Estimates of Economic Losses to Stock Growers due to the Presence of Wolves in North Eastern Oregon

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Abstract

While any benefits associated with the introduction of wolves in NE Oregon are primarily nonmarket based, difficult to quantify and widely distributed among possibly millions of people who value wolves, at least some of the costs of introducing wolves in NE Oregon are market based, can be accurately estimated and are focused on the producers and the local economies to which they contribute. North Eastern Oregon includes 5 counties. The livestock producer is on the front line of the wolf/livestock conflict and the losses to the producer both increase the producer's direct costs of doing business and reduces the revenue received in those businesses thereby negatively affecting both sides of their balance sheet. The following economic assessment is based on the assumption that the ranches are in areas where wolves have reached full occupancy and that the cattle are in areas where wolves are present through all seasons of the year.

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Discussions about wolf impacts on livestock producers have focused on the depredation losses and what portion of the actual losses to wolves is found and confirmed. Those confirmed losses generally are reported to be 1 confirmed carcass for every 8 actual losses (Oakleaf, 2003). Even though those numbers are substantial and can cause significant impact to the bottom line of a rancher's business they significantly underestimate all the costs related to wolves, both the probable yet difficult to confirm depredation costs and the increased costs associated with physical stress to the cattle and management costs to the producer. In fact, these unacknowledged direct and indirect costs may be considerably greater than the directly confirmed depredation costs. Reports from ranchers who have dealt with wolves in the years since they were reintroduced in Idaho and Wyoming discuss the non-lethal costs and the increased management costs as much as they do the depredation.

The list of costs include but are not limited to depredation, reduced weight gain for calves, weight loss by cows, conception rate reductions and management costs. The first four are lost income to the producer because of reduced performance or physical loss of the stock (both calves and cows are reported to be lost). The last item, management costs, encompasses a large group of issues that cause increased cost of operation.

Management issues can be broken down into costs of implementing non-lethal activities to attempt to mitigate the impact of the wolf's presence; management costs due to implementation of government regulations and management plans; increased costs of livestock handling, management and range management; increased costs through injury and death of livestock; and the loss of range access because the wolf presence in given places makes it unwise to run livestock in that specific area of range.

Some of these issues are relatively easy to quantify estimates of the loss or expense, others will require much more study and basic data collection before adequate information is available to estimate the magnitude of the loss. Additionally, not all ranchers will experience all of these impacts at the same time.

The reduced performance issues and some of the management costs are estimated below. The cost of loss of rangeland access can be estimated from a previous paper written by Bruce Sorte and John Williams titled "*Potential Wallowa County Economic Impacts of the Reduction or Elimination of Cattle Grazing in the Joseph Creek Rangeland Analysis."* This paper analyzed the potential loss of grazing permits by 12 permittees due to a lawsuit. The loss was a 1,800 head reduction in carrying capacity on the land and was analyzed as potentially permanent. In that paper it states "the federal land dependent ranches would lose roughly $104,883 in annual gross sales per ranch." While the exact amount would vary by the size of the ranch and the amount of area lost, this estimate provides a useful reference to value grazing land and what happens when it becomes unavailable for whatever reason.

The increased cost due to implementing some non-lethal activities and management costs due to implementation of government regulations and management plans is estimated below.

The most problematic issues, and issues not covered in this analysis are the increased costs of livestock handling, management and range management and the increased costs through injury and death loss of calves being trampled by the cows during wolf attacks. What is reported from ranchers in wolf country (Thomas, 2010) is that cattle become much more nervous and difficult to handle. A new analysis of this is covered in a published paper titled Impact of previous exposure to wolves on temperament and physiological responses of beef cattle following a simulated wolf encounter which looks at the temperament change, blood Cortisol changes and body temperature changes. New techniques are required to make even simple field to field management moves, which is a management practice that ranchers have been increasing to improve the rangeland health. Cattle are reported to be "constantly on the move," refusing to stay where they are placed on the range. Management with cattle dogs becomes much more difficult and often not possible, thus requiring additional cowboys. If dogs are used, the cattle "stay all stirred up and all they do is fight the dogs." Maybe most disturbing and the hardest to quantify is the anxiety that wolves cause among ranchers and their employees forcing 24/7 vigilance that reduces ability to recover and remain productive day after day.

The economic impacts are not all on the producers. There are three types of effects 1) direct effects or sales by ranchers, 2) indirect effects or sales by suppliers, and 3) induced effects or household expenditures of income received while working in the ranching or supplier industries. When the losses to the ranching sector of the economy are as significant as identified below it is necessary to point out that these are only the output or direct effects. If you have $ 231 of decreased revenue per head and the multiplier based on the recent Input/output model as 1.8 for the cattle industry in Wallowa County the total figure of indirect and direct of $415.80 per head just within Wallowa County. That figure would be much larger for NE Oregon.

This economic analysis is based on the following assumptions:

- The ranches are in areas where wolves have reached full occupancy***
- Wolves are present over a significant portion of range and ranching operations in NE Oregon
- An average producer runs 400 mother cows; therefore each cost is spread over all those cattle on a per head basis.
- Expected sale price of $2.40/lb weaned calf*
- Normal or "pre-wolf" sale weight of 560 lbs**

* Based on a review of cattle fax prices and other cattle market information.

