

Wild Turkey & Northern Bobwhite Quail West Nile Virus Study, 2019

Introduction:

1. West Nile virus (WNV) has had devastating effects on numerous bird species since its introduction to North America in 1999.
 - a. Due to the declining trends in wild turkey and bobwhite quail populations in some states and recent research findings on WNV impacts to grouse populations, a group of partners created a study to answer the question:
 - b. Are wild turkey poults and bobwhite quail chicks susceptible to West Nile Virus?
 - c. Partners: Pennsylvania Game Commission, Southeastern Cooperative Wildlife Disease Study (SCWDS) in Athens, Georgia, University of Georgia, National Wild Turkey Federation, Pennsylvania Chapter NWTF & U.S. Fish and Wildlife Service Multi-State Conservation Grant Program.

WNV Inoculation Study of wild turkey poults & bobwhite quail chicks:

1. Day-old bobwhite quail from a reputable hatchery were used because there is no wild bobwhite quail population in PA.
2. The Pennsylvania Game Commission and National Wild Turkey Federation wild turkey biologists collected wild turkey eggs from 11 nests throughout PA (spring 2019). Eggs were hatched in a bio-secure facility at SCWDS in Athens, Georgia.
3. After hatching, blood sampling from some poults revealed maternal WNV antibodies were passed from the hen to poult providing these poults immunity to WNV for a 4- to 5-week period. After 5 weeks the antibodies were no longer present and poults were ready for clinical trials.
4. The 1st age class of 6-week old birds (both species) were inoculated with WNV (July 9, 2019) to determine their susceptibility to the virus: 12 poults + 10 quail chicks were inoculated with WNV; 12 poults + 4 chicks were inoculated with a sham (placebo). No birds died or showed external signs of infection during the 14-day trial. Birds were euthanized after the trial and necropsied. No lesions were found in any organs and no birds demonstrated clinical signs attributable to WNV.
5. The 2nd age class of 15-16 weeks old were inoculated (September 27): 12 poults + 10 chicks, with WNV; 12 + 4 with a placebo. No deaths or external signs of disease were detected. One turkey poult was euthanized during the trial due to an unknown illness. The cause of illness is still pending. (Lab is closed due to COVID-19.)
6. WNV was rarely isolated from any tissue samples. When it was, it was isolated & at VERY low levels.
7. **All inoculated birds showed resistance to & developed antibodies to WNV to protect them from the virus.**
8. 1-2 sham turkeys also developed antibodies (further analyses needed). No sham quail developed antibodies.
9. WNV levels in blood were TOO LOW to efficiently infect mosquitoes – both species. (That is, mosquitoes without WNV that take a blood meal from a turkey or quail chick, would NOT be a vector and would NOT infect other animals.)
10. SCWDS lab is closed due to COVID-19. Final results will be released once analyses are finalized but are expected to reveal no WNV related illnesses.