

HAWAII STATE DEPARTMENT OF HEALTH

DISEASE OUTBREAK CONTROL DIVISION ENVIRONMENTAL HEALTH SERVICES DIVISION STATE LABORATORIES DIVISION

West Nile Virus Surveillance Report



I. Surveillance of West Nile Virus (WNV) in the Mainland United States:

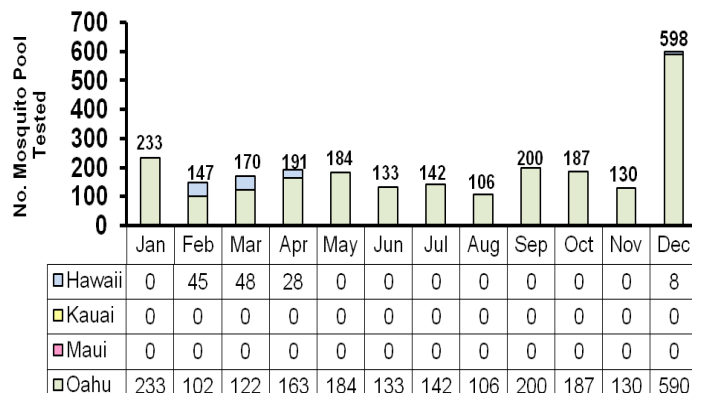
As of December 31, 2007, 47 states, Puerto Rico, and the District of Columbia have reported human, avian, animal, or mosquito WNV infections to the Centers for Disease Control and Prevention (CDC) ArboNET (National Mosquito-borne Disease Surveillance Database). There have been 3404 human cases reported to December 11, 2007 from 43 states. For more detailed information, refer to the CDC website at <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>.

* National data presented in this report are obtained from the CDC's Weekly WNV Summary.

II. Hawaii's Mosquito Surveillance:

Surveillance for WNV in mosquitoes continues on all islands. As of December 31, 2007, 2421 mosquito pools (~ 50 mosquitoes per pool) have been tested by reverse transcriptase polymerase chain reaction (RT-PCR) at the State Laboratories Division (SLD)

Mosquito Pool WNV Testing by RT-PCR - 2007
n = 2421



Neighbor Isle WNV Mosquito Pool Testing by RAMP - 2007
n=609

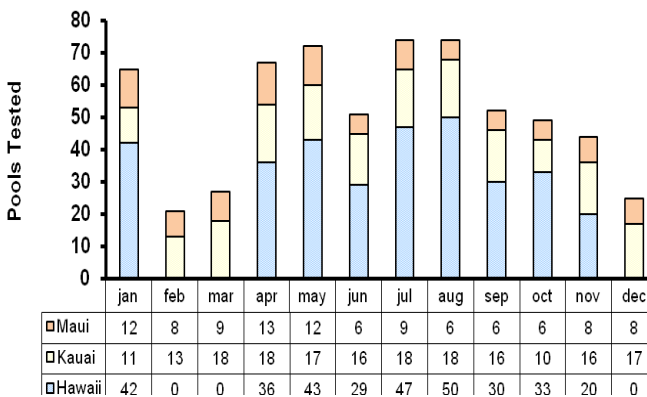


Figure 2

Figure 1

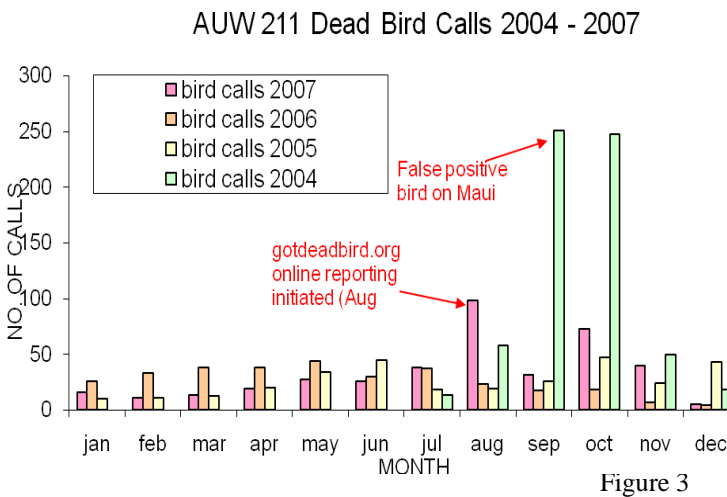
(Figure 1). Mosquitoes collected on Oahu are tested by RT-PCR. The neighbor island's pools are tested by the Rapid Analyte Measurement Platform (RAMP) method. For the months of February through April and December, the island of Hawaii shipped their mosquitoes to Oahu for RT-PCR testing. **All these mosquito pools have tested negative for WNV.**

As of December 31, 2007, 609 mosquito pools (12-50 mosquitoes per pool) in Maui, Kauai, and Hawaii have been tested by RAMP, and **all have tested negative for WNV** (Figure 2).

