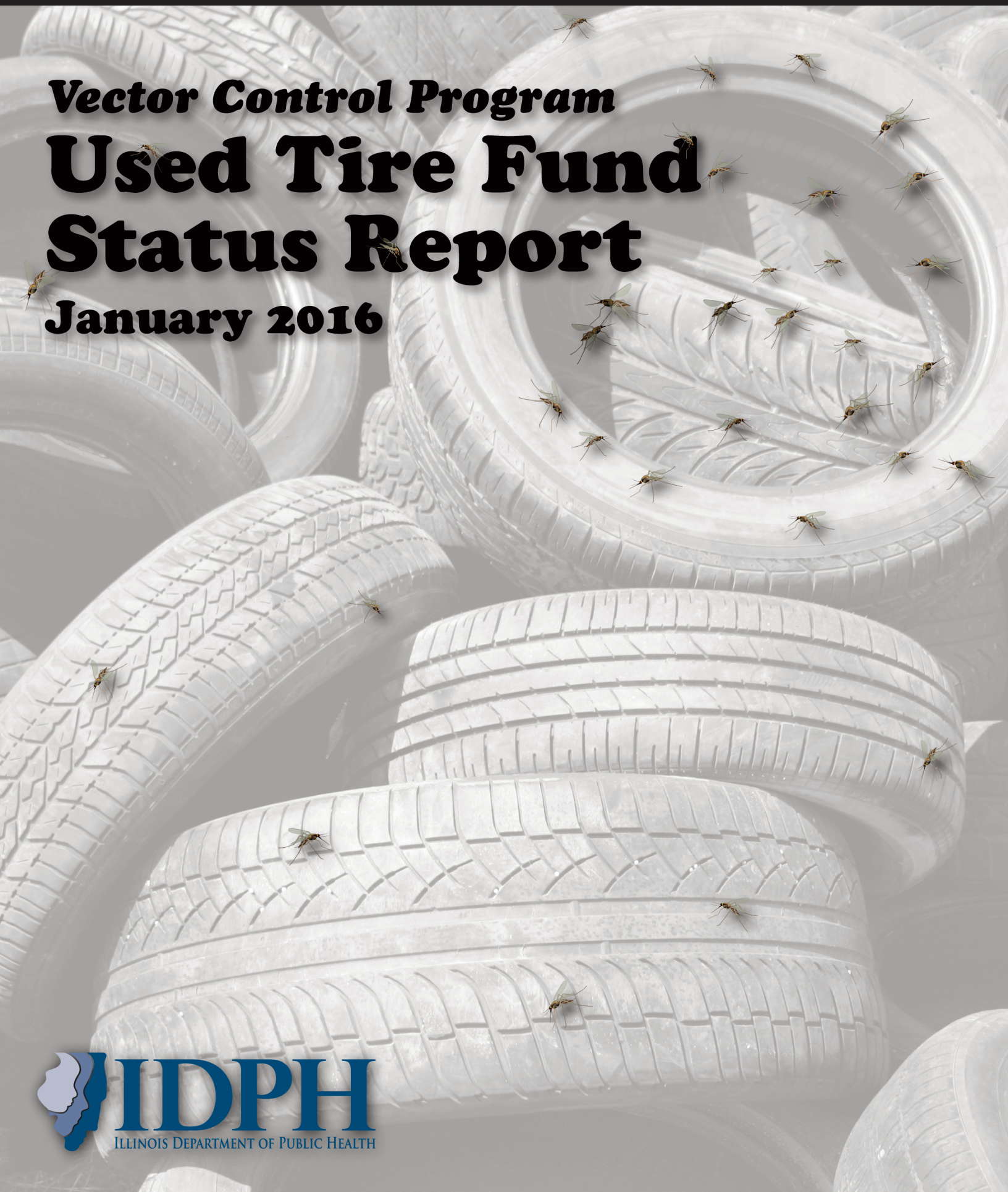
State of Illinois
Illinois Department of Public Health



