The Complications Associated with the Wild Horse and Burro Overpopulation in Utah

Introduction and Motivation

The wild horses in Northern America are a beautiful symbol of freedom that has been valued throughout history. While these wild horses and burros are dearly loved, their population continues to rise, causing ecological complications and other difficulties in agriculture. These equines can have a huge impact on grazing lands for cattle and the habitats of other wildlife by using up water and food. The Bureau of Land Management (BLM) recognizes wild horses and burros as non-native to Northern America since most today descendants of animals that were released or escaped from Spanish explorers, ranchers, miners, the U.S. Calvary, and Native Americans (BLM). As settlers in America moved west, took up more land for agriculture, and hunted predators to protect their livestock, the wild horses and burros had less land and very few predators left to hunt them. In 1971, Congress passed the Wild Free-Roaming Horse and Burro Act, which outlawed the slaughter and hunting of wild horses in the United States, which contributed to the rise in population. This act also allowed for wild horses and burros to roam on public land but required BLM and the U.S. Forest Service (USFS) to manage the usage of public land "in a manner that produces a thriving neutral ecological balance" (Farm Bureau, para. 1). With the historical context of how these non-native yet valued species became overpopulated, we can then ask further questions of analysis about the complications associated with this ecological issue.

Problem Statement

The problem statement for this project is: "What are the wild horse and burro populations like in Utah and what are the possible impacts of their population size?" In order to answer this question effectively, I broke it up into two different geographic questions and one logistical question. The questions are as follows:

1. How do the Utah allotted wild horse and burro herd areas compare in location to areas of critical environmental concern?
2. How do the Utah allotted wild horse and burro herd areas compare in location and size to agricultural grazing pastures and water sources?
3. How have the Utah wild horse and burro populations risen historically?

Methods

The first two (geographic) questions were answered in the form of maps created by the software QGIS (Figure 1 and Figure 2). The maps had the objective of an educational exploration of complications associated with the wild horse and burro overpopulation in Utah. The data for these maps came from the BLM and the Utah Geospatial Resource Center (UGRC). For both, major highways and water landmarks were added for location reference. Each map labeled the herd management area names. The Highways layer was created by tracing major highways on the open street map provided by QGIS and making the tracing into a new layer. In Figure 1, the water landmarks layer was created by manually selecting major water landmarks and then turning these into a new polygon layer. In Figure 2, lakes and the grazing pasture layers were clipped to fit within the Utah boundary extent. Both maps were projected using the WGS84 Pseudo-Mercator EPSG:3857 coordinate reference system.

The third (logistical) question was answered in the form of a line graph created by the software R Studio. The data was collected from the Bureau of Land Management's Wild Horse and Burro Program Data website, which had the population of wild horses and burros from 1996-2020 in multiple states. By using R Studio, I filtered the data to only include the state of Utah. Then, I visualized the data by creating a line graph, which showed the population of wild horses and burros from 1996 to 2020.

Results

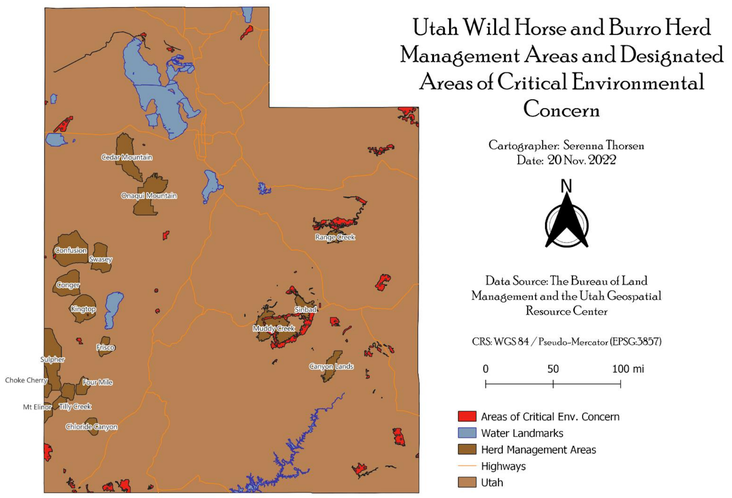

Figure 1: This is a map of wild horse and burro herd management areas compared to designated areas of critical environmental concern. The water and highways layers are added for landmark purposes. The key features in this map are the areas of critical environmental concern (shown in red) and the herd management areas (shown in dark brown). The data for this map was collected by the Bureau of Land Management and the Utah Geospatial Resource Center. The projection for this map is the WGS84 Pseudo-Mercator EPSG:3857.

