

**The Knoxville Urban Wilderness Trail System and Baker Creek Preserve Bike Park:
A Profile of Users and Physical Activity**

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Introduction

Physical activity (PA) provides a multitude of physical, social, and mental health benefits. (U.S. Department of Health and Human Services, 2018) For the most benefit, a person needs to acquire an equivalent of 150 minutes of moderate-intensity physical activity combined with 2 days of muscle-strengthening activities per week. However, even the smallest amount of PA can provide significant health benefits. To highlight these benefits, people who walk or cycle can expect to see a 10% (walking) to 11% (cycling) risk reduction of all-cause mortality. (Kelly et al., 2014)

Research now suggests that there are extra health benefits if this PA is done in outdoor settings where a person is exposed to nature. (Pretty et al., 2005) And it appears people, even if they are inactive, may even get health benefits by just being exposed to nature. For example, in Washington State a study found that adults who spent time outdoors reported less feelings of depression. (Akpinar et al., 2016) Also, if this time in nature was spent around forests, there were fewer days of mental health complaints. (Cohen-Cline et al., 2015)

In Knoxville, Tennessee there is an ideal place for people to be physically active near nature and forests – the Knoxville Urban Wilderness (KUW). (Visit Knoxville, 2023) The KUW, which started to be developed in 2008 by the Legacy Parks Foundation (Legacy Parks Foundation, 2023) and the Appalachian Mountain Bike Club (AMBC) (Appalachian Mountain Bike Club, 2023), now contains over 50 miles of multi-use trails near downtown Knoxville. This network of trails, open to a variety of physical activities, connects people to a variety of places related to nature, including the Ijams Nature Center and Quarry, Baker Creek Preserve Bike Park, Fort Dickerson Park and Quarry, and the William Hastie Natural Area. (Outdoor Knoxville by Legacy Parks, 2023)

In 2015, the University of Tennessee, Knoxville (UTK) Howard H. Baker Center for Public Policy estimated that the KUW enhanced the local economy by \$14.7 million dollars. (Sims et al., 2015) However, this estimate was limited by not knowing the number of people actually using the KUW trail system. To address this limitation, the UTK Department of Recreation, Sports, and Leisure studies (KRSS) and the Howard Baker Center for Public Policy, beginning in 2020, began to more accurately measure the number of people using the KUW trails and bike park for leisure-time physical activities (LTPA).

This report, the first in a series of KUW health and economic impact reports, provides a detailed profile of the number of KUW users of the trail system and associated bike park during 2021. This information provides the foundation for a more accurate estimate of the impact of the KUW on Knoxville and the surrounding area. Also, this report can help managers and partners of the KUW to better plan for the allocation of future resources, trail maintenance, marketing and the promotion of activities, and enhancements to access points for specific activities.

Specifically, this report answers several questions.

1. How many people use the KUW trail system?
2. What are the demographics of people using the KUW trails, including the Baker Creek Bike Park?
3. What type of physical activities do these people do while at the KUW and Baker Creek Bike Park?

Methodology

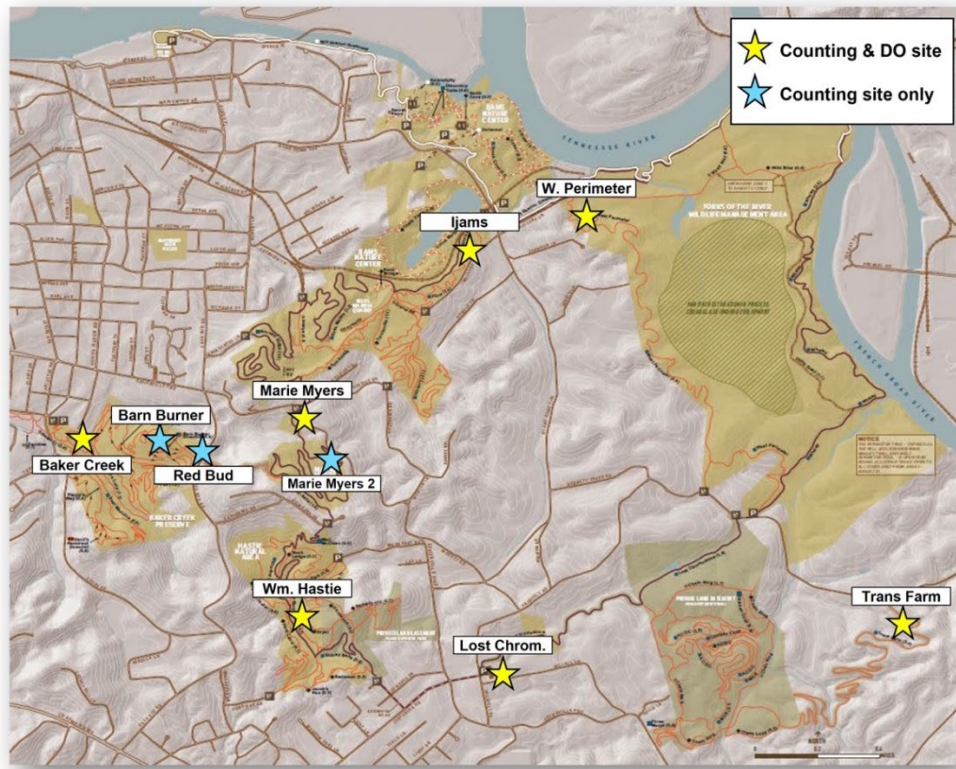
To estimate the number of users on the KUW trails and at the bike park, a variety of methods were employed, including infrared trail counters and the direct observation of people on the trails or at the bike park.

During 2021, 11 infrared trail counters were installed on trails throughout the KUW. As a person passed by these counters a timestamp was created that recorded the exact day and time of the pass through. These timestamped passes were then downloaded or automatically uploaded to an online software platform. (EcoCounter, 2023) Mean daily counts were calculated for each location in order to project a yearly estimate of passes.

To validate these infrared trail counter user estimates, UTK researchers and students, in unobtrusive locations, directly observed users (N=2,916) that passed by the trail counters. For various reasons, including people walking side-by-side, large dogs being counted, the counters were not 100% accurate. With the direct observation counts, counts from the infrared counter were adjusted for these sources of error. In addition, the direct observation allowed for categorization of trail users into broad demographic groups specific to gender (male or female), age (child, teen, adult, or older adult), race (Latino, Black, Other Race, or White), and the type of physical activity (bicycling, walking, running, or other PA).

