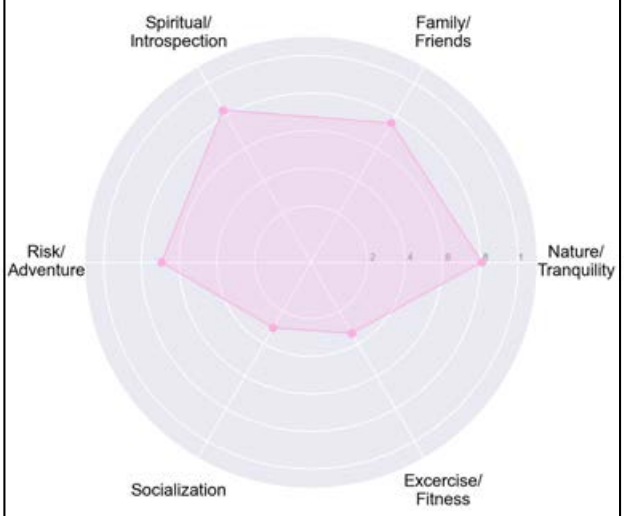
Upper Lost Man

Semi-Primitive

Summary:

- Users highly motivated by nature/ tranquility, introspection, family/ friends, and risk/adventure
- Trail users and vehicles steadily increasing use, vehicles peak during midday
- 61% of users are first time visitors
- 73% of users are primary residents
- 88% of visitors arrive via personal vehicle
- See Appendix A for additional figures and details

Motivation Polar Plot:

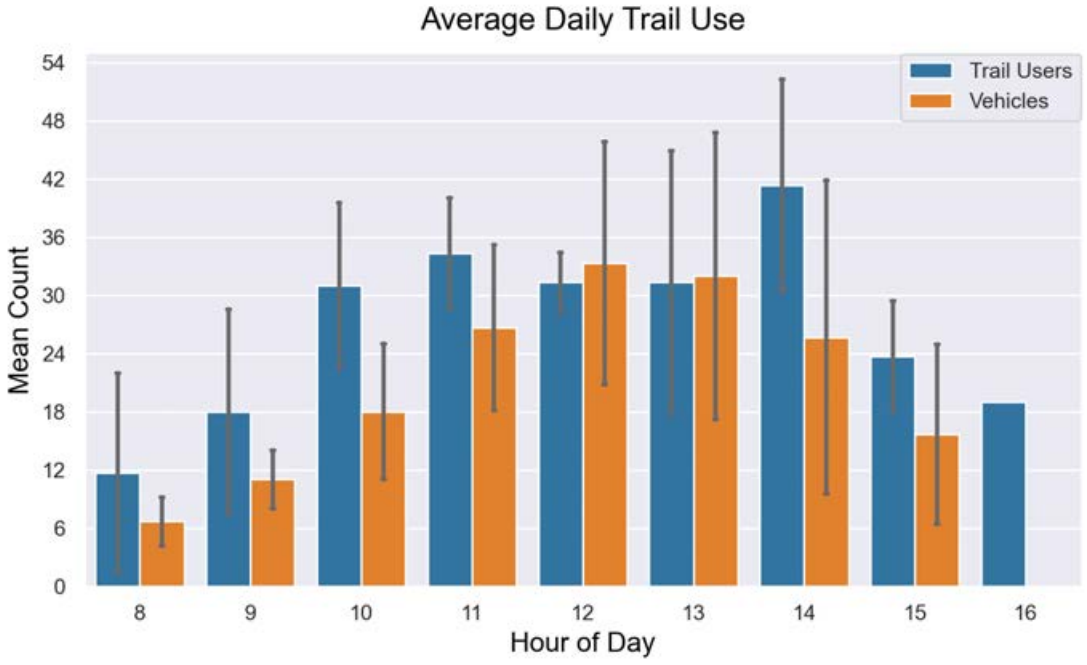


Visitor Demographics:

86%	White
6%	Asian
4%	Hispanic/Latinx
3%	Don't Know
1%	Self Describe

Activity Type:

86%	Walking/Hiking
4%	Camping
3%	Fishing
3%	Photography
1%	Biking
1%	Birding/Wildlife Viewing
1%	Dog Walking



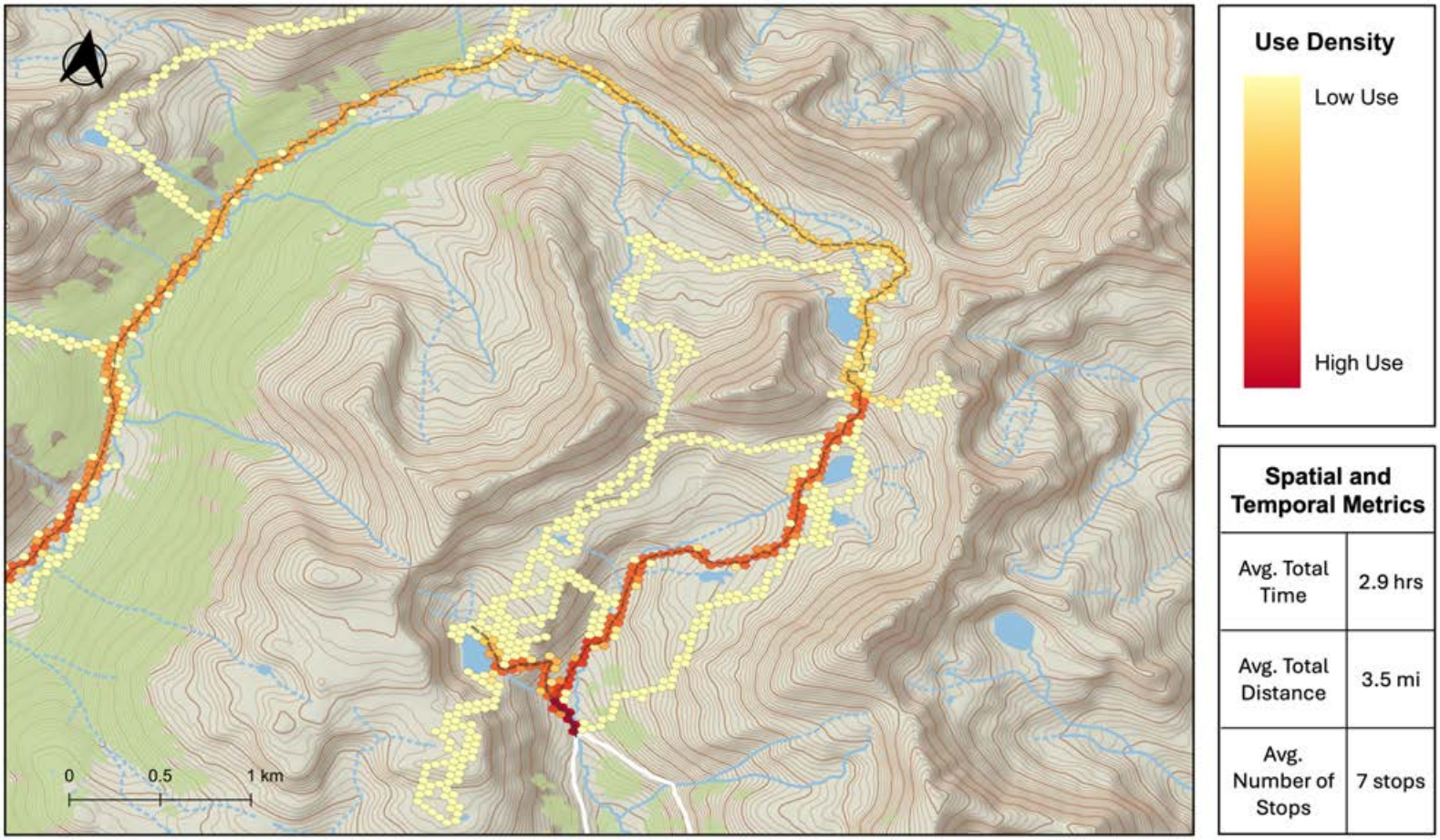


Figure 4.7: Map of the use density and spatial extent of visitors at Upper Lost Man.

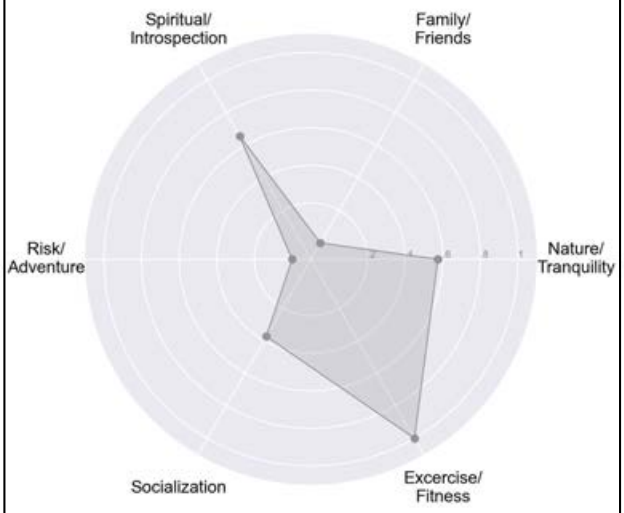
Arbaney Kittle

Concentrated

Summary:

- Users highly motivated by exercise/ fitness, also motivated by nature/ tranquility and introspection
- Visitors demonstrate high use in mornings and evenings, vehicle traffic low throughout the day
- 88% of users are returning visitors
- 70% of users are primary residents
- 85% of visitors arrive via personal vehicle; 15% arrive via walking
- See Appendix A for additional figures and details

Motivation Polar Plot:

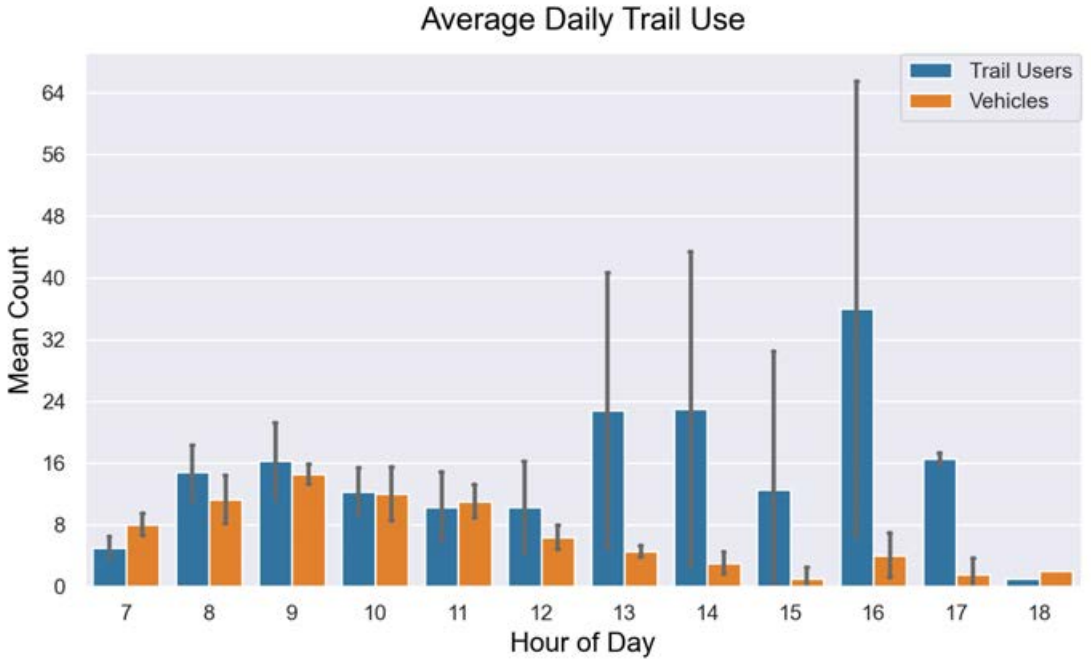


Visitor Demographics:

88% White
5% Don't Know
4% Hispanic/Latinx
2% Self Describe

Activity Type:

89% Walking/Hiking
6% Running
3% Dog Walking
1% Fishing
1% Other (Meditation)



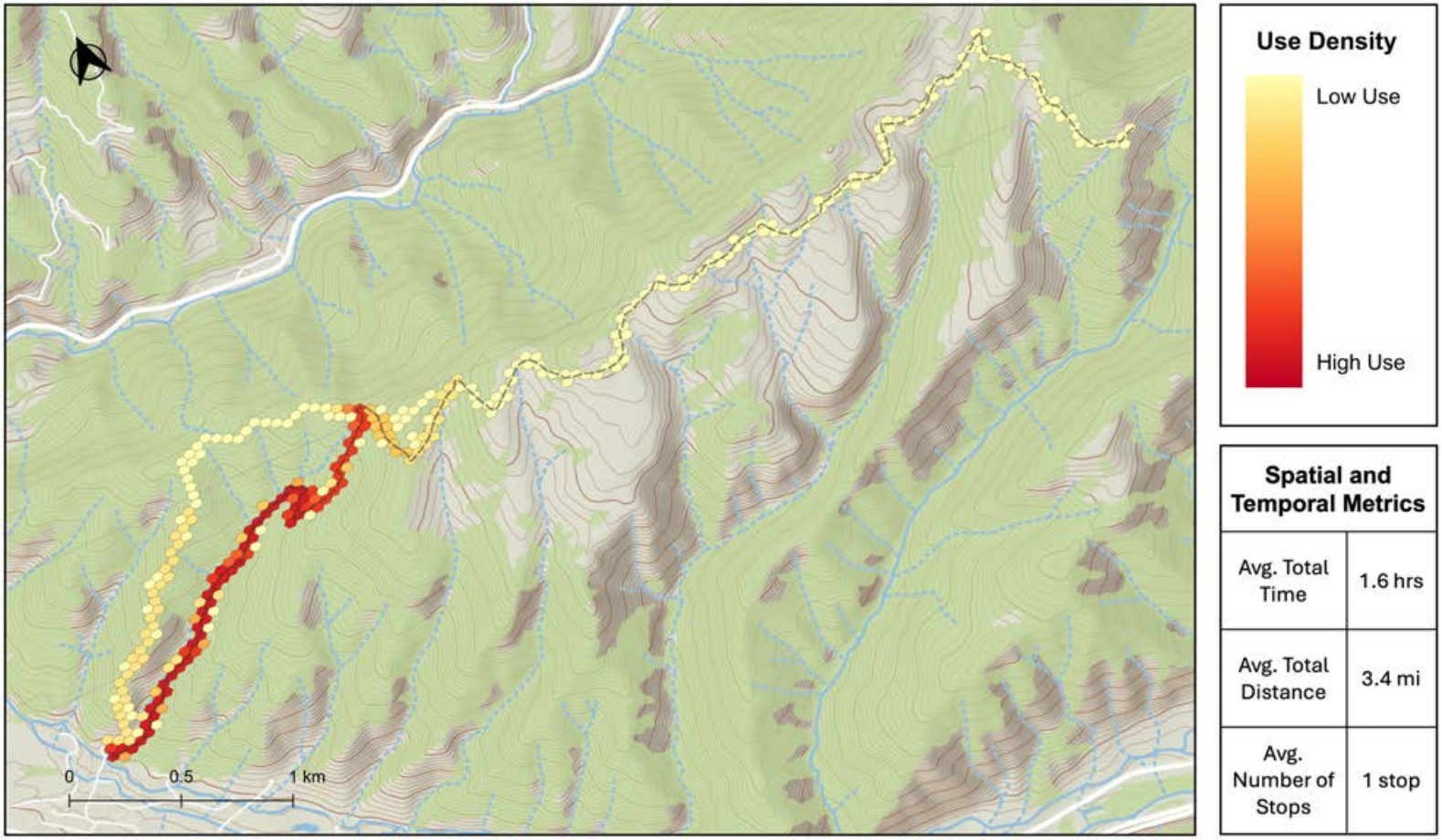


Figure 4.8: Map of the use density and spatial extent of visitors at Arbaney Kittle.

Glassier Open Space

Concentrated

Summary:

- Users highly motivated by socialization and exercise/fitness
- Visitors demonstrate higher use during early morning and late afternoon; no vehicle data collected at this site
- 96% of users are returning visitors
- 89% of users are primary residents
- 49% of visitors arrive via personal vehicle; 45% arrive via bike
- See Appendix A for additional figures and details

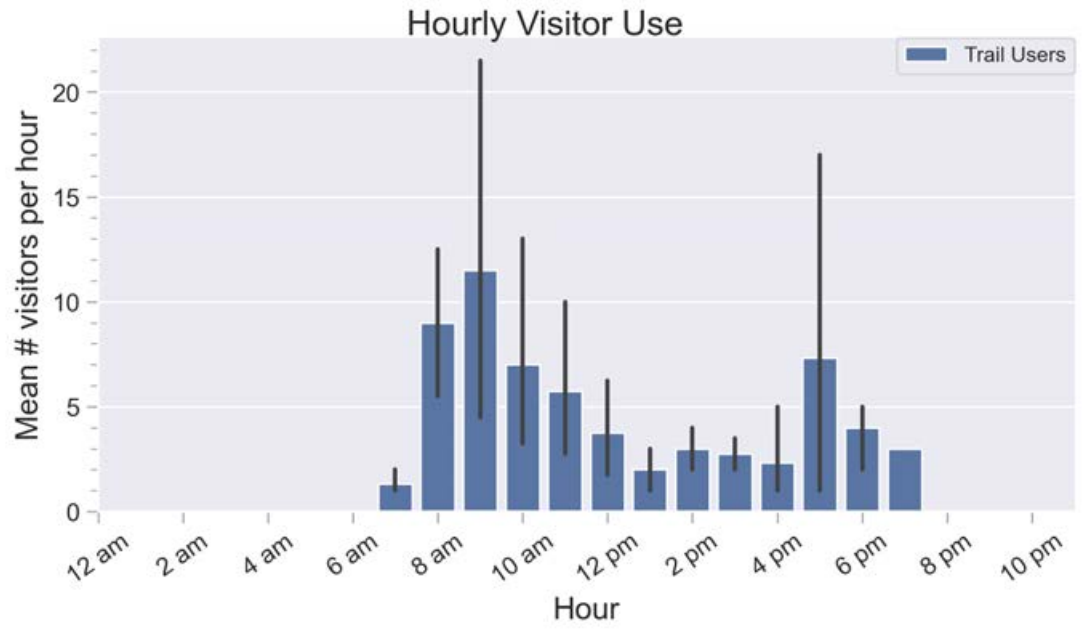
Motivation Polar Plot:

Visitor Demographics:

89% White
11% Don't Know

Activity Type:

77% Biking
13% Running
10% Walking/Hiking



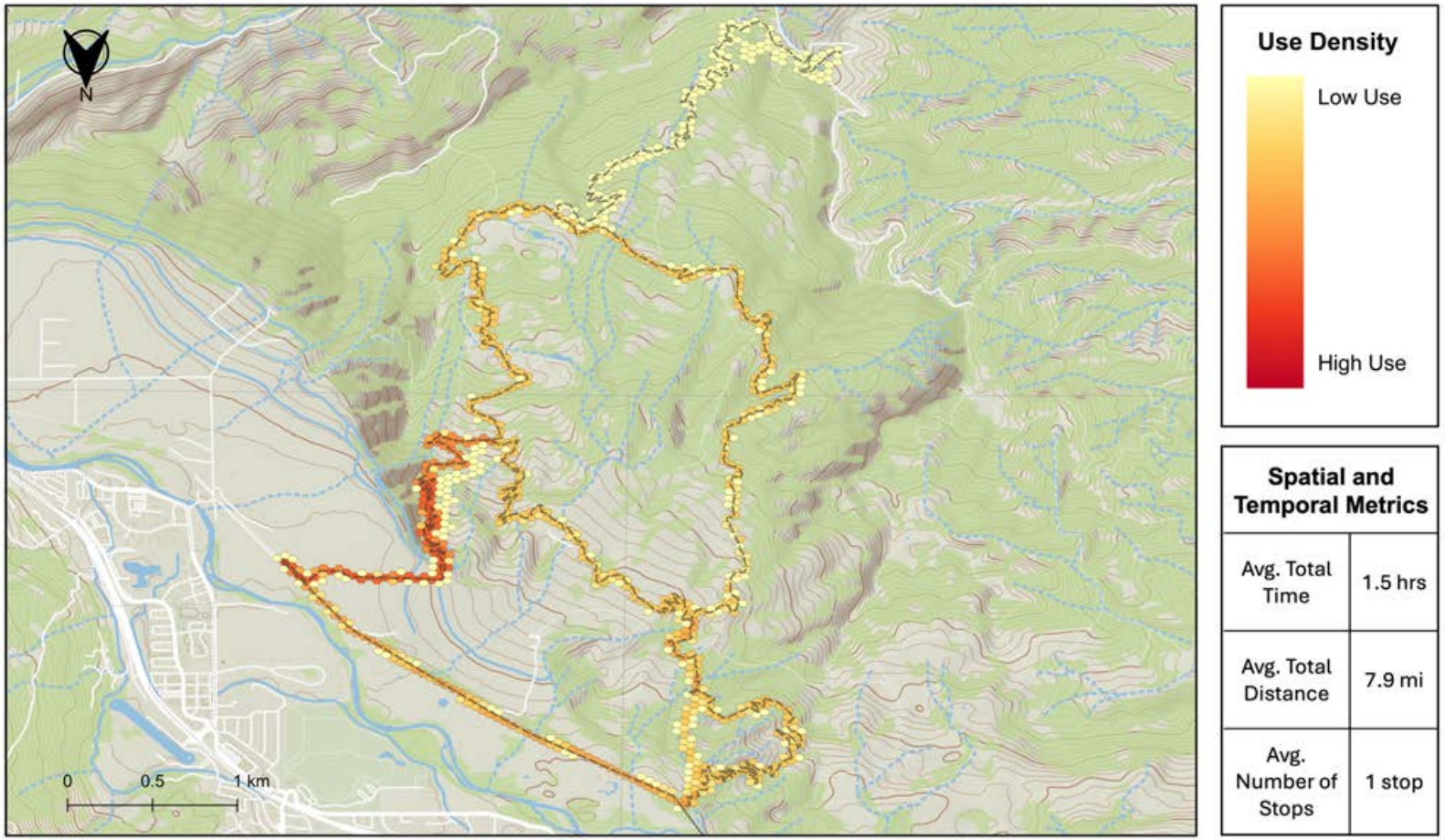


Figure 4.9: Map of the use density and spatial extent of visitors at Glassier Open Space.

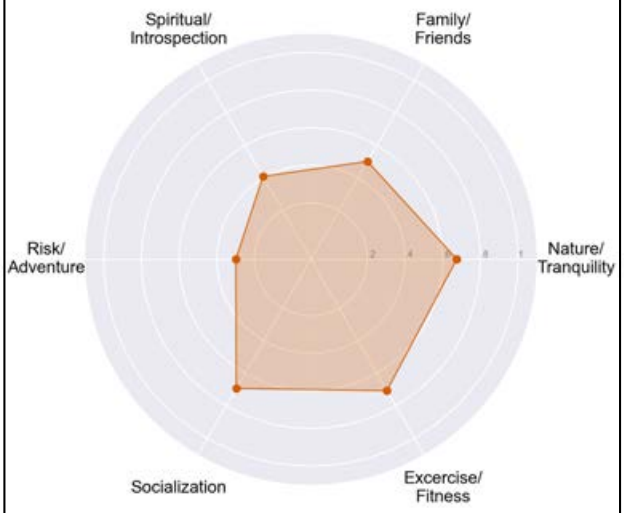
South Rim Trail

Concentrated

Summary:

- Users highly motivated by socialization, and exercise/fitness
- Visitors demonstrate steadily increasing use throughout day, minimal vehicle traffic
- 62% of users are returning visitors
- 47% of users are not primary residents
- 53% of visitors arrive via personal vehicle; 34% arrive via walking
- See Appendix A for additional figures and details

Motivation Polar Plot:

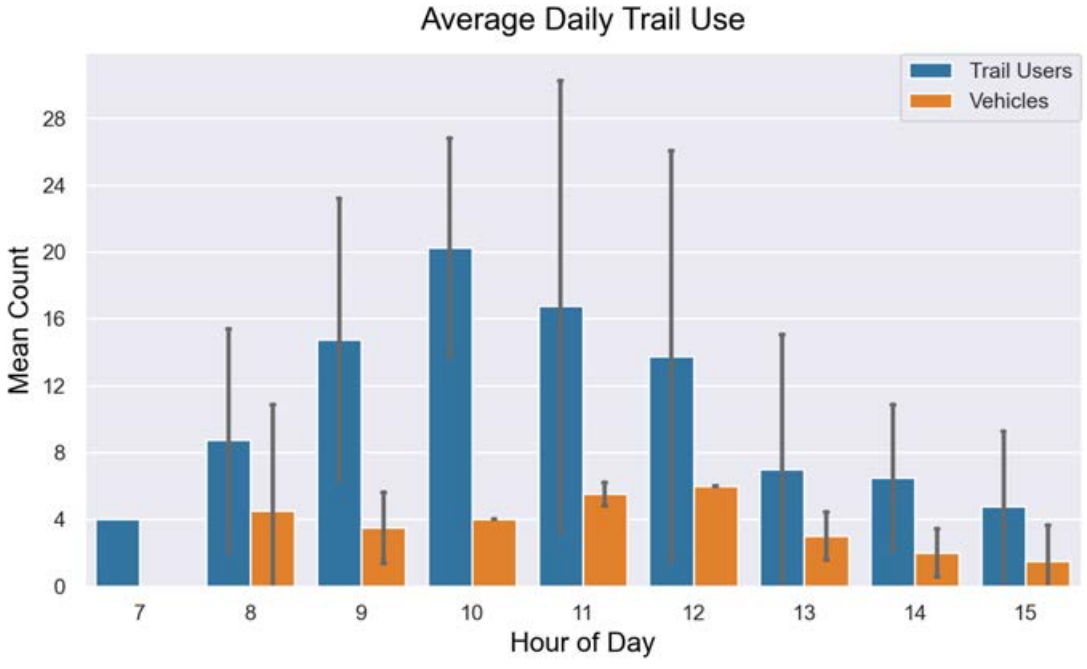


Visitor Demographics:

92%	White
2%	Hispanic/Latinx
2%	Don't Know
2%	Asian
1%	Middle Eastern/N. African

Activity Type:

85%	Walking/Hiking
9%	Biking
5%	Running
1%	Dog Walking



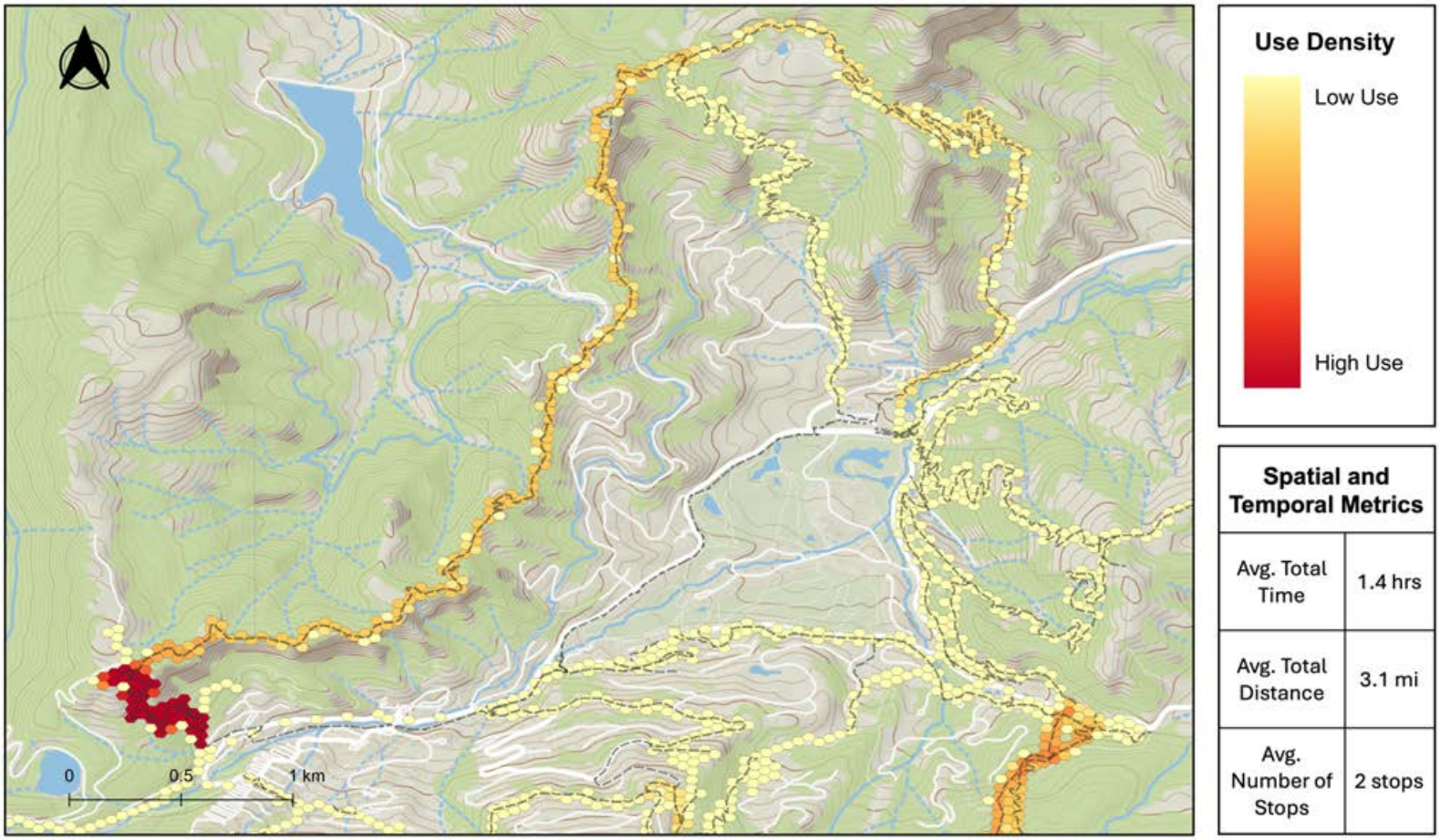


Figure 4.10: Map of the use density and spatial extent of visitors at South Rim Trail.

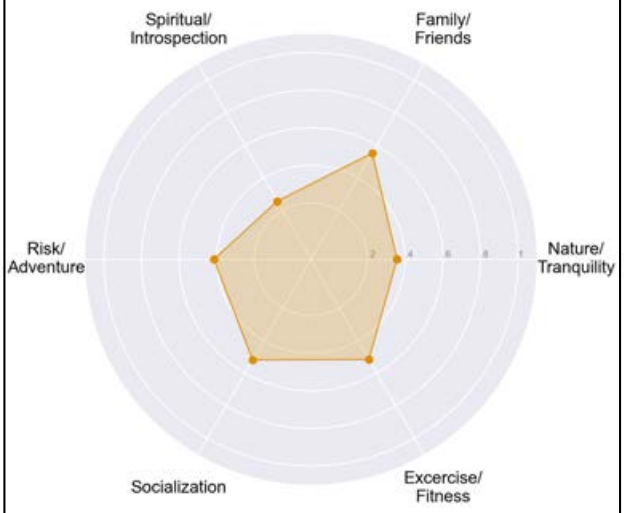
Tom Blake Trail

Concentrated

Summary:

- Users highly motivated by family/ friends, socialization, and exercise/ fitness
- Visitors demonstrate high use in mornings, vehicle use peaks in morning
- 73% of users are returning visitors
- 45% of users are primary residents
- 60% of visitors arrive via personal vehicle; 21% arrive via bike
- See Appendix A for additional figures and details

Motivation Polar Plot:

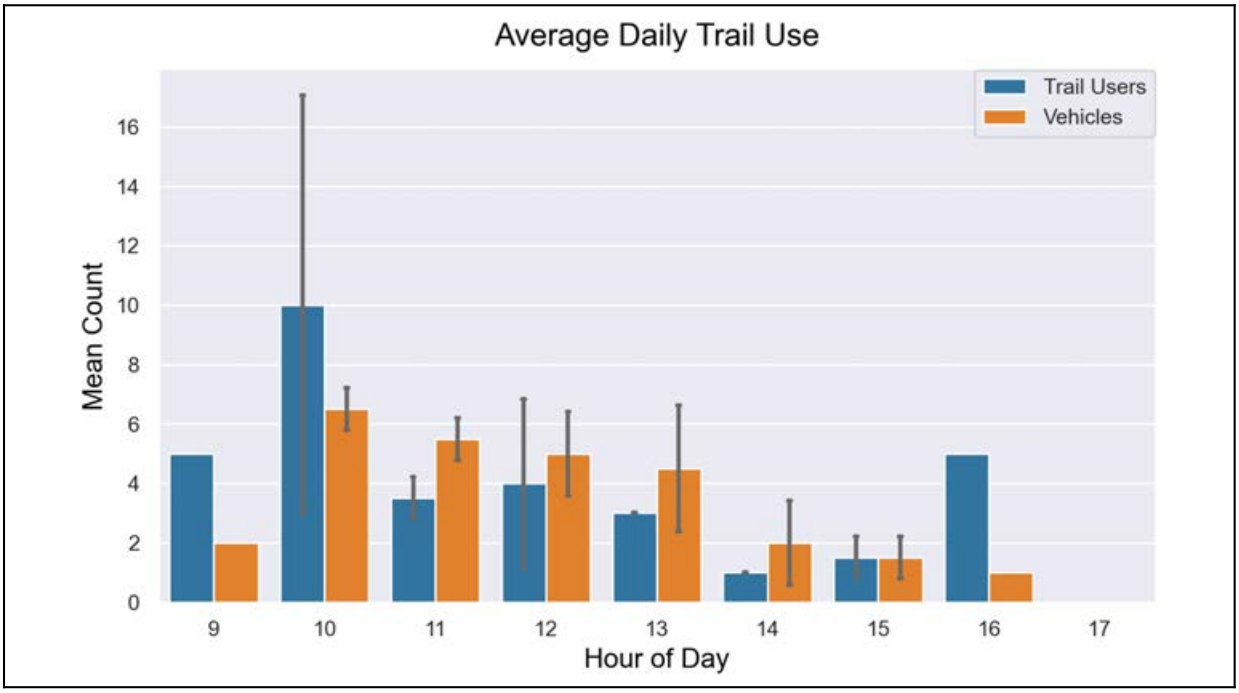


Visitor Demographics:

85% White
7% Don't Know
7% Hispanic/Latinx
2% Asian

Activity Type:

58% Walking/Hiking
35% Biking
4% Dog Walking
2% Running



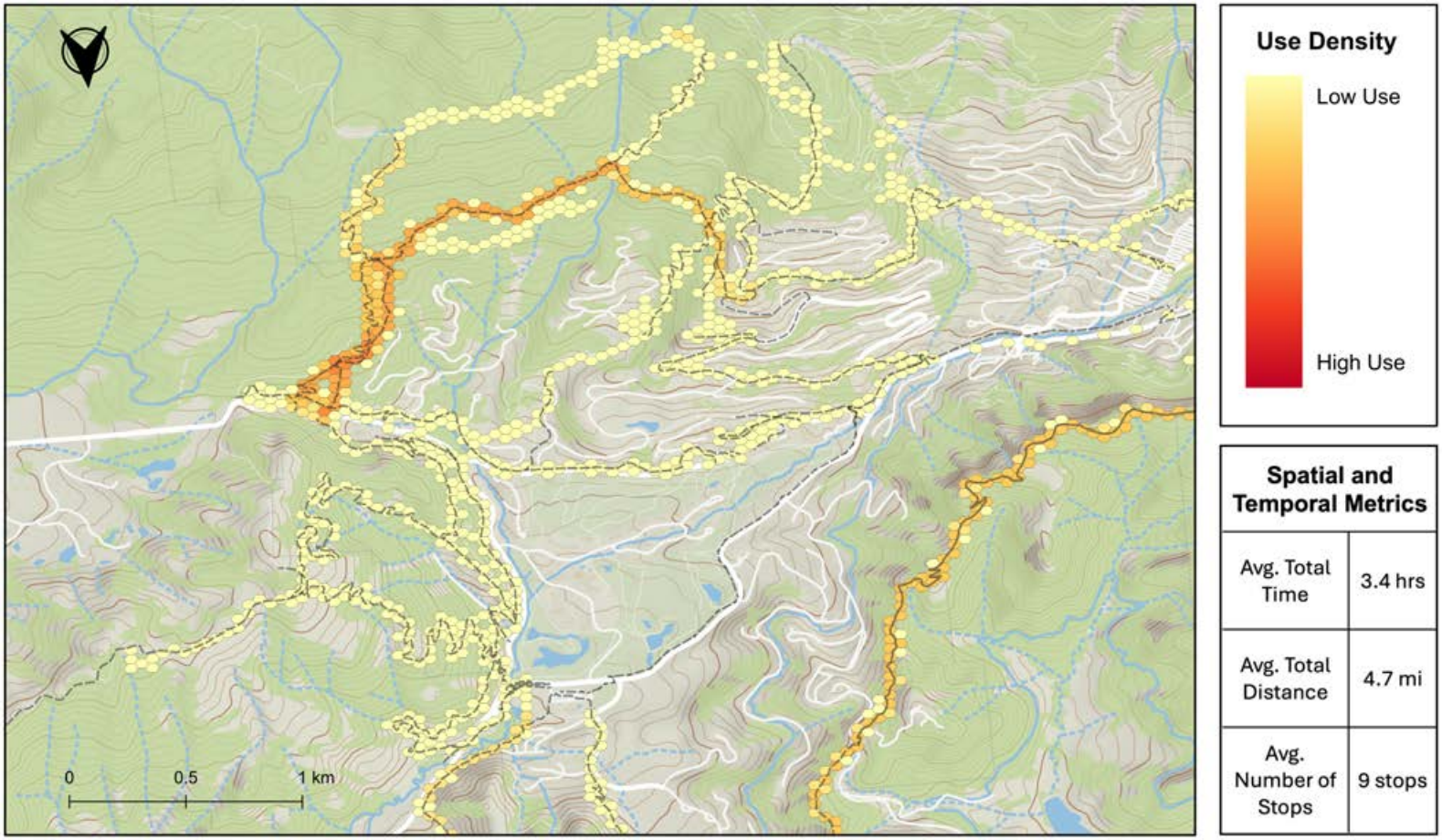


Figure 4.11: Map of the use density and spatial extent of visitors at Thomas Blake Trailhead.

