

# Sociocultural factors affecting mosquito breeding sites

A case study of Thai and Burmese residences in Ranong,  
Thailand



# Introduction and Review of Literature

1

Pour out any standing water

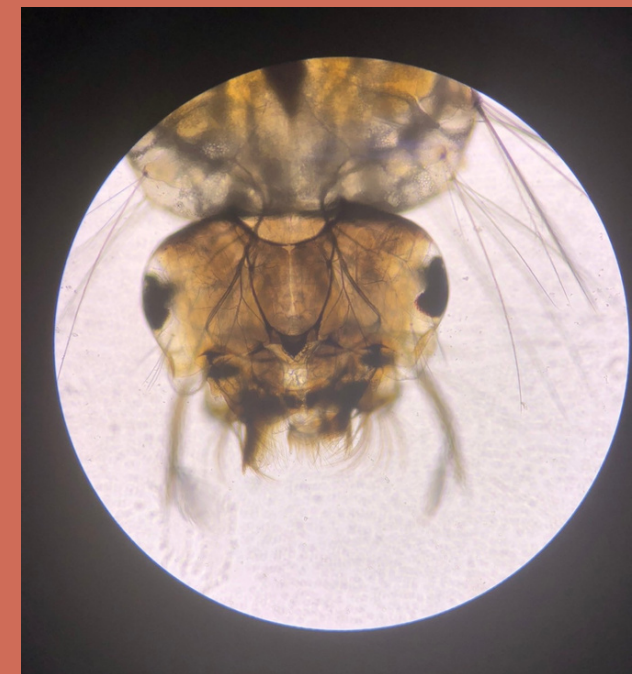


Mosquitoes breed on still water

2



3



Pour out any  
standing water



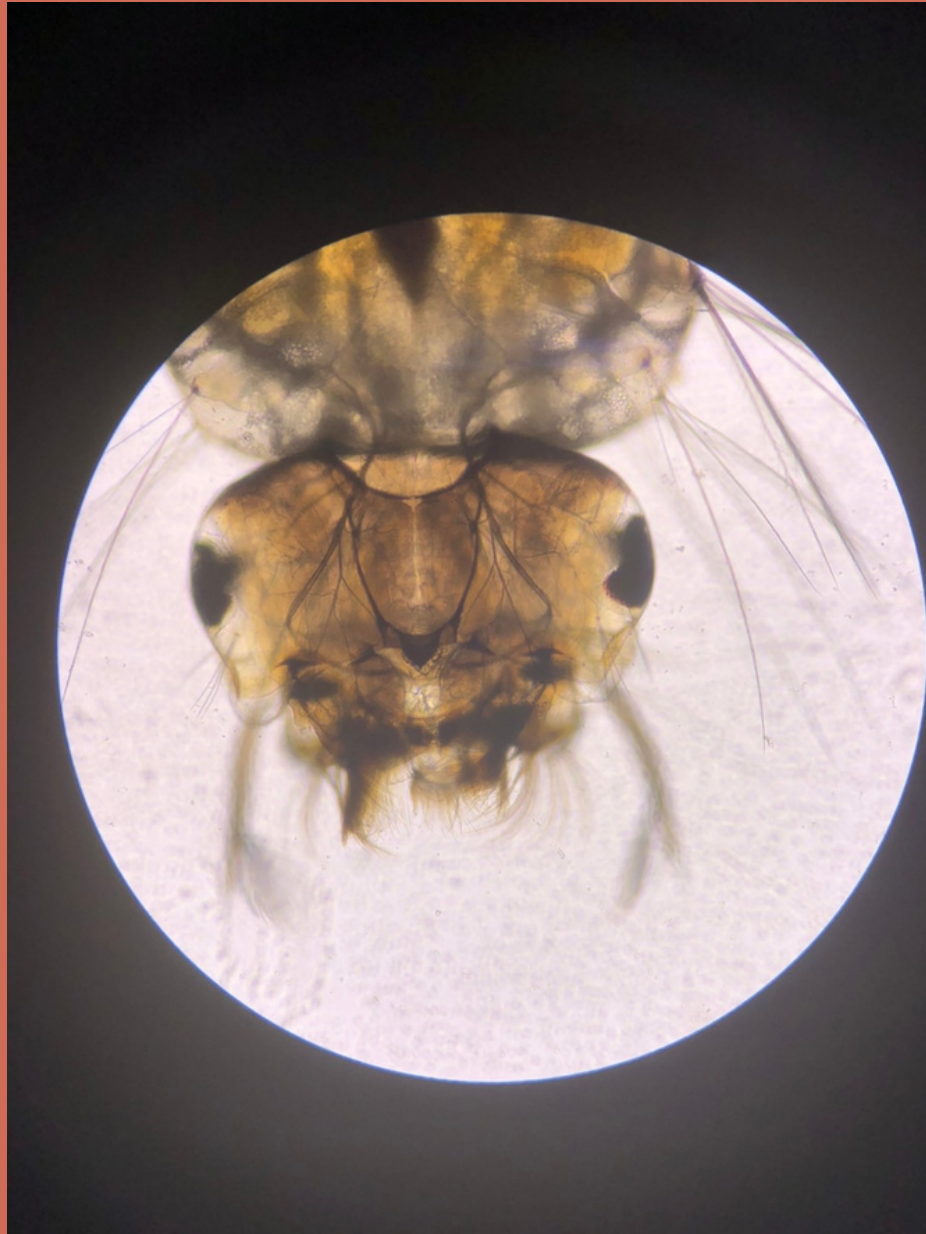
Mosquitoes breed  
on still water

**One of the most effective ways to control a mosquito population is to reduce its breeding habitats.**



**Due to the COVID 19 situation, one of the research team return to their hometown of Ranong Province which has a large number of migrant workers from Myanmar. we felt concerned that there were a number of mosquito breeding sites in the workers' residences due to mismanagement.