The locations of both the infrared trail counters and direct observation are found in Figure 1.

Figure 1. KUW locations of Infrared trail counters and direct observation.



To construct a demographic profile of users at the Baker Creek Bike Park, UTK researchers directly observed the physical activity throughout the bike park for 4 days (Monday, Wednesday, Saturday, Sunday) at 4 time points each day (morning, lunch, afternoon, and evening), during the 3rd week of 4 months of the year (April 2021, June

2021, October 2021, and January 2022). The Systematic Observation of Play and Recreation in Communities (SOPARC) tool and protocol was used to count the number of users (N=3,443) by gender, age, race, and physical activity. (McKenzie et al., 2006) Due to the limited nature of the month/day/time observations, an estimated count of yearly users was not possible.

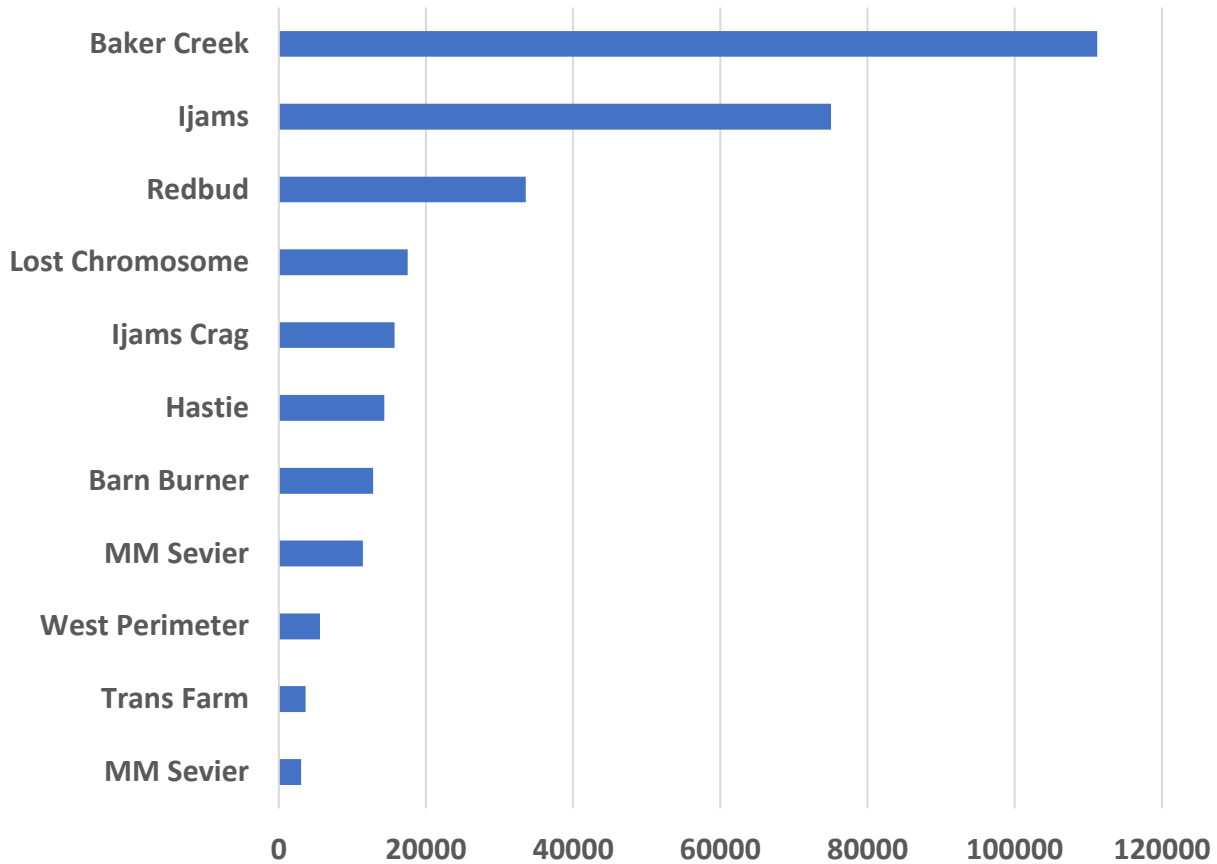
A detailed overview of these methods can be found in Appendix A.

Findings

How many people use the KUW trails?

In total for 2021, 303,782 people were estimated to have used the KUW trails. The breakdown of the number of users by the trail location is found in Figure 2. Estimated yearly users by location ranged from a low of 3,019 (Marie Myers Sevier) to a high of 111,212 (Baker Creek Preserve).

Figure 2. Trail Users by Trail Location.

