

BIOLOGICAL SCIENCES - TERRESTRIAL

WEST NILE VIRUS EMERGENCE IN MONTANA, 2002^{TWS}

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Since it first emerged in North America (New York, 1999), 44 states and 5 provinces have detected West Nile Virus (WNV) in humans, birds, mosquitoes, horses, or other animals. Anticipating its emergence in Montana, five state agencies stepped up surveillance, improved laboratory capabilities, and increased educational efforts related to WNV. The first clinical case of WNV in Montana was initially reported 22 August 2002 in a horse near Shepherd and subsequently confirmed by supplemental laboratory testing 28 August 2002. Since then, WNV infection was confirmed in Montana among an additional 134 horses, one human, (two other Montana resident acquired the disease while visiting out of state) and two birds. Onset of clinical illness in the first human case was in mid-September. Although not isolated from any mosquitoes trapped at various sites across Montana, WNV has been reported in 26 counties in central and eastern Montana and is expected to reach across western Montana next year. West Nile virus is normally transmitted between birds and mosquitoes. Birds act as the reservoir and amplifying host. Of 51 birds tested among 14 species to date, we have detected West Nile virus in only 2 birds—a red-tailed hawk and a black-billed magpie. Different bird species respond differently when exposed to the virus, some becoming viremic and carrying the virus while not becoming sick (e.g. chickens); others, such as Corvids (crows, blue jays, and ravens), are very susceptible to the virus, readily developing an often-fatal clinical disease. Mosquitoes become infected by feeding upon viremic birds and subsequently infect other birds, humans, or horses. Although WNV has been detected in several species of mosquitoes in Montana, *Culex* spp. (i.e., *C. pipiens*), *Aedes* spp., and *Ochlerotatus* spp. are the principle agents WNV transmission. Once infected, mammals are considered to be “dead-end” hosts, as they typically do not develop a level of viremia capable of being infective. Some evidence also suggests possible direct bird-to-bird transmission. We attribute early recognition of emergence of WNV in Montana to increased public awareness. With several hundred documented cases in neighboring states (North Dakota, South Dakota, and Wyoming), Montana anticipated introduction of the disease and was not “taken by surprise.” Implications of the presence of WNV in Montana and future surveillance activity are discussed.