

Farm Yard and Rural Home Visitation by White-tailed Deer (*Odocoileus virginianus*): Implications for Mitigation of Disease Transmission to Cattle

Are R. Berentsen¹, Ryan S. Miller^{2*}, Mike R. Dunbar¹, Regina Misiewicz¹,
Jennifer L. Malmberg²

* Presenting author

¹ National Wildlife Research Center, Fort Collins, United States of America

² Centers for Epidemiology and Animal Health, Fort Collins, United States of America

In 1994 and 2005 *Mycobacterium bovis* (bTB) was found to be endemic in free ranging white-tailed deer (*Odocoileus virginianus*) populations in Michigan and Minnesota. Currently, the contact rate between cattle and deer, rates of farm visitation by deer, and co-use foraging resources by cattle and deer is not well understood.

To evaluate the extent to which deer and livestock may come in contact and potentially share forage resources farm yard visitation by white-tailed deer was investigated. Female white-tailed deer (N=27) were fitted with global positioning system collars programmed to record geographic locations every two hours for one year. Deer were collared adjacent to the bTB infected zone in Michigan's Lower Peninsula. In addition, data were collected on farm yard and rural home locations, farming practices, pastures used by cattle, timing of use, timing of feeding and locations of stored cattle feed.

Deer visited 42.3±10.2% cattle yards and 34.5±8.4% rural homes within their annual home range. Yard visitation varied among deer with 15% of deer accounting for 76% of all yard visits. Multiple visits of yards in the same day were common. Most visits occurred at night (74.0±8.6%) with the majority of these (60.3±8.5%) occurring after midnight. Visitation of farm yards increased through spring and peaked during fawning.

These findings suggest that frequency and timing of deer visitation should be incorporated into mitigation and control efforts to guard against potential transmission of bTB between cattle and deer. Deer visitation of multiple farms may contribute to local area spread of bTB and other pathogens. Focusing mitigation efforts, lethal or non-lethal, on individual deer that are most likely to visit farms may reduce potential bTB transmission to cattle and between farms.

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Contact: Ryan.Miller@rsmiller.net