



Zoonotic & Environmentally Transmitted Diseases (ZED) Steering Committee

WASO Contacts

Integrated Pest
Management (IPM)
202-513-7183 (East)
970-225-3542 (West)

Public Health
202-513-7224

Risk Management
202-513-7214

Wildlife Health
970-225-3593

Web Resources

IPM Program:

<http://www1.nrintra.nps.gov/ipm/index.cfm>

Public Health:

<http://www.nps.gov/publichealth/intra/>

Risk Management:

<http://www.nps.gov/riskmgmt/>

Wildlife Health:

<http://www1.nrintra.nps.gov/BRMD/nativespecies/wildlifehealth/index.htm>

CDC:

<http://www.cdc.gov>

State and Local Health Departments:

<http://www.cdc.gov/mmwr/international/relres.html>

West Nile Virus General Information & Overview

WNV is our most recent experience with emerging mosquito-borne disease. While new to the United States, it is not an emergent disease outside the Western Hemisphere. The virus was initially isolated from the blood of a woman in the West Nile District of Uganda in 1937, and subsequently found in humans, birds, and mosquitoes during studies conducted in Egypt throughout the 1950s. WNV is closely related to others in the genus *Flavivirus* and family *Flaviviridae* responsible for Japanese encephalitis, Murray Valley encephalitis and St. Louis encephalitis. Birds are the natural reservoir host and serve in the amplification of the virus. WNV is maintained in a mosquito-bird-mosquito epizootic transmission cycle, while humans (and other mammals) are incidental, dead-end hosts. WNV is now recognized as the most widespread of all the flaviviruses and has been isolated in more than 40 species of mosquitoes in at least 30 countries across Africa, Asia, Europe, and North America.

Since its discovery in 1999, WNV, an exotic species, has firmly established itself in the continental United States: 44 states and the District of Columbia report evidence of the virus. However, mosquito-borne diseases are not new to the United States. There are records of malaria and yellow fever epidemics as early as the 1690's, and the period between 1793 and 1806 is referred to as the "yellow fever era" in America. Through persistent public health intervention neither disease is presently endemic in the United States. Prior to WNV, the last major outbreak of a mosquito-borne disease in the United States occurred in the Midwest during 1975, with more than 2,000 documented cases of St. Louis encephalitis and 142 deaths.

West Nile virus (WNV) poses a threat to wildlife species as well. Although humans, horses, and other animals can become ill from WNV, birds are the natural host for the virus. High avian mortality, not observed in WNV outbreaks in the eastern hemisphere, is being observed in the United States and Canada. Highest mortality has been observed in birds in the corvid family (crows, jays, and related species). Some raptor species also appear highly susceptible to WNV. Thus far, WNV has been detected in over 290 bird and 34 mammalian species, as well as two species of captive reptiles. Some reports estimate the number of birds that potentially die annually of WNV at well over a million. Monitoring bird populations and dead bird surveillance are important wildlife management activities that can be performed by NPS staff. Parks also offer excellent opportunities for use as outdoor laboratories for cooperative research on WNV. Park staff are encouraged to be observant for dead birds and to submit samples for diagnostic testing.

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