



LAKE COUNTY FOREST PRESERVES  
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Preservation, Restoration, Education and Recreation

**DATE:** June 26, 2017

**MEMO TO:** Craig Taylor, Chair  
Operations Committee

Agenda Item # 9.4

**FROM:** James L. Anderson  
Director of Natural Resources

**RECOMMENDATION:** Recommend approval of a Resolution approving an amended Mosquito Management Policy.

**STRATEGIC DIRECTIONS SUPPORTED:** Conservation; Leadership

**FINANCIAL DATA:** There is no financial impact

**BACKGROUND:** The Lake County Forest Preserve District (District) staff, working with the Lake County Public Health Department, recently completed a review of the Mosquito Management Policy previously adopted by the Board of Commissioners on April 18, 2003 and is recommending approval of an amended policy. The amended policy primarily focuses on emerging disease issues in addition to West Nile Virus, and separates the policy from the procedures.

The amended policy emphasizes strategies consistent with those recommended by the Lake County Health Department, Illinois Health Department and the Centers for Disease Control. The major elements are:

- Managing mosquito populations when a mosquito-borne disease epidemic creates significant human health risks for preserve visitors and adjacent neighbors, not to reduce nuisance mosquitoes that do not pose such a risk;
- Monitoring and surveillance of adult and larva populations of the types of mosquitoes known to effectively carry West Nile virus;
- Application of target-specific larvicide to reduce mosquito populations at specific sites as may be identified through monitoring;
- Give consideration to spraying for adult mosquitoes, but only in extreme cases because of the potential for ecological damage and questions about the effectiveness of spraying;
- Public education to inform people about the level of risk posed by the disease and what they can do personally to limit their exposure.
- Providing training and direction for staff to keep District work areas free of standing water.

**REVIEW BY OTHERS:** Executive Director, Chief Operations Officer, Director of Finance, Corporate Counsel

STATE OF ILLINOIS )  
 ) SS  
COUNTY OF LAKE )

**BOARD OF COMMISSIONERS  
LAKE COUNTY FOREST PRESERVE DISTRICT  
REGULAR JULY MEETING  
JULY 12, 2017**

**MADAM PRESIDENT AND MEMBERS OF THE BOARD OF COMMISSIONERS:**

Your **OPERATIONS COMMITTEE** presents herewith "A Resolution Approving an Amended Mosquito Management Policy," and requests its approval.

**OPERATIONS COMMITTEE:**

Date: 6/26/17  Roll Call Vote: Ayes: \_\_\_\_ Nays: \_\_\_\_  
 Voice Vote Majority Ayes; Nays: -0-

**LAKE COUNTY FOREST PRESERVE DISTRICT  
LAKE COUNTY, ILLINOIS**

**A RESOLUTION APPROVING AN AMENDED  
MOSQUITO MANAGEMENT POLICY**

**WHEREAS**, the Lake County Forest Preserve District (the "District") is concerned about the safety of its preserve visitors and adjacent neighbors, and about protecting the ecological integrity of its natural habitats; and

**WHEREAS**, mosquitoes have been in the past, and will continue to be, part of the diverse fauna within District lands and surrounding regions of North America; and

**WHEREAS**, mosquitoes that transmit diseases to humans, specifically West Nile virus and other similar diseases, are considered a human health risk; and

**WHEREAS**, adult mosquitoes, and their larvae, that can transmit diseases such as West Nile virus, have been found throughout Lake County; and

**WHEREAS**, a system of adult and larval mosquito monitoring and surveillance can detect the presence of disease agents and the presence of the types of mosquitoes capable of transmitting the disease agent to humans; and

**WHEREAS**, the risk of transmission to humans can be reduced by effective monitoring and surveillance to identify the presence of a threat, and, if necessary, by locally targeting control of mosquito larvae and, in extreme cases, adult mosquitoes; and

**WHEREAS**, the District recognizes that the threat of transmission to humans cannot be reduced without a coordinated effort by the District and other governments serving neighboring landowners, such as the County of Lake, municipalities, mosquito abatement districts, park districts and townships; and

**WHEREAS**, control agents used to reduce mosquito populations potentially threaten the biodiversity of natural areas, including some mosquito predators, and this issue has not been fully researched at this time; and