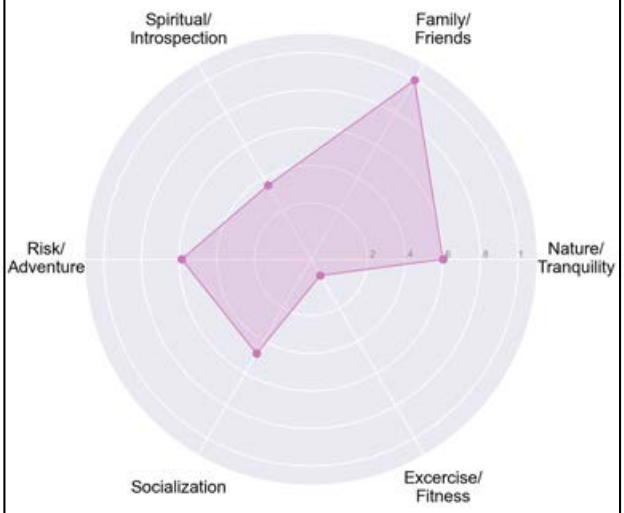
Grottos Day Use Area

Urban Proximate

Summary:

- Users motivated by family/friends and nature/tranquility
- Consistent trail use throughout the day, peaking midday; vehicles steady throughout day
- 70% of users are first time visitor
- 83% of users are not primary residents
- 96% of visitors arrive via personal vehicle
- See Appendix A for additional figures and details

Motivation Polar Plot:

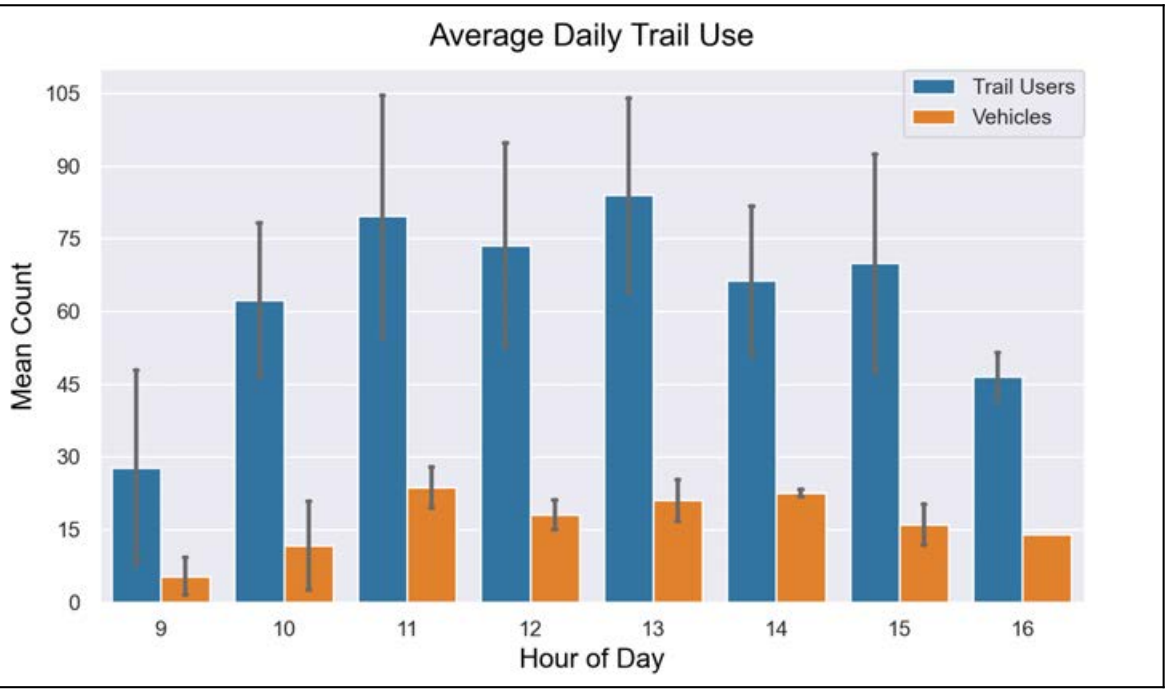


Visitor Demographics:

85% White
6% Hispanic/Latinx
5% Asian
1% Don't Know
1% Hawaiian/Pacific Islander
1% Middle Eastern/N. African
1% Self Describe

Activity Type:

86% Walking/Hiking
7% Other (Bouldering/Climbing, Swimming)
4% Photography
2% Fishing
1% Bird Watching



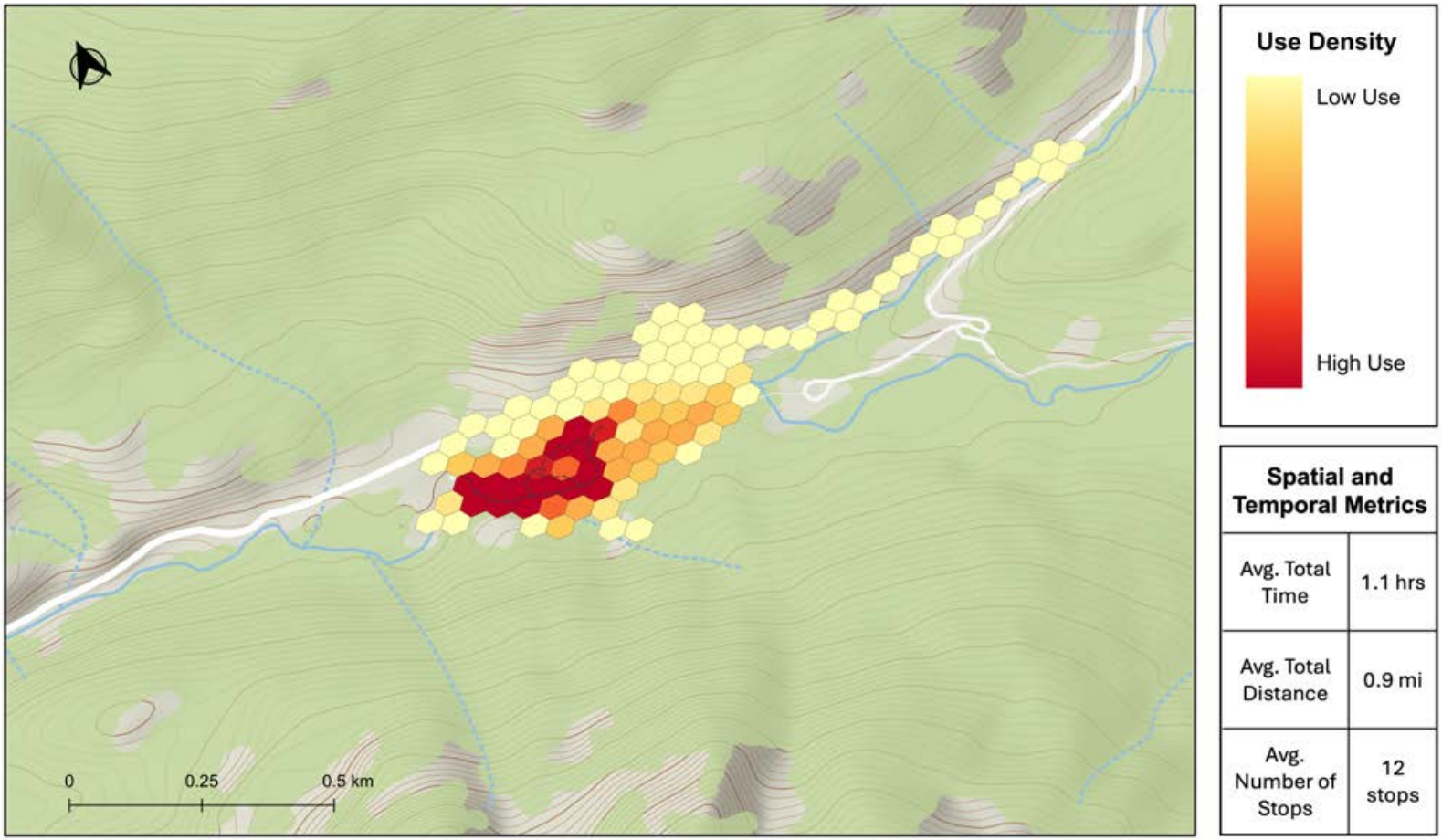


Figure 4.12: Map of the use density and spatial extent of visitors at Grottos Day Use Area.

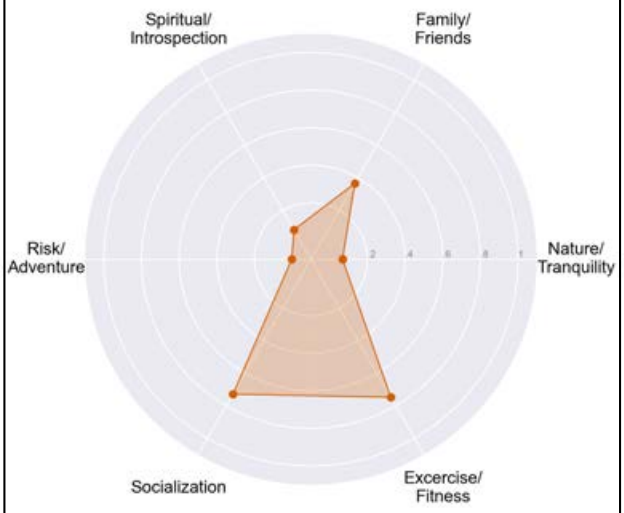
Smuggler Mountain

Urban Proximate

Summary:

- Users highly motivated by socialization and exercise/fitness
- Trail use highest in midmorning, vehicle use steady throughout day
- 87% of visitors are returning users
- 45% of users are primary residents
- 53% of visitors arrive via personal vehicle; 30% arrive via walking; 16% arrive by bike
- See Appendix A for additional figures and details

Motivation Polar Plot:

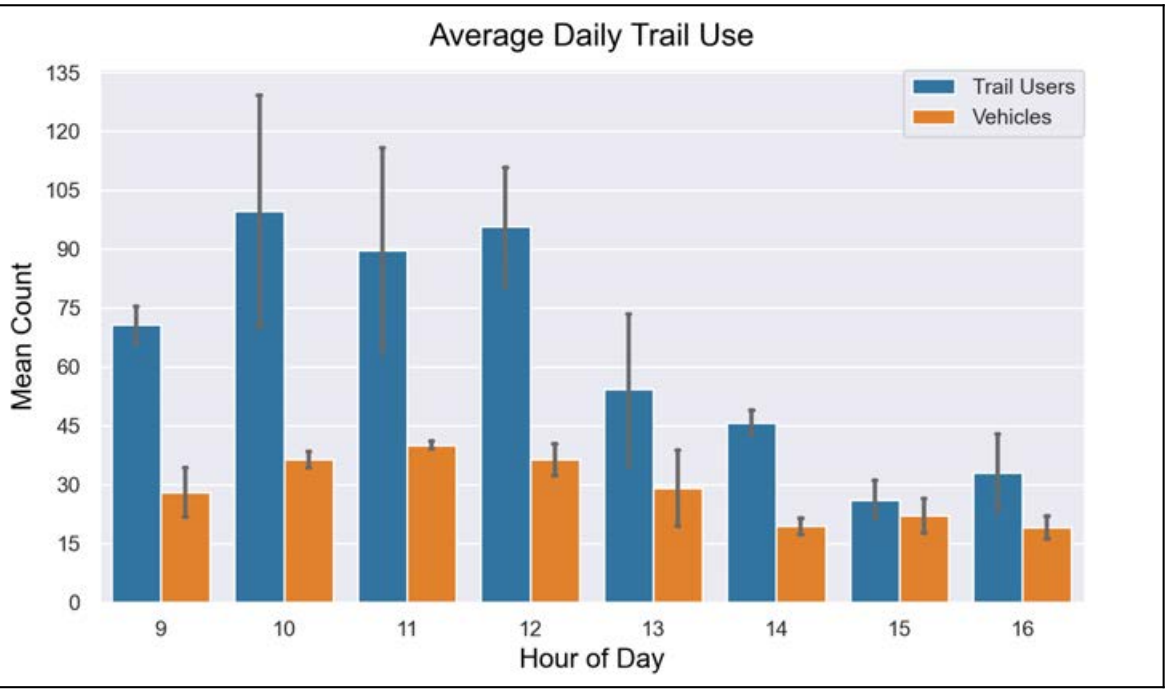


Visitor Demographics:

88% White
5% Hispanic/Latinx
4% Don't Know
2% Asian
1% Black/African American
1% American Indian/Alaska Native

Activity Type:

86% Walking/Hiking
12% Biking
5% Dog Walking
1% Fishing
1% Running
1% Bird Watching
1% Other (Mine Tour)



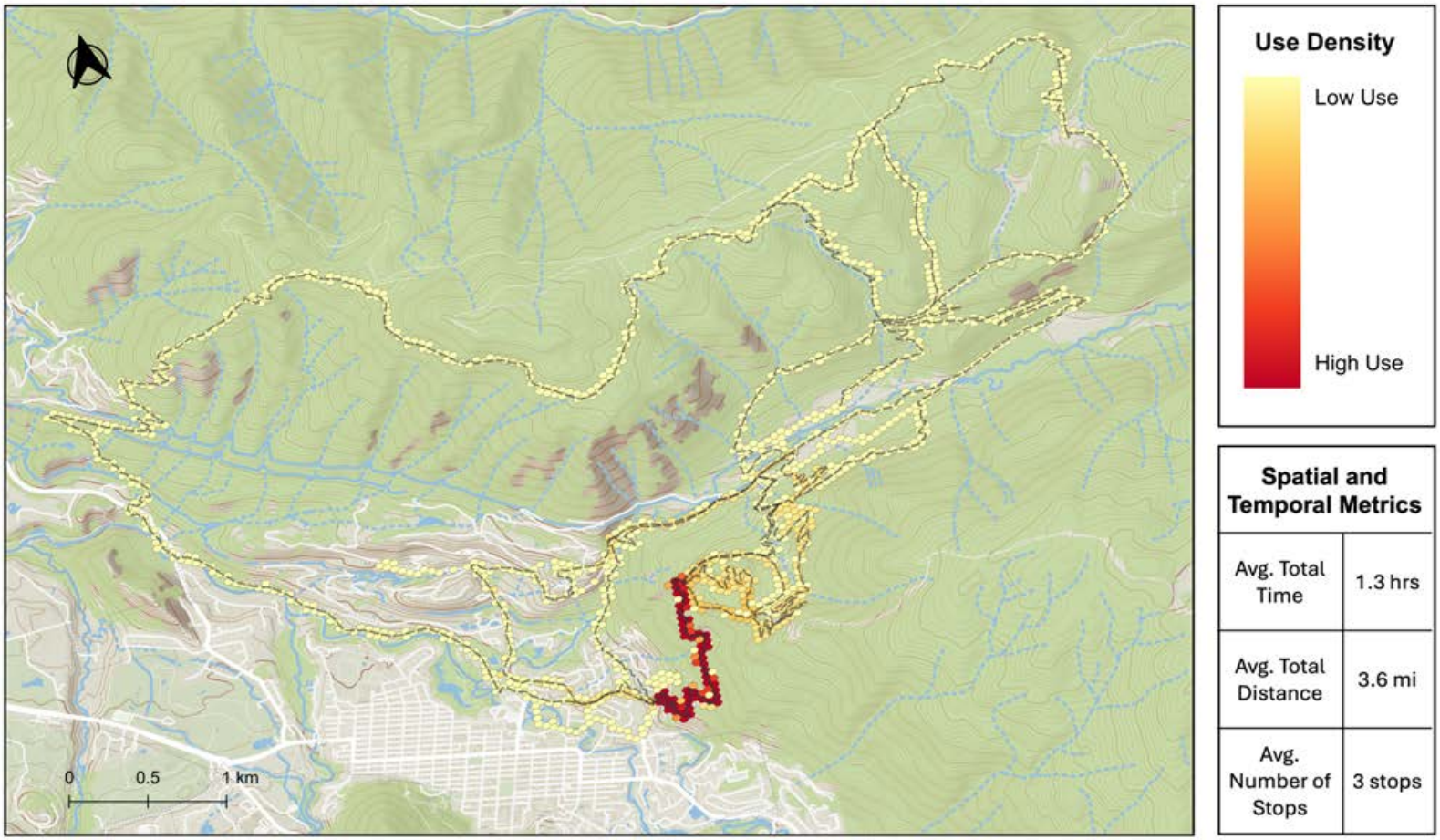


Figure 4.13: Map of the use density and spatial extent of visitors at Smuggler Mountain.

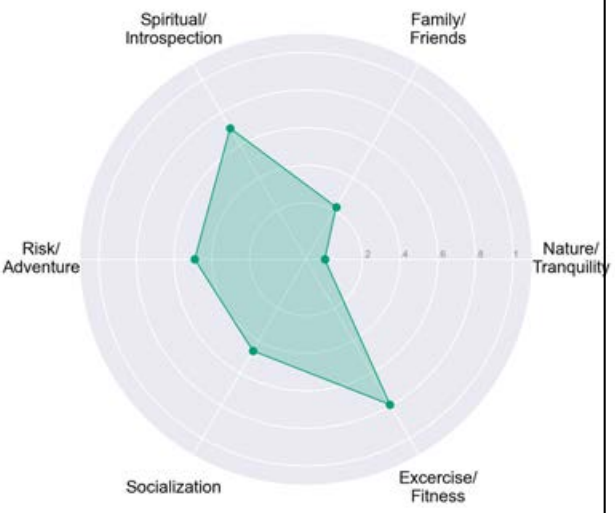
Ute Trail

Urban Proximate

Summary:

- Users highly motivated by socialization and exercise/fitness
- Trail users highest in midmorning, vehicle use steady throughout day
- 87% of visitors are returning users
- 45% of users are primary residents
- 51% of visitors arrive by walking; 38% arrive via personal vehicle
- See Appendix A for additional figures and details

Motivation Polar Plot:

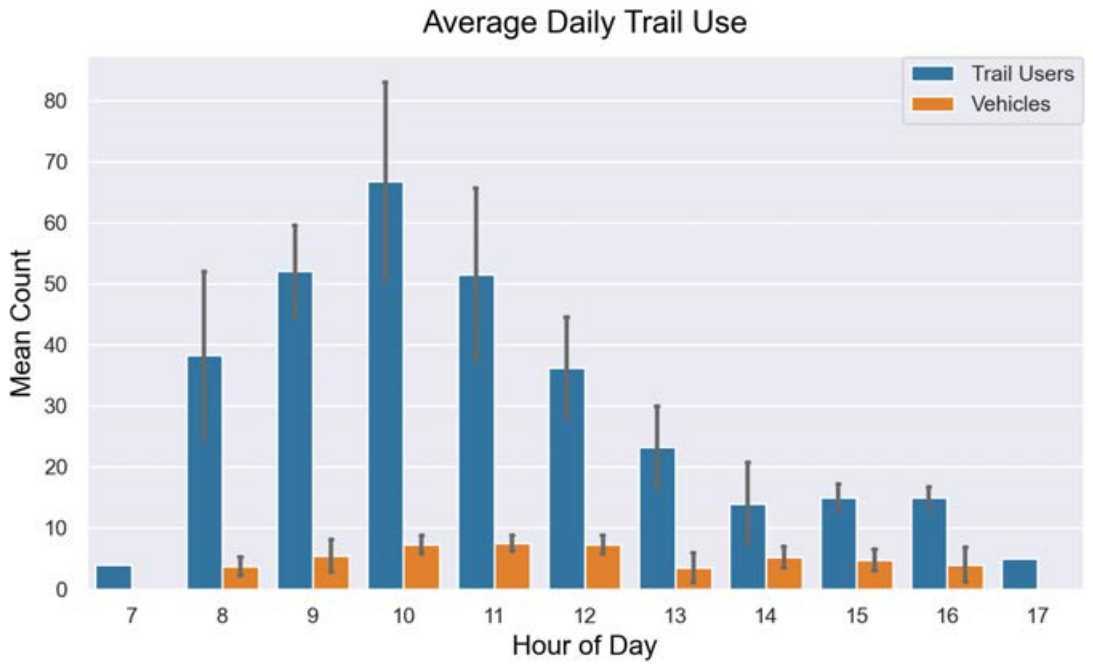


Visitor Demographics:

81%	White
9%	Hispanic/Latinx
3%	Asian
3%	Don't Know
1%	Black/African American
1%	Middle Eastern/N. African
1%	Hawaiian/Pacific Islander
1%	Self Describe

Activity Type:

94%	Walking/Hiking
2%	Biking
1%	Dog Walking
1%	Photography
1%	Running



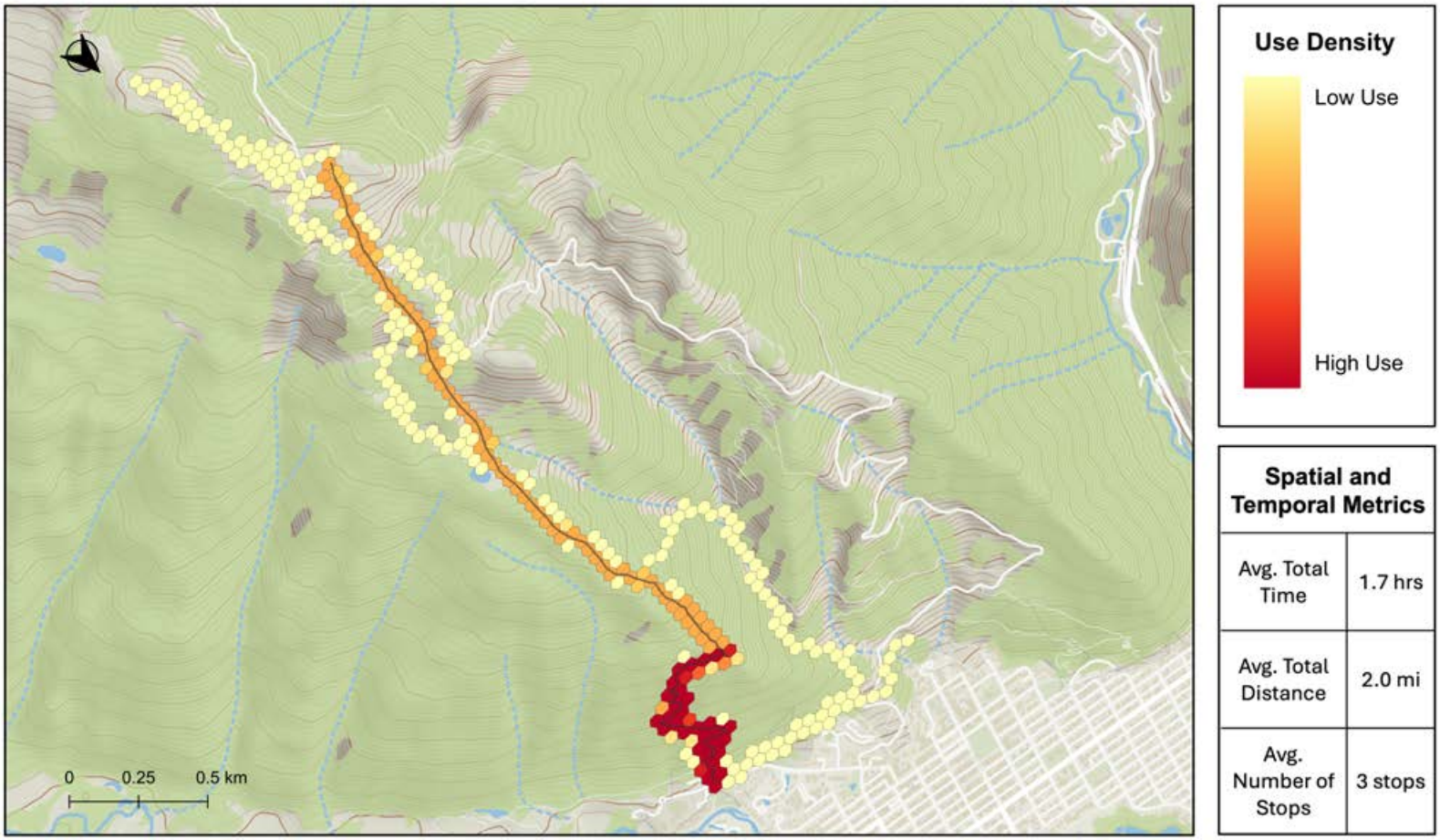


Figure 4.14: Map of the use density and spatial extent of visitors at Ute Trail.

5

Summary

The findings from this study illustrate the diversity of visitor experiences, motivations, and spatial use patterns present at recreation areas in the Roaring Fork Valley. These findings also illuminate the differences in visitor site condition evaluations, crowding perceptions, and coping strategies employed across site types. A list of the key findings from this two year study are found below.

Key Findings

Visitor Survey Findings
Demographics:

- Across recreation sites in the Roaring Fork Valley, visitors have high levels of education and are predominately white (88%); however, there is slightly more ethnic diversity observed at urban proximate sites (i.e. Smuggler Mountain and Ute Trail).

Motivations:

- Visitors motivations can be grouped into six key factors:
  - Nature and Tranquility
  - Family and Friends
  - Risk and Adventure
  - Spiritual and Introspection
  - Socialization
  - Exercise and Fitness
- A primary motivation for visitors at primitive and semi-primitive sites is risk/adventure, and primary motivations for visitors at concentrated and urban proximate sites are socialization and exercise/fitness. The secondary motivations at each site type illustrate the diversity of experiences desired along the gradient of sites.

Site Evaluations/Crowding:

- Visitors to primitive and semi-primitive sites are more sensitive to crowding, but indicate satisfaction with existing site amenities and facilities whereas visitors to concentrated and urban proximate sites are less sensitive to crowding, possibly because of motivations to socialize.
- Conflict is not prevalent across sites or at any one particular site; additional studies could be performed to assess conflict in more detail at multi-use sites.

Coping Strategies:

- Visitors to all site types indicate modifying the time and/or day of their visit to avoid crowds; additionally, visitors to primitive and semi-primitive sites avoid crowds by changing the location and time of year that they elect to visit a recreation area.

Spatial and Temporal Findings
Day Use:

- On average, day-use visitors to primitive and semi-primitive sites recreate longer and travel further distances than visitors to concentrated and urban proximate sites.
- There is variation in spatial use across sites and site types, some patterns indicate dispersed off-trail use and increased concentration of use around lake attractions.

Overnight Use:

- Additional studies could be performed to fully assess the extent and variation of the spatial use patterns of overnight users in Wilderness areas.

From this report, managers have gleaned insight on the visitor experience across the spectrum of sites in the study area. This comprehensive examination of visitor motivations and spatial behavior, and crowding perceptions and coping behaviors will ground sustainable management strategies in the real world experiences of the people who use public lands.

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A

Appendix A: Supplementary Figures

Appendix A: Supplementary Figures – this appendix contains additional figures derived from analysis of visitor surveys responses. Results first organized by figure type, then by ROS type and further organized by site.

A.1. Visitor Motivations

Table A.1 outlines the motivation factor scores at each site in the study area.

Table A.1: This table displays the motivation factor scores for each site in the study area. A factor score of 1 indicates a highly salient motivation and a score of 0 indicates visitors do not report that motivation.

Site Type	Site	Motivation Factors					
		Nature/ Tranquility	Family/ Friends	Spiritual/ Introspection	Risk/ Adventure	Socialization	Exercise/ Fitness
Primitive	Avalanche Creek	0.889	0.714	0.000	0.329	0.000	0.093
	Capitol Creek	0.928	0.227	0.599	0.999	0.409	0.514
	Snowmass Lake	1.000	0.178	0.235	1.000	0.862	0.433
Semi-Primitive	American Lake	0.805	0.569	0.462	0.443	0.490	0.813
	Lower Lost Man	0.930	0.459	0.193	0.214	0.158	0.430
	Thomas Lakes	0.826	0.380	1.000	0.357	0.352	0.647
	Upper Lost Man	0.807	0.756	0.836	0.694	0.303	0.336
Concentrated	Arbaney Kittle	0.574	0.000	0.657	0.000	0.374	1.000
	Glassier Open Space	0.467	0.219	0.659	0.553	1.000	0.779
	South Rim Trail	0.675	0.501	0.409	0.299	0.694	0.707
	Tom Blake Trailhead	0.357	0.553	0.257	0.416	0.519	0.516
Urban Proximate	Grottos Day Use Area	0.601	1.000	0.355	0.586	0.479	0.000
	Smuggler	0.067	0.366	0.081	0.002	0.729	0.748
	Ute Trail	0.000	0.220	0.706	0.491	0.463	0.793

A.2. Experience Use History

The figures that follow detail the proportion of first time visitors at each site, as well as the use history of each site over the last 5 and 10 years.

A.2.1 Primitive

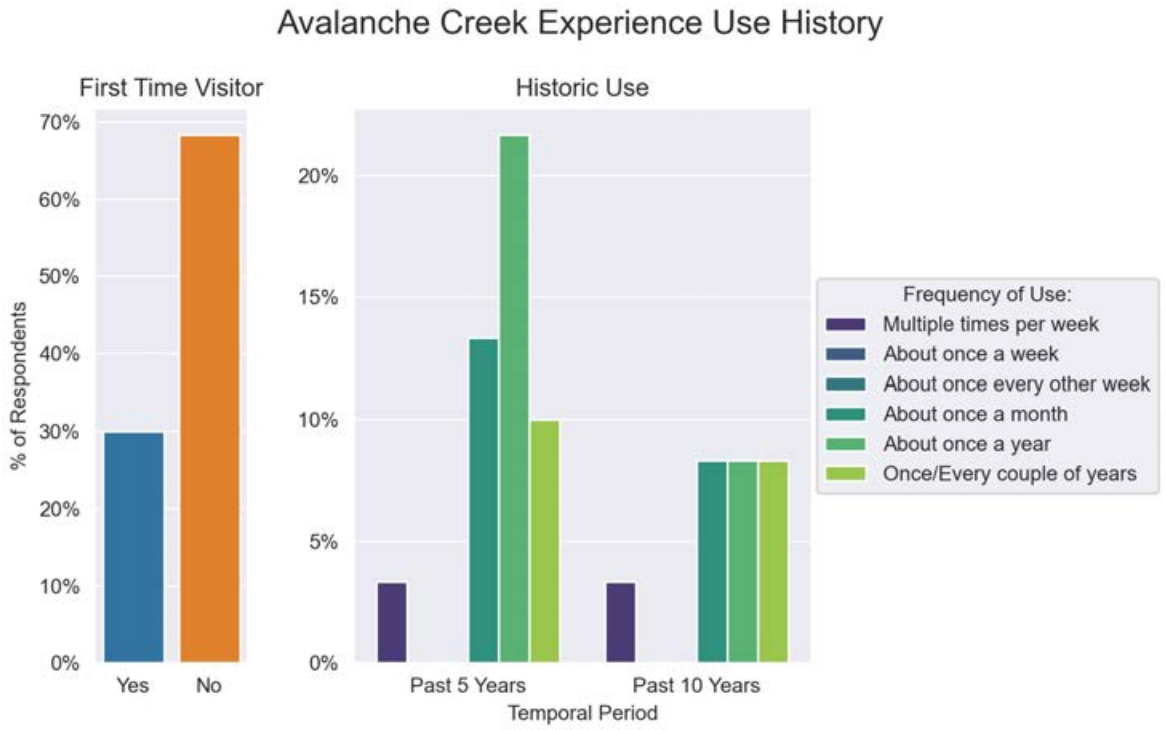

Figure A.1: Experience use history at Avalanche Creek.

