



ENVIRONMENTAL MANAGEMENT DIVISION

MEMORANDUM

**TO:** Bruce Walden, Chief Administrative Officer  
**FROM:** Bill Gray, Public Works Director  
Rod Fletcher, Environmental Manager  
**DATE:** April 8, 2003  
**RE:** West Nile Virus/Encephalitis Abatement Program

**Action Requested**

Staff is requesting guidance regarding participation in an enhanced mosquito control program as being recommended by Dr. Robert Novak, entomologist with the Natural History Survey and mosquito expert.

**Introduction** The purpose of this report is to provide information on the West Nile virus outbreak last year in the community, the expected virus conditions for this summer, the City's current mosquito disease program, and some possible responses to this threat.

**Background**

- 1. History.** The City of Urbana has participated in an encephalitis control program since the 1970's. The program began in response to an outbreak of St. Louis Encephalitis during that decade. The City of Champaign, City of Urbana, Village of Savoy, and the University of Illinois jointly participate in the program. University of Illinois faculty and employees of the Natural History Survey staff this program. Dr. Novak administers the program. The cities and the University provide funding and broad oversight of the program.
- 2. Program Elements.** The program utilizes Integrated Pest Management (IPM) to provide control of the target mosquito species. IPM protocols call for targeted treatment of vector (disease carrying) mosquitoes. The main effort in past years has been to identify breeding areas for the targeted mosquito species and use larvicidal application to prevent maturation of these targeted species. Larvicidal treatment consists of application of one of two products to the standing water areas that harbor mosquito eggs.
- 3. Target Areas.** Mosquitoes generally breed in sheltered, water-covered areas with some vegetation present. Typical breeding areas include marshy or swamping areas, especially where weeds or other vegetative coverage is present. Backyard impoundments include flowerpots, poorly maintained gutters, old tires, birdbaths, or any other container not regularly emptied. Storm sewer inlets are also favorable breeding sites.
- 4. West Nile Virus.** West Nile virus first emerged in the United States in the New York metropolitan area in the fall of 1999. Since then, the virus, which can be transmitted to humans by the bite of an infected mosquito, has quickly spread across the country and, in 2002, reached California.

Last year in Illinois, birds, mosquitoes and horses in 100 of the State's 102 counties were reported positive for West Nile virus and the first human cases and deaths from West Nile virus illness in Illinois were reported in August 2002. By the end of the year, the State led the nation with 877 confirmed human cases and 62 deaths. The Illinois Department of Public Health (IDPH) maintains a sophisticated disease surveillance system to monitor animals and insects that can spread the virus: crows and blue jays, mosquitoes and horses. Mosquitoes, primarily the Culex species but other species as well, also carry the virus and can get it by feeding on infected birds. There are 138 bird species that have been found to be virus carriers in the United States

**5. West Nile Virus Morbidity.** Mild cases of West Nile infections may cause a slight fever or headache. More severe infections are marked by a rapid onset of a high fever with head and body aches, disorientation, tremors, convulsions and, in the most severe cases, paralysis or death. Usually symptoms occur from three to 14 days after the bite of an infected mosquito. Persons at the highest risk for serious illness are those 50 years of age or older. People with compromised immune systems are also a high-risk group.

**6. Prevention.** The best way to prevent West Nile encephalitis and other mosquito-borne illnesses is to reduce the number of mosquitoes around homes and in neighborhoods by eliminating inadvertent or unintentional breeding sites and to take personal precautions to avoid mosquito bites. The next level of protection, mosquito abatement, carries greater cost and attempts to reduce the mosquito population by killing mosquitoes. The City's program does this by use of larvicidal treatments of breeding areas. Another level of control, killing adult mosquitoes by targeting adult populations, carries an even greater expense. Adult spraying programs are recommended only on a limited basis in response to a specific infestation in targeted areas.

**7. Disease Presence in the Area.** As of February 7, Champaign County had two confirmed human cases of the West Nile virus, but no deaths. Human deaths did occur in Macon County (3), Edgar County (1), and Moultrie County (1). There were numerous positive (57 total) viral findings in birds and mosquitoes in Champaign, beginning in mid-June 2002. Twenty-eight horses were also infected in Champaign County. Horses suffer a high mortality, approximately 40%, when infected. Staff is expecting the virus to maintain its presence in the area.