**





**The objectives of this study are:**

- 1.) To investigate positive container and number of mosquitoes in Thai workers' household and Burmese workers' households by using GLOBE Observer Mosquito Habitat Mapper Application and**
- 2.) To compare sociocultural factors: the number of members in the house, education level career and the number of mosquito larvae found in the containers.**

# Research Questions

01

- How many positive containers and mosquito larva can be found in Thai and Burmese workers' residence?

02

- Are there any difference in the number of mosquito larva found in the containers in Thai and Burmese household in different social factors?

# Data collection

## 1. Use GLOBE Observer: Mosquito Habitat Mapper App

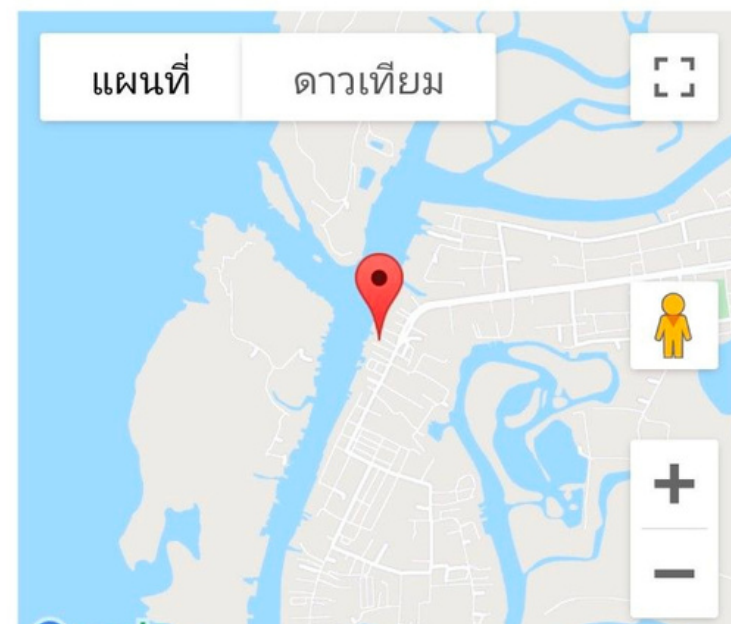
### Step 1

Enter location coordinates:

Latitude: 9.9502

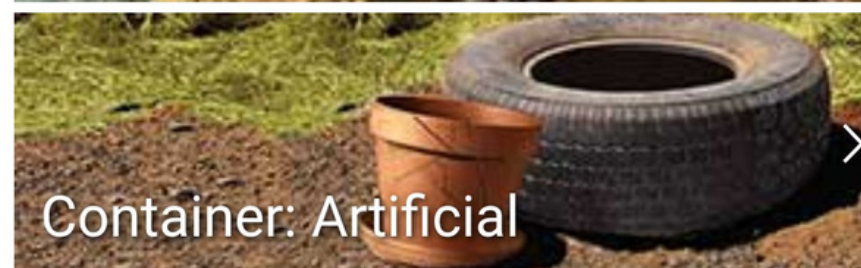
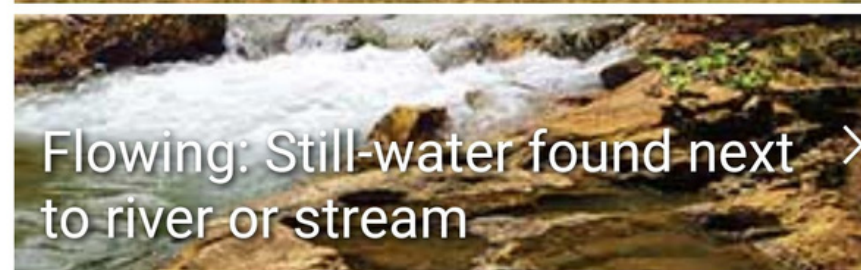
Longitude: 98.5960

Use 2 fingers to move map



### Step 2

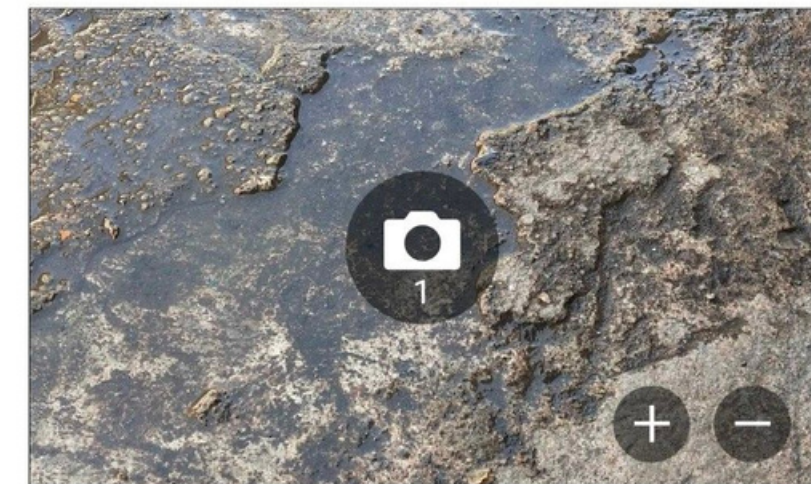
What is the source of the water?



### Step 3

< Identify Breeding Habitat Save

Site Photo



Next >



# Data collection

## 1. Use GLOBE Observer: Mosquito Habitat Mapper App

### Step 4



Can you see mosquito larvae in the water?

Yes >

No >

Not sure >

### Step 5

Tips on Sampling

How many larvae do you see?

3

Do you see any of the following in your sample, or nearby?

Number of pupae ([example](#)):

Enter pupae count

Mosquito Eggs ([example](#))

Adult Mosquitoes

### Step 6

By dumping or treating water, you can significantly decrease the spread of mosquitoes. Public health officials in your area may have suggestions on how to treat water that cannot be dumped.

Did you dump out the water?

Yes >

No >



# Data collection

2. Conduct interview to collect information about sociocultural factors



# Data analysis

**1**

1.Import the data into SPSS Version 22 Program.

**2**

2.Describe  $f$  mean  $SD$  and sum of the variables.

**3**

3.Use T-test and One-Way ANOVA to compare the factors.

# Results



Number of	Thai			Burmese		
	Home	Shop	Rented Room	Home	Shop	Rented Room
Positive Container	25	19	3	-	-	64
Sum of Larvae	134	166	23	-	-	267
Type of Larvae type	3	2	3	-	-	3

Table 1 positive containers, mosquito larvae, and mosquito larva species found in different residence.

