

IOWA STATE UNIVERSITY

OF SCIENCE AND TECHNOLOGY

College of Agriculture and Life Sciences

Department of Entomology

November 2, 2018

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 2018. As a continuing partner for this year, I sincerely appreciate your time and efforts towards surveying mosquito populations in Monona County and look to continue to build on these working relationships in the future.

Attached to this letter is a quick summary of your trapping efforts for 2018 to provide some justification for your efforts over the past summer. Since its introduction into the state in 2002, we have continually monitored WNV transmission at Iowa State to better understand WNV transmission dynamics for the state. This is especially important for western Iowa which has continually seen the highest number of human WNV cases in the state. 2018 proved to be an important year for WNV surveillance, with the highest number of cases in Iowa since 2003. Now we have the challenge of trying to figure out what made this year so impactful, and will use your contributions to better understand how mosquitoes influence human health in the region. This program truly relies on your continued support and efforts, and wanted to thank you again. I look forward to potentially working with you again next year!

Please feel to contact me if you ever have any mosquito related questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. C. 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

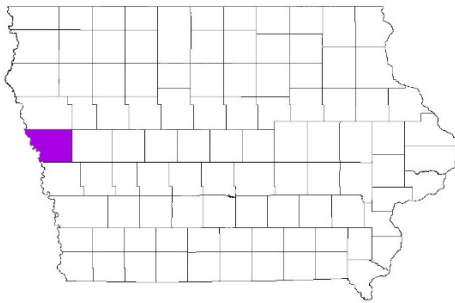
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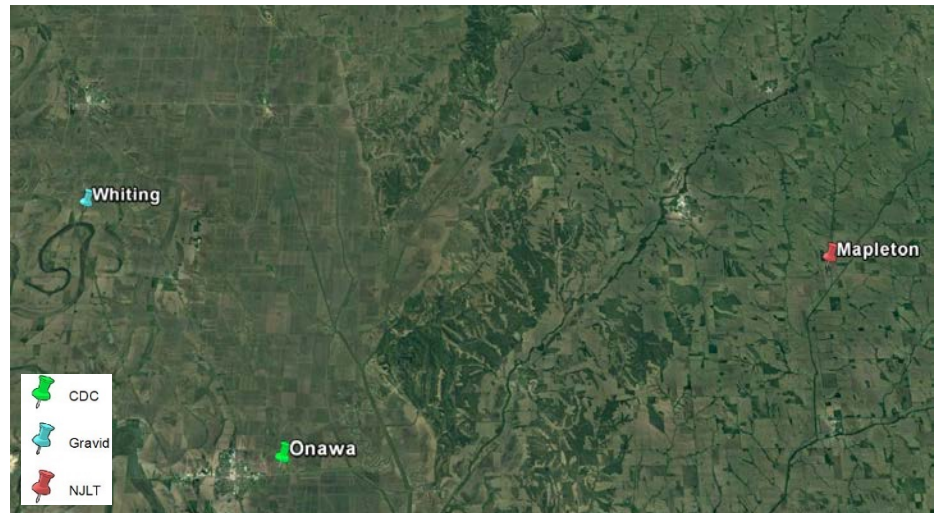
smithr@iastate.edu

Iowa WNV Surveillance

Monona County



Total Mosquitoes: **31,367**
Total Mosquitoes Tested: **2,322**
Total Mosquito Pools Tested: **159**
West Nile Positive Pools: **6**



WNV Trapping Summary: 2018

The Monona County Public Health Department participated in WNV surveillance efforts by trapping mosquitoes from May 23 to September 24, 2018 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 103 nights, the gravid trap at Whiting ran for 106 nights, and the CDC trap at Onawa ran for 86 nights.

