

Introduction

Wild horses and burros roam BLM-managed rangeland in 10 Western states. With roughly 49,000 individuals, the potential for wild horse to have impacts on the land is substantial^[1,3]. Their year-round use of resources and rapid population growth make wild horses a concern for managers. Wild horses roam in areas also used by wildlife and livestock, making it unclear which animal has greater impact on rangelands^[2,3]. Combined use by wild horses, livestock, and wildlife (elk, deer, pronghorn, and moose) might result in substantial resource degradation.



Research Questions

1. What is the spatial or temporal overlap between wild horses, livestock, and wildlife use of riparian areas?
2. Are wild horses having more of an impact on riparian stubble height than cattle or wildlife?

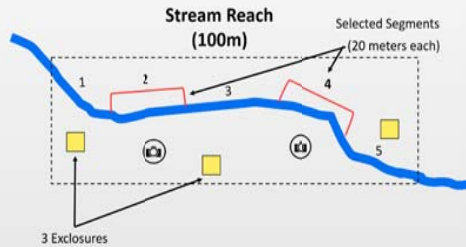
Methods

Four stream reaches in Challis Herd Management Areas in central Idaho.



At each site:

- 2 Randomly selected 20-meter stream segments
- 2 Inferred motion activated trail cameras
 - 3 photos captured with movement
 - 4 minute delay between motion triggers
 - Documents animal presence, count, and activity
- 3 Temporary exclosures (51 X 61 cm)
 - Each paired with 2 grazed plots
 - Measured change in stubble height



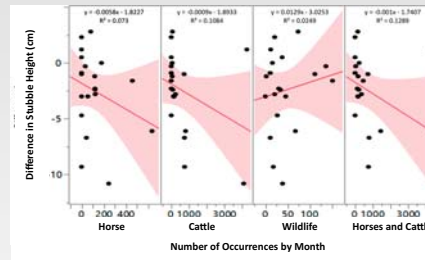
Stubble height of herbaceous vegetation was measured once a month in each exclosure and paired grazed plots.

Photos (62,500 total photos) and vegetation data were collected once a month at each location from April through October 2015.

Results

Change in Stubble Height

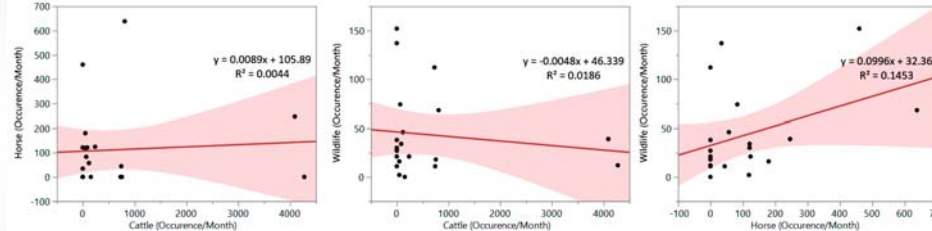
- When both, wild horses and cattle, were considered together the did have a significant effect (P-value = 0.03)
- Wild horses occurrence had no related effect to change in stubble height (P-value = 0.71)
- Nor did the observed presence of cattle (P-value = 0.16)
- Wildlife were present and presumably had an effect, but not at a detectable level (P-value = 0.37)



Total number of individual animal occurrences by month related to the change in stubble height.

Spatial Relationship between number of wild horses, cattle, and wildlife

- No relationship between cattle presence and wild horses occurrence was observed (P-value = 0.78)
- Wildlife presence decreased with number of cattle observed (P-value = 0.57)
- Wildlife observations increased with wild horse presence (P-value = 0.09)



Correlation of total number of individual animal occurrences by month between "Cattle and Wild Horses", "Cattle and Wildlife", and "Wild Horses and Wildlife".



Preliminary Conclusion

- "Wildlife" is made up by wild ungulates including elk, pronghorn, deer, and moose.
- Many other types of wildlife were seen using our riparian study areas, including prey and game birds, coyotes, wolves, bears, mountain lions.
- Wild horses are not having more of an effect on stubble height than cattle or wildlife.
- When both, wild horses and cattle, are present there is notable effect on stubble height.
- Further analysis is necessary to evaluate the difference in effects on riparian characteristics by animals.



Contributors

Thank you to Idaho BLM wild horses and burro program, Idaho Rangeland Resource Commission, UI Berklund Research Fellowship, UI David Little Endowment, and local ranchers (Shane Rosenkrance and Tony Richards).

1. BLM (Bureau of Land Management). (2014). Public Land Statistics 2014. Available online at http://www.blm.gov/public_land_statistics/pls14/pls2014.pdf. Accessed January 15, 2016
 2. National Research Council Report. (2013). Using science to improve the BLM Wild Horse and Burro Program: a way forward.
 3. Beaver, E. (2003). Management implications of the ecology of free-roaming horses in semi-arid ecosystems of the western United States. Wildlife Society Bulletin, 887-895.

