Understanding Free-Roaming Horse Conflicts with Wildlife in the Great Basin

***Nicki Frey**, Associate Professor of Wildlife Biology, Utah State University Extension*

***Eric Thacker**, Associate Professor of Range Management, Utah State University Extension*

***Katlyn Uhart**, Utah State University Agricultural Communication and Journalism Student*

Introduction

Horses and burros were introduced to North America in the 1600s with European missionaries and explorers. Over time, abandoned and released horses and burros formed herds and by the time European-American settlers began to explore North America in the 1700s, these free-roaming horses and burros had adapted to their habitat and been incorporated into Native American culture. By the mid-1900s, most Americans considered these horses as wild and symbols of freedom and beauty.

In 1971, Congress passed the Wild and Free-Roaming Horses and Burros Act (Public Law 73-482) to provide federal protection for free-roaming horses and burros (also known as wild horses and burros) in the western United States. In 1978, the Act was amended (Public Law 95-514) to require the Bureau of Land Management (BLM) to "determine appropriate management levels (AMLs) for wild horses and burros on [designated] public lands." The Bureau of Land Management set AML at 26,715 wild horses and burros on 29 million acres of public land across 10 western states. The U.S. Forest Service was also tasked with managing over 7,100 wild horses and 900 burros on 53 wild horse territories (USFS, 2020).

Managing free-roaming horses and burros on public lands has its challenges. In this article, we explain some of the potential conflicts free-roaming horses create with native wildlife on western public lands.

"Wild," Feral, or Free-Roaming Horses

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"Wild," feral, or free-roaming horses found throughout the United States look just like domestic horses. These are different names for the same species, *Equus ferus caballus*, whether cared for by a person or free-roaming.

They range in size from 4–5 feet (to their back), and can be a variety of colors: white, grey, black, brown, painted, palomino, and various combinations of these colors.

Photos courtesy of the Bureau of Land Management

Wild, Feral, or Free-Roaming

Wild, feral, or free-roaming are all names referring to horses not cared for by a person or a group. Biologically, "wild" refers to a species of animal that has never been domesticated, like elk, deer, or pronghorn. Some people also refer to horses descending from those of European explorers as wild because they have lived freely on public lands for generations.

The term "feral" refers to an animal that was once domesticated but has since been returned to the wild. For example, a person may own a horse for several years, but for personal reasons, decide to release that animal onto public lands (note: this practice is illegal). That animal is now feral—neither taken care of nor instinctively wild.

"Free-roaming" means that an animal is not herded or restrained from moving throughout the landscape. When discussing horses, free-roaming refers to all horses that live and move freely throughout the land, regardless of their origin.

There is also a legal definition of wild. As defined by the Wild and Free-Roaming Horses and Burros Act, wild horses are those horses managed by either the BLM or the U.S. Forest Service on designated public lands.

Typical rangelands and free-roaming horses. Photo credit: Bureau of Land Management.

What is an HMA or HMT?

When the U.S. Congress determined to protect free-roaming horses, they considered where horse herds existed on public lands at that time. They designated these areas on BLM land officially as herd management areas (HMAs) and herd management territories (HMTs) on U.S. Forest Service land. Any horses that lived within the HMA or HMT boundaries were protected under the federal law. This causes confusion because some free-roaming horses live outside of federal lands; these are not managed by federal agencies. Today, more than 90,000 wild horses live in HMAs (BLM, 2018). There are also greater than 8,000 wild horses on HMTs (USFS, 2020).

Life on the Range

The public lands where free-roaming horses live, including HMAs, are also commonly referred to as rangelands. Many of these areas are high desert shrub ecosystems that have hot, dry summers and cold, snowy winters. Most of the rangeland vegetation consists of grasses, sagebrush, other shrubs, and small trees. Free-roaming horses share this land with native wild ungulates including pronghorn (*Antilocapra Americana*), mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), and many other species, such as greater sage-grouse (*Centrocercus urophasianus*).

Because free-roaming horses occupy the same habitat as many wildlife species, interactions between free-roaming horses and wildlife are inevitable. Horses are larger than many native wildlife species, so they can be strong competitors for limited resources such as food, water, and shelter. This raises concerns about the ability of horses to out-compete wildlife for food or to change the rangelands to the point that they aren't suitable for native wildlife species.

