

Army Public Health Center (Provisional) Army Vector-borne Disease Report

9 September 2015

Data are preliminary and subject to change

- **West Nile Virus (WNV):** 415 cases have been reported to the CDC from 45 states; 1 previously reported case of WNV in an AD Soldier from Fort Bliss, TX has been reported in 2015.
- **Tick Testing:** RHCs and the DoD Human Tick Test Kit Program tested 1,096 ticks for *Borrelia burgdorferi*, the causative agent of Lyme disease: 210/1,012 (21%) of *Ixodes scapularis* ticks were positive; all *I. pacificus* ticks were negative (0/84).

West Nile Virus United States

- From the beginning of the year through 1 September 2015, 415 human WNV cases have been reported to the CDC, including ten deaths.
- 226 of the 415 (55%) cases were classified as neuroinvasive (i.e., meningitis or encephalitis); the remaining 189 (45%) were non-neuroinvasive.
- As of 1 September, 45 states report WNV activity of some type (infections in humans, birds, or mosquitoes), an increase of 9 additional states compared to the last report published on 7 August 2015.
- Given widespread WNV activity, standing water should be removed from around homes and work sites to prevent mosquito breeding. Before spending time outside, apply mosquito repellent containing 20-30% DEET or 20% picaridin to exposed skin, and wear protective clothing.



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| WNV Human Cases [§] | | | |
|---|-------------------------------|-----------|------------------------|
| Population | Reporting Period [¥] | Cum. 2015 | Cum. 2014 [^] |
| United States | 377 | 415 | 1,052 |
| Army Cases [‡] Confirmed and Probable | | | |
| Army AD [‡] | 0 | 1 | 1 |
| Army Non-AD [‡] | 0 | 0 | 0 |
| WNV Human Deaths | | | |
| United States | 0 | 10 | 16 |
| Army | 0 | 0 | 0 |

Sources: CDC 01 SEPT, DRSI 2 SEPT 2015
Note: Reporting location may differ from exposure location.

[§] Confirmed and probable neuroinvasive and non-neuroinvasive cases.

[¥] Difference between last published and this week's cumulative 2015 value.

[‡] Only cases whose case status is verified as confirmed/probable.

[‡] Active duty, recruits, cadets.

[^] Cumulative through 29 AUG 2014.

US Army

- 1 previously reported case of WNV in an AD Soldier from Fort Bliss, TX has been reported in 2015.

DoD Mosquito Surveillance from Army Laboratories

- 41/706 (6%) total mosquito pools tested from RHC-Atlantic were positive for WNV, an increase of 34 positive pools from the last report. Since the prior report, two additional mosquito pools from RHC-Central tested positive for WNV, bringing the cumulative percent positive to 3% (14/530).
- Given the case of WNV in an AD Soldier from Fort Bliss, TX, enhanced mosquito pool testing for WNV has been implemented in the Fort Bliss area.
- 20 mosquito pools collected in RHC-C and 35 mosquito pools collected in RHC-A were tested for chikungunya virus. All mosquito pools tested negative for chikungunya virus.
- Coinciding with this report, Public Health Command Regions transformed to Regional Health Commands. Mosquito surveillance data is displayed according to the region where the sample was collected, regardless of testing region.

| WNV Mosquito Pool Testing | RHC | Reporting Period [¥] | Year to Date 2015 | ¥ Absolute difference between last published report and this week's year to date number. |
|---------------------------|----------|-------------------------------|---------------------------|--|
| | | No. Positive (No. Tested) | No. Positive (No. Tested) | |
| | Atlantic | 34 (228) | 41 (706) | |
| | Central | 2 (120) | 14 (530) | |

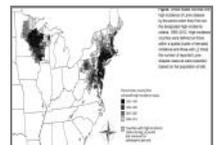
Source: Official Communication

DRSi Surveillance

- In 2015, 55 cases of Lyme disease have been reported in Army AD members and beneficiaries as of 2 September as compared to 79 cases during the same time period in 2014. Of the 55 cases, 20 (36%) were AD, five of whom reported duty-related exposure.

