

2018 Survey of D&L Trail Users



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Executive Summary

In the summer of 2018, a research team from Lafayette College collaborated with Delaware & Lehigh National Heritage Corridor staff to develop and implement a survey of D&L Trail users. The survey was conducted at five D&L Trail locations in the Lehigh Valley. We gathered 408 survey responses.

The survey asked trail users about their trail use behaviors, the purpose of their visit, their perceptions of the trail's condition, their sense of feeling included on the trail, place meanings, and willingness to take civic actions regarding the trail and adjacent waterways. We also asked questions about purchasing behaviors. Lastly, sociodemographic characteristics such as age, gender, and race, were asked.

The survey yielded a number of important findings. The highlights are summarized as follows:

- A majority of trail users are white, non-Hispanic, male, or over 40 years old. Four-fifths (80.5%) of trail users permanently reside within Lehigh or Northampton Counties.
- A majority of trail users were cyclists (52.5%). Walking or hiking was the second-most popular activity (44.4% of trail users). Half (50.5%) of respondents use the trail once a month or less often, with another 10 percent using the trail three or more times per week.
- Two-thirds (66.7%) of trail users made a trail-related hard goods purchase in the past year. One-third (37.3%) of trail users typically make their trail-related purchases at locally-owned stores.
- About one-third of survey participants made at least one soft goods purchase in conjunction with their visit to the trail. Trail users making soft goods purchases spent \$10.99, on average.
- The vast majority (94%) of trail users did not have an overnight stay related to their trail visit.
- A majority of trail users perceive the trail as a place to exercise, and almost half of trail users associate the trail with enjoying the outdoors or enjoying rivers and streams.
- While trail users generally feel welcome on the trail, white, non-Hispanic users differed from trail users of color in terms of their sense of inclusion: non-white users reported lower rates of fitting in with other people on the trail, having similar interests as other trail users, and in believing that other trail users reflect the type of person who they are.
- Trail users were, on average, "somewhat willing" to be a paying member of a trail organization or of an organization that supports water quality in nearby rivers. Trail users were generally, "willing" to sign petitions in support of the trail or of water quality in nearby rivers.
- The reasons why trail users are willing to participate in civic actions differ depending on both the type of civic action (e.g., a paying member of an organization vs sign a petition) and the target of the civic action (e.g., water quality vs the trail).
- Users' willingness to be a paying member of trail or water quality organizations was greater when users reported greater rates of social interaction on the trail. Older trail users were more likely than younger trail users to be paying members of a trail organization, net other characteristics. Trail users who were cycling and who were using the trail for shorter durations were more willing to be paying members of water quality organizations, when controlling for other characteristics.
- Willingness to sign a petition increased with stronger feelings of inclusion and acceptance among trail users, and with a firmer sense of what the trail means. Willingness to sign a trail-related petition was greater for white users than trail users of color, when controlling for other characteristics. Willingness to sign a petition on water quality was greater for younger trail users than older trail users, net other characteristics.

Project Overview

In June and July, 2018, we conducted an intercept survey of trail users at five Lehigh Valley locations along the Delaware & Lehigh Trail. The purpose of the survey was to learn more about D&L Trail user's experiences, including their activities, thoughts, perceptions, and purchase behaviors. The survey methods and survey questions are discussed in the section below, followed by the most prominent survey findings. The report concludes with a summary of key points and recommendations for further research.

Intercept Survey Methods

The survey questionnaire

The survey questionnaire consisted of 21 questions with many questions containing multiple items. Participants were asked about the purposes, frequency, and duration of their trail use. We also asked participants about their perceptions of the trail condition and the nearby town or city. We were interested to learn more about trail users' place meanings, or trail users' understanding of what a place is. We also wanted to learn about trail users' sense of inclusion, or the ways in which trail users felt part of the trail user community. The survey included questions about civic actions, as measured through trail users' willingness to sign a petition or join an organization. We also asked questions about purchasing behaviors, particularly hard goods (e.g., a bike), soft goods (typically single-use consumables) and overnight accommodations. Lastly, sociodemographic characteristics such as age, gender, and race, were asked.

Survey locations

In consultation with D&L National Heritage Corridor staff, we identified five locations for data collection. All five of these locations were within the Lehigh Valley section of the D&L Trail. Starting at the easternmost location, the Forks of the Delaware site in Easton was stationed along the D&L Trail in the Delaware Canal State Park, adjacent to the Delaware Canal near the train trestle overpass. The Sand Island Park, Bethlehem study location was located to the east of the Fahy Bridge overpass. The Allentown Canal Park site was typically 20 meters east of the parking lot as to intercept users originating from both east and west directions. The Northampton Canal Street Park location ranged between 16th Street and the baseball fields near 14th Street. Lastly, the Slatington location was located on the trail, a few yards south of the public restroom.

Table 1. Survey responses by study location.

	Frequency	Percent	Response Rate
Forks of the Delaware	69	16.9%	61.8%
Sand Island Park	84	20.6%	59.3%
Allentown Canal Park	74	18.1%	57.7%
Northampton Canal Street Park	52	12.7%	60.0%
Slatington	129	31.6%	48.9%
Total	408	100.0%	57.6%

Survey data collection

Survey responses were collected using paper and digital (via iPad) mediums. All survey responses were anonymous. Trail users were intercepted along the trail and asked to complete the questionnaire. In locations and at times that were highly trafficked, every third trail user was approached; at times and locations of low trail use, every trail user was invited to participate. We stratified our data collection timing by assigning days, times, and locations to numbers on a die, and rolling the die to assign data collection sessions. We also stratified data collection to ensure that trail users on weekdays and weekends were included within each study site. Each data collection session lasted three hours per location. Upon completion of the survey, participants were offered a snack bar or a D&L Trail sticker in gratitude. Refusals were also recorded. In total, 408 usable survey responses were collected with an average 57.6% response rate.

Survey Findings

Overview of trail users

Trail users: Who uses the D&L Trail in the Lehigh Valley?