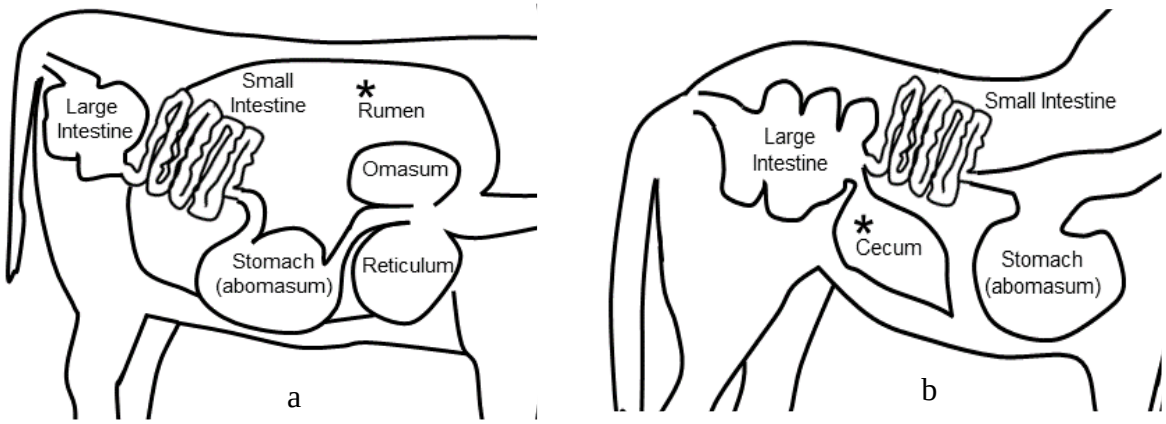

Figure 1. *Ruminant or foregut (a) and hindgut (b) fermentation. Diagrams excerpted from Scasta, 2014.*

Food

The diet of horses is similar to domestic cattle, elk, and pronghorn (Olsen & Hansen, 1977; McMinnis & Vavra, 1987, Scasta et al., 2016). However, horses process food differently than wild ungulates; the way that they forage on rangelands can sometimes cause conflicts. First, horses are hindgut fermenters, meaning their food fermentation occurs *after* the intestines. Wild ungulates and cattle are ruminants, meaning their food fermentation occurs *before* the intestines (Figure 1). Hindgut fermenters process their food faster, but less efficiently, meaning they need to eat more per pound of body weight than wild ungulates or cattle.

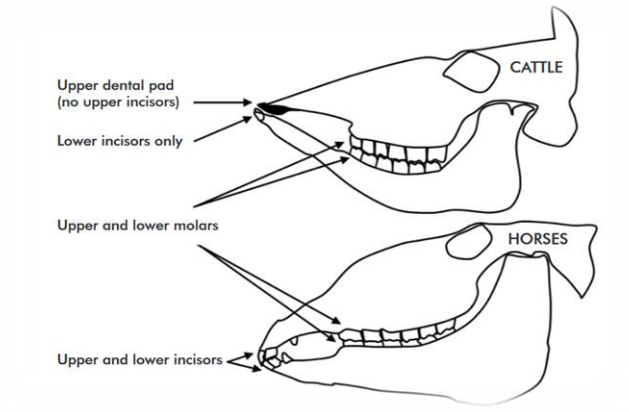

Figure 2*. Horses have upper incisors; cattle, elk, and pronghorn do not. Diagram excerpted from Scasta, 2014.*

Second, horses have upper teeth, while cattle, elk, deer, and pronghorn only have an upper mouth pad (Figure 2). This means horses can feed closer to the ground than the other species. Horses, cattle and elk predominantly eat grasses; if a herd of horses graze an area first, the remaining forage is too close to the ground for elk or other wild ungulates to eat it. Elk, mule deer, and pronghorn migrate throughout the year to find the grass, forbs and shrubs that they need to eat for various important life cycles. However, wild horses are not as likely to migrate as other ungulates, having "evolved" to stay on the rangelands. Consequently, conflicts can arise when horses graze newly grown grass in the spring, resulting in grass too short for elk to eat when they arrive in the summer.

