Trail Use on Turkey Creek Trail at Emma Long Metropolitan Park April 2015-July 2021

Balcones Canyonlands Preserve Investigative Report IP 2021



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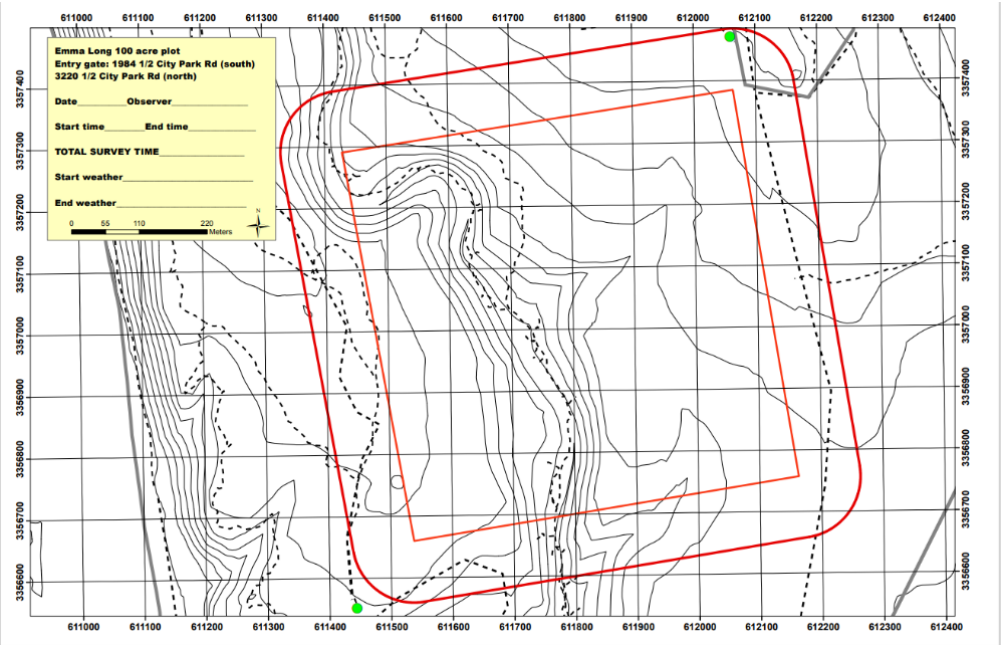
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INTRODUCTION

Emma Long Metropolitan Park (ELMP) is dual-managed by City of Austin's Parks and Recreation Department and Austin Water as part of the Balcones Canyonlands Preserve (BCP). The BCP was established in 1996 under an Endangered Species Act permit to mitigate for habitat loss from development and to protect seven federally endangered species and 28 species of concern in western Travis County. ELMP is dominated by mature Ashe juniper (*Juniperus ashei*) and oak (*Quercus* spp.) woodland and supports a breeding population of endangered Golden-cheeked Warblers (*Setophaga chrysoparia*).

Visitor use on ELMP is "grandfathered" at 1996 levels (BCP 2018). The purpose of this report is to document visitor use levels over time. We chose to focus on Turkey Creek Trail because we have visitor use data from 2015. Turkey Creek is a popular 2.5 mile loop trail with public access and off-leash dog walking. The trailhead is located at 1600 City Park Road, Austin, TX (30.333517, -97.839999). Admission is free and parking for approximately 30 vehicles is available at the trailhead.

Turkey Creek Trail also coincides with a long-term Golden-cheeked Warbler (GCWA) monitoring plot. In 2000, BCP staff established a 100-acre (40.5 ha) monitoring plot that overlays the central loop portion of the Turkey Creek Trail. In 2009, BCP staff initiated a long-term demography study of GCWA that involves intensive monitoring of a marked (color-banded) population. A summary of intensive monitoring results is provided in the City of Austin and Travis County Annual Report (2020).



Location of Golden-cheeked Warbler 100 ac. intensive monitoring plot along Turkey Creek Trail at Emma Long Metropolitan Park.

METHODS

Documenting trail use at Turkey Creek poses unique challenges. Although most trail users enter and depart the loop at the trailhead, the trail is not a closed loop. A small proportion of users are accessing the loop at different locales and are hiking or running a longer circuit. Also, since this trail includes off-leash dogs, we need to discriminate between number of dogs and humans.

There are 3 basic methods for documenting trail use:

1) Human-conducted surveys
2) Infrared trail counters
3) Game cameras

Human-conducted surveys require staff or volunteers to stand at the trailhead and tabulate the passing of humans and dogs entering the trail. Human-conducted surveys are accurate and qualified, but because they are labor intensive, they cannot be sustained for any period. Human-conducted surveys are excellent for recording a "snapshot" of trail use.

Trail counters use an infrared beam to sense, detect, and record passersby. They are unobtrusive to users and easy to maintain. Data can be downloaded in the field onto a portable storage device or transmitted automatically through a cellular network. Unfortunately, trail counters cannot discriminate between humans and dogs and can easily over count if adults with dogs and/or children pass back and forth in front of the counter. Trail counters are excellent for documenting relative trail use over longer periods of time.

Game cameras can be programmed to double-shoot and trigger at intervals to capture all but a very small proportion (~ 1%) of trail users (when clusters of people pass back and forth in front of the camera simultaneously). Data are downloaded in the field onto a portable storage device and reviewed later. Reviewing and tabulating the photos is time consuming but not dependent on real-time observation. Game cameras are excellent for discriminating between dogs and humans and can be deployed for an extended duration to record 'average' trail use over long or short periods of time.

