University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

USDA Wildlife Services - Staff Publications

U.S. Department of Agriculture: Animal and Plant Health Inspection Service

2012

Deer-Activated Bio-Acoustic Frightening Device Deters White-tailed Deer

Aaron M. Hildreth
University of Nebraska-Lincoln, hildreta@gmail.com

Scott E. Hygnstrom
University of Nebraska-Lincoln, shygnstrom1@unl.edu

Kurt C. VerCauteren
USDA-APHIS-Wildlife Services, kurt.c.vercauteren@usda.gov

Follow this and additional works at: https://digitalcommons.unl.edu/icwdm_usdanwrc

Part of the Life Sciences Commons

Hildreth, Aaron M.; Hygnstrom, Scott E.; and VerCauteren, Kurt C., "Deer-Activated Bio-Acoustic Frightening Device Deters White-tailed Deer" (2012). *USDA Wildlife Services - Staff Publications*. 1515.
https://digitalcommons.unl.edu/icwdm_usdanwrc/1515

This Article is brought to you for free and open access by the U.S. Department of Agriculture: Animal and Plant Health Inspection Service at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in USDA Wildlife Services - Staff Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Deer-Activated Bio-Acoustic Frightening Device Deters White-tailed Deer

Aaron M. Hildreth and **Scott E. Hygnstrom**
School of Natural Resources, University of Nebraska-Lincoln, Lincoln, Nebraska
Kurt C. VerCauteren
USDA APHIS Wildlife Services, National Wildlife Research Center, Fort Collins, Colorado

ABSTRACT: White-tailed deer damage urban and suburban plantings as well as crops and stored feed. A high public demand exists for non-lethal control methods. Several frightening devices are available for deer and all can be categorized as auditory, visual, tactile, and biological. Several problems exist with frightening devices, including: effectiveness, acclimation, cost, and acceptance. We tested the efficacy of a frightening device that played pre-recorded distress calls of adult female white-tailed deer when activated by an infrared motion sensor. Potential benefits of the device are that deer are less likely to acclimate to animal-activated and infrequently projected calls and that distress calls may elicit a stronger and longer lasting response. We tested the product in DeSoto National Wildlife Refuge (DNWR) in eastern Nebraska and western Iowa during late winter 2010. We established 3 treatment sites and 3 control sites, each being 0.004 ha and located >0.6 km apart. At each site, we deployed deer-activated bioacoustics devices and motion-activated cameras to record deer responses to the devices. We maintained one 13-day pretreatment period (10 Mar - 22 Mar) and one 13-day treatment period (23 Mar - 4 Apr) and recorded breaches and feed consumption. The deer-activated bio-acoustic frightening device reduced deer entry into protected sites by 99.3% (δ = -558.00, P = 0.089) and bait consumption by 100% (δ = -75.20, P = 0.064). Unfortunately, small sample size (n = 3) and a natural decline in motivation of deer to access bait due to spring green-up diminished the statistical significance of results. The deer-activated bioacoustics device was effective, deer did not acclimate to the device, and the device was not invasive. The frightening device we evaluated demonstrated potential for reducing damage in disturbed environments and agricultural settings. The device currently is being marked as DeerShield by BirdGuard (http://www.deershieldpro.com/).

KEY WORDS: bio-acoustic, damage, frightening device, *Odocoileus virginianus*, white-tailed deer, wildlife damage management

Proc. 25th Vertebr. Pest Conf. (R. M. Timm, Ed.)
Published at Univ. of Calif., Davis. 2012. Pp. 337.

This paper has been published elsewhere, and further details are available in the full paper, published as follows:

HILDRETH, A. M., S. E. HYGNSTROM, and K. C. VERCAUTEREN. 2013. Deer-activated bioacoustic frightening device deters white-tailed deer. Human-Wildl. Interact. 7:*In Press*.

ACKNOWLEDGMENTS

We thank Greg Clements, Scott Groepper, Greg Phillips, and Dave Baasch for assistance. We thank Tom Cox, Mindy Sheets, and the staff at DNWR for access and assistance. Funding was provided by the United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, National Wildlife Research Center and the University of Nebraska-Lincoln School of Natural Resources.