Water

In the Great Basin of the western U.S. (Figure 3), areas with wetlands, streams, and springs comprise less than 5% of the landscape. Water is in short supply, which means that to survive, wildlife, cattle, and horses must compete for access to the water sources. Horses compete with other animals by either using the water, making it inaccessible, or by physically excluding other wildlife from the water. For example, a herd of horses may group around a water source in the summer and can spend nearly the whole day close to or at the water source. Their hooves trample the soil and quickly transform a spring into a mud pit where fresh

Figure 3. *The location of the Great Basin in the United States. Figure credit: Kmusser, https://commons.wikimedia.org/w/index.php?curid=12079426.*

water is no longer available. Unlike many native wildlife that come to a water site for a short period each day, horses tend to stay at the water site for several days. Their constant presence at water sources exclude access to the water by many wildlife species.

Working in the Great Basin, researchers found that all mammal species visited water sources 3 times less often in areas with horses. The decrease in use was because of horses' aggression toward other ungulate species. For example, Gooch (2017) determined that 75% of interactions between horses and pronghorn were negative; the horses chased off pronghorn that tried to approach the watering hole. Pronghorn accessed water 40% less often in areas with horses, spent more time vigilant, and changed the time of day that they came to water. This change in behavior can result in lower fitness and lower reproduction rates. In another study, desert bighorn sheep accessed water 76% less than they did when horses were absent. Berger (1985) and Hall et al. (2016) measured similar decreases in water accessibility in mule deer and elk.

Cover

The impact of free-roaming horses on landscapes can negatively influence important cover for other animals that require it for survival. When large herds of horses persist on the landscape, particularly the dry rangelands of the Great Basin, they can decrease sagebrush and grasses and reduce the habitat suitability for species that nest in this vegetation, such as song birds and greater sage-grouse. For example, Boyd et al. (2017) measured lower vegetation height and more bare ground in areas where horse densities were high; this resulted in low bird species diversity. Because of the potential for horses to impact sagebrush habitats, free-roaming horses have been listed as a threat to greater sage-grouse populations.

Management of Multiple Species, Multiple Use, and Sustained Yield

Herd Management Areas (HMAs) exist only on federal lands and these lands are managed for "multiple-use, sustained-yield." This means that the BLM and the U.S. Forest Service must strike a balance among recreation, hunting, camping, protecting Native American cultural sites, and energy extraction, while balancing populations of game species, species of concern, endangered species, and free-roaming horses.

Game species and species of concern are managed by state and federal agencies that monitor their population numbers and health. Game species are monitored to ensure that their populations are in balance with their ecosystem. Their populations are adjusted by increasing or decreasing the number that can be hunted from an area each year. Just like the free-roaming horses of today, cattle are not native to North America. The access that cattle have to federal land is managed under the Taylor Grazing Act. Through this act, federal land management agencies assess the health of the rangelands and adjust the number of cattle permitted to forage in grazing allotments. Domestic sheep and cattle are fenced out of sensitive areas, and their use of riparian areas and

springs is managed by controlling timing, season of use, and grazing intensity.

Like native wildlife, where horses graze, when they graze, and how often is not managed. Therefore, free-roaming horses have the potential to damage their habitats if managers can't effectively manage horse numbers. Currently, free-roaming horses within HMAs are managed by removing a portion of horses from the range and putting them in holding facilities until they may be adopted. Currently, wildlife biologists and land managers are working diligently to determine a better method to manage horse population numbers and where they occur on sensitive rangelands.

For an overview of wild horses and burros on public lands, read the following article: Wild Horses and Burros: An Overview (Frey & Thacker, 2018).

Take Home Message

- Wild horses are not native wildlife.
- Wild horses may compete with native wildlife for food, water and space.
- Dense populations of wild horses can harm wildlife habitat by reducing vegetative cover and increasing bare ground.
- Wild horses are part of the multiple-use provision for federally managed lands, and like domestic livestock, should be managed according to federal policies.

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