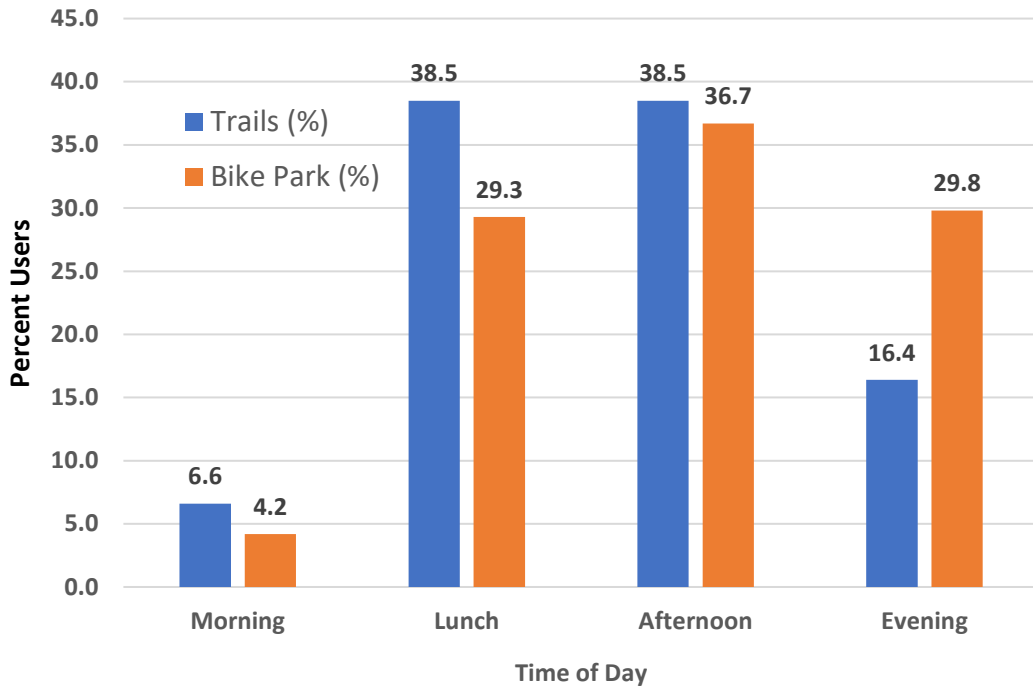


Notes: Trail maps can be located here: <https://www.visitknoxville.com/urban-wilderness/engage/trail-maps/>.

What are the demographics of people using the KUW trails, including the Baker Creek Bike Park?

The demographic profiles of people who use the trails and bike park are based upon direct observation of people at 7 trail locations and throughout the bike park. In general, the trail system was used during lunch and the afternoon hours, while the Baker Creek Bike Park was largely used from the lunch time to the evening hours (See Figure 3.)

Figure 3. Trail and Bike Park use by Time of Day



Users by Gender. Approximately 7 out of 10 people using both the trails and bike park were male. (See Figure 4) When focusing on the trails, the location with the highest percentage of female users was at the Ijams Quarry trail with 42.0% female. (See Figure 5.) The lowest proportion of females was observed at the Marie Myers trail with 12.1% being female. It should be noted that the trail system linked to a greenway, the West Perimeter trail, had the 2nd highest percentage of females (36.5%).

Figure 4. Trail and Bike Park use by Gender.

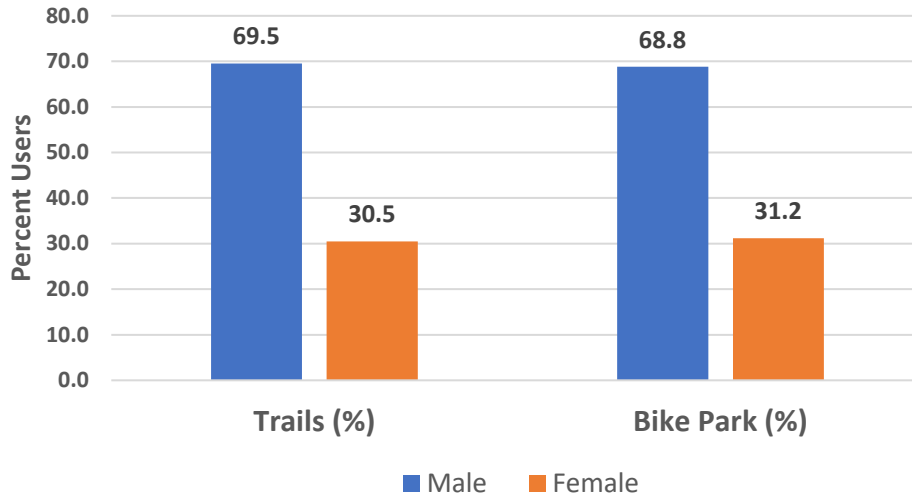
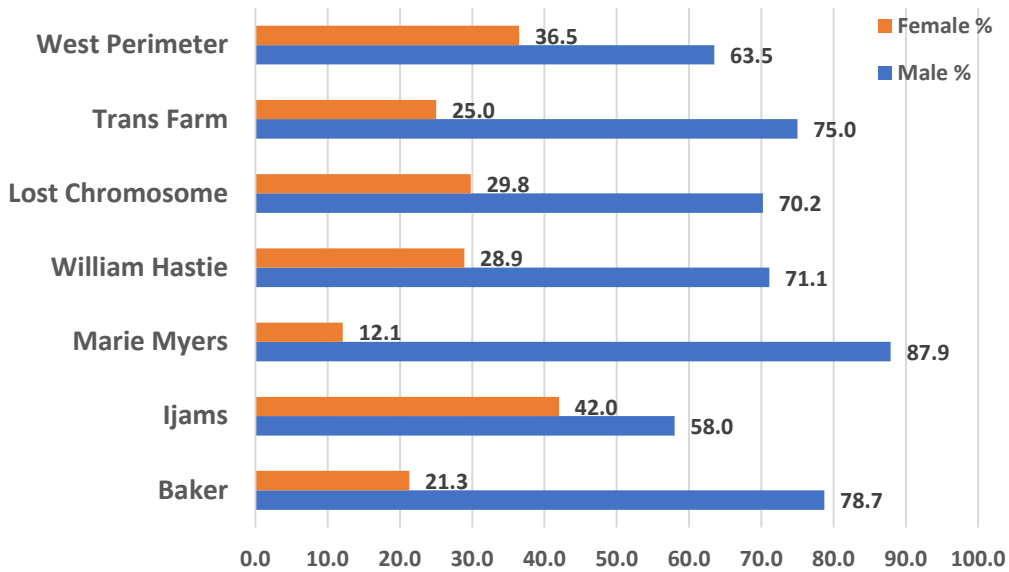
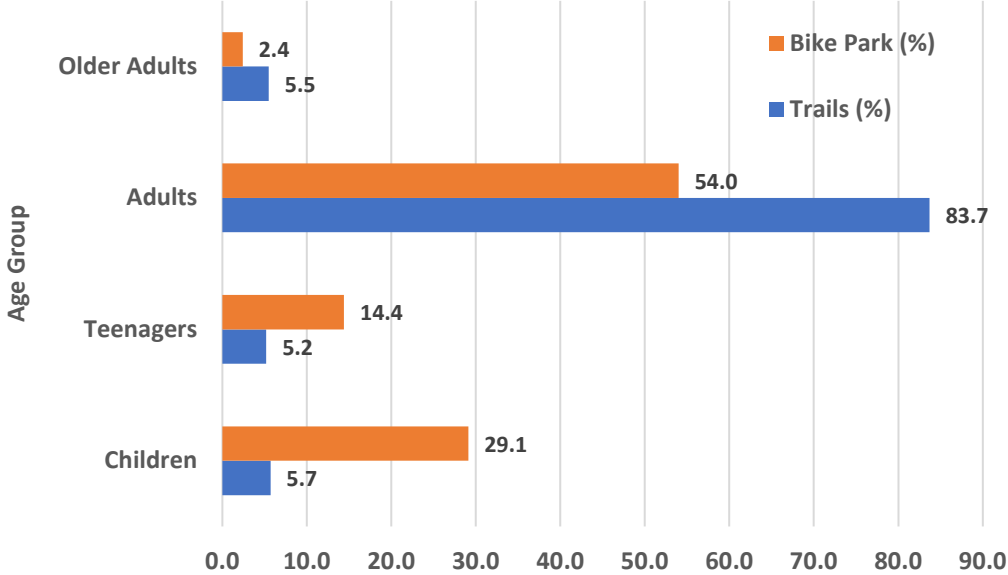