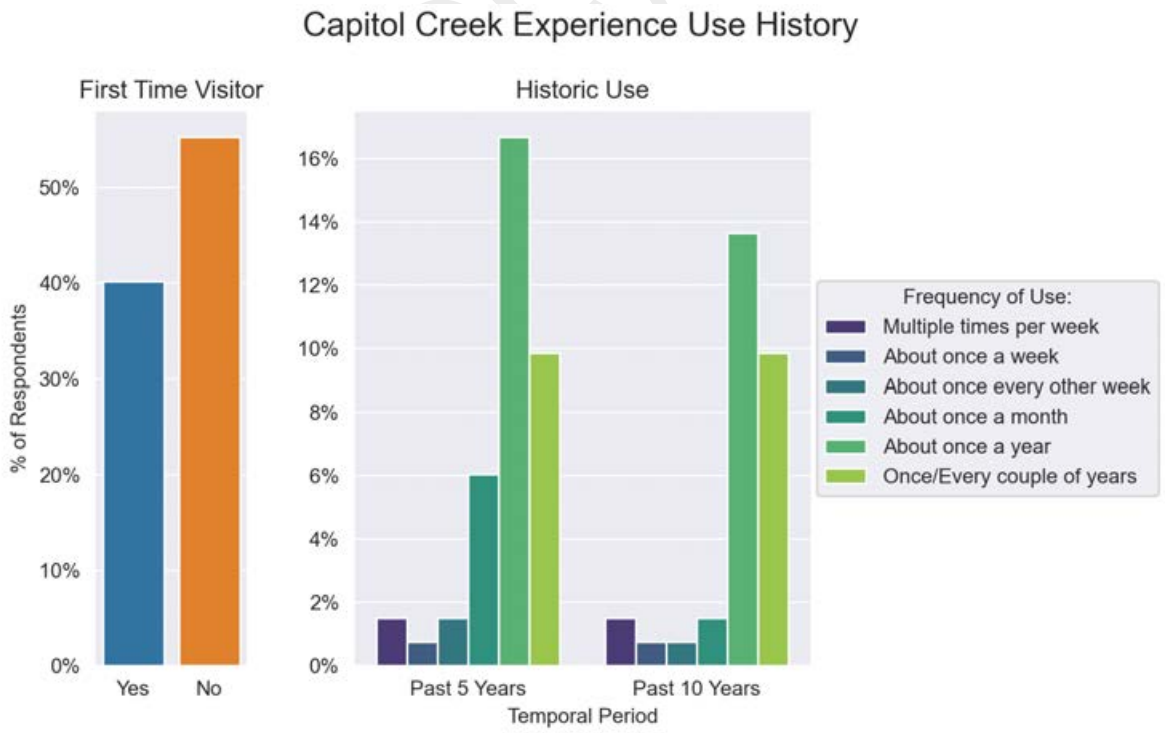

Figure A.2: Experience use history at Capitol Creek.

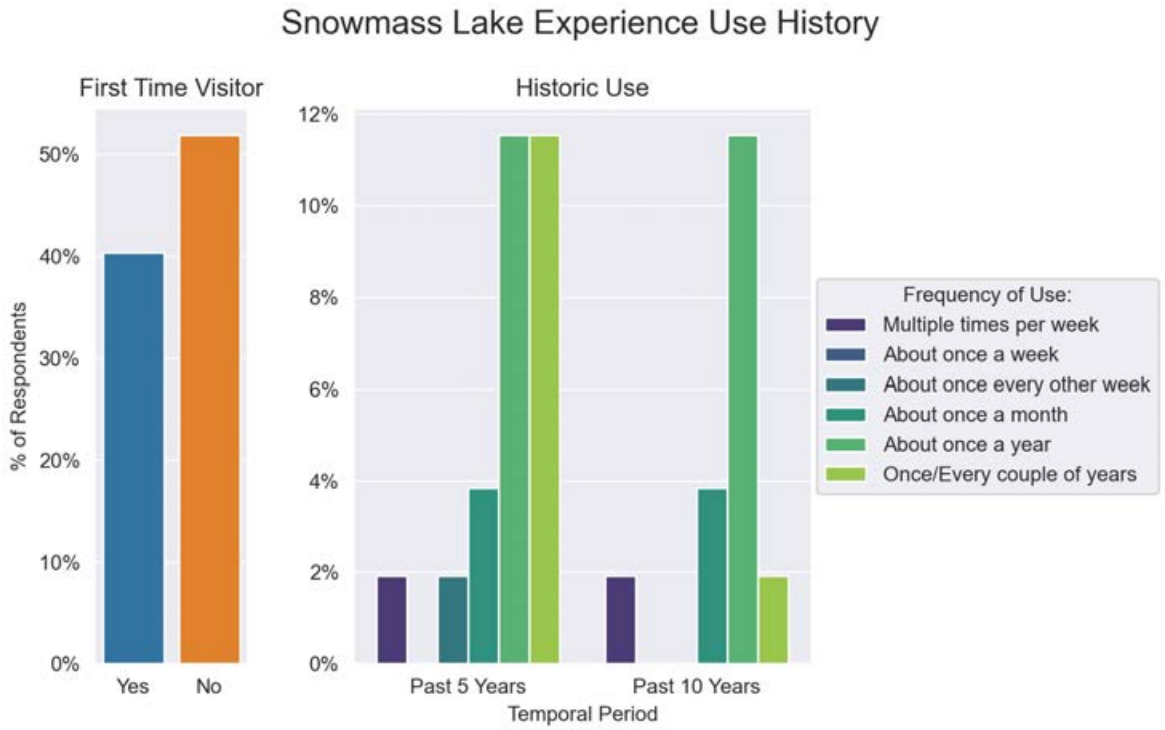

Figure A.3: Experience use history at Snowmass Lake.

A.2.2 Semi-Primitive

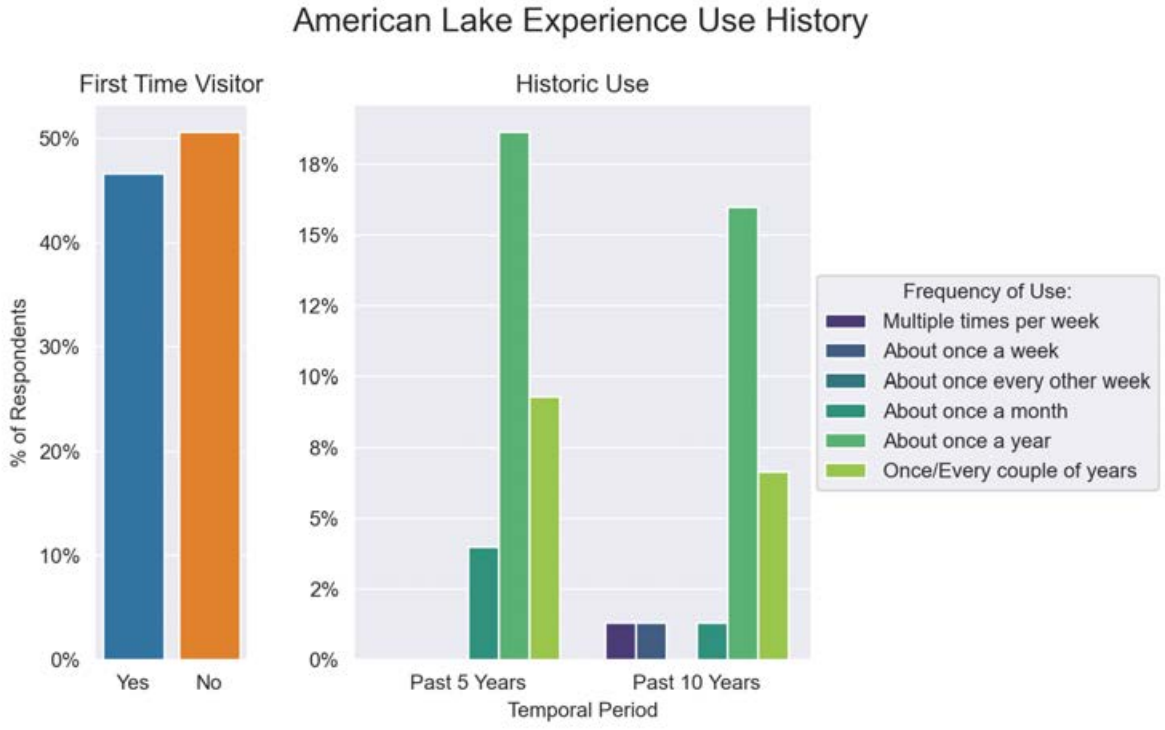

Figure A.4: Experience use history at American Lake.

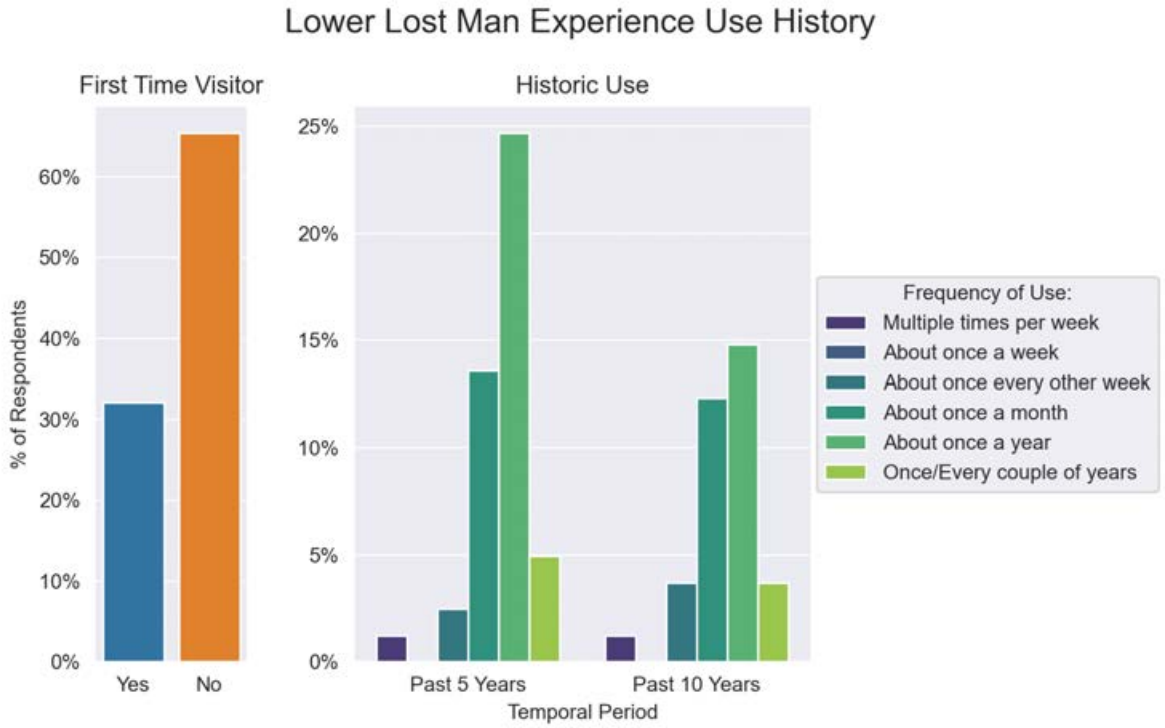

Figure A.5: Experience use history at Lower Lost Man.

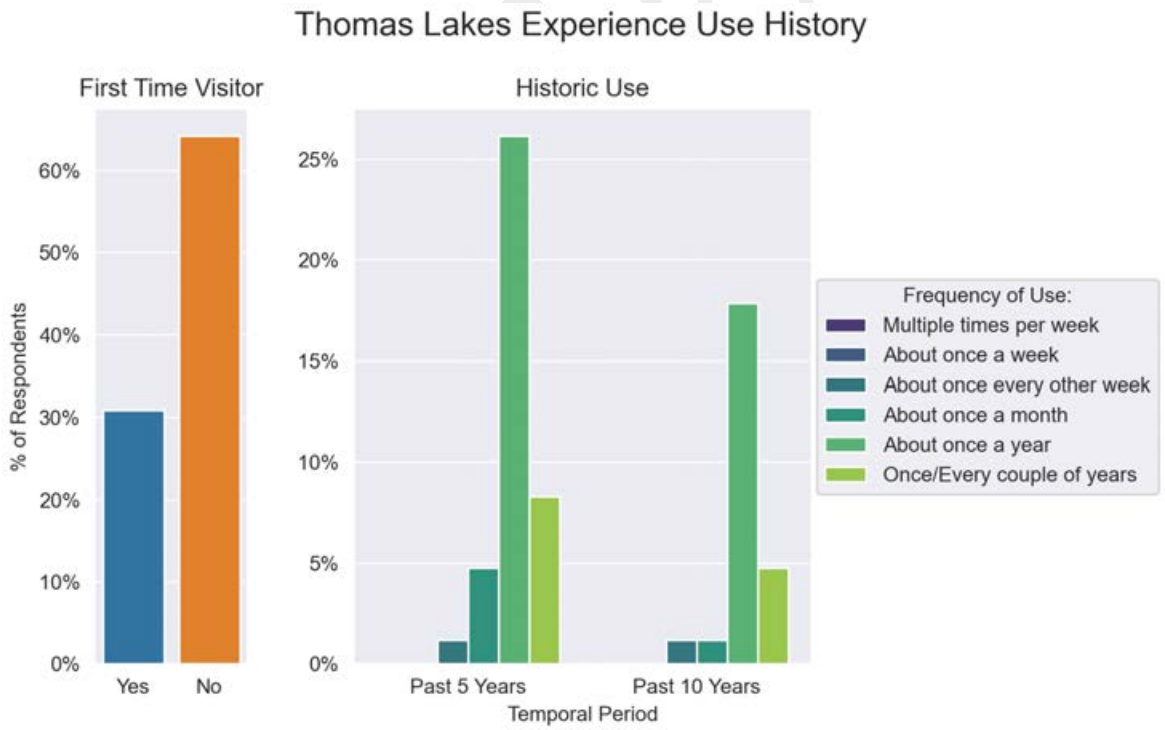

Figure A.6: Experience use history at Thomas Lakes.

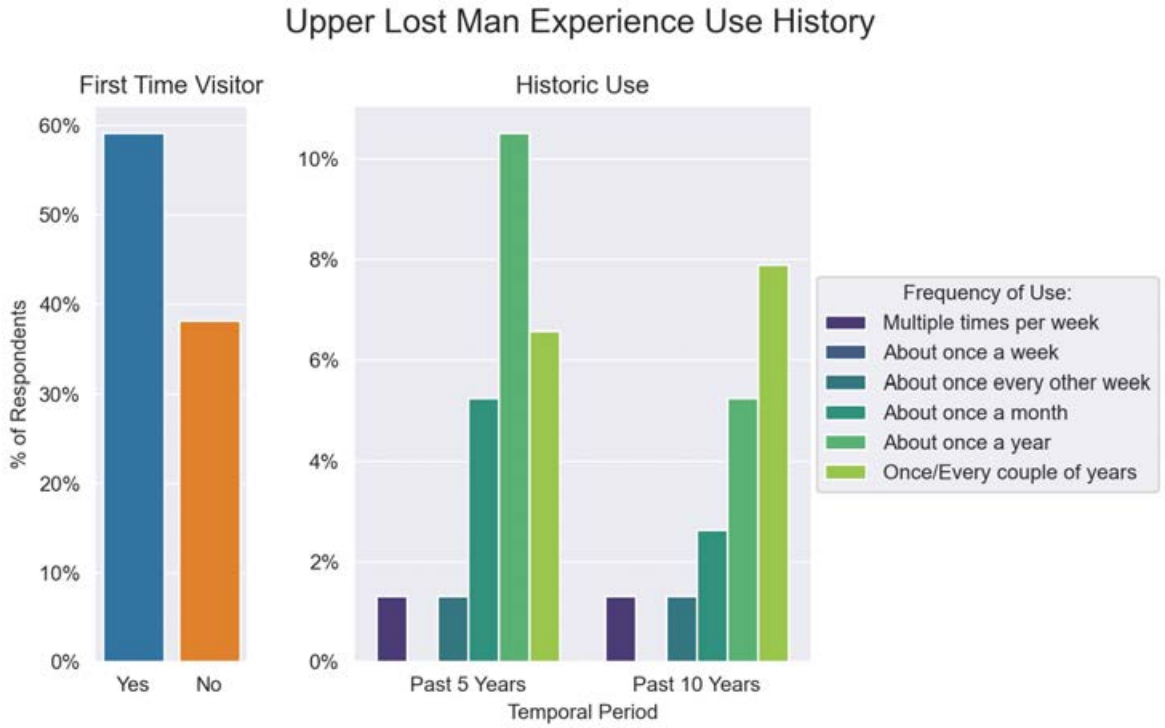

Figure A.7: Experience use history at Upper Lost Man.

A.2.3 Concentrated

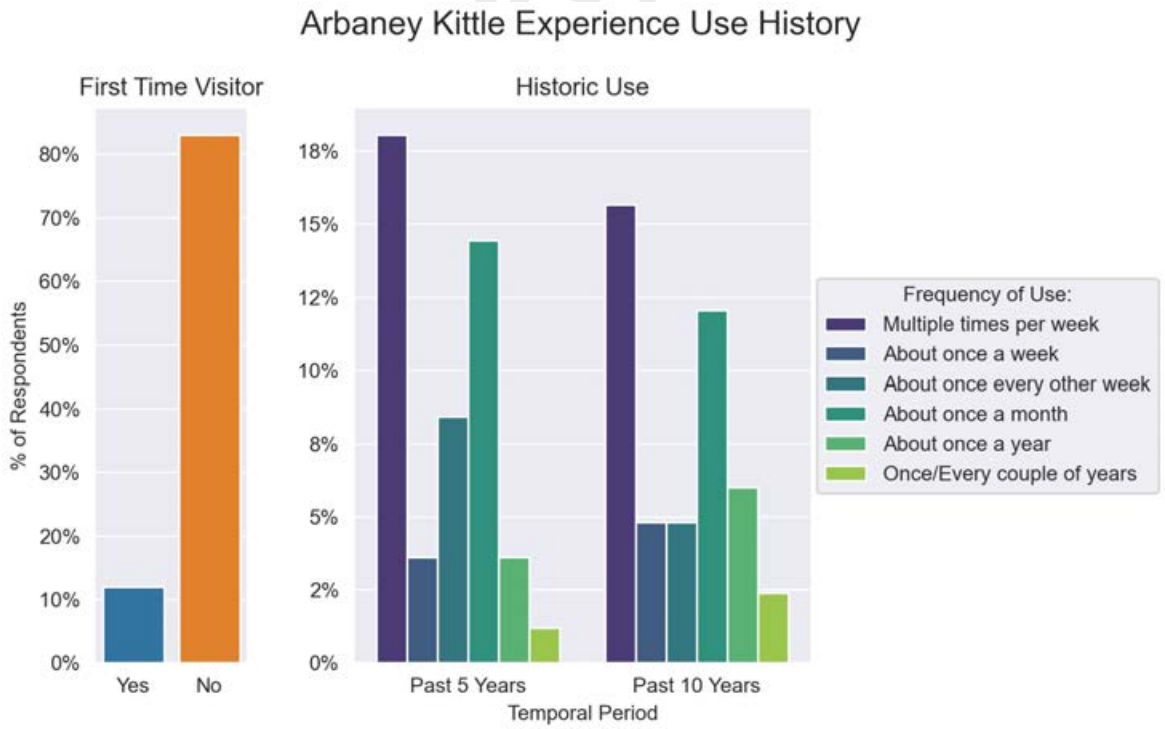

Figure A.8: Experience use history at Arbaney Kittle.

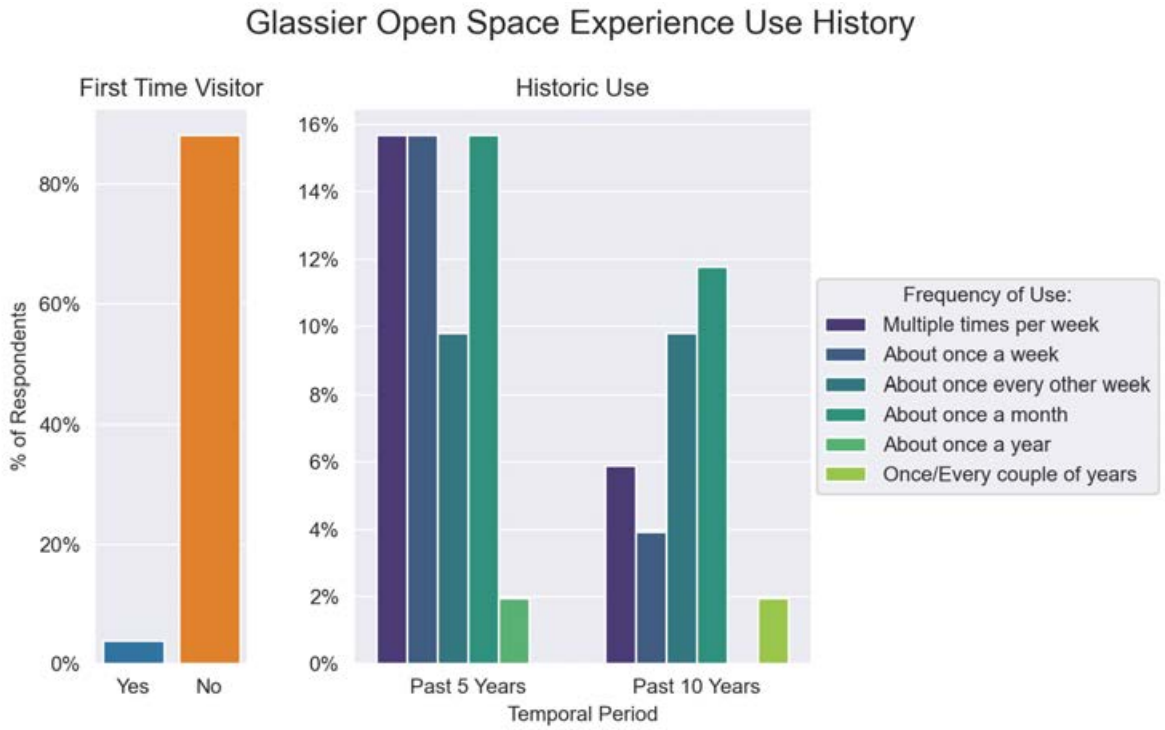

Figure A.9: Experience use history at Glassier Open Space.

Figure A.10: Experience use history at South Rim Trail.

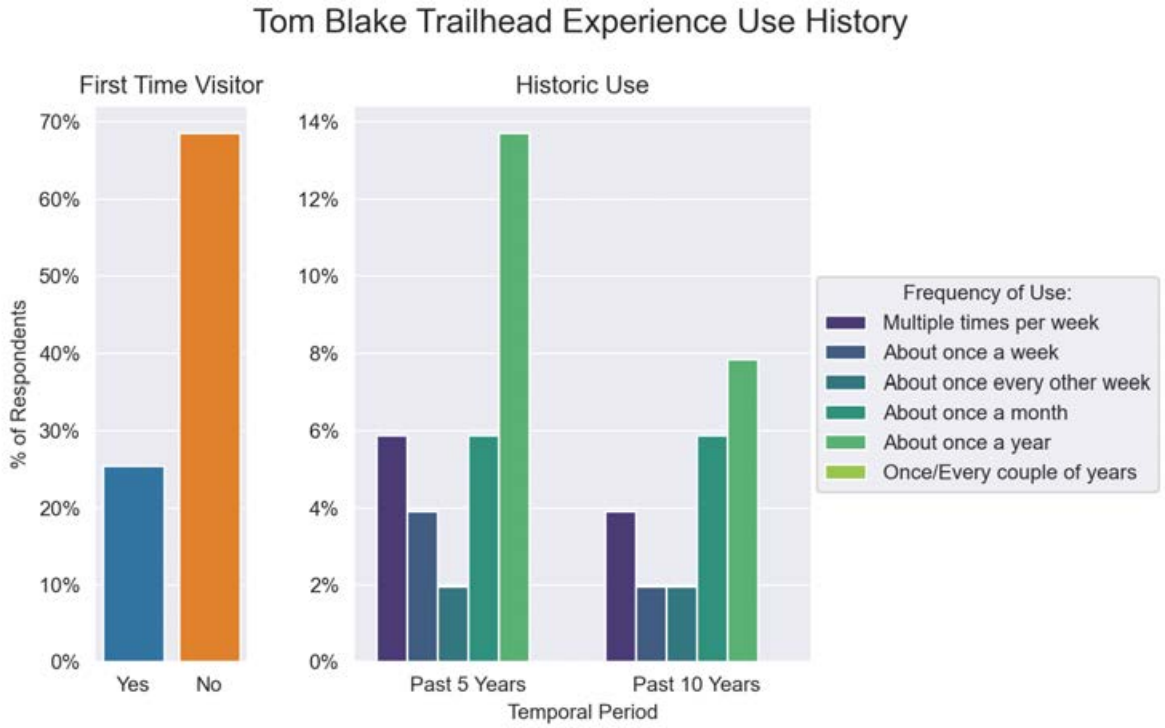

Figure A.11: Experience use history at Tom Blake Trail.

A.2.4 Urban Proximate

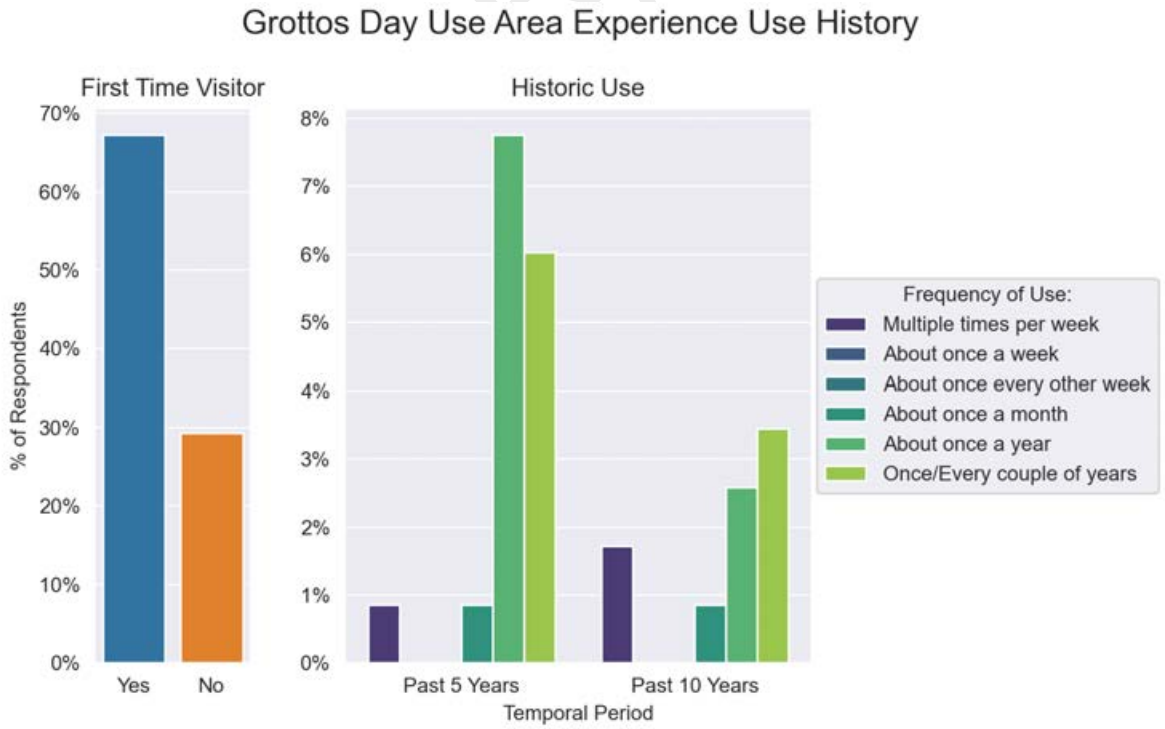

Figure A.12: Experience use history at Grottos Day Use Area.

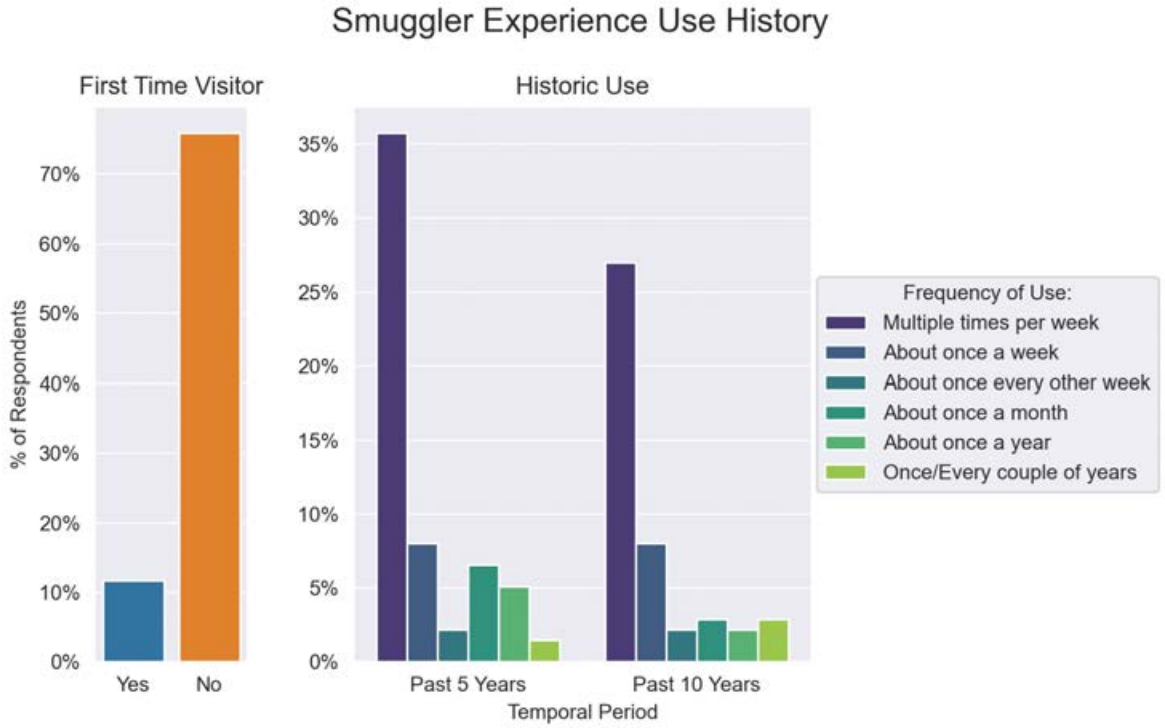

Figure A.13: Experience use history at Smuggler Mountain.

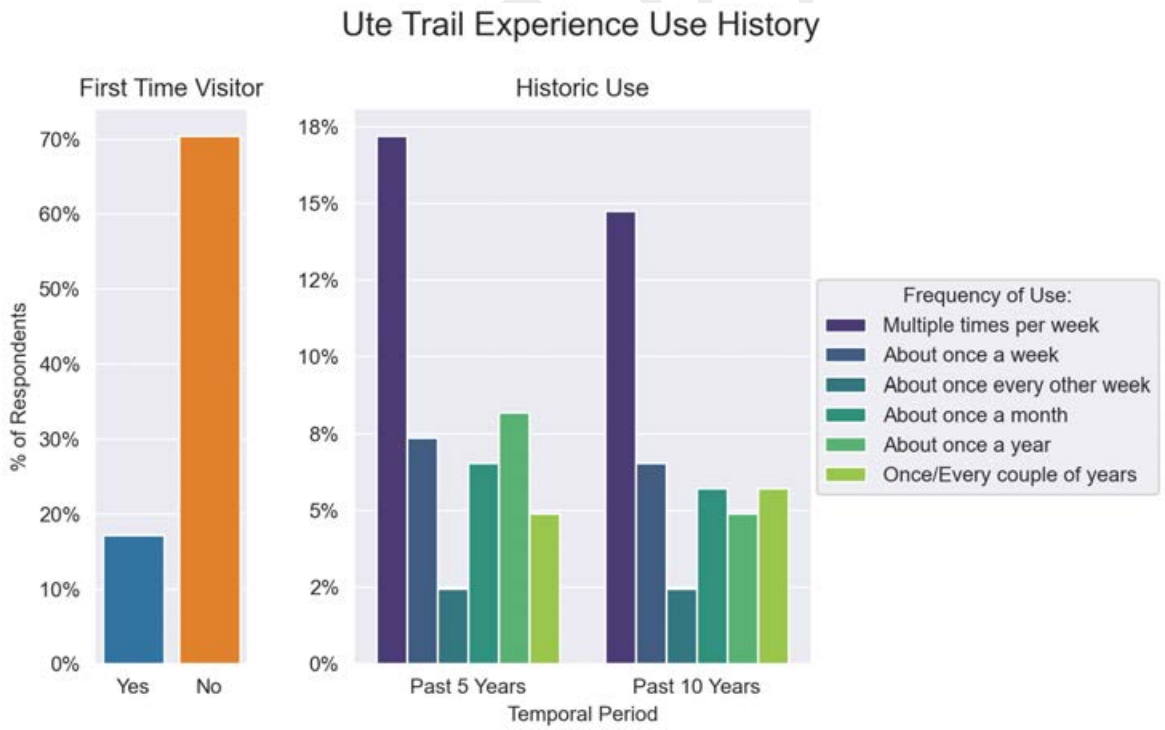

Figure A.14: Experience use history at Ute Trail.

A.3. Information Updates

Across all sites, visitors are primarily obtaining information about the site from previous visits (41%) or from word of mouth (28%). Other sources of information include websites, mobile applications, and social media (Figure A.15). The figures that follow are the details of how visitors obtain information at the individual site level.

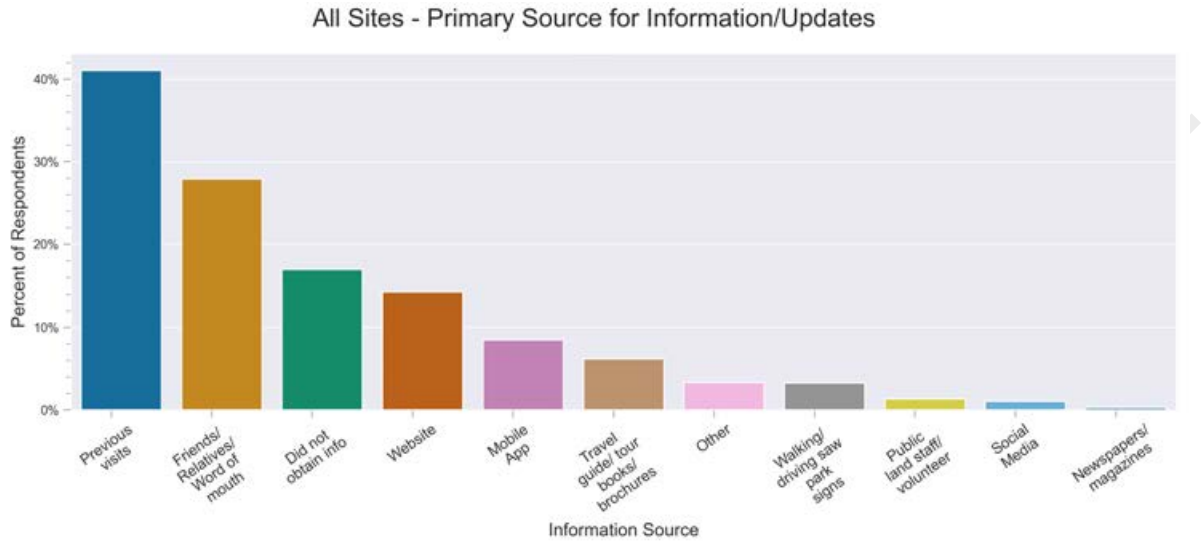

Figure A.15: Visitor information sources

A.3.1 Primitive

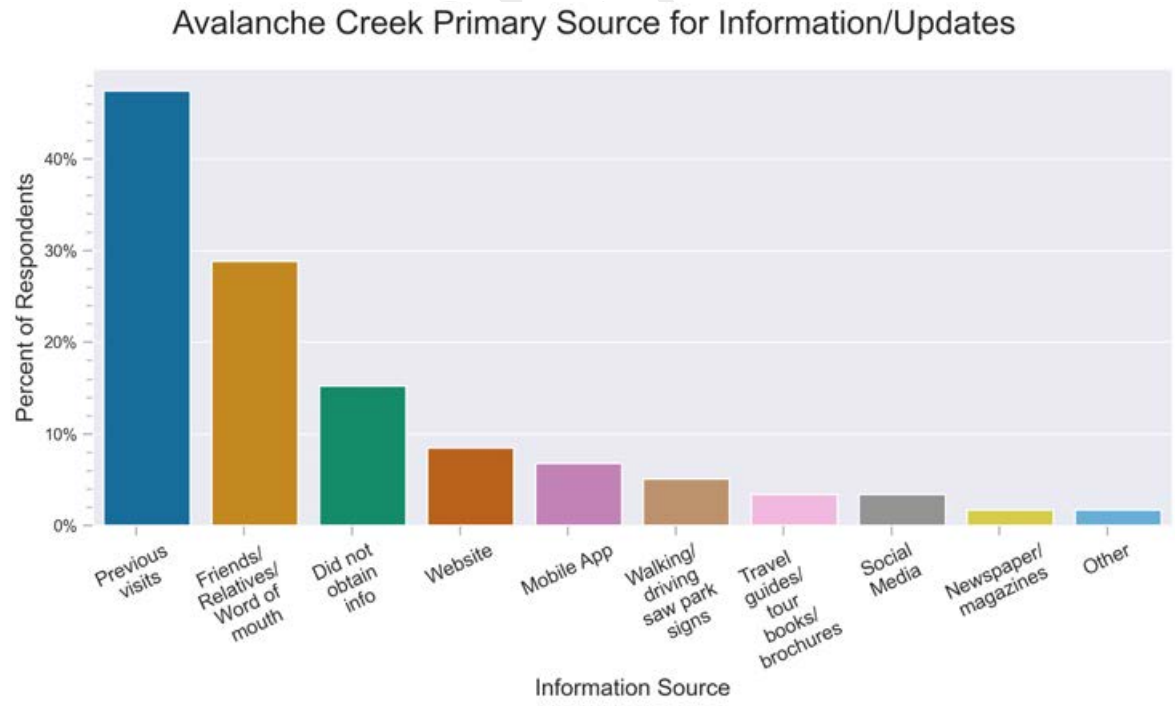

Figure A.16: Visitor information sources at Avalanche Creek.

