

IOWA STATE UNIVERSITY

OF SCIENCE AND TECHNOLOGY

College of Agriculture and Life Sciences

Department of Entomology

December 9, 2019

Monona County Public Health
Attn: Sandy Bubke

Dear Sandy,

I would like to personally thank you for your participation in our mosquito surveillance efforts for the state of Iowa in 2019. As a continuing partner for this year, we sincerely appreciate your time and continued efforts towards surveying mosquito populations in Monona County.

Attached to this letter is a quick summary of your trapping efforts for 2019 to provide some justification for your efforts over the past summer. Since its introduction into the state in 2002, we have continually monitored mosquito abundance and WNV activity to better understand WNV transmission dynamics in Iowa. This is especially important for western Iowa, which has continually seen the highest number of human WNV cases in the state. This program truly relies on your continued support and efforts, and wanted to thank you again. I look forward to working with you again next year!

Please feel to contact me if you have any questions regarding the report and its contents.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Smith', written in a cursive style.

Ryan C. Smith, Ph.D.

Ryan C. Smith, Ph.D., Assistant Professor

Department of Entomology
Iowa State University
Ames, Iowa 50011

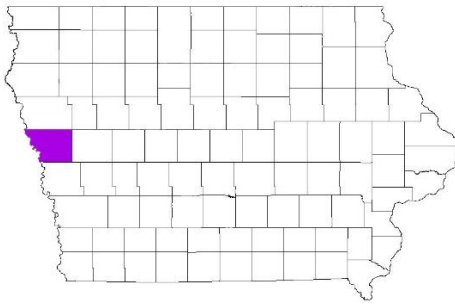
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Iowa WNV Surveillance

Monona County



Total Mosquitoes: **3,413**
Total Mosquitoes Tested: **704**
Total Mosquito Pools Tested: **80**
West Nile Positive Pools: **0**

WNV Trapping Summary: 2019

The Monona County Public Health Department participated in WNV surveillance efforts by trapping mosquitoes from May 30 to September 27, 2019 at the above locations. Three different trap types were utilized to monitor mosquito populations. The New Jersey Light trap (NJLT) at Mapleton ran for a total of 115 nights, the gravid trap at Mapleton 91 nights, and the CDC trap at Onawa ran for 95 nights.

| Site Name | Trap Type | Latitude | Longitude |
|-----------|-----------|------------|-------------|
| Mapleton | NJLT | 42.129390° | -95.697250° |
| Mapleton | Gravid | 42.129390° | -95.697250° |
| Onawa | CDC | 42.030220° | -96.067010° |

Of the 3,413 mosquitoes that were collected as part of the WNV surveillance efforts this summer in Monona County, 15% (503) of the total were from the NJLT, 3% (97) were from the gravid trap, and 82% (2813) were from the CDC trap.

The NJLT trap collected a majority of mosquitoes belonging to the *Culex pipiens* group. This species group is considered a primary transmitter of West Nile virus (WNV) and commonly feeds on both humans and birds. The CDC yields were dominated by the ever-abundant *Aedes vexans*, a very common biting pest of humans that does not transmit human disease agents. This species is extremely common throughout Iowa and shows significant population booms after rainfall events. Notably, the second-most abundant species collected was *Cx. tarsalis*, a species thought to be the most important for WNV transmission in western Iowa that is difficult to capture in gravid traps. The gravid trap collected mosquitoes only pertaining to the *Culex* genus, with the most abundant species being *Cx. pipiens* group. The second-most abundant species was *Cx. restuans*, a cold tolerant mosquito that is thought to feed on birds and serve as early summer amplifiers of WNV.