Vector Control Program

Used Tire Fund Status Report

January 2016

IDPH
Illinois Department of Public Health

Used Tire Fund Status Report

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Legislative History

During 1988 and 1989, a committee of representatives from the Illinois Pollution Control Board, Illinois Environmental Protection Agency, the Illinois Departments of Agriculture, Energy and Natural Resources, and Public Health proposed changes to regulate the disposal of used tires and to establish research and vector control programs. One reason for the proposed regulations was the introduction of the Asian tiger mosquito (*Aedes albopictus*), a carrier of dengue fever in tropical climates, to the United States; the Asian tiger mosquito utilizes used tires as breeding sites. In September 1989, the Used Tire Act (ILCS 5/53 to 55.7a) and the Vector Control Law (ILCS 95/1 to 11) were passed by the Illinois General Assembly and signed by Gov. James R. Thompson. This legislation established the Used Tire Management Fund, which was expected to receive $2 million annually. The money was to be distributed as follows: 44 percent ($880,000) to the Illinois Environmental Protection Agency (IEPA) to regulate commercial used tire collection and reprocessing; 39 percent ($780,000) to the Illinois Department of Energy and Natural Resources (now the Department of Natural Resources - IDNR) for grants to private industry for recycling and energy generation and for research on mosquitoes associated with tires; 13 percent ($260,000) to the Illinois Department of Public Health (the Department) for mosquito-borne disease surveillance and grants to local health departments, and 2 percent each ($40,000) to the Illinois Pollution Control Board and the Illinois Department of Agriculture for their respective activities relating to used and waste tires.

Public Act 87-727 (415 ILCS 5/55.8 to 5/55.15), a 1991 amendment to the Used Tire Act, imposed a $1 tax on all new retail tire sales that provided IEPA and IDNR with about $1.5 million in additional funds. However, the Department's funding remained constant. Public Act 89-499, effective July 1, 1996, amended the Used Tire Act to increase the percentage of the Used Tire Management Fund available to the Department from 13 percent to 25 percent of the first $2 million collected or $500,000 per fiscal year. Also, Public Act 89-499 required the Department to submit a report to the legislature biannually beginning January 1, 1998, concerning its activities under the Used Tire and Vector Control Acts. This report fulfills that requirement for 2014 and 2015.

Introduction: Public Health and Mosquito-borne Diseases

West Nile virus fever or encephalitis (WNV), LaCrosse (California) viral encephalitis and St. Louis viral encephalitis (SLE) are the mosquito-borne diseases most likely to occur in Illinois. These infections are most common from June through October when mosquitoes are active. Although these viruses produce similar symptoms, they vary in severity and typically affect different age groups. Fortunately, only a few types of mosquitoes can transmit these kinds of viruses and usually only a small proportion of those mosquitoes actually carry the virus.

Historic data show that high summer temperatures are favorable to an increased risk of transmission of WNV (and the related St. Louis encephalitis virus - SLE) to humans. High temperatures increase the risk of a WNV or SLE outbreak because of rapid maturation of larvae, early abundance of the vector mosquito species - *Culex pipiens*, increased mosquito flight (blood-seeking) activity and rapid multiplication of the virus in *Culex* mosquitoes and domestic bird species such as crows, robins and sparrows. Furthermore, high temperatures (usually associated with low rainfall) increase stagnation in thousands of urban catch basins (storm sewers), ditches, and retention ponds, which makes many water impoundments more suitable for the prolific breeding of *Culex* mosquitoes. In contrast, heavy rainfall produces hordes of "floodwater mosquitoes" that are not important WNV vectors. Additionally, frequent heavy rains kill many *Culex* larvae by flushing catch basins

and similar water impoundments in urban areas. For example, in 2010, 2011, and 2014, WNV cases remained low because those summers were either abnormally cool or had frequent rains that flushed the street "catch basins" where *Culex* mosquitoes develop. Meanwhile, the 2012 above-normal temperatures combined with drought resulted in more WNV activity in *Culex* mosquitoes and the largest number of human cases since 2002, see Table 1.

Table 1. Temperature, Mosquito Positivity and WNV Cases

Year	WNV Positive Counties	% Birds Positive- as of August 1*	% *Culex* Mosquito Samples Positive as of August 1*	Total Confirmed Cases Statewide	Summer Temperatures
2011	19	7%	3%	34	Above Normal with Frequent Rains
2012	55	12%	28%	290	Above Normal with Drought
2013	76	6%	7%	117	Cool-Wet; then Hot-Dry into Fall
2014	50	12%	3%	44	Cool-Wet; Very Cool July

*Cook County data were used because of the robust surveillance system in that county.

