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Guihong Fan* (guihong.fan@asu.edu), School of Mathematical and Statistical Science, Arizona State University, P.O.Box 871804, Tempe, AZ AZ 85287-1. *Impact of temperature and bird species diversity on the transmission of West Nile virus.*

West Nile virus is a typical infectious disease which can cause severe illness in humans or animals. Vectors like mosquitoes play a critical role in the transmission and spread of the diseases. We formulate a delay differential equation model for the transmission of West Nile virus between mosquitoes and avian hosts, which incorporates maturation delay for mosquitoes. Analytical analysis shows that vectors alone can force the system to oscillate under the impact of temperature. We also studied the impact of the bird species diversity. Our studies indicate that conservation of avian species diversity can help reduce human exposure to the virus. But on the contrary, bird species diversity also increases the chance for virus to survive and may be responsible for the repeated outbreak of the disease from year to year. (Received September 25, 2012)