

# INSECT *Info*

*Entomology Toward a Better Tomorrow*

## Mosquitoes in Illinois Tires: Where and How Many?

### *Challenge*

Tire piles in Illinois range from a couple of castoffs in the backyard to mountains containing millions in both urban and rural settings. When a single tire is capable of producing as many as 1,000 mosquitoes, it is critical that our Medical Entomology Program address the problem of waste tires, the mosquitoes and the nuisances associated with them, and the potential health hazards.



### *Response*

Our research focuses on obtaining baseline information on tire-inhabiting mosquitoes and improving mosquito control strategies. Our objectives are to

- Determine the number of native mosquito species that live in tires, the population size of each species, and their seasonal distribution;
- Develop a way to detect non-native mosquitoes and diseases;
- Assess the significance of mosquito movement from tire piles to other habitats;
- Document the impact of tire removal on mosquito control;
- Determine how non-native mosquitoes are introduced and become established in Illinois and;
- Determine the impact of the Asian tiger mosquito on native species.

This information will help us determine the impact of waste tires on mosquitoes in both urban and rural environments.

## Accomplishments

1. Surveyed urban and rural tire piles and reported to allied agencies the location of over 50 tire piles, ranging in size from 50 to several thousand tires, and the mosquito species in them.
2. Monitored the seasonal change of the Asian tiger mosquito and native mosquito species in tires throughout Illinois.
3. Documented the movement of the Asian tiger mosquito from tire piles to surrounding urban communities in south, central, and northern Illinois.
4. Discovered that eggs of the Asian tiger mosquito and the eastern treehole mosquito survive tire shredding.
5. Found differences in mosquito production between shaded and unshaded tire piles. Shaded tire piles produce more of the Asian tiger mosquito and the eastern treehole mosquito.

## Impact

Our study of the biology of waste-tire-inhabiting mosquitoes enabled us to monitor the spread of the Asian tiger mosquito as well as native Illinois mosquitoes. This information is essential for developing long-term mosquito and mosquito-borne disease management strategies.



The invasion of the Asian tiger mosquito at Missouri Botanical Garden (above) in St. Louis led to a novel way of combating the pest: a predator non-bloodsucking mosquito was released where the Asian tiger laid its eggs. When the eggs hatched, the predator ate the larvae, thus reducing the population.

Eggs of the Asian tiger mosquito.



## Who We Are



ILLINOIS  
NATURAL  
HISTORY  
SURVEY



College of Agricultural,  
Consumer and  
Environmental Sciences

The Illinois Natural History Survey is the largest and one of the oldest organizations of its kind in the nation. The Survey studies the animal and plant life of the state to determine the most effective means of protecting and intelligently using these resources for the maximum economic, educational, and recreational benefits of all Illinois citizens.

The Survey, now a division of the Illinois Department of Natural Resources, is headquartered on the campus of the University of Illinois at Urbana-Champaign. The Survey consists of four scientific units: the Center for Economic Entomology, the Center for Aquatic Ecology, the Center for Biodiversity, and the Center for Wildlife Ecology.

The role of insects and how they impact the state has been studied since the Survey's inception. The Center for Economic Entomology serves the citizens of Illinois by investigating and resolving entomologically related issues in four sectors: agriculture, medicine, the environment, and the urban setting. The Center is jointly funded through the Survey; the University of Illinois' College of Agriculture, Consumer, and Environmental Sciences; and the Office of Research/Agricultural Experiment Station. In addition to research, the Center for Economic Entomology provides educational outreach and other types of public service activities.