Overall, trail users tended to be white, non-Hispanic (80.1%), over 40 years old (64.7%), or male (60.9%). However, there is some range in the sociodemographic characteristics of trail users, with 10.2 percent of trail users reporting that their primary race or ethnicity was white, Hispanic/Latino, and 39.1 percent of users identifying as female. Nearly one-third of users (35.3%) were in their 30's.

Four-fifths (80.5%) of trail users reported that their permanent residence was within Lehigh or Northampton Counties.

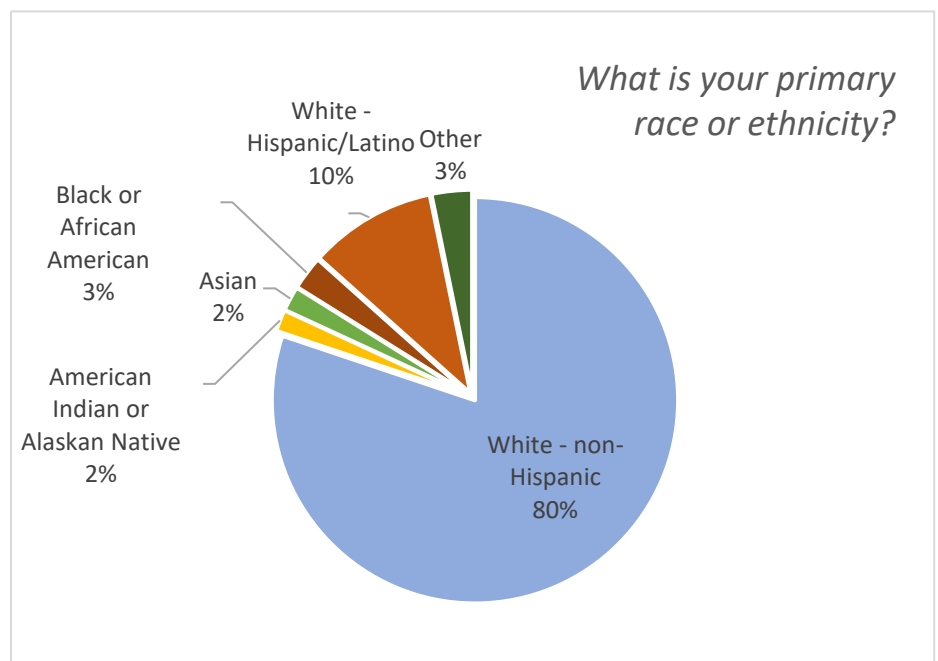


Figure 1. Trail users' race or ethnicity.

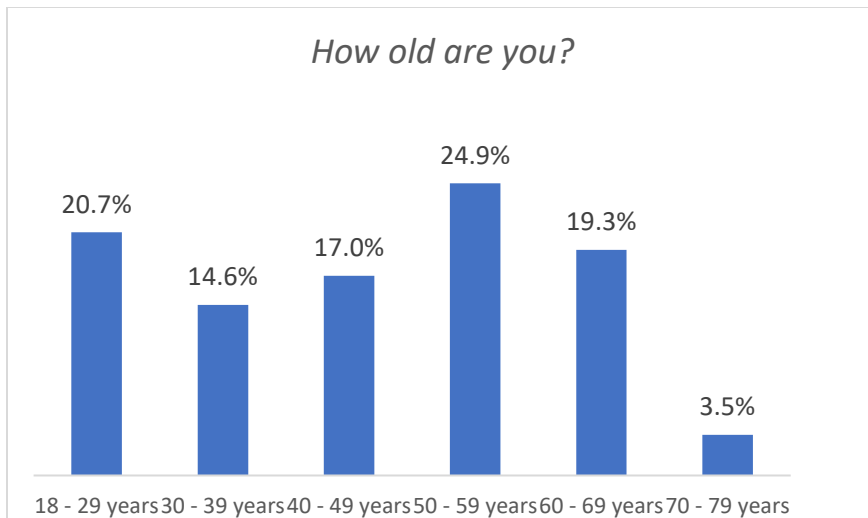


Figure 2. Trail users' age.

Trail use activities: What brings D&L Trail users to the trail?

A majority of trail users were cyclists (52.5%). Walking or hiking was the second-most popular activity (44.4% of trail users). Over one-quarter (31.9%) of trail users reported watching wildlife.

Trail users who were cycling tend not to be walking or hiking, jogging, or fishing (see Table 2).

People who went fishing also tended to go boating or swimming during their visit.

Trail users who viewed art were also involved in visiting historic sites, shopping, and attending an event. People who walked, fished, visited historic sites, or attended events also watched wildlife on the trail.

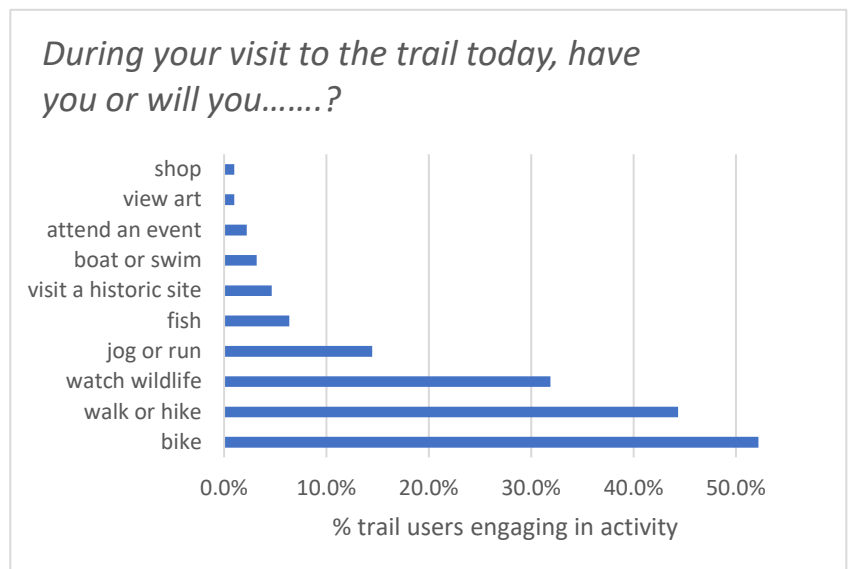


Figure 3. Trail users' activities.

