West Nile Virus Likely Does Not Impact Wild Turkey Poults

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- West Nile virus (WNV), an arthropod-borne virus, is most commonly transmitted through a mosquito bite, and affects humans and wildlife. Although 70-80% of infected people show minimal to no symptoms, since its introduction to North America in 1999, WNV has negatively affected numerous North American bird species populations, including Pennsylvania's state bird, the ruffed grouse.

- A 2015 experimental inoculation study documented 40% of the Pennsylvania wild ruffed grouse chicks that were inoculated with WNV developed severe illness during the 2-week experimental trial. All birds that survived to the trial endpoint developed heart and brain lesions that may have compromised survivability in these birds, including potentially decreased fitness and increased susceptibility to other causes of mortality, such as predation.

- In this 2019 experimental inoculation study, the susceptibility of wild turkey poults to infection with WNV and subsequent poult survival was investigated. In cooperation amongst the Game Commission, the Southeastern Cooperative Wildlife Disease Study, Department of Population Health at the University of Georgia, the National Wild Turkey Federation and a grant from the U.S. Fish and Wildlife Service, wild turkey eggs were collected throughout Pennsylvania and hatched at the University of Georgia (UGA).

- UGA researchers inoculated two age classes (~6-week-old and ~16-week-old) of the wild turkey poults with WNV (n=25) or placebo (n=19) and monitored poults for clinical signs over two weeks. Inoculated and placebo poults were in the same pens.

- No poults from either age class or group developed clinical signs attributable to WNV. Most microscopic lesions in organs were mild and unlikely to significantly contribute to illness and mortality in these poults.

- WNV levels in blood samples of inoculated poults of both age classes were low compared to more highly susceptible bird species, such as the American and fish crow.

- Two placebo poults (one in each age class) developed antibodies to WNV by the 14th day after inoculation, indicating these two placebo poults most likely became infected with WNV via bird-to-bird WNV transmission due to the close contact with the inoculated poults. However, these two placebo poults and all inoculated poults survived with no apparent adverse effects, and all inoculated poults developed WNV blood antibodies by the 14th day after inoculation.

Conclusion: UGA researchers determined that wild turkey poults are not highly susceptible to experimental WNV infection and likely do not serve as a reservoir host for mosquito transmission of WNV to other vertebrate species.

(Summarized from an abstract submitted for an oral presentation at the *2021 Wildlife Disease Association International Conference*: Susceptibility of wild turkeys to experimental West Nile virus infection, by Melanie R. Kunkel, Daniel G. Mead, Mary Jo Casalena, Mitchell Blake, Mark G. Ruder and Nicole M. Nemeth.)