

A Look at Nature “Black Holes”

I am going to disappoint the astrology types, but this has nothing to do with outer space. “Black hole” is a term I use for those places in our local landscape that currently have very little human presence. No houses, roads nor trails. These are the places favored by many animals with which we share our surroundings. And the sites don’t have to be large areas; a single gulch or the hillside above one side of a creek will do. Whether or not to intrude into these places with new trails, roads, or other activities needs to be a very conscious decision that weighs the benefits to us against the impacts to other animals and plants.

Even something as simple as a trail creates a set of impacts that disfavors certain species and starts what I call a community shift. There will still be animals around, but those more sensitive to humans being present will use the area less, while those more tolerant will stay or even increase. So the bobcat will give way to the fox, the northern goshawk to the red tailed hawk, and the long-eared owl to the great horned owl. Jays, crows, magpies, and raccoons will increase while flycatchers, tanagers, and martens will decrease. Plant communities may also change in response to a trail or road, as these pathways are vectors for nonnative species, including noxious weeds. Just take a look at the meadows of West Magnolia, which are choking with musk thistle brought in by the vehicles, bikes, and pedestrians that use this popular recreation area.

Even a species as common as elk will alter their use of the landscape in response to human activity. A number of years ago I tracked some members of our local herd in the Indian Peaks that had radio collars. What evolved was a daily pattern of movement, where elk would be secluded in forested areas away from trails during the day (the black holes), then come out at dusk to graze in meadows, irrespective of trail location. At daybreak, they would return to their hiding cover, often in response to activity on the trail.

Studies of other animals, such as mountain lions in Utah and California and black bears in Rocky Mountain National Park, also paint a picture of how human activity can influence behavior. For these wide-ranging animals, the areas with less human presence tend to be the favored habitat dominated by mature adults, while younger animals tend to be pushed into areas with greater human activity. And some animals become more nocturnal in areas with increased human activity. Keep in mind these statements are not absolutes; in a landscape as fragmented as ours and with animals as wide-ranging as lions and bears, as we all know you can observe them at anytime and anyplace. But when studying their day-to-day movements, it is apparent that the black holes are preferred sites. When I worked for Boulder County Open Space helping to plan trail systems, I always remember the words of biologist Michael Sanders (if you have read the book *A Beast in the Garden* about mountain lions in Boulder County, Michael is one of the two main characters). Michael would say, “It will change the structure of the animal community,” when explaining the impacts of a trail. It took me a long time to understand what he meant. But by placing a trail in a place that has not had much recent human activity, the area will be less preferred by many animals and these changes ripple through the larger landscape.

Ground dwelling animals have a tendency to create pathways over the land as they get from one place to another in order to satisfy their needs, and humans are no exception. And as our population increases, so does our system of roads and trails. One recent disturbing pattern in western Boulder County has been the proliferation of social trails, that is, trails created by recreational users. All groups have been doing it, including 4-wheelers, ATVs, mountain bikers, horseback riders, and hikers. When this happens there is no debate about the impacts and the animals just have to adapt or move on. Over the past 20-years extensive user-created trails systems have evolved in the areas of Magnolia Road and West Magnolia Road (Haul Road) to the point where the public agencies managing the lands have had to take action and close them. But I have watched how the blue grouse were pushed out by the Blue Dot trail north of Magnolia Road, and how the summertime bachelor herds of elk were displaced by the proliferation of trails at West Magnolia.

Our valley has not escaped the creation of social trails. It seems to be part of our nature to want to create and build, and harder for us to leave something alone. So we find an overgrown mining road and have an urge to clear it for hiking. Or we put up rock cairns or use flagging to mark a route that some feel "should be a trail." I remember a number of years ago meeting another Eldora resident at the top of Spencer Mountain, and he asked me where a certain trail was. I told him, and within a week when I went back there were orange dots painted on rocks showing the way. I immediately went back and got some paint to match the color of the rocks and painted over the orange.

One of the problems with formalizing these trails with flagging, clearing, and cairns is you don't know how popular the trail may eventually become. In this day and age of the computer, what starts as a local social trail may eventually get placed on someone's web site showing mountain bike trails. Don't think it can happen? The Marysville Trail is one that years ago was mostly local use. Then a local horse outfitter used it, and the downed logs were all cleared and the trail got well defined. Mountain bikers started using it in good numbers and the trail was placed on some of the maps. In the last two years, downhill mountain bikers, who car shuttle from the bottom back to the top, have discovered the trail, and last year we saw the first dirt bike. Each trail has the potential to go through a similar progression that begins with clearing, flagging and signing. And as the use level of the trail increases, so do the impacts to the animals and plants.

I am not anti-trail. One of the hats I wore when working for Boulder County Open Space was as trail planner. But I have learned that trails are not benign and have their own set of impacts. One of the key issues for me is the overall trail density of the landscape. There is some good evidence that when trail density starts exceeding one mile of trail per square mile of land, the effective habitat for wildlife declines. And this needs to be viewed in the context of other human influences, including residences and roads. When you see a map of all the trails, roads, and homes, you begin realizing that the undeveloped areas, the black holes, are getting smaller and disappearing. The Forest Service created such a map and it is eye opening. Also, I am not a believer in perpetually increasing the supply of trails to meet the growing human population. At some point we will just have to manage better what we have and accept that we will run into more people along the way.

So as I find signs of new trails being pioneered, I have to stop and wonder about the impacts to the other things with which we share this valley. One of the trails goes through an area containing old-growth forests, a northern goshawk nest site, and springs, and is used for elk calving and is a sanctuary for bull elk in the summer. Another one is along rich streamside habitat that already has a road on the other side. Do the benefits outweigh the impacts? Are we capable of recognizing the “black holes” of our surroundings and keeping them as they are for the benefit of other living creatures and maintaining the structure of their community?

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