Table 2. Pearson correlations[^] for trail activities.

<i>During your visit to the trail today, have you or will you.....</i>	walk or hike	bike	jog or run	fish	boating or swimming	watch wildlife	historic site	view art	shop	attend event
walk or hike	1	-.617**	-0.002	0.030	0.063	.120*	-0.010	0.011	0.011	0.067
bike		1	-.290**	-.172**	0.006	-0.072	.142**	0.045	-0.004	0.010
jog or run			1	-0.050	0.044	-0.057	0.074	0.030	-0.041	0.081
fish				1	.181**	.188**	.133**	0.076	0.076	.097*
boating or swimming					1	0.086	0.092	.124*	.124*	0.068
watch wildlife						1	.198**	0.092	0.092	.148**
historic site							1	.214**	.214**	.284**
view art								1	.243**	.324**
shop									1	.324**
attend event										1

[^]Pearson correlation statistics represent the extent to and direction which two variables are related to one another. A strong correlation (here, phi = 1 or -1) represents the same exact variation in the two measures.

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Trail use patterns: How do people use the trail?

Most people use the trail in pairs, with the average group size of 1.93 people.

Nearly three-quarters (70%) of trail users are on the trail for more than one hour per visit, with 30% of trail users on the trail for more than two hours at a time.

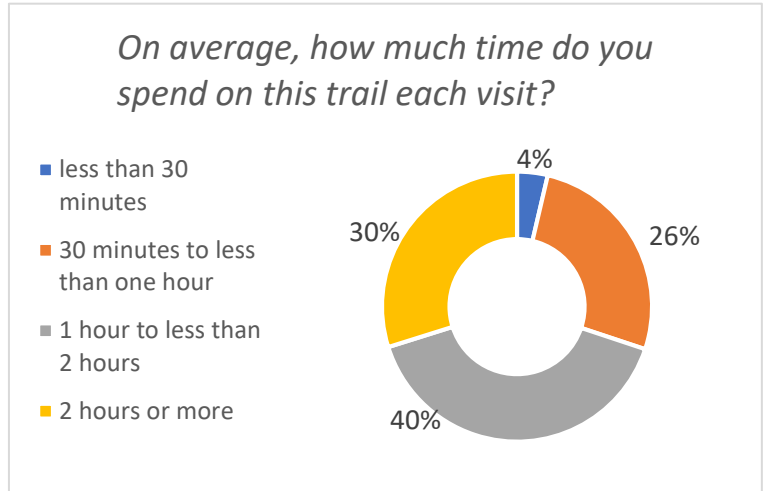
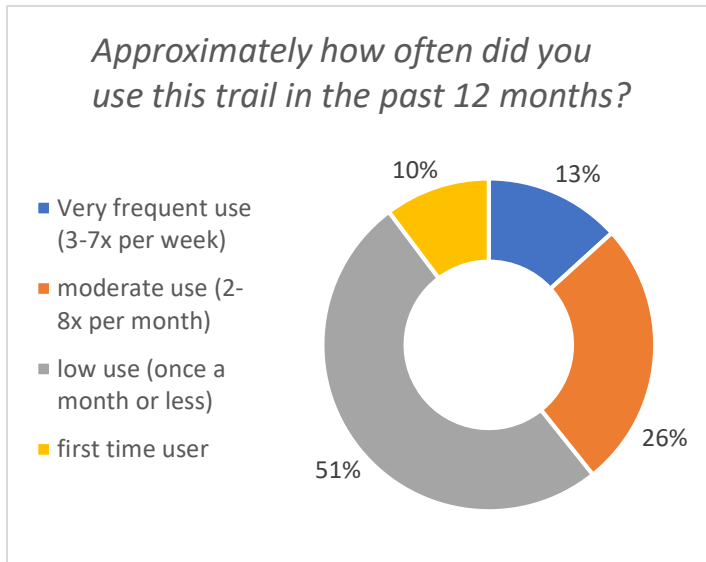


Figure 4. Trail use duration.



In terms of trail use frequency, half (50.5%) of respondents use the trail once a month or less often, with another 10 percent using the trail three or more times per week.

Figure 5. Trail use frequency.

Trail-related purchases: What do trail users buy, and where do they buy it?

Trail purchases typically fall into two categories: hard goods, or items that are used over time, and soft goods, which are consumable items used in the short term.

Nearly three-quarters (72.8%) of survey respondents made either a soft or a hard goods purchase in conjunction with their D&L Trail use.

Hard goods:

Overall, two-thirds (66.7%) of trail users made a trail-related hard goods purchase in the prior year. One-third (37.3%) of trail users typically made their trail-related purchases at locally-owned stores.

The trail-related hard goods listed below were purchased at the following rates:

- Bike: 34.3% of trail users
- Bike supplies: 34.1% of trail users
- Footwear: 28.3% of trail users
- Clothing: 24.5% of trail users
- Bike-related auto accessories: 20.7% of trail users
- Fishing gear: 7.3% of trail users
- Boat: 2.5% of trail users

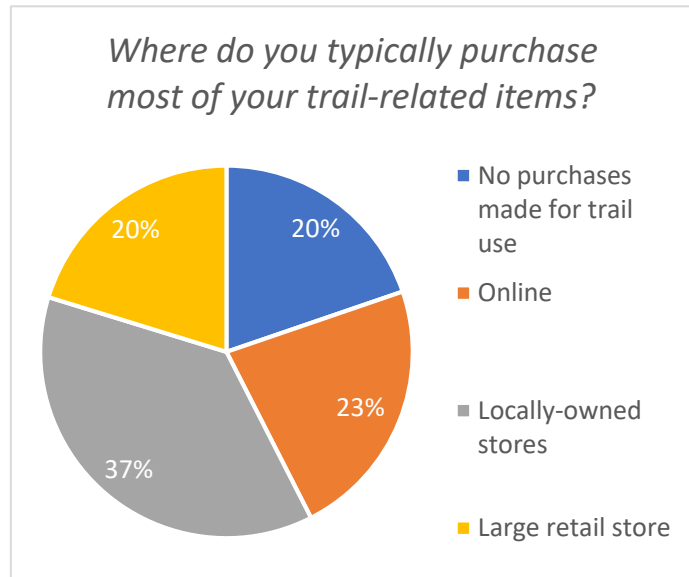


Figure 6. Trail-related hard good purchase locations.

