

AN UPDATE ON *Aedes albopictus* IN FLORIDA

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ABSTRACT. *Aedes albopictus* has been reported from 2 Florida counties. This note updates those 2 infestations and reports 9 new county records, tests of pooled mosquitoes for Eastern equine encephalitis virus and the current status of regulations concerning waste tires in the state.

State-wide surveillance for *Aedes albopictus* (Skuse) was initiated in 1986 by the Entomology Services of the Florida Department of Health and Rehabilitative Services (HRS) and local mosquito control agencies. Since tire casings are believed to be the primary mode of dispersal, efforts to find *Ae. albopictus* were directed toward tire accumulations. Adult mosquitoes were collected in portable vacuum aspirators, aerial insect nets, and CO₂-baited CDC and Solid State Army Miniature (SSAM) light traps. Larval collections were made using 350-ml mosquito dippers when no adults could be found. Larvae were reared to the adult stage for identification. Voucher specimens were deposited at the Entomology Services' reference collection in Jacksonville, Florida.

Four counties were discovered infested in 1988, and 6 in 1989 (Table 1). This species is generally distributed across the northern portion of the state with more recent findings in Polk County suggesting a southern spread. Dispersal of *Ae. albopictus* almost could be predicted by following used tire movement and storage. Truck and tractor tires are commonly moved among large cities for resale and appear to be important in the spread of this species. In addition, we have observed that these tires are more likely to maintain mosquitoes probably because they hold a larger volume of water compared with car tires and are less prone to dessication.

Since the initial report of findings in Duval and Escambia counties (Peacock et al. 1988), *Ae. albopictus* has been found in 28 additional tire yard and residential sites in Jacksonville (Duval Co.) and about 5 tire yard sites in the Pensacola area (Escambia Co.). Some of the new sites in Pensacola received tires from Mobile, Alabama, a city known to be infested with the Asian tiger mosquito. Another site of special interest includes the Jacksonville Naval Air Station (S. E. Cope, personal communication), where shipment to new areas and countries is possible.

The original 1.2 million tires in the yard where

Ae. albopictus was discovered in Jacksonville in 1986 were shredded and removed from the site in 1988. A mosquito survey conducted in 1989, about 4 months after the tires were removed, revealed no container-breeding mosquitoes in the area. The operator of this site was charged with creating a sanitary nuisance conducive for the introduction and harboring of the Asian tiger mosquito and other vector species.

With exception of the Jacksonville tire yard and sites discussed below, *Ae. albopictus* typically was found in small (100-300) piles of used truck and car tires of which at least some were known to be from another city, county or state. Most commonly, these accumulations were associated with either tire service companies or scrap collectors/resalers. At the Santa Rosa County site, for example, truck tires had been received from the northernmost known limit of *Ae. albopictus* habitation in the USA—Chicago, Illinois.

The Polk County (Polk City) record was from the state's largest known tire yard. An estimated 5 million tires occupy this site. Since the discovery in May, 1989, 2 additional positive tire yard sites have been found in this county; one was located about 8 km south in Winter Haven and the other located ca. 1.6 km south of Mulberry. These sites, located east of the Tampa Bay area, represent the known southeastern limit of *Ae. albopictus* distribution in the USA.

Thus far, only one adult female has been collected from St. Johns County. Efforts to locate the primary source have been negative. The Clay County record was unique in that tires were not known to be nearby. That collection was made by military personnel participating in field vector surveillance training who collected larvae from a cemetery site.

During August 1988, a seroconversion for Eastern equine encephalitis (EEE) virus occurred in a sentinel chicken flock located within the known Jacksonville distribution of *Ae. albopictus*, ca. 0.1 km from the large tire yard. Seroconversions for EEE virus are common in Florida (Florida Arbovirus Surveillance

Table 1. County records of *Aedes albopictus* in Florida.

Report no.	County	City	Date discovered	Source	Type of collection	Collector and identifier
1*	Duval	Jacksonville	July 3, 1986	Tires	Biting adults	B. E. Peacock and P. G. Gregory
2*	Escambia	Brownsville	May 24, 1988	Unknown	CDC trap	L. Padgett, Jr. and E. K. Cook
3	Alachua	Archer	October 14, 1988	Tires	Larval and pupal	K. St. Pierre
4	Taylor	Perry	October 19, 1988	Tires	Larval and biting adults	T. M. Loyless and Ron Mandziara
5	Columbia	Ft. White	November 7, 1988	Tires	Biting adults	J. P. Smith and T. M. Loyless
6	Polk	Polk City	May 10, 1989	Tires	CDC trap	I. R. Hill and C. D. Morris
7	Dixie	Old Town	July 13, 1989	Tires	Larval	Jerome Blake and J. P. Smith
8	Walton	Santa Rosa Beach	June 28, 1989	Tires	Biting adults	J. P. Smith and J. F. Clauson
9	St. Johns	St. Augustine	August 2, 1989	Unknown	SSAM trap	Bob Betts
10	Clay	Camp Blanding	August 16, 1989	Cemetery flower vase	Larval	S. E. Cope and military personnel
11	Santa Rosa	Milton	August 24, 1989	Tires	Biting adults	J. P. Smith and Sue Zublike

* Refer to Peacock et al. (1988).

Reports¹), but seldom within areas located near inner city environments, as was the tire yard. A total of 578 female *Ae. albopictus* were collected on August 9 and November 10 and tested in 16 pools for arbovirus using suckling mice. All pools were negative for any arbovirus.

Control of *Ae. albopictus* in Florida continues to rely on monitoring the spread of the mosquito, education and the encouragement of source reduction. Thus far, 31 field trips have been made by Entomology Services staff to 15 counties throughout the state. The Centers for Disease Control conducted 2 additional surveys in south Florida and intensive surveillance in Jacksonville. Literature, keys, specimen, specific training and presentations on methods of surveillance and control have been provided to local mosquito control personnel and environmental health specialists affiliated with the county public health units.

The Florida Comprehensive Solid Waste Act of 1988 led to legislation regulating waste tire storage and disposal in Florida. If enforced properly, these rules should help limit the production and spread of tire-breeding mosquitoes. As of July 1, 1989, outdoor accumulation of more than 1,000 waste tires (except at a permitted processing facility) is prohibited in Florida. Except where exempted by rule, most persons accumulating fewer tires must obtain a state permit which identifies the location and requires minimum storage standards including mosquito control. Furthermore, waste tires must be shredded before being disposed in local landfills. Shredding will help eliminate mosquitoes breeding in whole tires that resurface after burial. Transport of more than 25 tires at one time also requires a permit with approved destination storage and disposal plans. The law provides for a surcharge on all new tire purchases to be used primarily to help counties fund waste tire disposal. Finally, the Solid Waste Act also provided the impetus for modification of the state litter law so that dumping of waste tires in Florida is now a felony offense.

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