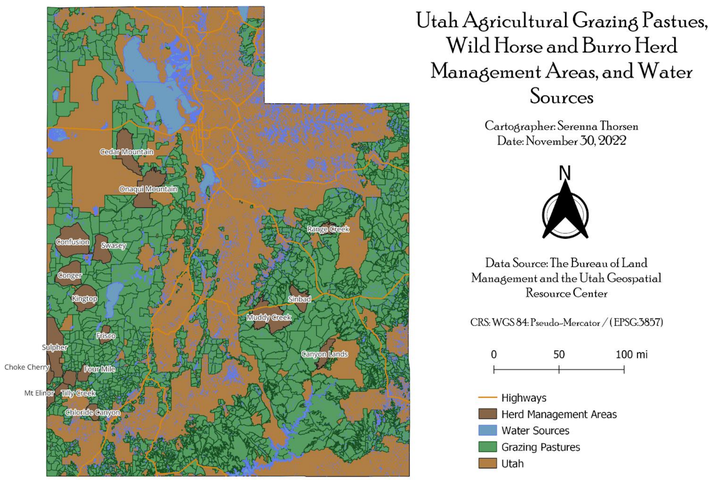

Figure 2: This is a map that compares wild horse and burro herd management areas, agricultural grazing pastures, and water sources. Major highways were added for landmark purposes. The key aspects of this map are the grazing pastures (represented in green), herd management areas (shown in dark brown), and water sources (represented in blue). The data for this map was collected by the Bureau of Land Management and the Utah Geospatial Resource Center. The projection for this map is the WGS84 Pseudo-Mercator EPSG:3857.

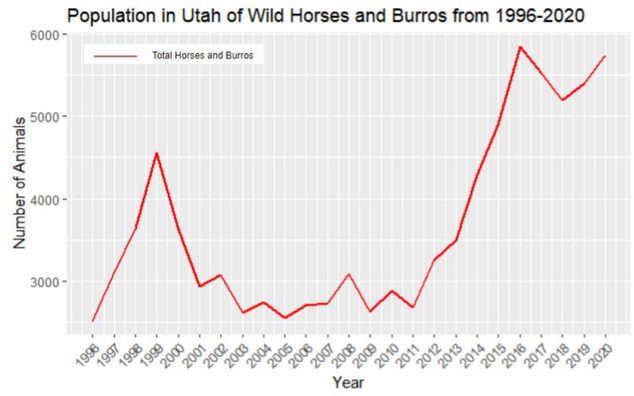

Figure 3: This graph shows the historical population of wild horses and burros in Utah from the year span of 1996 to 2020. The independent variable is the year (x-axis) and the dependent variable is the number of animals (y-axis).

Discussion

1. How do the Utah allotted wild horse and burro herd areas compare in location to areas of critical environmental concern?

Figure 1 shows us that there is some overlap between Utah's herd management areas and the areas that have critical environmental concern. These overlapping spaces are mostly in eastern Utah. The Muddy Creek and Sinbad herd areas have a decent amount of overlap, and while the Range Creek area doesn't have overlap, it is still right next to a large region of environmental concern.

2. How do the Utah allotted wild horse and burro herd areas compare in location and size to agricultural grazing pastures and water sources?

Figure 2 shows us that almost all of the places that the wild horses and burros can roam also include agricultural grazing pastures. This means that almost all of the wild horses and burros in Utah are sharing their land resources with cattle. Figure 2 also shows that there aren't many large water sources in the herd management areas, leaving little water for the cattle, horses, burros, and wildlife to share.

3. How have the Utah wild horse and burro populations risen historically?

Figure 3 shows that the wild horse and burro population in Utah has had its ups and downs, but the population is generally increasing. This graph also shows that between 1996 and 2020, the equine population has been consistently a dramatic overpopulation. According to Utah Public Lands, the state of Utah can handle 1,956 animals (UPL, para. 4). Figure 3 shows that the population count is consistently much higher than this ideal capacity, even nearing 6,000 animals.

