

A SURVEY OF THE MOSQUITO FAUNA IN ULITHI ATHOL, YAP STATE, FEDERATED STATES OF MICRONESIA

NODA Shinichi¹⁾ and John GILMATAM²⁾

Abstract

Surveys of larval mosquitoes were carried out in four Islands of Ulithi Athol, Mogmog, Falalop Asor, and Fassarai, in October 2001. Larval mosquitoes were collected at 56 habitats which are composed of coconut shells, cans, plastic vessels, metal vessels, a ceramic vessel, a plastic bucket, a shell, a tuckerbox, plastic water barrels, metal water barrels and a concrete water tank. Only two mosquito species, *Aedes (Stegomyia) hensilli* and *Culex (Culex) quiquefasciatus*, were collected at various artificial habitats of four islands.

Keywords: mosquito fauna, *Aedes hensilli*, Ulithi Athol, Federated States of Micronesia

Introduction

The most important group of biting insect is the mosquitoes. Their biting is a considerable nuisance in many parts of the world. More importantly, mosquitoes are carriers of a number of diseases, mostly in the tropics, causing illness and death on a large scale. Dengue fever is caused by several closely related viruses, called dengue types 1, 2, 3 and 4. The disease is transmitted from person to person mainly by *Aedes aegypti*, but *Aedes albopictus* can also act as a vector. Two forms of the disease occur: dengue fever and dengue haemorrhagic fever. The disease is prevalent in the tropics and subtropics, particularly in Southeast Asia. The World Health Organization estimates that 2000 million people are at risk. Each year there are millions of infections and thousands of deaths. Recently, a dengue fever/dengue haemorrhagic fever outbreak in Yap State caused by dengue-4 virus was confirmed serologically and by virus isolation from serum samples. And entomologic investigations implicated the native mosquito species, *Aedes hensilli* as a previously unrecognized epidemic vector of dengue viruses (SAVAGE et al. 1998). We report here the fauna and breeding sites of mosquitoes in Ulithi Atoll, Yap State, Federated States of Micronesia.

Materials and Methods

Surveys of larval mosquitoes were carried out in four Islands of Ulithi Athol, Mogmog, Falalop, Asor, and Fassarai, on October 2001. Larval mosquitoes were collected at 56 habitats which are composed of coconut shells, cans, plastic vessels, metal vessels, a ceramic vessel, a plastic bucket, a shell, a tuckerbox, plastic water barrels, metal water barrels and a concrete water tank. Collected larvae were preserved in 70% ethanol for the identification.

¹⁾ Kagoshima University Research Center for the Pacific Islands. Kagoshima 890-8580, Japan.

²⁾ Department of Health Services, Yap State Government, P. O. Box 148, Colonia, Yap 96943, FSM.

Results and Discussion

Table 1 presents the result of the mosquito collection. Only two mosquito species, *Aedes (Stegomyia) hensilli* and *Culex (Culex) quiquefasciatus*, were collected at various artificial habitats of four islands. Four hundred seventy-three larvae of *Ae. hensilli* were collected from 51 habitats: coconut shells, cans, plastic vessels, metal vessels, a plastic bucket, a shell, a tuckerbox, plastic water barrels, and metal water barrels (Fig. 1). One hundred eighty-five *Cx. quiquefasciatus* were collected from 9 habitats; a ceramic vessel, a plastic vessel, a metal vessel, a tuckerbox, plastic water barrels, metal water barrels and a concrete water tank (Fig. 1).

Aedes larvae are container-breeders which thrive in both clean and organically rich water in both natural and artificial containers. On four islands, larvae of *Ae. hensilli* were collected from various sizes of artificial container. There are few natural habitats of mosquito larvae on the four islands. Mosquito larvae were not collected from the taro patch on Mogmog Island. Entomologic investigations implicated *Ae. hensilli* as a vector of dengue viruses (SAVAGE et al. 1998). For the prevention of dengue fever outbreak, the container management to reduce the sources of breeding habitats is one of the best approaches. If the containers are considered to be useless or non-essential, removal and destruction is desirable. If the population considers the containers to be useful or essential, the strategy employed will be the prevention of *Aedes* breeding in containers rather than the destruction or removal of the containers. These programmes should be conducted concurrently with health education programmes and communications to encourage community participation in the planning, execution and evaluation of container-management programmes (e.g. regular household sanitation or clean-up campaigns) (WHO 1997).

References

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Table 1. Number of mosquitoes collected in islands of Urithi Athol

Island	Larval Habitat	<i>A. h.</i>	<i>C. a.</i>
Mogmog	coconut shell	1	
	coconut shell	3	
	coconut shell	5	
	coconut shell	9	
	coconut shell	17	
	can	4	
	plastic vessel	1	
	plastic vessel	1	
	ceramic vessel		3
	metal vessel	32	
	plastic water barrel	9	7
	metal water barrel	2	
	metal water barrel	6	
	metal water barrel	8	
Falalon	coconut shell	3	
	coconut shell	13	
	coconut shell	15	
	coconut shell	16	
	coconut shell	31	
	plastic vessel	1	11
	plastic vessel	2	
	metal vessel		30
	metal vessel		34
	plastic water barrel	5	
Asor	metal water barrel	1	32
	coconut shell	1	
	coconut shell	1	
	coconut shell	2	
	coconut shell	2	
	coconut shell	5	
	coconut shell	15	
	coconut shell	21	
	coconut shell	41	
	plastic vessel	1	
	plastic vessel	1	
	metal vessel	2	
	tuckerbox	3	48
Fassarai	metal water barrel	1	
	metal water barrel		1
	coconut shell	1	
	coconut shell	5	
	coconut shell	8	
	coconut shell	9	
	coconut shell	10	
	coconut shell	19	
	coconut shell	62	
	can	1	
<i>A. h.</i> : <i>Aedes (Stegomyia) hensilli</i>	can	6	
	can	23	
	shell	9	
	plastic vessel	1	
	plastic vessel	20	
	plastic bucket	15	
	plastic water barrel	1	
	metal water barrel	2	
	concrete water tank		19
<i>C. q.</i> : <i>Culex (Culex) quinquefasciatus</i>			



Fig. 1. Larval habitats in Ulithi Athol; (a) coconut shell, (b) can, (c) plastic vessel, (d) plastic water barrel, (e) metal water barrel, (f) concrete water tank.