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

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ABSTRACT: White-tailed deer (*Odocoileus virginianus*) damage urban and suburban plantings as well as crops and stored feed. Public demand for non-lethal control methods is high. Several frightening devices are available for deer, but problems exist with most, including: ease of application, cost, acclimation by animals, and public acceptance. Frightening devices that have the greatest likelihood of being effective incorporate mechanisms triggered by animal activation or bioacoustic alarm or distress calls. 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 to reduce the likelihood of dependence among treatments and associated controls. At each treatment site, we deployed deer-activated bioacoustics devices and motion-activated cameras to record deer responses to the devices. We maintained 1 13-day pretreatment period (10 Mar– 22 Mar) and 1 13-day treatment period (23 Mar– 4 Apr) and recorded breaches and consumption of feed by deer. 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/).

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Key Words: animal-activated, bio-acoustic, damage, frightening device, *Odocoileus virginianus*, white-tailed deer, wildlife damage management

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