



Recreation & Wildlife:
Effectiveness of Closed Trail
Enforcement

City of San Diego, Park and Recreation Department, Open Space Division

San Diego Association of Governments (SANDAG)

San Diego Management and Monitoring Program

California Department of Fish and Wildlife



U.S. Geological Survey

University of California, San Diego, Biological Sciences Department

Access:

California Department of Transportation

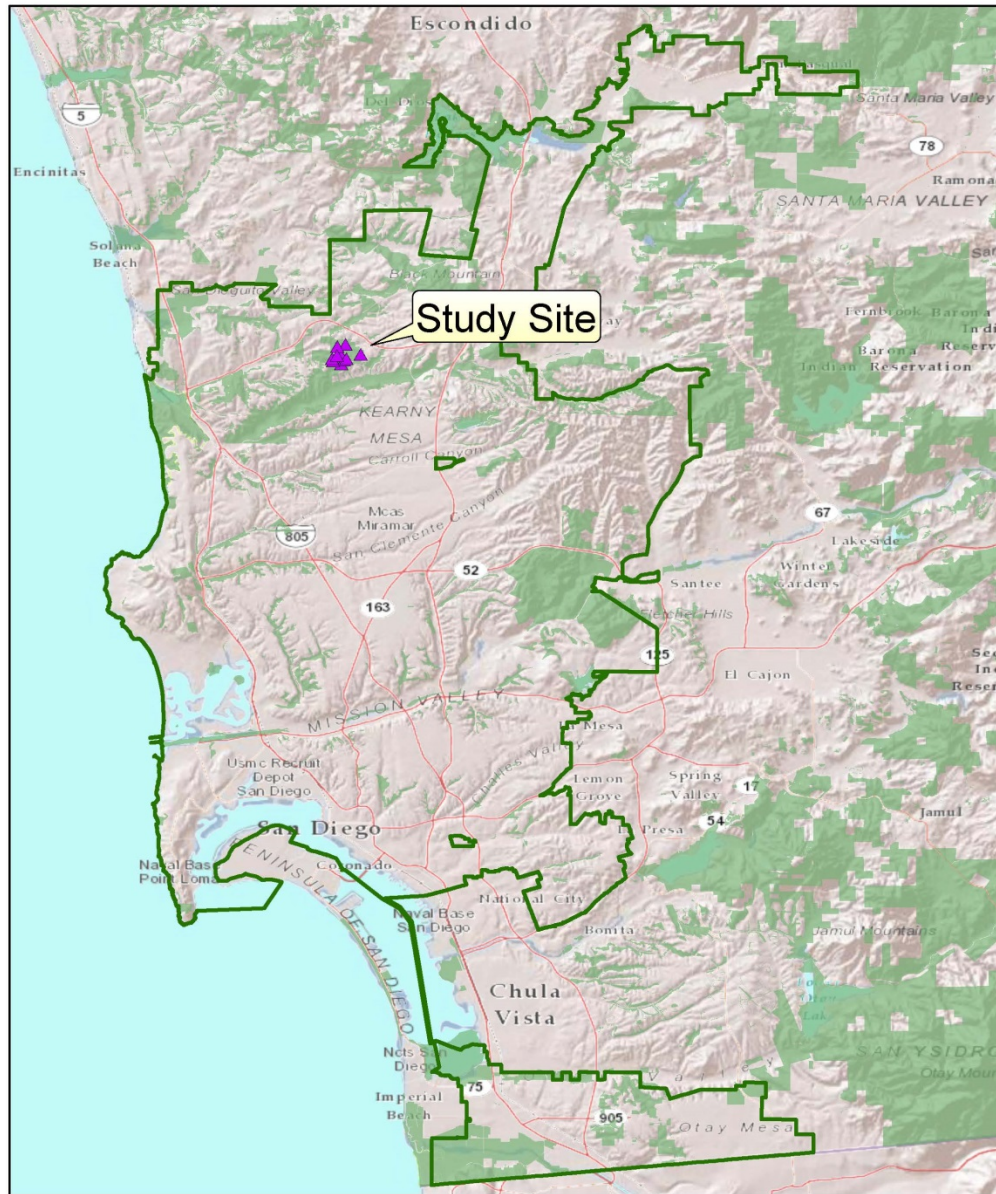
U.S. Fish and Wildlife

California Department of Fish and Wildlife

County of San Diego



Del Mar Mesa Study Site



Conserved Lands
City Boundary

Camera Locations

0 2.5 5 10 Miles



10 Cameras

-Placed at both open/closed trails



Background

Extensive illegal trail cutting (2009-2011)

- Education Campaign
 - Comprehensive Signage
 - Ranger-User Education
- Enforcement
- Natural Resource Management Plan (NMRP) in progress
 - CEQA MND available for public comment

Project Goals

Monitoring human and wildlife traffic *before, during, and after* targeted enforcement efforts

- Identification of high-traffic areas/time/days
- Monitoring enforcement effectiveness
- Wildlife response

