



Boulder County Parks and Open Space

2012

Regulation Compliance Study



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Acknowledgements

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Executive Summary

Every five years, BCPOS conducts a system-wide demographics and satisfaction survey called the Five Year Study. Additionally, uniformed staff and volunteers collect ongoing annual observation studies to determine the estimated number of visits to major parks and the activities in which visitors participate. This compliance study is designed as a supplement to these visitor studies to obtain baseline data of visitor compliance with regulations.

From October 2011 to August 2012, BCPOS staff and volunteers conducted 460 hours of visitor observation at nine park properties. A total of 6,669 visitors were observed. Visitors were most often observed hiking (48%), mountain biking (32%), and running (14%).

There were 471 observed regulatory violations, which accounts for 7% of all visitors observed, resulting in a 93% rate of compliance with BCPOS regulations.

The three properties with the highest percent of overall violations were Boulder Canyon Trail (11%), Coalton (11%), and Betasso Preserve (7%).

The two most common violations observed were:

- Biker's not yielding to hikers and horses (14% of bikers did not yield) and
- Dogs off leash (13% of dogs were off leash).

According to BCPOS regulations, bikers must yield to pedestrians and horses. Yielding the right-of way requires slowing down to a safe speed, being prepared to stop, establishing communication, and passing safely. Of these requirements, failure to communicate (65% of bikers who did not yield) was the most common violation. The three properties with the highest percent of biker's not yielding to hikers and horses were Boulder Canyon Trail (21%), Coalton (18%), and Twin Lakes (12%).

The three properties with the highest percent of dogs off-leash were Walker Ranch Loop Trail (40%), Anne U. White Trail (31%), and Walker Ranch Meyers Homestead Trail (23%).

These trends and others are presented in the following study.

Introduction

Objectives

The objectives of the compliance study are to:

1. Obtain baseline data of visitor compliance with regulations on nine properties;
2. Identify properties, days of the week, and seasons with low compliance of regulations;
3. Highlight possible education and enforcement management efforts.

Background

Boulder County Parks and Open Space conducts visitor studies to collect usable information about our park visitors to better manage open space. Uniformed staff and volunteers collect ongoing annual observation studies to determine the estimated number of visits to major parks and the activities in which visitors participate. Additionally, every five years, BCPOS conducts a system-wide demographics and satisfaction survey called the Five Year Study. The compliance study is designed as a supplement to these visitor studies to obtain baseline data of visitor compliance with regulations.

Methods

Resource management staff, Senior Tax Work-Off program participants, and volunteers conducted observational hikes at nine parks from October 2011 to August 2012. The parks were selected because they showed high visitor conflict in the Five Year Study and/or the rangers were receiving reports about visitors not following regulations. The parks sampled were Boulder Canyon Trail: From Fourmile Canyon to the Bridge, Niwot Monarch Loop Trail, Twin Lakes, Betasso Preserve, Walker Ranch: Loop Trail, Walker Ranch: Meyers Homestead Trail, Anne U. White Trail, Rabbit Mountain, and Coalton: Coalton and Meadowlark Trails.

Each observer attended a formal training session to ensure consistency in reporting. During shifts, observers drove unmarked vehicles and wore plain clothing so as not to influence visitor behavior. The data collected included visitor activity and any regulatory violations.

Observation sessions were 2.5 hours long, with 30 minutes of parking lot observation and 2 hours of trail observation, during consecutive hours sometime in the morning (8:00 am to 11:59 am), afternoon (12:00 pm – 3:59 pm), and evening (4:00 pm to 8:00 pm). Data was collected for each season (fall, winter, spring, and summer), during all three time periods and on both weekdays and weekends. In a few situations, shifts were canceled due to extreme weather, smoky conditions from nearby fires, or scheduling conflicts.

Results

A total of 6,669 visitors were observed during 460 hours of observation. The overall visitor activity and regulatory compliance observational data is displayed in the tables below.

