

HIKING SHARED-USE SINGLE-TRACK TRAILS: A LOOK AT HIKERS AND HUNTERS ALONG THE FALLS LAKE TRAIL

Christopher M. Snow
Wake County Parks, Rec-reation and Open Space
Raleigh, North Carolina 27614
csnow@co.wake.nc.us

Roger L. Moore
North Carolina State University

Abstract.—The Falls Lake Trail, a 26.8-mile, single-track pedestrian trail located near the Research Triangle Region of North Carolina, traverses lands managed by the United States Army Corps of Engineers; North Carolina Division of Parks and Recreation; North Carolina Division of Wildlife Resources; and Wake County Parks, Recreation and Open Space. The non-profit trail advocacy group, Friends of the Mountains to Sea Trail, is responsible for the trail's upkeep and maintenance. For this study, use and user characteristics were examined along with trail appeal factors, users' motivations for utilizing the trail, and their satisfaction while there. Another important objective was to examine potential problems relative to hiker interactions with hunters. Hunting is permitted along approximately 20 miles of the trail. Although few trail users reported encountering hunters during their visit, approximately one third reported being "not at all comfortable" sharing the trail with hunters. There was a modest degree of discomfort overall.

1.0 INTRODUCTION

The Falls Lake Trail is a 26.8-mile, natural surface, single-track, pedestrian trail located along the south shore of Falls Lake in northern Wake County, North Carolina. It is located in the Falls Lake Project, which encompasses the 12,410-acre Falls Lake, a U.S. Army Corps of Engineers reservoir, and 25,580 acres of public land surrounding it. In the early 1980s, a local grassroots organization known as the Triangle Greenways Council proposed to the Corps of Engineers that their volunteers design and construct a hiking trail on the south shore of the lake that would become a segment of North Carolina's proposed Mountains to Sea Trail, a 900+ mile trail consisting of footpaths, roads, and state bike routes stretching across the state from Clingmans Dome in Great Smoky Mountains National Park to Jockey's Ridge

State Park on the Atlantic coast. The Falls Lake Trail was installed in segments over the next 20 years, traversing land managed by four agencies: the Corps of Engineers; North Carolina Division of Parks and Recreation; North Carolina Division of Wildlife Resources; and Wake County Parks, Recreation and Open Space. The Friends of the Mountains to Sea Trail, a nonprofit trail advocacy group, is responsible for maintenance and upkeep of the Falls Lake Trail. In 2003, Wake County Parks, Recreation and Open Space led a collaborative planning process focused on communication and shared management responsibility of the trail among the four land managing agencies. Currently, these agencies operate under a Memorandum of Agreement regarding the collaborative management of the trail. Due to differing management objectives—the most obvious of which being that the largest portion of the Trail is on land managed by the Wildlife Resources Commission, an agency which does not typically build, manage or maintain trails—almost no data existed on the use or users of the trail nor their experiences. The purpose of this study was, therefore, to fill this information gap by investigating the use and users of the Falls Lake Trail. Of particular interest were users' motivations for using this particular outdoor recreation resource, and their experiences while there.

1.1 Background

Land managers along the trail had little data to assist in management decision even though some sections of the trail had been in existence for more than 20 years. In an effort to better manage the resource, investigators and managers attempted to answer the following questions: Who are the users of the Falls Lake Trail? How is the Trail being used and for what activities? What motivated the users to select the Falls Lake Trail? Are users satisfied with their experience on the Trail? Are user experiences or satisfaction levels related to sharing the Trail with hunters?

2.0 METHODS

Data were collected from trail users on site from November 6, 2004 through November 20, 2005. The Falls Lake Trail has a narrow, natural tread and allows

access to the more remote parts of the Falls Lake Project, making it a good example of a “traditional backcountry trail” (Moore & Ross 1998). For the purposes of this research, the trail was divided into four segments. These segments were chosen to represent land managed by the four primary land managing agencies and were distributed equally over hunting and non-hunting areas. Self-administered questionnaires were supplied in trailside distribution boxes and drop-boxes at four different trailhead locations. A fifth survey location was added during the research period when vandals destroyed one survey box. This box was replaced, but relocated to a different section of trail on gamelands. The survey instrument was developed with input from the Army Corps of Engineers; Division of Parks and Recreation; Division of Wildlife Resources; Wake County Parks, Recreation and Open Space; the Friends of the Mountains to Sea Trail, and faculty at North Carolina State University.