Trail users at the Slatington and Allentown Canal Park locations, on average, purchased more bike-related equipment than users at the other locations.

Soft goods:

About one-third of survey participants made at least one soft goods purchase in conjunction with their visit to the trail. Trail users reported the following purchases of soft goods in association with their trip to the trail:

- Beverages: 25.0% of trail users
- Candy/snack foods: 8.6% of trail users
- Meals at a restaurant: 6.6% of trail users
- Ice cream: 4.9% of trail users
- Take-out meals: 2.7% of trail users
- Rental equipment: 0.7% of trail users
- Other type of purchase: 2.5% of trail users

The average amount spent on each trail-related soft goods purchase was \$10.99. There were no differences in the total amount spent on soft good purchases across the five study locations.

Overnight travel:

For a vast majority of trail users (94%), an overnight stay was not part of their trail visit. For the 6% (n = 21) who did travel overnight, they stayed at the following:

- Motel or hotel: 3 trail users
- Bed and breakfast: 1 trail user
- Friend or relative's house: 7 trail users
- Campground: 1 trail user
- Air BNB: 1 trail user
- Other: 9 trial users

The median length of stay was 1.5 nights, and the average price paid was \$92.43 per night. There was no difference in the amount spent on accommodations across the five study locations.

Trail users' perceptions – What do trail users think?

Place meanings

D&L Trail users generally have a clear sense of what the trail means to them (Table 3). A majority of trail users perceive the trail as a place to exercise, and almost half of trail users associate the trail with enjoying the outdoors (48% 'strongly agree') or enjoying rivers and streams (45% 'strongly agree'). Just over one-fifth of trail users perceive the trail as a place of high environmental quality (22.9% 'strongly agree').

Table 3. Trail users' place meanings

This trail is....	% 'strongly agree'	% 'agree'	Average [^]
<i>A place to exercise</i>	57.8%	38.9%	4.51
<i>Where I go to enjoy the outdoors</i>	48.0%	45.0%	4.39
<i>A place to enjoy rivers and streams</i>	45.1%	45.4%	4.32
<i>An important part of regional history</i>	33.1%	44.6%	4.05
<i>Where I go to get away from it all</i>	24.8%	52.0%	3.94
<i>A place of high environmental quality</i>	22.9%	57.4%	3.97

[^](scale: 1 = 'strongly disagree', 5 = 'strongly agree')

Perceived inclusion

Trail users reported that, overall, they feel welcome on the trail (95% of users 'agreed' or 'strongly agreed'), and there were no differences in how welcome people felt in comparisons between binary genders, between white users and users of color, or across survey locations. Survey respondents reported that they meet new people on the trail (12.1% 'strongly agree'), and that they talk with people on the trail who they may not otherwise (13.1% 'strongly agree') (Table 4).

While trail users generally feel welcome, trail users of color differed from white, non-Hispanic users in terms of their sense of inclusion within the trail community. Trail users of color reported that they felt like they did not fit in with other people on the trail, have similar interests as other trail users, or believe that other trail users reflect the type of person who they are. These findings likely reflect the current racial-ethnic makeup of trail users, as users of color make up one-fifth of people on the trail.

Table 4. Trail users' perceived inclusion.

How strongly do you agree or disagree with the statements on the left?	% 'strongly agree'	% 'agree'	Average [^]
<i>^lI feel welcome on the trail</i>	35.2%	59.8%	4.29
<i>^lOther trail users and I have similar interests</i>	22.7%	65.7%	4.10
<i>^lI fit in with other people on the trail</i>	21.6%	61.7%	4.03
<i>^lOther trail users reflect the type of person who I am</i>	14.3%	46.2%	3.68
<i>[^]I talk with people on the trail who I may not talk with otherwise</i>	13.1%	48.2%	3.60
<i>[^]When on the trail, I meet new people</i>	12.1%	44.1%	3.56
<i>Generally, I don't feel accepted by other people on the trail</i>	2.6%	8.2%	1.97
<i>I do not say hello to other people on the trail unless I know them</i>	4.3%	8.3%	1.90

[^](scale: 1 = 'strongly disagree, 5 = 'strongly agree')

To simplify the analysis of the perceived inclusion variables, an exploratory factor analysis¹ was conducted. The analysis revealed two unique dimensions of perceived inclusion: identity-based inclusion (denoted in Table 4 with^l) and interaction-based inclusion (denoted in Table 4 with[^]). The variables within both dimensions were aggregated into averaged scores for the advanced analyses, below.

Civic action

Trail users were, on average, 'somewhat willing' to be a paying member of a trail organization or of an organization that supports water quality in rivers along the trail (Table 5). Trail users were generally, 'willing' to sign petitions in support of the trail or in support of water quality in nearby rivers.

Trail users' willingness to participate in one civic action was correlated with participation in other civic actions, for example, trail users who were willing to be a paying member of a trail organization were also willing to be a paying member of a water organization (Pearson correlation = 0.767; $p = 0.000$). One-third of trail users (34.3%) said they would be willing or very willing to both sign a petition and be a paying member of a trail organization, while a similar proportion of users (36.3%) reported the same level of willingness to act on behalf of water quality in adjacent rivers.

¹ A factor analysis identifies unique groupings of variables based on similar variation.

