VECTOR-BORNE AND ZOONOTIC DISEASES
Volume 7, Number 3, 2007

DOI: 10.1089/vbz.2006.0560

Mosquito Landing Rates on Nesting American Robins (*Turdus migratorius*)

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ABSTRACT

We measured mosquito landing rates on adult and nestling American robins at nests with infrared cameras in Washington, D.C., and Maryland, United States. Mosquitoes landed on nesting robins almost exclusively between dusk and dawn. The mean number of mosquito landings per night was higher for adults (123.3 ± SE 32.8) than nestlings (37.26 ± 14.8). The fraction of mosquitoes landing at a nest on nestlings increased with decreases in adult brooding. Oral swabs from nestlings at these and 13 other robin, Gray catbird, and house finch nests were negative for West Nile virus (WNV). These results show that landing rates were higher on adults and that parental brooding reduces the landing rates of mosquitoes on nestlings. Key Words: Cutex—Modeling—Vector-borne—Arbovirus(es)—West Nile. Vector-Borne Zoonotic Dis. 7, 437–443.

INTRODUCTION

BIRDS ARE THE PRIMARY HOSTS for many important mosquito-borne viruses, including Sindbis, St. Louis Encephalitis, Japanese Encephalitis, Eastern Equine Encephalitis, and West Nile viruses (WNV) (Stamm 1966). As of 1991, 79 of the 504 recognized arboviruses had been detected in birds (Calisher and Karabatsos 1988, Karabatsos 1985, Scott and Edman 1991). Though critical to the study of these arboviruses, the temporal and spatial patterns of mosquito feeding on birds remain poorly defined. This information, along with factors including mosquito abundance, lifespan, and vector competence, is key to understanding and predicting vector borne avian epizootics and reducing their impact on human and animal health (Anderson and May 1991).

The biting rate of vectors on birds is an influential parameter in determining R_0, the basic reproductive ratio of a vector-borne pathogen, which in turn determines the epidemic potential of a virus (Anderson and May 1991). Several studies have measured hourly mosquito abundances (Curtis 1953, Haddow and Ssenkubuge 1965, Happold 1965, Haufe 1952, Nasci and Edman 1981, Service 1971, Trueman and McIver 1986), and others have quantified *in situ* avian host seeking behavior of mosquitoes using caged birds (Blackmore and Dow 1958, Dow et al. 1957, Edman et al. 1972, Hodgson et al. 2001, Nelson et al. 1976). However, none of these studies measured the

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