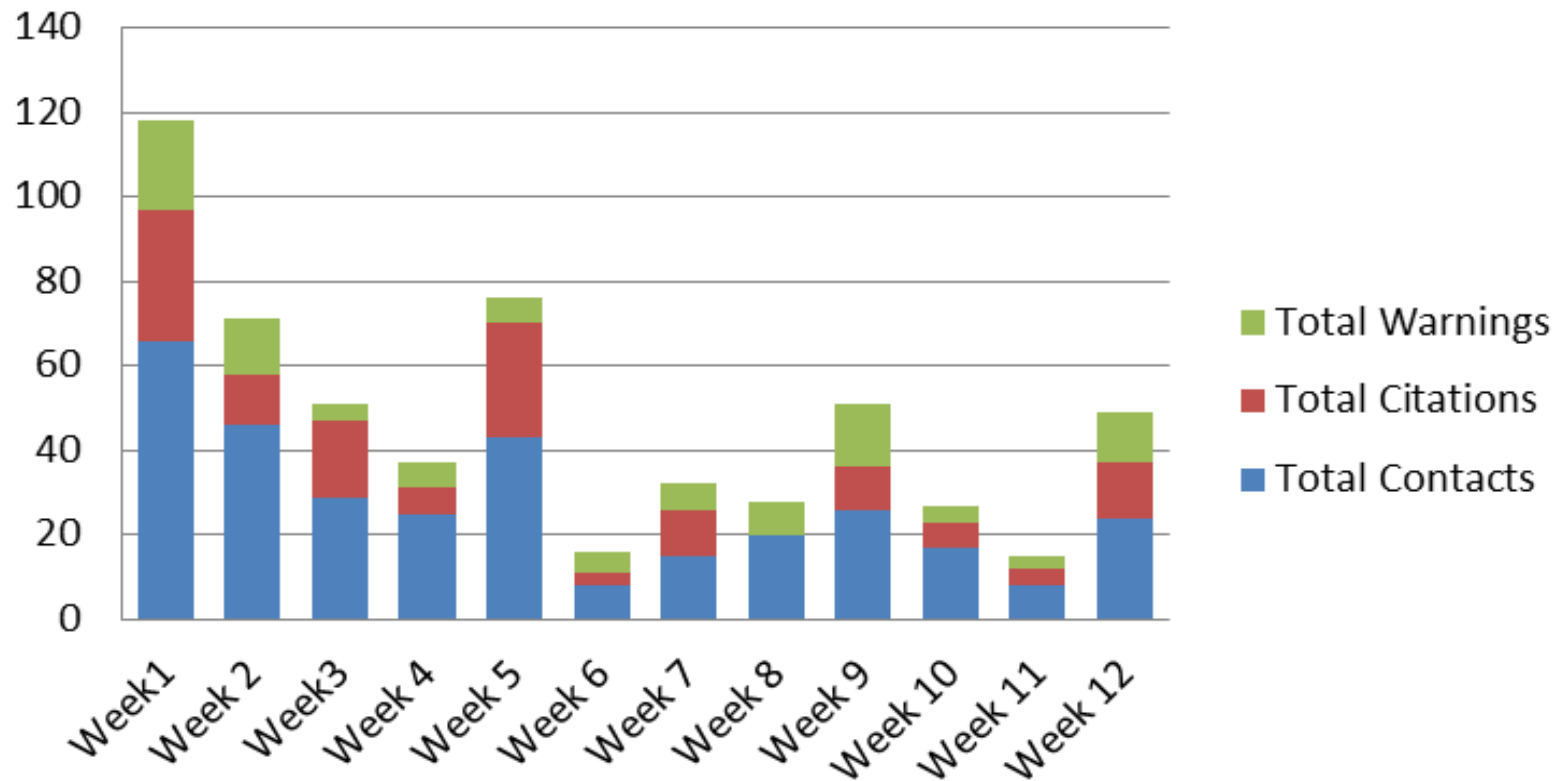
Creating an Enforcement Plan

"Pre-Enforcement" Phase

What *trails* receive the highest human and wildlife traffic?

What are the heaviest use *days or times of day*?

Warden Enforcement Data



- 2 officers
- Every Sunday, Saturday, and Wednesday
- 10 hour shifts

Study Costs

More than 200 hours labor hours from City rangers, interns, biologists

- \$5,100 spent on labor using primarily intern hours
- Labor costs would be more than \$23,000 if biologist hours were used instead

- Camera Placement
- Data Collected
- Security Issues

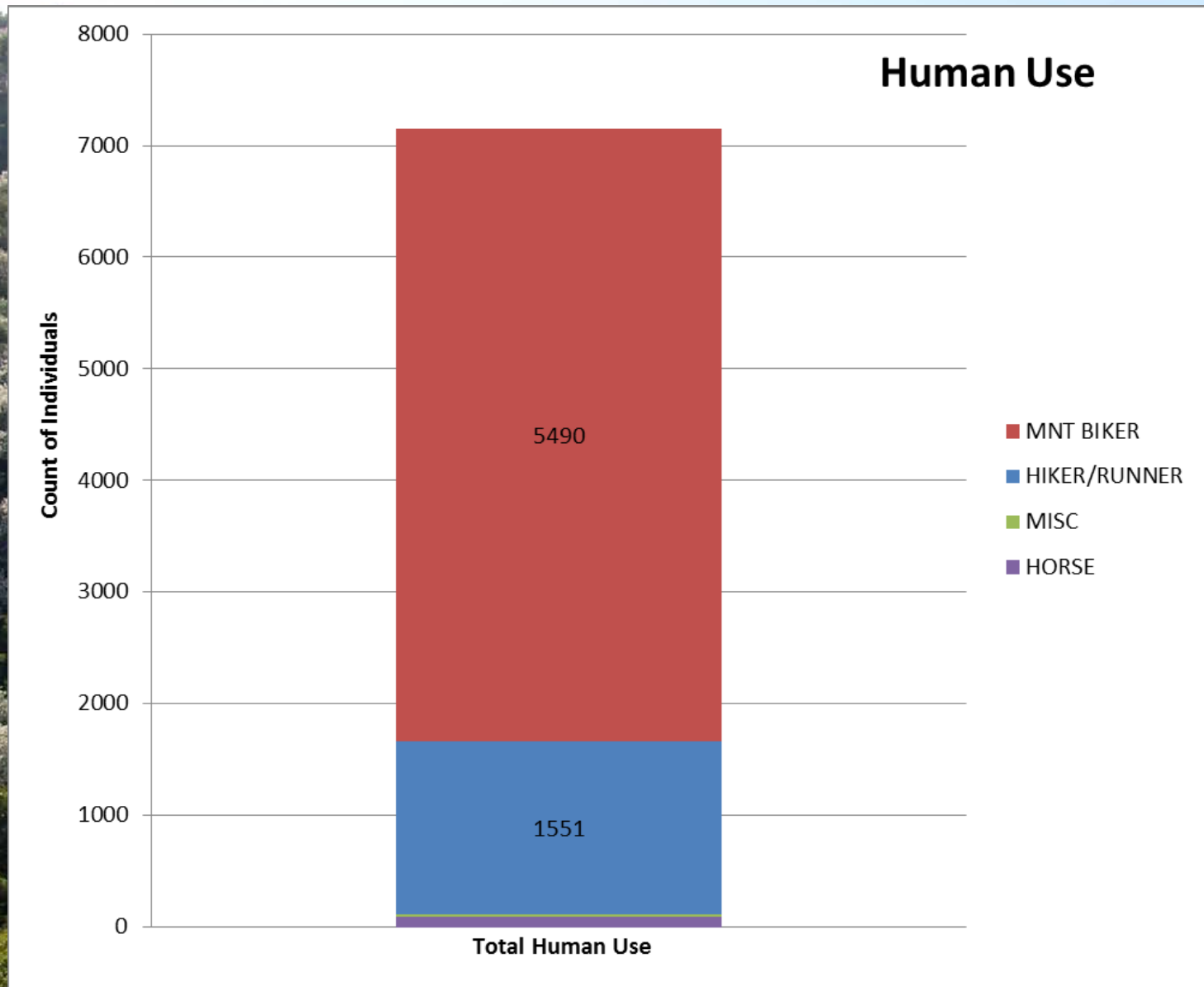


6	Camera #	Date	Time	Human	Type	Individuals	Animal	Type	Individuals	Other
7	9	8/17/2013	14:11	Y	biker	1	N	-	-	
8	9	8/18/2013	8:47	Y	biker	1	N	-	-	
9	9	8/18/2013	8:58	N	-	-	Y	bobcat	1	
10	9	8/18/2013	9:00	Y	biker	2	N	-	-	
11	9	8/18/2013	9:13	Y	runner	2	N	-	-	
12	9	8/18/2013	9:46	Y	biker	1	N	-	-	
13	9	8/18/2013	10:49	Y	biker	1	N	-	-	
14	9	8/18/2013	12:22	Y	biker	1	N	-	-	
15	9	8/19/2013	7:51	N	-	-	Y	deer	1	
16	9	8/19/2013	11:38	Y	biker	1	N	-	-	
17	9	8/19/2013	21:15	N	-	-	Y	deer	1	
18	9	8/19/2013	21:49	N	-	-	Y	deer	1	
19	9	8/20/2013	12:02	Y	biker	1	N	-	-	
20	9	8/20/2013	19:58	Y	biker	1	N	-	-	
21	9	8/20/2013	23:17	N	-	-	Y	deer	1	
22	9	8/21/2013	20:57	N	-	-	Y	deer	1	
23	9	8/22/2013	4:21	N	-	-	Y	rabbit	1	
24	9	8/22/2013	9:25	Y	unknown	1	N	-	-	
25	9	8/22/2013	9:30	Y	runner	1	N	-	-	
26	9	8/22/2013	11:41	Y	biker	1	N	-	-	
27	9	8/23/2013	3:53	N	-	-	Y	deer	1	
28	9	8/23/2013	4:57	N	-	-	Y	deer	1	
29	9	8/23/2013	6:25	N	-	-	Y	coyote	1	
30	9	8/23/2013	6:57	N	-	-	Y	coyote	1	
31	9	8/23/2013	9:07	N	-	-	Y	covote	1	