Figure 5. Trail Use by Gender and Trail Location



Users by Age. As seen in figure 6 below, there is a significant difference among the age of users on the trail system and that found in the bike park. On the trails, 83.7% of users are adults between the age of 18-65 years. While only 54% of the users of the bike park at Baker Creek Preserve were considered adults. Also, more children/teenagers were seen in the bike park (43.5%) compared to the trail system (10.9%). It is also noted that older adults, considered 65+ years of age, were the lowest proportion of users on both the trails and bike park.

Figure 6. Trail and Bike Park use by Age.



Users by Race. As can be seen in both Figures 7 and 8, the users of the KUW trails and bike park are predominately white. This proportion of users who are white is consistent across all trails and within the bike park.

Figure 7. Trail and Bike Park use by Race.

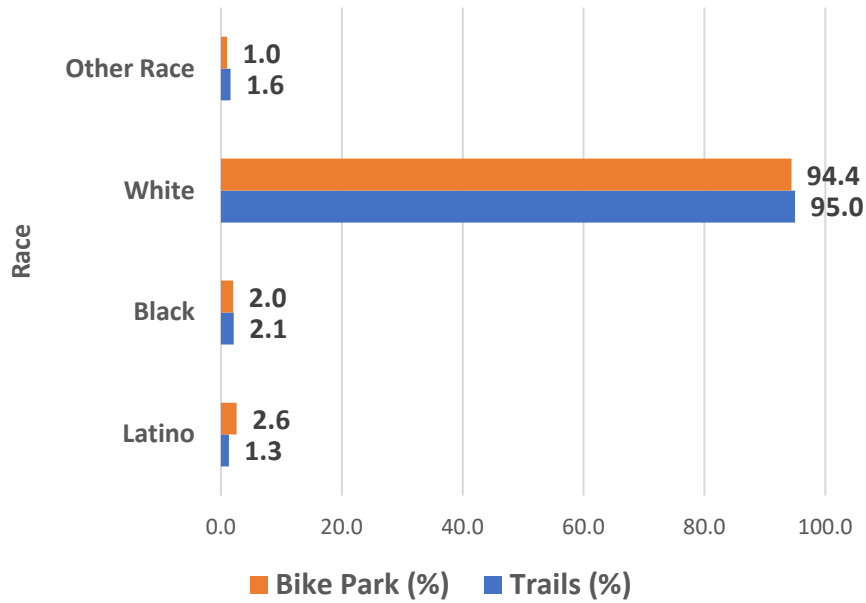
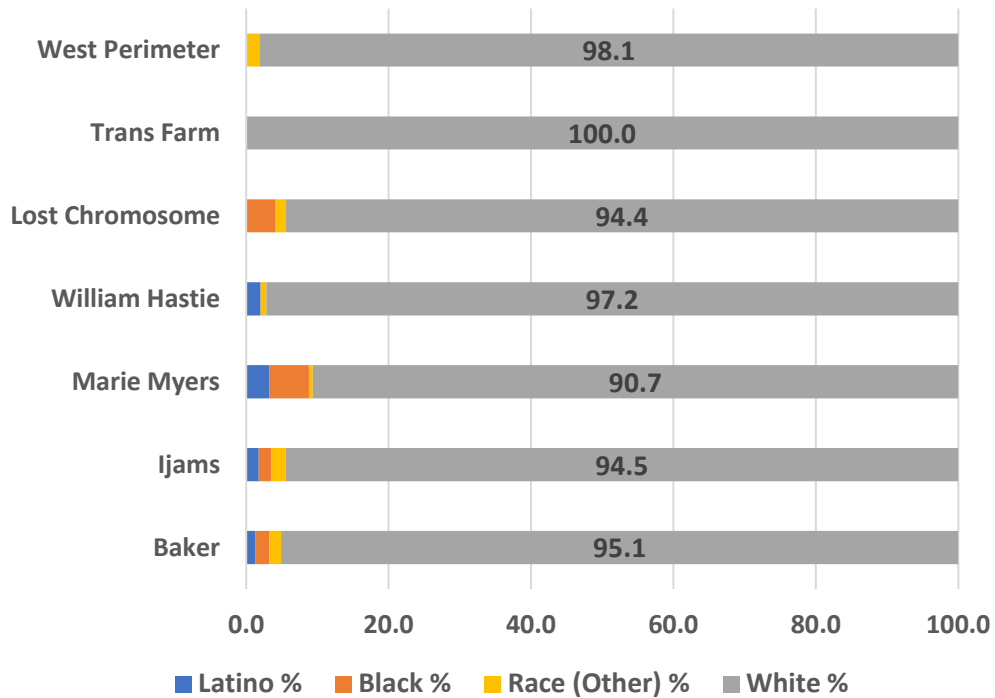


Figure 8. Trail User by Race and Trail Location



Users by Physical Activity. As can be seen in figure 9, physical activity across the trail system was restricted to three types -- mountain biking (51.0%), walking (38.4%), and running (10.0%). When examined by gender, obvious differences appear by the preferred type of physical activity by women (60.6% of walkers were women) and men (64.6% of mountain bikers were men). (See Figure 10). It also appears certain access points to the KUW trail system is associated with these main activities. Baker Creek Preserve, Marie Myers, and the West Perimeter tend to largely have mountain bikers on their respective trails. On the other hand, the 86.9% of users at the Ijams Quarry trail either walk or run. (See Figure 11.)

