

INSECT *Info*

Entomology Toward a Better Tomorrow

Medical Entomology Program: An Overview

Challenge

THE PROBLEM:

"Used and waste tire accumulations pose a threat to public health, safety and welfare . . ."

LEGISLATIVE MANDATE:

"To provide for research on disease vectors associated with used and waste tires, and the diseases they spread."

CHARGE TO THE ILLINOIS NATURAL HISTORY SURVEY:

" . . . perform research to study the biology, distribution, population ecology, and biosystematics of tire-breeding arthropods, especially mosquitoes, and the diseases they spread."

— Illinois Waste Tire Act, 1989

Response

The Illinois Natural History Survey created a medical entomology program focusing on tire-inhabiting mosquitoes and the diseases they spread. The complexity of the legislative mandate required the assembly of a multi-disciplinary team of scientists to concentrate on—

- Mosquito-borne diseases in Illinois
- Environmentally sensitive mosquito control tactics
- The impact of mosquitoes breeding in Illinois tires
- Ways to monitor and collect mosquitoes

Tire piles in urban settings are treated for mosquitoes.



Accomplishments

HIGHLIGHTS

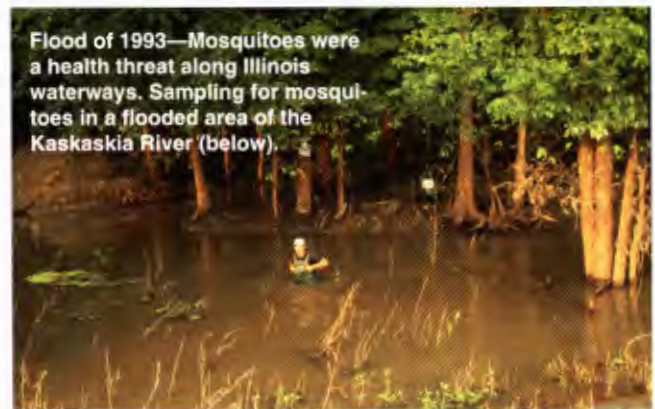
- Developed molecular techniques for virus detection and the identification of disease-carrying mosquitoes.
- Isolated native bacteria that kill mosquitoes.
- Developed and tested corn cob granules as insecticidal carriers for treating tires.
- Searched for new, environmentally safe larvicides (materials that kill immature mosquitoes) from natural products.
- Tested genetic methods for the control of overwintering mosquitoes.
- Documented the dispersal of the Asian tiger mosquito in Illinois and its movement out of tires into the surrounding community.
- Discovered that mosquito eggs survive tire shredding.
- Developed new lures and methods for collecting mosquitoes in urban and rural environments.
- Conducted emergency mosquito surveillance during the flood of 1993.

Goals

Through applied research on the biology of tire-inhabiting mosquitoes, the Illinois Natural History Survey is developing and testing new environmentally friendly and economically sound methods to prevent disease and control mosquito pests in Illinois.



Flood of 1993—Mosquitoes were a health threat along Illinois waterways. Sampling for mosquitoes in a flooded area of the Kaskaskia River (below).



Who We Are

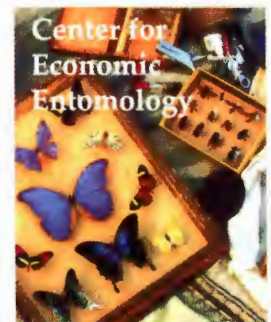


ILLINOIS
NATURAL
HISTORY
SURVEY

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.



College of Agricultural,
Consumer and
Environmental Sciences