Mosquitoes are captured in special traps called gravid mosquito traps (Image 1). Gravid traps are designed to capture female mosquitoes that have had a blood meal (a blood meal is when a mosquito has bitten a person or animal and fed upon their blood) and are ready to lay their eggs. These traps are located near ports of entry, harbors, and wetlands.



III. Hawaii's Dead Bird Surveillance:



To Report a Dead Bird

The public is encouraged to report dead birds via the Aloha United Way (AUW) 211 number. As of December 31, 2007, AUW operators have fielded 397 calls from the public (Figure 3). Currently, the AUW 211 number is functional on all cell phone company networks on all islands.

Dead Bird Testing:

As of December 31, 2007, the average number of dead birds submitted for WNV testing at SLD per month was 16 with a total of 197 birds submitted for 2007. In comparison, the average in 2006 was 33/month (Figure 4). **All have been RT-PCR negative.**

Starting in mid January 2007, Oahu, Kauai, and Maui Invasive Species Councils have been picking up dead birds and submitting them for WNV testing. A similar pick up system will begin on the Big Island when staffing permits.

Bird Tissue WNV Testing by RT-PCR - 2007
n = 197

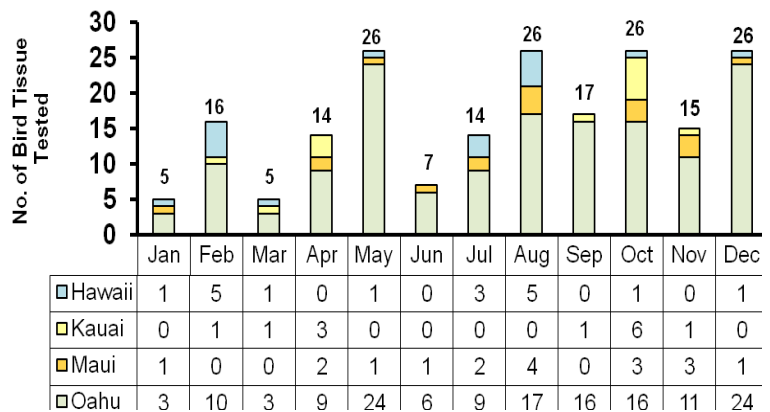


Figure 4

IV. Live Bird Surveillance

Live bird surveillance on Oahu is limited to the major ports of entry: Honolulu Airport, Dillingham Airfield, and Barber’s Point Airfield. In June 2006, testing of live birds was initiated at Maui’s Kahului airport, and in October 2006 testing of live birds was also initiated at Kauai’s Lihue Airport.

Live bird surveillance is a collaboration between many state and federal agencies including: the U.S. Department of Transportation (contract with the U.S. Department of Agriculture, Wildlife Services Division [USDAWS] to catch birds at all islands’ airports to prevent birds from hitting planes), U.S. Geological Survey (on Oahu –blood samples from these birds collected and tested for WNV at SLD), Department of Land and Natural Resources, and the Department of Health (on Maui - draw and ship blood samples from birds to SLD for testing). Kauai’s trapped birds are bled, and samples are shipped to Oahu through collaboration with USDA wildlife biologists.