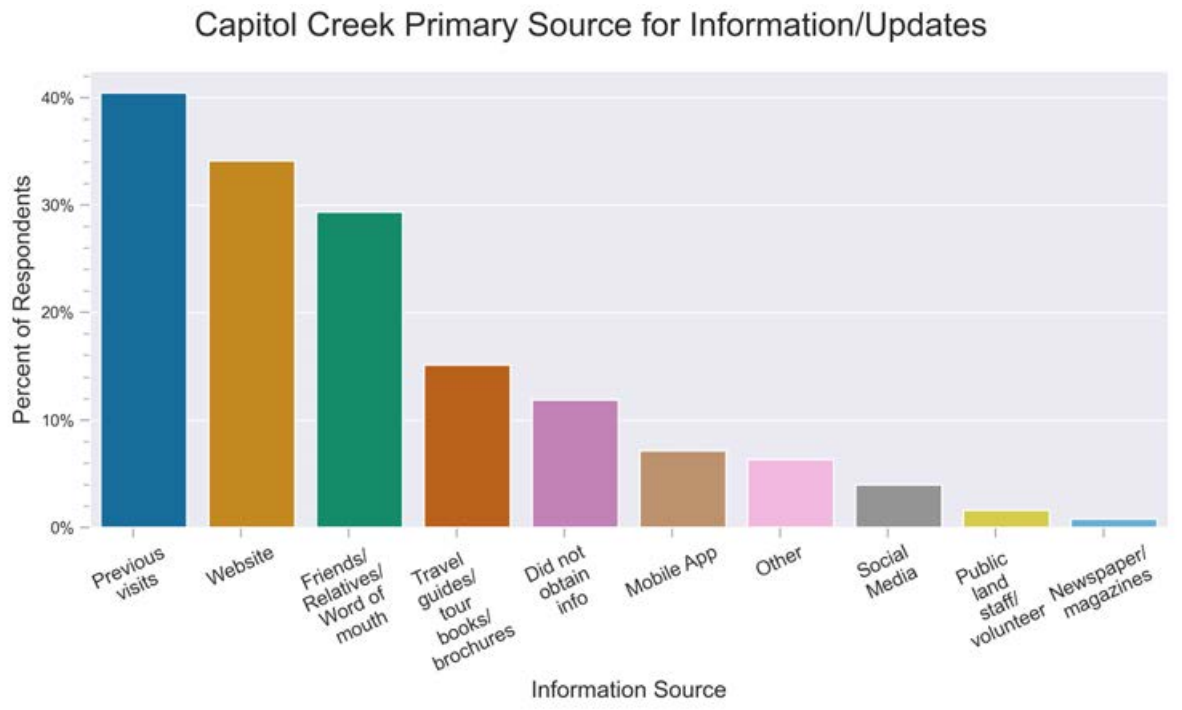

Figure A.17: Visitor information sources at Capitol Creek.

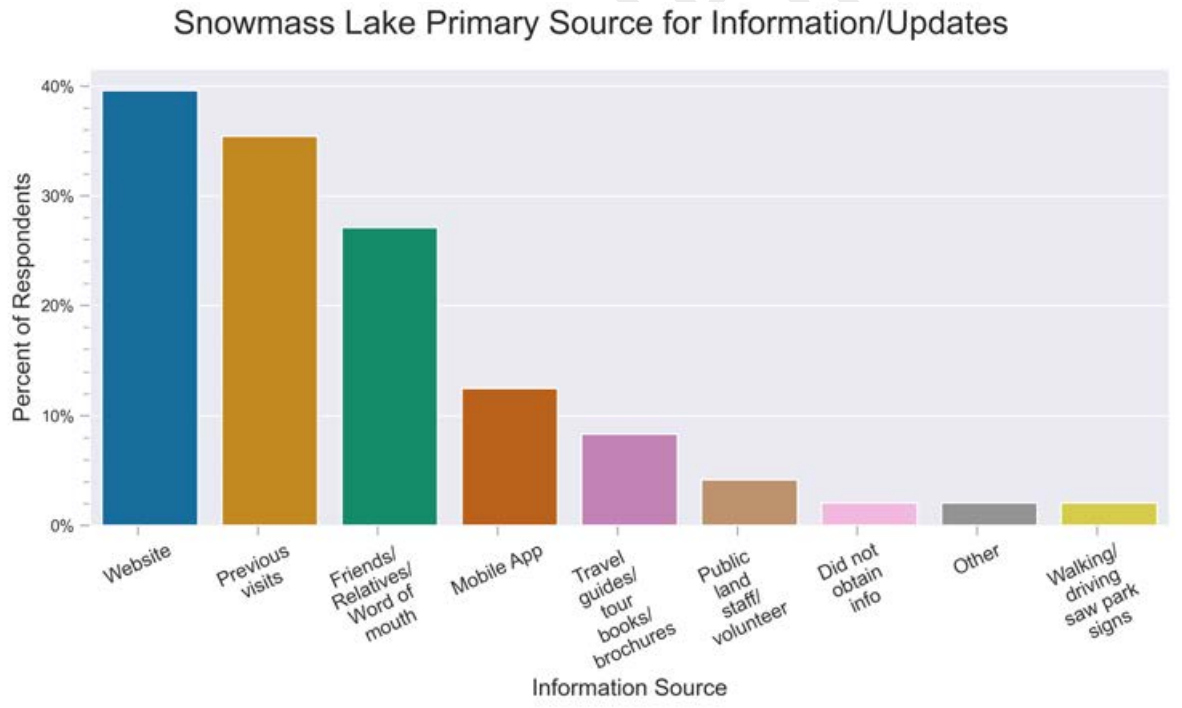

Figure A.18: Visitor information sources at Snowmass Lake.

A.3.2 Semi-Primitive

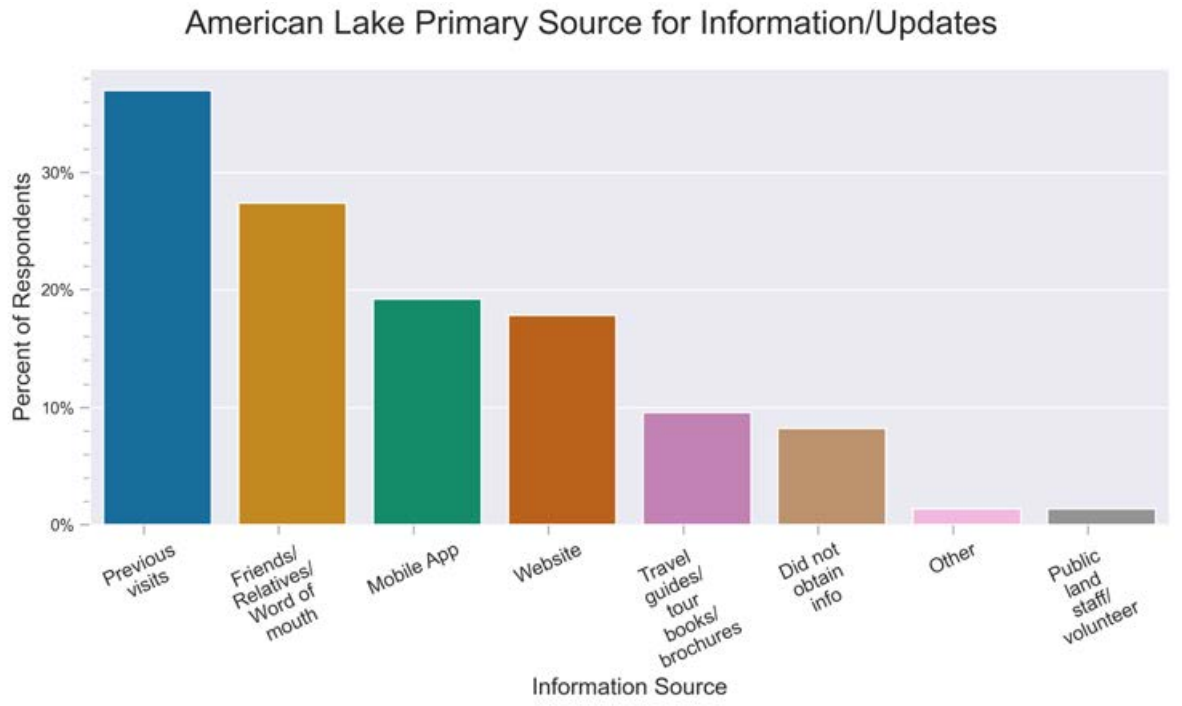

Figure A.19: Visitor information sources at American Lake.

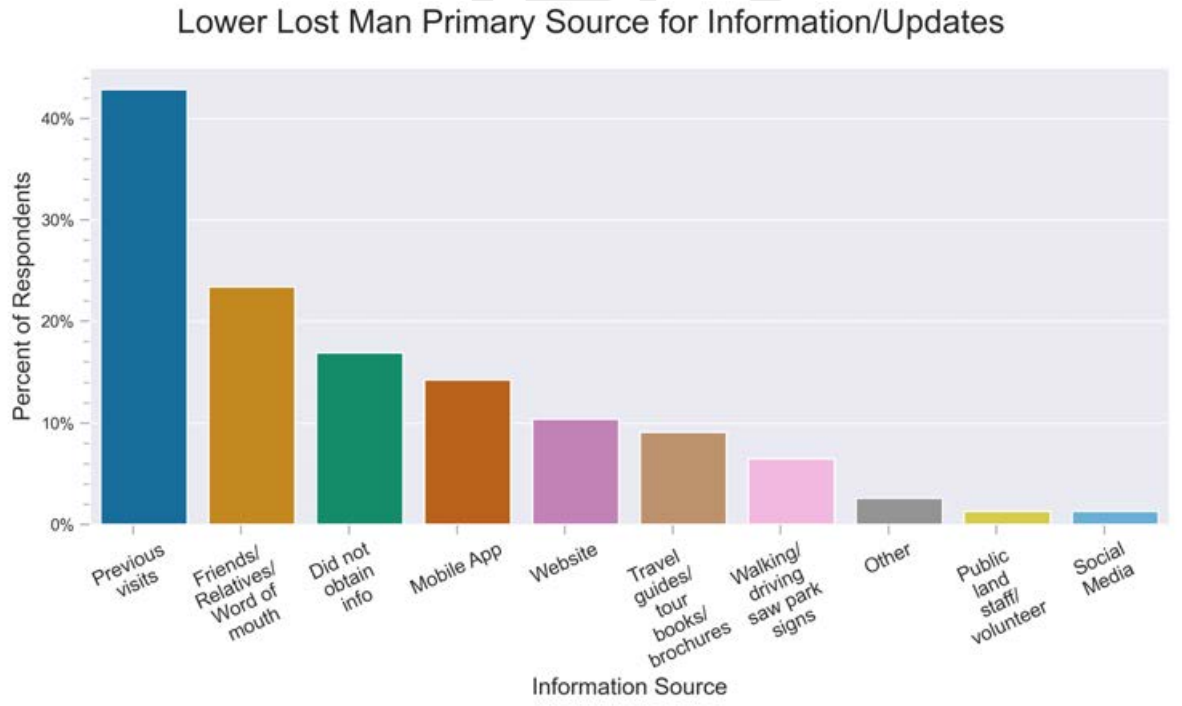

Figure A.20: Visitor information sources at Lower Lost Man Trail.

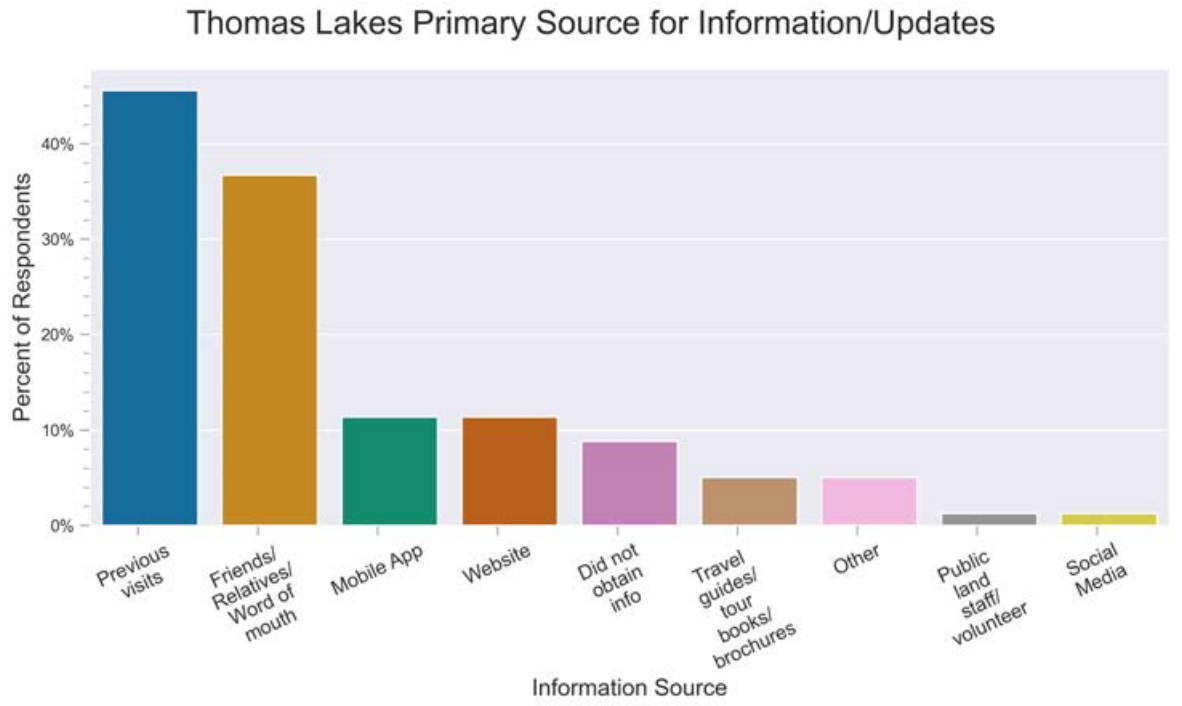

Figure A.21: Visitor information sources at Thomas Lakes.

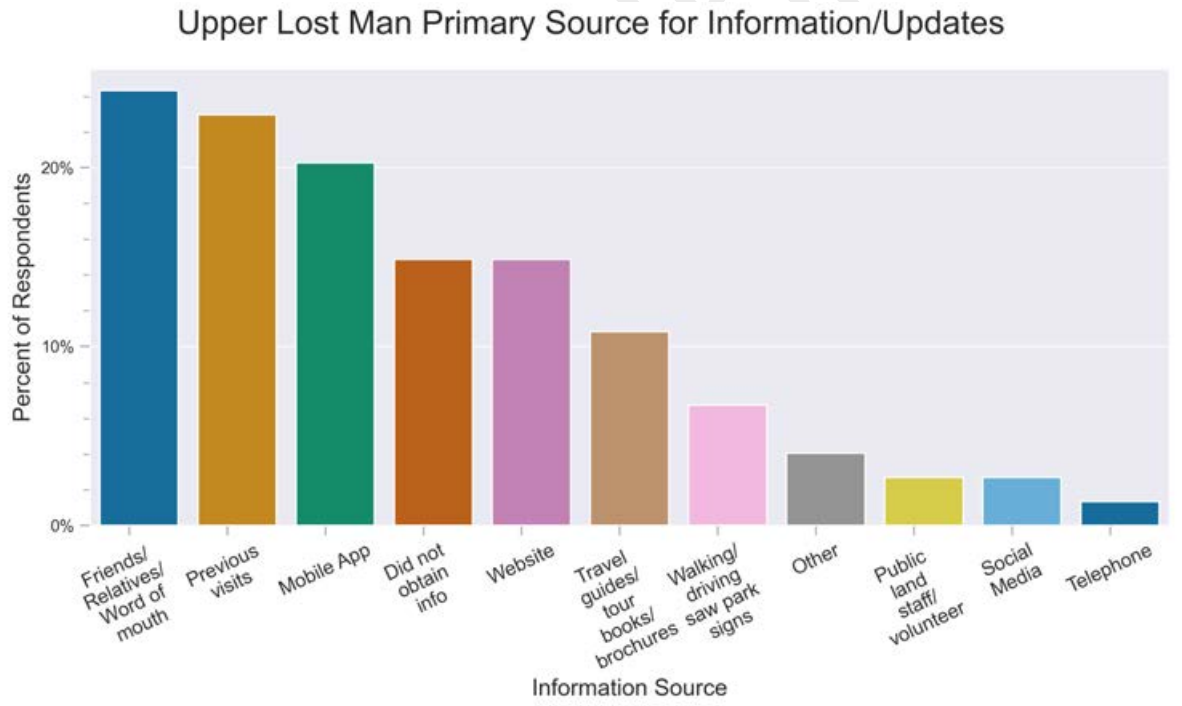

Figure A.22: Visitor information sources at Upper Lost Man Trail.

A.3.3 Concentrated

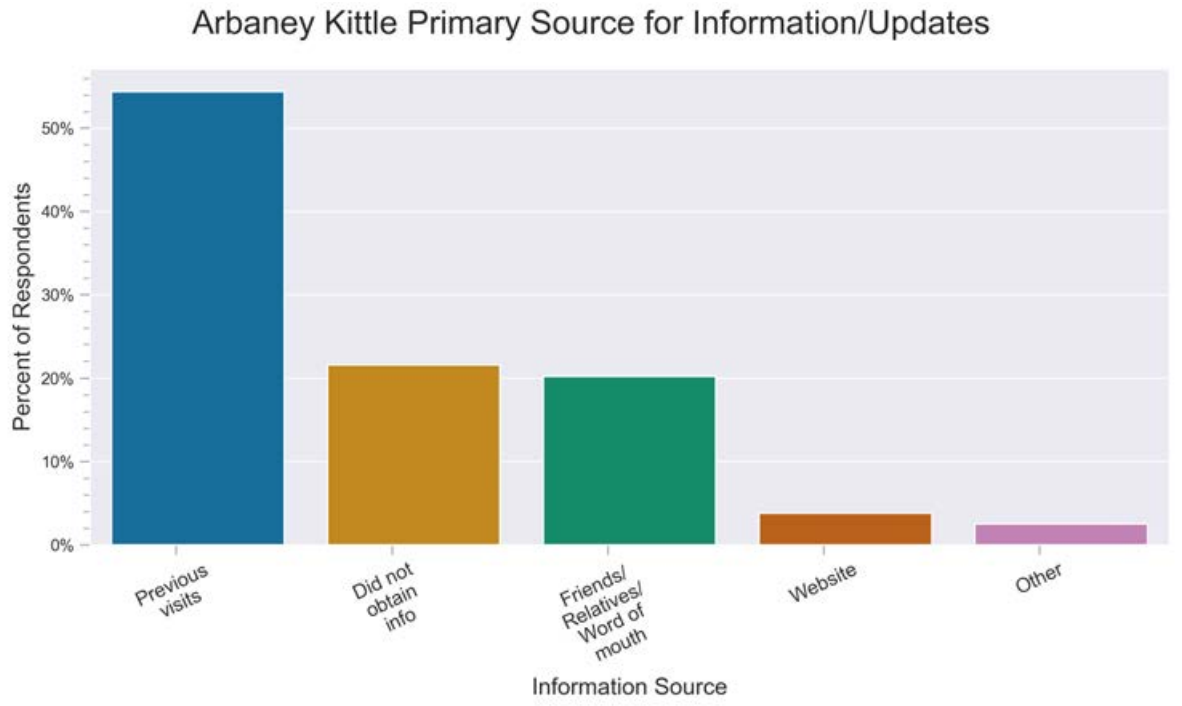

Figure A.23: Visitor information sources at Arbaney Kittle.

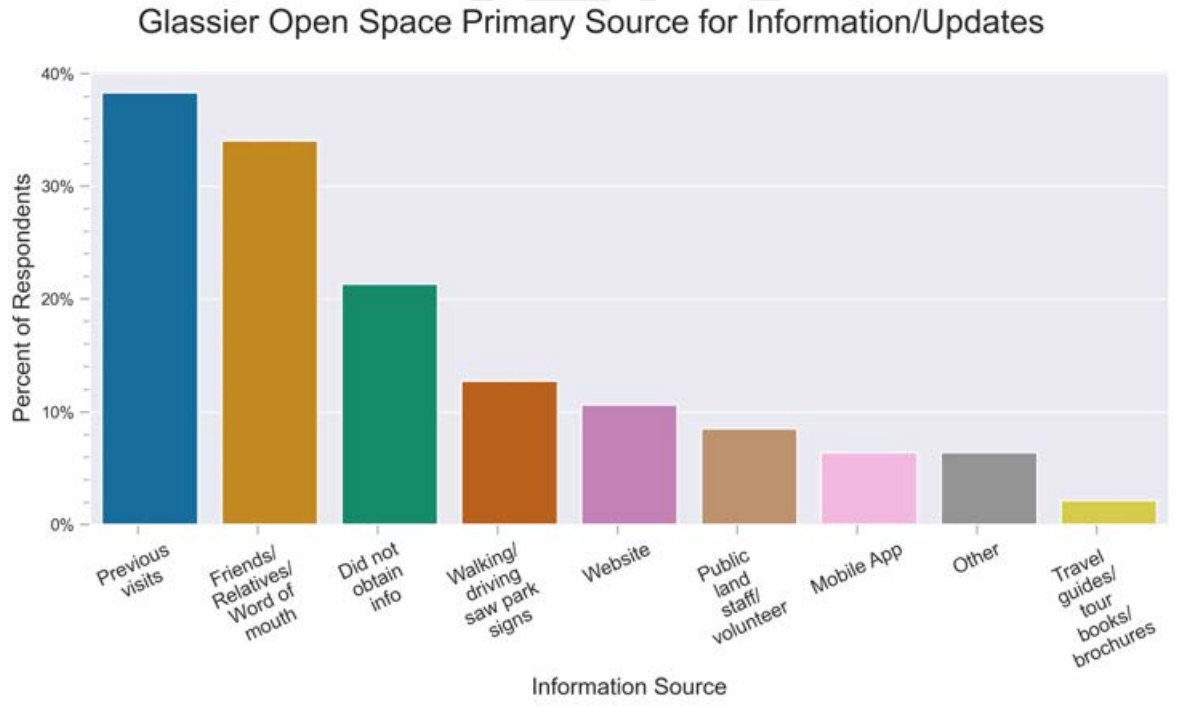

Figure A.24: Visitor information sources at Glassier Open Space.

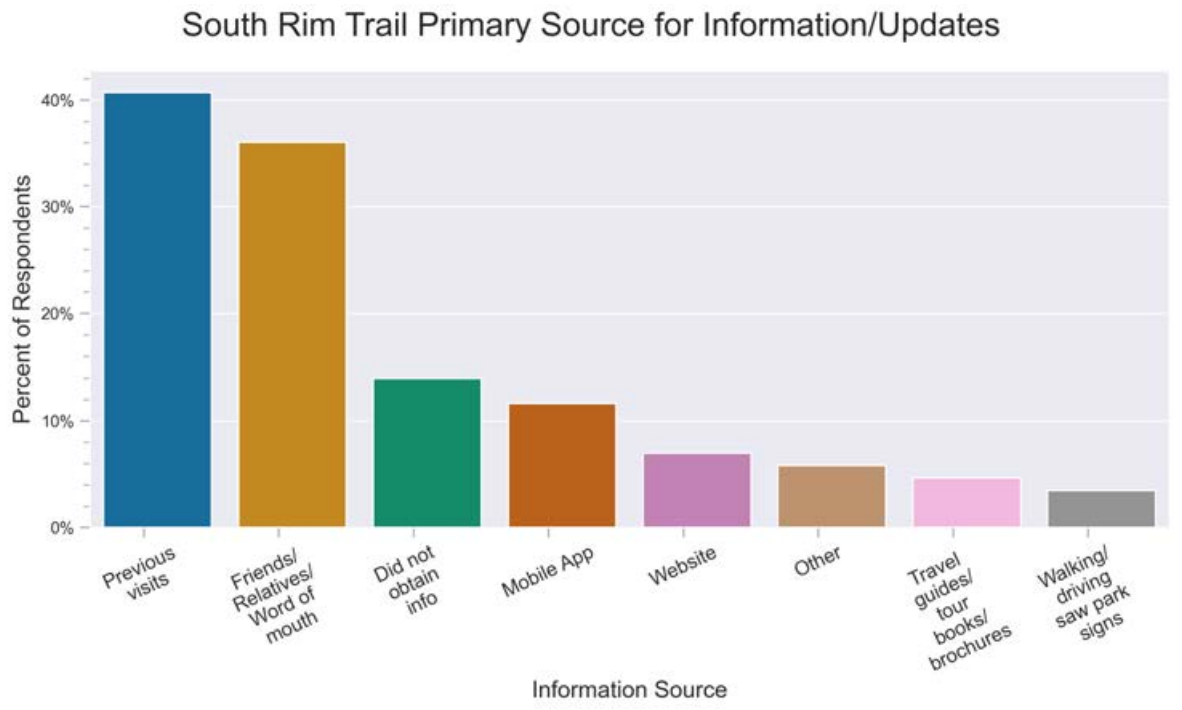

Figure A.25: Visitor information sources at South Rim Trail.

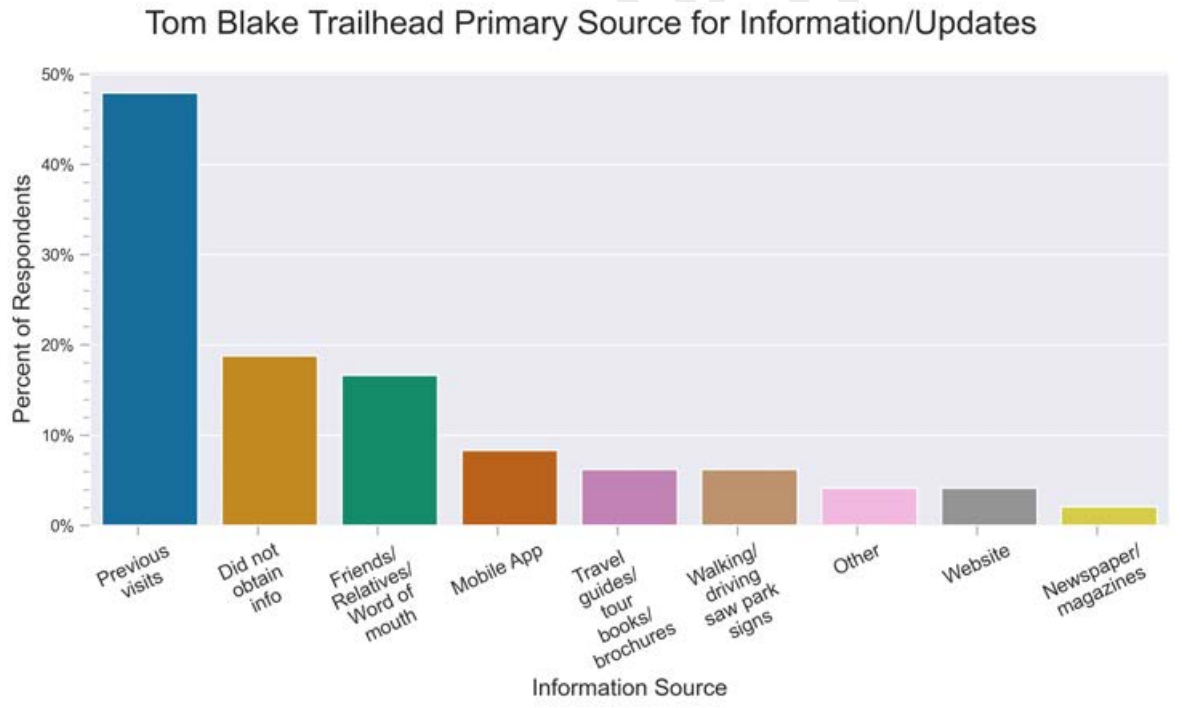

Figure A.26: Visitor information sources at Tom Blake Trail.

A.3.4 Urban Proximate

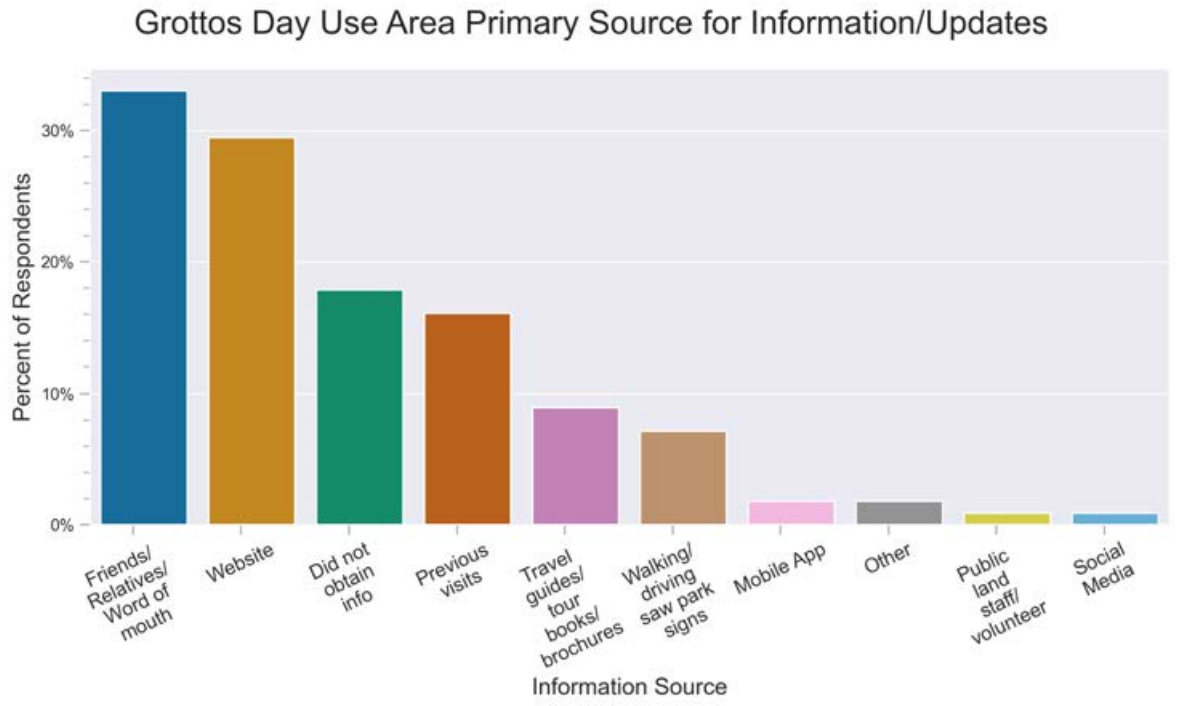

Figure A.27: Visitor information sources at Grottos Day Use Area.

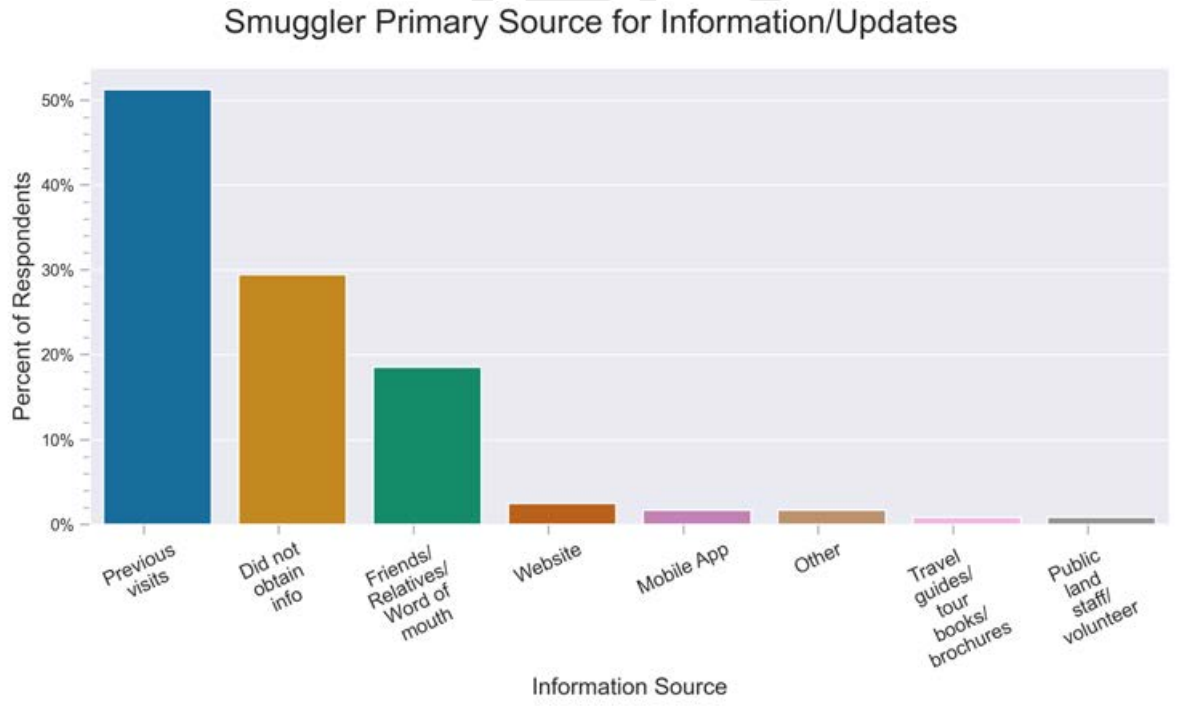

Figure A.28: Visitor information sources at Smuggler Mountain.