A total of 474 surveys were collected from November 6, 2004 through November 20, 2005, but 53 were not included in the analyses or results due to respondent's indicating having completed two surveys over the course of the study; only one (the first) from each of these users was included in the final data set of 421. There is no practical way to calculate an accurate response rate for a trailside self-administered survey. Actual response rates for compliance with voluntary trailside registration have been found to vary greatly. Lucas (1975) found a low-end compliance rate of 28 percent, while James and Schreuder (1972) found a high-end of 89 percent.

Variables examined included two related to trail user demographics (gender and age). Postal ZIP Code was asked to allow users' place of residence to be approximated. Respondents were also asked to indicate their primary activity from: dog walking, fishing/canoeing, geocaching, hiking, hunting, nature study/wildlife viewing, photography, picnicking, running, and walking. Respondents answering “dog walking” in combination with hiking, running, or walking were placed in the dog-walking category. Frequency of use was determined by having respondents provide their approximate number of visits to the trail during the last 12 months. Respondents were asked to indicate with

whom they typically used the trail: alone, with one other person, with two-three people, or with four or more. Information on duration of visit was gathered by having respondents choose from four mutually exclusive choices ranging from less than 1 hour, to 4 hours or more. Eighteen variables were included in three other major topic areas: motivations for using the Falls Lake Trail (five variables), why the trail is appealing (six variables), and the respondent's satisfaction level with various aspects of the visit (seven variables). These 18 variables were each measured on 5-point Likert-type scales. All questions utilized in this survey focused on the respondents' trail visit on the day they completed the study questionnaire.

3.0 RESULTS

This section presents the results of the study and is organized into the following sections: user characteristics, trail use and activities, user motivations, trail appeal, hunting and respondent's comfort level sharing the trail with hunters, and user satisfaction.

3.1 User Characteristics

Results showed that of the 339 respondents completing the question on gender, 64.2 percent were male. Respondents also reported their age by selecting the appropriate age category, the 31–40 age category being the most common across both genders. Based on postal ZIP Codes provided, trail users tended to be local, with 37.0 percent of respondents living in the three postal ZIP Codes immediately adjacent to Falls Lake. Of the 409 respondents providing their ZIP Code on the survey, 82.0 percent lived within Wake County, and 94.67 percent within North Carolina. Twelve additional states were also represented including Washington and New Hampshire.

3.2 Trail Use and Activities

Respondents were asked to provide the date and time of their trail use for this visit. One assumption at the beginning of this survey was that the Falls Lake Trail was most heavily utilized on the weekends. The results of the survey supported this assumption, with 64.9 percent of the 393 respondents indicating that they had visited on either a Saturday or Sunday. Time of visit was examined in two-hour blocks from early morning (7:00 am and before) until after 9:00 pm. Two considerations

in choosing the time coverage were the fact that several facilities along the trail, including Blue Jay Point County Park and Falls Lake State Recreation Area, have year-round operational hours from 8:00 am to sunset, and that there are many trail access points that are not controlled, giving visitors almost unlimited access to some trail sections. Afternoons were the most popular time of day to use the trail, with the period between 1:01 pm and 5:00 pm accounting for 57.1 percent of all use. Actual trail distance covered is difficult for the average user to calculate. For this survey, distance was approximated as the use of one or multiple sections of trail during a visit. After a brief description of how the Falls Lake Trail is divided into sections, respondents were asked if they utilized one section or multiple sections during their visit that day. Over two-thirds of trail users utilized only a single section during their visit. A follow-up question asked whether respondents had hiked all of the Falls Lake Trail. Approximately 15 percent had hiked the entire trail at some point. With most respondents utilizing just one section of the Trail for their visit, it was not surprising that the duration for their activity was relatively short on average. Of the 416 respondents answering the question, “What is the expected duration of your activity today?” 55.0 percent chose 1 - 2 hours; this was the case regardless of the user’s activity. When respondents were asked with whom they used the trail that day, “With one other person” was the most common response, at 41.9 percent, followed closely by “Alone,” at 39.5 percent. Of the 419 respondents who indicated a primary activity that brought them to the trail, 43.0 percent chose hiking, followed by dog walking, walking, running, and geocaching. Although the question asked, “What primary activity brought you to the Falls Lake Trail today?” 9.5 percent of respondents chose multiple activities. Camping and herb hunting were two “other” activities written in on the survey form by respondents. In all, 2.1 percent of respondents chose an alternative to those activities listed (Table 1).