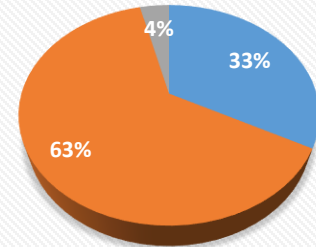
For West Nile virus testing, relevant species were pooled into groups of 50 or less mosquitoes that came from the same trap site and week-of-the-year. 80 mosquito pools containing 704 mosquitoes were tested from Monona County, of which, zero mosquito pools tested positive for the virus, resulting in a county wide MIR of 0. The MIR measures infection rate per 1,000 mosquitoes. This coincides with reduced WNV activity throughout the state for 2019.

IOWA WNV SURVEILLANCE

Mosquitoes Per Trap: Monona County

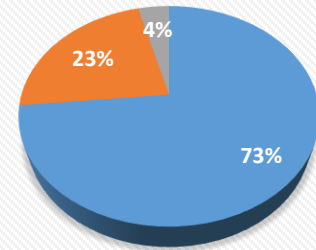
| Species | Mapleton (NJLT) | Onawa (CDC) | Mapleton (Gravid) | Total |
|----------------------------|-----------------|-------------|-------------------|-------|
| <i>Aedes species</i> | 20 | 11 | 0 | 31 |
| <i>Ae. sollicitans</i> | 3 | 327 | 0 | 330 |
| <i>Ae. trivittatus</i> | 1 | 38 | 0 | 39 |
| <i>Ae. vexans</i> | 141 | 1689 | 0 | 1830 |
| Aedes subtotal | 165 | 2065 | 0 | 2230 |
| <i>Cx. pipiens</i> | 0 | 1 | 9 | 10 |
| CPG | 297 | 70 | 51 | 418 |
| <i>Cx. restuans</i> | 0 | 0 | 35 | 35 |
| <i>Cx. tarsalis</i> | 22 | 564 | 2 | 588 |
| Culex subtotal | 319 | 635 | 97 | 1051 |
| <i>Anopheles species</i> | 0 | 1 | 0 | 1 |
| <i>An. punctipennis</i> | 0 | 5 | 0 | 5 |
| <i>An. quadrimaculatus</i> | 0 | 25 | 0 | 25 |
| <i>Cq. perturbans</i> | 3 | 9 | 0 | 12 |
| <i>Cs. impatiens</i> | 3 | 2 | 0 | 5 |
| <i>Cs. inornata</i> | 13 | 55 | 0 | 68 |
| <i>Ps. ciliata</i> | 0 | 7 | 0 | 7 |
| <i>Ps. columbiae</i> | 0 | 8 | 0 | 8 |
| <i>Ps. cyanescens</i> | 0 | 1 | 0 | 1 |
| Other subtotal | 19 | 113 | 0 | 132 |
| Grand total | 503 | 2813 | 97 | 3413 |
| Trapping events | 50 | 30 | 29 | 109 |
| Trap nights | 115 | 95 | 91 | 301 |
| Trap index | 4.37 | 29.61 | 1.07 | 11.34 |

Mosquitoes Collected: NJLT



■ Aedes species ■ Culex species ■ Other species

Mosquitoes Collected: CDC



■ Aedes species ■ Culex species ■ Other species

West Nile Virus Results: Monona County

| Specimens | | Pools | | | MIR |
|-----------------------|------------|-----------|-----------|----------|----------|
| Species | Total | Total | WNV- | WNV+ | MIR |
| CPG | 111 | 34 | 34 | 0 | 0 |
| <i>Cx. pipiens</i> | 10 | 3 | 3 | 0 | 0 |
| <i>Cx. restuans</i> | 35 | 10 | 10 | 0 | 0 |
| <i>Cx. salinarius</i> | 0 | 0 | 0 | 0 | 0 |
| <i>Cx. tarsalis</i> | 548 | 33 | 33 | 0 | 0 |
| <i>Cx. territans</i> | 0 | 0 | 0 | 0 | 0 |
| Total | 704 | 80 | 80 | 0 | 0 |

| Site | MIR |
|-------------------|----------|
| Mapleton (Gravid) | 0 |
| Onawa (CDC) | 0 |
| Total | 0 |