

1096-VG-1218 **Suzanne Robertson*** (srobertson7@vcu.edu) and **Kevin Caillouet**. *The role of avian stage-structure in the transmission of West Nile virus.*

West Nile virus (WNV) has remained an annual public health concern in the United States since its introduction in 1999, yet the ecological triggers leading to seasonal outbreaks are not well understood. While the annual occurrence of WNV in humans has been associated with the end of the avian nesting season, no specific mechanism has been demonstrated to describe if and how the end of nesting leads to amplification of the virus. As birds within the first couple of weeks of hatching (nestlings) are extremely vulnerable to mosquitoes, they may be preferred over older birds, receiving a disproportionately high number of mosquito bites. While total avian population size increases throughout the season, nestling abundance declines at the end of the brooding season. This reduction in nestlings may concentrate mosquitoes on the last few remaining nestlings, significantly increasing the vector-host contact ratio for this stage. We develop a stage-structured differential equation model for WNV incorporating vector preference for specific host life stages, and investigate the impact of host selectivity as well as vector and host abundance on the timing of enzootic and epizootic WNV activity. (Received September 13, 2013)