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Evaluation of Livestock Protection Dogs for Deterring Deer and Cattle Interaction

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EVALUATION OF LIVESTOCK PROTECTION DOGS FOR DETERRING DEER AND CATTLE INTERACTION

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Extended Abstract: Bovine Tuberculosis (bovine TB) in northern Michigan has proven a dilemma necessitating aggressive measures including depopulation of livestock operations, culling of wildlife, banning the feeding of wildlife, and fencing livestock feed with high fences. Bovine TB is believed to be transmitted from white-tailed deer (*Odocoileus virginianus*) to domestic cattle through feces, urine, saliva, and nasal secretions on contaminated feed (indirect transmission) and from animal to animal (direct transmission). Effective methods for excluding deer from cattle enclosures would minimize the potential for indirect and direct transmission of bovine TB between infected deer and cattle. We combined an idea used historically in Europe to control predation on sheep with the concept of modern frightening devices that often fall short when the motivation of offending species is high. The use of livestock protection dogs (LPDs) seemed like an ideal solution in controlling the transmission of bovine TB from white-tailed deer to cattle.

We felt LPDs raised and bonded with cattle would reduce use of cattle pastures and cattle feed by deer and minimize contact between deer and cattle, thereby reducing the potential for the transmission of bovine TB. We evaluated 4 LPDs over a 5-month period utilizing 2 primary data collection methods (direct observations and motion-activated video) on farmed deer facilities in Michigan. Following the initial evaluation of the LPDs, we relocated the dogs to working livestock operations in Michigan for further evaluation to gain an understanding of their practicality and long-term efficacy.

Pastures protected by dogs had fewer intrusions by deer, fewer "contacts" (within 5m) between deer and cattle, and lower use of cattle feed by deer. Overall, we successfully decreased the potential for disease transmission with 66% fewer intrusions by deer into protected pastures, 96% fewer "contacts" (within 5m) between deer and cattle, and 100% lower use of cattle feed by deer (based of observation data). Livestock protection dogs were more effective in protecting animals and their immediate surroundings than excluding animals from entire study pastures. We found a strong treatment effect within the High Density Site; while within the Very High Density Site, we had high variability within intrusion rates at protected pastures and relatively low use of unprotected pastures resulting in no significant treatment effect. In conclusion, when properly trained and confined with the protected animals, LPDs minimize the potential for livestock to contract bovine TB from infected deer.

Key words: animal damage management, disease, exclusion, Great Pyrenees, LPD, *Odocoileus virginianus*, white-tailed deer

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