You Can Lead a Horse to Water: Mapping Seasonal Water Resources to Predict Wild Horse Movements on Utah Rangelands

Extension
UtahStateUniversity

Mark Nelson, Dr. David Stoner, Dr. Dave Thacker, Linden Greenhalgh
Utah State University Extension, Mark.nelson@usu.edu

Introduction

The lack of water defines deserts and exhibits tremendous year-to-year variation in the timing and amount of precipitation. Water distribution strongly influences animal movements and habitat use in these systems. Some herbivores, such as mule deer and pronghorn, can obtain water from succulent forage, but large grazers, including cattle and horses, need to drink water daily to help digest plant matter. As such, these species are typically found near water sources. In areas lacking perennial water, landowners and land management agencies can develop water sources to provide water for animals. However, temporary surface water that accumulates following snowmelt or rain remains the most widespread water source for wildlife and livestock, allowing these water-dependent species to range farther from developed or perennial sources than they might otherwise.

Which Agricultural/Private Lands are Most Vulnerable to Crop Depredation by Wild Horses?

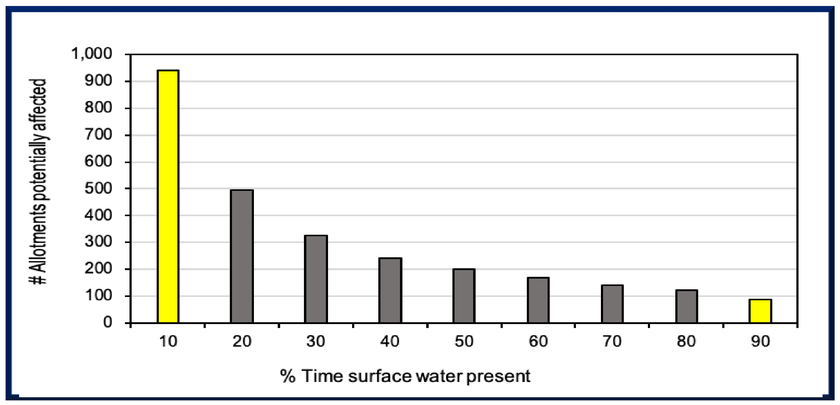
Statewide - Proportion of the Growing Season Where Water Covers the Ground (May 1 to October 31)

County	No.	% Total	Area (mi^2)
Beaver	44	15.5%	19.7
Carbon	14	4.9%	4.6
Emery	1	0.4%	1.4
Iron	48	16.9%	36.3
Juab	23	8.1%	6.9
Millard	9	3.2%	3.7
Tooele	119	31.9%	102.7
Uintah	26	9.2%	51.4

How Far do Horses Travel for Water?

The horse is an animal built for travel. Early accounts from U.S. Army survey parties mapping remote parts of Utah during the 1870s describe single-day rides of up to 40 miles (McPherson & Neel, 2016). Wild horses—unburdened by saddles, riders, and equipment—can easily cover this much ground when necessary. Accounts of Australian "brumbies" walking 10 miles (range: 5–17) within a single day have been reported from the driest parts of their range (Hampson et al., 2010).

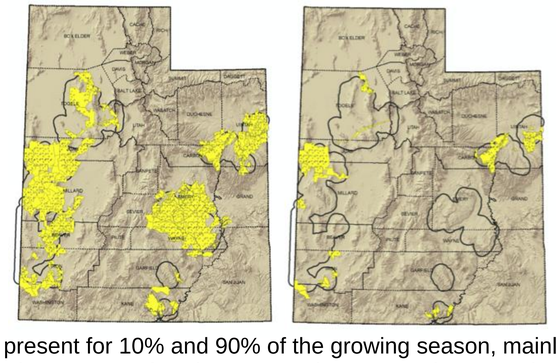
Closer to home, radio-telemetry studies in southern Wyoming have measured average daily travel distances of approximately 6 miles (Hennig et al., 2018) across summer home ranges of about 15 square miles. Importantly, during these wayfaring episodes, almost half of the location fixes occurred outside the herd management area (HMA), where the horses were originally caught, and 11% were on private land.



Is this Source of Water Essential to Livestock and Wildlife?

Whether natural or human-made, we typically focus on perennial water sources, such as creeks, springs, or guzzlers. However, previous research has demonstrated that free-ranging animals, wild or domestic, readily use temporary (seasonal) water sources, such as snowmelt and puddles left after rainstorms. These are particularly valuable to animals when they fill natural depressions and are available for extended periods (Holton, 2007). Field studies conducted in Utah and Arizona show that surface water availability is the strongest determinant of habitat use for horses and livestock (Miller, 1983; National Research Council [NRC], 2013; Schoenecker et al., 2022).

Grazing Allotments Within a 6-Mile Radius of Herd Management Areas



Note. Water is present for 10% and 90% of the growing season, mainly during spring snowmelt and following summer thunderstorms. These maps illustrate the grazing allotments that could be affected by wild horses throughout the season.

Conclusion

Utah is the second driest state in the U.S., so livestock production takes more land than it would in wetter, more productive environments. As a result, forage and water resources can vary substantially from year to year, and when resources are sparse, competition between livestock and wild horses can occur. The maps presented here can be used to predict what time of year and which allotments are most susceptible to incursions from wild horses on Utah rangelands.