Army Tick Testing

- 726 *Ixodes scapularis* ticks from RHC-Atlantic were tested for *Borrelia burgdorferi*, the pathogen that causes Lyme disease, and *B. miyamotoi*, which produces symptoms typical of tick-borne relapsing fever. 131 (18%) tested positive for *B. burgdorferi* and 7 tested positive for *B. miyamotoi*. The positive ticks were collected from a variety of sources (deer, dogs, cats, environment) from Fort A.P. Hill, VA, USMA West Point, NY, Fort Drum, NY, and Fort Bragg, NC.
- As of 24 August, 84 *I. pacificus* ticks from RHC-Pacific were tested for *B. burgdorferi*; all ticks tested negative.
- As of 21 August, 286 *I. scapularis* ticks have been submitted to the Department of Defense Human Tick Test Kit Program and tested for *B. burgdorferi*. Overall, 28% (79/286) of these ticks were positive, and of these, 5 were co-infected with *Babesia microti*, the agent of Babesiosis, and 6 were co-infected with *Anaplasma phagocytophilum*, the agent of human granulocytic anaplasmosis.



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Research

- A recently published article, "Geographic Distribution and Expansion of Human Lyme disease, United States," indicates that Lyme disease is found mainly in the Northeast and upper Midwest, with a notable increase in geographic expansion of counties at high risk for human Lyme disease occurring since 1993. The map and its corresponding study can be found [here](#).

Disclaimer: As Public Health Command Regions transform to Regional Health Commands, entomology data will be reported and displayed according to the region where the test samples were collected, regardless of testing region.

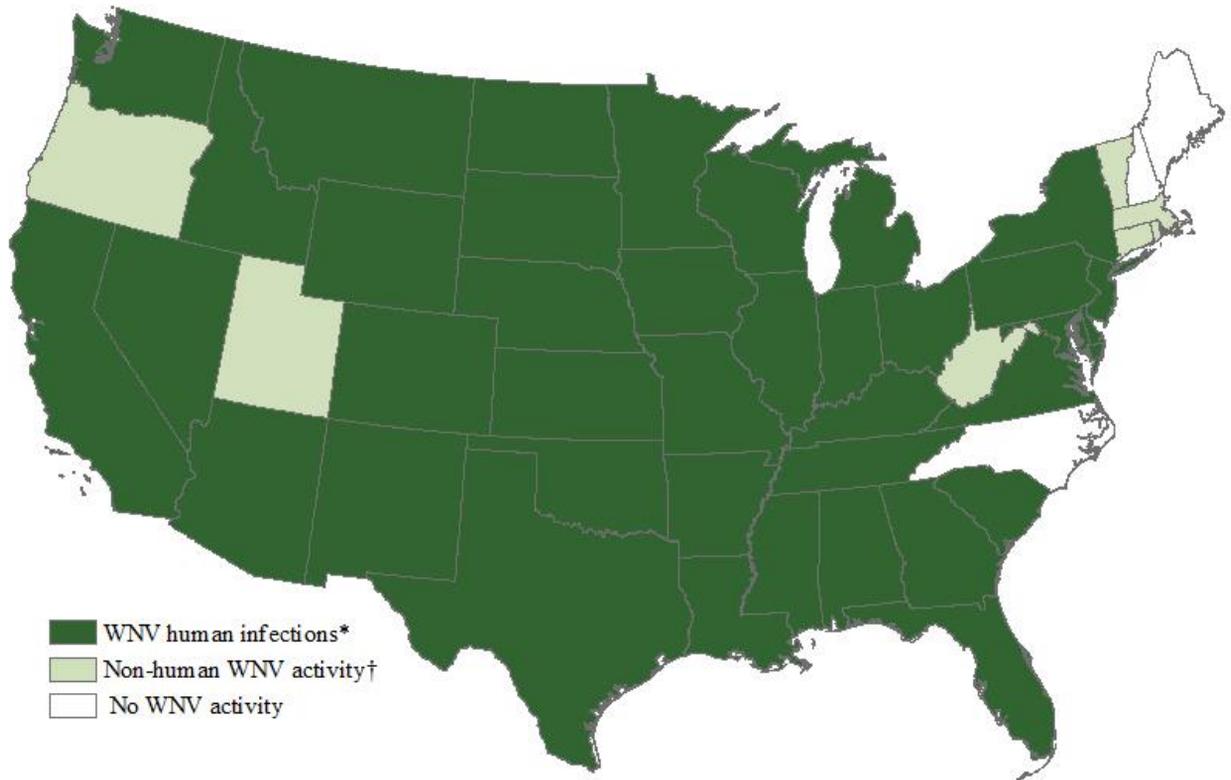
Resources: CDC WNV • CDC Tickborne Diseases • Human Tick Test Program • USAPHC WNV Fact Sheet • Army Vector-borne Disease Reports • USAPHC