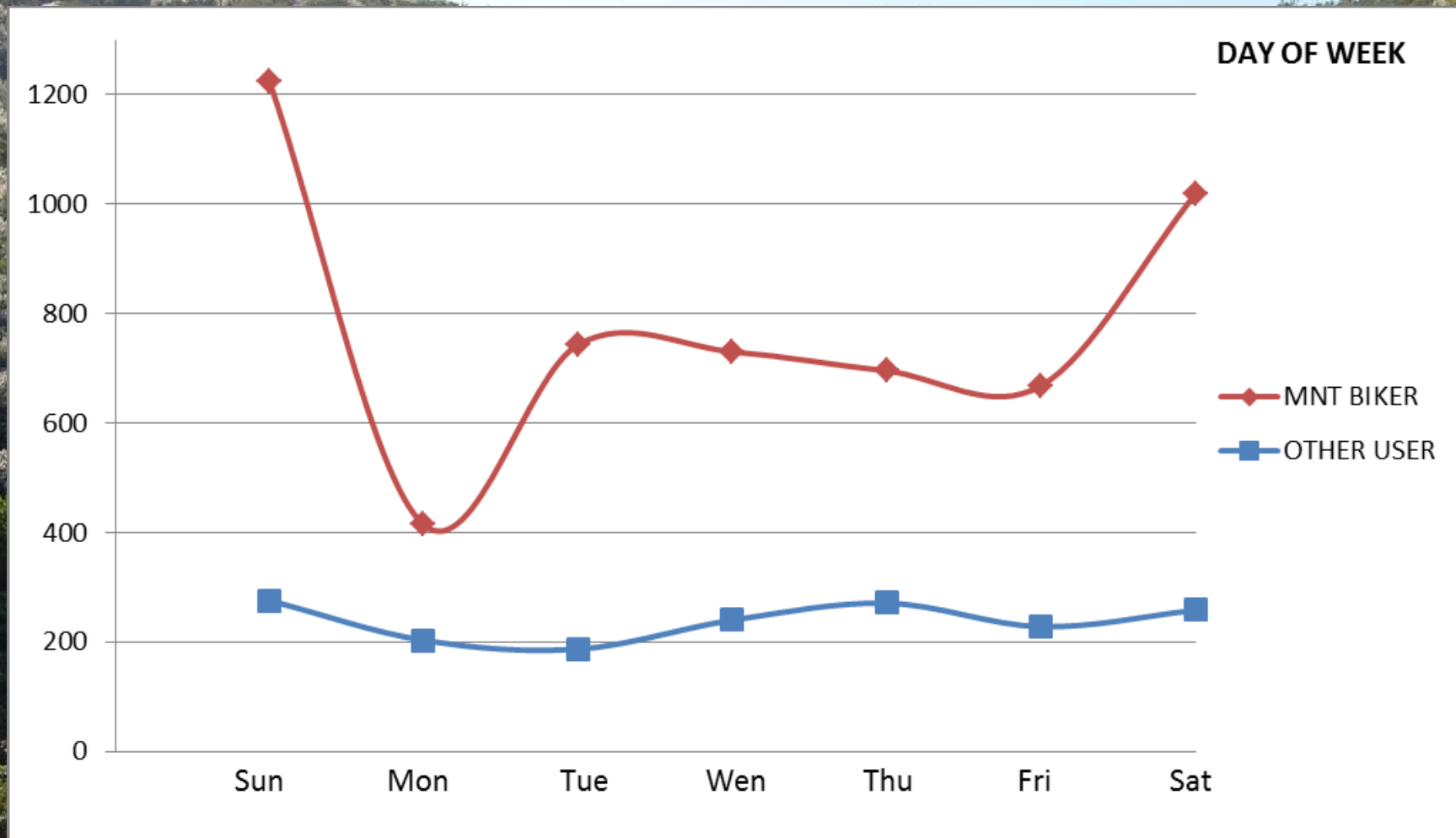
45,000 photos captured from May-29 to Dec-18

