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Elk Depredation in Utah: Case Study of Mental Fatigue and Economic Uncertainty

Abstract

Elk depredation issues among producers are not a new occurrence in the Western United States. However, these interactions are becoming more strenuous on economic output for producers and their relationships with buyers and with wildlife officials. This summation looks at the impacts of elk depredation on a local hay producer gathered via interview, focusing on the economic loss, and damaged local relationships, causing mental distress with a possible correlation to the winter blues. The purpose of this limited case study is to seed a larger discussion/study involving regional depredation issues facing producers.

Keywords: conflict, damage, depredation, elk, farmer, mental health, rancher, wildlife

Introduction

Elk management and depredation is a point of contention for many Utah farmers, ranchers, and wildlife officials. Varying priorities are taken into consideration, which can strain professional and personal relationships, thus polarizing the issue even further.

From a wildlife conservationist perspective, large, healthy elk herds feed back into the state to fund conservation projects. In the same vein, large, healthy elk herds require plentiful forage throughout the year. Conflict between wildlife officials and agriculture producers arises when elk herds outgrow the natural habitat's carrying capacity, thus pushing them onto private agricultural lands – the source of income for many Utahns.

Agricultural products such as hay are rich in protein compared to uncultivated shrubs and forage plants that elk forage during winter months (DeVore et al., 2016). Because of this nutrient disparity, habitat fragmentation (Smith, 2001), and growing herd size, elk readily utilize private croplands as their source of food particularly in winter when food scarcity is high. This directly impacts the profit margins of local agriculture producers and their families. While the Utah Division of Wildlife Resources (DWR) offers some compensation programs (Utah Division of Wildlife Resources, 2024) and researchers have tested the efficacy of depredation mitigation techniques (hazing, hunting, fencing, etc.), producers perceive these as temporary and inadequate solutions to a larger issue (Idaho Farm Bureau Federation, 2017, and Utah Southern Regional Advisory Council Meeting, 2012). A local producer commented that these techniques may work locally, but pushing elk off one property only sends them to the next farm/ranch over (Bagley, 2025). Furthermore, monetary compensation is not unlimited for DWR officials. If depredation compensation funds run out, options become even more limited.

According to the American Farm Bureau Federation (2021), less than two percent of the United States population is involved in farming and ranching. This creates a significant need for agriculture producer support. In another survey conducted by USU extension professionals, 86% of survey respondents indicated that they would benefit from mental health education despite 73% indicating they know where to find resources (Gilliam and Gilliam, 2024). This may indicate a disparity in effective mental health resources that are applicable to agriculture producers. From the stress in personal lives, to animal welfare, equipment maintenance, and long hours, this demographic now battles with economic uncertainty caused by wildlife depredation. To push the issue further, depredation occurs in the winter months when cold weather drives agriculture producers indoors,

away from community and toward isolation, compounding upon an already strenuous time.

Methods

During the winter of 2024 USU Extension was made aware of a local producer facing his own set of elk depredation issues. A research team from USU met with the producer on his farm located in Piute County, Utah. The producer then demonstrated the condition of the haystacks that had been put up during the fall of 2024. Evident signs of wildlife damage (consumption) to the haystacks were clearly visible and documented. The producer also shared photos of the previous year's hay crops that had been damaged by the elk populations. Researchers placed cellular trail cameras on the farm to capture incoming wildlife. One of the cameras was placed at the end of a row of the haystacks where heavy damage was occurring (Figure 1), the other camera was placed along an adjacent field to estimate the direction of wildlife travel.



Figure 1. Two bull elk near haystacks, located approximately 50 yds from highway 62.

Using the trail cameras the elk presence/issue was confirmed. Elk frequented the area without reservation of either the highway or the proximity to farm buildings and equipment. It was estimated that the elk were moving from the Monroe Mountain foothills east and southeast towards the haystacks. To accomplish this, the elk needed to either cross through another landowner's property and fence or traverse directly through roughly 700 yards of open fields adjacent to the haystacks. Using collected photos and timestamps the elk were documented to be present in the haystacks anywhere from 8 pm to 5 am. Most of the elk damage occurred between the hours of 9 pm to 10 pm or 1 am to 5 am. Using the trail camera photos the declaration of tarp damage indicated in Table 1 was also confirmed as the height of the bull elk antlers was visible and would be able to damage the tarps covering the haystacks. Note: although a loss of weight in stacked hay is expected, the photographic evidence collected demonstrates a significant impact on dry matter loss. However, Table 1 shows only the loss in weight.

Table 1. Measurable losses during the 2023 season

Material	Start	End	Cost
Hay ¹	525 Tons	506.4 Tons	-\$6,510
Hay Tarp	-	- 3	-\$3,000
Hired Labor	-	-	-\$1,000
Fence Damage ²	-	-	-\$2,500
Heavy Equipment Labor ³	-	30 hrs	-\$3,000
Total Measurable Loss			-\$16,010

¹Hay sold in 2023 @\$350/ton

²Estimate

³Loader used to re-stack bales after being re-tied

Mental Fatigue

A document was submitted by the producer that summarized the damage to the hay that occurred in 2023. The document also contained the other costs that were summarized in Table 1. Another perspective not previously considered by our research team included an account of the producers' efforts to move elk away from the incident area.

"I lost the time of going down to the yard every night, sometimes multiple times, to try and keep the elk out of the haystacks. That resulted in lost sleep, stress, anxiety..."
(Bagley, 2025).

Figures 2 and 3 also provide more reasons for the stress of the producer (Bagley, 2025). Half-eaten bales cause safety concern as they can severely destabilize the stacked hay. This sort of eating pattern was documented to have occurred in multiple areas along the rows of stacked hay, both in the 2023 season, and when the research team collected photographs of the area. Having arrived early in January, the consumption was not yet as far along as the 2023 season. Although in this case there was no pre-or-post survey of the producer's mental well-being, it is not speculative to conclude that winter depredation can possibly carry a heavier impact than just economic loss to a producer. The concern with this aspect of the case study is the effect of winter blues compounded with nightly stress and anxiety due to the wildlife depredation.

Winter blues, or Seasonal Affective Disorder (SAD), is a subset of major depressive disorder with seasonal patterns, according to the DSM-5 (American Psychiatric Association, 2013). In the winter months, some of the seasonal patterns that occur can include holiday stress, seasonal unemployment and increased illness, as well as a decrease in serotonin activity due to the lack of sunlight and a vitamin D deficiency, which can all lead to feelings of sadness (Turmaud, 2024). Producers experiencing depredation issues can be expected to be at a higher risk for experiencing SAD because their livelihood is at stake when they lose their yield. These external stressors that occur routinely can lead to feelings of depression, fatigue and lethargy, having difficulty sleeping, concentrating, and a withdraw from social situations (Melrose, 2015).



Figure 2. Row view of 2023 depredation damage (photo credit Bagley, 2025).



Figure 3. End of row estimated 50% loss of middle bale (photo credit Bagley, 2025).

Conclusions

Collected evidence suggests an urgent need for improvement surrounding the issue of depredation. The impact on a sole producer in central Utah has been demonstrated in this case study. From economic loss to mental fatigue, the issue of depredation must continue to be addressed to improve. It was evident that the producer in this case felt that he had been doing everything possible to mitigate losses while simultaneously trying to sell a once-annual product. It is unfortunate that currently there is no-one perfect solution to this issue, and with the value of both wildlife and agriculture to the state of Utah, there may yet be much toil involved to arrive at a satisfactory system.

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