Key: CDC Centers for Disease Control and Prevention; DRSi Disease Reporting System Internet; Mosquito pool 1 to 50 mosquitoes; AD Active Duty

Contact us: USAPHC Disease Epidemiology or 410-417-2377

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West Nile Virus Activity by State – United States, 2015 (as of September 1, 2015)



*WNV human disease cases or presumptive viremic blood donors. Presumptive viremic blood donors have a positive screening test which has not necessarily been confirmed.

†WNV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals.

Data table:

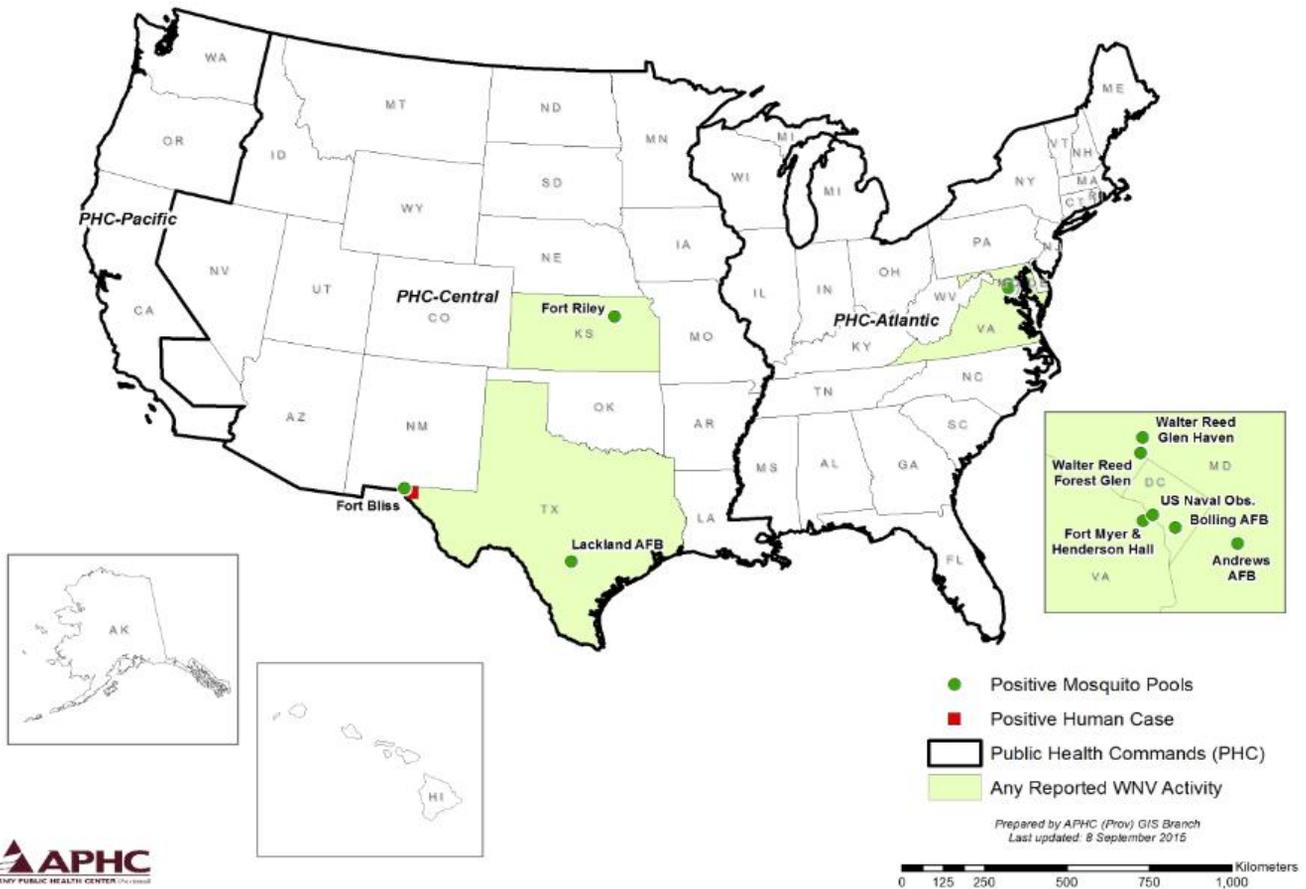
WNV infections in **mosquitoes, birds, sentinel animals, or veterinary animals** have been reported to CDC ArboNET from the following states: California, Florida, Idaho, Illinois, Indiana, Michigan, Mississippi, Missouri, Nebraska, Nevada, New York, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Utah, Washington, and Wisconsin.