8,000 photos are “valid” captures

Total Number of Users

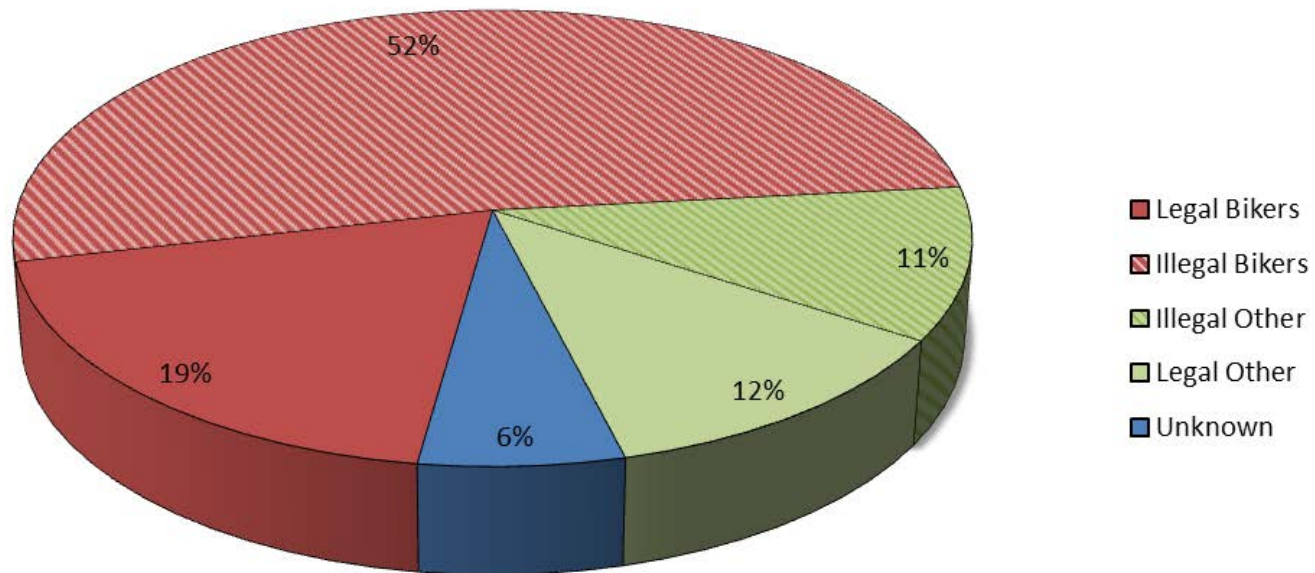


Total Users by Day of Week

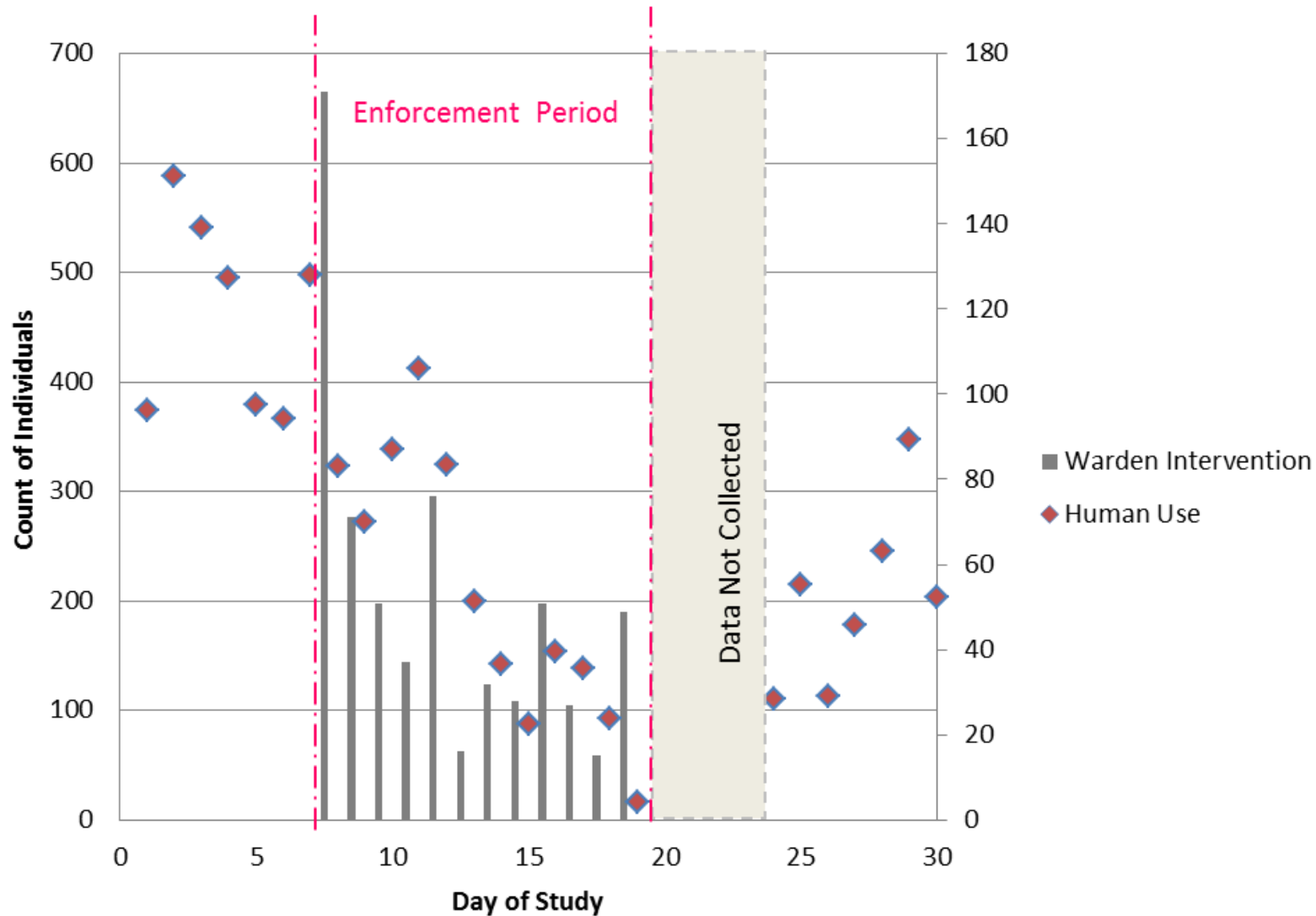


Legal vs. Illegal Use

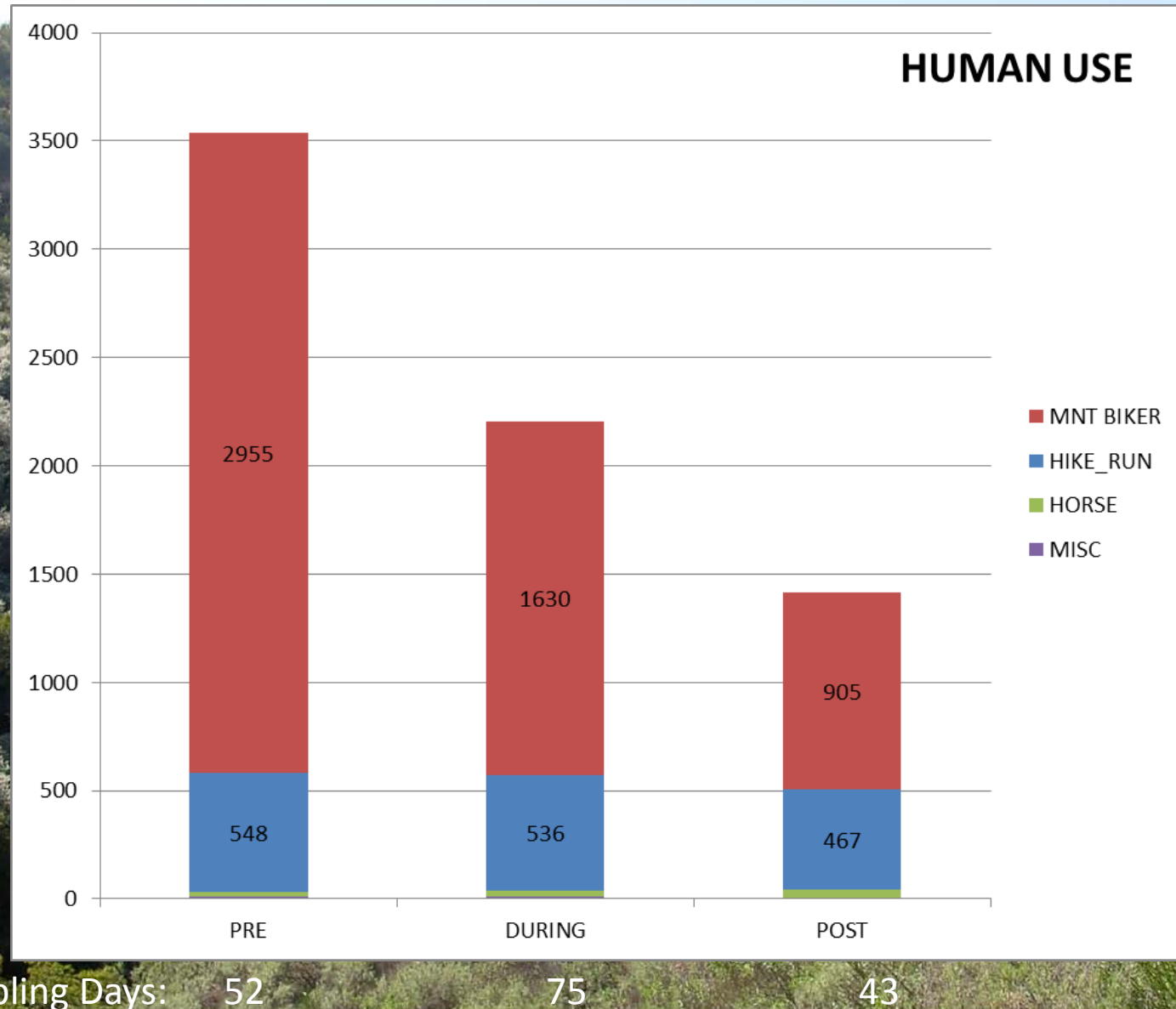
Human Use



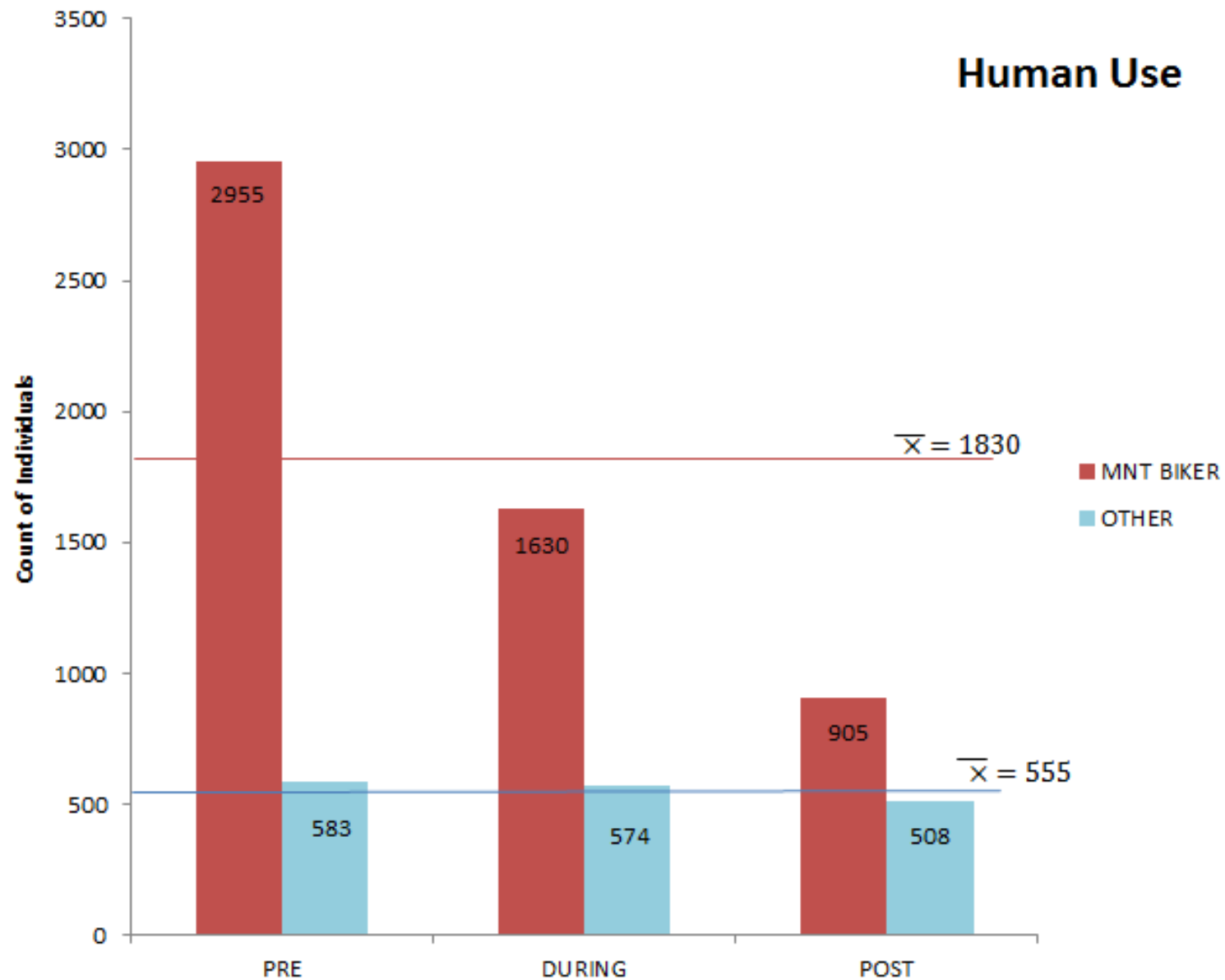
Weekly Use in Study Area



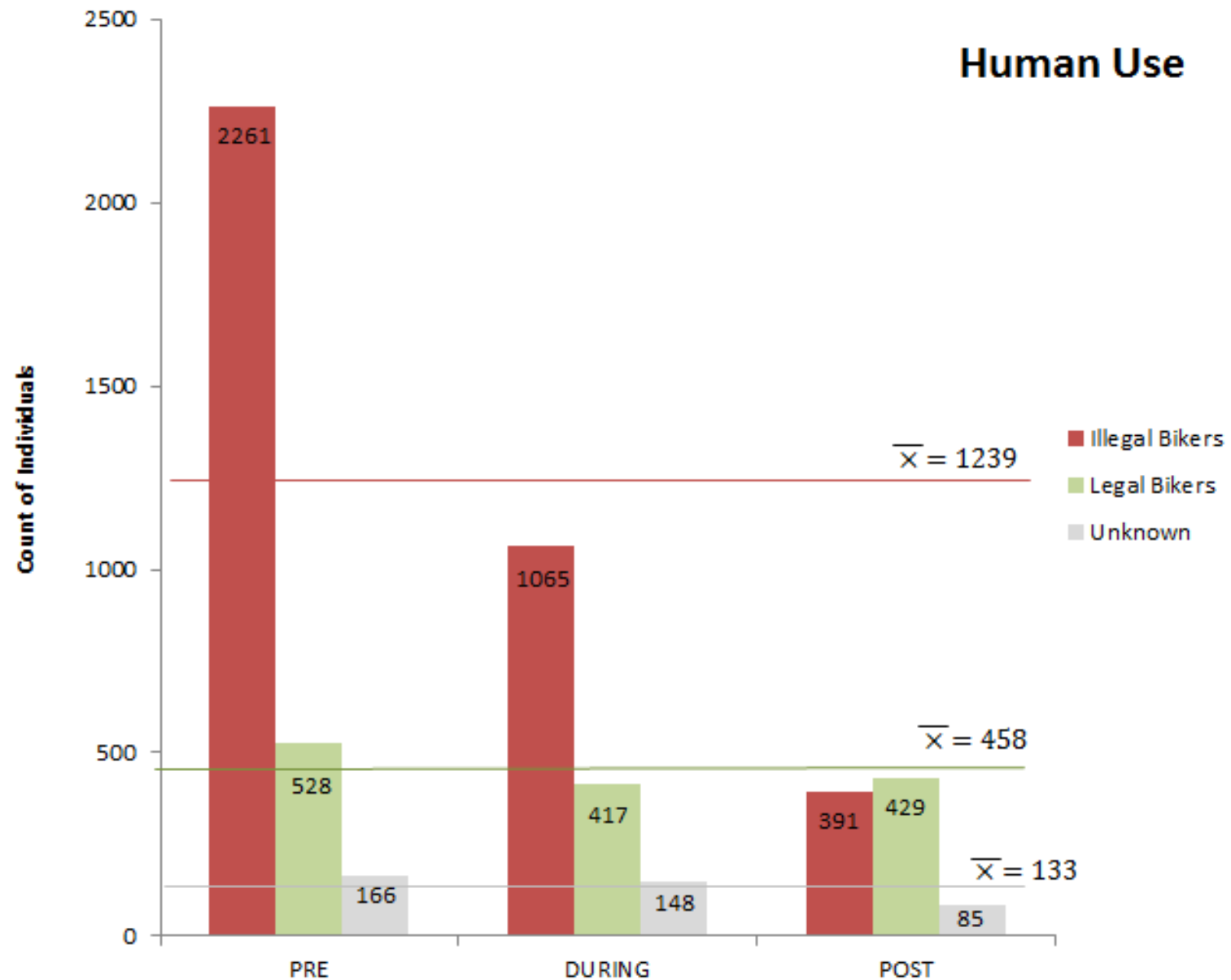
