Project: Urban Wildlife Monitoring in Spokane's Wildlife Corridors

By: Tayler Gerken, Sam Carter, Jake Rusby, Victor Magana
Partnered with the Inland Northwest Land Conservancy

Introduction: Tasks and Goals

Our project revolves around the lack of data surrounding wildlife populations, and wildlife movement in regions of the Spokane area. Initially, we worked with the Spokane Lands Council to fill this void, but that partnership dissolved in early February. Since then, we have worked intimately with the Inland Northwest Land Conservancy, and we have successfully monitored three areas of interest to the organization.

These areas include: Waikiki Springs, Etter Ranch at Antoine Peak, and Mica Peak Conservation Area. These locations are in the process of becoming, or are already, managed or possessed by the INLC for conservation purposes. Thus, we were tasked by the INLC to monitor these areas with the intent to get data that may support or discourage the further purchase, and/or conservation of these areas. Furthermore, the trail camera locations we chose for this project will continue to be monitored by the INLC in the future.

Additionally, this includes various forms of analysis of this data. Our goal for this project is to produce a formal analysis and comparison of these areas, ranging from differences in biomes, or differences between an intact and a fractured wildlife corridor, to finding whether wildlife sightings via camera are more common during night or day. Unfortunately however, much of these analyses are under construction still, as the recent pandemic has given us some delays.

Skunk (Antoine)

Methods

In conjunction with the Inland Northwest Land Conservancy, we selected a few test locations in the greater Spokane area. These locations were all deemed to be "edge habitat", meaning they sit on the boundary of wilderness and roads/civilization. We placed trail cameras that are sensitive to movement at strategic locations in these greater test locations. We then left the cameras alone and every few weeks systematically retrieved the cameras to analyze the data and look at the photos of different animals that passed through our zones. We then compiled all of this data and analyzed it based on species, time of day, number of animals, and calendar date.

Results

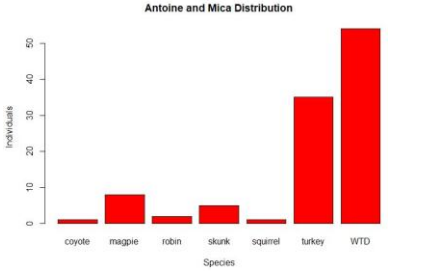

Figure 1. Histogram of individual wildlife occurences by species captured in the Antoine peak and Mica peak locations. Most captures by the trail cameras were wild turkeys (*Meleagris gallopavo)* and white-tailed deer WTD (*Odocoileus virginianus*). Out of a sample size of 344 for Antoine/Mica, 90 white tailed deer and 219 wild turkey were identified.

River Otters (Waikiki)

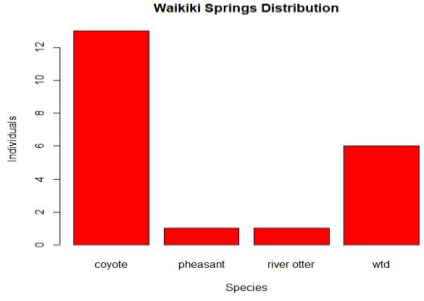

Figure 2. Species distribution of wildlife occurrences in Waikiki Springs. Most captures by the trail cam were of coyote (*Canis latrans*). Significantly less white-tailed deer WTD (*Odocoileus virginianus*) were found in Waikiki than Mica/Antoine.

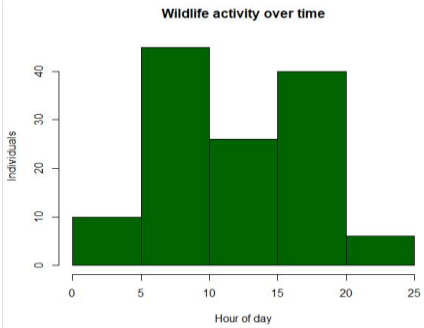

Figure 3. Distribution of wildlife activity at different times of day. Wildlife were most active and most likely to be captured by trail cameras between 5am - 10am and 3pm - 8pm. n=375

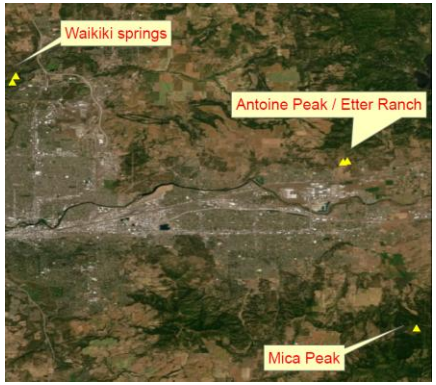

Figure 4. Trail cam locations indicated by yellow triangles.. Five wildlife cameras were placed in two highland locations, Antoine and Mica, and one wetland location, Waikiki. Figure made in ArcMap v. 10.6.1

Conclusions

Five wildlife cameras set up in Waikiki springs, Antoine Peak, and Mica Peak caught 375 individuals over February, March, and the first week of April 2020. Antoine peak had significantly more wildlife image captures than both Mica peak and Waikiki peak, with Mica peak capturing 10 white-tailed deer (*Odocoileus virginanus*). This may be due to heightened recreational activity and human presence in public spaces Waikiki and Mica compared to the private Etter Ranch location on Mica Peak. Greater species diversity was found in the highland locations of Antoine and Mica compared to the wetland Waikiki, contrary to previous hypotheses about wetlands being more biodiverse. Wildlife activity was highest in the morning hours of 5am - 10am and lowest overnight. Overall, less human recreation encourages high wildlife activity.

What's Next?

We will hand over control and monitoring of the some of the cameras to our community partners at the Inland Northwest Land Conservancy where they will continue the data collection. Our data from the cameras should be able to accomplish two main things in the future. First, our data will be available and used by the INLC for their research and land acquisition ventures. Second, our data will be available for future Gonzaga Environmental Studies and Biology students that want to conduct their own research related to Native Spokane wildlife, local wildlife corridors, edge habitat, or species density. We hope that this project functions as a foundation for other future projects conducted by students and/or community partners.

Whitetail deer doe (Mica)

Acknowledgements

We would like to acknowledge a few groups/persons that helped us and without whom our project couldn't have happened. We would like to thank Rose Richardson from the Inland Northwest Land Conservancy for helping direct this project and function as our amazing community partner. We would like to thank Greg Gordon from the Environmental Studies department for his guidance and willingness to help. We would also like to thank the INLC, Greg Gordon, and Stephen Hayes from the Biology department at Gonzaga for their graciousness in allowing us to borrow trial cameras for the collection of data.