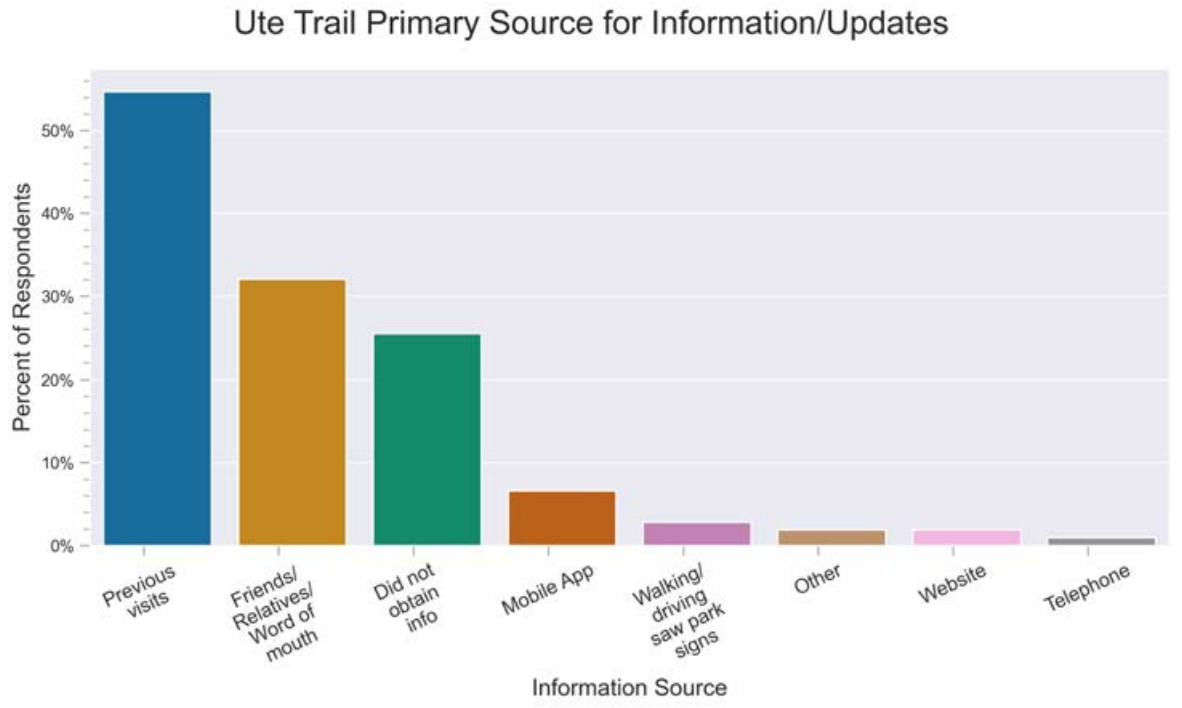

Figure A.29: Visitor information sources at Ute Trail.

A.4. Technology Use

The figures that follow detail the types and frequency of use of various technologies at each site.

A.4.1 Primitive

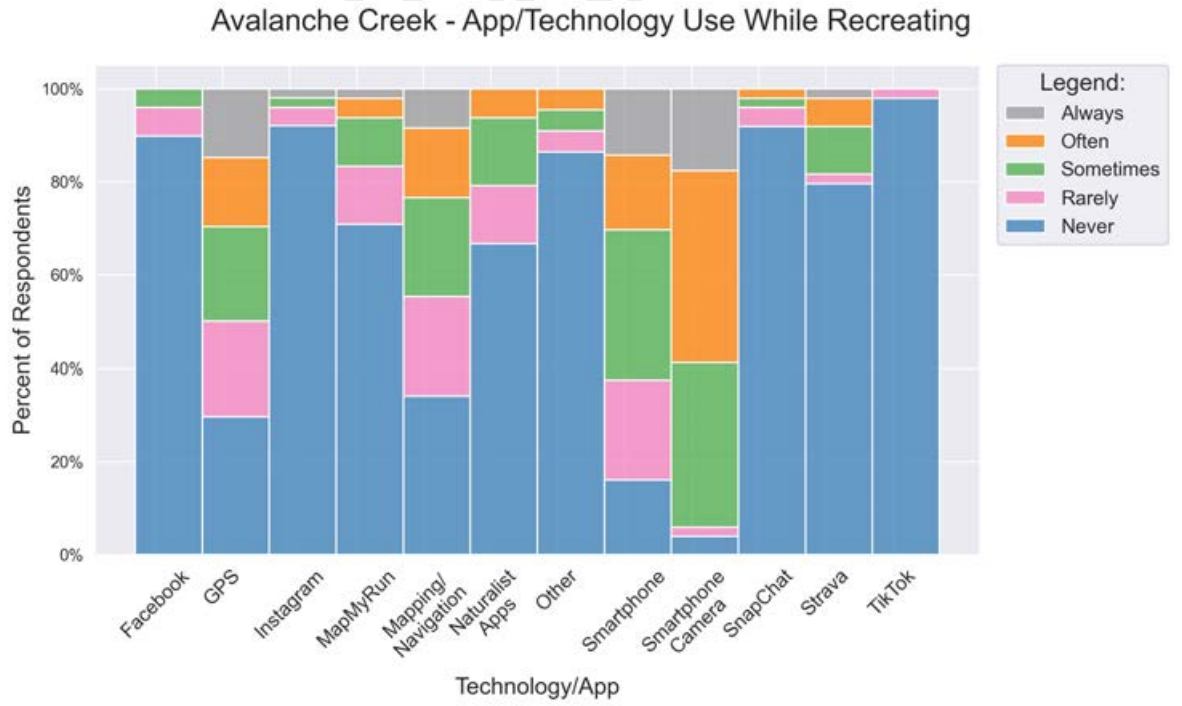

Figure A.30: Visitor technology use at Avalanche Creek.

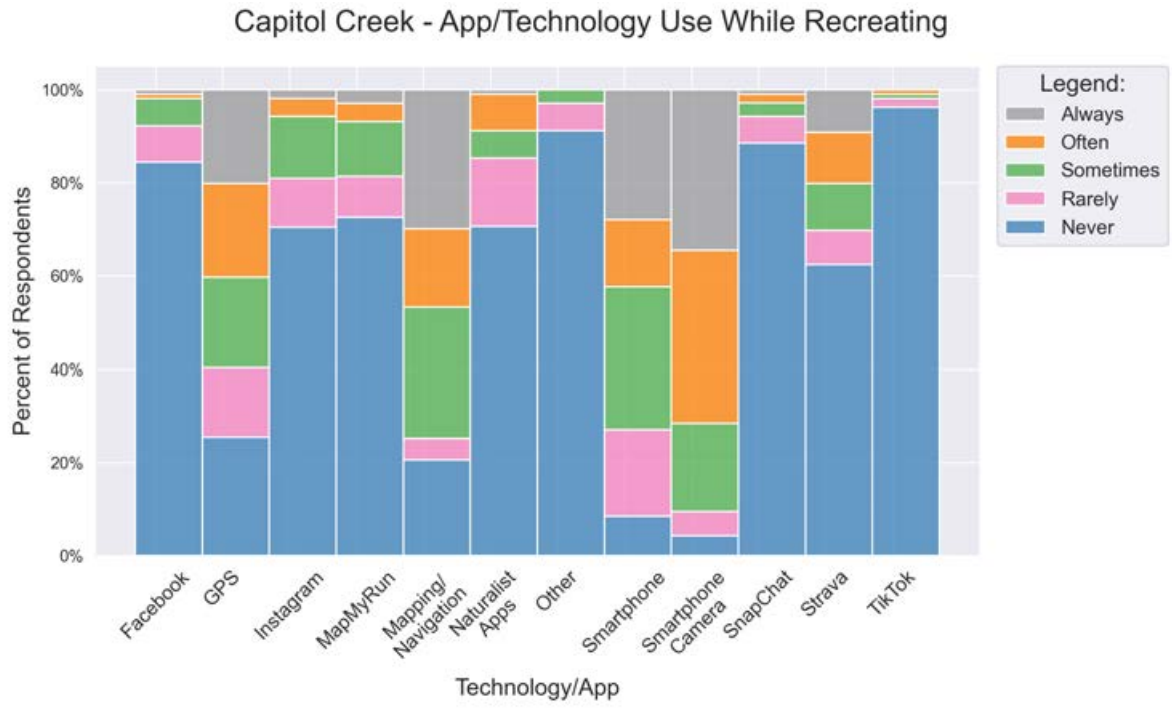

Figure A.31: Visitor technology use at Capitol Creek.

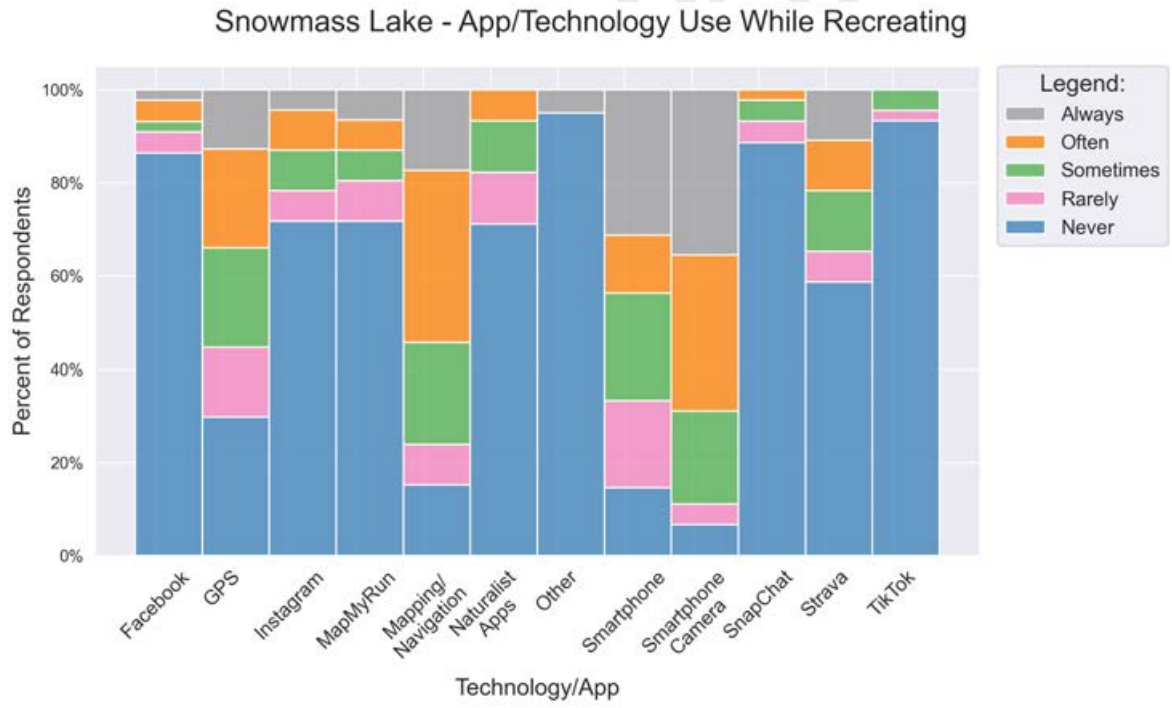

Figure A.32: Visitor technology use at Snowmass Lake.

A.4.2 Semi-Primitive

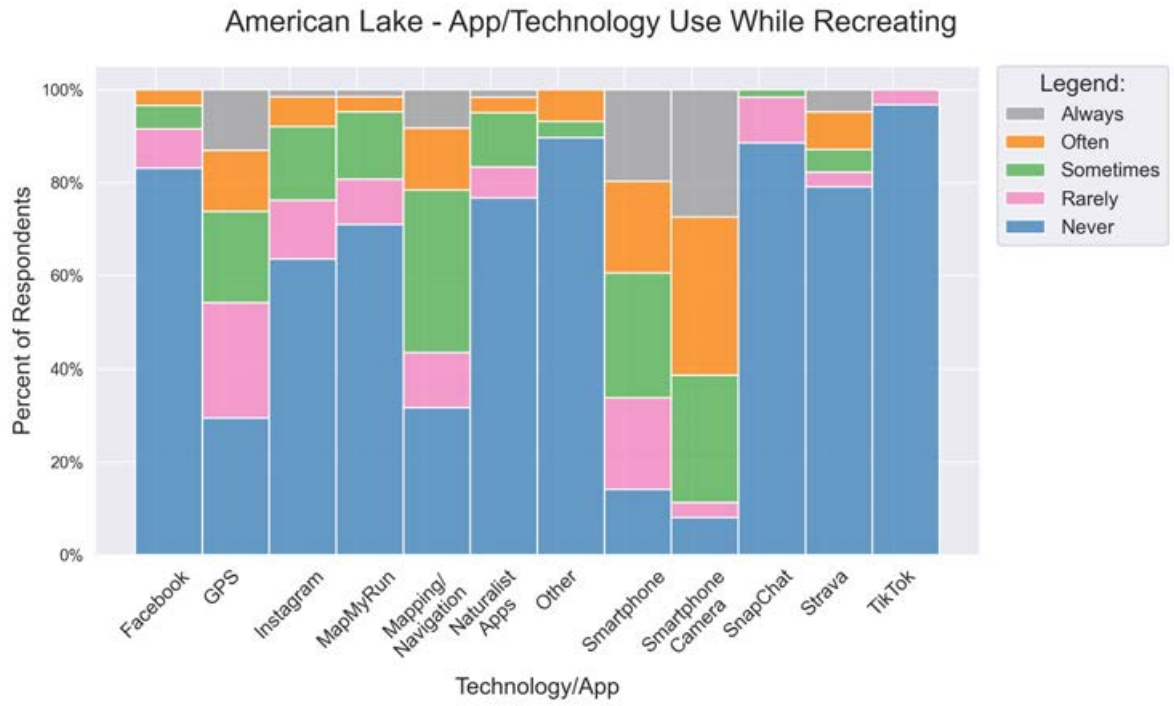

Figure A.33: Visitor technology use at American Lake.

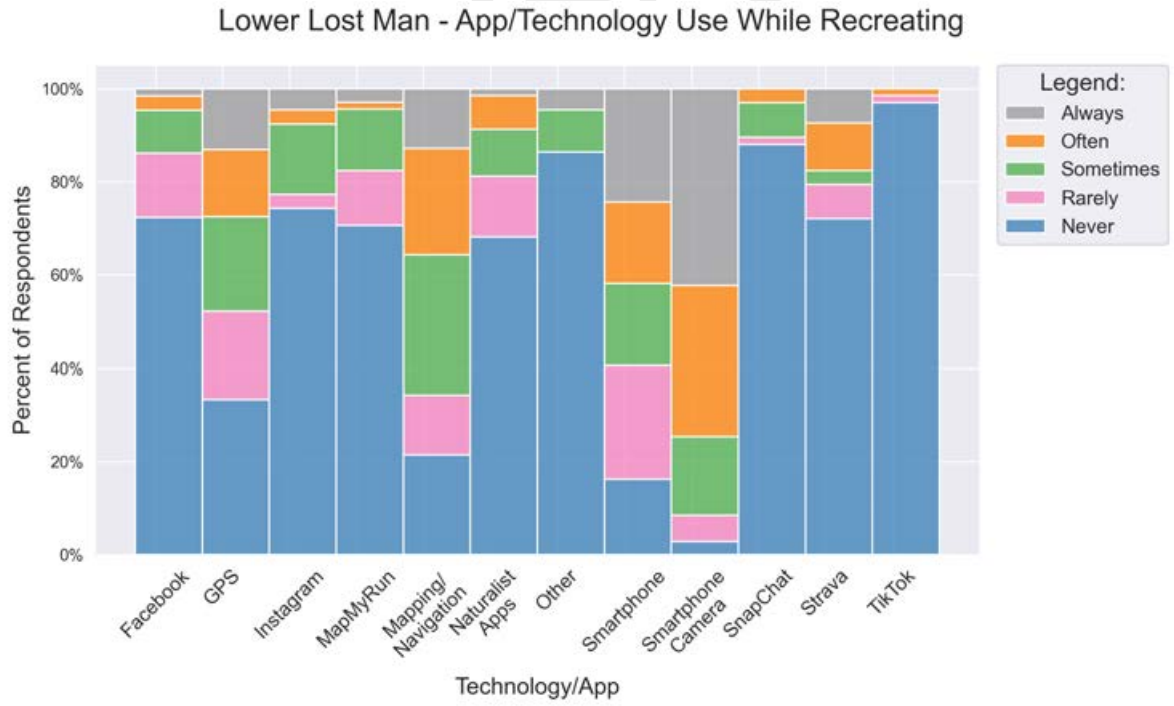

Figure A.34: Visitor technology use at Lower Lost Man Trail.

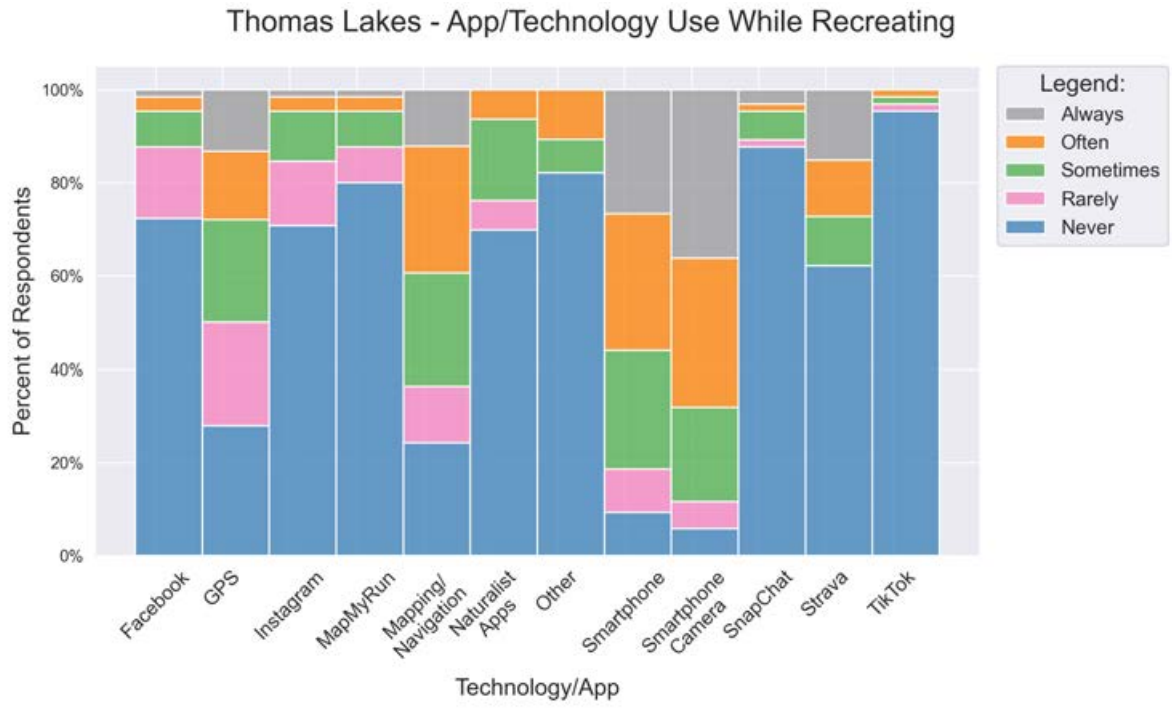

Figure A.35: Visitor technology use at Thomas Lakes.

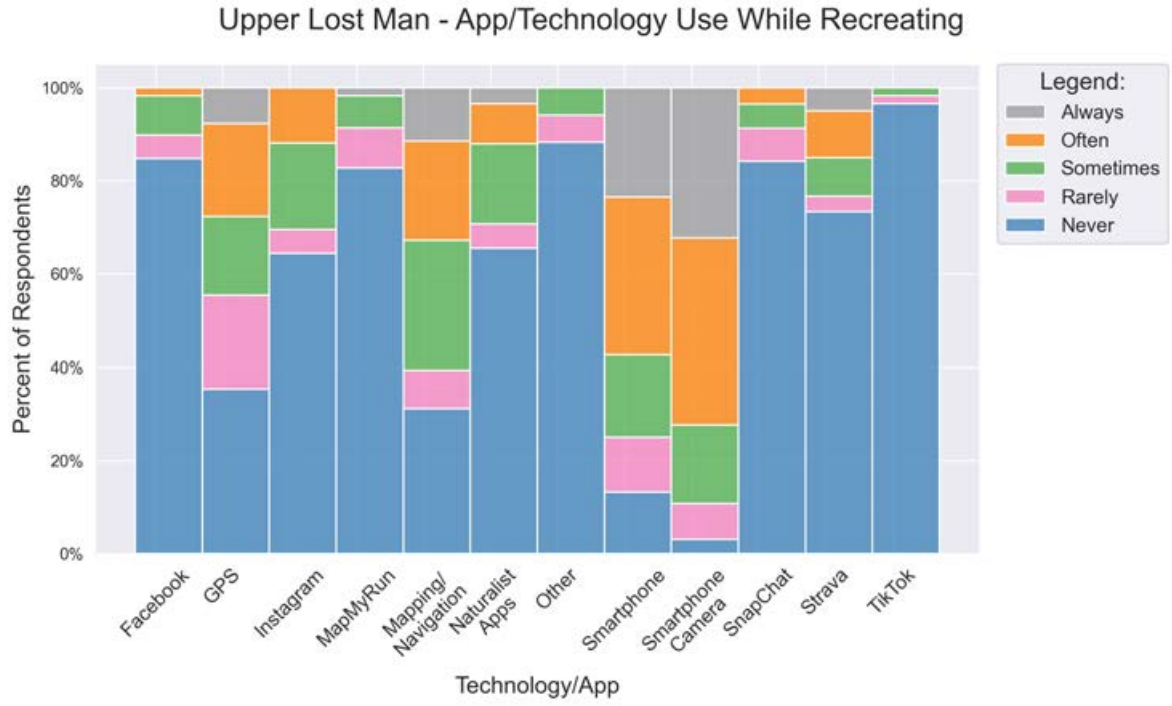

Figure A.36: Visitor technology use at Upper Lost Man Trail.

A.4.3 Concentrated

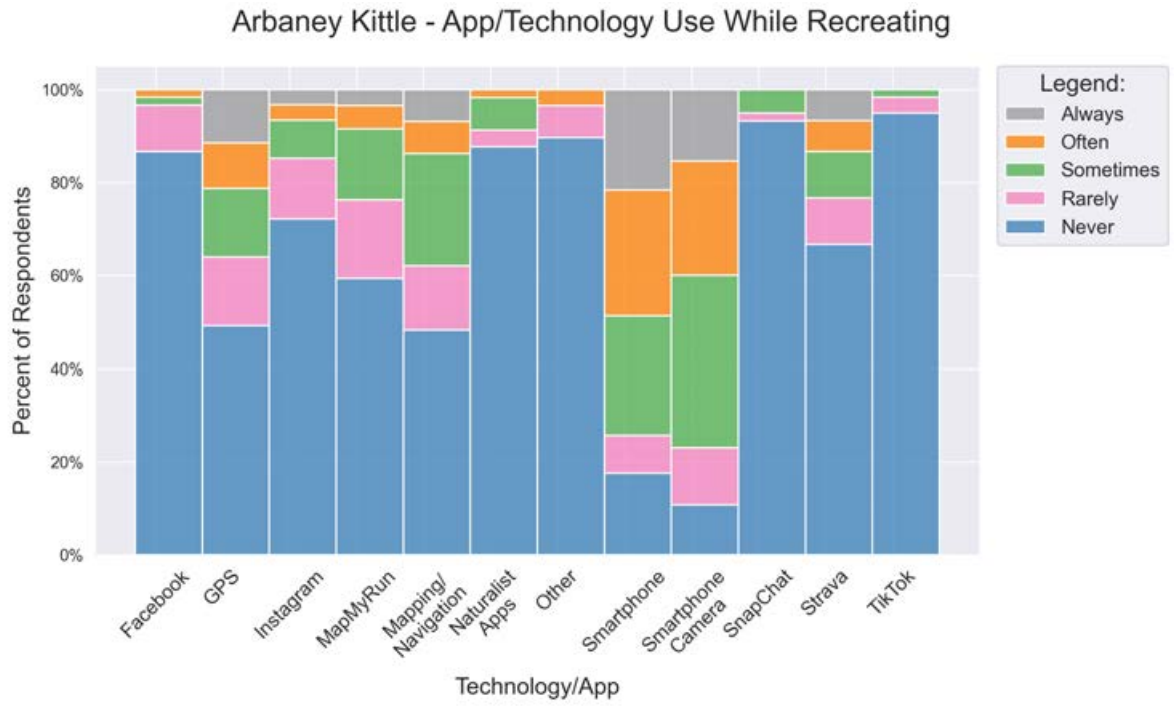

Figure A.37: Visitor technology use at Arbaney Kittle.

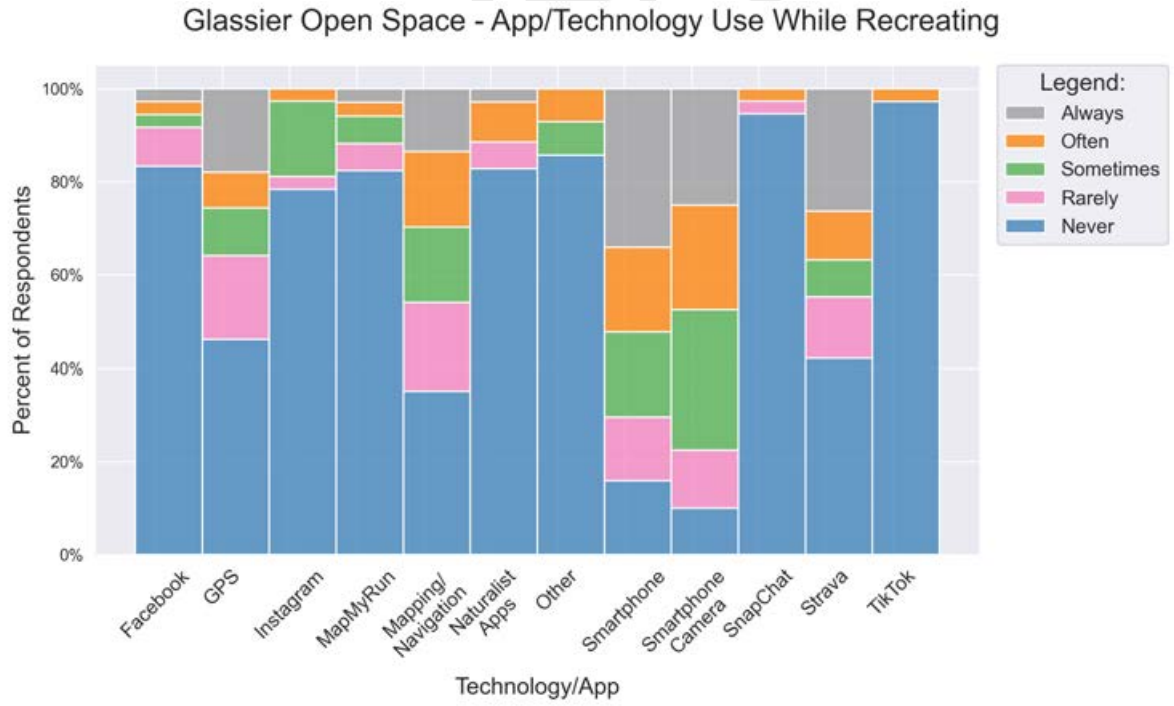

Figure A.38: Visitor technology use at Glassier Open Space.

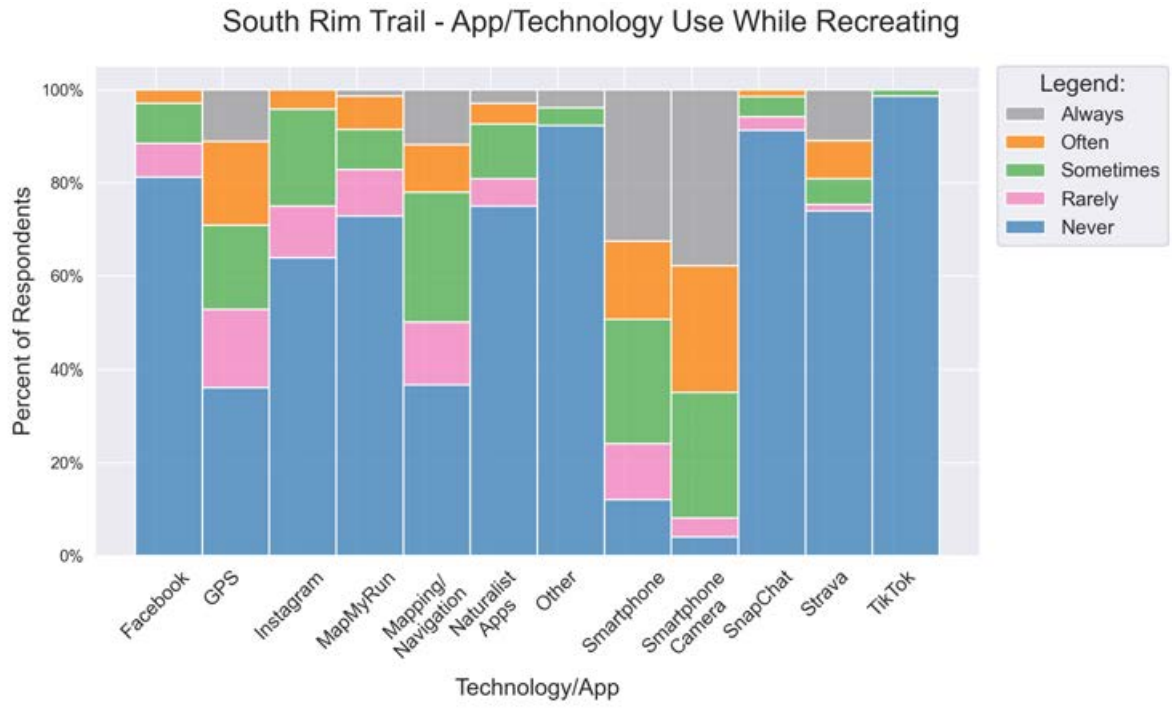

Figure A.39: Visitor technology use at South Rim Trail.

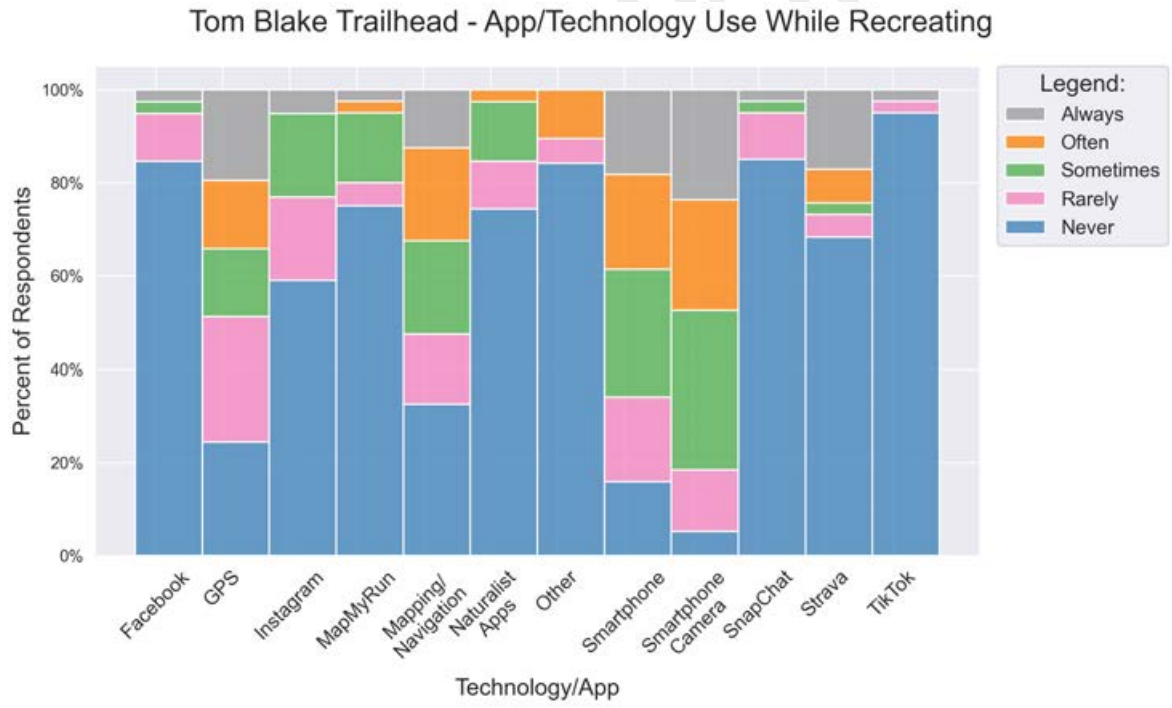

Figure A.40: Visitor technology use at Tom Blake Trail.

A.4.4 Urban Proximate

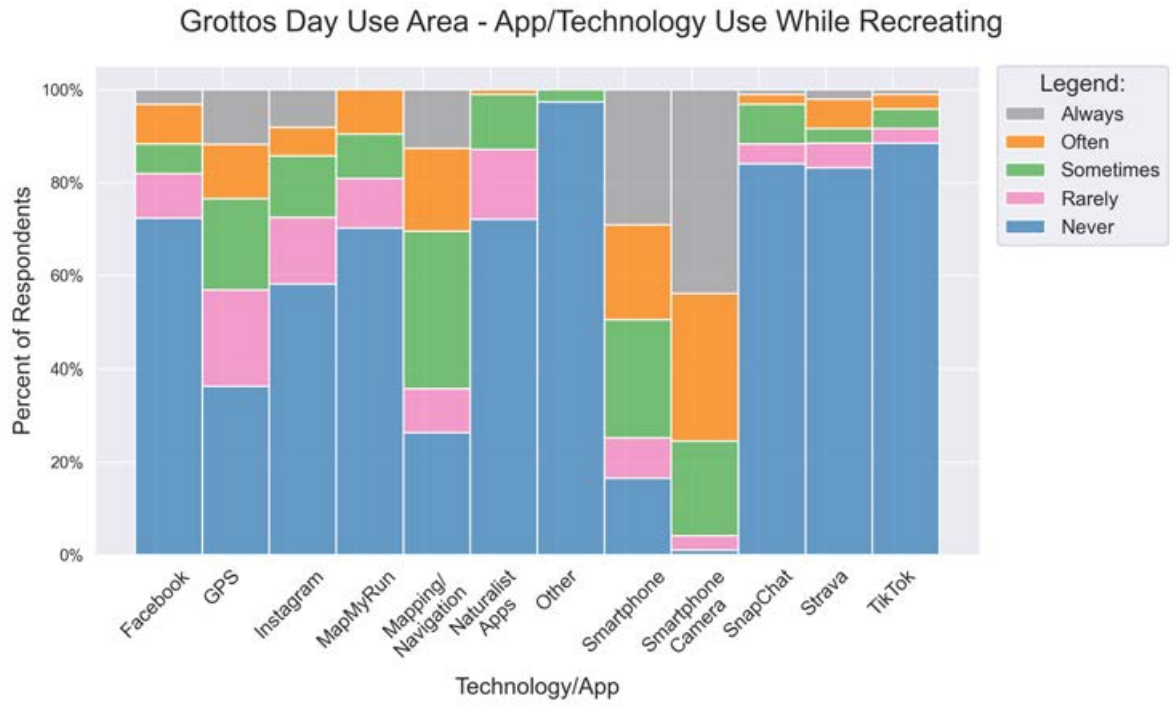

Figure A.41: Visitor technology use at Grottos Day Use Area.