However, types of physical activity in the bike park were much more diverse. (See Figure 12.) While cycling was the predominate physical activity (51.7%), a diverse profile related to play (e.g., climbing, skating, swinging, digging) was also noted in the bike park.

Figure 9. Trail Use by type of Physical Activity.

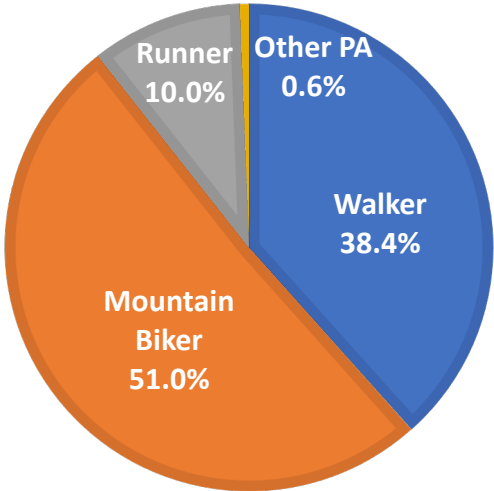


Figure 10. Trail Use by Gender and Type of Physical Activity

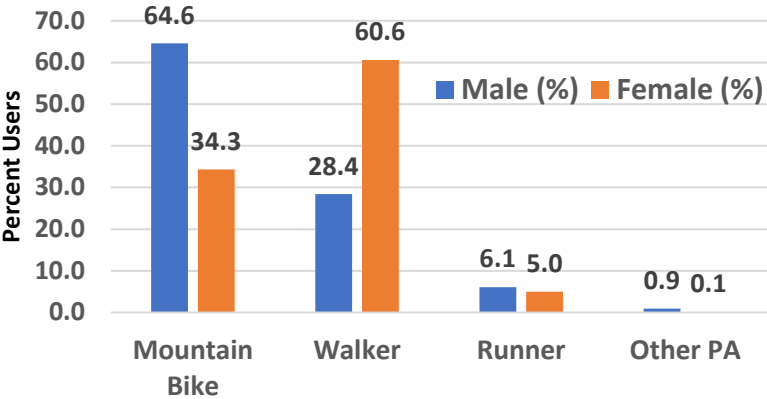


Figure 11. Trail Use by type of Physical Activity and Location.

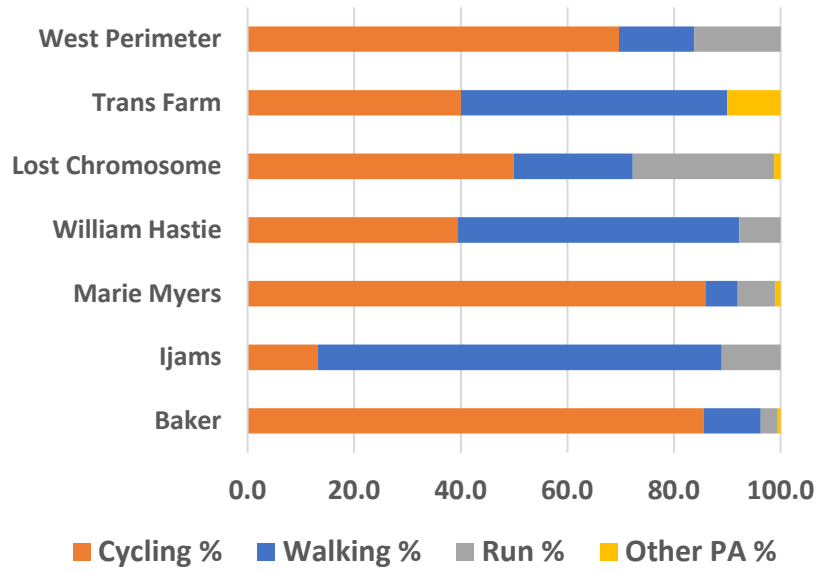
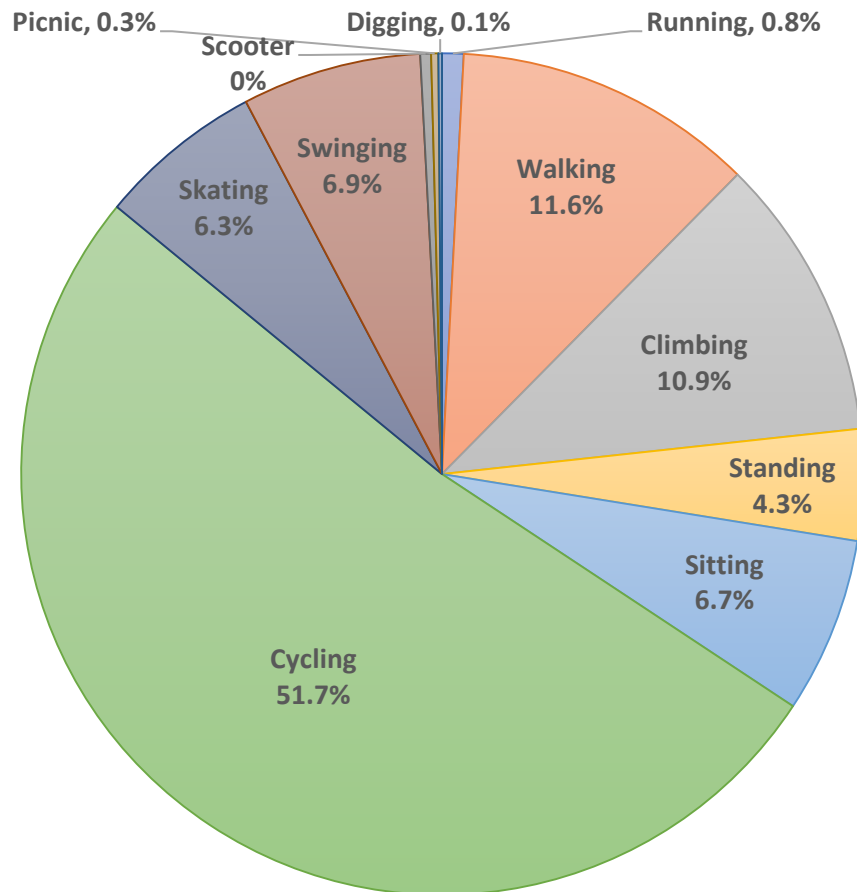


Figure 12. Bike Park Use by type of Physical Activity.