In both Cook and DuPage counties, local mosquito control agencies and local health departments (LHDs) responded to the high level of WNV activity during summer 2012 by expending considerable additional resources. Nevertheless, educating the public that WNV risk increases during hot, dry weather (despite the absence of swarms of non-vector "floodwater" mosquitoes) continues to be a challenge for local and state officials. For additional information about epidemiology and prevention of mosquito-borne diseases see Appendices I, II and III.

Vector Control / Surveillance Program

The primary activity conducted directly by the Department with money from the Used Tire Fund is environmental surveillance (monitoring and testing) of the animal reservoirs of mosquito-borne disease. The Department's environmental health staff, assisted by LHDs and other local agencies, collects mosquitoes and birds and test them for WNV and SLE see Tables 2 and 3. Testing of birds and mosquitoes provides early warning of an impending outbreak of mosquito-borne disease.

Table 2. Dead Birds Collected and Tested for WNV During 2014 and 2015* **

Year	Total Dead Birds Tested	Total WNV Positive Samples (%)
2014	335	41 (12%)
2015***	292	31 (11%)

*The Illinois Department of Agriculture and the University of Illinois, Department of Veterinary Pathobiology, provided laboratory support for testing of dead birds for WNV. ** Most dead birds were collected by LHDs supported by grant funds from the Department. ***As of August 31, 2015.

Table 3. Mosquito Samples Collected and Tested for WNV During 2014 and 2015* **

Year	Total Samples	Total WNV Positive Samples (%)	Total LHD Collected Samples	Total LHD WNV Positive Samples (%)	Total Department Collected WNV Samples	Total Department WNV Positive Samples (%)
2014	15,925	1,275 (8%)	8,570	602 (7%)	650	51 (8%)
2015***	11,809	1,013 (9%)	6,207	401 (7%)	420	43 (10%)

*Most mosquito samples (typically 25 to 50 specimens each) were collected by local agencies; the Illinois Natural History Survey (University of Illinois) provided supplemental laboratory support for mosquito testing. **Many mosquito samples also were tested for St. Louis encephalitis virus. ***As of August 31, 2015.

Department staff also assist LHDs with "dead bird surveillance" – collecting dead birds for WNV testing (surveillance for human cases of mosquito-borne diseases is conducted by the Department's Communicable Diseases Section).

Testing of dead crows, blue jays, other birds and mosquito "batches" (samples) provides an early warning system to detect WNV activity. For example, the U.S. Centers for Disease Control and Prevention (CDC) has found that counties recording a WNV-positive bird before August 1 are twice as likely to have a human case than those recording a WNV-positive bird after August 1. These data are used to alert the public about the imminent threat of WNV to human health. Additionally, surveillance data can be used to direct local mosquito control operations to "hot spots" of mosquito and virus activity. Additionally, vector control staff provide training to LHD personnel in surveillance and control of mosquitoes, flies, rodents, bats, birds, ticks, and other vectors of disease and public health pests. Program activities include:

- Collecting mosquito samples for WNV testing and assisting local agencies doing similar testing.
- Coordinating the WNV "dead bird" surveillance effort by local health departments.
- Assisting the University of Illinois Extension with training for mosquito pesticide applicator licenses.
- Conducting mosquito control training for local officials.
- Providing technical information about WNV to local health departments, municipalities and citizens.
- Preparing and distributing public information materials about WNV and related issues.
- Assisting IEPA in investigations of used tire sites.
- Obtaining federal funding for WNV surveillance.
- Responding to inquiries about other vectors and pests, such as ticks, rodents, bed bugs, nuisance birds and bats in buildings.