Primary Visitor Activity

Table 1. Visitor Activity

	# of Visitors	Percent
Hiking	3,193	48%
Mountain Biking	2,106	32%
Running	944	14%
Rock/Ice Climbing	62	1%
Fishing	54	1%
Other	50	1%
Picnicking	49	1%
Organized Group	35	<1%
Relaxing/Nothing	33	<1%
Sightseeing	29	<1%
Riding Horseback	23	<1%
Photography/Art	22	<1%
Cross Country Skiing	19	<1%
Viewing Wildlife	17	<1%
Park Ranger	14	<1%
Snowshoeing	13	<1%
Nature Studies	6	<1%
Boating	0	0%
Total	6,669	100%

Other activities observed included visitors attending a wedding (20 visitors), dropping off recycling (10 visitors), swimming (4 visitors), skateboarding (3 visitors), parks employees working (4 visitors), sledding (3 visitors), backpackers (2 visitors), meditation (1 visitor), motor bike (1 visitor), paraglider (1 visitor), and a person walking on a water pipe in a climbing area (1 visitor).

These results are consistent with the visitor activities reported in the 2010 Five Year Study survey. Respondents in that study were asked to report their primary activity and the most common visitor activities were hiking (40%), mountain biking (23%), running (9%), and walking the dog (9%).

Table 2. Observed Visitor Activity Popularity by Property

	Primary Activity	Second Activity	Third Activity	Total Visitors
Anne U. White Trail	Hiking (93%)	Running (3%)	Organized Group (2%)	492
Betasso Preserve	Biking (53%)	Hiking (36%)	Running (7%)	1,028
Boulder Canyon Trail	Biking (47%)	Hiking (26%)	Running (15%)	1,521
Coalton	Biking (43%)	Hiking (28%)	Running (25%)	674
Niwot Monarch Trail	Hiking (52%)	Running (24%)	Biking (20%)	465
Rabbit Mountain	Hiking (63%)	Running (14%)	Biking (9%)	469
Twin Lakes	Hiking (66%)	Running (19%)	Biking (14%)	1,201
Walker Ranch Loop	Hiking (48%)	Biking (38%)	Running (7%)	531
Walker Ranch Meyers	Hiking (65%)	Biking (18%)	Running (4%)	288

By property, the most common activity observed was hiking, except at Boulder Canyon Trail, Coalton, and Betasso Preserve where biking was the primary activity observed.

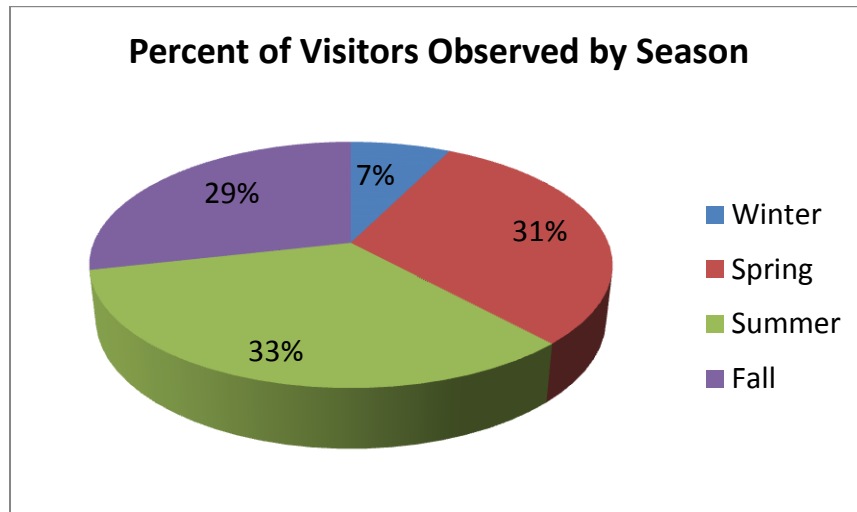


Figure 1. Illustrates seasonal distribution of the percent of visitors observed.

Note that visitation to BCPOS properties varies by season, with the highest number of visits to parks usually occurring in the summer. Sixty percent of visitors (4,019 visitors) were observed on the weekends (Saturdays and Sundays).

Parking Lot Vehicle Observations

At the beginning of each session, observers spent 30 minutes performing parking lot observation. During this time, in addition to recording visitor activities and regulatory violations, they recorded the observed number of illegally parked vehicles inside of the lot.

Twelve illegally parked vehicles were observed during this study. The majority of illegally parked vehicles were observed at the Anne U. White trail which has a small lot with only five parking spaces. Additionally, eighty-three percent of the vehicles illegally parked were observed on weekdays (Monday to Friday). The number of illegally parked vehicles is highest in the spring.