Human Use by Enforcement Period



Human Use by Enforcement Period



Mnt Bike Use by Enforcement Period

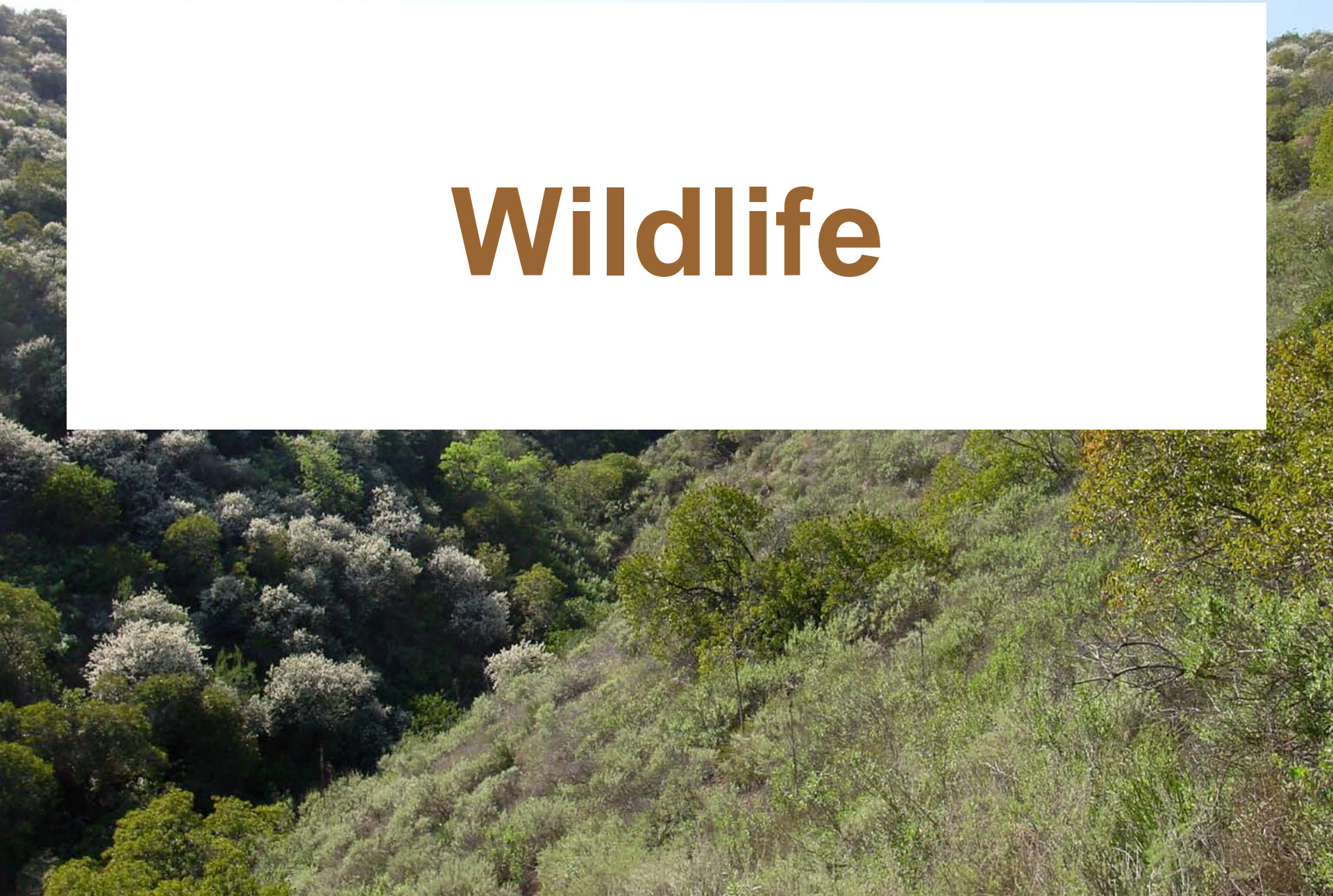


Changes Pre and Post Intervention

	Total	Pre	During	Post
Legal Bikers	20%	16%	20%	33%
Illegal Bikers	55%	67%	52%	30%
Illegal Other	12%	11%	12%	12%
Legal Other	13%	6%	16%	26%
Total	100%	100%	100%	100%
