HUMANS VS BIODIVERSITY: INFLUENCE OF RECREATIONAL HIKING ON ANIMALS

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Eastern Coyote
White Tailed Deer
Red Fox
WHY SHOULD YOU CARE?

Habitat Destruction
Hunting of Predators
Human Disturbances

Many large predators have been driven away by humans. The goal for this project is to see how humans affect biodiversity.

Decline in Predator Species

The Destruction of Ecosystems/ Food Chains

Increase in Mesoconsumer Species

The understories of forests to disappear.
**Research Question 1**

How do human disturbances (noise, habitat fragmentation, and recreational hiking) affect the presence of mesocarnivores in certain areas?

**Hypothesis**

If there is an area with more humans present, then predators are less likely to appear there.

If more humans are present in an area, then prey are more likely to appear there.
Research Question 2

How does predator lure affect the behavior of mesocarnivores? Does it cause them to leave their comfort zones and force them to move closer to areas with more humans?

Hypothesis

If lure is used, then predators within a close proximity will be attracted toward the cameras.
Type of Project: Experimental, Observational
- Experimental when working with lure, observational without lure

Independent Variable(s)
- Trail Usage
- Distance from Trail

Dependent Variable(s)
- Presence of Animals

12 CAMERAS

6 split up between 3 High Use Trails
- 6 split up between 3 Low Use Trails

EACH TRAIL

One camera 10 meters from trail
One camera 50 meters from trail
One camera 10 meters from trail
One camera 50 meters from trail
METHODS

The Data Being Collected

[Hiker Count]
Number of hikers on a trail in a period of an hour

[Usage of Lure]
Whether lure was used to attract the animal towards the camera

[Date/Time/Temperature]
The day the animal was captured on camera, what specific time, and how warm it was (°F)

[Animal Species]
What type of animal it is and what role it plays in the food chain. Example – Coyote/Predator

[Trail / Trail Usage / Distance from Trail]
The name of the trail, the usage of the trail (high or low), and how far the camera was from the trail (10m or 50m)
RESULTS

Figure 1. Hiker Count per Trail (1hr)

Figure 2. Events/Day with the Usage of Lure

Hikers per trail

<table>
<thead>
<tr>
<th>Trail</th>
<th>BP Low</th>
<th>CT Low</th>
<th>OL Low</th>
<th>HT1 High</th>
<th>HT2 High</th>
<th>TL High</th>
</tr>
</thead>
</table>

Events/Day

<table>
<thead>
<tr>
<th>Usage of Lure</th>
<th>No Lure</th>
<th>Lure</th>
</tr>
</thead>
</table>

Hikers per trail

Trail

BP Low | CT Low | OL Low | HT1 High | HT2 High | TL High |

Events/Day

No Lure | Lure

0 0.5 1 1.5 2 2.5
Figure 3. Total # of events at High and Low Use Trails

<table>
<thead>
<tr>
<th>BP</th>
<th>White Tailed Deer</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT</td>
<td>White Tailed Deer</td>
</tr>
<tr>
<td>OL</td>
<td>White Tailed Deer</td>
</tr>
<tr>
<td>HT1</td>
<td>White Tailed Deer</td>
</tr>
</tbody>
</table>
| HT2     | White Tailed Deer
        | Mourning Dove    |
| TL      | White Tailed Deer
        | Squirrel         |
Lure was used for 6 days
There was no lure for 6 days

The overall results show that the predator lure had no effect on the experiment, as my hypothesis was negated. It is likely that the animals were not close enough for the lure to take effect. As a result, all the data was combined not including lure.

All the data collected were prey items

Prey items were more abundant on high use trails; supporting my hypothesis.
Sources of Error

This project was designed for a longer period of time as time was a limitation

Animals were not in close proximity for the lure to work

Hiker counts were not taken at the same time every day with similar weather conditions

In the Future

If this experiment were to be conducted again there would need to be more time to obtain more data

Take Home Message

Prey were more common in areas with a higher usage by humans
I’d like to thank, Dr. Rubbo, Dr. Begley-Miller, Mike Tierney, all my fellow TESA students, and my parents