Emergency Public Health Fund Vector Surveillance and Control Grants

Effective July 1, 2003, Senate Bill 361 (now 415 ILCS 5/55.6a) amended the Environmental Protection Act to increase the fee for retail sale of tires by 50 cents; that increase is subsequently distributed to the Department. SB 361 also amended the Used Tire Act to provide that the increase in the fee shall be distributed to county health departments for expenses related to the West Nile virus and other vector-borne diseases. Additionally, the Illinois Department of Natural Resources, (specifically the Illinois Natural History Survey, now associated with the University of Illinois) received $200,000 from the fund for research and testing of mosquitoes for WNV. The Department retained operating costs for three staff to deal with technical questions from municipalities and review, process and administer grants annually to about 90 LHDs. The Department estimated that with the 50 cent per tire fee increase, $2 to $3 million from the Emergency Public Health Fund (EPHF) established by the law would be available for Vector Surveillance and Control grants to certified LHDs. Awards are based on population and surveillance data (human cases, mosquito and bird testing data) as required by the statute.

The grants are used by LHDs primarily for WNV surveillance (testing of mosquitoes, birds and investigation of possible human cases). Additionally, some LHDs assist municipalities with preventive treatments of standing water impoundments (larviciding), such as street catch basins, roadside ditches and similar locations. Preventive treatment with larvicides is the most effective and environmentally-sound method of mosquito control. Spraying for adult mosquitoes could be included, but only as a supplement to larviciding. Additionally, the LHD program may include public information activities, investigations of mosquito nuisance complaints, and epidemiological investigations of human cases of WNV and other mosquito-borne diseases. The Department recommends local agencies provide at least some resources to the combined WNV prevention effort. LHDs can conduct limited prevention and control activities for non-mosquito vectors such as ticks, rats, etc.

In spring 2014, $3 million was awarded to 92 LHDs for WNV response activities for April 2014 – March 2015. During spring 2015, $3 million was awarded to 93 LHDs for WNV response activities for April 2015 – March 2016. Additionally, LHDs conducted other vector surveillance and control activities such as inspection of mosquito production ("breeding") locations, location and removal of discarded tire accumulations, and public information activities about prevention of mosquito-borne diseases. Data for these activities are summarized in Table 4.

Table 4. WNV and Vector Prevention Activities by Grant Recipients, October 2013 to June 30 2015*

Number of Municipal Staff Trained by LHD and IDPH Staff	338
Public Information Including News Releases, Interviews and Presentations	896
Field Surveys: Mosquito / Other Vectors (ticks, rats, etc.)	17,286 / 3,784
Mosquito Control Larval Sites Treated**	160,418
Used Tire Cleanup Projects***	99
Investigations of Suspected Human WNV Cases	149

*Includes data from October 2013 to March 2014 that were not included in the previous report. **Many LHDs provided larvicide to municipalities that conducted hundreds of additional larvicide treatments. ***LHDs assisted Illinois EPA large cleanup projects; some smaller projects were conducted by the LHDs directly.

The Department has requested that grantees emphasize collecting and testing of *Culex* mosquitoes for WNV. These grants do not include funding for routine "nuisance" mosquito control applications because of the high cost of these programs and their low priority as a public health issue.

Other Vector Prevention and Control Activities Supported by Used Tire Fund Monies

Mosquito Applicator Training Clinics. During 2014 and 2015, Department staff assisted the University of Illinois Extension during the annual training program for mosquito control applicator licensing. As part of this effort, Department staff reviewed educational materials and exams and conducted 15 training seminars at several locations throughout the state and trained 532 mosquito control applicators at pesticide applicator clinics. Additionally, under an Illinois Department of Agriculture special rule, Department staff trained more than 888 local government staff during 46 seminars to apply approved insecticides to control mosquito larvae and to test mosquito samples for WNV.