Discussion

This KUW trail user report provides the first estimate of how people use a large urban wilderness park. The complexity of the urban wilderness trail system provides extensive opportunities for people to access and enjoy nature while getting health-enhancing physical activity in their leisure-time, all within a few miles from downtown Knoxville.

Overall Trail Use. It is estimated that 303,782 people accessed and used the KUW trail system during 2021. These users have multiple access points, most with car parking, across the trail system making visiting the KUW easy and convenient for both Knoxville residents and visitors from surrounding regions. However, two access points – Baker Creek Preserve and the Ijams Quarry – appear to be the preferred access points for most users. Both of these access points have large numbers of parking spaces and a variety of features and amenities that might attract these users. It also appears that these access points attract different types of users. For example, Ijams Quarry, a location with a multitude of nature-related features that promote leisure-time physical activities (LTPA) (e.g., rock climbing, swimming, paddling), attracts people more likely to want to walk. In addition to the trails connecting to the broader KUW trail system, the Ijams Quarry has several shorter trails that revolve around a prominent water feature. Walkers would then have many options and directions that keep them within close distance to their car and attracting amenities (e.g., restrooms, picnic tables.) Urban parks with car access and the presence of recreational trails tend to have more walkers. (Norman & Pickering, 2019)

On the other hand, the Bakers Creek Preserve trails appear to be largely utilized by mountain bikers versus walkers and runners. This might be attributed to the large number of bike-friendly dirt trails and being next to the bike park. Mountain bikers that use urban parks are attracted to trails that are long in length, that promote mountain biking itself, and are within a large park that has a forest. (Norman & Pickering, 2019)

In addition to the types of preferred trail activities differing by access points, the actual user profile also differs. A more detailed discussion for these user profiles follow.

Use by Gender. The KUW trails and bike park are predominately used by males. This is not surprising in that recent reports have indicated that 8 out of 10 mountain bikers and 6 out of 10 trail runners are males. (MTB and Running Stats).

This might partly be explained by the main physical activities visible on the trails, mountain biking and trail running, both of which are largely male dominated sports. (Bourdalon & Ferreira, 2019; Ronto, 2021) Studies have hypothesized on the reasons why these sports are dominated by men, including the high levels of perceived risk taking (Roberts et al., 2018), especially with mountain biking, and the lack of women portrayed actively mountain biking in social and print media. (Huybers-Withers & Livingston, 2010) Also, the fact that the most preferred LTPA among females in the United States is walking (Whitfield et al., 2018) may explain why the Ijams Quarry trails had the highest proportion of females (42.0%) – access to walking-friendly trails. The Ijams Quarry is also a common weekly meeting place for trail runners which may contribute to type of physical activity on trails near the Quarry.

When we focus on the use of the bike park at the Baker Creek Preserve by gender, we also see a greater proportion of users who are male (68.8%). As with the trails, this might be explained by the intended use of the park – bicycling, including a pump and jump track and a downhill pump track. A similar bike park in Europe also found that 63% of the users were male. (Schipperijn et al., 2015)

Users by Age. Adults, 18-65 years of age, were the most common user (83.7%) seen across the trail system. This is likely reflective of the fact that most mountain bikers and trail runners are between the ages of 24 and 64 years of age. (ShredTrail, 2020) The bike park at Baker Creek Preserve was the location with the highest level of use by children/teenagers (43.5%) which is also not surprising because the park, to a large degree, contains park features conducive to play (e.g., beginning pump tracks, climbing equipment, etc.) and is near a school. To date, only one other study has reported on the demographic profile of users at a bike park. This study conducted in a bike park in Europe (Copenhagen), found that 78% of users were children or adolescents. (Schipperijn et al., 2015)

Use by Race. Approximately 95% of all users of the KUW trails and bike park are white, a proportion that reflects the low proportion of people of color accessing the trail system. According to the American Community Survey that reports census tract data, all of the surrounding census tracts of the KUW have a much higher proportion of people of color (Tract 22, 10%; Tract 23, 24%; Tract 55.01, 8%; and, Tract 8, 24%). (U.S. Census Bureau, 2023) Several explanations might explain this lower than expected proportion of users who are people of color, including:

- Minority populations, compared to non-Hispanic Whites, across the United States are significantly less likely to bicycle or walk, the predominate physical activities across the KUW. (Whitfield et al., 2018)
- Perhaps the KUW trails and their walking, running, and mountain biking are just not preferred LTPAs which contributes to this low level of visitation to the trails and bike park. Specific to mountain biking, Singletracks, a leading website, estimates that among their readership estimated to be 1 million mountain bikers per month, that 90% are white. (Singletracks, 2023) Also, 69% of trail runners have been found to be White. (Ronto, 2021)
- African Americans, the largest minority population in Knoxville, are less likely to visit forest environments similar to the KUW because of perceived threats from wildlife and other humans. (Black Faces, White Spaces page 8-9). Perhaps the structure and design of the KUW is not perceived as a safe place to visit and recreate.
- Social media, historically, has used few images of people of color in nature and outdoor recreation spaces which may limit feelings of inclusion and welcoming. (Swinney, 2014)
- Mountain biking on single-track trails similar to the KUW trail system may not be the preferred type of bicycling among people of color. A study among African-Americans found that there was a preference of bicycling on wide tracks that would allow social riding in groups. (Philipp, 1999)

Use by Type of Physical Activity. As expected, mountain biking, running, and walking were the most visible types of LTPA across the trail system. Walking and running being ambulatory activities representing almost 50% of the activities observed on the trails reflects the design of the trails being multi-purpose in nature. Still, as noted in the comments related to the overall use of the trail system, it does appear that these walking and running activities are largely restricted as a point of access to the Ijams Quarry, while mountain biking's access point is mainly from the Baker Creek Preserve. Regardless of the physical activity, everyone using the KUW trails are getting health-enhancing physical activity (HEPA) levels of PA at moderate- to vigorous-intensity levels.