Table 5. Trail users' willingness to take civic actions regarding the trail and adjacent waterways

<i>How willing are you to do any of the following?</i>	% 'willing'	% 'very willing'	Average [^]	Pearson Correlation			
				<i>Be a paying member of an organization that supports this trail</i>	<i>Be a paying member of an organization that supports water quality in rivers and streams along this trail</i>	<i>Sign a petition in support of this trail</i>	<i>Sign a petition in support of water quality in rivers and streams along this trail</i>
<i>Be a paying member of an organization that supports this trail</i>	28.7%	8.4%	2.28	1			
<i>Be a paying member of an organization that supports water quality in rivers and streams along this trail</i>	29.3%	9.4%	2.31	0.767	1		
<i>Sign a petition in support of this trail</i>	37.0%	46.1%	3.27	0.291	0.321	1	
<i>Sign a petition in support of water quality in rivers and streams along this trail</i>	35.2%	47.3%	3.27	0.245	0.366	0.856	1

[^] scale: 1 = 'not at all willing' to 4 = 'very willing'

*all correlations shown above are significant (p=0.000)

Table 6. Willingness to take civic actions on trails and water quality.

Action target	% willing or very willing to be paying organization member	% willing or very willing to sign petition	% willing or very willing to <u>both</u> pay and sign for action target at left
The trail	37.1%	83.1%	34.3%
Water quality in nearby rivers	38.7%	82.5%	36.3%

Comparisons of Trail Locations in the Lehigh Valley

Overall, the five D&L Trail locations included in this study were very similar: they shared a proximity to the Lehigh River and major roadways, had ample automobile parking availability, and trail users regularly visit these trailheads. A few, but not many, differences in trail user perceptions and behaviors were found across the survey locations.

Differences in trail users by location

The Forks of the Delaware, Sand Island Park, and Allentown Canal Park locations tended to have more similar user profiles to one another than to the Northampton and Slatington locations (Figure 7). The Forks of the Delaware, Sand Island Park, and Allentown Canal Park had significantly higher proportion of users of color compared to the other two study areas. Trail users at Slatington were significantly older than trail users at the other locations, on average. There was no difference in the number of trail user group size across, nor in the proportion of users by gender across the five locations.

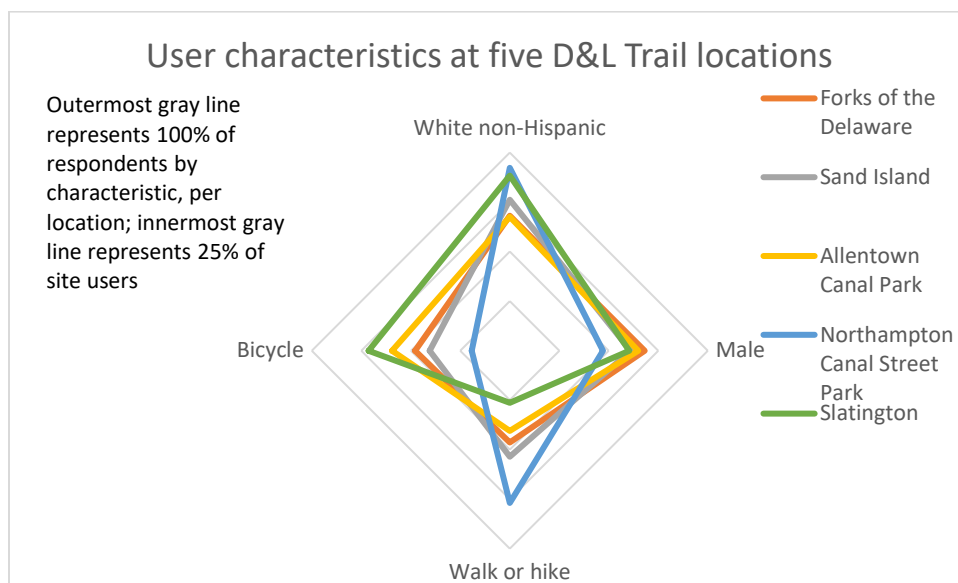


Figure 7. Radar plot of five study locations across key trail user characteristics.

In terms of trail use, Northampton Canal Street Park had the greatest proportion of walkers and hikers of our survey locations. This proportion was significantly greater than all other locations, except for the Sand Island Park site. Slatington was the most popular location for cyclists, and had a significantly greater proportion of survey respondents participating in cycling activities compared to all other locations except Allentown Canal Park. There were no other differences among the trail locations in terms of trail use activities.

Differences in D&L Trail place meanings by location

The trail meant somewhat different things to people in different locations. Trail users in Slatington believed that the trail was “a place of high environmental quality” significantly more so than trail users at the Sand Island Park and Northampton Canal Street Park locations. Trail users at the Forks of the Delaware and Slatington locations were more likely than trail users at Northampton Canal Street Park to perceive the trail as an important part of regional history and as a place to enjoy the outdoors.

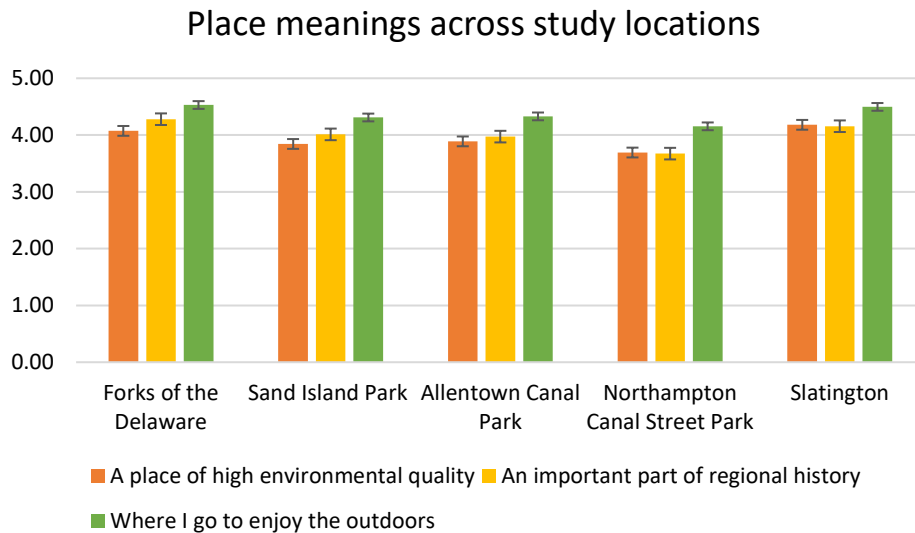


Figure 8. Average place meaning for three measures across the study locations.