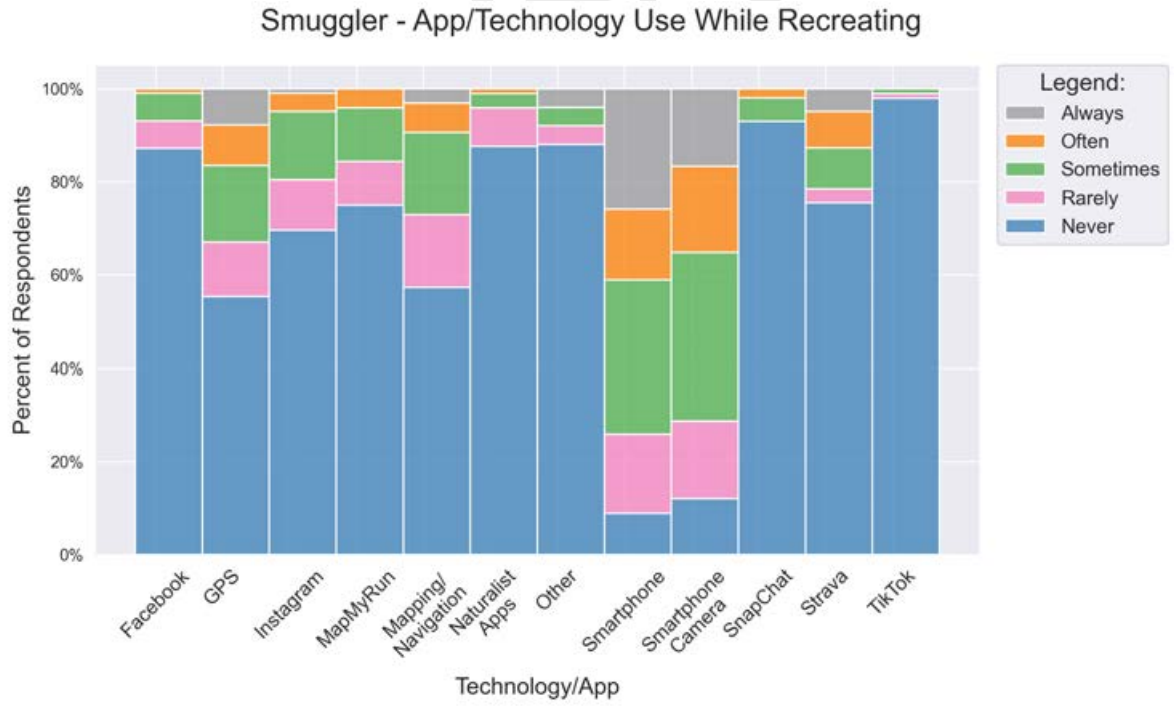

Figure A.42: Visitor technology use at Smuggler Mountain.

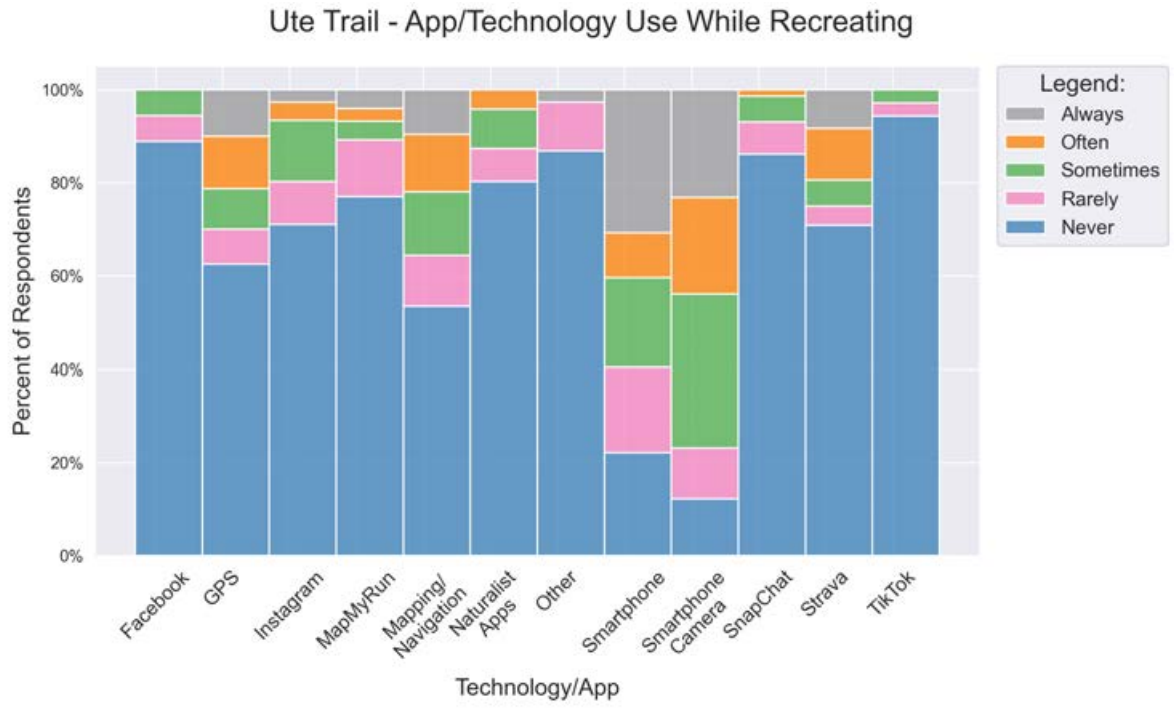

Figure A.43: Visitor technology use at Ute Trail.

A.5. Transportation

The figures that follow detail the modes of transportation utilized by visitors at each site.

A.5.1 Primitive

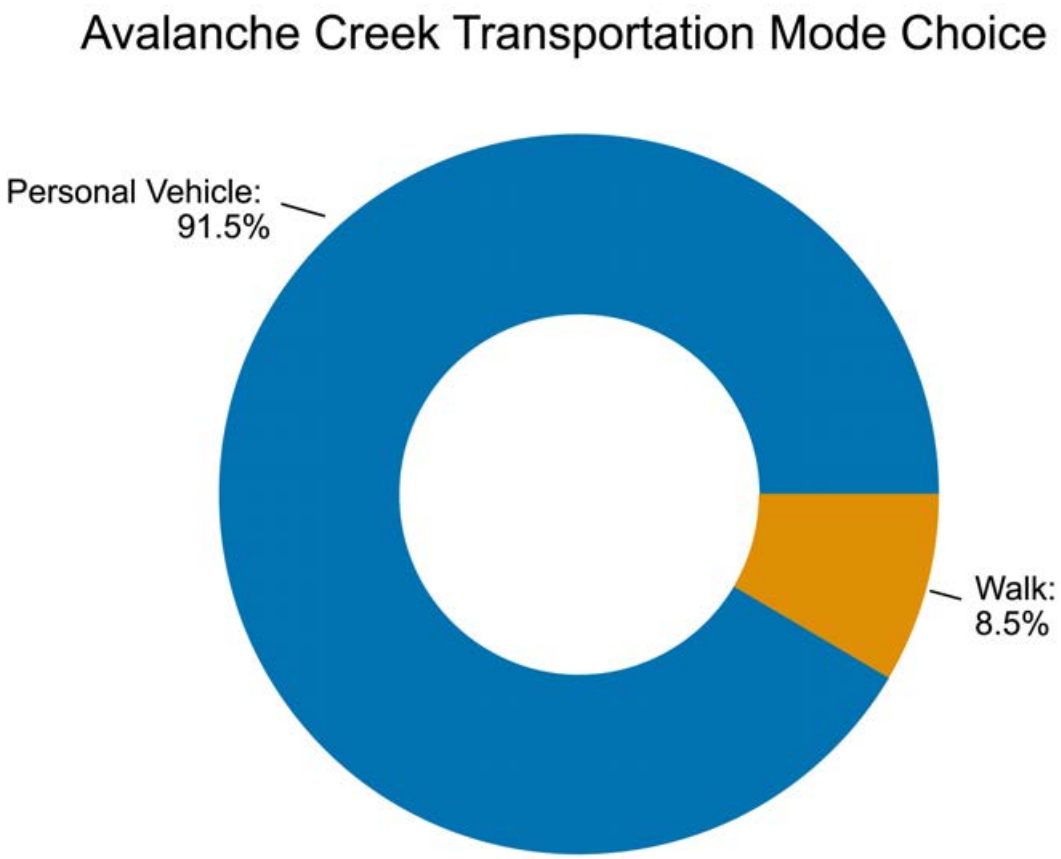

Figure A.44: Visitor modes of transportation at Avalanche Creek.

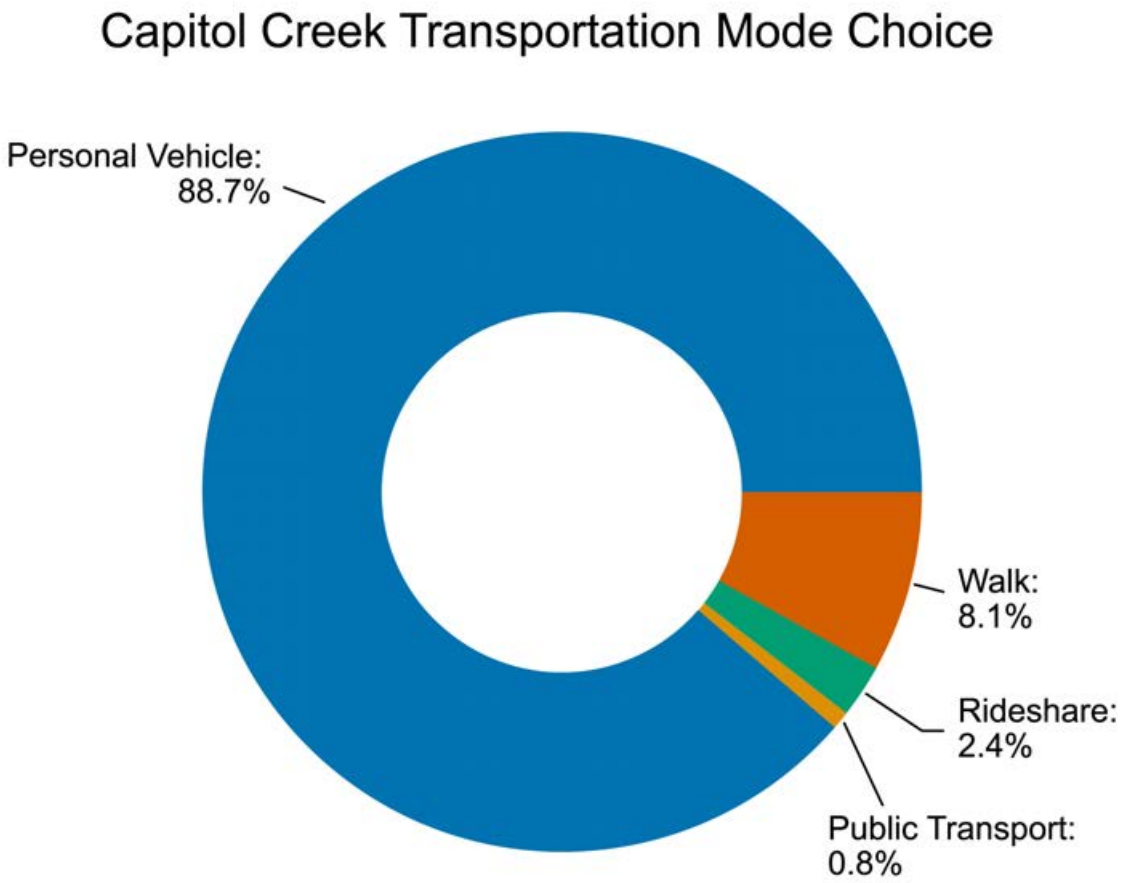

Figure A.45: Visitor modes of transportation at Capitol Creek.

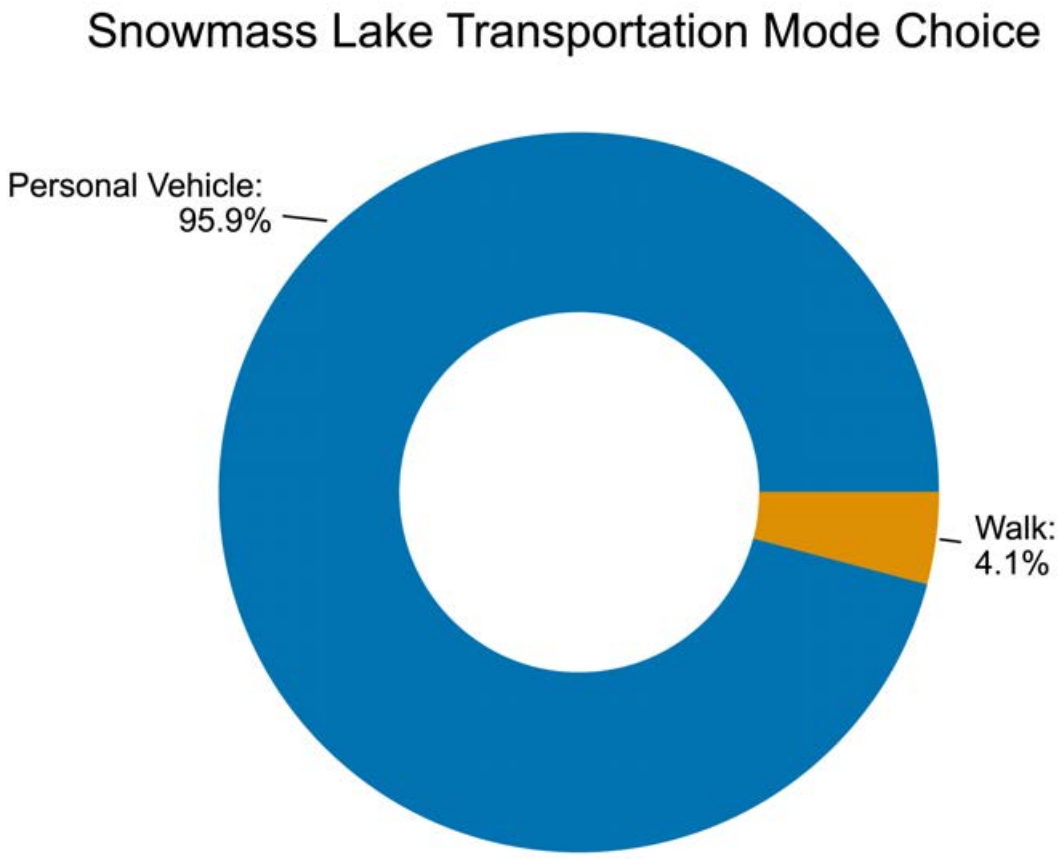

Figure A.46: Visitor modes of transportation at Snowmass Lake.

A.5.2 Semi-Primitive

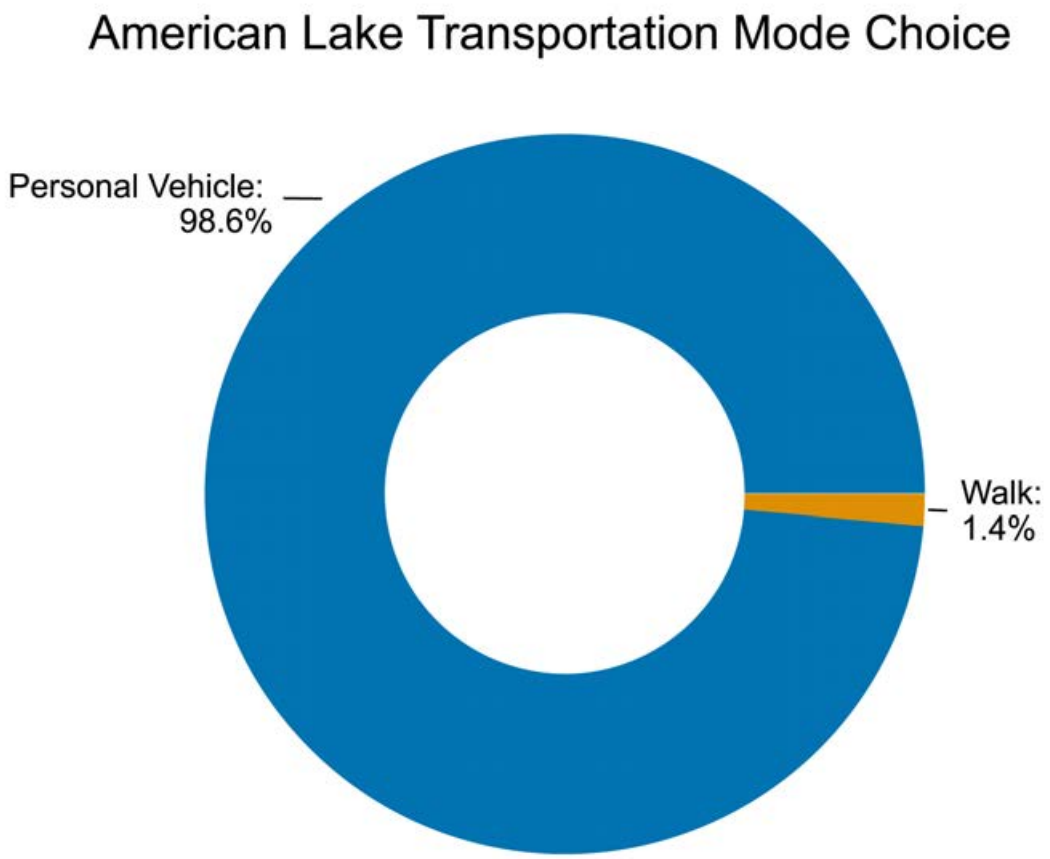

Figure A.47: Visitor modes of transportation at American Lake.

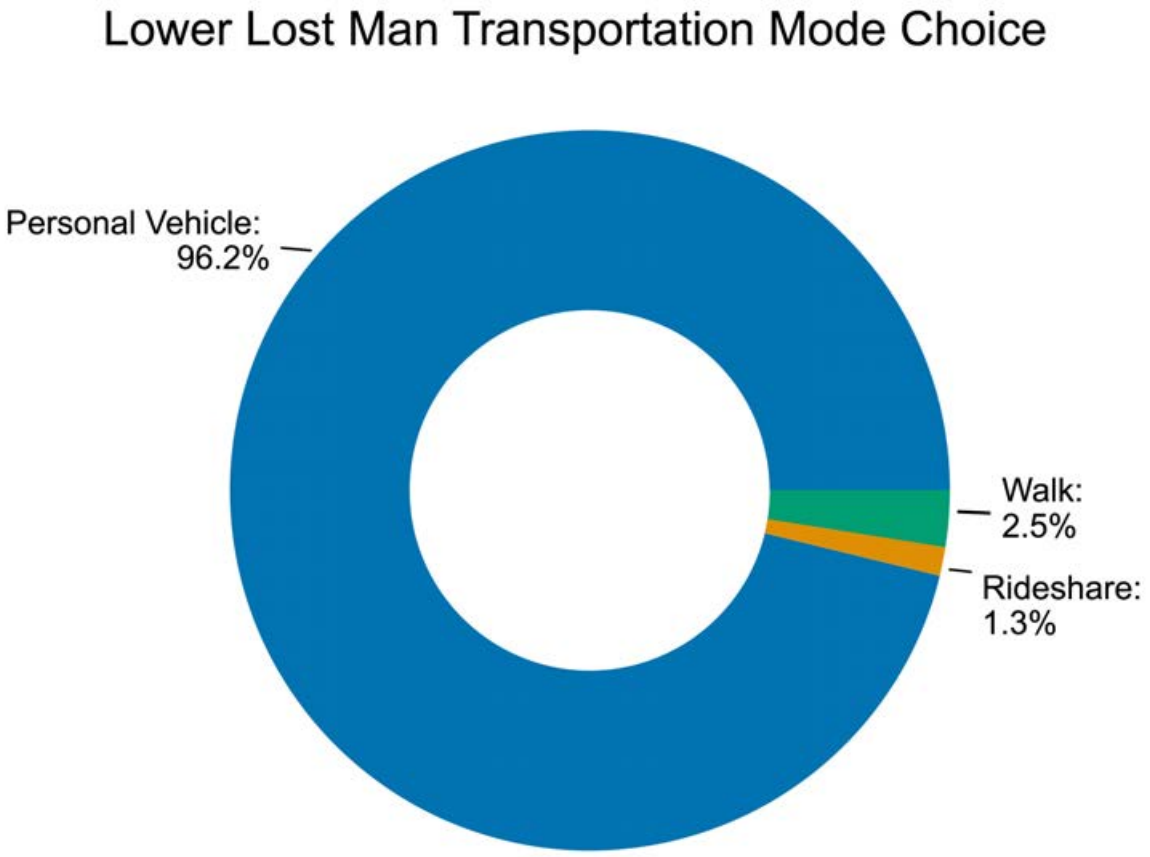

Figure A.48: Visitor modes of transportation at Lower Lost Man Trail.

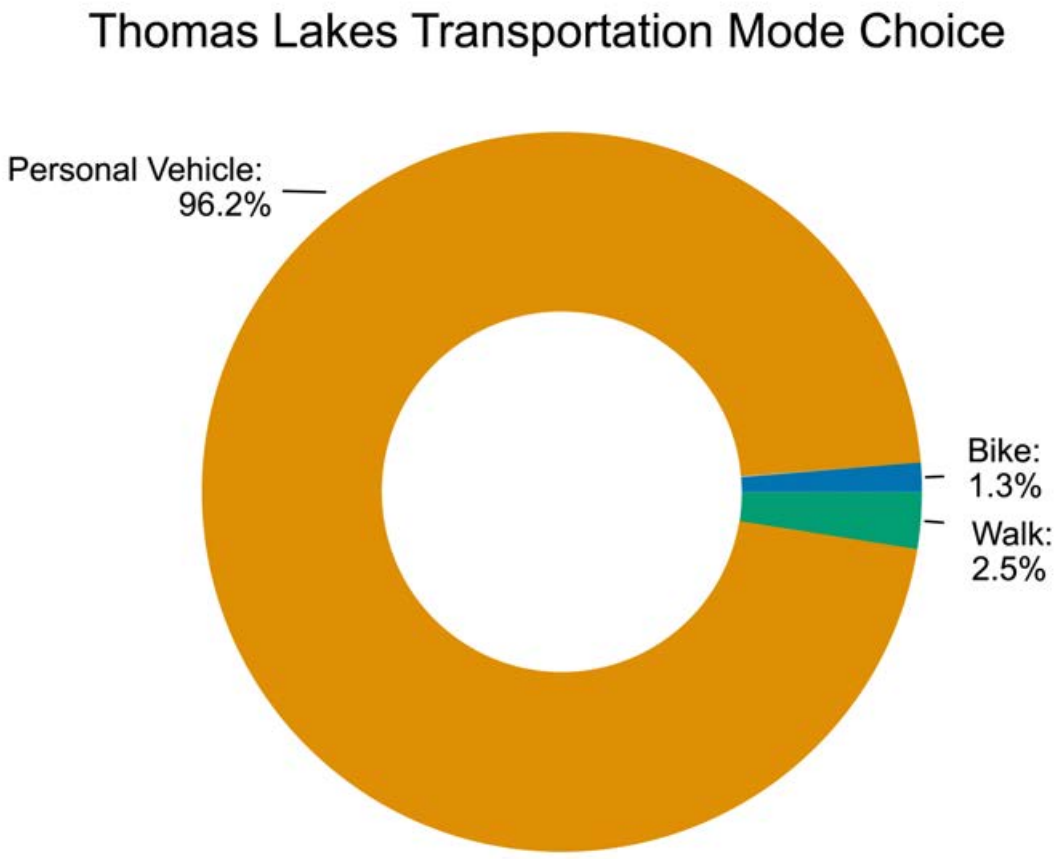

Figure A.49: Visitor modes of transportation at Thomas Lakes.

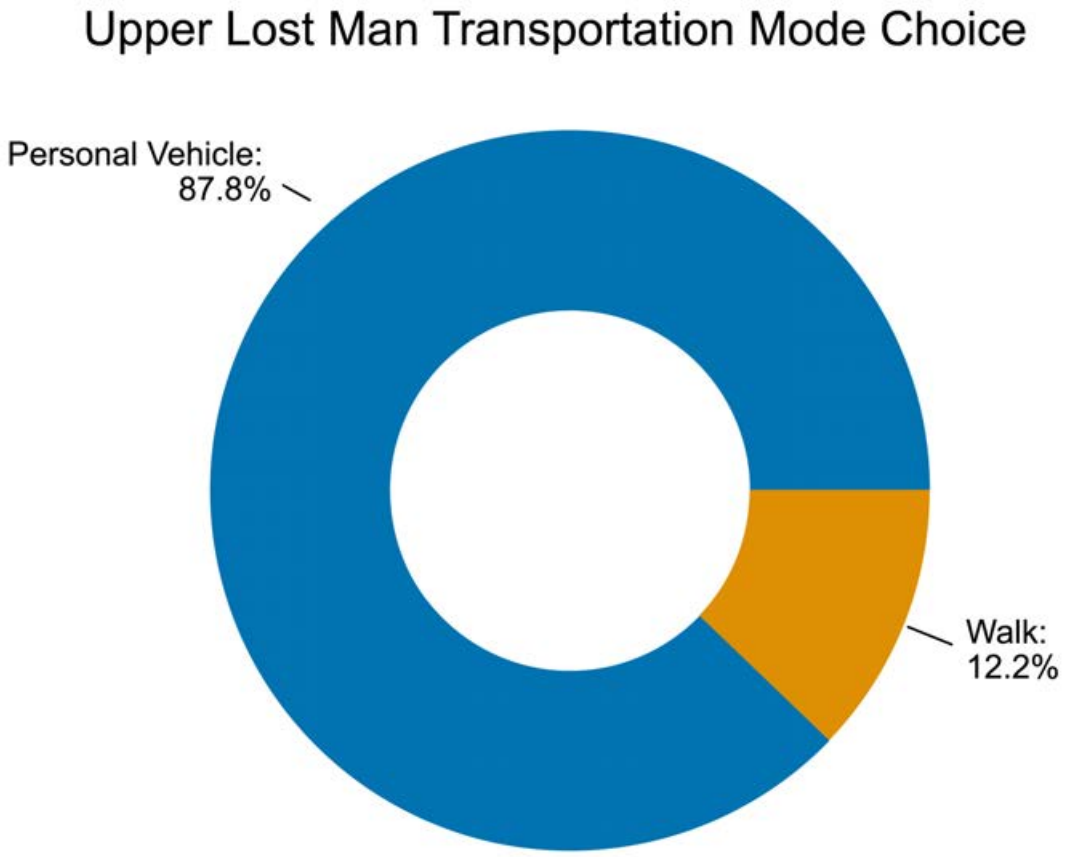

Figure A.50: Visitor modes of transportation at Upper Lost Man Trail.

A.5.3 Concentrated

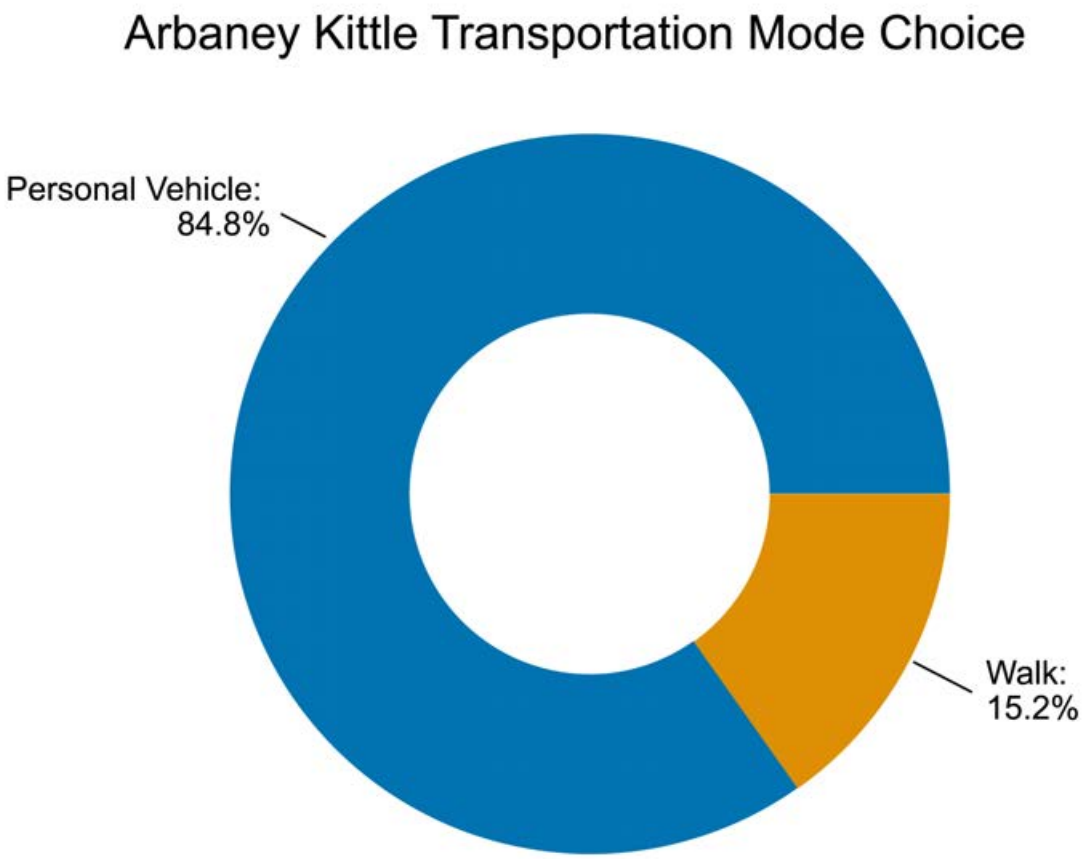

Figure A.51: Visitor modes of transportation at Arbaney Kittle.

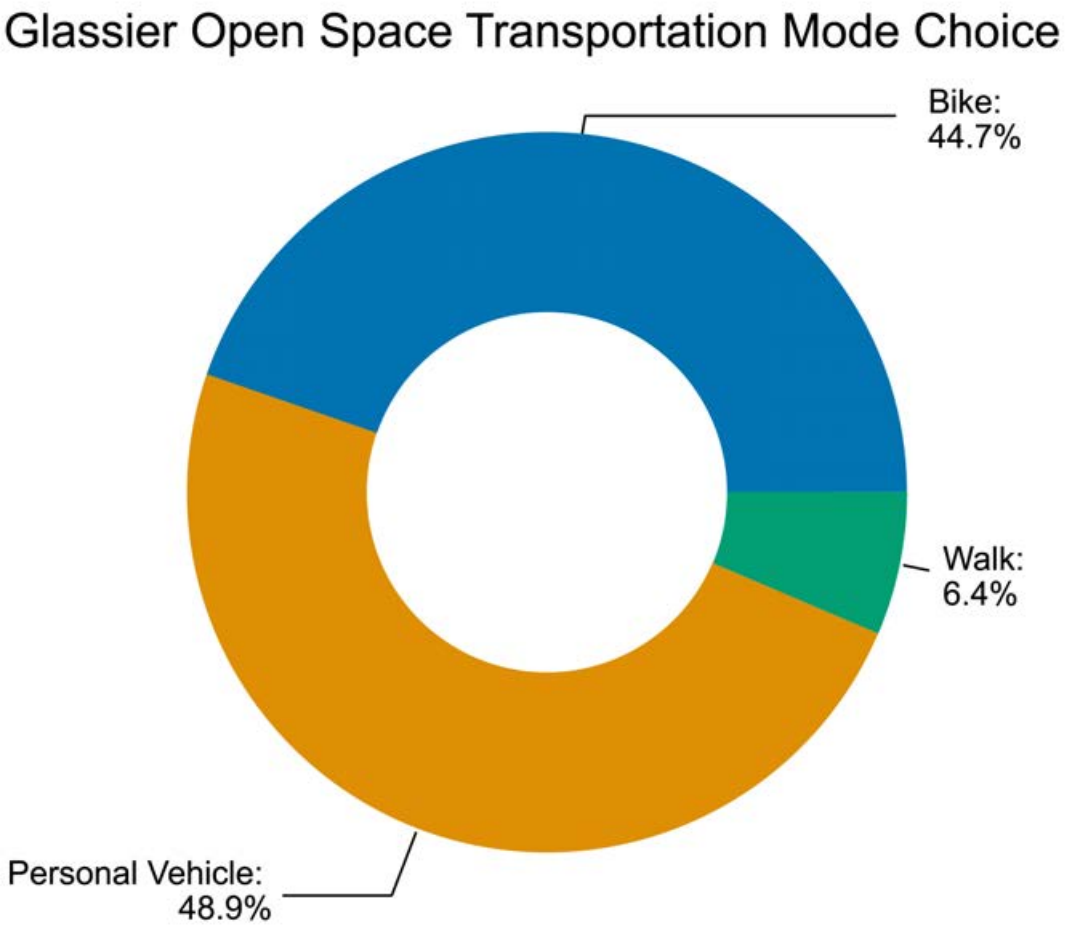

Figure A.52: Visitor modes of transportation at Glassier Open Space.

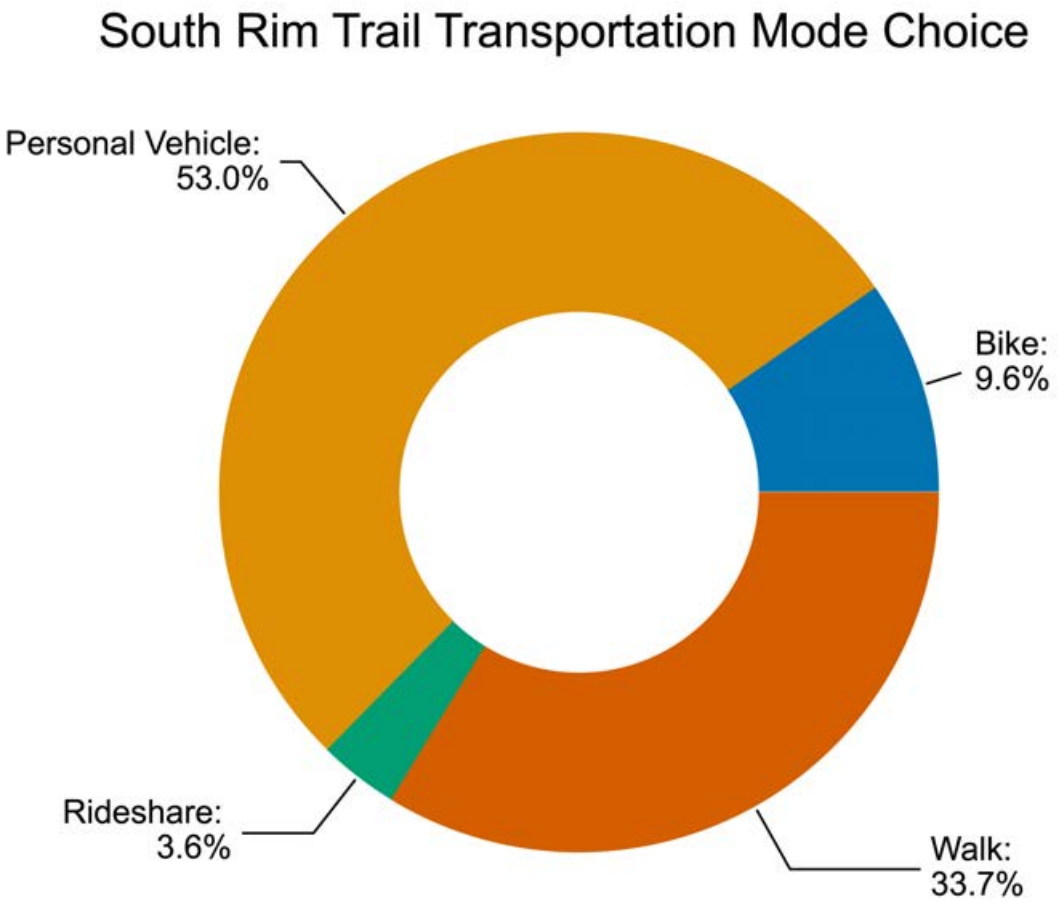

Figure A.53: Visitor modes of transportation at South Rim Trail.

