



# EXPLORING MOSQUITO LARVAL HABITATS IN MOMBASA COUNTY - KENYA

(Chloe Chelly Solheim, Hafsa Jamal Yasir, Kyle Lamar Ochieng)

## INTRODUCTION

Mosquito-borne diseases, such as malaria and dengue, continue to be a significant public health concern worldwide. In Mombasa, Kenya, these diseases pose a serious threat to human health. The aim of this research project is to explore mosquito larval habitats in Mombasa, Kenya, and identify the environmental and human factors that influence the breeding grounds of mosquitoes. The project used different methods to gather data, including field studies, surveys and laboratory analysis. Water samples were collected and analyzed to determine their characteristics and the presence or absence of mosquito larvae. The data collected was analyzed to determine the relationships among the variables under study. The results of the study provided valuable insights into the factors that affect mosquito habitat and the health risks associated with their presence in different types of habitats in Mombasa. The findings will be used to develop effective strategies for controlling these diseases and minimizing potential health risks.

## RESEARCH QUESTIONS

1. What types of breeding places do mosquitoes lay their eggs in Mombasa?
2. How do human activities such as water storage practices and waste disposal influence the availability and suitability of mosquito's larval habitats in Mombasa?
3. What are the potential health risks associated with the presence of mosquito larvae in different types of habitats in Mombasa?

## METHODS

### Equipment and materials

- Dropper
- Paper towels
- Bucket
- Forceps
- Magnifier / Hand lens
- Macro pipette
- Mobile device with GLOBE Observer Mosquito Habitat Mapper
- A clip-on Macro lens (60-100x)

## PROCEDURE

To carry out this project, we used different methods to collect data from the breeding places on human activities, and health risks associated with mosquito larvae in Mombasa.

### i) Survey of the study area



Students carrying out household survey

### ii) Identification of mosquito larvae



Students identifying mosquito larvae collected

### iii) Meeting with County Officials

We engaged in a discussion with county officials to create a better understanding of the distribution of mosquito breeding grounds and the environmental factors influencing mosquito populations. With this information gathered we identified our main region and performed four different field studies. We further identified potential breeding spots and gathered water samples containing mosquito larvae. Using the GLOBE Observer Mosquito Habitat Mapper, we determined the prevalent mosquito species in the area.

## RESULTS

### Findings from our field study

The findings from our field study revealed that there was evidence numerous breeding sites of mosquitoes. Uncovered water storage jericans were observed in most of the residential areas visited. In some areas like Bombolulu and Kisauni, clogged drainage system provided a conducive area for breeding of mosquitoes. The plastic containers left in the waste collection points especially in Tudor Moroto also provided conducive sites for mosquito breeding.

