

James, J.B., E.C. Hellgren, and R.E. Masters. 1999. Effects of Deterrents on Avian Abundance and Nesting Density in Electrical Substations in Oklahoma. *Journal of Wildlife Management* 63:1009-1017

Abstract: Power outages caused by wildlife at electrical substations can be a major financial burden for utility companies and cooperatives. Snakes, presumably preying on nesting birds, have historically been the major cause of wildlife-related outages at Western Farmers Electric Cooperative (WFEC) substations. We studied avian abundance, diversity, and nesting density, and investigated the efficacy of avian deterrents at 62 substations in the WFEC system in Oklahoma in 1996-97. Data from the first year of the study were consistent with this history: nesting densities and bird abundance were higher at heavily damaged substations (-0.3 incidents/yr) than moderately damaged or undamaged substations. Low-profile substations had more nests, higher bird abundance, and more damage than lattice-design substations. In the second year of the study, we tested 2 bird deterrents: electronic distress calls (noisemakers) and sodium-iodide lights. Neither deterrent was effective at reducing bird nesting or abundance, although noisemakers slightly reduced bird numbers inside the substations relative to the control. We do not recommend noisemakers or sodium iodide light arrays as bird deterrents at electrical substations.