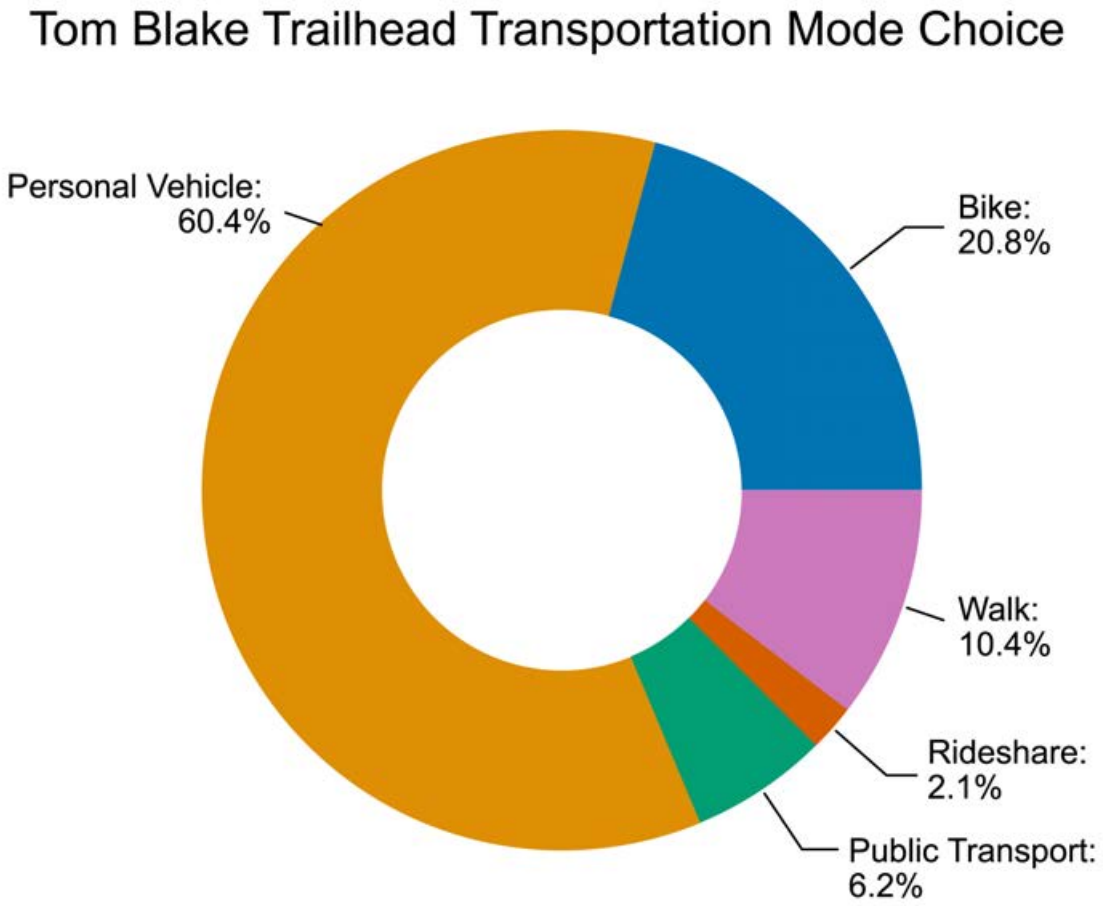

Figure A.54: Visitor modes of transportation at Tom Blake Trail.

A.5.4 Urban Proximate

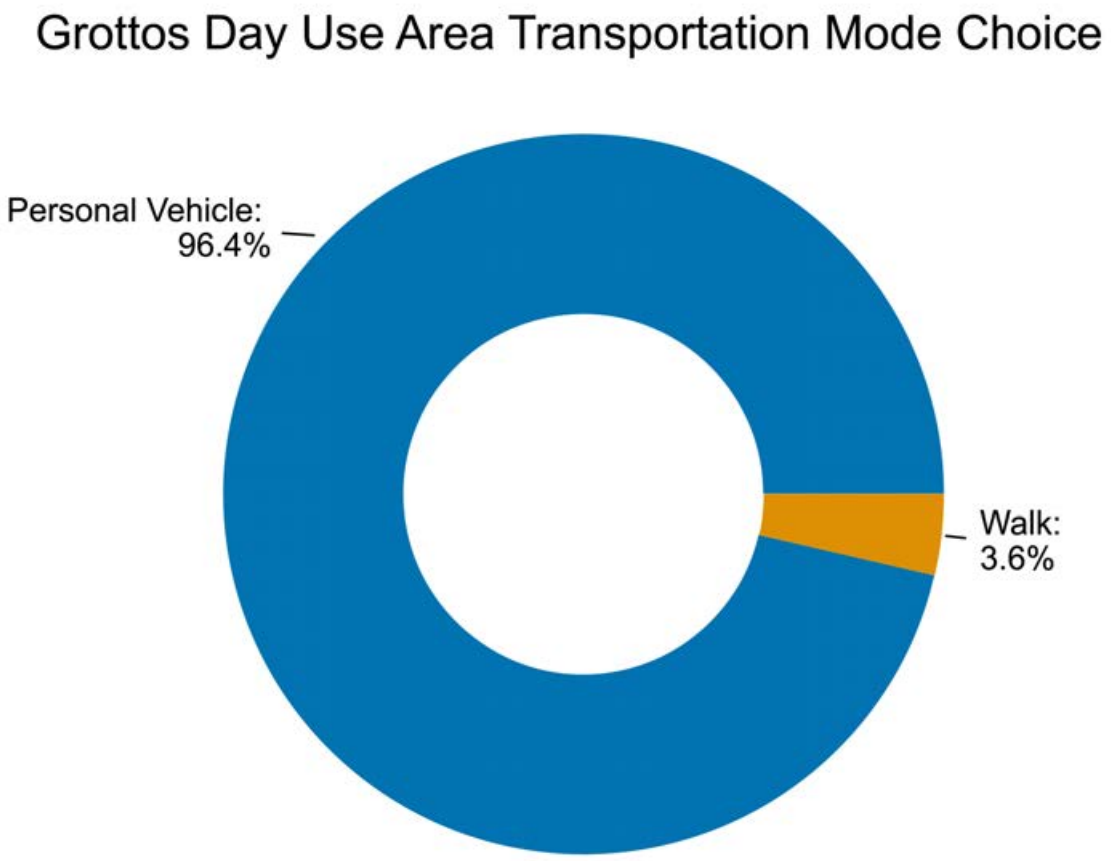

Figure A.55: Visitor information sources at Grottos Day Use Area.

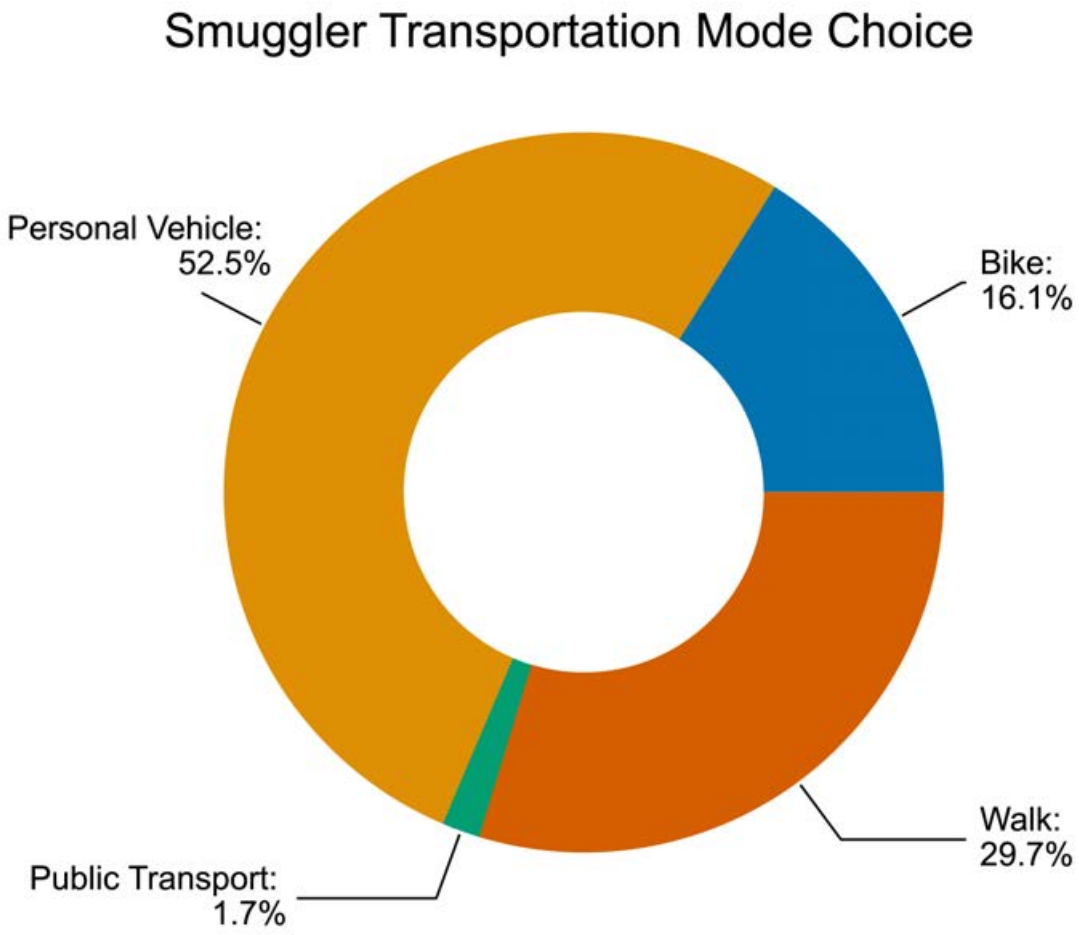

Figure A.56: Visitor modes of transportation at Smuggler Mountain.

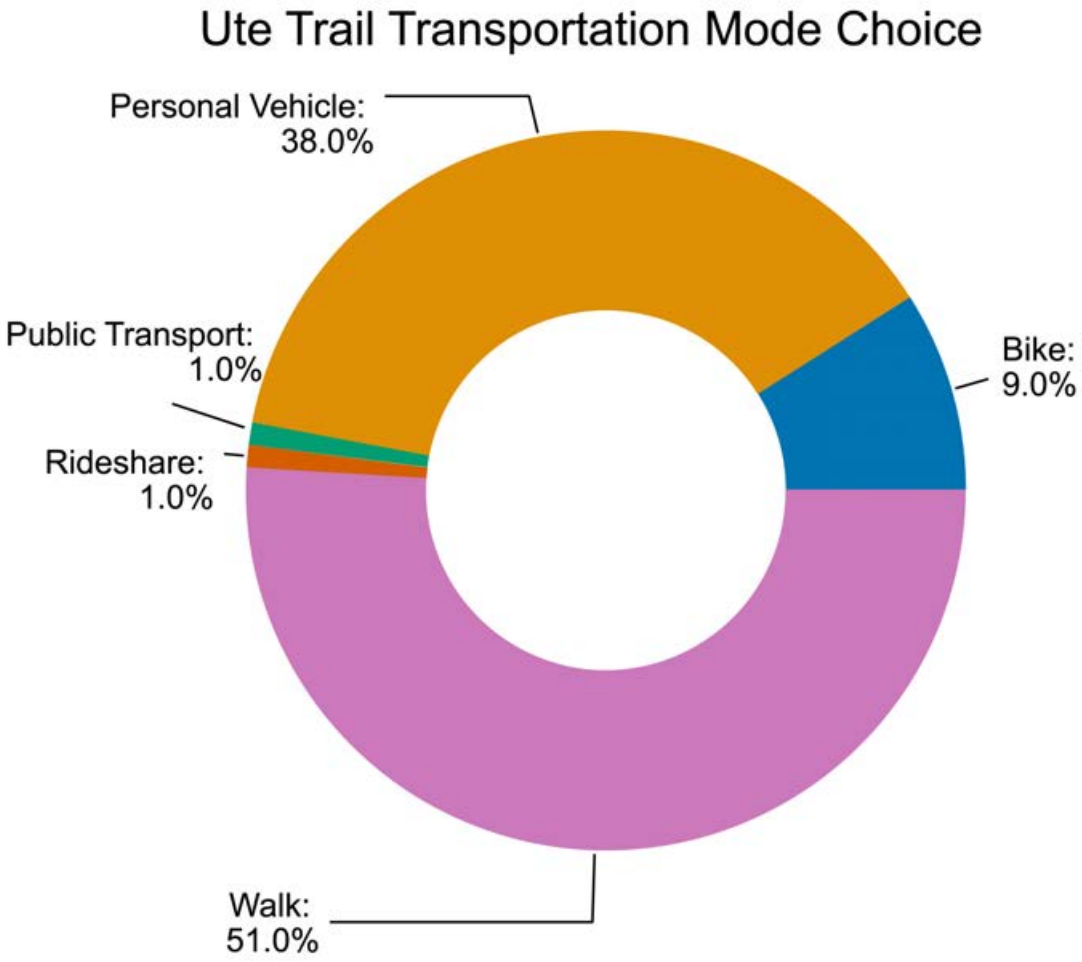

Figure A.57: Visitor modes of transportation at Ute Trail.

B

Appendix B: Coping and Crowding Data

B.1. Crowding Evaluations

The mean response scores for each crowding evaluation and site condition were derived from a five-point Likert scale where 1 = Strongly disagree, 3 = Neither agree nor disagree, and 5 = Strongly agree.

Table B.1: This table contains the mean response scores for each crowding evaluation at all sites and site types

		Crowding Evaluations					
Site Type	Site	*Trailhead signage is adequate*	*Trailhead parking is adequate*	*Trailhead facilities are adequate*	*Other visitors affected experience*	*Experienced conflict*	*Experienced unsafe conditions*
Primitive	Avalanche Creek	4.03	3.57	4.23	2.22	1.60	1.75
	Capitol Creek	3.97	4.03	3.60	2.06	1.52	2.07
	Snowmass Lake	3.78	3.10	3.18	2.35	1.92	2.04
	Total/Mean	3.95	3.71	3.67	2.16	1.63	1.98
Semi-Primitive	American Lake	3.91	4.12	3.63	2.12	1.62	1.65
	Lower Lost Man	4.35	4.08	3.83	1.75	1.44	1.39
	Thomas Lakes	4.24	4.57	4.18	1.87	1.42	1.56
	Upper Lost Man	4.21	3.87	4.15	1.93	1.79	1.89
	Total/Mean	4.18	4.16	3.96	1.91	1.56	1.62
Concentrated	Arbaney Kittle	3.82	4.35	3.71	1.88	1.63	1.51
	Glassier Open Space	4.19	4.11	3.69	1.76	1.76	1.61
	South Rim Trail	4.11	3.18	3.49	2.06	1.50	1.29
	Tom Blake Trailhead	3.69	3.07	3.33	2.29	1.61	1.49
	Total/Mean	3.96	3.68	3.56	1.99	1.61	1.45
Urban Proximate	Grottos Day Use Area	3.86	3.42	3.86	2.13	1.73	2.06
	Smuggler	3.86	3.42	3.55	2.68	1.95	1.53
	Ute Trail	4.01	3.35	3.42	2.54	1.67	2.09
	Total/Mean	3.90	3.40	3.62	2.45	1.79	1.88

B.2. Coping Behaviors

The mean response score for each coping behavior were derived from a five-point Likert scale where 1 = Never, 3 = About half the time, and 5 = Always.

Table B.2: This table contains the mean response scores for each coping behavior at all sites and site types

		Coping Behavior					
Site Type	Site	*Visit at low use times of day*	*Visit weekdays to avoid crowds*	*Use trails with fewer crowds*	*Avoid places with reservations*	*Avoid peak season crowds*	*Avoid places where parking is difficult*
Primitive	Avalanche Creek	3.37	3.04	3.55	3.64	3.05	3.07
	Capitol Creek	3.46	3.23	3.69	3.73	3.19	3.29
	Snowmass Lake	3.17	2.98	3.43	3.60	3.15	2.94
	Total/Mean	3.37	3.12	3.60	3.68	3.15	3.15
Semi-Primitive	American Lake	3.23	3.08	3.24	3.63	2.82	3.00
	Lower Lost Man	3.57	3.16	3.72	3.85	2.96	3.15
	Thomas Lakes	3.33	2.88	3.36	3.37	2.84	2.87
	Upper Lost Man	3.31	3.07	3.39	3.42	3.07	2.91
	Total/Mean	3.36	3.05	3.43	3.57	2.93	2.98
Concentrated	Arbaney Kittle	3.28	2.97	3.23	3.77	2.66	2.97
	Glassier Open Space	3.28	3.15	3.39	4.06	2.72	3.04
	South Rim Trail	3.04	2.69	3.08	3.42	2.57	2.95
	Tom Blake Trailhead	3.18	3.06	3.32	3.61	2.89	3.31
	Total/Mean	3.18	2.93	3.23	3.69	2.68	3.03
Urban Proximate	Grottos Day Use Area	3.35	3.46	3.31	3.26	3.07	3.06
	Smuggler	3.12	3.00	3.12	3.60	2.72	2.76
	Ute Trail	2.88	2.64	2.83	3.22	2.56	2.57
	Total/Mean	3.12	3.03	3.09	3.36	2.78	2.80

C

Appendix C: TRAFx Data

Appendix C: Visitor Use Estimation – this appendix contains parking lot turnover and visitor use counts derived from automated trail counters. Results are organized by site type and further organized by site.

To understand how many visitors are using each recreation area in the RFV, automatic trail counters were installed and removed at the trailhead of each sampling location on each sampling day during both 2022 and 2023. Counters were manually calibrated by research technicians during the study period to determining the level of error. This level of error was used to generate a ”correction factor” for each counter. Parking lot turnover was also assessed at all sites, with the exception of Glossier Open Space.

The following figures (Figures C.1 - C.11) show the hourly visitor and vehicle counts at all sites, with the exception of Glossier Open Space which only shows hourly visitor counts.

C.1. Primitive

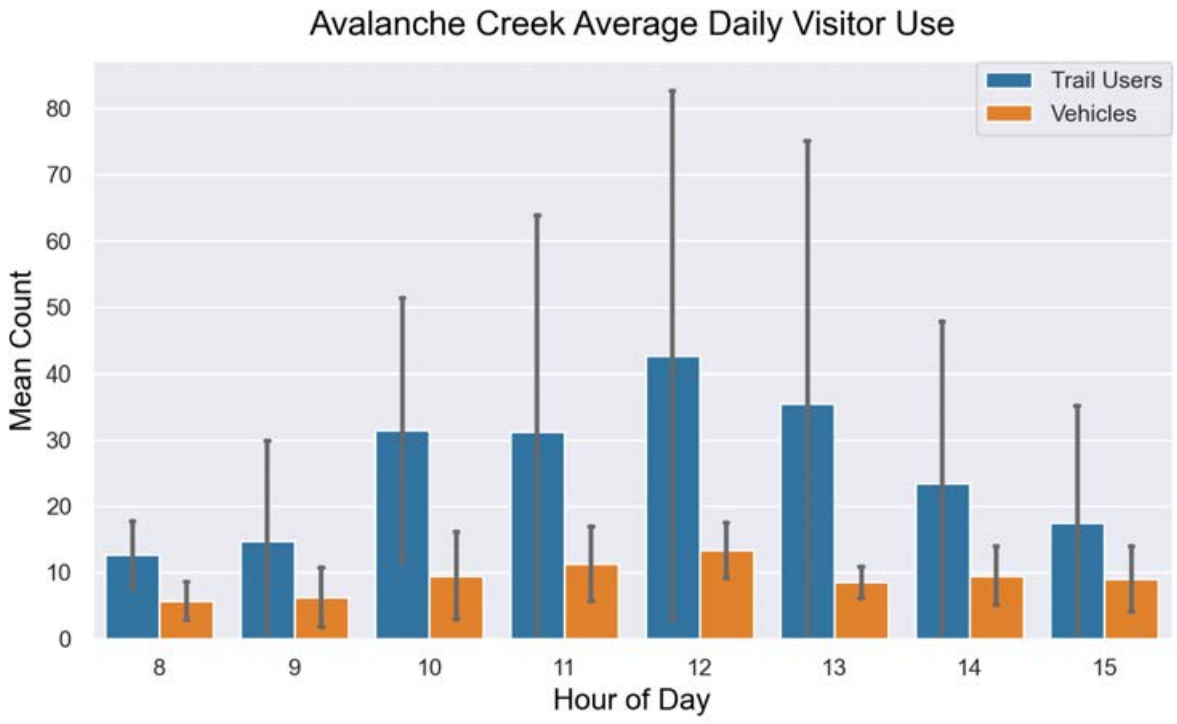

Figure C.1: Average hourly visitor and vehicle counts at Avalanche Creek.

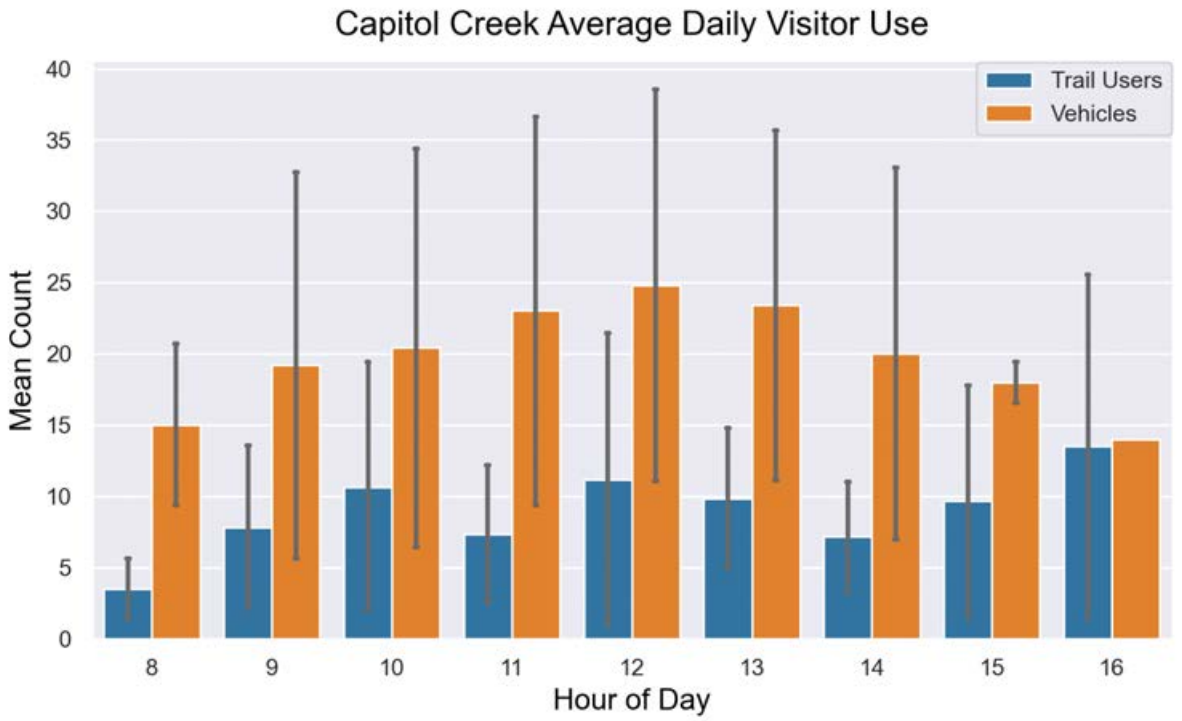

Figure C.2: Average hourly visitor and vehicle counts at Capitol Creek.

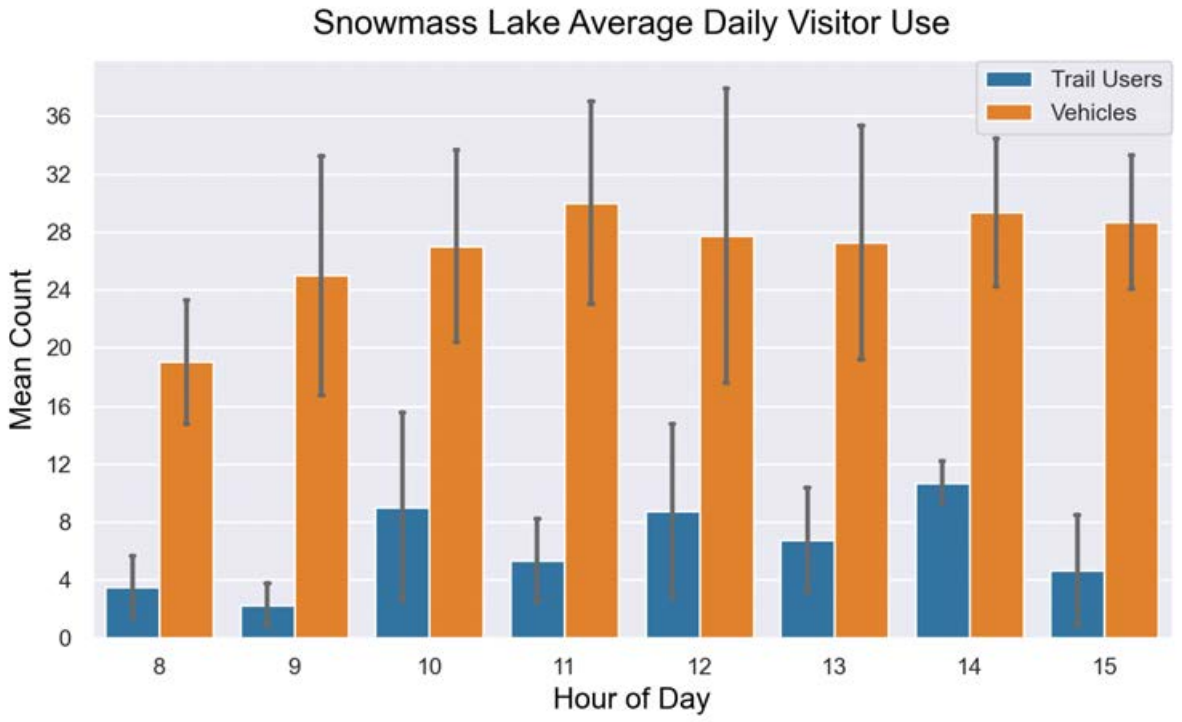

Figure C.3: Average hourly visitor and vehicle counts at Snowmass Lake.

C.2. Semi-Primitive

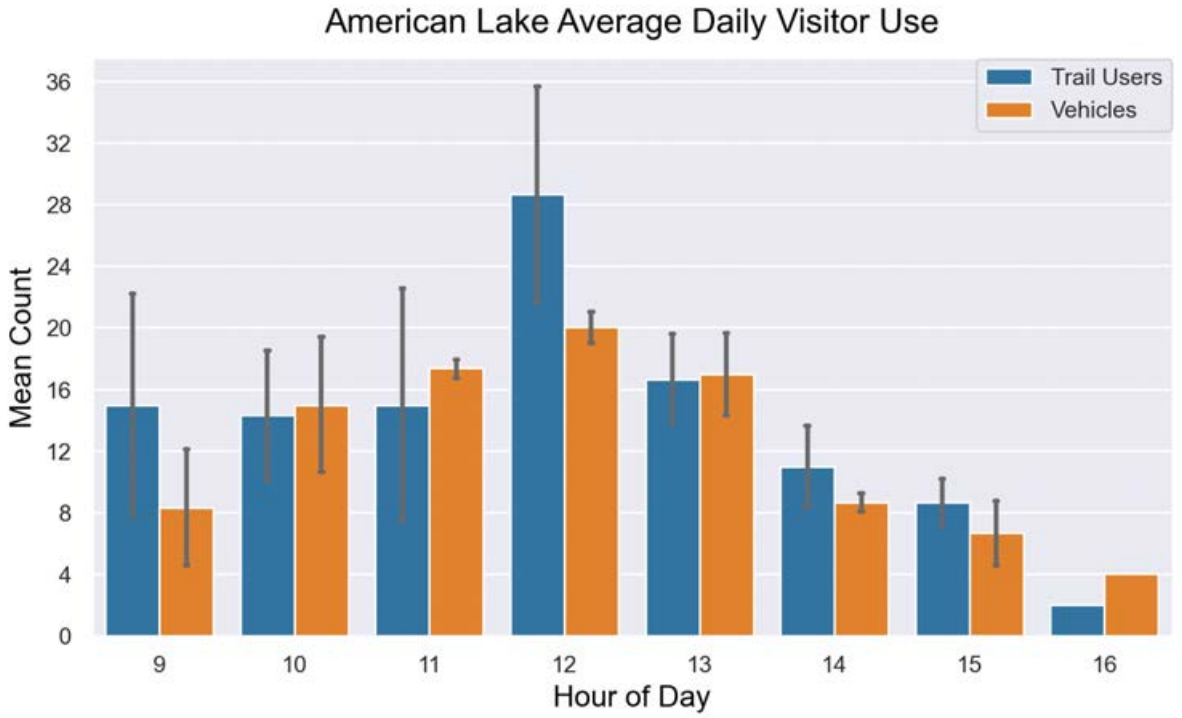

Figure C.4: Average hourly visitor and vehicle counts at American Lake.

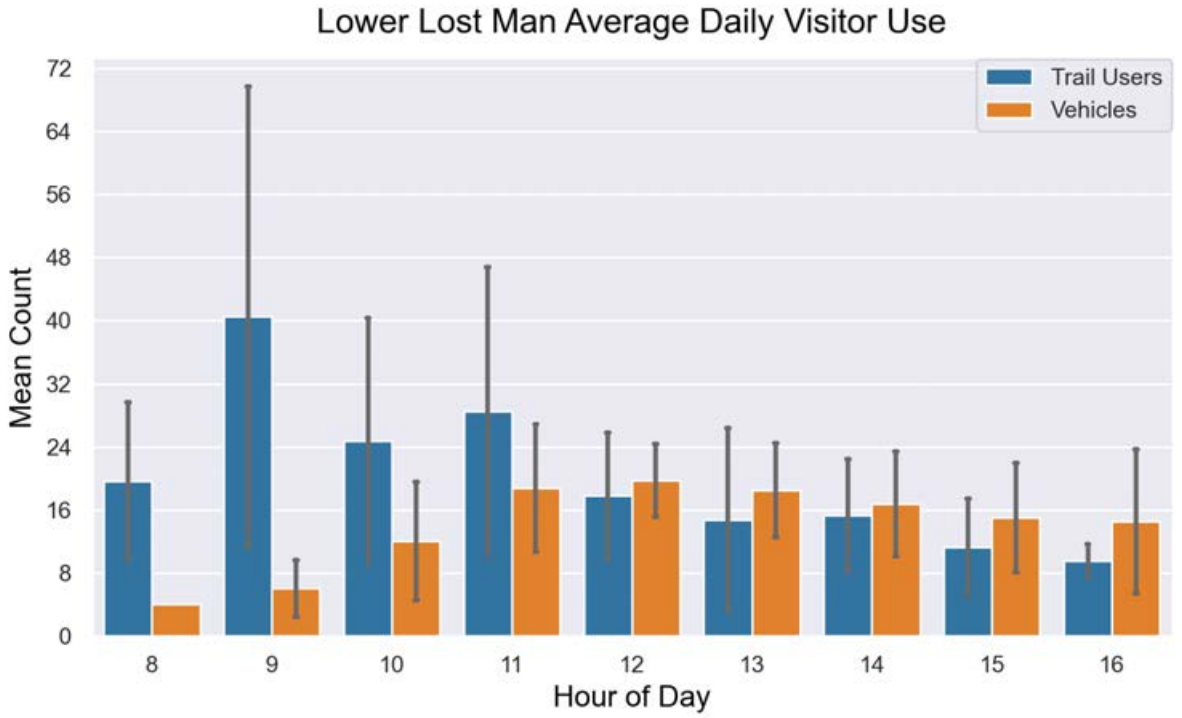

Figure C.5: Average hourly visitor and vehicle counts at Lower Lost Man Trail.

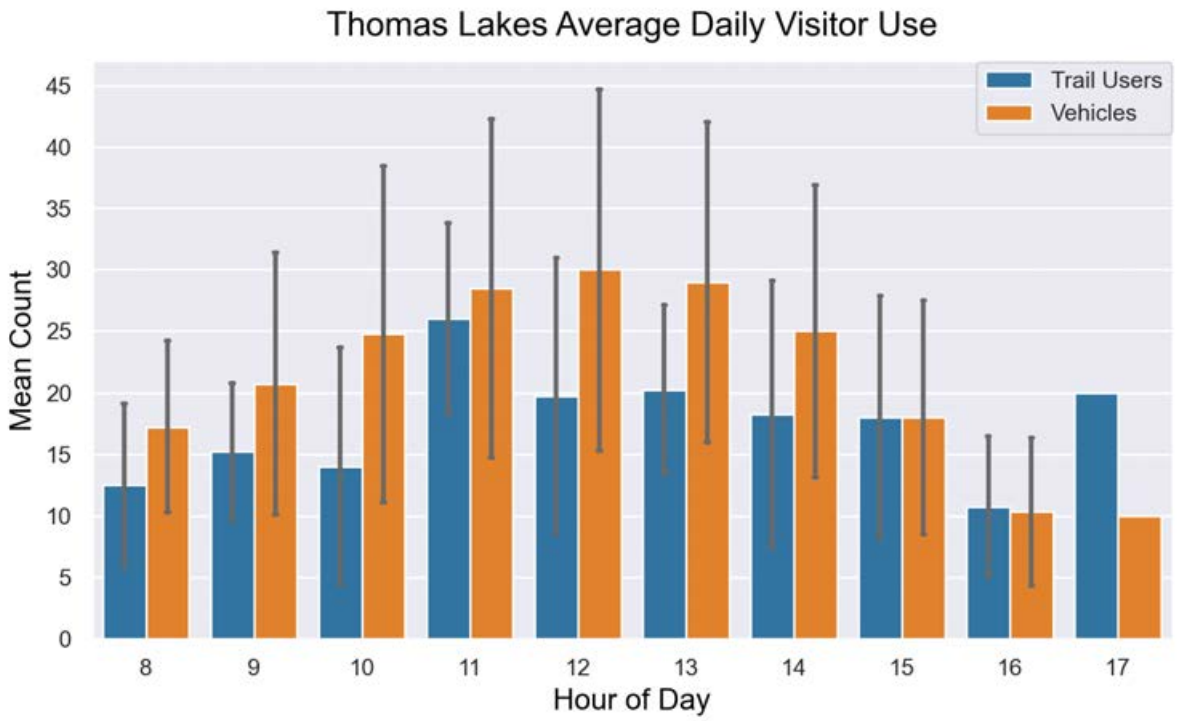

Figure C.6: Average hourly visitor and vehicle counts at Thomas Lakes.