Differences in perceived D&L Trail quality by location

Overall, trail users across our five survey locations rated the cleanliness of the trail, the trail surface, and the trailhead where they started as being in “good” condition. Trail users at the Slatington location rated the cleanliness of the trail higher than trail users at the Sand Island Park, Allentown Canal Park, and Northampton Canal Street Park locations. Slatington users also rated the trail surface significantly higher than trail users at the other locations, except for those at Northampton Canal Street Park. Lastly, Slatington users rated the condition of the trailhead where they started higher than users at the Sand Island Park location. There were no differences between survey locations in terms of what users thought about the nearby town or city.

Advanced analysis: What motivates trail users' willingness to take civic action?

The D&L Trail provides an opportunity for people to spend time outside and within the natural environment. Most of the D&L Trail within the Lehigh Valley section is adjacent to or within view of a major riverway. This proximity affords D&L trail users with the ability to connect to both the trail and the rivers and streams nearby. The D&L Trail is also a social space—one that hosts coordinated events, informal social gatherings, and as a space for trail goers to interact with one another.

With over 400 survey responses, we are able to identify the characteristics of trail users who are most willing to take civic action—to be paying members of organizations or to sign petitions—on behalf of both the trail and water quality in nearby rivers and streams. The advanced analysis below consists of four binomial regression models. The purpose of these models is to identify the trail user attributes that differentiate trail users who are 'very willing' to take civic actions from those who are 'willing', 'somewhat willing', or 'not at all willing'. Our hypothesis was that trail users who felt more included within the trail community—be that in terms of a shared identity, interactions with others, or a general sense of acceptance—would be more willing to engage in civic actions.

Key variables

The advanced analyses focused on the following five sets of variables:

- **The dependent measures: trail users' willingness to participate in civic actions.** The four binomial logistic regression models correspond with each of the four civic action survey questions. These four variables were measured on a four-point scale from 'not at all willing' to 'very willing'. To conduct the regression analysis, the variables were recoded into binary measures, with '1' representing the respondents who were 'very willing' and '0' representing all other trail users. Thus, we examined the characteristics that differentiate only the most willing trail users from all others.
- **Sociodemographic characteristics.** Three sociodemographic characteristics were included in the regression models: race/ethnicity, age, and gender. Respondents had the option to indicate their race/ethnicity within five categories and an "other" option. Due to a low proportion of non-white, non-Hispanic trail users, the race/ethnicity categories were collapsed into two groups: white, non-Hispanic and trail users of color. The age variable is a scalar measure with ages grouped by decade. Gender was assessed with three categories—male, female, and other; however, only male and female responses were reported and thus the gender measure represents two categories (male and female).
- **Patterns of trail use.** We included four variables that assessed patterns of trail use: the frequency of trail use, the duration of use, whether or not trail users were involved in water activities, and whether or not trail users were cycling. Frequency of use was represented on a scale of increasing regularity, from first-time use to nearly daily use. Duration of use was represented on a scale of increasing duration, from very brief use to longer periods of trail use. Water-based activity was represented with a combination of fishing, boating, or swimming during users' visit to the trail.
- **Perceived inclusion.** Two indicators of perceived inclusion were considered in the regression analyses: interaction and acceptance. The interaction measure is an averaged scale of two items, "I talk with people on the trail who I may not talk with otherwise," and "When on the trail, I meet new people." The interaction measure may be interpreted as an indication of trail

users' social interaction with other trail users, with interaction increasing as the scale values increase. The second indicator of perceived inclusion was acceptance, or the extent to which other trail users approved of the respondent. Increasing values represent a stronger sense of acceptance. The inclusion - interaction measure was correlated with perceived inclusion via identity (see the factor analysis in Table 4); accordingly, the identity measure was not included in the regression models.

- **Place meanings.** The items that assessed trail users' place meanings underwent a factor analysis. The factor analysis found that the place meanings aligned on a similar dimension; therefore, the place meaning items were aggregated into an averaged scale. Higher values on the place meanings scale represent a stronger agreement of what the trail is, as described in the place meaning items.

Advanced analysis findings

Overall, the findings within the four regression models suggest that the reasons why trail users are willing to participate in civic action differ depending on both the type of civic action (e.g., a paying member of an organization vs sign a petition) and the target of the civic action (e.g., water quality vs the trail). The main findings from each model, and management recommendations associated with these findings, are described below.

Willingness to be a paying member of a trail organization. Trail users who are older and who more regularly interact with other trail users are the most willing to be a paying member of a trail organization, when controlling for other measures (Table 7). Time spent on the trail and the type of activity on the trail did not influence users' trail membership willingness. There was no difference between white and non-white users in terms of trail membership willingness. To encourage organization membership, we recommend more targeted outreach to younger trail users. This outreach could serve a dual purpose of increasing social interaction on the trail and developing a younger organization membership.