**WHEREAS**, the District is in a unique position to provide for public safety while preserving the biotic integrity of some of the most important natural areas in the region, including several nature preserves dedicated under the Illinois Natural Areas Preservation Act (525 ILCS 30); and

**WHEREAS**, it is necessary to establish a policy that will guide the management of mosquito populations that could pose a threat to the safety of District visitors and adjacent neighbors; and

**WHEREAS**, the District approved a "Mosquito Management Policy for the Lake County Forest preserve District" on April 18, 2003 (the "Original Policy"); and

**WHEREAS**, it is in the District's best interests to replace the Original Policy with the "Mosquito Management Policy for the Lake County Forest Preserve District" attached to this Resolution (the "Amended Policy");

**NOW, THEREFORE, BE IT RESOLVED** by the Board of Commissioners of the Lake County Forest Preserve District that:

Section 1. Recitals. The recitals set forth above are incorporated as part of this Resolution by this reference.

Section 2. Approval of Amended Policy. The Amended Policy is hereby approved as the official policy of the District concerning management of mosquito species that have been determined to pose a risk of potentially fatal disease transmission to District visitors and adjacent neighbors. The Amended Policy shall replace the Original Policy.

Section 3. Authority to Implement. The Executive Director and District staff are hereby authorized, to the extent funding is approved each year by the Board of Commissioners in the District's budget and appropriations ordinances, to annually conduct monitoring and surveillance of mosquito populations in the District for mosquito species and disease agents that pose a significant health risk to preserve visitors. When deemed necessary, the District may implement appropriate control measures, as determined according to the procedures outlined in the Amended Policy.

Section 4. Authority to Revise Procedures. The President of the District, with the approval of the Operations Committee, is hereby authorized to revise the "Mosquito Management Procedures for the Lake County Forest Preserve District" contained in the Amended Policy in any manner that is consistent with the Amended Policy.

Section 5. Repealer. Any Ordinance or Resolution in conflict with this Resolution shall be and hereby is repealed.

Section 6. Effective Date. This Resolution shall be in full force and effect from and after its passage and approval in the manner provided by law.

PASSED this \_\_\_\_\_ day of \_\_\_\_\_, 2017

AYES:

NAYS:

APPROVED this \_\_\_\_\_ day of \_\_\_\_\_, 2017

ATTEST:

\_\_\_\_\_  
Ann B. Maine, President  
Lake County Forest Preserve District

\_\_\_\_\_  
Julie Gagnani, Secretary  
Lake County Forest Preserve District

Exhibit \_\_\_\_\_

**MOSQUITO MANAGEMENT POLICY FOR THE  
LAKE COUNTY FOREST PRESERVE DISTRICT**  
*Revised July 12, 2017*

**POLICY STATEMENT**

The Lake County Forest Preserve District (District), to the extent funding is approved each year by the Board of Commissioners in the District's budget and appropriations ordinances, will annually conduct monitoring and surveillance of mosquito populations on District property for mosquito species and disease agents that pose a significant health risk to preserve visitors. When deemed necessary, the District may implement appropriate control measures, as determined according to the procedures outlined below.

**BACKGROUND**

The District promotes the ecological integrity of each preserve it owns and emphasizes management of populations and habitats so future visitors can enjoy the scenic beauty and diversity present in many of our preserves today. The District also provides for innovative education, restoration and cultural opportunities and for visitor safety when pursuing these opportunities.

The original version of this policy, and the accompanying procedures, was prepared in 2003 in response to West Nile virus (WNV), which was detected in Lake County in 2001 and on District property in 2002. It was based upon an Action Plan approved by the District Board of Commissioners in 2002, which included dissemination of public information, initiation of monitoring, application of larvicide and formation of a Mosquito Management Program Technical Advisory Committee. This current policy and procedures reflect the most recent knowledge of mosquito-borne diseases in this region and is to be used in the event future mosquito-borne diseases are found in the District.

The Policy applies only to mosquitoes that are a human health risk to forest preserve visitors and adjacent neighbors. The District does not control nuisance mosquitoes; rather, the District relies upon natural processes in healthy and diverse natural areas to keep mosquitoes in balance with the environment.