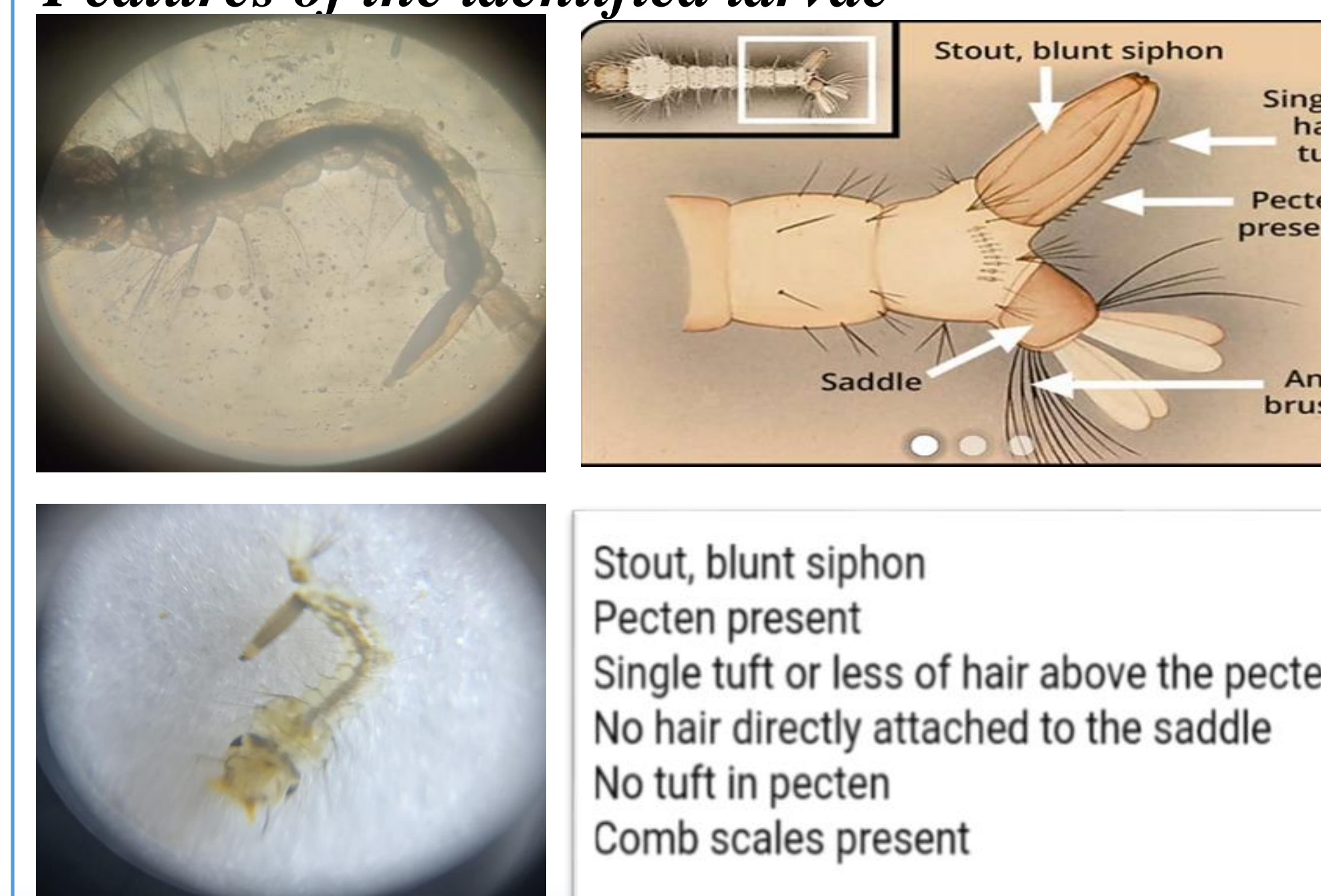
### Mosquito breeding sites



### Identification of Larvae collected

Breeding Sites	Samples count	Positively identified larvae	Others / unknown
Tyres	30	10	20
Man holes	96	82	14
Clogged drainage	213	196	17
Tree holes	25	18	7
Storage jericans	52	34	18

### Features of the identified larvae



Stout, blunt siphon  
Pecten present  
Single tuft or less of hair above the pecten  
No hair directly attached to the saddle  
No tuft in pecten  
Comb scales present

## CONCLUSION

In conclusion, the research project exploring mosquito breeding habitats in Mombasa has an immense potential for addressing the public health challenges posed by mosquito-borne diseases. By understanding the preferences and environmental factors that contribute to mosquito breeding, the project aimed at providing valuable insights for targeted interventions and control measures. Through community engagement and education, the project empowered the local population with knowledge on mosquito prevention, waste management, and water storage practices. The study found that *Aedes* mosquitoes largely breed within Mombasa County, and there were 266 positive cases of dengue recorded between January 2022 and February 2024 in the Tudor County Hospital only. By reducing the prevalence of mosquito-borne diseases and fostering a cleaner environment, the research project contributes to a healthier and more productive community in Mombasa.

The study's recommends:

- Public education campaigns to raise awareness about mosquito breeding sites, prevention methods, and the risks associated with mosquito-borne diseases.
- Monitoring and treatment of stagnant water sources.
- Collaboration between local authorities, community leaders, and environmental agencies can help develop and enforce effective waste management policies, ensure safe water storage, and eliminate potential breeding grounds for mosquitoes.

## ACKNOWLEDGEMENT

- We would like to thank and appreciate our Principal Mrs. Anu Lazar and our deputy head Mr. Tunje for giving us an opportunity to run the GLOBE Program in our school.

- Great appreciation to our GLOBE teachers Ms. Beatrice Oyange, Mr. Richard Muema, and Ms. Maureen Okayo for their guidance and support in our research project.

- We acknowledge the Mombasa County Government officials for supporting and collaborating with us in during the project.

- We thank the local community at Tudor Moroto Slum and other parts of Mombasa for allowing us to carry out a research project in their locality.