Regulatory Compliance

There were 471 observed regulatory violations, which accounts for 7% of all visitors observed, resulting in a 93% rate of compliance with BCPOS regulations. The two most common violations observed were biker's not yielding to hikers and horses (14% of bikers did not yield) and dogs off leash (13% of dogs were off leash).

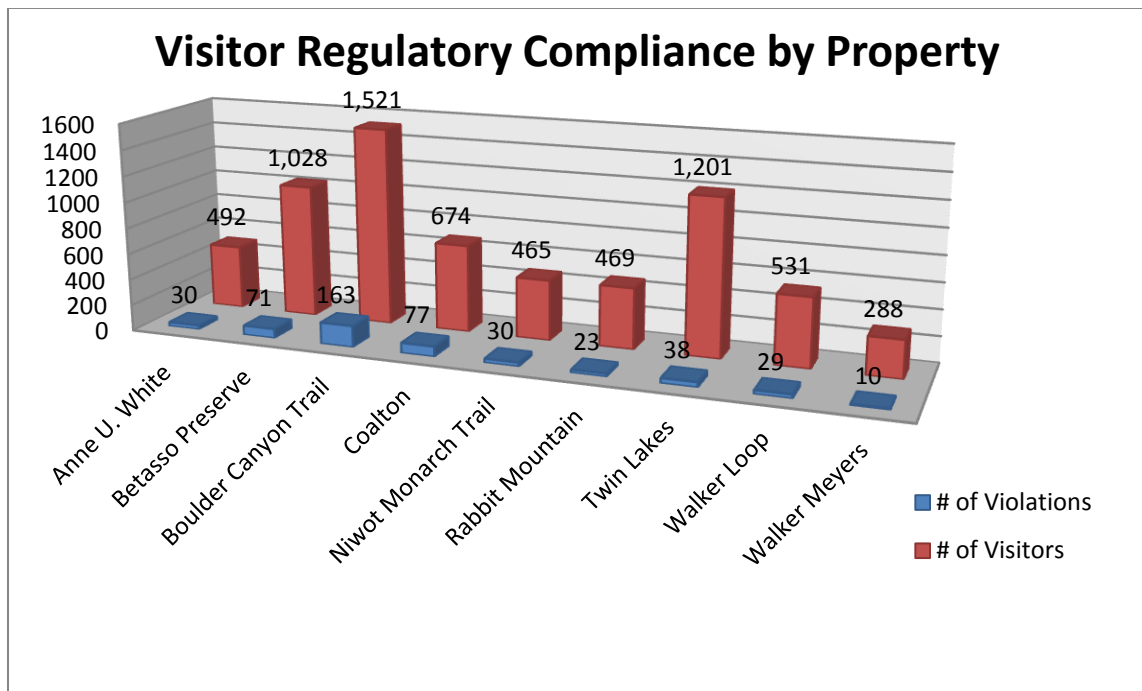


Figure 2. Illustrates the number of violations compared to the number of observed visitors by property.

Table 3. Regulatory Compliance at Individual Properties

	# of Visitors Observed	# of Violations	Percent Violations
Anne U. White Trail	492	30	6%
Betasso Preserve	1,028	71	7%
Boulder Canyon Trail	1,521	163	11%
Coalton	674	77	11%
Niwot Monarch Loop	465	30	6%
Rabbit Mountain	469	23	5%
Twin Lakes	1,201	38	3%
Walker Ranch: Loop Trail	531	29	5%
Walker Ranch: Meyers Homestead Trail	288	10	3%
Total	6,669	471	7%

The three properties with the highest percent of violations were Boulder Canyon Trail, Coalton, and Betasso Preserve. The Boulder Canyon Trail, was one of two trails with the highest reported conflict in the 2010 Five Year Study (12% reported conflict on that day). The Coalton trailhead, which opened in the summer of 2011, was not included in the Five Year Study. In the 2010 Five Year Study, Betasso Preserve respondents reported experiencing 10% conflict that day (3% higher than the 7% average conflict reported).