The following procedures (attached) will be followed when a mosquito-borne disease is detected on District property that is considered to be a significant human health risk by the Lake County Health Department or Illinois Department of Public Health. When a mosquito-borne disease is found at sites dedicated or registered under the Illinois Natural Areas Preservation Act, management guidelines established by the Illinois Nature Preserves Commission (INPC) shall be followed. Any use of pesticides within a dedicated nature preserve must be approved by the INPC prior to use. Research is ongoing regarding the detection of pathogens, effects of disease outbreaks to non-human wildlife and biodiversity, and mosquito control/abatement techniques. District staff is encouraged to remain current with regards to research findings and to adapt mosquito management activities accordingly.

## DEFINITIONS

**Adulticide:** Biological or chemical agents that kill adult mosquitoes.

**Human Health Risk:** Degree of likelihood that one or more exposures to a hazardous substance may have damaged or will damage the health of the exposed person(s) (US EPA).

**Larvicide:** Biological or chemical agents, including but not limited to *Bacillus* species, insecticides, oils, and monomolecular films, that kill mosquito larvae when applied to breeding sites.

**Natural Area:** An area of land that "either retains or has recovered to a substantial degree its original natural or primeval character, though it need not be completely undisturbed, or has floral, faunal, ecological, geological or archaeological features of scientific, educational, scenic or esthetic interest." (525 ILCS 30/3.10)

**Pathogen:** Disease causing agent, including, but not limited to, viral and bacterial species.

**Vector:** An organism, usually invertebrate, that transmits or carries a pathogen between vertebrate hosts thereby completing the pathogen life cycle.

**MOSQUITO MANAGEMENT PROCEDURES FOR THE  
LAKE COUNTY FOREST PRESERVE DISTRICT**  
*Revised July 12, 2017*

1. *Risk identified by local or state health department.* – The District will respond to emerging or re-emerging mosquito-borne human health risks as identified by the Illinois Department of Health or Lake County Health Department.
2. *Monitoring and surveillance.* – Monitoring and surveillance will be conducted on an annual basis or as otherwise determined to be appropriate by the District in collaboration with the Lake County Public Health Department. Surveillance of adult mosquitoes will be conducted to determine if the pathogen is present in mosquito populations in the preserves. Monitoring of potential breeding sites will be conducted to determine if the types of mosquitoes breeding in the preserves are those able to transmit the pathogen to humans. Monitoring and surveillance activities should be prioritized according to human population centers and preserves with high visitor numbers.
3. *Larvicide application.* – If breeding sites are identified within a forest preserve and they contain larvae of effective mosquito vectors, larvicide may be applied as described below. In dedicated Nature Preserves, the use of larvicides (or any pesticide) must be approved by the INPC prior to application. Larvicide application is considered to be a preventative measure, therefore the presence of infected larval or adult mosquitoes is not mandatory prior to application. If used, larvicides will be the most target-specific pesticide available. At this time, the most target-specific larvicides available with demonstrated effective control and minimal impacts to the environment are biorational pesticides (also called biopesticides). Examples are products with *Bacillus Spinosad*. Other biorational pesticides may be considered in the future as they become available. Insect growth regulators, true insecticides and surfactants/oils will only be used in extreme circumstances as they have greater ecological impacts than *biorational* products and may not be suitable for use in high quality natural areas. Effects of these products on non-target organisms, especially federal and state listed endangered and threatened species will be considered before use. Larvicides will be applied by District staff members who are licensed applicators by the Illinois Department of Agriculture or by a District-approved licensed contractor.
4. *Preserve Closure.* – Preserve closure will be evaluated as an alternative to adulticide application (see following section – “Adulticide Application”). The Illinois Nature Preserves Commission requires that an evaluation of preserve closure be examined and determined to be ineffective prior to consideration of adulticide use on dedicated Illinois Nature Preserves.