Internet Access to Publications about Vectors and Pests. During the summer months, Department staff are available to provide expertise about vectors and pests to the public, local government officials, health care staff and reporters. Because of increased use of the Internet as a route of information exchange, Department staff has developed a series of fact sheets on vectors and pests that are now available on the Department's website. During 2014 and 2015, 30 fact sheets were maintained on the following topics: Ants, Asian Tiger Mosquito, Bats and Bat Exclusion, Bed Bugs, Bees and Wasps, Bird Exclusion and Dispersal, Biting Flies, Black Flies ("Buffalo Gnats"), Brown Recluse and Black Widow Spiders, Carpenter Ants, Clothes Moths and Carpet Beetles, Cockroaches, Common Ticks, DEET Insect Repellents, Fleas, Head Lice, House Flies and Other Filth Flies, House Mouse Prevention and Control, Mites Affecting Humans, Mosquitoes, Mosquitoes and Disease, Mosquito Prevention, Mosquito Spraying, Municipal Rodent Management, Occasional Invaders, Pest Control - Do It Yourself or Hire a Pro, Pyrethroid Insecticides, Rat Prevention and Control, and Spiders. The fact sheets can be found on the Department's website at
< http://www.dph.illinois.gov/topics-services/diseases-and-conditions/west-nile-virus/vector-control > and
< http://www.dph.illinois.gov/topics-services/environmental-health-protection/structural-pest-control >.

Pest Identification Service for Citizens and Health Professionals. The Department is contacted for assistance by citizens, LHD staff and medical personnel because Department staff have specialized training in identifying ticks, bed bugs, mosquitoes, spiders, cockroaches, fleas, rodents and other pests. The concern about the occurrence of tick-borne Lyme disease in Illinois has led to regular requests for tick identification support. Proper identification of ticks helps medical personnel determine appropriate treatment for patients. Additionally, proper identification of pests can help determine the most effective management techniques and

to avoid excessive use of pesticides. During 2014 and 2015 (through August 31), Department staff identified more than 234 specimens for the public and local health personnel. Of these specimens, 33 percent were ticks and 8 percent were bed bugs. Additionally, there continued to be considerable interest by the public and news media about the increasing incidence of tick-borne diseases, personal protection measures against mosquitoes, and the prevention and control of bed bug infestations.

Distribution of the Asian Tiger Mosquito. Until its discovery in Houston, Texas, in August 1985, this species was not established in the Western Hemisphere. Currently, the species is believed to be established in at least 26 states in the continental United States. The Illinois distribution of the Asian tiger mosquito has been monitored by a variety of agencies, including LHDs receiving grant funds. As of August 31, 2015, the Asian tiger mosquito has been found in 37 counties since 1986: Adams, Alexander, Champaign, Clay, Cook, Effingham, Fayette, Gallatin, Hamilton, Jackson, Jasper, Jefferson, Jersey, Johnson, Kankakee (status unknown), Logan, Macon, Macoupin, Madison, Marion, Massac, McLean, Menard, Montgomery, Peoria, Perry, Piatt, Pope, Pulaski, Randolph, Richland, Saline, Sangamon, St. Clair, Union, Williamson and White. WNV, La Crosse encephalitis virus and eastern equine encephalitis virus have been detected in the Asian tiger mosquito in other states. The spread of the Asian tiger mosquito, which breeds in water-filled used tires and other containers, emphasizes the need for continued abatement of discarded tires by IEPA and LHDs.

Discovery of the Aedes japonicus, an "Invasive" Introduced Mosquito in Illinois. About 1998, *Aedes japonicus* was most likely brought into the United States with the movement of used tires for recapping. The "Japanese rock pool mosquito" was first identified in Illinois in Champaign County in July 2006, during WNV surveillance activities conducted by the Medical Entomology Program of the Illinois Natural History Survey (INHS). As of August 31, 2015, *Aedes japonicus* has been found in 29 counties: Adams, Boone, Brown, Bureau, Cass, Champaign, Christian, Cook, DeWitt, DuPage, Effingham, Fulton, Grundy, Knox, LaSalle, Lake, Lee, Logan, Macon, Macoupin, McDonough, McLean, Menard, Peoria, Putnam, Rock Island, Sangamon, Shelby and Vermilion. WNV has been detected in *Aedes japonicus* in other states. Consequently, continued efforts by state and local agencies to remove or treat accumulations of used tires will help limit the involvement of the Japanese rock pool mosquito in the WNV transmission cycle.

Conclusion

Due to additional resources provided by P.A. 89-499, the Department has maintained its vector control activities, primarily through increased vector control grants to LHDs. The threat of vector-borne disease continues to be a concern and the surveillance efforts supported by the current funding help assure early detection and response to impending outbreaks.