	No. of positive containers												
	Earthen jar	Plant pot	Plant saucer	Cement Container	Drainage	bottle	Bucket	Fishtank	Pond	Puddle	Vase	Glasses	Total
Thai (30 households)	7	11	7	0	12	6	11	4	5	3	7	9	82
Burmese (30 households)	0	3	0	0	6	16	21	0	10	7	21	20	104
Total	7	14	7	0	18	22	32	4	15	10	28	29	186

Table 2 different types of positive containers in Thai and Burmese residence

	No. of mosquito larva in each species			
	<i>Ae. aegypti</i>	<i>Ae. albopictus</i>	<i>Culex</i>	Total
Thai (30 households)	170	79	62	311
Burmese (30 households)	165	54	48	267
Total	335	133	110	578

Table 3 mosquito larva species in Thai and Burmese residence

Number of	Thai		Burmese		t	df	p
	Mean	SD	Mean	SD			
Positive container	1.808	0.749	2.286	1.084	-1.896	48.169	0.064
Sum of larvae	12.423	9.023	9.536	5.903	1.401	52	0.167
Type of larvae species	1.923	0.560	2.036	0.793	-.606	48.656	0.547

Table 4 comparing the mean of positive containers, total mosquito larvae found, and mosquito larva species found in Thai and Burmese residence

Mosquito larvae species	Thai		Burmese		t	df	p
	Mean	SD	Mean	SD			
A. aegypti	6.30	4.598	4.23	3.149	2.028	42.562	.049*
A. albopictus	5.27	4.920	2.35	2.080	2.174	17.305	.044*
Culex	4.43	3.031	2.67	1.749	2.068	30	.047*

Table 5 comparing the number of total mosquito larvae found in Thai and Burmese residence

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
A.aegypti	Between Groups	148.246	6	24.708	1.722	.132
	Within Groups	846.376	59	14.345		
	Total	994.621	65			
A.albopictus	Between Groups	105.036	6	17.506	1.335	.272
	Within Groups	406.464	31	13.112		
	Total	511.500	37			
Culex	Between Groups	43.630	5	8.726	1.490	.227
	Within Groups	152.245	26	5.856		
	Total	195.875	31			

\*sig<0.05

Table 6 comparing mosquito larva species within different types of containers



		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
A.aegypti	Between Groups	557.226	10	55.723	7.007	.000
	Within Groups	437.395	55	7.953		
	Total	994.621	65			
A.albopictus	Between Groups	178.717	8	22.340	1.947	.091
	Within Groups	332.783	29	11.475		
	Total	511.500	37			
Culex	Between Groups	104.425	8	13.053	3.283	.012
	Within Groups	91.450	23	3.976		
	Total	195.875	31			

\*sig<0.05

Table 7 comparing mosquito larva species found in the residence of people with different careers

	Thai			Burmese		
	<i>Ae. aegypti</i>	<i>Ae. albopictus</i>	<i>Culex</i>	<i>Ae. aegypti</i>	<i>Ae. albopictus</i>	<i>Culex</i>
No of households	30	30	30	30	30	30
No of positive households	22	13	14	23	18	16
No of containers	82	82	82	104	104	104
No of positive containers	27	15	14	39	23	18
Larval Index						
HI	73.33	43.33	46.67	76.67	60.00	53.33
CI	32.93	18.29	17.07	37.50	22.12	17.31
BI	90.00	50.00	46.67	130.00	76.67	60.00

HI: The number of positive household for Aedes per 100 houses.

BI : The number of positive container for Aedes per 100 containers.

CI: The number of positive container for Aedes per 100 houses.

Table 8 HI, CI and BI for each species in both Thai and Burmese.

# Conclusion

1. From this study, Thai found more mosquito larvae than Burmese. Both Thai and Burmese found the *Ae.aegypti* the most. However, Thai found less positive container than Burmese, with Thai found the most positive container in type of drainage and Burmese found the most positive container in type of bucket and vases.
2. It was found that nationality was related to the number of mosquito larvae. There were more *Ae. aegypti*, *Ae. albopitus*, and *Culex* in Thai residence than in Burmese residence.
3. The container type was associated with the number of mosquito larvae in relation to the mosquito larvae of *Ae.aegypti* and *Culex*. *Ae.aegypti* and *Culex* mosquito larvae were found at most in bucket type containers and none were found in cement container.
4. Larvae index was calculated for each species in both Thai and Burmese. HI, CI and BI were found in wide range (17.00-130.00). HI of all mosquito larvae were high in both nationalities (HI must less than 10%, WHO). CI were 32.93 and 37.50 for *Ae. aegypti*, 18.29 and 22.12 for *Ae. albopictus*, and 17.07 and 17.31 for *Culex* in both Thai and Burmese.



# Thank you