Table 7. Binary logistic regression predicting willingness to be a paying member of a trail organization

Independent measure	B	S.E.	Wald	df	Sig.	Exp(B)
Race - White only	-0.346	0.568	0.371	1	0.543	0.708
Age	0.374	0.173	4.685	1	0.030	1.454
Gender	-0.074	0.453	0.027	1	0.870	0.928
Use - Frequency	0.388	0.252	2.379	1	0.123	1.475
Use - Duration	-0.399	0.319	1.565	1	0.211	0.671
Water recreation	-18.132	6634.121	0.000	1	0.998	0.000
Cycling	0.852	0.542	2.474	1	0.116	2.344
Inclusion - interaction	0.779	0.331	5.531	1	0.019	2.179
Inclusion - acceptance	0.262	0.233	1.271	1	0.260	1.300
Place meanings	0.713	0.486	2.154	1	0.142	2.040
Constant	-11.001	2.384	21.300	1	0.000	0.000

Willingness to be a paying member of a water quality organization. When controlling for sociodemographic and use characteristics, trail users who were cyclists and who more regularly interact with other trail users are the most willing to be a paying member of a water quality organization (Table 8). Trail users who spent less time on the trail per visit were more willing to be part of a water quality organization. That somewhat surprising finding suggests that trail users do not need to spend extensive time on the trail to see the important connections between the trail and nearby waterways. To encourage membership of a water quality organization, we recommend that there are informative displays about watersheds and water quality near riparian trailheads. We also encourage more water quality conservation events, such as riparian plantings or stormwater control measures along the trail so that trail users can see these influential practices—and the organizations that enact them—in action.

Table 8. Binary logistic regression predicting willingness to be a paying member of a water quality organization

Independent measure	B	S.E.	Wald	df	Sig.	Exp(B)
Race - White only	0.024	0.516	0.002	1	0.963	1.024
Age	-0.040	0.140	0.082	1	0.775	0.961
Gender	0.649	0.436	2.221	1	0.136	1.914
Use- frequency	-0.134	0.209	0.410	1	0.522	0.875
Use - duration	-0.896	0.284	9.927	1	0.002	0.408
Water recreation	-1.234	1.079	1.307	1	0.253	0.291
Cycling	1.106	0.481	5.279	1	0.022	3.023
Inclusion-interaction	1.109	0.310	12.789	1	0.000	3.031
Inclusion-acceptance	0.095	0.197	0.234	1	0.629	1.100
Place meanings	0.604	0.439	1.891	1	0.169	1.830
Constant	-7.388	2.121	12.138	1	0.000	0.001

Willingness to sign a petition on behalf of the trail. White trail users are more willing than non-white users to sign a petition on behalf of the trail, when controlling for other measures (Table 9). Regardless of race or ethnicity, all trail users are more willing to sign a trails-related petition when they feel accepted by other people on the trail and when they have a stronger place meaning (i.e., when they are clearer on what the trail is to them). We strongly recommend that, to build trail constituents, more trail users of color are involved in trail activities. One avenue to achieve this would be through coordinated group outings to introduce more local, non-white residents to the trail, or to ‘trails ambassadors’ who facilitate trail use and a sense of acceptance among trail users of color. We also recommend that trail users’ place meanings could be developed with informational signage or place-themed events.

Table 9. Binary logistic regression predicting willingness to sign a petition in support of this trail.

Independent measure	B	S.E.	Wald	df	Sig.	Exp(B)
Race - White only	0.610	0.302	4.075	1	0.044	1.841
Age	-0.162	0.086	3.540	1	0.060	0.850
Gender	-0.289	0.247	1.372	1	0.242	0.749
Use- frequency	0.084	0.125	0.448	1	0.504	1.087
Use - duration	0.073	0.164	0.200	1	0.655	1.076
Water recreation	-0.808	0.470	2.957	1	0.085	0.446
Cycling	0.207	0.276	0.561	1	0.454	1.229
Inclusion-interaction	0.124	0.159	0.611	1	0.434	1.132
Inclusion-acceptance	0.268	0.120	4.956	1	0.026	1.307
Place meanings	1.118	0.264	17.943	1	0.000	3.060
Constant	-6.764	1.234	30.048	1	0.000	0.001

Willingness to sign a petition on behalf of water quality. The characteristics of trail users' who are most willing to sign a petition on behalf of water quality in rivers and streams along the trail are similar to those of trail users who are most willing to sign a petition, with one exception: younger trail users are more willing than older trail users to sign a water quality-related petition, when controlling for other factors (Table 10). Again, regardless of sociodemographic or use characteristics, all trail users are more willing to sign a water quality-related petition when they feel accepted by other people on the trail and when they have stronger place meanings.

Table 10. Binary logistic regression predicting willingness to sign a petition on water quality.

Independent measure	B	S.E.	Wald	df	Sig.	Exp(B)
Race - White only	0.459	0.292	2.470	1	0.116	1.583
Age	-0.173	0.085	4.138	1	0.042	0.841
Gender	-0.160	0.243	0.436	1	0.509	0.852
Use- frequency	-0.050	0.123	0.163	1	0.686	0.951
Use - duration	0.013	0.161	0.007	1	0.934	1.013
Water recreation	-0.261	0.418	0.389	1	0.533	0.770
Cycling	0.200	0.271	0.544	1	0.461	1.221
Inclusion-interaction	0.278	0.158	3.082	1	0.079	1.320
Inclusion-acceptance	0.277	0.119	5.425	1	0.020	1.319
Place meanings	0.915	0.251	13.347	1	0.000	2.498
Constant	-5.822	1.196	23.710	1	0.000	0.003

Conclusions & Future Directions

Overall D&L Trail Users of the Lehigh Valley seem to enjoy their use of the trail and perceive the trail and surrounding towns to support trail use. The trail also bolsters local economic development, with trail users regularly purchasing hard and soft goods. The trail is also an important place for users to exercise, be in nature, and to interact with other trail users.

One area for further consideration is the cultivation of a more diverse trail user community. Encouragement of more trail users of color is strongly encouraged, and as the advanced analyses show, could be key in building a constituency of future trail users and advocates.

Another area of consideration is the very close connection between the trail and the surrounding natural environment, including adjacent rivers and streams. Trail users see a strong connection in the trail and the natural surroundings, as evidenced within their highly correlated place meanings, and in trail users' willingness to take actions for water quality. Increasing urban development and population growth in the Lehigh Valley, the D&L Trail corridor has the potential to be a prominent place for outdoor access. Trail users already see the D&L Trail as a place to experience nature, and this inclination will likely intensify over time.

