Effects of Wolves and Other Predators on Farms in Wisconsin: Beyond Verified Losses by

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Introduction

Livestock depredations nationally or on a state level are usually insignificant when compared to total livestock production or losses to disease or other factors; 5 however, the impact to individual producers can be substantial (Breck and Meier 2004, Shelton 2004).

Shelton (2004) suggested that the value of depredated livestock from predators is the "tip of the iceberg" concerning the actual costs that predators impose on livestock producers. One such challenge relates to livestock carcasses that may be completely consumed or removed from the damage location resulting in missing livestock or non-verified losses. Bruscino and Cleveland (2004) state that the Wyoming Game and Fish Commission have long recognized the fact that not all livestock depredated by large carnivores are detected by producers or government agencies involved in livestock depredation management.

Bjorge and Gunson (1985) in Alberta suggested that cattle dying from predation are less likely to be detected than cattle dying from other causes, and they estimated that wolves caused 41% of cattle mortality during the summer grazing season. Oakleaf et al. (2003) on mountainous terrain in Idaho, reported that producers had a detection rate of 1:8 for calves depredated by wolves

wolf predation represented 34 % of calf mortality during the summer grazing period.

Stress

The regular presence of wolves in close proximity to livestock may result in a chronic stress situation for the domestic animals. Many infectious diseases result from a combination of viral and bacterial infections and are brought on by stress (Faries and Adams 1997). Stress can result in increased susceptibility to disease and weight loss, reduction in the value of the meat, and interfere with reproduction (Fanatico 1999).

In addition, the stress of being repeatedly chased/harassed by predators can cause cattle to abort, calve early or give birth to a weak calf (Dr. Gregory Palmquist, personal 7 communication). Repeated harassment by predators may alter livestock behavior and increase operational costs. Cattle may become difficult to handle, cow dogs may become ineffective for herding, cows that lose calves to wolves may have spoiled teats and have to be culled, livestock may be chased through fences, constant harassment may result in decisions to move livestock to different pastures, and cows may not rebreed the following season (Howery and DeLiberto, 2004).

Howery and DeLiberto (2004) have suggested indirect effects of carnivores on livestock foraging behavior including reduced forage efficiency, greater time spent on vigilance, and possibly selection of poorer habitat and diet to avoid predators. Research on elk *(Cervus elaphus)* and bison (*Bison bison)* in Yellowstone showed that these ungulates did spend more time in vigilance and less at foraging after wolves were reintroduced , especially among cows with calves (Laundre et al. 2001,

Wolff and Van Horn 2003). The impact of stress of reduced foraging efficiency could reduce weight gain and survival of ungulates.

Harassment by predators may cause livestock to become nervous or aggressive.

Fence Maintenance and Repair

Cows may be stampeded through fences when wolves or other predators are actively harassing livestock. Such stampedes may injure cattle and cause additional time spent on fence repair.

Increased Surveillance of Herds

Farmers who have experienced depredation by wolves or other predators often spend extra hours on herd surveillance in addition to the extra time dealing with the damage. They are probably out earlier in the morning, many times during the day and late into the evening checking on cattle. Many hours may be spent trying to locate missing animals or remains to qualify for compensation. Something else may suffer due to lack of attention since they cannot afford to hire extra help to get the extra w

Limitations to moving cattle closer to barns or dwellings

Common recommendation for beef producers in areas experiencing wolf depredations is to move cattle closer to barns and human dwellings. This poses several problems. For one, it may increase risk of exposure to pathogens. For instance, it is widely accepted that post-partum cows and newborn calves should be moved to "clean" pastures as soon as possible following parturition (Dr. Jeff Lehmkuhler, personal communication). ork done. Such stress

Abortions and Disease Transmission Concerns

The role wolves and other predators play in spread of diseases is complex. Wolves and other predators may reduce spread of diseases that potentially affect humans and ungulates (Ostfeld and Holt 2004, Packer et al. 2003, Stronen et al. 2007, and Wild et al. 2005). Yet, wolves and other wild canids may be infected by *Neospora* (Gordim et al.2004a), Leptospirosis (Khan et al. 1991), and bovine tuberculosis (Carbyn 1982, Bruning-Fann et al. 2001) potentially increasing risk of disease transmission to livestock.