The KUW trail system certainly attracts a large number of people for their physical activity. However, the people getting this HEPA on the KUW trail system are predominately white, adult males. This lack of diversity among people using the trails for physical activity could be inherent within the activities themselves. For example, as noted in the discussion related to gender and race, mountain biking and trail running are largely a lifestyle activity of white, adult males. Alternatively, this lack of diversity could be related to broader cultural issues

related to race and gender including the design of the KUW access points which may have features and amenities that may discourage walking and/or running. Also, the social marketing of the KUW which mainly depicts White people being active at the KUW could cue people of color that the activities are not something they would enjoy or be accepted. Clearly, more insight is needed to shed light on how to promote the KUW so that more diverse populations also gain the health benefits of being active on the KUW trails.

While 100% of trail users acquire HEPA during each visit to the KUW, this is not the case among the users of the bike park. In total, only 64.2% of visitors at the bike park acquire HEPA during their visit. This is not to be unexpected due to the design of the bike park where people can sit to enjoy nature and perhaps watch a young child be physically active. Still, on a positive note, one would expect that these sedentary bike park visitors are receiving mental health benefits by just being surrounded by the nature and forest of the bike park.

Limitations

This study is not without limitations when interpreting the results and conclusions. First, the total number of trail users may be overestimated due to people leaving and returning to their primary access points. Also, users of the trail system may pass through multiple infrared trail counters during longer rides or runs. Indeed, if the leaving and returning ratios of users that were directly observed, the total number of unique visitors may be closer to a count of 169,393 users.

Conclusions

The Knoxville Urban Wilderness (KUW) trail system provides health benefits to every person who visits, either physical, mental, or both types of positive health benefits. In 2021, nearly 304,000 people were estimated to have benefited from using a KUW trail. People living in Knoxville, Knox County, and the surrounding areas should be encouraged to use the KUW trail system for these health benefits.

Physical Activity Health Benefits. As seen in this study, the use of KUW trails is restricted to three main types of physical activity – mountain biking, walking, and running. All of these physical activities on the KUW trail system, either at moderate- or vigorous intensity, help adult users of the KUW meet the recommended aerobic physical activity guidelines for Americans (i.e., do at least 150 minutes of an equivalent moderate-intensity aerobic physical activity per week). (U.S. Department of Health and Human Services, 2018) Also, the Baker Creek Bike Park, with the kid’s bicycle pump track and loop and adventure park features, is clearly providing an outlet for children and teenagers to be active across a variety of physical activities. Almost certainly, any child or adolescent at the bike park is getting activity that helps them meet the national physical activity guidelines that recommends getting 60 minutes or more of aerobic physical activity per day that also includes muscle- and bone-strengthening activities. (U.S. Department of Health and Human Services, 2018)

Access Point and Trail Design. The KUW trail system continues to expand with most recently new trails being built at the William Hastie Natural Area. Soon, the Baker Creek Preserve access point will have a new ‘Urban Wilderness Gateway Park’ that enhances the access of users from the James White Parkway, the main thoroughfare closest to the Downtown and South Knoxville. (City of Knoxville, 2023)

The design of new trails and future access points with the continued expansion will likely influence the type of physical activity. For instance, walkers and runners are attracted to the Ijams Quarry access point, while

mountain bikers prefer to access the trail system via the Baker Creek Preserve. Access to the Ijams Quarry trails is linked to a variety of key features and amenities that give people a choice of activities, including walking-friendly trails near and around the quarry. Users can access restrooms and gain access to food and beverages during many months of the year. Conversely, the Baker Creek Preserve provides dedicated mountain biking amenities and features (e.g., pump and jump tracks, dedicated downhill mountain bike trails). Mountain biking and trail events commonly start at Baker Creek and the users appear to be very familiar with the trail system.

Trail planners and design specialists will need to consider what type of physical activities they would like to promote at new access points to the trail system. In all likelihood, the segregation of walking and running activities at Ijams Quarry and mountain biking at the Baker Creek Preserve will continue. On a positive, this likely minimizes the potential for conflict among trail users (e.g., walkers and mountain bikers sharing smaller trails), but it may complicate how people access the trail system. For instance, the Ijams Quarry, with its many features allowing for rock climbing, swimming, and walking in nature, attracts large numbers of people which commonly strains the available parking. New access points for people wanting to walk or run on the trails may be needed in the future.

Diversity of KUW Users. The majority of people accessing and using the KUW trails and bike park are white, adult males. The question then arises, why are women and people of color not utilizing the trails at levels equal to the surrounding census demographics? To a large degree, women and minority populations tend to be more sedentary and likely to experience various chronic disease health disparities. Potentially, the KUW trails and bike park could help to reduce these health disparities in these more sedentary populations if they can be encouraged to visit the KUW to walk, bike, or run. The challenge then is to reach these underserved populations via social marketing to promote the KUW and the benefits of being active in nature at the KUW.

The foundation for reaching out to these underserved populations appears to be in place. For example, the Appalachian Mountain Bike Club (AMBC) through their 'Joy Ride' initiative is promoting mountain biking among women. (Appalachian Mountain Bike Club, 2023b) Also, a new event, RoamFest, that promotes mountain biking among women is coming to Knoxville in 2023 that provides an opportunity to expand the diversity of local mountain biking users on KUW trails. (Roam Fest, 2023) Specific to promoting mountain biking to young girls, a local 'Little Bellas' mentoring program is being offered by the AMBC and the City of Knoxville Parks & Recreation. (Little Bellas, 2023) In addition, the AMBC are actively engaging kids to adopt mountain biking through their 'Appalachian Youth Cycling' program. (Appalachian Mountain Bike Club, 2023a) Related to trail running, the Knoxville Track Club (KTC) are actively promoting trail running and racing through their "Treadin' Trodden Trails" Program. (Knoxville Track Club, 2023) In this program, which had 426 participants in 2022, 46.5% were female, a proportion much higher than national trail running demographics. Trail running in Knoxville also has a strong presence on social media via the 'Trail Running Crew of Ktown' who hosts a regular Thursday night trail run at Ijams (Trail Running Crew of Ktown, 2023), and the website '865 Running' (865 Running, 2023), a convenient source of fun runs across Knoxville. The City of Knoxville's Parks and Recreation department also offers weekly hiking programs on many of the KUW trails on Thursdays during the spring and fall.

