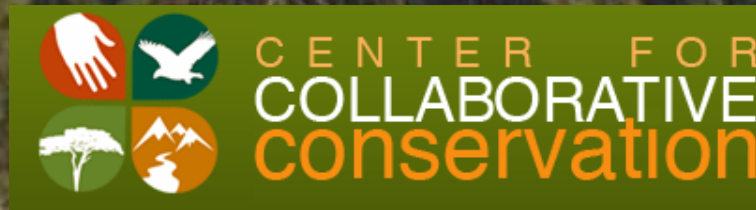


# Life on the Fringe: Wildlife Habitat Use and Rural Development

An exhibit exploring wildlife in exurban areas using  
remotely-triggered cameras

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As a Colorado native, I've noticed some big changes occurring throughout the state and the American West over the last several years. Rural residential development, or "exurban" development, has become one of the principle land uses in the West. By 2000, exurban development occupied nearly 15 times the area of higher density urbanized development and fully 25% of all private land in the conterminous United States. However, the impact of exurban development on wildlife is poorly understood.

For my master's thesis research at Colorado State University, I studied how housing density in exurban areas affects wildlife and their habitat use. To do this, I placed 27 remotely-triggered wildlife cameras across the landscape northwest of Fort Collins, in the North Fork of the Cache la Poudre watershed near Livermore, Colorado. I wanted to see what wildlife species use habitat in higher-density subdivisions as compared to lower density regions, as well as to understand how such use differs across a variety of mammal species. Each camera was in two locations for 6 weeks at a time between May-August 2012 and again from December 2012-March 2013.

My research revealed some important patterns, including the fact that many animals still use habitat within exurban developments. Finding ways to promote wildlife movement through subdivisions, such as designing greenbelts and leaving some open space for corridors, is therefore critical. Balancing the needs of wildlife and people in the context of these changing landscapes will ensure that the wildlife will be around for us to enjoy watching them for many generations to come.

The pictures presented in this exhibit were all taken by these remotely-triggered cameras, and provide a unique look at the variety of species that share the land with us. By using cameras, I ensured that my research did not disturb or harm wildlife, and we can gain insight into wildlife species' daily behavior and movement patterns. Each photo has an accurate date and time stamp of when the photo was taken at the bottom. Interesting facts, results from the study, or stories are provided with each photo, so that the photo becomes more than just a neat picture – it becomes a way to learn more about the natural world around us.

My intention is that this exhibit will spark a greater interest in wildlife within the community and will show the importance of both private lands and public lands as necessary habitat for a wide variety of species. Many of these photos were taken on private land – on people's properties and in their backyards—and are used with landowners' permission. I hope that these pictures and the wildlife facts included with them will engage landowners and interested people with each other, their community, and their environment. These pictures will provide a platform from which conversations between friends, neighbors, and the community may be catalyzed about the role of wildlife in their area. *What do you see in your backyard?*





This Western bluebird saw the circular lens of the camera and, as a cavity-nester, was checking out the protective box the camera was in for a potential home. Western bluebirds often nest in tree cavities and can be found in small groups searching together for fruit and insects to eat.

4/09/2012 7:38 AM







Bears, like this American black bear, are omnivores, so they eat both meat and plant material. They also love to eat trash! This bear is in a greenbelt in this picture, and this study showed that bears preferentially use greenbelts, or tracts of open space that run through high-density subdivisions.



These mule deer bucks are growing their antlers for the year, which are still covered in velvet. Velvet, which nourishes the antlers as they grow, has the highest concentration of oil and scent-producing glands in the entire body. The annual cycle of antler growth is regulated by changes in the length of day, and the deer will lose their antlers in early spring.