** Oregon Agriculture Information Network of OSU/NE Oregon data

***Full occupancy is the condition where wolves' density is such that if young wolves are forced out of the pack they move to outside areas. Wolf competition is significant and there are very few areas that are not considered part of a pack's territory

Decreased Revenues

Reduced conception rate costs

Reduced conception rate by 10% (per Casey Anderson's ****statements)
400 head X 10% = 40 head reduced calves born
560 lbs X $2.40 = $1,344 per head
40 X $1,344 = $53,760.00
$53,760.00/400 head = **$134.40 per head**

Depredation calf kills

15 head lost (Estimate of losses from Wallowa County producers last year)
560 lbs X $2.40 = $1,344 per head
15 head X $1,344/head = $20,160 / 400 head = $**50.40 per head**

Reduced weaning/sale weights

35 lbs estimated loss of weaned calf weight (Research paper quotes 60 lbs, local estimate is more conservative)
560 lbs – 35 lbs = 525 lbs/head weaning weight
525 lbs X $2.45 = $1,286.25 per head (as weight goes down, price per lb goes up)
$1,344.00 -$1,286.25 = $57.75/head @ 80% weaning (down after conception and death loss)
$57.75 X 320 head (80% weaning rate of 400 head) = $18,480.00 / 400 head = **$46.20 per head**

Increased Costs

Cow body condition losses

Loss of one body condition score from 5 to 4 (per Casey Anderson's statements)
Cows should be body condition score 5 at calving to avoid jeopardizing the cows health or life
Cost of feeding a cow adequately to regain the 90 to 95 lbs (1 body condition score) during the winter so she is in condition for calving is **$56.70 per head**
(Cost of grain and increased hay value.)*****

Increased management costs*****

Time spent by manager 1/2 day for 4 months
Assume $5,000 per month $5,000 X .5 = $2,500 per month
$2,500 X 4 months = $10,000
Also
9 months hired help
$150 per day (what paying current range rider to attempt to mitigate wolf loss)
20 days a month

20 X $150 = $3,000 per month
9 months X $3,000 = $27,000

Total labor costs $27,000 + $10,000 = $37,000
$37,000 / 400 head = **$92.50 per head**

Total losses

Depredation calf kills	$50.40 per head
Reduced weaning weights	$46.20 per head
Cow body condition loss	$56.70 per head
Reduced conception rate costs	$134.40 per head
Increased management costs	$92.50 per head

Estimated Cost of wolves to a ranching system
$380.20 per head

Annual Estimated Cost of Wolves to a 400 Cow Operation

Trait	Wolf Effect	No Wolves	Wolves Present	Net Loss (count)	Net Loss ($)
Conception Rate	Decrease from 90% to 80%	360 hd	320 hd	40 hd	$53,760
Weaning Weight	Decrease weight by 35 lbs	560 lbs	525 lbs	35 lbs	$18,480
Death Loss	Increase from 2% to 5.75%	8 hd	23 hd	15 hd	$20,160
Cow Body Condition Score (BCS)	Decrease from 5 to 4	5 BCS	4 BCS	1 BCS	$22,680
Increased Labor Costs	Manager 1/2 for 4 months Hired hand 1 for 9 months	n/a	Manager: $2500/month Hired help: $3000/month		$37,000
				Total Loss	**$152,080**

**** Casey Anderson is a rancher in Idaho that has had significant wolf presence on his ranch, has detailed cow and calf production records, and is a partner in the OSU research titled "Evaluation of Wolf Impacts on Cattle Productivity and Behavior"

Casey wrote: "In the last seven years wolves have become increasingly common, having moved into our area from central Idaho. Over this period we have seen a dramatic increase in livestock losses; confirmed wolf kills, suspected wolf kills and cattle that simply disappear. In 2010 we

have nearly 20 confirmed or probable wolf kills but the full extent of losses will not be known until we gather in the late fall. We expect that when the counting is complete, we will have lost in excess of 60 calves. Wolves are known to take cows and bulls as well as calves. Last year we were short 15 cows and a bull at the end of the grazing season".

*****Body condition scores are numbers used to suggest the relative fatness or body composition of the cow.
SCORE 4 = The cow appears thin, with ribs easily visible and the backbone showing. The spinous processes (along the edge of the loin) are still very sharp and barely visible individually. Muscle tissue is not depleted through the shoulders and hindquarters.
SCORE 5. The cow may be described as moderate to thin. The last two ribs can be seen and little evidence of fat is present in the brisket, over the ribs, or around the tail head. The spinous processes are now smooth and no longer individually identifiable.
To gain 1 lb per day in the winter time, nutrition would have to be increased significantly. Rations were changed from 14 lbs of meadow hay, 5 lbs of Oat hay, 2 lbs of barley and 2 lbs of bluegrass/wheat straw TO; 12 lbs of grass hay ($150/ton), 9 lbs of alfalfa hay ($200/ton) and 4 lbs of Barley ($180/ton). The cost of feed per day rose from $1.53/day to $2.16 per day. OSU Cowculator6 was used to balance the ration.

******Management costs, based on Wallowa County experiences, include

Managers time spent in spring and early summer (.5 person X 4 months) time spent working on putting out rag boxes, fladry use, increased checks during calving, time with ODFW and Wildlife Services on depredation losses, the time in meetings and work sessions related to permits and other programs. Delayed turnout requiring additional feed period close to buildings, use of telemetry to attempt to keep track of livestock when wolves were in close proximity. Disposing of livestock carcasses through county landfill, cleaning up bone piles by burying bone piles or removing to land fill. This time is focused, but not exclusively, during calving and early turn out season. Assume Managers salary and OPE @ $60,000.00 per year.

Employee time is based on the need for additional rider and range work. Assumes April when turn out starts in the county through December when the majority of cattle have been gathered and are returned to headquarters or in the valleys. This employee would be riding in the areas where summer and fall pastures occur, dealing with the nervous cattle, keeping cattle where placed, aiding in cattle moves due to inability to use dogs, increased time fencing, etc.

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