West Nile virus infections in **humans** have been reported to CDC ArboNET from the following states: Arizona, Delaware, Kansas, New Mexico, Oklahoma, South Dakota, and Texas.

Source: <http://www.cdc.gov/westnile/statsMaps/preliminaryMapsData/activitystatedate.html>

West Nile Virus Activity, by State and Army Regional Health Command (RHC), United States, 2015

As of September 4, 2015



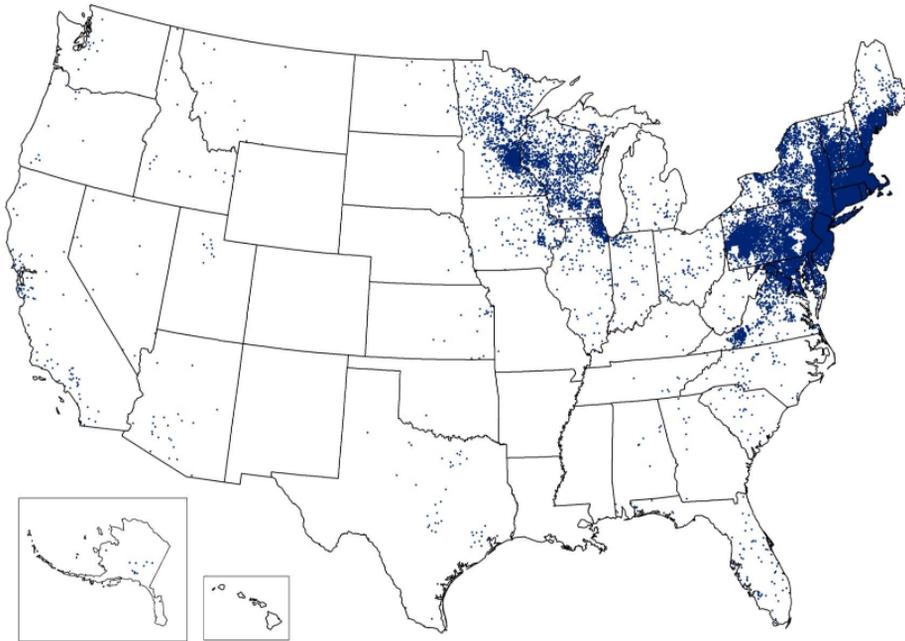
Footnote: The map displays white areas that indicate no reported West Nile virus (WNV) activity. Light green areas represent any reported WNV activity* within a state and dark green circles represent WNV positive mosquito pools on military installations. If West Nile virus infection is reported from any area of a state, that entire state is shaded light green.

*Includes WNV Army human disease cases (probable and/or confirmed) and infections in mosquito pools on military installations.

Prepared by: US Army Public Health Command Geographic Information Systems Branch.

Reported Cases of Lyme Disease—United States, 2013

One dot is placed randomly within the county of residence for each confirmed case. Though Lyme disease cases have been reported in nearly every state, cases are reported based on the county of residence, not necessarily the county of infection.



1 dot placed randomly within county of residence for each confirmed case

National Center for Emerging and Zoonotic Infectious Diseases
Division of Vector-borne Diseases | Bacterial Diseases Branch



This figure shows the reported cases of Lyme disease in the United States in 2013. Lyme disease is the 5th most commonly reported Nationally Notifiable disease nationwide. Of all vectorborne diseases, Lyme disease is the most commonly reported; however, 95% of cases in 2013 were reported from only 14 states in the Midwest, Mid-Atlantic, and Northeastern regions of the US. These states include Connecticut, Delaware, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and Wisconsin.

Source: Lyme Disease Data. Centers for Disease Control and Prevention. Last updated March 4, 2015.
Available at: <http://www.cdc.gov/lyme/stats/index.html>.

