

SOUTHERN WILDLIFE RESOURCES

Reference Library

**Mosquitoes of Kentucky
and the Diseases They Carry**

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Why This Guide Exists

Mosquitoes are not diseases. They are vectors, which are animals that carry pathogens from a wild host to a person. In Kentucky, the wild host for mosquitoes is frequently birds. Mosquitoes that move viruses from birds to humans live and breed on ordinary residential properties. Lowering your family's contact with mosquitoes means lowering your family's contact with the pathogens they carry. This guide is designed to explain the following: 1) which mosquitoes are relevant in Kentucky, 2) what they carry, 3) what a property treatment can and cannot do, and 4) steps that reduce your family's exposure to mosquitoes.

Nothing in this guide constitutes medical advice. We are wildlife and pest management professionals. We do not diagnose, and questions about symptoms, testing, or treatment belong to your physician.

The Mosquitoes That Matter in Kentucky

Three species or groups of mosquitoes are responsible for nearly all of the disease risks and complaints by homeowners. Each species lives and breeds in a completely different habitat. A program that treats them as one pest will fail against at least two of the species for any given location, which is the single most common reason a homeowner's mosquito service disappoints them.

Group	Where it breeds and when it bites	Why it matters
House mosquitoes (<i>Culex</i> species)	Standing water rich in organic matter includes clogged gutters, catch basins, neglected pools, livestock tanks, and ditches. Bites occur at dusk and after sunset.	The primary West Nile vectors. Birds amplify the virus, and mosquitoes carry it to humans.
Asian tiger mosquito (<i>Aedes albopictus</i>)	Artificial containers placed around the house. An aggressive daytime biter, which is why you get bitten gardening at two in the afternoon.	It is the dominant backyard nuisance species across the Southeast and a competent vector of dengue and chikungunya.
Eastern treehole mosquito (<i>Aedes triseriatus</i>)	Tree holes, stumps, and small artificial containers, especially discarded tires, are found in shaded areas. Wooded and shaded properties.	The primary vector of La Crosse virus, which is the most common cause of pediatric arboviral encephalitis in North America.

Table 1. Mosquito groups of public health concern in Kentucky, breeding habitat, and significance.

The Asian tiger mosquito deserves special attention because of its reproduction. Females strongly prefer cryptic containers over open ones and spread a single batch of eggs across multiple containers. Corrugated downspout extensions, fence post openings, tarp folds, and discarded

cups routinely produce mosquitoes in yards that appear immaculate. Proper identification is essential for vector control. If you are normally bitten around midday near the patio, you have a container problem, and no amount of dusk fogging will fix it. If the bites occur closer to dusk over a wet ditch line, it is a different animal in a different place that requires a different treatment.

What These Mosquitoes Carry

West Nile virus

On September 30, 2025, the Kentucky Department for Public Health issued a statewide health alert regarding mosquito-borne illnesses (Kentucky Department for Public Health, 2025; Lexington-Fayette County Health Department, 2025).

Many infections cause no symptoms. Among people who become ill, the usual symptoms are fever, fatigue, headache, muscle or joint pain, rash, or gastrointestinal symptoms. The CDC reports that fewer than one percent of infected people develop neuroinvasive disease, which presents as meningitis, encephalitis, or acute flaccid myelitis, and that roughly ten percent of neuroinvasive cases are fatal. Long-term neurological effects are common in survivors. The risk of severe disease increases with age and immunocompromising conditions. Currently, no vaccine or specific treatment is available.

La Crosse virus

The same 2025 alert confirmed two La Crosse virus cases in eastern and central Kentucky, with two more under investigation, against 11 cases statewide across the twenty-two years from 2003 through 2024. La Crosse virus is the most common cause of arthropod-borne pediatric encephalitis in the United States, and severe disease occurs primarily in children under sixteen. Kentucky health officials note that treatment is supportive care and that monoclonal antibodies, corticosteroids, and ribavirin have not been shown to help.

The treehole mosquito that carries the virus does not travel far, and the virus persists in the mosquito eggs from one generation to the next. This combination makes La Crosse risk unusually local and responsive to work done on your own ground. On a shaded, wooded property with tree holes and old containers, the mosquitoes biting your children may have hatched twenty yards away, and the virus may have been in those eggs before they hatched.