Live Bird WNV Testing by ELISA - 2007
n = 3146

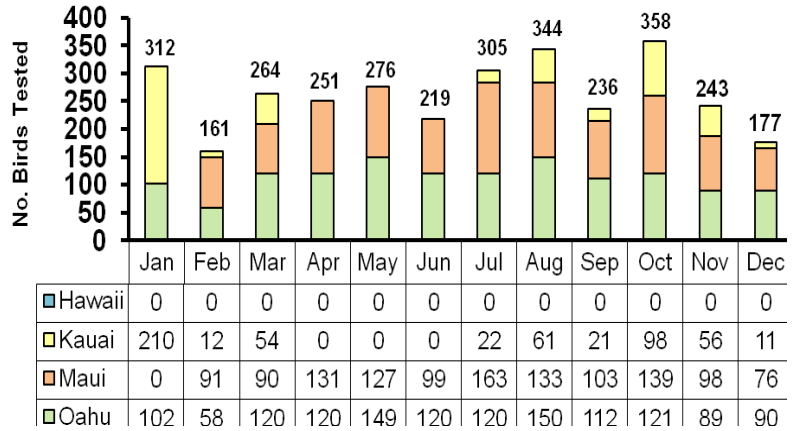


Figure 5

The target number of birds to capture and bleed is approximately 30 birds per week from each of these islands. The birds are captured, bled, and tested for WNV antibodies by a epitope-blocking enzyme-linked immunosorbent assay (ELISA) test at SLD (Figure 5). In 2006, 1406 live birds were tested for WNV antibodies as compared to 1214 live birds tested in 2005. As of December 31, 2007 there have been 3146 live birds tested for WNV. **All tests have been negative for WNV.**

Species of Live Birds Tested for WNV by ELISA
(through December 31, 2007)
n=3146

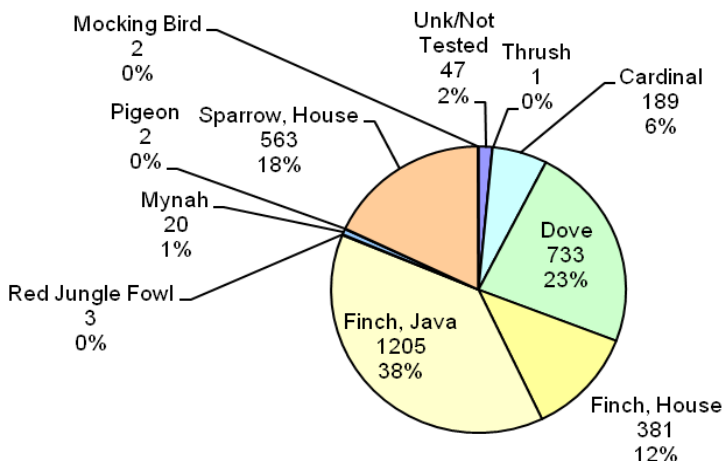


Figure 6

Staffing and supply shortages on Kauai and the Big Island have limited the numbers of birds collected so far this year. In contrast to dead bird surveillance testing, desirable species for live bird surveillance are those considered capable of surviving WNV infection. Figure 6 shows the species that were trapped and tested in 2007.

V. Equine Surveillance

The Hawaii Department of Agriculture mailed letters to all licensed veterinarians in Hawaii working with horses and requested surveillance for horses with signs of neurological disease. Serum (blood) samples are submitted to the Hawaii Department of Agriculture by private veterinarians from horses with clinical signs of WNV and tested at SLD. Two horses tested negative for WNV in 2007. In 2006, two samples were submitted and the test results were **negative**.

VI. Human Surveillance

DOH requests that physicians and diagnostic laboratories report neurological cases with symptoms consistent with WNV. In 2006, 14 samples were submitted for testing and were **negative** for WNV. As of December 31, 2007, there has been 10 samples submitted for testing. Only one tested positive for WNV IgG (imported case) the remaining 9 were negative for WNV antibodies. The Hawaii Blood bank also tests all donated blood collected in Hawaii for West Nile virus.

VII. Summary

The State of Hawaii is **currently WNV free**. The public can help tremendously by keeping areas around homes free of mosquito breeding sites. This can be accomplished by emptying standing water in old tires, bottles, and planter overflow trays; cleaning clogged rain gutters; and using mosquito eating fish in fish ponds and water gardens. For more information on ways you can control mosquitoes around your home visit the Vector Control web site at <http://www.hawaii.gov/health/environmental/water/vector/index.html>.

The public can also help by calling the AUW 211 hotline to report any dead bird they might find. For more information on WNV and to report a dead bird, **call 211** or visit the DOH website at www.hawaii.gov/health. The AUW 211 WNV hotline is operational from most land phones and ALL cell phones. It does not work from payphones. Alternate AUW WNV hotlines are 877-275-6569 (toll free), ASK-2000 (on Oahu), or 808-ASK-2000 (from neighbor islands).

NEW! One can also report dead birds on-line by going to www.gotdeadbird.org/ and filling out the on-line reporting form.

Mosquito cartoon on first page by Michael Furuya.