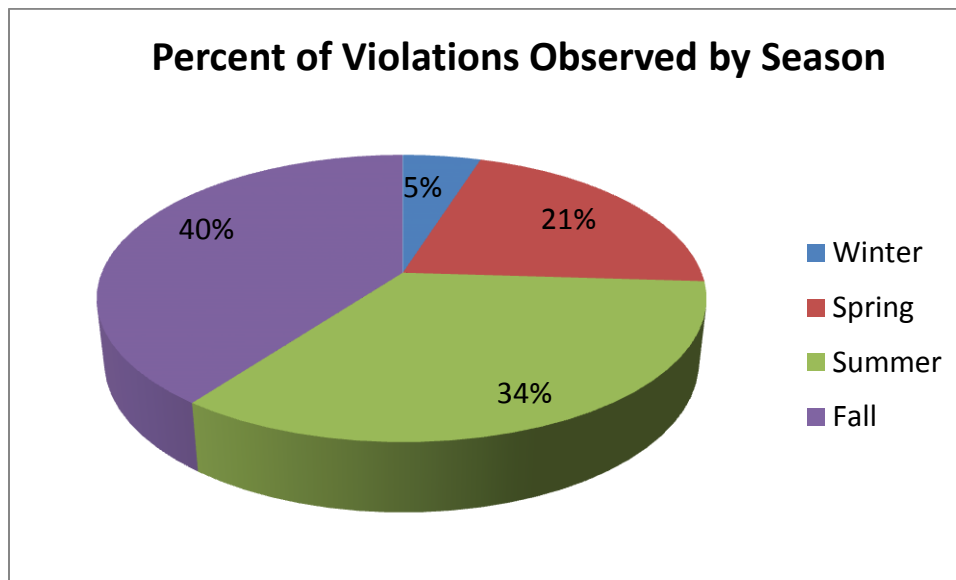


Figure 3. Illustrates seasonal distribution of violations.

The majority, seventy-four percent, of observed violations on BCPOS occurred in the summer and fall months.

Biker Yielding Compliance

Table 4. Overall Biker Yielding Compliance

	# of Bikers	Percent
Bikers Yielding	1,815	86%
Bikers Not Yielding	291	14%
Total	2,106	100%

Table 5. Recorded Reason Biker's Not Yielding

	# of Bikers	Percent
Biker Did Not Communicate	188	65%
Biker Did Not Slow Down	17	6%
Biker Didn't Communicate and Didn't Slow Down	77	26%
Explanation Not Recorded	9	3%
Total	291	100%

All properties in this study, excluding Anne U. White, permit biking. Betasso Preserve has additional regulations regarding bike access: bikers are required to travel the posted direction on the trails (the direction is changed periodically) and are not permitted Wednesdays and Saturdays on the Canyon Loop and Benjamin Loop trails.

According to BCPOS regulations, bikers must yield to pedestrians and horses. Observers were instructed to indicate that a biker is not yielding only if the biker is observed violating the defined requirements of yielding. Yielding the right-of way requires slowing down to a safe speed, being prepared to stop, establishing communication, and passing safely. Observers were required to record which requirement of yielding the biker ignored.

Failure of the biker to communicate (65% of bikers who did not yield) – such as saying “on your left” or “may I pass” – was the most common yielding requirement bikers did not perform. The trails in the study did range dramatically in width, from less than three feet wide to about ten feet wide. Properties with wider trails, like Boulder Canyon and Coalton, had more bikers that did not communicate while passing than properties with narrower trails, like Rabbit Mountain and Walker Ranch.

Sixty-four percent (185 bikers) of bikers failing to yield to hikers were observed on weekends.

Table 6. Biker Yielding Compliance by Property

	# of Bikers Observed	# of Bikers Not Yielding	Percent Violations
Betasso Preserve	547	48	9%
Boulder Canyon Trail	713	153	21%
Coalton	291	52	18%
Niwot Monarch Loop	94	9	10%
Rabbit Mountain	44	1	2%
Twin Lakes	163	20	12%
Walker Ranch: Loop Trail	201	8	4%
Walker Ranch: Meyers Homestead Trail	53	0	0%
Total	2,106	291	14%

The three properties with the highest percent of bikers not yielding to hikers and horses were Boulder Canyon Trail (21%), Coalton (18%), and Twin Lakes (12%). All bikers observed at Walker Ranch Meyers Homestead Trail yielded appropriately to hikers and horses.