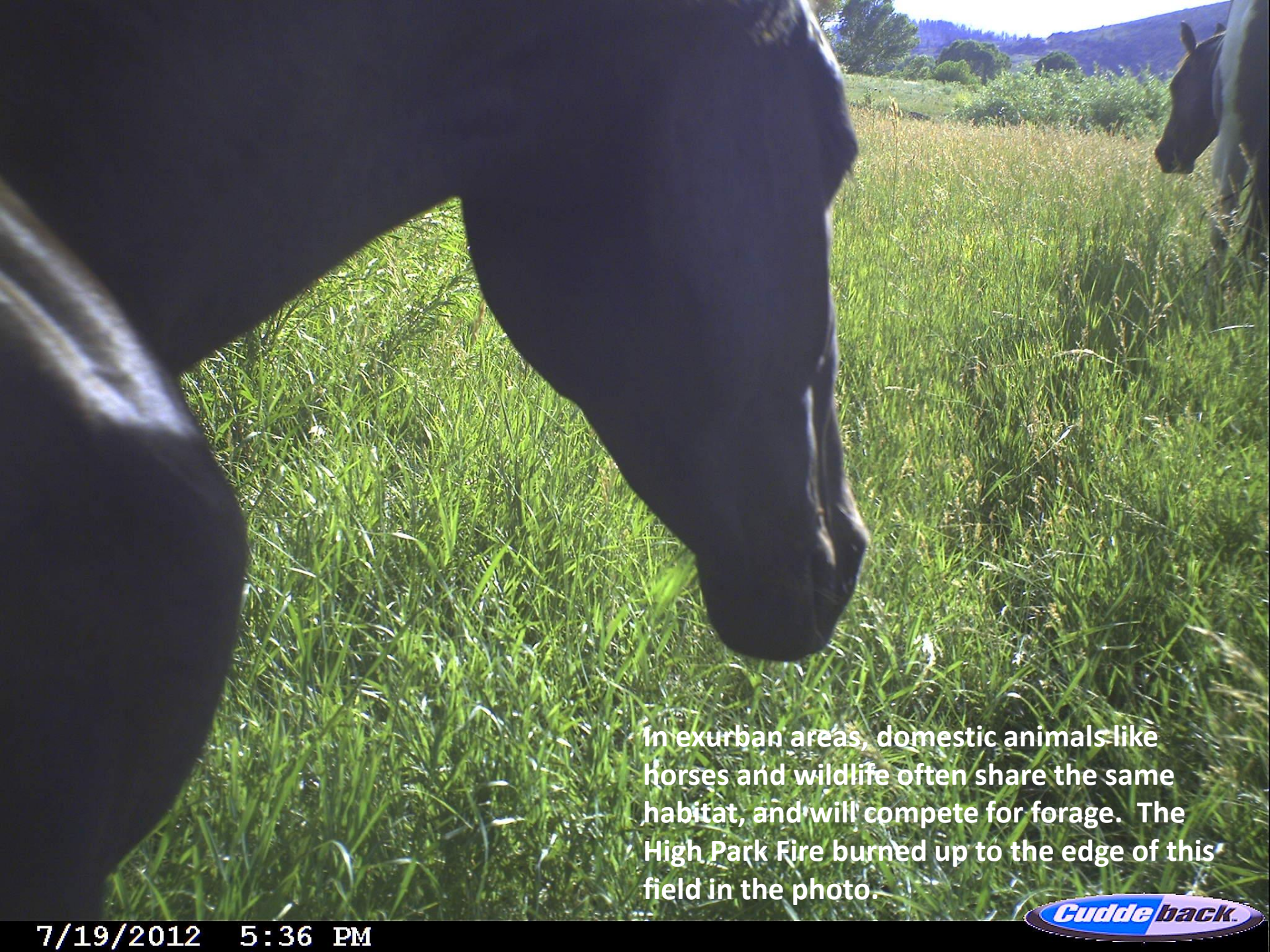
Mountain lions, like this one, exhibit interesting behavior when they hunt. Once they kill their prey with a bite to the back of the neck, the lion will usually drag their dinner under a tree and bury it with leaves and litter. They may drag it to several other burial sites over the course of a few days as they continue to feed on it. These “cache sites” can be detected for months after the lion has moved on.



8/08/2012 6:13 AM







In exurban areas, domestic animals like horses and wildlife often share the same habitat, and will compete for forage. The High Park Fire burned up to the edge of this field in the photo.



