

The Asian Tiger Mosquito in New Jersey

Wayne J. Crans, Ph.D., Associate Research Professor in Entomology

In August 1995, a female Asian Tiger Mosquito was detected in a mosquito trap collection at a coastal location in Monmouth County, N.J. A survey performed jointly by the Monmouth County Mosquito Extermination Commission and the New Jersey Agricultural Experiment Station revealed that the mosquito was established along Raritan Bay and was causing nuisance in some areas. In late September, Asian Tiger Mosquitoes were collected from Salem and Cumberland counties in the southern portion of the state. The collection of this exotic species has stimulated widespread media coverage and speculation. This fact sheet discusses the biology of the Asian Tiger Mosquito, the reasons for its sudden appearance in New Jersey and its potential as a new nuisance and vector species.

Where Did the Mosquito Come From?

The Asian Tiger Mosquito is native to the continent of Asia and is fairly common throughout the oriental region. The mosquito ranges from New Guinea and the islands in the Indian Ocean westward to Madagascar. Its range extends northward through India and Pakistan, and through China to about the latitude of Seoul, Korea and northern Japan. Shortly after World War II, the mosquito expanded its range eastward to Hawaii and the islands of the South Pacific. In 1985, a substantial breeding population was discovered near Houston, Texas and the mosquito has since spread rapidly through most of the southeastern United States. The Asian Tiger Mosquito reached Maryland and Delaware by 1987. No further northward expansion was detected until 1995 when the mosquito was

found in Monmouth County. The collections from southern New Jersey suggest that the mosquito has probably been introduced more than once and will probably become firmly established throughout the state.

How Did the Mosquito Get Here?

The Asian Tiger Mosquito is known as a "Container Breeder" because it deposits its eggs in small collections of contained water rather than the swamps or marshes used by most mosquito species. The eggs of the Asian Tiger Mosquito are glued to the sides of the containers and require a period of drying before they are ready to hatch. When rain raises the water level in the container, the eggs hatch and the mosquito develops from larva to adult in the contained water source. The mosquito apparently originated as a forest species that deposited its eggs in tree holes and water that collected in the leaf axils of epiphytic plants. Over time, the mosquito formed an association with mankind and now depends almost entirely on water holding containers that are supplied by humans. The Asian Tiger Mosquito will use almost any container that holds water long enough to complete its life cycle including flower pots, tin cans, plastic buckets, cemetery urns, and discarded tires. Control is difficult because a percentage of the population still deposits its eggs in the natural containers that formed the major habitat for its ancestors. Removing tin cans and tires is a plausible way of controlling this mosquito but gaining access to larvae that are developing in treeholes is an almost impossible task. The tire is a particularly favored breeding habitat and is thought to be responsible for the rapid expansion of this mosquito's range. There is considerable move-



ment of used tires on a world-wide basis. Truck tires from the orient are highly prized for recapping purposes in this country and are considered the probable source of the Texas infestation. The rapid spread of Asian Tiger Mosquitoes since that time is attributed to transport of used tires across state lines that harbor the eggs of this highly adaptable mosquito.

What Does the Mosquito Look Like?

The Asian Tiger Mosquito is a highly ornamented mosquito that is relatively easy to spot by even the casual observer. The mosquito's color pattern consists of a dark black background that is highlighted with bright white markings. The legs are broadly striped with snow white scales, the thorax has a distinct white racing stripe down its center and the abdomen has incomplete white stripes that appear as lines of bold white dots. The Asian Tiger Mosquito, like most mosquitoes, waves her legs above her head as she attempts to bite. The bright banding pattern on the hind legs accentuates the waving behavior and serves as a forewarning for the pain that will follow if the specimen is not swatted. Although the name implies formidable size, the Asian Tiger Mosquito is really quite small. A robust adult female in quest of a blood meal measures slightly less than 1/4" in total length, approximately half the size of the fabled 'New Jersey Mosquito' that breeds on our coastal salt marshes.

Is the Mosquito a Serious Pest?

Some feel that the Asian Tiger Mosquito gets its name as much from its aggressive biting habits as it does from the striped color pattern. The mosquito is not quite as aggressive as some of our famous New Jersey pest species, but the Asian Tiger is a persistent biter that can be a significant pest near its breeding habitat. When the species occurs in large numbers in backyard situations, people can be driven indoors. The mosquito is an opportunistic feeder which will bite as often during broad daylight as it will at dusk. Typical host-seeking behavior involves approaching at ankle level and working its way up the body to find a suitable spot to engorge. In recent years, the Asian Tiger Mosquito has virtually replaced the Yellow Fever Mosquito in most areas of the southern United States. The Yellow Fever Mosquito was considered to be the ultimate domestic pest causing extreme nuisance to

residents of urban areas. Now that the Asian Tiger Mosquito has arrived, mosquito complaints have risen sharply in most of the southern mosquito control districts. The Asian Tiger Mosquito is more aggressive than the Yellow Fever Mosquito, seeks hosts over a broader range of human activity, and has a bite that results in considerably more irritation.

Is There a Health Concern?

When the Asian Tiger Mosquito was first introduced to the United States, there was concern that cases of Dengue Fever might follow. Dengue Fever was a sporadic health problem in the southern United States before the disease was eradicated in the 1940s. The Asian Tiger Mosquito functions as an efficient transmitter of this disease in tropical areas of its oriental distribution. Dengue Fever outbreaks are relatively common in the Caribbean region and carriers could easily introduce the virus to the southern United States by regional travel. With the Asian Tiger Mosquito firmly entrenched, the prospect of renewed Dengue outbreaks is certainly within the realm of possibility. More than a decade has passed since the mosquito was detected in Texas, however, and there has not yet been any increase in Dengue Fever cases. Public health officials are not quite ready to dismiss the threat of Dengue Fever entirely. The disease can be explosive in the Caribbean region and introduction to the southern United States is an ongoing possibility. Since Dengue Fever is primarily tropical, the chance of the disease becoming a public health problem in New Jersey is minimal at best. Laboratory research, however, does indicate that the Asian Tiger Mosquito may function as an efficient transmitter of eastern equine encephalitis, a virus disease of wild birds that occasionally affects horses and humans in the southern half of New Jersey. It is much too early to speculate on the ultimate role of the Asian Tiger Mosquito in encephalitis transmission in this state. At the present time, the mosquito represents a potential nuisance that may require a re-evaluation of priorities relating to domestic mosquito control.

The New Jersey Mosquito Control Association, Inc. contributed funds to defray the cost of this fact sheet.

New Jersey Agricultural Experiment Station Publication No. H-40101-01-95 supported by State funds.

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Desktop publishing by Rutgers-Cook College Resource Center

**RUTGERS COOPERATIVE RESEARCH & EXTENSION
N.J. AGRICULTURAL EXPERIMENT STATION
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY
NEW BRUNSWICK**

Published: April 1996

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