Total Number	6720	3362	2049	1309
Total Survey Days	170	52	75	43
Number/Survey Day	39.5	64.7	27.3	30.4

Does not include "Unknown"

Wildlife



Examples of “Pre-Enforcement” Wildlife Captures



Bushnell

06-03-2013 03:58:52



Bushnell

08-13-2011 22:06:47

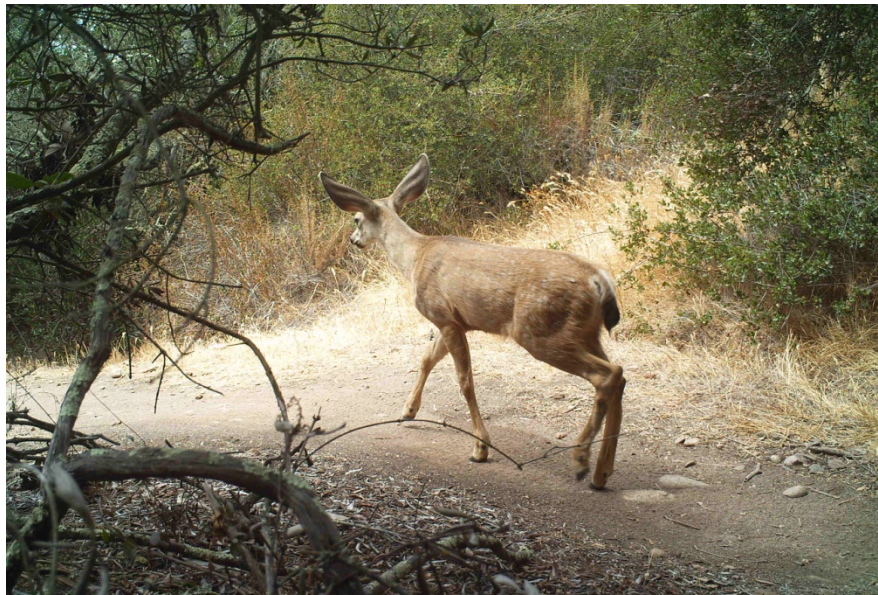
Examples of “During Enforcement” Wildlife Captures





