

PROJECT REPORT

Project Title: Evaluation and control of wild turkey damage in California

Research Agency: University of California, Davis

Principal Investigator: M. Delwiche and T. Salmon

Budget: \$113,440

Background:

The wild turkey (*Meleagris gallopavo*) is a non-native bird, first released into California by ranchers on Santa Cruz Island in 1877. The California Department of Fish and Game (CDFG) released wild turkeys starting in 1908 with the intent of establishing a new species for hunting, and the releases continued until 1999, with most occurring between 1959 to 1999. During that period nearly 4,000 wild-caught birds from other western states were introduced to many locations ranging from San Diego County to Siskiyou County. As a consequence, wild turkeys are currently established in much of the lower elevation oak woodlands of the Sierra Nevada foothills and Coast Ranges, including the central coast, north coast through Mendocino County, south coast in San Diego County, and the foothills of the Klamath and Cascade mountain ranges of northern California. The wild turkey population has recently increased noticeably in many regions of the state. The latest CDFG research estimates there were 242,000 wild turkeys, up significantly from an estimated 100,000 birds a decade ago. This population increase is supported by data from Breeding Bird Surveys conducted in the spring by the US Fish and Wildlife Service and Christmas Bird Counts conducted in the winter by the Audubon Society. Both surveys show a marked upward trend in turkey numbers starting around 1980 and continuing through the present. Turkeys are now found in many locations where they were never previously observed (e. g., UC Davis campus in Yolo County). The growing wild turkey population and expanding range have resulted in conflict with human interests. Complaints include turkeys causing a nuisance in residential areas, damaging gardens and landscaping, and fouling yards and walkways. CDFG reports these problems have grown from rare to common in the past 5 years, especially in areas east and north of San Francisco Bay and in the Sierra Nevada foothills. Complaints of agricultural damage have also increased, particularly from wine grape growers. Primarily in response to these complaints, the state legislature adopted changes in 2004 to the Fish and Game Code (sections 4181 and 4188) which provided for the issuance of depredation permits to landowners. The permit would allow the killing of wild turkeys damaging crops or other property. The changes took effect in January 2005. Information on the success of depredation permits for controlling turkey damage is not available.

Objectives:

The overall goal of this research is to make an objective assessment of actual damage caused by wild turkeys in vineyards and to develop effective aversion strategies that could be used in vineyards and other agricultural areas, and perhaps be adapted for nonagricultural settings. The specific objectives of are:

1. Determine the extent and significance of damage to wine grapes by wild turkeys in California vineyards.
2. Identify wild turkey alarm and distress calls and evaluate their effect on foraging behavior.
3. Develop a field protocol for using broadcast alarm/distress calls in vineyards and measure the effect on damage levels.

Results and Summary:

The online grower questionnaire showed that 28% of respondents believed they had turkeys causing damage in their vineyard. It is possible that growers with turkeys in their vineyard were more inclined to complete the survey, but we have no evidence to prove or disprove this. Respondents with turkeys rarely used hunting or depredation permitted removal as a control tactic. It is possible, as was the case with several Napa Valley vineyards in this study, that hunting was not realistic due to the proximity to urban areas. It is also possible that many growers did not feel the level of damage was sufficient to warrant removal. Many respondents indicated that physical confrontation with dogs and exclusion by netting was most effective. In our study, all types of damage were more prevalent in the foothills region, which could be useful information for cooperative extension personnel and pest control advisors when allocating resources for education and assistance. Growers in the foothills could also more easily implement hunting as a control measure for turkeys since most of the vineyards were removed from urban areas. Another consideration for bird control was that damage was more concentrated in the perimeter vines of a vineyard. This raises the prospect of perimeter-focused control, such as perimeter-only bird netting. For predominately flying birds, like passerines, this may not be effective. However, for wild turkeys, which typically walk through a vineyard, perimeter netting might reduce damage. In spite of promising results from the call testing, broadcast calls which included turkey alarm putts, crow chick distress calls, and domestic turkey poult calls were not effective in reducing stripped damage in vineyards. In fact, stripped damage was marginally worse in treated sites. However, we believe that this was not a real effect of the treatments, but rather due to other anomalies in the experiment. First, the data showed that for the same sites treated in 2008, greater stripped damage also occurred in 2007. There was a similar effect for pecked damage, but plucked damage in 2007 was less for the same sites treated in 2008. Second, our documentation of turkey presence showed that turkey activity was highly irregular in several of our vineyards. Turkey evidence was completely absent from three vineyards in both years, and absent in one of the two years from three different vineyards. A few sites even had stripped damage even though no turkey evidence was found. This seems to indicate that other animals were responsible for some of the stripped damage measured in our study. Video recordings confirmed this, with raccoons recorded most frequently

causing damage. While our test of bioacoustic control for turkeys was ineffective, we feel that it warrants further investigation. Our search for wild turkey calls did not yield any that could be described as true distress calls and it was not possible for us to recreate the conditions necessary to elicit a distress call. Williams (1984) says the call is like the screaming of a bald eagle (*Haliaeetus leucocephalus*). It is unknown how wild turkeys would react upon hearing a distress call. We have received conflicting reports regarding the behavior of captured or injured wild turkeys; however, in light of positive results with other bird species, it would be worthwhile to test such a call.

CONCLUSION

Wild turkeys cause damage in California vineyards by stripping berries from the clusters. Many growers consider turkeys to be a problem, but video recordings indicated that other vertebrate pests such as raccoon and fox are to blame for some of the stripped damage. Turkeys did cause damage in several of the study vineyards, but the problem varied between sites and 12 was sporadic between years. Vineyards treated with broadcast calls showed no difference in stripped damage, though a wild turkey distress call, which was not obtained for this study, might be effective in reducing damage. Since stripped damage was greater in perimeter vines, netting on perimeter vines might reduce overall damage. In addition to netting, growers with damage from turkeys should consider dogs, roving patrols, and cannons or shooting.

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