Appendix I: Epidemiology and Prevention of Mosquito-borne Diseases

In Illinois, arboviruses are primarily transmitted to humans by the bites of infected mosquitoes. Arboviruses (viruses carried by arthropods, such as mosquitoes and ticks) and certain other types of viruses can cause encephalitis, an inflammation of the brain. Additionally, WNV can cause "West Nile fever," which may require an extended convalescence.

In Illinois, the primary vector (carrier) of WNV and SLE is the northern house mosquito (*Culex pipiens*). The northern house mosquito breeds in small stagnant bodies of water (catch basins / storm drains, slowly draining ditches, etc.) and receptacles (discarded tin cans, flowerpots, old tires, buckets and other containers) that hold water. The mosquitoes become infected with SLE and WNV when they feed on infected birds. Historically, high summer temperatures are correlated with increased risk of transmission of WNV (and the related St. Louis encephalitis virus) to humans. High temperatures (usually with reduced rainfall) increase the risk of a WNV or SLE outbreak because of rapid maturation of larvae, early abundance of *Culex pipiens*, increased mosquito flight (blood-seeking) activity and rapid multiplication of the virus in *Culex* mosquitoes in stagnant water impoundments.

The tree-hole mosquito (*Ochlerotatus triseriatus*) is the vector of LaCrosse encephalitis virus. Found in many wooded areas, the tree-hole mosquito breeds in water-filled discarded tires, other containers and in tree holes. LaCrosse encephalitis infection in mosquitoes occurs when they bite small mammals or when an infected female mosquito transmits the infection to her offspring.

About two weeks after a heavy rain, large numbers of "floodwater mosquitoes" (such as *Aedes vexans*) can emerge from river floodplains and flooded woods. Although they can be a major biting nuisance for several weeks, floodwater mosquitoes have not been significant disease carriers in Illinois.

Most persons bitten by an infected mosquito will experience no symptoms of arboviral disease or will only have very mild symptoms. Approximately 1 percent to 2 percent will develop recognizable symptoms. The symptoms of WNV, SLE and LaCrosse encephalitis are similar. Some persons may have mild symptoms, such as fever and headache. Severe infection may produce a rapid onset of severe headache, high fever, muscle aches, stiffness in the back of the neck, problems with muscle coordination, disorientation, convulsions and coma. Symptoms usually occur five days to 15 days after the bite of an infected mosquito.

Although anyone can be infected with an arbovirus, severe symptoms of WNV and SLE usually occur in persons older than 50 years of age. Most patients recover fully, but severe infection may result in neurological damage or death.

LaCrosse encephalitis most often occurs in children. Symptoms are generally milder than those of WNV and SLE, and fatalities rarely occur. In most cases, neurologic and behavioral symptoms resolve within a few months. Nevertheless, there are significant long-term neurologic, cognitive and behavioral effects on some children.

An arbovirus infection is usually diagnosed through a blood test. A follow-up blood test two weeks or three weeks after the onset of symptoms is almost always necessary to confirm an arbovirus diagnosis. A physician will attempt to relieve symptoms of the illness, but there is no specific medication available to treat or cure the disease.

Local health agencies should conduct public education programs about mosquito-borne diseases. An active public information effort includes conducting seminars or lectures, interviews with the news media, news releases and informational publications. Informed citizens can report suspected mosquito breeding sites to control personnel and remove containers that hold water from around their residences. Nevertheless, even the most effective mosquito control program cannot eliminate mosquitoes.

Mosquito bites and disease can be prevented through properly maintained window screens, protective clothing and repellents that include DEET, picaridin and oil of lemon eucalyptus. Mosquitoes are less attracted to white clothes than to dark-colored clothes. Long sleeves and long pants also offer protection against mosquito bites. Directions on the repellent's label should be followed.

Community-wide mosquito preventive abatement efforts can be quite effective if they are conducted as part of an integrated pest management program. This includes monitoring of vector mosquito populations and draining or treating areas where mosquitoes breed ("larviciding"), such as street catch basins, stagnant ditches, intermittently flooded marshes, river backwater areas, swamps and other low-lying areas. Spraying for adult mosquitoes ("adulticiding") should only be a supplement to the preventive mosquito control "larviciding" effort.