Geographic Distribution and Expansion of Human Lyme Disease, United States

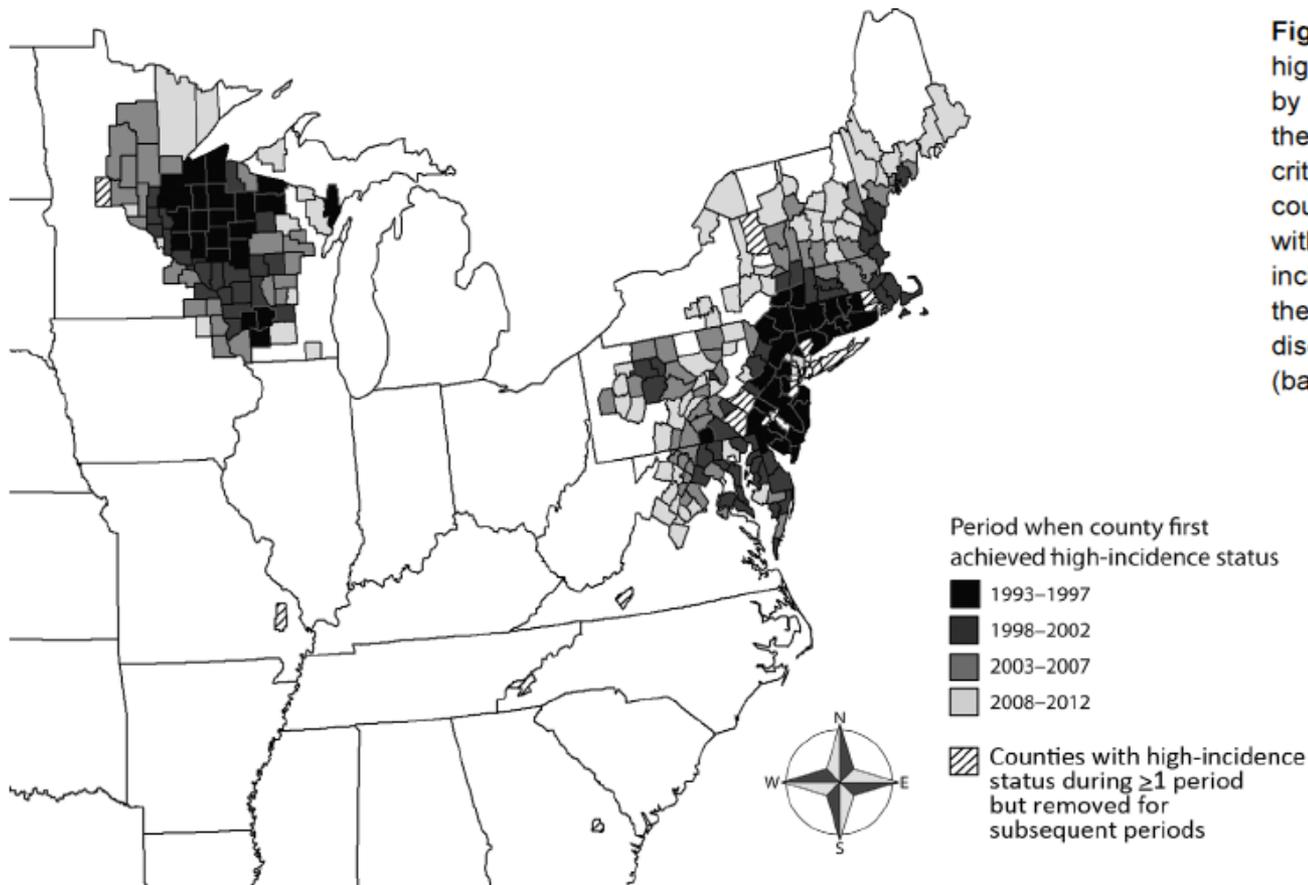


Figure. United States counties with high incidence of Lyme disease by the period when they first met the designated high-incidence criteria, 1993–2012. High-incidence counties were defined as those within a spatial cluster of elevated incidence and those with ≥ 2 times the number of reported Lyme disease cases as were expected (based on the population at risk).

United States counties with high incidence of Lyme disease by the period when they first met the designated high-incidence criteria, 1993-2012.

Source: Kugeler KJ, Farley GM, Forrester JD, et al. *Emerg Infect Dis*. August 2015; 21(8): 1455-1457.

Available at: <http://wwwnc.cdc.gov/eid/article/21/8/pdfs/14-1878.pdf>