Motorcycles and ATV's are one source of noise disturbance that may impact some species of wildlife. This study has shown that higher levels of non-natural noise negatively affect the habitat use of bobcats and coyotes.





This mule deer fawn is curious, even though it is less than two months old. In the wild, mule deer can live to be 9-11 years old. When they are newborn, spotted fawns do not have an odor, which makes them less obvious to predators.








**Mule deer are tolerant of human activities, and this study showed that they may even be attracted to areas of higher housing density. Although tractors move through this area, this doe is comfortable bringing her young fawn through.**







Black bears are crepuscular, meaning they are usually the most active during dawn and dusk, like this bear was when the photo was taken. However, they can be active at any time of day.



These mule deer bucks are between one and three years old. Bucks will hang out together in “bachelor groups” except during mating season in the fall.



1/21/2013 12:54 AM





**Bobcats have been shown to alter their behavioral patterns in recreation areas due to disturbance from humans and dogs.**







Mule deer lie down temporarily to rest, and create a “bed” that is often detectable once they leave, especially in the snow. Deer will reuse beds many times. Mule deer hair is hollow, giving this doe some insulation from the cold.





**This mountain lion, a young male, has radio-telemetry tags on its ears, which were put there by Colorado Parks and Wildlife biologists near Boulder so they could track his movements. This lion dispersed from Boulder all the way to northwest of Fort Collins! Two days after this photo was captured, the lion was shot on a nearby farm.**





Bobcats have unique pelage, or coat patterns. Some have distinct black spotting while others have rufous sides. Biologists can identify individuals using photographs from remotely-triggered cameras like these ones.





**It's BIGFOOT!!**  
(Actually, it is  
someone playing  
paintball in a  
camouflage suit). A  
red fox shares this  
guy's backyard.






The bushy tail of a striped skunk can be 7-10 inches long. It is also a warning for its defense system, the infamous, odorous spray.



Red foxes are efficient hunters. They pinpoint the location of their prey by sound, and then leap, steering mid-air with their tails. Look closely, this fox has a chipmunk in its mouth.



A coyote is captured in motion, running through a field of tall, green grass at night. The coyote's fur is a mix of tan and grey, and its tail is slightly bushy. The background is dark, with some bare tree branches visible in the upper left. The overall scene is illuminated by a bright light source, likely a camera flash, which creates a high-contrast image.

Coyotes often hunt in pairs, so although there is only one coyote in this picture, there is almost certainly a second one nearby.

8/04/2012 1:14 AM





Foxes became more active on the cameras in late winter and early spring, because they began hunting for their newborn kits that are still hiding in dens. Red foxes mate in early December, gestation lasts for about 53 days, and the kits will spend 4-6 weeks in the den before they start to explore.



2/08/2013 1:11 AM






This moose calf is only a few days old.







Mule deer have large ears that move constantly and independently, which helps them hear predators.

6/06/2012 7:31 AM

*Cuddeback.*





Fawns are born in late May or June. A mule deer doe will usually produce a single fawn the first year she gives birth and will produce twins in subsequent years. Fawns will get up and walk within hours of being born.



Mountain lions, like house cats, have excellent night vision and will hunt at dawn and dusk. Lions also have retractable claws, so if you see tracks in the snow, cat tracks tend to not show their claws, and are more circular than dog tracks.





Mule deer will migrate seasonally, from higher elevations in the summer to lower elevations in the winter, such as at this lower-elevation ranch. Deep snow can limit the mobility of deer and restrict their food supply.







**Moose are the largest ungulate in North America. This bull has palmate antlers, and the energy the bulls use to grow their antlers every year is almost the same amount of energy spent by cows when they are pregnant with calves. Moose hoof tracks are heart-shaped, point in the direction of travel, and can be up to 7 inches long.**



After the mule deer mating season, or rut, is over in December, bucks and does separate, and the does and young will form herds. Herding behavior is beneficial for deer because more eyes and ears allows for greater vigilance against predators.