Still, how can these types of initiatives be expanded? While the barriers and challenges of bringing more diversity to mountain biking and trail running have been recognized (e.g., cost and access to equipment, fear of being alone in forests, feelings of not being accepted, etc.), local insights on how to engage women and minorities to use the KUW trails and bike park are needed.

This insight could come from a variety of sources here in Knoxville. For example, the East Knoxville Community Cycling Club (EKCCC) strives to promote physical activity among underserved communities. (Alliance House,

2023) One of EKCCC goals is to promote diversity, equity, and access to outdoor spaces that promote healthy lifestyles. Also, the Knoxville Walkers, a City of Knoxville Parks and Recreation certified Programs in the Parks, seeks to promote walking among Black women in Knoxville. (Knoxville Walkers, 2023) Insights from these groups might help to expand KUW programming with the creation of new community programs. For instance, Knoxville could join the national program of 'Black Girls Run!', a program designed to encourage Black women to adopt an active lifestyle. (Run, 2023) Also, these groups might be able to help give input into the current social and print media marketing of the KUW, which currently lacks minority representation in the pictures of people being active and enjoying the KUW.

Future Projections. Users of the KUW trail system and bike park will continue to increase in the foreseeable future. The infrared trail counters currently in place will continue to monitor the use of the trail system to monitor any changes in usage. With this increased use will come the need to maintain the trail system, especially in high-volume areas. To a large degree, this maintenance is provided by the AMBC and the City of Knoxville's Parks and Recreation and Public Service Departments, all of which will need to have an adequate budget to plan for this projected increase use of the trails.

While there is no formal mechanism to monitor the diversity of users of the KUW trail system and bike park, planners should consider how to monitor any changes in demographics that may be related to efforts to engage these underserved populations.

Appendix

Trail User Count Methods

A variety of methods employed during this study, including the use of infrared counters and direct observation of people using the KUW trails and bike park. A more detailed description of these methods follow.

Trail Counter Devices Used

Hourly trail user counts were measured using a combination of TRAFx Trail Counters (TRAFx Research, 2023) and PYRO-Box counters. (Eco Counter, 2023) Both types of trail counters sense and detect the infrared wavelength emitted by people and records a precise timestamp of that user event (e.g., persons walking, running, cycling). Count data from the TRAFx counter were downloaded using the TRAFx G3 Dock, then imported to the Eco-Visio data platform. PYRO-Box counts were wirelessly transmitted through a cellular network to the Eco-Visio data platform daily.

User counts were collected on a continuous 24-hour time period from January 1, 2021, to December 31, 2021, for a total of 365 days. Hourly user counts were summed for each day. Over the course of the year, missing data occurred at some counters due to equipment failure (e.g., insect infestation, batteries dying, or persons tampering with the counters) and trail counter theft. To account for missing data, the total number of counts for individual counters were divided by the number of days in which data was collected for that specific counter. This provided a daily average count value which was then multiplied by 365 to estimate total yearly trail user counts.

Trail Counter Validation

Prior to data collection, a two-phase walking/running and cycling validation procedure was performed to ensure the varying user events would be captured. Phase I involved 100 passing trials at walking and running speeds and 100 passing trials riding a mountain bike. The overall accuracy of the trail counters for the walking/running and biking trials was $97.6 \pm 2.3\%$ and $99.4 \pm 1.5\%$, respectively. To further assess the validity of the trail counters, Phase II involved direct observation of trail users on two days (Saturday and Sunday), during four 1-hour intervals (8-9 AM, 12-1 PM, 3-4 PM, 6-7 PM) each day. Observers were placed within close proximity to the trail counters and were instructed to only count those individuals that pass through the counter's infrared beam. A comparison was made between the number of observed trail users and the number of trail users recorded by the trail counter. These are mixed-use trails; therefore, the total number of walkers, runners, and bikers from direct observation were compared to the total counts registered by the trail counter. The direct observation phase resulted in an overall accuracy of $90.0 \pm 5.4\%$. Most trail count error associated with this phase was a result of two or more users passing the trail counter at the same time; therefore, the counter was only able to detect the infrared wavelength emitted by one user. Other potential sources of error in trail counts encountered during routine checks and direct observation were dogs tall enough to trigger the infrared sensor, insect infestation over the sensor, and overgrown brush.

Trail User Count Adjustment

Using the counts obtained from direct observation, the researchers were able to calculate an adjustment factor for each of the trail counters. This adjustment was used to correct for the error in counts observed during direct observation. This adjustment was calculated by dividing the observed counts (from direct observation) by the actual counts (measured by trail counters). For example, if direct observation resulted in 179 counts of trail

users and the trail counter measured 187 users, the researcher divided 179/187 which equated to an adjustment factor of 0.957 for that trail counter. This process was repeated for all trail counters, and each counter had their own unique adjustment factor.

Trail User Demographics and Physical Activity

The demographics and physical activity choice of trail users was assessed during the previously mentioned direct observation (Phase II of Trail Counter Validation). In addition to counting individuals as they passed the counters, observers also recorded sex (female, male), estimated age (child, teen, adult, older), ethnicity (Latino, Black, White, Other), and physical activity (walk, run, bike, other). The results from DO were totaled and percentages for each category were calculated.

Baker Creek Bicycle Park: Direct Observation

Direct observation at Baker Creek Bicycle Park was performed using the System for Observing Play and Recreation in Communities (SOPARC), a reliable and validated tool and process for assessing physical activity. (McKenzie et al., 2006) Thirteen PA zones with features including bicycle pump tracks (N=9), playgrounds (N=3), and a greenway (N=1) were identified at the bike park. SOPARC scans were completed on four days during a week (Monday, Wednesday, Saturday, and Sunday) in 2021 (April, July, and October) and 2022 (January and April) at four 1-h time periods per day (8-9 AM, 12-1 PM, 3-4 PM, and 6-7 PM). A total of 1,040 scans were completed across the physical activity zones. In addition to counting individuals using the different activity zones at the bike park, observers also recorded sex (female, male), estimated age (child, teen, adult, older), ethnicity (Latino, Black, White, Other), and primary activity performed (e.g., cycling, climbing, walking, running, standing, etc.) of park users. The results from direct observation were totaled and percentages for each category were calculated.

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