Proposed Behavioral Management of Oregon Residential Coyotes (*Canis latrans*)

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Introduction

Problem

"I started out with the idea that the coyote has been dislocated from its natural environment, but it's more resourceful than I thought. The coyote is reclaiming its new environment: the human environment." (Peeples, L., 2010)

The residential coyote population is increasing because these new foraging grounds have an endless supply of food. In March of 2020, a world pandemic of the Coronavirus (i.e., COVID-19) resulted in state and federal mandates of social distancing and quarantine (Rogoway, 2020). During this time, suburban areas, once busy with people were vacant. While Oregon residents sheltered-in-place throughout the months of March to present, coyote sightings were more frequently in residential areas. There have been solutions given to people to protect themselves, although their solutions consist of scaring them (E.g., loud noises and throwing rocks) or in worse cases, killing the coyotes (E.g., poisons, guns, and traps) (Predator Defense, 2019; Bradford, 2017; Oregon Department Fish and Wildlife). Because coyotes are predators and there has been news articles of coyotes attacking children (e.g., the 7-year-old child who was bitten by a coyote while walking home) it causes fear to residents for safety when they spot a coyote (Douglass, J., 2018). Killing and injuring coyotes is concerning for the environment since they are keystone species, which means they play a major role in regulating the populations of the mesopredators (e.g., raccoons, rabbits, squirrels, and birds) (Epp, 2020; Predator Defense, 2019). This study aims to find a solution to keep the coyotes out of the residential areas so people will feel safe and the coyote population will be protected.

Empirical Question

Can we better manage through humane intervention, residential coyotes in Oregon?

Coyote Diet Diversity

Coyotes are opportunistic predators. In their native habitat their diet includes small rodents, game, reptiles, amphibians, insects, and berries. In residential areas, their options are limited, therefore, instead of hunting they are often forced to forage among dumpsters, or hunt small domestic animals, like pets and livestock (Lariviere, 2020). Since residential areas have so much access to food sources coyotes are more likely to come back and forage in these places. This leads to a cycle of coyotes coming back to forage again and again since they have learned that these areas are a good source of food (Murray & St. Clair, 2017).

Mating and Pupping Season

Between the months of late January through March is the time coyotes' mate (Bradford, 2017). Female coyotes have a gestation period 60-63 days and have their litter of pups around spring (Timm, & Baker, 2007). Before the litter is born the female coyotes will prepare a den for her pups (Bradford, 2017). One litter can range between 1 to 19 pups and the amount of pups a female coyote gives birth to varies depending on where they live and if the area, they have created their den is heavily populated by other coyotes (Bradford, 2017; Bousfield, 2007). Normally, residential areas have less coyotes, so this means they are likely to have a larger litter (Bousfield, 2007). Both male and female coyotes take part when caring for their litter, the adult coyote will bring food to the den and regurgitate it for the pups (Weckel, et al., 2010). After about 2 to 3 weeks the pups will start to learn to hunt from their mother (Bousfield, 2007). Understanding their mating and pupping seasons is important because these are the times coyotes are most active and looking for food. This is also a time when the female coyote will teach her pups where to forage and hunt for survival.

Proposed Method

Proposed Target Species

North American coyotes (Canis latrans) have an estimated population of 350 residential coyotes in the city of Portland, Oregon. Portland will be sampled using descriptive research for the purpose of this study (Aker, L., 2019). We intend to use reports, sightings, and scat to observe the residential coyotes.

The coyote population is naturally able to stabilize without human interference because they are a K-selective species. They are larger in size when they have sexually matured around the age of 1 years old and size ranges between 32-37 inches (head to buttocks) with another 16 inches added from the tail (E.g., comparable to medium sized dogs) (Bradford, 2017; Bousfield, 2007). Normally coyotes have a larger amount of offspring (i.e., pups), which varies depending on the area they are giving birth (Bradford, 2017). Coyotes are described to have grey, white, tan, or brown fur depending on the weather of their environment which means coyotes that live in colder areas will typically have darker fur than coyotes that live in warmer desert like climates (Bradford, 2017). In their natural environments wild coyotes typically live from 6-8 years, if they are healthy and avoid diseases and hunters, they can live 10-14 years (Clemons, 2020). However compared to captive coyotes, they are able to live up to 20 or more years (Clemons, 2020).

Coyotes are more active at night as shown in the Portland Urban Coyote Project (2017), 53.5% of coyote sightings were reported between dusk to dawn through the years of 2015 to 2018. Peak coyote sightings occur in the spring during pupping season.

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Proposed Materials

Ten Winghome™ trail camera 350C will be used in areas of Portland and will be scattered around based the amount of sightings and scat findings. The cameras will be used to record the events of the behaviors throughout the night (since most foraging are at its peak at night) (Fire effects I information system, 2019).

Proposed Design and Procedure

For this descriptive study we propose the strategic placement of 10 game trail cameras in residential areas of Portland, at a height of 3 feet using a steel fencing post, secured with an adjustable strap (comes with the game trail camera). These cameras will be focused on residential areas in Portland (residential areas cannot be specified because reported sightings are scattered between suburban areas). We will attempt to set the cameras where official sightings of coyotes happen more frequently and place it near areas that we have identified coyote scat. These location will be gathered from official reports from Oregon Department of Fish and Wildlife and from the Portland Urban Coyote Project (2017) which has map and current locations of reported sightings. The species will be sampled through verbal reports, sightings, and scat. To identify scat of coyotes their feces is described to be 4 inch long and a quarter of an inch in diameter (Animal hype, 2020). Scat specimens vary depending on prey as well as the climate (e.g., feces may be darker in color during the winter and lighter in the summer) and this description will be used as a base for us to identify scat in the areas we intend to set up the game trail cameras (Animal 2020).

Proposed Results

The empirical question *addressed if there were better manage through humane intervention, residential coyotes in Oregon. I*n order to assess this, we propose a descriptive statistics with an Excel data file and R studio open-source software. In order to find a correlation to our hypothesis of foraging environments and number of coyote signs we will use a regression analysis (i.e., region vs. coyote sign numbers) to compare our data.

In a study that analyzed coyote scat, their results showed that 30-43% of a coyote feces contained similar foods to the residents in that area (Wisckol, 2020). This shows that coyotes eat what is available to them. Food is essential for survival and if an area such as a residential environment has an abundance of food to eat, they will not risk the chances of starvation just because humans are also living in the area. By using our proposed research this may find humane solutions to make these foraging areas less desirable to coyotes which means they will leave no longer forage and create dens in residential spaces.

Anticipated Outcomes

Recommendations

The best way to prevent coyotes from coming back is to cut off their food source. Garbage bins should be placed indoors (e.g., garage) at night and be regularly thrown out; Only leave them out on trash night. This will prevent coyotes from scavenging for food and teaching their pups how to get food from that area. Residents should take extra precaution at night when cats or dogs are let out; Try not letting them out of your sight outside after dusk. Coyotes normally hunt for food at night and, by keeping an eye on pets when they are let out will lower the chances of coyotes preying on them

Official reporting's of coyotes can be inaccurate, and coyotes may not be seen in that exact location again. The best way to counter this would be to rely on scat found in the area and go to areas where there have been a higher amount of reports of coyote sightings. Coyote scat will be used as one of the key factors in determining where we intend to place the game trail cameras to record the behavior of the coyotes. Since coyote scat can be mistaken as dog feces (and vise versa) there will need to be extra precautions taken when identifying their stool. For example, pictures and measurements will be used to compare it to other coyote scat. This will be done to make sure there is a consistency between scat and confirm that it is coyote scat.

Select References

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A complete list of references available upon request.