



# Special Report—West Nile Virus

## CAHFS

# CONNECTION

September 2012

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### HOLIDAY SCHEDULE

CAHFS will be open, but will have limited service on **Monday, November 12** in observance of Veteran's Day.

### West Nile virus (WNV) transmitted by mosquitos can cause serious disease in birds and mammals including humans.

#### WNV cases in horses and alpacas

As of September 17, 2012, 16 horses have been confirmed positive for WNV in California. The first case was detected the last week of July and new cases continue to occur weekly. This number of affected horses is over two times higher than at this time in 2011 (seven cases). The peak incidence of WNV in horses in California was in 2004 when 540 horses were found to be infected. Since 2004 there had been a declining or static number of detected cases yearly until this year. Longer periods of warmer weather are considered a contributing factor to the increased number. Five of the 16 horses have died or were euthanized. Fifteen of the horses were diagnosed by IgM ELISA on serum taken shortly after onset of clinical signs. One was confirmed only by PCR on brain and spinal cord. Most affected horses were under five years of age. None of the affected horses had been fully vaccinated for WNV in 2012. Several horses had a history of receiving WNV vaccines in 2010 and 2011 and one horse had received one dose of the two dose vaccine just two weeks before onset of signs. In addition, two adult alpacas with neurologic signs that were submitted for necropsy to the CAHFS laboratory were confirmed infected with WNV by PCR on brain.

Information on WNV in horses, number of cases seen in California and links to the USDA web site with information on WNV in horses by state, and the California Department of Public Health WNV tracking page are available via the California Department of Food and Agriculture web site at [http://www.cdffa.ca.gov/ahfss/Animal\\_Health/WNV\\_Info.html](http://www.cdffa.ca.gov/ahfss/Animal_Health/WNV_Info.html)

#### WNV infection in psittacines

WNV infection is well known in certain species of birds such as corvids (crows, ravens, jays, magpies) and raptors but psittacines are also susceptible. CAHFS has diagnosed more than 70 cases of WNV in psittacines since 2004. Clinical signs are non-specific and can range from anorexia, lethargy and loss of weight to sudden death. Enlarged liver and spleen are common postmortem changes with histologic lesions of nephritis, myocarditis, enteritis and pancreatitis. RT-PCR on the kidney and immunohistochemistry on several tissues are used for diagnosis of WNV at CAHFS.



#### Testing for WNV

##### IgM capture ELISA

This test is only performed on serum from clinically ill horses and does not work on other species. The test detects acute infections usually within six days and up to two months post-infection. The incubation period for WNV is 7-14 days in horses so usually at the time of onset of clinical signs, horses already have IgM antibody in the serum. Since vaccines stimulate IgG antibody the test will not detect vaccine induced antibody. The test is performed at CAHFS Davis site, takes two days to complete from set up, and the \$6.00 fee is paid for horses residing in California by a yearly grant to CAHFS from the California Department of Public Health.

## CAHFS Lab Locations

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Your feedback is always welcome. To provide comments or to get additional information on any of the covered topics or services, please contact Sharon Hein at [slhein@ucdavis.edu](mailto:slhein@ucdavis.edu).

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We're on the Web  
[www.cahfs.ucdavis.edu](http://www.cahfs.ucdavis.edu)

### PCR testing (polymerase chain reaction) on tissues

PCR can detect fairly low numbers of viral particles and can be performed on tissue specimens. The diagnostic tissues for horses, llamas, alpacas, sheep, goats and other mammals with neurologic signs is central nervous system (brainstem, cerebellum and spinal cord). PCR on cerebral spinal fluid is usually unsuccessful due to low amount of virus. Rabies should be included in the differential diagnosis for mammalian species. On avian species and ground squirrels the kidney is the preferred specimen.

### WNV vaccine efficacy screening

If owners want to determine if a vaccine has induced antibodies or if WNV testing is required for the purpose of sale or movement, an IgG test on serum is used and this is performed at the National Veterinary Services Laboratory (NVSL) in Ames, IA for a fee.

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### State-wide tracking of avian, human and equine WNV cases

The California Department of Public Health (CDPH) maintains a WNV website, <http://westnile.ca.gov/>. The site is updated continuously and shows numbers of WNV cases by county for all human (126 to date), wild bird, sentinel chicken, equine, ground squirrel and mosquito pools confirmed positive. The site also shows the number of cases by wild bird species with over 40 species confirmed positive in 2012. Comparison to the number of cases in past years is also available at the site. In 2012 the number of confirmed positives in most categories is two or more times higher than 2011 at this time. Reporting of dead wild birds can be done via the site or by calling 866-WNV-BIRD (866-968-2473). CDPH will determine if testing of the dead bird is warranted and arrange for a pick up if testing is needed. Dead wild birds should not be submitted directly to the CAHFS laboratories.

### Important web sites

California Department of Public Health

<http://westnile.ca.gov/>

California Department of Food & Agriculture (equine information on WNV)

[http://www.cdffa.ca.gov/ahfss/Animal\\_Health/WNV\\_Info.html](http://www.cdffa.ca.gov/ahfss/Animal_Health/WNV_Info.html)