**8. IDPH Recommendations for Community Response.** The Illinois Department of Health has produced a response document for the West Nile virus. The document can be found at <http://www.idph.state.il.us/envhealth/wnv.htm>. The recommended responses have been incorporated into the current City program. These responses generally can be described as education, surveillance, and treatment. Neither IDPH nor any other State agency, provide any direct control activities. Grants totaling \$200,000 were provided in 2002 in some counties experiencing human fatalities. State legislation is pending to provide future funding, but amounts and distribution is uncertain at this time.

**9. Agreement for Current Program.** The current program operates under an agreement between the Cities and the Natural History Survey with contributions based on the population of the respective agencies and recognized non-cash, in-kind contributions by the University. Savoy participates in the program with an annual contribution (\$2,500) but without a formal agreement. The agreement with the Natural History Survey provides for payments of up to \$26,800 from the three agencies with: Champaign paying up to \$17,000, Urbana paying up to \$8790, and the University paying up to \$2,500. The current budget provides the first \$10,000 of expenses to be split equally. Subsequent expenses are paid equally by Urbana and Champaign until Urbana has expended its maximum contribution and Champaign pays all additional cost. In previous years, the maximum amount has not been required. In FY 2001-2002, Urbana's contribution totaled \$8060.

It is important to note that Dr. Novak is not paid for the administration or for any of his activities involved in the program. The only paid employees are the scout supervisors and scouts, generally students working as part-time seasonal employees for the program.

**10. Proposed Changes.** In response to the severity of this new mosquito-borne disease, Dr. Novak has proposed a large increase in the current encephalitis control program. His recommendation is to continue the current

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activities but at a greater level, with additional scouting and additional treatment. The total program costs would increase the program's expense from its current authorized budget of approximately \$27,000 to \$70,850. Most of the additional cost would be for additional staff. The proposal includes hiring a full-time program supervisor/administrator with a direct annual cost of \$25,000 and benefit costs of \$6,250 for a total of \$31,250. Other increases include \$4,300 for additional seasonal scouts, approximately \$1,700 for additional pesticides, \$3,000 for automobile expense, and \$1,200 for additional equipment and supplies. Hiring a full-time supervisor/administrator will allow for scouting treatment prior to and at the end of the summer when the seasonal scouts are in school and less available. The position will also provide for additional off-season administrative activity needed to plan and assess seasonal activity.

**11. Current Status.** Staff has been discussing the impact of the West Nile virus, Dr. Novak's proposed changes, and the various aspects of this development with the involved agencies, and the Champaign-Urbana Public Health District, since last fall. Dr. Novak has been asked if the program recommendations he has proposed can be scaled back. He has responded that his recommendations are at the lowest responsible response given the risk of the disease. He feels that a recommendation for a lower level response from him is inconsistent with his experience and knowledge and his participation in a lower level response could be interpreted as his endorsement of a program that may be inadequate.

**12. Funding Issues.** The funding levels agreed to when the agreement was adopted were based in part on in-kind contributions from the University. A change in organization at the University in the intervening years has removed Dr. Novak's lab from the University and into the Natural History Survey. This effectively means the University does not support the lab as they did before. The in-kind contributions previously attributed to the University no longer are University contributions, but are now effectively, State of Illinois contributions.

Expenses for an expanded program, could be again, based on population (2000 census data) as shown below:

	<b>Current Maximum Contribution</b>	<b>Population</b>	<b>Percentage Based on Population*</b>	<b>Proposed Program Option*</b>
Champaign	\$17,000	67,518	57%	\$40,384
Urbana	\$8,790	36,395	31%	\$21,963
U of I	\$2,500	10,700	9%	\$6,376
Savoy	\$2,500	4,500	4%	\$2,834
<b>Total</b>	<b>\$30,790</b>	<b>119,113</b>		<b>\$71,557</b>

\*Does not total 100% due to rounding

**Financial Impact** If council directs staff to negotiate an agreement for the expanded program being recommended, an additional \$13,173 would be needed for FY 0304. A commitment for next budget year is needed now as the program begins activities in April/May.

**Recommendation** The City of Champaign and Savoy have received guidance to proceed to enter into an agreement for an expanded program. Staff has met with the University representatives and it appears ready to also enter into a new agreement. Urbana staff is seeking Council direction whether to negotiate an agreement for the expanded program as proposed by Dr. Novak with Champaign, Savoy and the University.