Dog Leash Regulation

Table 7. Compliance with Dog Leash Regulation

	# of Dogs	Percent
Dogs Leashed	1,018	87%
Dogs Unleashed	147	13%
Total	1,165	100%

All properties in this study allow leashed dogs. The regulations require dogs to be on leash, under physical control of their owner. Fifty-seven percent (666 dogs) of dogs were observed on weekends.

Twin Lakes is the only property in this study where dogs are allowed off-leash in the designated area around the west lake. Since dogs are allowed off-leash at the west lake, observers were instructed to record off-leash violations only on the trail around the east lake where dogs must be leashed.

These results compare very closely to previous uniformed volunteer and education and outreach staff park patrol observations. The table below shows the observed dogs leash compliance on patrol in 2011, when 14,720 visitors were observed.

Table 8. Uniformed Staff and Volunteer Observed Dog Leash Compliance

	2011 # of Dogs	2011 Percent
Dogs Leashed	1,156	88%
Dogs Unleashed	153	12%
Total	1,309	100%

Table 9. Dog Leash Compliance by Property

	# of Dogs Observed	# of Dogs Off-Leash	Percent Violations
Anne U. White Trail	92	29	31%
Betasso Preserve	81	17	21%
Boulder Canyon Trail	66	8	12%
Coalton	91	17	19%
Niwot Monarch Loop	120	21	18%
Rabbit Mountain	97	14	14%
Twin Lakes	533	13	2%
Walker Ranch: Loop Trail	50	20	40%
Walker Ranch: Meyers Homestead Trail	35	8	23%
Total	1,165	147	13%

The three properties with the highest percent of dogs off-leash were Walker Ranch Loop Trail (40%), Anne U. White Trail (31%), and Walker Ranch Meyers Homestead Trail (23%). Twin Lakes had the highest number of dogs observed, but the lowest number of dogs off-leash observed (2%).

Other Rules and Regulations

Table 10. Compliance with other Rules and Regulations

	# of Visitors	Percent
No littering	17	0.25%
No collecting or destroying	7	0.10%
Off trail in area not allowed	3	0.04%
No bikes allowed	2	0.03%
Hikers must yield to horses	1	0.01%
Runners must yield to horses	1	0.01%
No glass	1	0.01%
Total	32	0.48%

Observed violations of other rules and regulations account for less than 1% of all violations.

Property Specific Compliance

This section highlights results from properties with significantly higher rates of violations. The three properties with the highest percent of violations were Boulder Canyon Trail, Coalton, and Betasso Preserve. The most common activity observed at Boulder Canyon Trail, Coalton, and Betasso Preserve was biking. The greatest number of violations at all three of these properties came from biker's not yielding to hikers and horses.

Boulder Canyon Trail

A total of 1,521 visitors and 66 dogs were observed over 47.5 hours at Boulder Canyon Trail.

- 77% of violations (126 violations) were observed on the weekends (Saturdays and Sundays).
- Boulder Canyon Trail has the highest percentage of biker not yielding violations of any property.
- 51% of visitors (782 visitors) were observed on the weekends (Saturdays and Sundays).
- 48% of dogs (32 dogs) were observed on the weekends.

The top three visitor activities observed are shown in the table below.

Table 11. Visitor Activity Boulder Canyon Trail

	% of Visitors
Biking	47%
Hiking	26%
Running	15%

Table 12. Boulder Canyon Trail Regulatory Compliance

	# of Violations	Percent Violations
Bikers Not Yielding	153	94%
Dog Off Leash	8	5%
No collecting or destroying	2	1%
Total	163	100%

Table 13. Recorded Reason Biker's Not Yielding at Boulder Canyon Trail

	# of Bikers	Percent
Biker Did Not Communicate	97	64%
Biker Did Not Slow Down	8	5%
Biker Didn't Communicate and Didn't Slow Down	43	28%
Explanation Not Recorded	5	3%
Total	153	100%

Coalton

A total of 674 visitors and 91 dogs were observed over 55 hours at Coalton.

- 63% of visitors (422 visitors) were observed on the weekends (Saturdays and Sundays).
- 60% of dogs (55 dogs) were observed on the weekends.

The top three visitor activities observed are shown in the table below.