The following conditions will be considered prior to consideration of preserve closure:

- a. Whether the source of the pathogen and mosquito species serving as vectors is within a specific forest preserve;
- b. Whether the preserve in question is a dedicated Illinois Nature Preserve site, is considered to be of exceptionally high natural quality, or supports federal or state listed threatened or endangered wildlife;

- c. Whether a threat of serious illness or death to human visitors is imminent and the region is in outbreak status; and
  - d. Whether the risk to humans can effectively be reduced by denying human access to the preserve during periods of significant human health risk.
5. *Adulticide application.* – Adult spraying of mosquitoes is considered to be the least effective method of mosquito control and is typically considered a “last resort”. Research regarding the effects of adulticide compounds on non-target species and the effects to mosquito predators and the ecological community is ongoing. In addition, adulticides may be ineffective in a natural setting because the compound must come into contact with the insect to kill it. In natural settings, such as landscapes of tall prairie grasses or hardwood forests, mosquitoes often inhabit areas under leaves or among vegetation where they would escape contact. Ideally adulticides are used in open areas interspersed with roads or trails. Adulticide application only reduces the risk of disease transmission if there is a significant percent of infected adult mosquitoes are present. Adulticiding non-infected mosquitoes does not reduce human health risks, therefore, surveillance must indicate a presence of the pathogen in adult mosquitoes prior to use of the adulticide.

Because long-term ecological effects are not fully understood, the potential impact to non-target species, and the relative ineffectiveness of adulticide spraying, adulticides will only be used in extreme circumstances. In dedicated Nature Preserves, the use of adulticides (or any pesticide) must be reviewed and approved by the INPC prior to application. Alternative adulticide application methods, such as “barrier spraying”, are currently being reviewed for effectiveness and safety. As with all other elements of the Policy, District staff is encouraged to stay abreast of ongoing research concerning adulticide use and application.

The following conditions will be considered prior to consideration of adulticide use in the District:

- a. Whether the source of the pathogen and mosquito species serving as vectors is within a specific Forest Preserve and the preserve in question is not a dedicated Illinois Nature Preserve (see previous section, “Preserve Closure”). The INPC may be petitioned to authorize application of adulticide to areas dedicated as Illinois Nature Preserves if the conditions listed below (b-d) apply and preserve closure will not limit risk to humans.
- b. Whether a threat of serious illness or death to human visitors is imminent and the region is in outbreak status as determined by the Lake County Health Department or the Illinois Department of Public Health
- c. Whether the adulticide can be delivered effectively to target specific areas of mosquito activity.
- d. Whether Adulticide can be delivered according to pesticide label instructions, and in a manner that reduces the risk to non-target species, including humans.



The following procedures should be ongoing throughout a mosquito management program:

1. *Public education and outreach.* – District staff shall strive to effectively communicate levels of disease risk to forest preserve visitors as they are currently understood. Measures that can be taken to minimize personal risk, such as protective clothing and repellents, will be presented and encouraged. Education will also focus on source reduction by homeowners. Findings of monitoring and surveillance efforts and measures taken to reduce the risk of disease on District property will be presented.
2. *Source Reduction.* – District staff will continue to reduce potential mosquito breeding sites in artificial containers, which are preferred habitat for some of the disease transmitting mosquitoes. These include debris, trash bins, vehicle beds, and materials around facility buildings.
3. *Coordination with local health departments, municipalities, mosquito abatement districts and townships.* – Coordination with other governments involved in mosquito management is critical to successfully reducing the risk of transmission of mosquito-borne pathogens in the county. The District's efforts alone will not adequately reduce the threat of WNV or potential future mosquito-borne pathogens in Lake County. It is critical that other governments and individual property owners implement their own mosquito management monitoring, prevention and control efforts.
4. *Habitat management and restoration.* – In accordance with the District's stated mission of preserving and protecting the biodiversity of forest preserve sites, the District will continue to actively manage and restore health to native communities. The District recognizes that a healthy ecosystem allows natural predators to help reduce mosquito populations.
5. *Stay abreast of continuing research.* – District staff will stay abreast of current research regarding all aspects of disease risk, transmission and effects on natural resources. Current research topics include effectiveness of various species of mosquitoes as vectors, impacts of mosquito control agents on non-target species including human health, and effect of disease on wildlife populations and biodiversity. The District will facilitate research where possible by providing study sites to academic institutions. The procedures contained in the policy will be periodically reviewed in light of current research and revised, if necessary, to reflect the current understanding of disease agents and mosquito control techniques.
6. *Funding.* – District staff will identify and apply for any relevant local, state and federal grants or other alternative financial resources in order to leverage funds approved by the Board as part of the annual budget process.