An open-ended question, “About how many times have you visited the Falls Lake Trail during the past twelve months?” generated a wide range of responses, from first-time users to those who reported that they used the trail every day. Many first-time users indicated zero as a response, but were coded to be included with first-time

Table 1.—Primary activity

	Frequency	Percent
Hiking	180	43.0%
Dog Walking	112	26.7%
Multiple Activities	40	9.5%
Walking	28	6.7%
Running	26	6.2%
Geocaching	12	2.9%
Other	9	2.1%
Hunting	4	1.0%
Picnicking	3	0.7%
Fishing/Canoeing (Access)	2	0.5%
Photography	2	0.5%
Nature Study/Wildlife Viewing	1	0.2%
Total	419	100.0%

users. One visit during the last 12 months was the most common response with 94 of the 416 respondents, or 22.6 percent, indicating just one visit in that period. The median number of visits during the last twelve months was 6.0, with a mean of 26.1 visits.

3.3 User Motivations

Users’ motivations for visiting the Falls Lake Trail were examined by having respondents rate the importance of each of five possible motives on a 5-point scale (1 indicating “not at all important” to 5 indicating “extremely important”). Two items had mean scores of 4.00 or higher, indicating a high degree of importance. Scenery/Natural Experience ranked highest with a mean of 4.62 (Table 2).

Skill development ranked lowest on the motivations scale overall (Mean = 2.42), but one respondent wrote in “Backpacking prep workout” as the primary reason for visiting the trail. Although many may not consider the trail for long-distance hiking, 55.5 percent of 416 respondents knew the Falls Lake Trail was a part of the North Carolina Mountains to Sea Trail.

Table 2.—User motivations for visiting the Trail

	Mean	Std. Dev.	n
Scenery/Natural Experience	4.62	0.624	416
Health/Fitness	4.36	0.955	412
Solitude/Escape	3.89	1.292	403
Social Time with Friends/Family	3.19	1.583	378
Skill Development	2.42	1.291	365

Scale from 1 (not at all important) to 5 (extremely important)

Table 3.—Trail appeal items

	Mean	Std. Dev.	n
Scenery	4.50	0.741	404
Natural Surfacing	4.36	0.911	391
Location/Proximity to Home	4.28	1.048	408
Foot Traffic Only	4.25	1.158	403
Solitude	3.97	1.100	285
Level of Difficulty	3.14	1.219	380

Scale from 1 (not at all important) to 5 (extremely important)

3.4 Trail Appeal

Respondents were also asked to rate the importance of various factors influencing the appeal of the Falls Lake Trail. This was also accomplished through a 5-point scale, (1 indicating “not at all important” to 5 indicating “extremely important”). Similar to the motivational rankings, scenery was found to be the most important factor for users overall (mean = 4.50). Additional appeal factors in rank order included: natural surfacing, proximity to home, foot traffic only, and solitude (Table 3). “Level of difficulty” ranked last. Hiking guides that include the Falls Lake Trail rate the route as moderately difficult (de Hart 1996, Setzer 2001).

3.5 User Satisfaction

Trail user satisfaction was examined by having respondents rate their satisfaction with six aspects of their visit; a separate question asked respondents to rate the quality of their overall experience on the trail (Table 4). Both the individual items and overall satisfaction were rated on 5-point scales (1 indicating “not at all satisfied” to 5 indicating “extremely satisfied”). Of the six individual items, all had mean scores greater than 3.5, indicating at least some level of satisfaction overall. It is interesting to note that satisfaction with trail safety had a mean of 4.15. It was thought that this factor might score lower due to some respondents’ ratings of discomfort in sharing the trail with hunters. Overall, users were quite satisfied with their experience on the trail, with the overall mean satisfaction score being 4.47 on the 5-point scale.