Table 14. Coalton Visitor Activity

	% of Visitors
Biking	43%
Hiking	28%
Running	25%

Table 15. Coalton Regulatory Compliance

	# of Violations	Percent Violations
Bikers Not Yielding	52	68%
Dog Off Leash	17	22%
No collecting or destroying	3	4%
No littering	5	6%
Total	77	100%

Table 16. Recorded Reason Biker's Not Yielding at Coalton

	# of Bikers	Percent
Biker Did Not Communicate	43	83%
Biker Did Not Slow Down	2	4%
Biker Didn't Communicate and Didn't Slow Down	5	9%
Explanation Not Recorded	2	4%
Total	52	100%

Betasso Preserve

A total of 1,028 visitors and 81 dogs were observed over 52.5 hours at Betasso Preserve.

- 65% of visitors (666 visitors) were observed on the weekends (Saturdays and Sundays).
- 64% of dogs (52 dogs) were observed on the weekends.
- Betasso Preserve has the highest observed number of park ranger vehicles of any property.

The top three visitor activities observed are shown in the table below.

Table 17. Betasso Preserve Visitor Activity

	% of Visitors
Biking	53%
Hiking	36%
Running	7%

Table 18. Betasso Preserve Regulatory Compliance

	# of Violations	Percent Violations
Bikers Not Yielding	48	68%
Dog Off Leash	17	24%
No collecting or destroying	2	3%
No bikes allowed	2	3%
No glass	1	1%
No littering	1	1%
Total	71	100%

Table 19. Recorded Reason Biker's Not Yielding at Betasso Preserve

	# of Bikers	Percent
Biker Did Not Communicate	22	46%
Biker Did Not Slow Down	4	8%
Biker Didn't Communicate and Didn't Slow Down	22	46%
Total	48	100%

Discussion

Limitations of Study

- Observers were only able to see visitors and dogs for a limited portion of visitors' time on the BCPOS property and/or trail.
- Although staff and volunteers were provided with the defined requirements for yielding, individual observer's perception of a "safe speed" may have been different.

Implications for Management

Upon completion of this study, staff members from Education and Outreach, Resource Protection, and Trails met to discuss the results of the study. The discussion focused mainly on management efforts, such as education and enforcement, to improve compliance with bike yielding and dog on leash regulations.

Biker's must yield to hikers and horses

- As mentioned in the study, the Boulder Canyon Trail, Coalton Trails, and Twin Lakes Trails are wider than the other trails in this study. On these trails, additional signage should be considered encouraging visitors to "stay right and pass left" and "announce yourself before passing." Additionally, at the top of any large downhill (particularly at Coalton), signage informing bikers to "slow down, steep hill ahead" may be needed.
- Trails staff is also going to explore other options for ways to control visitor traffic on wide trails such as incorporating center lines on concrete sections to provide separation for directional traffic.
- Efforts to improve bike yielding will concentrate on encouraging biker's to communicate their wish to pass another visitor. This can be done at Boulder Canyon Trail, Coalton Trailhead, Betasso Preserve, and Twin Lakes with directed patrols (with volunteer Mountain Bike Patrollers and staff) and trailhead displays about multiple use trails and yielding. Efforts will also focus on educating first time visitors and new mountain bikers about how to share the trail. Conversations will encourage visitors to use positive communication when passing and possibly give bells to bikers.

Dogs must be on a leash

- At Walker Ranch Meyers Homestead Trail, Anne U. White Trail, and the Walker Ranch Loop additional patrol will be implemented in the early summer for education and enforcement paid staff and the volunteer Citizen Ranger Corps that span a variety of days of week and blocks of time to capture neighbors and weekly visitors regular visits.

- This could include co-patrol and multiple patrols at the same time at parks with a high percentage of dogs off leash.
- This will include educational efforts to inform visitors of reasons dogs are required to be on leash and explanation of the differences between City of Boulder (voice and sight green dog tag program) and Boulder County Parks and Open Space dog regulations.
- Additionally, at the Anne U. White trail informational postcards about the regulation will be mailed to neighbors in the surrounding area.
- Resource Protection staff will review the ticket procedure for visitors with multiple dogs off leash to determine if a more stringent fine should be recommended. Additionally, Resource Protection will explore the possibility of implementing a regulation for “nuisance” dog(s) that harass park visitors, wildlife, or other domestic animals.