While the survey findings provide important knowledge, there are additional questions and topics that may be explored in the future. For example, future trail user surveys may be conducted in conjunction with specific outreach efforts or events, may extend to D&L Trail locations outside of the Lehigh Valley, or may be repeated with more specific questions on a particular topic.

The D&L Trail is an important component of the Lehigh Valley's history. With the reliable understanding of trail users' experiences and perceptions provided in this report, we hope that the information herein may advance D&L Trail's future.

Appendix: 2018 Trail User Survey

You are being asked to volunteer for a research study on trail user perceptions and behaviors. **The expected duration of this study will be 2-3 minutes.** The study is being conducted by Lafayette College in partnership with the Delaware and Lehigh National Heritage Corridor. The data collected in this study will be used to better manage the trail, to understand trail users' perceptions for community development, and for research purposes. **Your participation in the survey is anonymous**—we will not be collecting your name or any information that may identify you.

To be in this study you must at least 18 years of age. You are not likely to get any direct benefit from being in this study. Your being in the study may help science and society. At the end of the survey, you will be offered a small thank you gift in recognition of your participation. Other than your time, there is no cost to you for being in this study.

Statement of Rights: You have rights as a research volunteer. Your being in this study is completely voluntary. You do not have to be in this study. You may stop taking part in this study for any reason at any time without penalty.

The study is being conducted by Professor Andrea Armstrong of Lafayette College. If you have any questions, feel free to contact Professor Armstrong at 610-330-3048 or via email at armstral@lafayette.edu. This contact information will also be available at the completion of the survey. If you have questions about your rights as a research participant, call or write Rebecca Kissane, Chair, Lafayette College IRB, at 610-330-5186, kissaner@lafayette.edu, Lafayette College, Easton, PA, 18042.

If you check this box, it means that you read this form and volunteer for this study

1. What is the main purpose of your visit to the trail today? (check one)

- Health and exercise
- Walking a pet
- Commuting to/from work or school
- Experiencing nature
- Fishing or boating
- Other: _____

2. During your visit to the trail today, have you or will you ... (check all that apply)

- Walk or hike
- Watch wildlife
- Bike
- Visit a historic site
- Jog or run
- View art
- Fish
- Shop
- Go boating or swimming
- Attend an event

3. Approximately how often did you use this trail in the past 12 months? (circle one)

Almost every day	3 to 5 times a week	1 to 2 times a week	2 to 3 times a week	Once a month	A few times each year	Once a year	It is my first visit ever
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4. On average how much time do you spend on this trail each visit? (check one)

Less than 30 minutes	30 minutes to less than 1 hour	1 hour to less than 2 hours	2 hours or more
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5. Please rate the condition of the following:

	Poor	Fair	Good	Excellent
Cleanliness of the trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The trail surface	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The trailhead where you started today	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. How strongly do you agree or disagree with the statements below?

This trail is....	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Where I go to get away from it all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A place of high environmental quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An important part of regional history	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A place to exercise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Where I go to enjoy the outdoors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A place to enjoy rivers and streams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. How willing are you to do any of the following?

	Not at all Willing	Somewhat Willing	Willing	Very Willing
Be a paying member of an organization that supports this trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Be a paying member of an organization that supports water quality in rivers and streams along this trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sign a petition in support of this trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sign a petition in support of water quality in rivers and streams along this trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. To what extent do you agree or disagree with the following statements about the town or city nearest to our current location?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	I do not know
The town/city is friendly to people who use the trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>
The town/city has businesses that meet my trail needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>
The town/city supports trails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>
Trails are an important part of this town/city	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>

9. Please indicate below how strongly you agree or disagree with the statements on the left.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I feel welcome on the trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other trail users and I have similar interests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I fit in with other people on the trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other trail users reflect the type of person who I am	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally, I don't feel accepted by other people on the trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I do not say hello to other people on the trail unless I know them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When on the trail, I meet new people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I talk with people on the trail who I may not talk with otherwise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Have you purchased any of the goods listed below because of your use of the trail in the past year? (check all that apply)

- Bike
- Boat
- Bike supplies
- Fishing gear
- Footwear
- Clothing
- Bike-related auto accessories (e.g. bike rack)
- I have not purchased any of these goods for use of this trail

11: Where do you typically purchase most of your trail-related items? (check one)

- Online
(e.g., Amazon)
- Locally-owned stores
(e.g., Easton Outdoor Company)
- Large retail store
(e.g., Dick's Sporting Goods)
- I have not purchased goods for trail use

12. In conjunction with today's trip to the trail, at any point, did you purchase any of the following? (check all that apply)

- Beverages
- Candy/snack foods
- Take out meals
- Meals at a restaurant
- Ice cream
- Rental equipment (bikes, boats, etc.)
- Other: _____
- I have not purchased any of the above goods
▶ (please skip to Question 14)

13. Approximately how much did you spend on today's purchases indicated in Question 12, above? \$ _____

14. Did your visit to the trail today involve an overnight stay in any of the following types of accommodations? (check all that apply)

- The trip did not involve an overnight stay (Please skip to Question 17)
- Motel or hotel
- Bed and breakfast
- Friend or relative's house
- Campground
- Air BNB
- Other: _____

15. How many nights did you stay in conjunction with your trip? _____ nights

16. Approximately how much did you spend on overnight accommodations per night? \$ _____

▶ **17. What is the zip/postal code of your permanent residence?** _____

18. What is your gender? (check one) Male Female Other

19. How old are you? (circle one)

17 or younger 18 - 29 30 - 39 40 - 49 50 - 59 60 - 69 70 - 79 80 - 89 90+

20. What is your primary race or ethnicity? (check all that apply)

- American Indian or Alaska Native
- Asian
- Black or African American
- White - Non-Hispanic
- White - Hispanic/Latino
- Other: _____

21: Did you come to the trail today. . . (check one)

- Alone
- With a group
- ▶ **If yes:** How many people were in your group? _____ people including yourself