Bushnell

08-05-2013 07:39:15



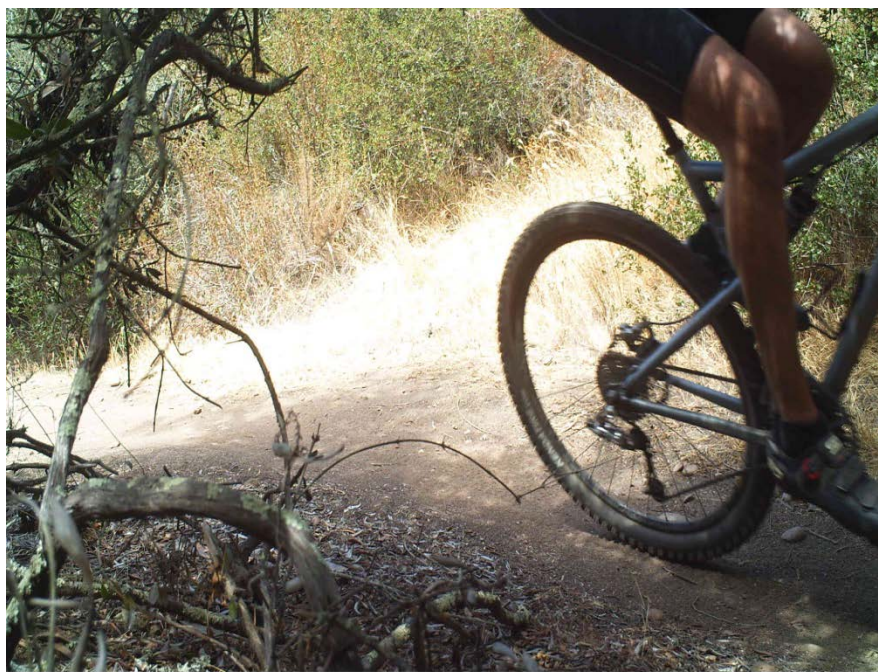
Bushnell

08-03-2013 12:54:05



Bushnell

08-02-2013 07:23:49



Bushnell

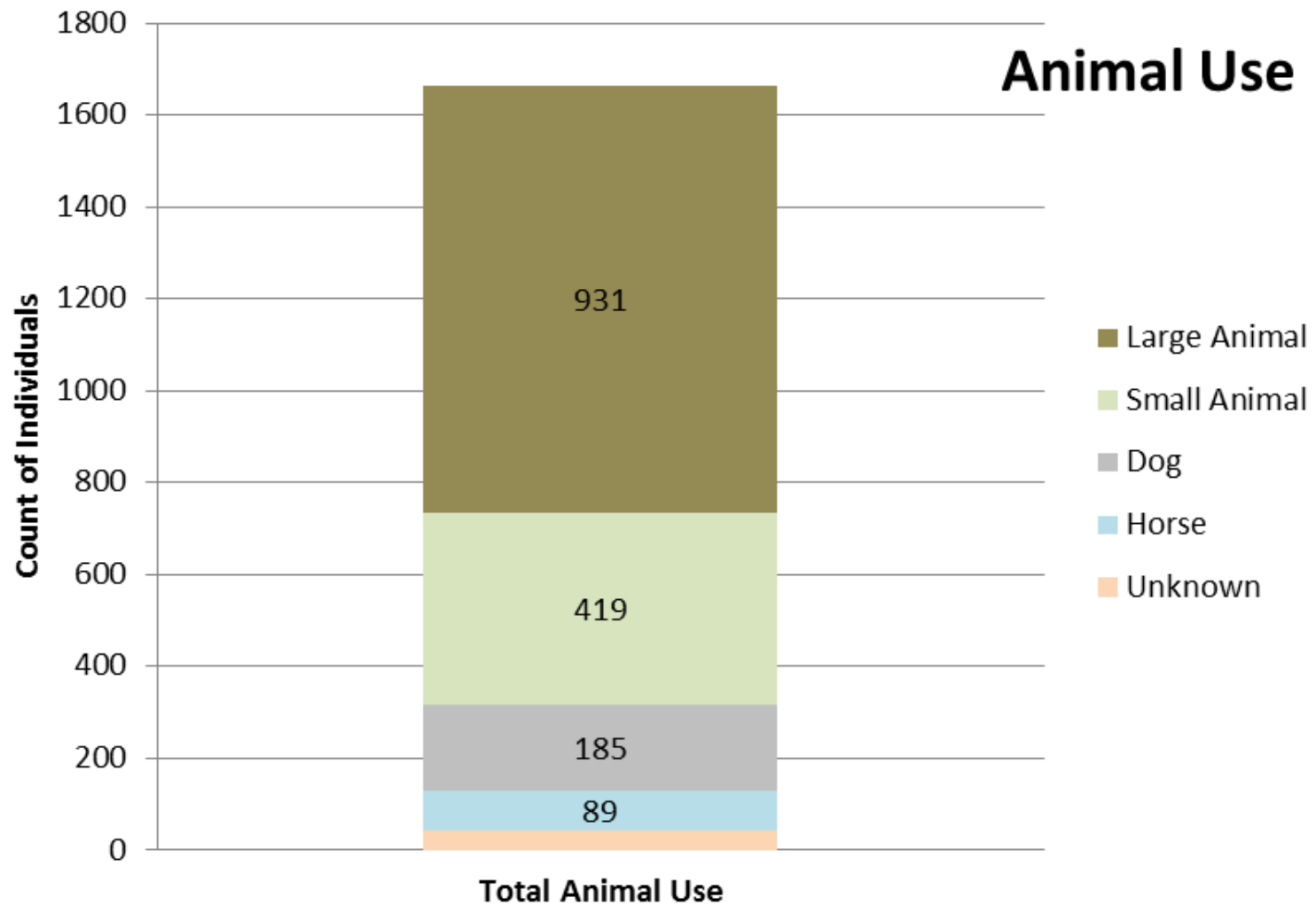
08-03-2013 11:48:58



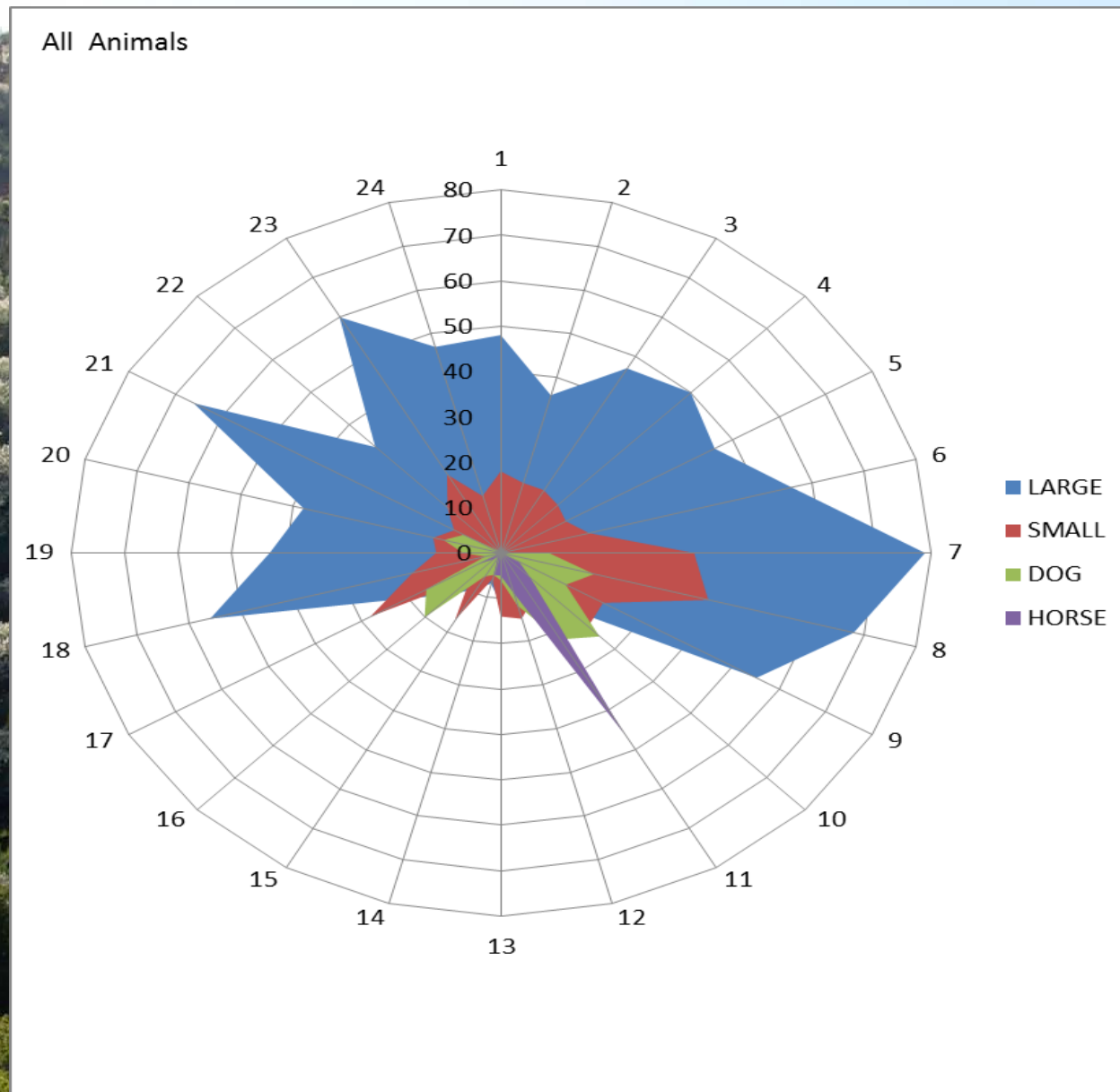




Total Number of Animals

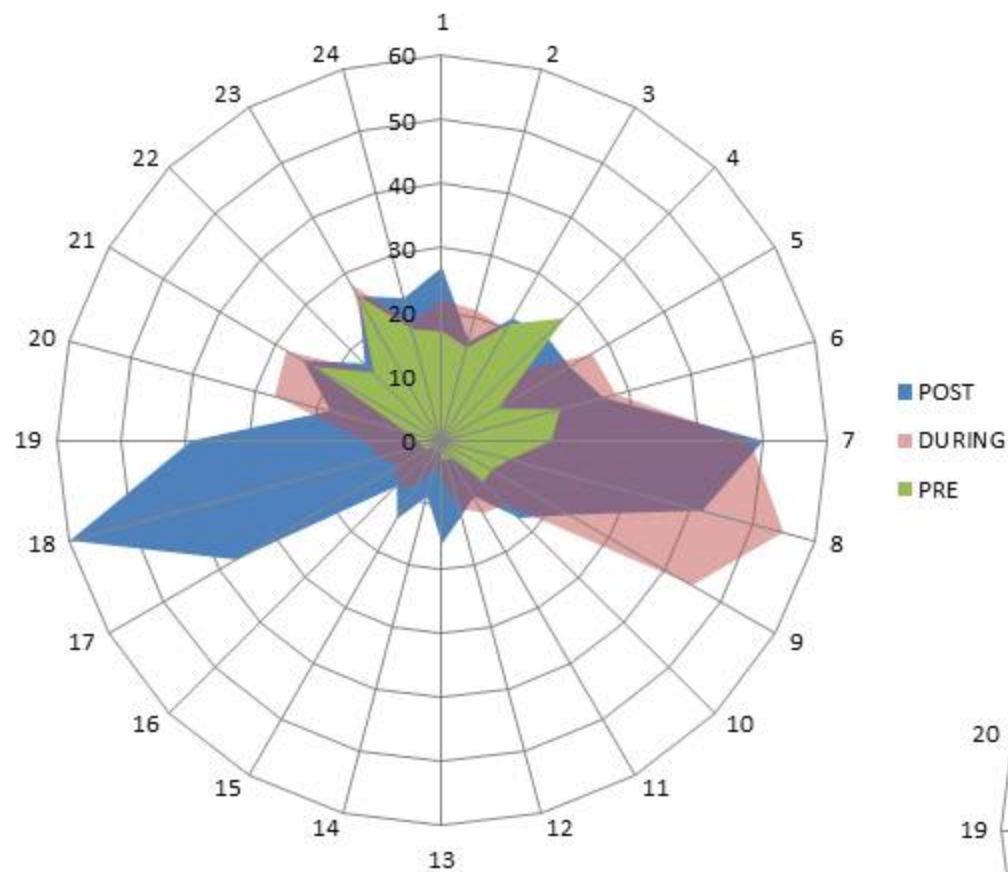


Wildlife Captures by Hour

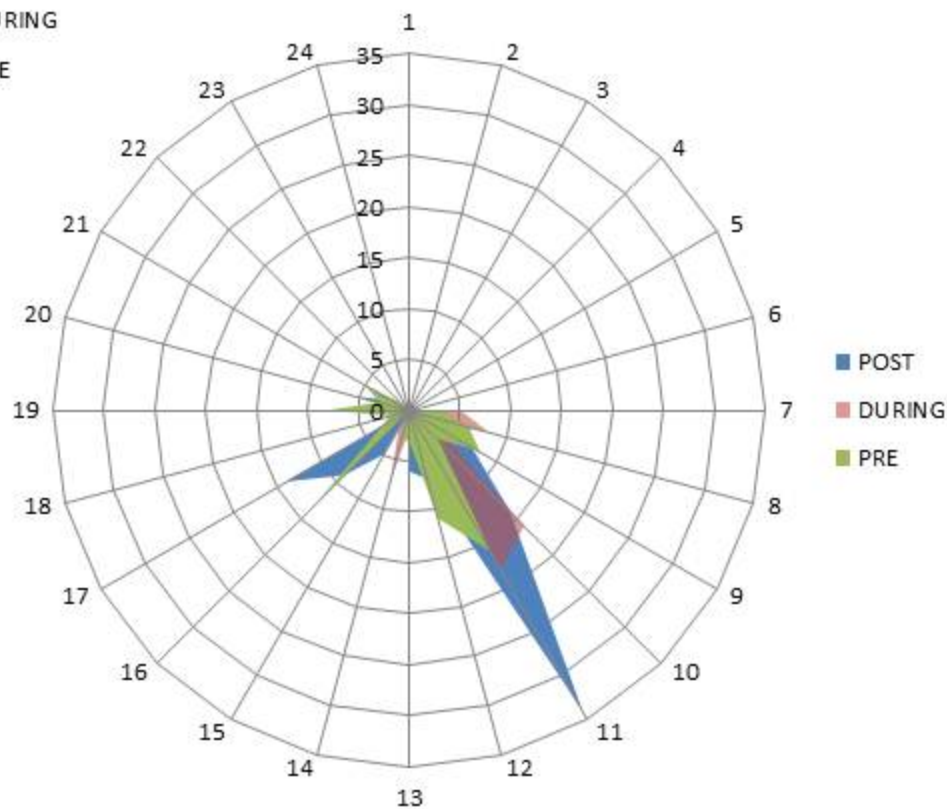


Animal Type by Capture Hour

Small and Large Animals



Dogs and Horses



Questions

Is use the same throughout all three periods?

No. $P(\text{same}) = 1.23\text{E-}10$

During and post enforcement periods are significantly different than pre-enforcement.

Questions

Is legal use the same throughout all three periods?

No. $P(\text{same}) = 0.002$


Pre and post periods are significantly different than during.

Questions

- Is illegal use by mountain bikers higher than other user types pre intervention?
 - Yes. $X^2 = 54.62$ $p \lll 0.05$
- Is illegal use by mountain bikers higher than other user types post intervention?
 - No. $X^2 = 0.0167$ $p = 0.897$

Recreation and Land Management in 2014

Does technology and social networking effect the lag time between the start of an enforcement presence and decrease of recreational use?

**San Diego Mountain Biking Association**
San Diego County's Mountain Biking Resource

Search... Search
Advanced sea

FAQ • Register • Lo

Board index < SDMBA < Trails and Trail Systems < Los Penasquitos Canyon Preserve

Previous topic | Next topic | Print v

Ticket time!!!

Post Reply Search this topic...

Forum Gallery Classifieds Latest Forum Posts

New Posts FAQ Calendar Forum Actions Quick Links

bankerboy

Ticket time

Forum Regional Bike Trails and Rides Forums California - Socal

Tickets being issues on ALL of Del Mar Mesa aka Tunnels

Page 10 of 11 First ... 6 7 8 9 10 11 Last

Results 226 to 250 of 261

Thread: Tickets being issues on ALL of Del Mar Mesa aka Tunnels

f Like Sign Up to see what your friends like.

LinkBack Thread Tools Display