Appendix II: Key Illinois West Nile Virus Surveillance Data: 2001 – 2015

The tables in Appendix II summarize WNV surveillance data from 2001 to 2015. WNV activity in Illinois has risen and declined yearly, being largely dependent on summer weather conditions. Specifically, a *hot - dry*

summer increases *Culex* mosquito infection rates and human disease risk. The WNV surveillance system in Illinois is aimed at is surveillance (watching) for unusual WNV activity each summer – and there is WNV activity each year. The state-wide WNV surveillance system of testing of birds and mosquitoes detected the 2005, 2006 and 2012 WNV outbreaks – and the public was warned in advance. A key point is that many communities increased their WNV prevent efforts since the original WNV 2002 outbreak, specifically for *Culex* mosquitoes in catch basins – something that many communities outside of the Chicago area did not do pre-2002. Consequently, this increased effort to suppress *Culex* mosquitoes [particularly preventive larviciding] has reduced the risk of human disease in Illinois. Furthermore, studies have shown that WNV cases are much underreported – many more WNV cases occur each summer than those that become "confirmed cases." Many of those with the most serious form of WNV disease (with neurological symptoms) have long-term symptoms that may continue for years or even create a permanent disability. Lastly, the WNV surveillance system has another important function: when to determine when WNV activity is <u>not</u> high and the disease risk is low. When aggressive and abundant (non-vector) "floodwater" mosquitoes appear after heavy rains, citizens and local government officials become concerned about increased WNV disease risk and often inquire about "emergency" mosquito control. (Emergency "nuisance" mosquito control operations are very, very expensive, for example, $60 - $80 per linear mile for truck-mounted adult mosquito spraying for one application.) However, despite being a nuisance, non-vector "floodwater" mosquito populations are not a public health issue and providing control of nuisance mosquitoes is far beyond the resources available to LHDs. Limited available public health resources should be focused on control of *Culex* mosquitoes – the primary WNV vectors.

Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015***
Confirmed Human Cases (*Deaths*)**	5 (*0*)	61 (*4*)	34 (*3*)	290 (*12*)	117 (*11*)	44 (*4*)	3 (*1*)
Counties With Any Evidence of WNV Activity	36	30	19	55	76	50	50
Positive Birds	26	64	21	128	88	41	31
Positive Mosquito Samples	404	2,296	1,068	3,948	2,716	1,275	1,013

*Provisional data as of August 31, 2015. ** As many as 100 cases are unreported for each human case confirmed (per CDC research).

Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Confirmed Human Cases (*Deaths*)	0	884 (*66*)	54 (*1*)	60 (*4*)	252 (*12*)	215 (*10*)	101 (*4*)	20 (*1*)
Counties With Any Evidence of WNV Activity	7	100	77	62	55	77	48	28
Positive Birds	138	517	236	234	232	169	39	31
Positive Mosquito Samples	20	624	507	1,671	2,523	3,350	1,552	658

Appendix III: Illinois Counties with the Highest WNV Case Incidence: 2002 – 2014

Confirmed Cases	County	Cases	Population	Incidence per 100,000 population
	Cook	26	5,246,456	0.5
	Crawford	1	19,393	5.2
	DuPage	5	932,708	0.5
	Franklin	1	39,411	2.5
	Kane	2	527,306	0.4
	Kendall	1	121,350	0.8
2014: 44	Lake	2	708,186	0.3
	LaSalle	1	111,241	0.9
	Macoupin	1	46,453	2.2
	McHenry	1	307,283	0.3
	Monroe	1	33,722	2.9
	Will	1	685,419	0.2
	Woodford	1	39,187	2.6
Confirmed Cases	County	Cases	Population	Incidence per 100,000 population
	Cook	60	5,246,635	1.1
	DuPage	6	931,523	0.6
	Franklin	2	39,572	5.1
	Jackson	2	59,981	3.3
2013: 117	Lake	6	704,000	0.9
	McHenry	2	307,367	0.7
	McLean	2	174,893	1.1
	St Clair	5	265,065	1.9
	Vermilion	3	80,418	3.8
Confirmed Cases	**County**	**Cases**	**Population**	**Incidence per 100,000 population**
	Cook	174	5,194,675	3.4
	DuPage	56	916,924	6.1
	Kane	13	515,269	2.5
2012: 290	Lake	7	644,000	1.1
	McHenry	6	308,760	1.9
	Will	11	677,560	1.6
Confirmed Cases	**County**	**Cases**	**Population**	**Incidence per 100,000 population**
	Coles	1	53,873	1.9
	Cook	22	5,194,675	0.4
	DuPage	2	916,924	0.2
	Franklin	1	39,561	2.5
	Kane	1	515,269	0.2
2011: 34	Marion	3	39,437	7.6
	McHenry	1	308,760	0.3
	Rock Island	1	147,546	0.7
	Will	1	677,560	0.2
	Winnebago	1	295,266	0.3

