THE CENTERS FOR DISEASE CONTROL'S PERSPECTIVE OF
THE INTRODUCTION OF AEDES ALBOPICTUS INTO
THE UNITED STATES

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ABSTRACT. The Asian "tiger mosquito" Aedes albopictus has become established in the southern United
States. The Centers for Disease Control has taken a number of steps to respond to the problem. Appropriate
state and international agencies have been informed, and data on biology, public health importance and
identification have been prepared and distributed to state and local agencies. Studies on insecticide
susceptibility and vector competence are in progress, as is surveillance throughout the southeast, in
cooperation with state and local agencies. The introduction of Ae. albopictus presents a major challenge to the
mosquito control community.

INTRODUCTION

On January 30, 1986, the Division of Vector-Borne Viral Diseases (DVBD), Centers for Dis-
ease Control (CDC), Fort Collins, Colorado, was
informed by the Harris County Mosquito Con-
trol District (Texas) that the so-called Asian "ti-
ger mosquito" (Robertson and Hu 1935) Aedes
albopictus (Skuse) had been established over a
large portion of Harris County. Since that time,
infestations have been found in other Texas coun-
ties and in Louisiana (CDC 1986a, 1986b).

The CDC views the introduction of Ae. albopictus
as a potentially serious public health problem,
both for the United States and for other coun-
tries in the hemisphere; we are devoting a ma-
jor portion of our time and effort to the matter.
We have informed state, federal, and interna-
tional agencies of the introduction. Together
with the Texas Department of Health, the Har-
sis County Mosquito Control District, the Uni-
versity of Texas School of Health Sciences and
a group of consultants, we have identified ac-
tions that might be taken and major questions
to be answered before selecting a particular con-
trol strategy. We have prepared background bro-
cohues on the biology, identification, and public
health importance of Ae. albopictus for distribu-
tion to state and local agencies. In Fort Collins,
we are currently establishing insecticide suscep-
tibility and vector competence profiles of the
Houston albopictus population.

In cooperation with state and local health
departments and mosquito control districts, the
CDC is gathering the following crucial informa-
tion on Ae. albopictus: (1) the present distribu-
tion and density and the types of larval habitats
(e.g., tree holes and other natural containers);
(2) routes of spread from infested areas to
uninfested areas within the United States; and
(3) mode of importation of this and other
container-breeding species into the United
States from overseas.

We are strongly encouraging state and local
agencies that find this species within their juris-
dictions to initiate control measures against it.
Eggs and larvae seem to move from one area to
another in shipments of used tire casings for
the retreading and recycling industry. Thus, a
major component in confining infestations in-
volves the cooperation, and possible regulation,
of these businesses. It is a large business, and
tires are routinely shipped over long distances.
Tire retreaders and recyclers need to be made
aware of the seriousness of the problem and
ensure that they are not helping to spread the
mosquito.

Aedes albopictus is an efficient vector of den-
gue virus and the dog heartworm Dirofilaria im-
mits in nature, and we know that it is susceptible
to a variety of pathogens in the laboratory (Shroyer
1986). Based on what is known about host pref-
cence and other behavioral characteristics, the
question is what other New World pathogens of
medical or veterinary importance might be vec-
tored by this species? Since United States pop-
ulations of Ae. albopictus are capable of diapausing,3
what is the likelihood of the species extending
its range northward and eventually becoming

1 This and the accompanying papers in this issue
(Bartnett, Knudsen, Rai and Shroyer) and that of
Sprenger and Wuithiaryngool (1986) are adapted
from presentations at a symposium held at the New
Orleans meeting of the American Mosquito Control
Association, April 21, 1986, at the suggestion of Dr.
George B. Craig.

2 As of September 30, 1986, infestations had been
reported in Alabama, Arkansas, Florida, Georgia,
Illinois, Indiana, Louisiana, Mississippi, Missouri,
Ohio, Tennessee and Texas, as well as in three states
in Brazil.

3 Hawley, W. A., P. Reiter, R. S. Copeland, C. B.
Pumpuni and G. B. Craig, Jr. Aedes albopictus in
North America: Probable introduction in tires from
involved in La Crosse virus transmission in the midwest?

We currently lack sufficient information to formulate a truly rational control-eradication program. A few of the questions that still require answers are: (1) Can *Ae. albopictus* be eradicated from the United States, and if so, at what cost? If not eradication, then can targeted source reduction lower urban populations sufficiently to prevent epidemics? (2) If eradication is attempted, will there be rapid selection for tree-hole breeding, sylvan populations as suggested for *Ae. aegypti* by McClelland (1967)? (3) Will *Ae. triseriatus* and indigenous species prevent colonization of natural container habitats or will *Ae. albopictus* replace one or more indigenous species? (4) What will be the long- and short-term costs of the several alternatives that are open to us? (5) What are the hemispheric implications of the possible responses available to us?

The introduction and establishment of *Ae. albopictus* in the United States presents major challenges to the mosquito control and medical entomology community by testing what we know about optimal strategies for vector control. It also presents a challenge to governmental agencies and other decision-making bodies that must establish program priorities, such as funding for direct control; research on biology, behavior and disease vector capacity; and prevention of introduction and movement. The emphasis placed on each of these latter program components will be based, in large part, on the overall strategy (e.g., eradication, localized source reduction, etc.). It is important that the overall strategy be selected with the greatest possible care, using all of available data—both biologic and economic.

References Cited