Overall:

The data was decently straightforward. The only surprise in the results was just how much the wild horses and burros are increasing in population and how much their population is over the ideal state capacity. Since the data comes from government and reliable sources, I am confident in the accuracy of these findings.

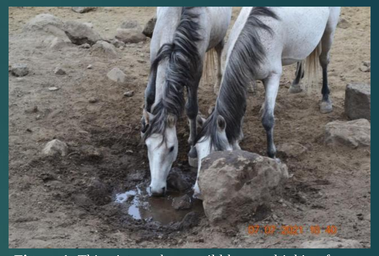

Figure 4: This picture shows wild horses drinking from a mud puddle on a herd management area in the United States of America.

Figure 5: This picture shows a herd of wild horses in the United States and features two stallions fighting.

Implications, Conclusions, and Future Work

What are the wild horse and burro populations like in Utah and what are the possible impacts of their population size?

From the results of this project, we can conclude that the wild horse and burro populations in Utah are drastically above the ideal population for the state. We can also see that there is overlap between designated areas of critical environmental concern and the herd management areas. While this doesn't necessarily conclude that the herd areas are a direct cause of the creation of a region of environmental concern, we can mention the future questions about the role of the overpopulated herds in contribution to environmental and wildlife habitat degradation. This also brings up the question of other potential impacts of wild equine population on wildlife habitats outside of exploitation of food and water resources. We can also conclude that there is significant overlap between agricultural grazing pastures, wild horse and burro herd areas, and their available water resources. The results show that wild horses share almost all their land with agricultural grazing pastures, and we know that their water resources are extremely limited. Regarding this issue, a potential question would be what are the exact acre differences between agricultural grazing pastures and herd management areas? Another question would be what is the cattle population compared to the wild horse and burro population in areas where equine and cattle share land? How do the populations compare in the entire state?

The Bureau of Land Management has two population management techniques for wild horse and burros which they list on the "Maintaining Range and Herd Health". One management technique is fertility control (paras. 5-10). Another technique is gathering the mustangs and holding them in facilities until they can be adopted (para. 11). However, this technique relies on the public to have the interest, finances, and ability to adopt a wild mustang.

The wild horses of America are "living symbols of the historic and pioneer spirit of the West " (UPL, para. 1). In order to take care of these beautiful animals and maintain the health of the environment, we can educate the public on wild horse and burro overpopulation and encourage adoption of these creatures. We can also increase our knowledge of fertility control and the ecological effects of wild horse and burro populations.

Literature Review and Citations

No author given. No date given. *GIS Data*. Bureau of Land Management. https://www.blm.gov/services/geospatial/GISData.

No author given. No date given. *Maintaining Range and Herd Health*. Bureau of Land Management. https://www.blm.gov/programs/wild-horse-and-burro/herd-management/maintaining-range-and-herd-health.

No author given. No date given. *New Estimates Affirm Continued Overpopulation of Wild Horses and Burros Roaming BLM-Managed Public Lands*. Bureau of Land Management. https://www.blm.gov/blog/2022-04-12/new-estimates-affirm-continued-overpopulation-wild-horses-and-burros-roaming-blm.

No author given. No date given. *Wild Horse and Burro: Program Data*. Bureau of Land Management. https://www.blm.gov/programs/wild-horse-and-burro/about-the-program/program-data.

No author given. No date given. *Wild Horse and Burro Management*. Farm Bureau. https://www.fb.org/issues/other/wild-horse-and-burro-management/#:~:text=Widespread%20and%20overabundant%20feral%20horses%20and%20burros%20wreak,and%20important%20and%20iconic%20wildlife%20species%20are%20threatened.

No author given. No date given. *Wild Horses and Burros Management*. Utah Public Lands. https://publiclands.utah.gov/wildlife/wild-horses-and-burros-management/#:~:text=BLM%20Utah%20manages%2019%20wild%20horse%20and%20burro,corral%20with%20a%20holding%20capacity%20of%205%2C550%20animals.

Mary Hone. (2016, October 27). *Wild Horse Week-Fighting Stallions*. Tales from the Back Road. https://talesfromthebackroad.com/wild-horse-week-fighting-stallions/.

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