Dengue and chikungunya

Both are carried by the Asian tiger mosquito, which is the dominant daytime biter in Kentucky yards. Historically, these were travel diseases in the continental United States, and in Kentucky, they still are, with cases to date acquired abroad. However, the picture in the southeast is changing. Competent dengue vectors are present in approximately half of the counties in the United States (Rivera et al., 2020). In 2026, Florida recorded 23 locally acquired dengue cases through mid-August, and the CDC reported a locally acquired chikungunya case in a United States state in 2025. Local transmission requires an infected traveler, sufficient vector mosquitoes, and a

warm season. Kentucky already has mosquitoes. Although this is not a cause for concern, it is a reason to maintain a low container population.

What Controlling the Vector Can and Cannot Do

Controlling a disease vector reduces human contact with that vector, and at the population scale, the principle is one of the best documented in public health: sustained, community-wide mosquito control has reduced malaria and dengue across whole regions. The question for a homeowner is narrower: what does a treatment on one yard do?

What the research supports

Barrier applications work on the Asian tiger mosquito, and this is the one part of residential vector control where yard-scale evidence is favorable. A North Carolina study of 16 pairs of adjoining yards found that a bifenthrin barrier spray significantly reduced Asian tiger mosquito abundance, that efficacy had not declined 25 days after treatment, and that combining the barrier spray with larval habitat management produced significantly better results than the spray alone (Hollingsworth et al., 2020). A New Jersey study found that lambda-cyhalothrin barrier applications reduced adult mosquito abundance by 74–78 percent for two to four weeks, above the 70 percent reduction generally treated as the effectiveness threshold for this species, and that an insect growth regulator applied alone did not reduce adult abundance (Unlu et al., 2018). A University of Kentucky study of suburban residential properties found the same pattern years earlier, with pyrethroid barrier treatments sharply reducing Asian tiger mosquito biting for several weeks, while not reducing *Culex* (Trout et al., 2007).

Taken together, these findings support the need for an integrated vector control program. Spray alone underperforms. Larval work alone underperforms. Together, they work well for effective mosquito control.

What it does not do

Fewer mosquitoes mean fewer bites, and fewer bites mean less exposure. However, our integrated approach to vector management is not a vaccine and is not a substitute for repellents. For example, a barrier spray may not reach the water where the next generation develops. Larvae in a cryptic container under a deck are not exposed to foliage treatment, and if the containers remain, the population rebuilds between visits. The *Culex* mosquitoes that carry West Nile virus fly farther and rest in different places than the tiger mosquito and will require different approaches to control.

Reducing Exposure on Your Own Ground

Integrated Pest Management involves identifying the species, determining where they are being produced, judging the actual exposure, and using the entire toolbox in the order that does the most good. On a mosquito property, source reduction is the first step every time.

Find the water

This is not typically the obvious birdbath. More often, it is the water that people miss: corrugated downspout extensions and buried drain pipes that hold water indefinitely and are invisible from above, hollow fence posts and open pipe ends, tarp and boat cover folds, plant saucers under pots that are watered every day, tire piles and equipment buckets stored open in shade, and tree holes and rot cavities in mature hardwoods, which are the classic La Crosse habitat.

Eliminate the sources

The highest value action on almost every property. The Kentucky Department for Public Health recommends covering or eliminating containers holding standing water and removing items such as tires, gutters, flowerpots, children's toys, pet food and water dishes, birdbaths, swimming pool covers, buckets, barrels, and cans, along with fixing or installing window and door screens. A container the size of a coffee cup produces mosquitoes.

Treat the water that stays

For permanent or functional water, larvicides such as *Bacillus thuringiensis israelensis* and insect growth regulators can be applied to ornamental features, tanks, and drainage structures. A small amount of well-placed product acts on the population before the individuals can fly.

Exclusion and personal protection

Keep window and door screens in good condition. Fans on porches and patios work better than most people expect against weak-flying container species. CDC-recommended personal repellents remain the front line for individuals, regardless of what happens on the property. A combination of vector control and judicious use of repellents offers the best protection against these pests.