3.6 Hunting and Respondents’ Comfort Level Sharing the Trail with Hunters

Hunting is permitted along approximately 20 miles of the Falls Lake Trail, where it is located on gamelands

Table 4.—Satisfaction items

	Mean	Std. Dev.	n
Overall Experience			
Satisfaction	4.47	0.693	417
Trail Condition	4.26	0.864	410
Trail Safety	4.15	0.991	396
Parking	4.06	1.051	407
Trail Signage	3.82	1.066	399
Trail Map/Guide	3.67	1.293	396
Trail Amenities	3.52	1.260	378

Scale from 1 (not at all satisfied) to 5 (extremely satisfied)

Table 5.—Comfort level sharing the Trail with hunters

	Frequency	Percent
Not at all comfortable	136	32.90%
Somewhat uncomfortable	72	17.40%
Neutral	76	18.40%
Somewhat comfortable	60	14.50%
Extremely comfortable	70	16.90%
Total	414	100.00%

Table 6.—Comfort level sharing the Trail with hunters

	Mean	Std. Dev.	n
Comfort level	2.65	1.481	414

Scale from 1 (not at all comfortable) to 5 (extremely comfortable)

managed by the Wildlife Resources Commission. Various hunting seasons typically run from September 1 through May 15 each year in central North Carolina, including the gamelands along Falls Lake. Respondents were asked to rate their comfort level regarding sharing the trail with hunters (Table 5). This question was somewhat hypothetical in nature because hunting is allowed on only a portion of trail, and only during certain times of the year.

A total of 208 respondents or 50.3% were at least somewhat uncomfortable with sharing the trail with hunters, n = 414 (Table 6).

Only 3.1 percent of all respondents reported actually encountering hunters during their visit on that particular day. Twenty-nine respondents (6.1% of all respondents) included additional written comments regarding hunters and hunting. Eighteen were paired with comfort level ratings of 1 or 2, indicating at least some uncomfortable

feelings with sharing the Trail with hunters; common themes were: Lack of knowledge about hunting areas (where hunting is allowed), and hunting season (when hunting is allowed). Five were paired with comfort level ratings of 3, indicating neutral feelings in sharing the Trail with hunters; common themes were: knowledge that hunting is not allowed on Sunday and the infrequency with which hunters are encountered. Six were paired with comfort level ratings of 4 or 5, indicating at least some comfortable feelings in sharing the Trail with hunters; common themes were: knowledge of wearing blaze orange, knowledge that hunting is not allowed on Sunday and knowledge that most of the gamelands through which the Trail passes are in an archery-only zone.

4.0 DISCUSSION AND CONCLUSIONS

The most useful immediate product of this research for land managing agencies is the baseline use and user data for the trail. One interesting dynamic suggested by this research involves the interaction of hunters with other users of the public lands around Falls Lake. Temporal displacement of non-hunters may be occurring at Falls Lake during the hunting season; this presumption is based on the discomfort level of some users with sharing the trail with hunters and the high percentage of use on Sundays (when hunting is not allowed). If some trail users are uncomfortable with sharing the trail with hunters, as was found in this study, it is possible that other users who are even more uncomfortable, may be being displaced altogether. From the open-ended comments provided, increasing visitor knowledge

regarding hunting may be a primary means to increase visitor comfort level in sharing the trail with hunters. Additional research that should be considered includes better exploring the relationship between hunting and other uses of the trail and surrounding public lands. Not only could hunters be encountered along the trail, but the more likely scenario of hunters being unseen in the gamelands surrounding the trail should be investigated.

5.0 REFERENCES

- de Hart, A. 1996. **North Carolina Hiking Trails (3rd ed.)**. Boston: Appalachian Mountain Club: 266-270.
- James, G.; Schreuder, H. 1972. **Estimating dispersed recreation use along trails in general undeveloped areas with electric-eye counters: some preliminary findings**. Res. Note SE-181. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station.
- Lucas, R. 1971. **Low compliance rates at unmanned trail registers**. Res. Note INT-200. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station.
- Moore, R.L.; Ross, D.T. 1998. **Trails and recreational greenways: Corridors of benefits**. Parks and Recreation. (33)1: 68-79.
- Setzer, L. 2001. **60 hikes within 60 miles - Raleigh (1st ed.)**. Birmingham: Menasha Ridge Press.