Between 2015 – 2021, we used human-conducted and game camera surveys to document trail use on the BCP. We chose to conduct surveys in April/May because the weather is typically mild and it coincides with peak GCWA breeding activity.

In 2015, BCP staff and volunteers conducted trail use surveys at eight different sites, including Turkey Creek. At Turkey Creek, we surveyed trail use on parts of two separate weekdays on April 14 and 15, and two separate Sundays on April 19 and 26 to compile sequential 12-hour coverage of a single complete weekday and weekend day from 8 A.M. to 8 P.M.

In 2019, BCP staff and volunteers conducted trail use surveys at Turkey Creek only. We surveyed trail use on one entire weekday on April 16 and two separate Sundays on April 21 and 29 to compile sequential 12-hour coverage of a single complete weekday and weekend day from 8 A.M. to 8 P.M. There's a two-hour gap during the Sunday survey due to a reporting error.

In 2020, we installed a game camera at 3 different sites, including Turkey Creek Trail. The game camera was active between April 16 – May 3 during the City of Austin lockdown for Covid-19. Since most trail

users are making a looped return, we avoided double counting by only recording humans and dogs entering the trail traveling from right to left in the picture frame.

In 2021, we installed game cameras at two sites, including Turkey Creek Trail. The game camera was active between April 22 – May 11. We avoided double counting by only recording humans and dogs traveling from right to left in the picture frame.

RESULTS and DISCUSSION

Human-conducted Surveys at Turkey Creek Trail

Year	# Humans Weekday	# Dogs Weekday	# Humans Weekend	# Dogs Weekend
2015	91	72	318	189
2019	54	41	358*	160*

*Two-hour gap in survey due to reporting error.

Game Camera Surveys at Turkey Creek Trail

Year	Avg. # Humans Weekday	Avg. # Dogs Weekday	Avg. # Humans Weekend	Avg. # Dogs Weekend
2020*	171	77	450	180
2021	56	39	224	106

* Cameras deployed during Covid-19 lockdown.

Our results do not show a clear trend in trail use between 2015 – 2021. Data compiling single day use in 2015 and 2019 may not be comparable to data recording average trail use in 2020 and 2021. The surveys do show that Austin residents sought refuge and solace in our parks during the Covid-19 lockdown of 2020. Weekends have typically 3-4 times greater traffic than weekdays, although the difference was less during lockdown.

Turkey Creek Trail is much loved and trail use is high. We calculated annual trail use by multiplying the average number of humans and dogs observed in April/May 2021 on less populous weekdays by number of days in the year, and conservatively estimate that approximately 20,000 humans (56 x 365 = 20,440) and over 10,000 dogs (37 x 365 = 13,505) are visiting the trail each year.





Dogs are permitted off-leash on Turkey Creek Trail.

Even low impact activities such as walking and hiking can have negative effects on birds ranging from changes in physiology to reduced reproductive success (Steven et al. 2011). People with dogs – on or off leash – impact wildlife more than people without dogs. Wildlife perceives dogs as predators, which cause animals to move away, increase their stress levels, and reduce their opportunity to feed (Jennings 2016). Displacement and altered habitat use from increased dog activity has been documented for squirrels, rabbits, deer (Lenth et al. 2008), bobcats, and coyotes (Reed and Merenlender 2010). Crows and jays, which are important nest predators on GCWAs (Reidy et al. 2008), respond positively to increased visitor use, human food subsidies, and road edge (Walker and Marzluff 2015).

Thousands of dogs are using the trail and swimming in the creek. Many pets are now treated with pyrethrin dips or other toxic applications to protect against ticks and fleas. Pyrethrin products are toxic to insects and fish (*National Pesticide Information Center 2014*). Although the amount of pyrethrin entering the stream from any one dog in the water is negligible, the accumulation of toxins may impact aquatic fauna.



Frolicking in the creek is a popular activity for humans and dogs at Turkey Creek Trail.

Pet waste in the water contributes nutrients that lead to overgrowth of harmful algae and weeds that can harm fish and other wildlife. Roundworms, hookworms, and whipworms are common gastrointestinal parasites that shed eggs in dog feces. Dog feces may also contain *Salmonella*, *Escherichia coli*, and *Campylobacter* bacteria (Jennings 2016). A sign in the parking lot at the entrance of the trailhead warns that "Poo Pollutes" and advises users to collect dog waste in the plastic bags provided, carry it out, and place it in the trash. However, since many dogs are off-leash, their droppings are not collected. Also, a minority of trail users bag the waste but fail to carry it out.



Sacs of pet waste are regularly discarded along Turkey Creek Trail.

Turkey Creek Trail has become popular with professional dog handlers promoting "adventure walks" where dogs are exercised in an outdoor, off-leash setting. Pack sizes of up to 16 dogs have been recorded (D. Hutchinson, pers. obs.). In general, these professional dog walkers are not licensed by City of Austin. Game camera surveys can document the habitual use of Turkey Creek Trail by professional dog-walking companies.

CONCLUSION

The Austin metropolitan area has nearly doubled in population since 2000 (*Austin Chamber of Commerce 2019*). Commensurate with urban growth, increased visitation to our parks may be impacting facilities, natural resources, and wildlife communities (Buckley 1991). Given the changes in methodology (human-conducted surveys and game camera surveys) and the limited period of time captured by these surveys, we cannot generalize a pattern of trends at this time. We recommend continued data collection on average trail use to include additional sites and a broader period of time. We prefer game camera surveys because the cameras are easy to deploy, both humans and dogs can be counted accurately, and average trail use is a more informative metric than single day use.

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