Confirmed Cases	County	Cases	Population	Incidence per 100,000 population
2010: 61	Champaign	1	201,081	0.5
	Cook	30	5,194,675	0.6
	DuPage	17	916,924	1.9
	Kane	5	515,269	0.9
	Kendall	2	114,736	1.7
	Lake	1	703,462	0.1
	McHenry	1	308,760	0.3
	Peoria	1	186,494	0.5
	Tazewell	1	135,394	0.7
	Will	2	677,560	0.3
Confirmed Cases	**County**	**Cases**	**Population**	**Incidence per 100,000 population**
2009: 5	Cook	1	5,376,000	0.1
	St. Clair	2	256,000	0.8
	Tazewell	1	128,000	0.8
	Williamson	1	61,000	1.6
Confirmed Cases	**County**	**Cases**	**Population**	**Incidence per 100,000 population**
2008: 20	Boone	2	42,000	4.8
	Cook	9	5,376,000	0.2
	DuPage	1	904,000	0.1
	Kane	3	404,000	0.7
	Macon	1	115,000	0.9
	Marshall	1	13,000	7.7
	Montgomery	1	31,000	3.2
	Stephenson	1	49,000	2.0
	Whiteside	1	61,000	1.6
Confirmed Cases	**County**	**Cases**	**Population**	**Incidence per 100,000 population**
2007: 101	Cook	31	5,376,000	0.6
	DuPage	10	904,000	1.1
	Kane	13	404,000	3.2
	Lake	5	644,000	0.8
	McHenry	5	260,000	1.9
	Saline	3	27,000	11.1
	St. Clair	3	256,000	1.2
	Will	3	502,000	0.6
Confirmed Cases	**County**	**Cases**	**Population**	**Incidence per 100,000 population**
2006: 215	Cook	86	5,376,000	1.6
	DuPage	43	904,000	4.8
	Kane	4	404,000	1.0
	Lake	11	644,000	1.7
	McHenry	6	260,000	2.3
	Will	18	502,000	3.6

Confirmed Cases	County	Cases	Population	Incidence per 100,000 population
2005: 252	Cook	135	5,376,000	2.5
	DuPage	47	904,000	5.2
	Kane	17	404,000	4.2
	Lake	11	644,000	1.7
	Peoria	7	183,000	3.8
	Will	8	502,000	1.6
Confirmed Cases	**County**	**Cases**	**Population**	**Incidence per 100,000 population**
2004: 60	Cook	23	5,376,000	0.4
	DuPage	5	904,000	0.6
	LaSalle	5	112,000	4.5
	Sangamon	3	189,000	1.6
	St. Clair	3	256,000	1.2
	Will	3	502,000	0.6
Confirmed Cases	**County**	**Cases**	**Population**	**Incidence per 100,000 population**
2003: 54	Cook	20	5,376,000	0.4
	DuPage	3	904,000	0.3
	Piatt	3	16,000	18.8
	Sangamon	4	189,000	2.1
	Whiteside	3	61,000	4.9
	Will	3	502,000	0.6
Confirmed Cases	**County**	**Cases**	**Population**	**Incidence per 100,000 population**
2002: 884	Cook	635	5,376,000	11.8
	DuPage	51	904,000	5.6
	Madison	14	259,000	5.4
	Sangamon	13	189,000	6.9
	St. Clair	15	256,000	5.9
	Will	18	502,000	3.6

Acknowledgements

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