Apply product where the adults rest

A licensed barrier application is typically applied to the shaded resting habitat that mosquitoes use, such as dense lower foliage, shrub interiors, under decks, and along fence lines. It is not effective on open turf, where mosquitoes do not rest. Placement is the difference between a treatment that works for a month and one that works for a week.

Protect pollinators and non-targets

Barrier products are broad-spectrum insecticides, and treating this fact casually is how a mosquito program becomes a pollinator problem. Applications should be timed and placed to keep the product off blooming plants and made in accordance with the product label. Relying on source reduction and larvicides means that less adulticide is needed in the first place, which is the real protection.

Retreat on evidence, not a calendar

This research supports roughly four weeks of effective reduction for the pyrethroid barrier products studied. Retreatment should follow this window and the actual continued presence of mosquito pressure.

A Note on the Numbers

The Kentucky case figures in this guide are from the September 30, 2025, statewide health alert and the Florida and CDC surveillance reports current as of September 2026. Mosquito-borne disease counts change every season. If you are reading this a year or more after the date on the cover, treat the figures as history and check the Kentucky Department for Public Health and CDC for the current data.

References

- Centers for Disease Control and Prevention. (n.d.). *Dengue*. <https://www.cdc.gov/dengue/>
- Centers for Disease Control and Prevention. (n.d.). *La Crosse encephalitis*. <https://www.cdc.gov/la-crosse-encephalitis/>
- Centers for Disease Control and Prevention. (n.d.). *West Nile virus*. <https://www.cdc.gov/west-nile-virus/index.html>
- Centers for Disease Control and Prevention. (2026). *Areas at risk for chikungunya*. <https://www.cdc.gov/chikungunya/data-maps/index.html>
- Florida Department of Health. (2026). *Florida arbovirus surveillance, week 32: August 9–15, 2026*. <https://www.floridahealth.gov/wp-content/uploads/2026/08/fl-arbovirus-report-w32-2026.pdf>
- Hollingsworth, B., Hawkins, P., Lloyd, A. L., & Reiskind, M. H. (2020). Efficacy and spatial extent of yard-scale control of *Aedes (Stegomyia) albopictus* (Diptera: Culicidae) using barrier sprays and larval habitat management. *Journal of Medical Entomology*, 57(4), 1104–1110. <https://doi.org/10.1093/jme/tjaa016>
- Kentucky Department for Public Health. (2025, September 30). *Statewide health alert: Mosquito-borne illness* [Health alert]. Kentucky Cabinet for Health and Family Services. Republished by the Kentucky Medical Association. <https://kyma.org/kentucky-health-alert-increase-in-mosquito-borne-illnesses-in-kentucky-including-west-nile-virus-and-la-crosse-virus/>
- Lexington-Fayette County Health Department. (2025, October 2). *West Nile update* [Press release]. <https://www.lfchd.org/54485-wcsnor/>
- Rivera, A., Adams, L. E., Sharp, T. M., Lehman, J. A., Waterman, S. H., & Paz-Bailey, G. (2020). Travel-associated and locally acquired dengue cases in the United States, 2010–2017. *MMWR. Morbidity and Mortality Weekly Report*, 69(6). <https://doi.org/10.15585/mmwr.mm6906a1>
- Trout, R. T., Brown, G. C., Potter, M. F., & Hubbard, J. L. (2007). Efficacy of two pyrethroid insecticides applied as barrier treatments for managing mosquito (Diptera: Culicidae) populations in suburban residential properties. *Journal of Medical Entomology*, 44(3), 470–477. [https://doi.org/10.1603/0022-2585\(2007\)44\[470:EOTPIA\]2.0.CO;2](https://doi.org/10.1603/0022-2585(2007)44[470:EOTPIA]2.0.CO;2)
- Unlu, I., Williams, G. M., Rochlin, I., Suman, D., Wang, Y., Chandel, K., & Gaugler, R. (2018). Evaluation of lambda-cyhalothrin and pyriproxyfen barrier treatments for *Aedes albopictus*

(Diptera: Culicidae) management in urbanized areas of New Jersey. *Journal of Medical Entomology*, 55(2), 472–476. <https://doi.org/10.1093/jme/tjx216>