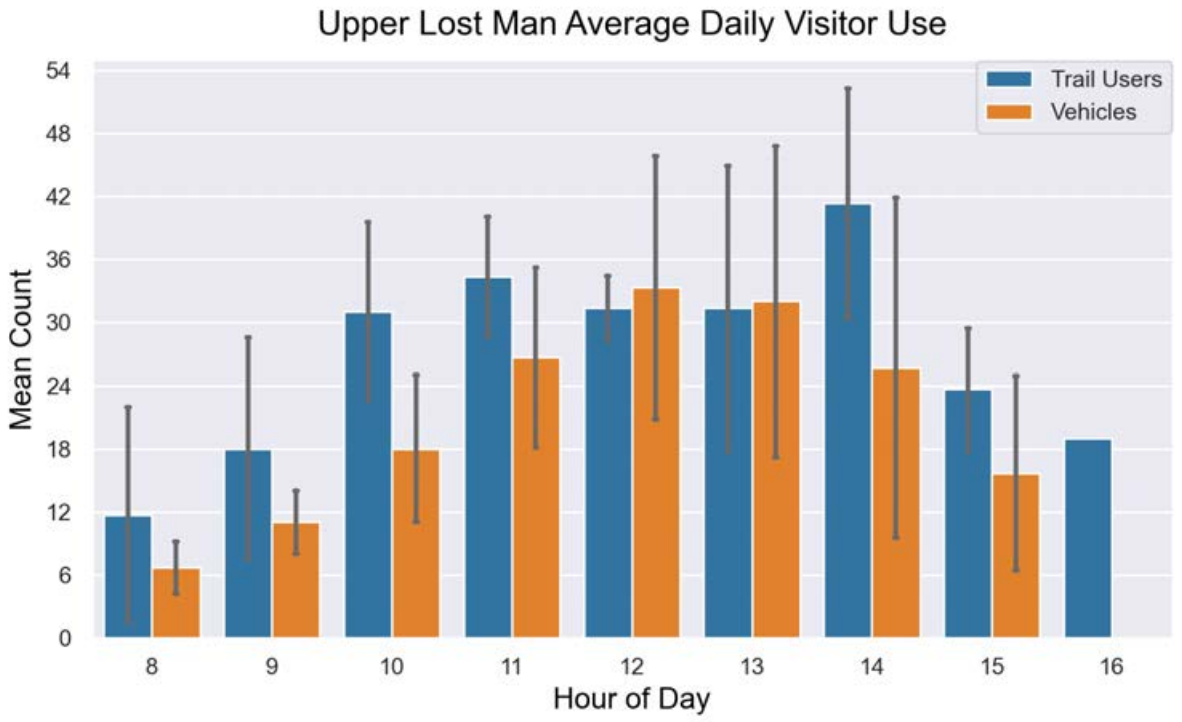

Figure C.7: Average hourly visitor and vehicle counts at Upper Lost Man Trail.

C.3. Concentrated

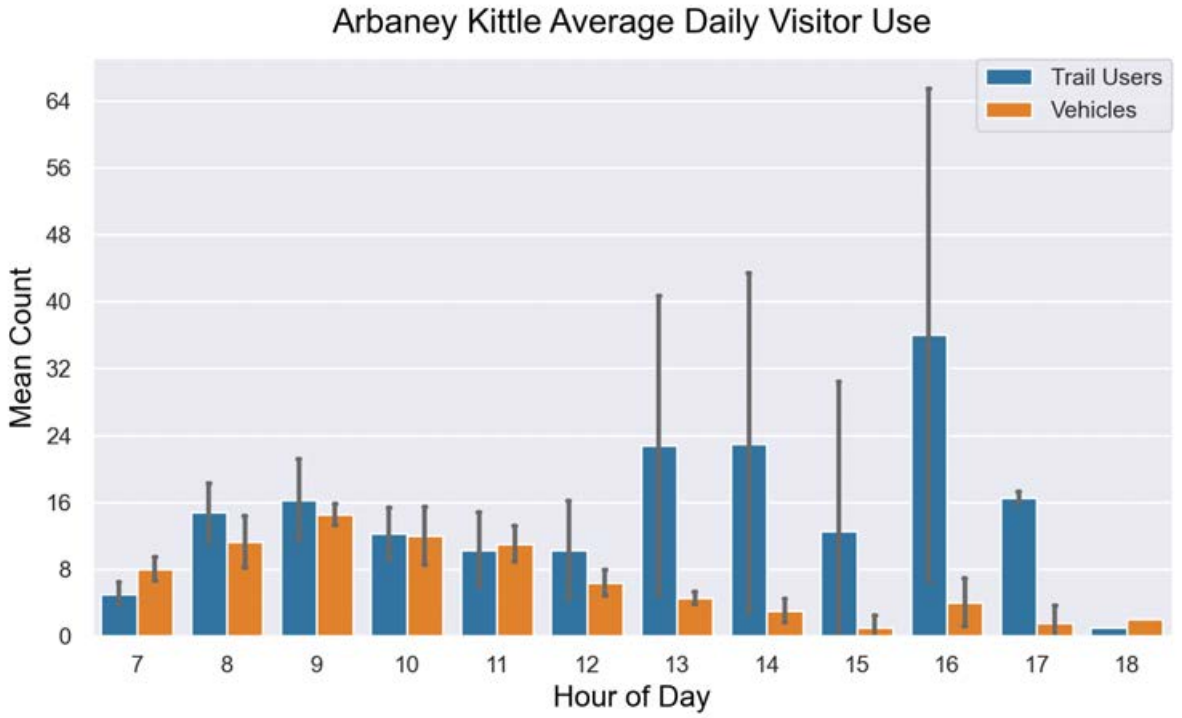

Figure C.8: Average hourly visitor and vehicle counts at Arbaney Kittle.

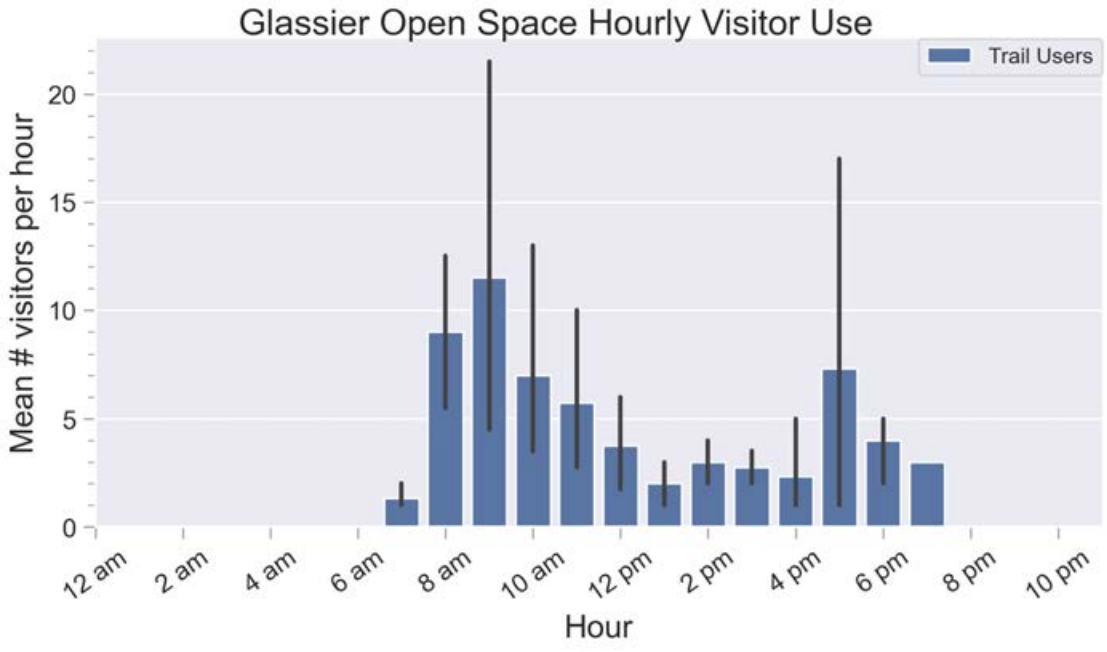

Figure C.9: Average hourly visitor counts at Glassier Open Space.

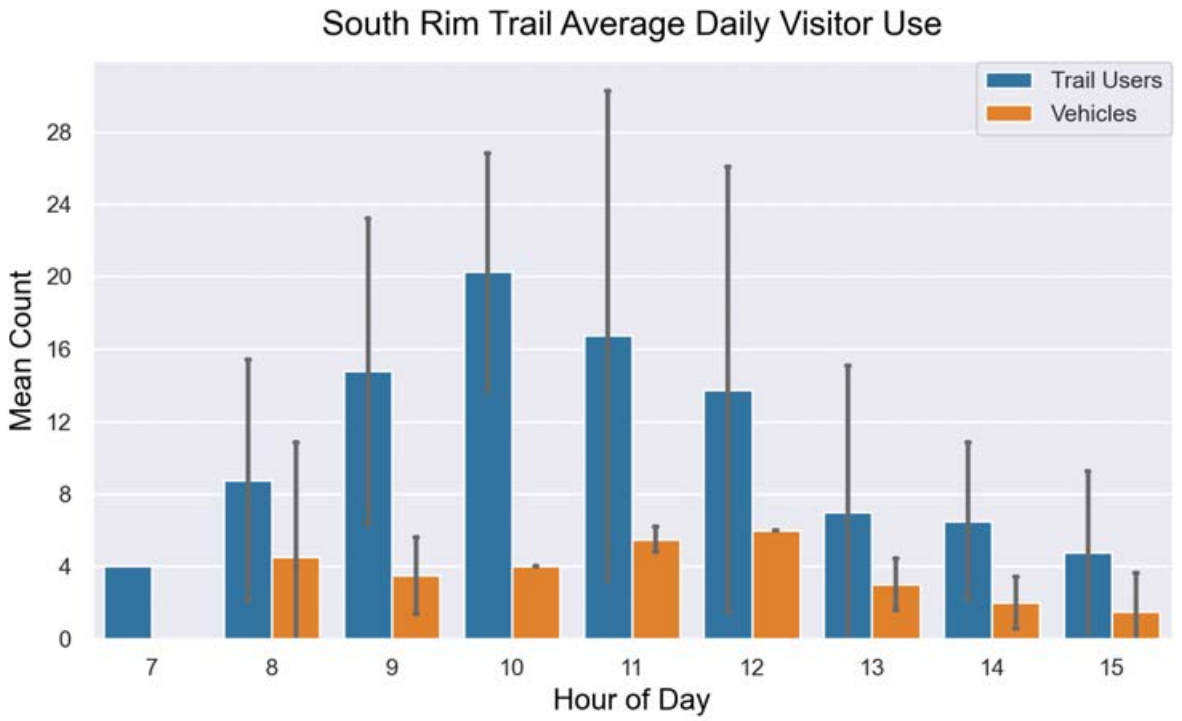

Figure C.10: Average hourly visitor and vehicle counts at South Rim Trail.

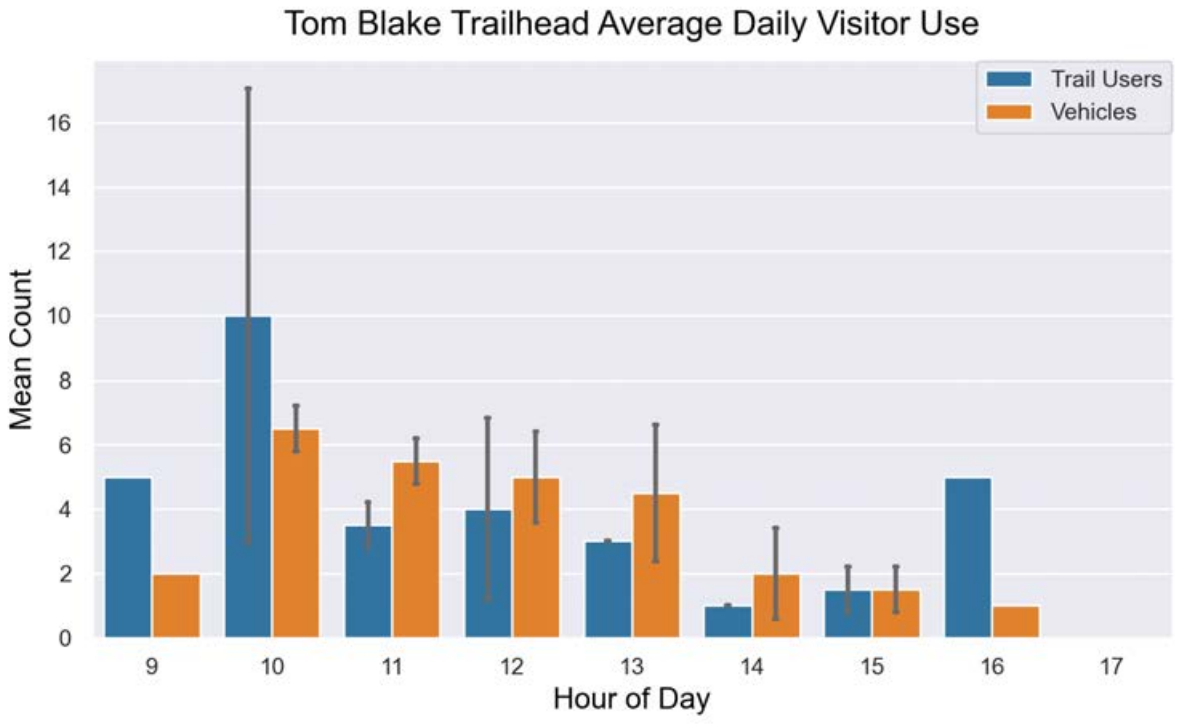

Figure C.11: Average hourly visitor and vehicle counts at Tom Blake Trail.

C.4. Urban Proximate

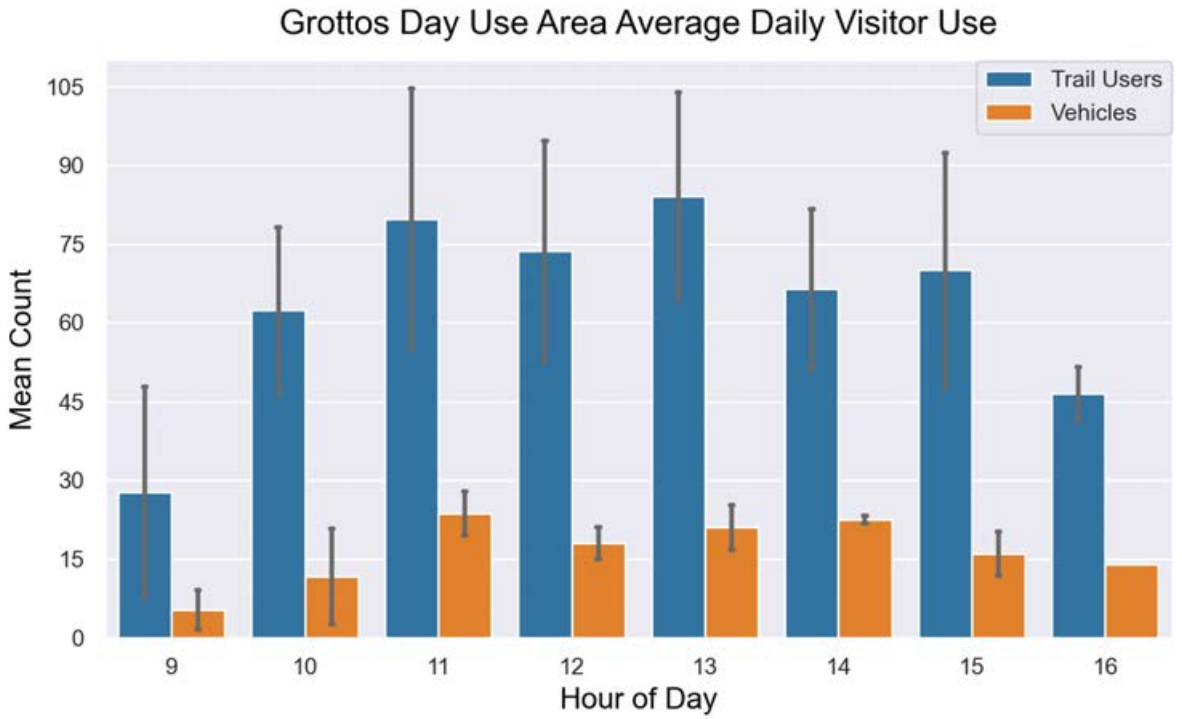

Figure C.12: Average hourly visitor and vehicle counts at Grottos Day Use Area.

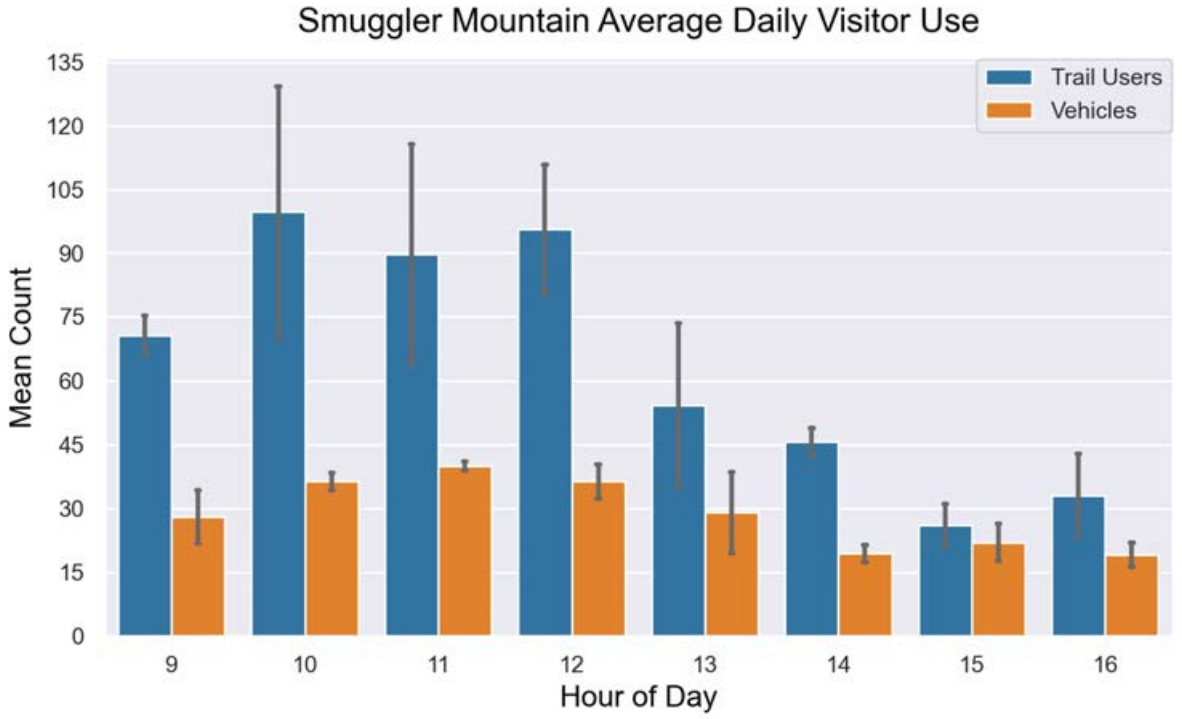

Figure C.13: Average hourly visitor and vehicle counts at Smuggler Mountain.

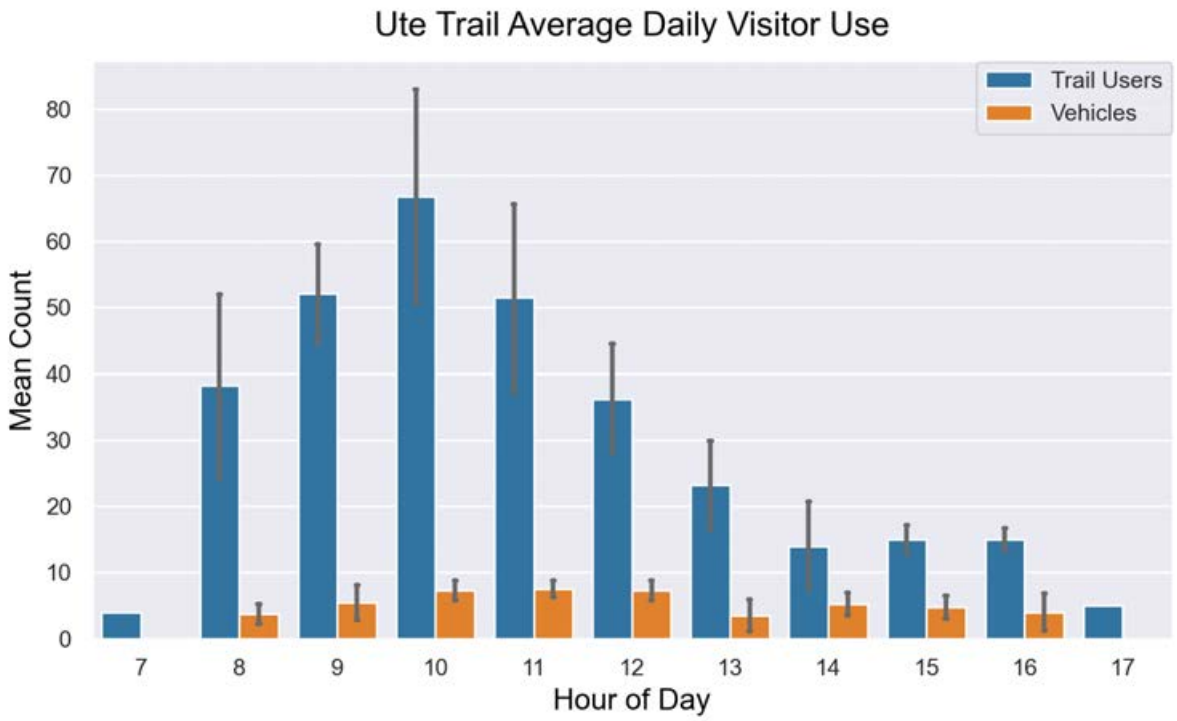

Figure C.14: Average hourly visitor and vehicle counts at Ute Trail.

D

Appendix D: Survey Instrument

PICO

Start of Block: Park Location

Q1.1 **What site are you visiting today?**

- O Arbaney Kittle (1)
- O Avalanche Creek (2)
- O Capitol Creek (3)
- O Glassier Open Space (4)
- O Lower Lost Man (5)
- O Snowmass Lake (6)
- O South Rim Trail (7)
- O Thomas Lakes (8)
- O Upper Lost Man (9)
- O Ute Trail (10)

End of Block: Park Location

Start of Block: Informed Consent

Q2.1 **Participation in this Study:**
By continuing on to the survey, you agree to participate in this study. You indicate that you understand the risks and benefits of participation and that you know what you will be asked to do. You also agree that you have asked any questions you might have and are clear on how to stop your participation in the study if you choose to do so. Please be sure to retain a copy of this form for your records.

Would you like to participate in this survey?

O Yes (1)

O No (2)

End of Block: Informed Consent

Start of Block: NonResponse

Q3.1 **Non-Response Survey ID Label**

_____

Q3.2 **What is your primary constraint or reason for not participating in this study?**

O Language Barrier (1)

O Not enough time (2)

O Not interested (3)

O Safety Concerns due to COVID-19 (4)

O Other: (Please explain) (5)
_____

Q3.3 **What is the primary activity you planned to participate in on your visit to this site?**

- O Walking/Hiking (1)
- O Running (2)
- O Biking (3)
- O Dog Walking (4)
- O Horseback Riding (5)
- O Camping (7)
- O Bird watching/Wildlife viewing (8)
- O Photography (6)
- O Fishing (9)
- O 4-Wheeling/Dirt Biking (11)
- O Other (Please specify) (10)

_____

End of Block: NonResponse

Start of Block: Survey Setup

Q4.1 **Survey ID Label**

Insert: *GPS#-Track#*
Example: 05 Jul 2023_LOL_**25-1**

_____

End of Block: Survey Setup

Start of Block: Visit Characteristics

Q5.1 **What is the primary activity you planned to participate in on your visit to this site?**

- O Walking/Hiking (1)
- O Running (2)
- O Biking (3)
- O Dog Walking (4)
- O Horseback Riding (5)
- O Camping (6)
- O Bird watching/Wildlife viewing (8)
- O Photography (7)
- O Fishing (9)
- O 4-Wheeling/Dirt Biking (11)
- O Other (Please specify) (10) _____

Q5.2 **How many people are in your group(#) for this visit to ${e://Field/Site}?**

▼ 1 (1) ... 25+ (26)

Q5.3 **Approximately <u>how long did you spend</u> at this site during your visit?**

O An hour or less (1)

O A few hours (2)

O Most of the day (3)

O The full day (4)

O Multiple days (# of days) (5)
_____

Q5.4 **Is this visit your first time to ${e://Field/Site}?**

O No (1)

O Yes (2)

Display This Question:

If FirstTimeVisitor = No

Q5.5 **On average across the following periods of time, how frequently have you visited ${e://Field/Site} when open or accessible?**

	Frequency
This year (2023) (Q5.4_2022)	▼ Multiple times per week (1 ... None/Doesn't Apply (77)
Last year (2022) (Q5.4_2021)	▼ Multiple times per week (1 ... None/Doesn't Apply (77)
Past 5 years (Q5.4_Past5Years)	▼ Multiple times per week (1 ... None/Doesn't Apply (77)
Past 10 years (Q5.4_Past10years)	▼ Multiple times per week (1 ... None/Doesn't Apply (77)

Q5.6 **When planning your trip to ${e://Field/Site}, how did you obtain information about this site?**

(Select all that apply)

- ☐ Did not obtain information prior to this visit (1)
- ☐ Previous visits (2)
- ☐ Friends/relatives/word of mouth (3)
- ☐ Public lands staff/volunteer (4)
- ☐ Passing by and saw signs (5)
- ☐ Travel guides/tour books/brochures (6)
- ☐ Radio (7)
- ☐ Newspapers/magazines (8)
- ☐ Telephone/e-mail/written inquiry to park (9)
- ☐ Public Program or School Class (13)
- ☐ Website(s) (Please specify) (10) _____
- ☐ Social Media (Please specify) (11) _____
- ☐ Mobile App(s) (Please Specify) (12) _____
- ☐ Other (Please Specify) (14) _____

Q5.7 **Do you use any of the following technology/apps while recreating?**
(Please select the appropriate column for each item)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
Smartphone (Q5.6_Smartphone)	O	O	O	O	O
Smartphone camera (Q5.6_SmartphoneCamera)	O	O	O	O	O
GPS Device (Q5.6_GPSdevice)	O	O	O	O	O
Facebook (Q5.6_Facebook)	O	O	O	O	O
Instagram (Q5.6_Instagram)	O	O	O	O	O
SnapChat (Q5.6_SnapChat)	O	O	O	O	O
TikTok (Q5.6_TikTok)	O	O	O	O	O
Strava (Q5.6_Strava)	O	O	O	O	O
MapMyHike/Run/Ride (Q5.6_MapMyHike)	O	O	O	O	O
Naturalist Apps (i.e. iNaturalist, Seek, Plant ID, Merlin Bird ID, etc.) (Q5.6_iNaturalistSeek)	O	O	O	O	O
Mapping/Navigation Apps (Q5.6_Navigation)	O	O	O	O	O
Other (Please Specify) (Q5.6_Other)	O	O	O	O	O

End of Block: Visit Characteristics

Start of Block: Visitor Characteristics

Q6.1 **Below is a list of possible experiences you may want (prefer) to have while visiting ${e://Field/Site}. For each item, please indicate how important each experience is to you during your visit.**

	Not at all (1)	Slightly (2)	Moderately (3)	Very (4)	Extremely (5)
To experience tranquility (Q6.1_EscPhysPres1)	O	O	O	O	O
To experience risky situations (Q6.1_RiskTake1)	O	O	O	O	O
To learn more about yourself (Q6.1_Introspct1)	O	O	O	O	O
To have your mind move at a slower pace (Q6.1_EscPerSocPres1)	O	O	O	O	O
To meet other people in the area (Q6.1_NewPpl1)	O	O	O	O	O
To feel independent (Q6.1_AutoLead1)	O	O	O	O	O
To know that others are nearby (Q6.1_RiskReduc1)	O	O	O	O	O
To be away from crowds of people (Q6.1_EscPhysPres2)	O	O	O	O	O
To test your abilities (Q6.1_AchStim1)	O	O	O	O	O
To learn more about nature (Q6.1_Learn1)	O	O	O	O	O
To be with others who enjoy the same things you do (Q6.1_SamePpl1)	O	O	O	O	O
To enjoy the smells and sounds of nature (Q6.1_EnjNatur1)	O	O	O	O	O

To meet new people (Q6.1_NewPpl2)	O	O	O	O	O
To get away from the usual demands of life (Q6.1_EscPerSocPres2)	O	O	O	O	O
To feel good after being physically active (Q6.1_PhysFit1)	O	O	O	O	O
To grow and develop spiritually (Q6.1_Introspct2)	O	O	O	O	O
To be where things are fairly safe (Q6.1_RiskReduc2)	O	O	O	O	O
To take risks (Q6.1_RiskTake2)	O	O	O	O	O
To do something with your family (Q6.1_Family1)	O	O	O	O	O
To bring back pleasant memories (Q6.1_Nostalg1)	O	O	O	O	O
To experience new and different things (Q6.1_Learn2)	O	O	O	O	O
To be with friends (Q6.1_SamePpl2)	O	O	O	O	O
To bring your family closer together (Q6.1_Family2)	O	O	O	O	O
To get exercise (Q6.1_PhysFit2)	O	O	O	O	O
To think about good times you've had in the past (Q6.1_Nostalg2)	O	O	O	O	O
To view the scenery (Q6.1_EnjNatur2)	O	O	O	O	O
To gain a sense of self confidence (Q6.1_AchStim2)	O	O	O	O	O

To be alone (Q6.1_AutoLead2)	O	O	O	O	O

End of Block: Visitor Characteristics

Start of Block: Setting Characteristics

Q7.1 **About how far from your home or lodging (i.e. Hotel, AirBnb, etc) did you travel to visit ${e://Field/Site}? What transportation mode did you use to get to this location?**

	Distance	Mode of Transport
	Approx. # of Miles (1)	
Distance Travelled (Q7.1_Transport)		▼ Drove personal vehicle (1 ... Public Transportation (5)

Q7.2 **Please indicate your level of agreement or disagreement with each of the statements.**

	Strongly Disagree (1)	Somewhat Disagree (2)	Neutral (3)	Somewhat Agree (4)	Strongly Agree (5)
${e://Field/Site} means a lot to me (Q7.2_PI1)	O	O	O	O	O
I enjoy recreating at ${e://Field/Site} more than in any other area in the Roaring Fork Valley (Q7.2_PD1)	O	O	O	O	O
I am very attached to ${e://Field/Site} (Q7.2_PI2)	O	O	O	O	O
I wouldn't substitute any other location for the activity I do at ${e://Field/Site} (Q7.2_PD2)	O	O	O	O	O
I strongly identify with ${e://Field/Site} (Q7.2_PI3)	O	O	O	O	O
I get more satisfaction out of visiting ${e://Field/Site} than from visiting any other similar place (Q7.2_PD3)	O	O	O	O	O
No other place can compare to ${e://Field/Site} (Q7.2_PD4)	O	O	O	O	O

I feel that ${e://Field/Site} is part of who I am (Q7.2_PI4)	O	O	O	O	O

End of Block: Setting Characteristics

Start of Block: Evaluative

Q8.1 **Please respond with your level of agreement or disagreement with the following statements regarding <u>your experience while using the trails</u> at ${e://Field/Site}.**

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Signage to get to the trailhead is adequate (Q9.1_6)	O	O	O	O	O
Parking at the trailhead is adequate (Q9.1_7)	O	O	O	O	O
Facilities at the trailhead are adequate (Q9.1_8)	O	O	O	O	O
The number of people along the trail did not interfere with my experience (Q9.1_9)	O	O	O	O	O
I experienced conflict with other trail users (Q9.1_10)	O	O	O	O	O
I experienced conditions that were unsafe (Q9.1_11)	O	O	O	O	O

Q8.2 **On your visit to ${e://Field/Site}, did you notice any of the following visitor-caused impacts to resources, and how important is management of these impacts of to you?**

	Did you Notice?		Importance
	Yes (1)	No (2)	
Trampled vegetation (i.e. widening, shortcuts around switchbacks) (Q9.3_TrampledVeg)	O	O	▼ Not at all important (1 ... Doesn't Apply/Pre-trip (7)
Soil erosion along the trail surface (Q9.3_Erosion)	O	O	▼ Not at all important (1 ... Doesn't Apply/Pre-trip (7)
Disturbing wildlife (noise, getting too close, harassment, etc.) (Q9.3_DisturbWildlife)	O	O	▼ Not at all important (1 ... Doesn't Apply/Pre-trip (7)
Improper disposal of human waste (Q9.3_HumanWaste)	O	O	▼ Not at all important (1 ... Doesn't Apply/Pre-trip (7)
Improper disposal of dog waste (Q9.3_DogWaste)	O	O	▼ Not at all important (1 ... Doesn't Apply/Pre-trip (7)
Litter (Q9.3_Littering)	O	O	▼ Not at all important (1 ... Doesn't Apply/Pre-trip (7)

End of Block: Evaluative

Start of Block: Crowding

Q9.1 **Please indicate whether (and if so, how often) you have ever done each of the following in any recreation area in the Roaring Fork Valley.**

	N/A (1)	Never (2)	Rarely (3)	About half the time (4)	Often (5)	Always (6)
I plan my visits for times of day I think will be less busy (Q8.2_TemporalDay)	O	O	O	O	O	O
I visit on weekdays to avoid weekend crowds (Q8.2_TemporalWeek)	O	O	O	O	O	O
I use trails/areas that are less likely to have crowds (Q8.2_SpatialTrail)	O	O	O	O	O	O
I avoid places that require a reservation (Q8.2_Reservation)	O	O	O	O	O	O
I visit earlier or later in the season to avoid crowds (Q8.2_TemporalSeason)	O	O	O	O	O	O
I avoid trailheads where I think parking would be difficult to find (Q8.2_SpatialParking)	O	O	O	O	O	O

Q9.2 **If you responded with 'often' or 'always' to any of the previous statements, please list specific recreation areas in the Roaring Fork Valley where you've modified your plans or behavior.**

_____

_____

_____

_____

_____

End of Block: Crowding

Start of Block: Demographics

Q10.1 **What is the ZIP/postal code of your primary residence?**

O US Zip Code (8) _____

O My primary residence is not in the US (9)

Display This Question:

If ZIPCode = My primary residence is not in the US

Q10.2 **Please select the country of your primary residence?**

▼ Afghanistan (1) ... Zimbabwe (193)

Q10.3 **Which of the following best describes your residency in the Roaring Fork Valley?**

O Roaring Fork Valley primary resident (1)

O Roaring Fork Valley second homeowner (2)

O Roaring Fork Valley visitor (3)

Q10.4 **What is your gender?**

- O Female (1)
- O Male (2)
- O Non-binary (3)
- O Genderqueer and or gender non-conforming (4)
- O Prefer not to answer (5)
- O Prefer to self-identify: (6)

Q10.5 **Which of the following race/ethnicity do you most closely identify with? Answer only for yourself.**
(Select all that apply)

- ☐ Asian (1)
- ☐ American Indian or Alaskan Native (2)
- ☐ Black or African (3)
- ☐ Hispanic or Latino/a (4)
- ☐ Middle Eastern or North African (5)
- ☐ Native Hawaiian or Pacific Islander (6)
- ☐ White (7)
- ☐ Don't know/Prefer not to respond (8)
- ☐ Prefer to self-identify (9) _____

Q10.6 What year were you born?

▼ 2005 (78) ... 1929 (76)

Q10.7 **What is the highest level of education you have completed?**

- O Less than high school (1)
- O Some high school (2)
- O High school graduate (3)
- O Vocational/ Trade school certificate (4)
- O Some College (5)
- O Two- year college degree (6)
- O Four-year college degree [or bachelor's degree] (7)
- O Master's degree [or other graduate degree] (8)
- O Ph.D, M.D., J.D., or equivalent (9)

Q10.8 **Which category best represents your annual household income?**

- O Less than $25,000 (1)
- O $25,000 to $49,999 (2)
- O $50,000 to $99,999 (3)
- O $100,000 to $199,999 (4)
- O $200,00 to $499,999 (5)
- O $500,000+ (6)

Q10.9 **Is there anything you would like to tell us about your recreation experience in the Upper Roaring Fork Valley?**

_____

_____

_____

_____

_____

End of Block: Demographics