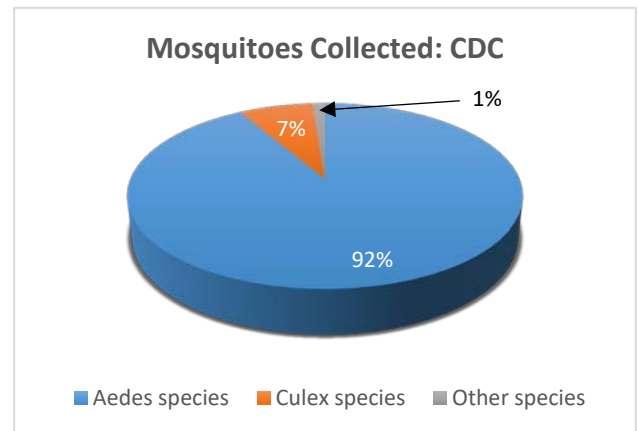
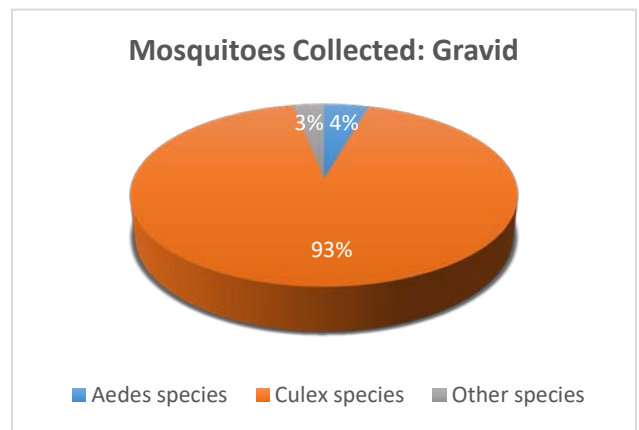
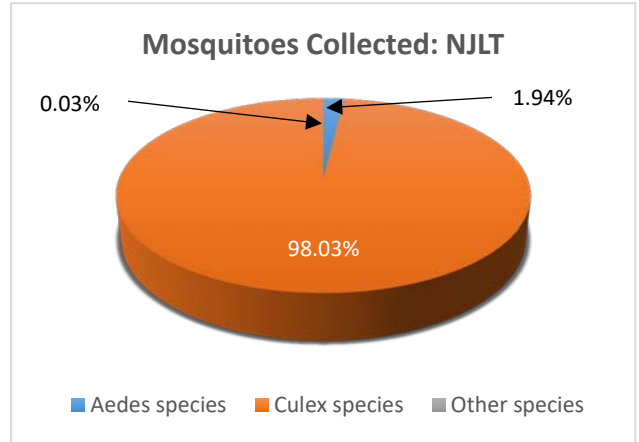
Of the 31,367 mosquitoes that were collected as part of the WNV surveillance efforts this summer in Monona County, 22% of the total were from the NJLT, 2% were from the gravid trap and 76% were from the CDC trap.

The NJLT yields were dominated by mosquitoes belonging to the *Culex pipiens* group. This species group is considered a primary transmitter of West Nile virus (WNV) that commonly feeds on both humans and birds. The CDC trap was highly effective at its trap location, collecting more 21,000 specimens. 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. Concurrently, the CDC trap collected the largest yield of *Cx. tarsalis*, an important vector of WNV transmission in Iowa. The gravid trap collected a majority of mosquitoes pertaining to the *Culex* genus, with the most abundant species being *Cx. restuans* and *Cx. pipiens*, both vectors of WNV in Iowa. *Cx. restuans* are thought to feed more on birds and serve as early summer amplifiers of the virus, while *Cx. pipiens* mosquitoes are more abundant in the warmer summer months and are primary transmitters of human 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. Of the 159 mosquito pools tested in Monona County, 6 mosquito pools tested positive for the virus. The gravid trap at Whiting was responsible for 5 positive pools, 4 of these pools were composed of *Cx pipiens* and one consisted of *Culex pipiens* group mosquitoes. The final positive pool also contained *Culex pipiens* group mosquitoes and was obtained from the CDC trap at Onawa. The mosquito infection rate for the county was 2.58 infected mosquitoes per 1000 sampled. This was the second lowest outcome of the 7 participating municipalities/counties.

IOWA WNV SURVEILLANCE

Species	Whiting (Gravid)	Onawa (CDC)	Mapleton (NJLT)	Total
<i>Aedes species</i>	0	0	5	5
<i>Ae. japonicus</i>	1	0	0	1
<i>Ae. sollicitans</i>	0	184	0	184
<i>Ae. trivittatus</i>	1	0	6	7
<i>Ae. triseriatus</i>	2	0	0	2
<i>Ae. vexans</i>	28	21635	121	21784
Aedes subtotal	32	21819	132	21983
<i>Cx. pipiens</i>	272	0	7	279
CPG	158	701	6595	7454
<i>Cx. restuans</i>	225	5	67	297
<i>Cx. salinarius</i>	0	3	9	12
<i>Cx. tarsalis</i>	12	998	10	1020
<i>Cx. territans</i>	3	1	0	4
Culex subtotal	670	1708	6688	9066
<i>Anopheles species</i>	0	7	0	7
<i>An. punctipennis</i>	6	3	2	11
<i>An. quadrimaculatus</i>	7	160	0	167
<i>Cq. perturbans</i>	9	69	0	78
<i>Psorophora species</i>	0	1	0	1
<i>Ps. ciliata</i>	0	52	0	52
<i>Ps. cyanescens</i>	0	2	0	2
Other subtotal	22	294	2	318
Grand Total	724	23821	6822	31367
Trapping events	106	86	103	295
Trap index	6.83	276.99	66.23	106.33



West Nile Virus Results: Monona County

Specimens		Pools			MIR
Species	Total	Total	WNV-	WNV+	MIR
CPG	838	53	51	2	2.39
<i>Cx pipiens</i>	266	23	19	4	15.04
<i>Cx restuans</i>	218	28	28	0	0
<i>Cx salinarius</i>	3	2	2	0	0
<i>Cx tarsalis</i>	993	49	49	0	0
<i>Cx territans</i>	4	4	4	0	0
Total	2322	159	153	6	2.58

Site	MIR
Whiting (Gravid)	7.89
Onawa (CDC)	0.59
Total	2.58