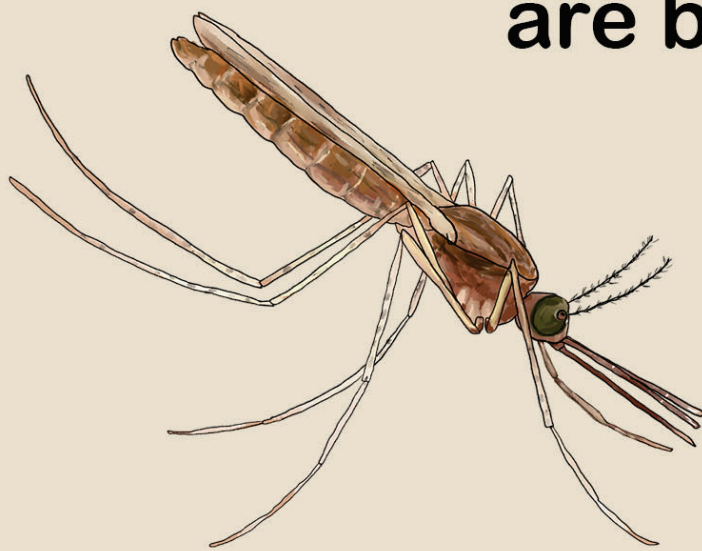


# Anopheles in Zambia

Zambia has over 30 species of *Anopheles* mosquitoes, a number of which vector malaria. The most important vectors are *An. funestus*, *An. gambiae*, and *An. arabiensis*, but secondary vectors like *An. squamosus* are becoming more significant. This poster describes basic *Anopheles* biology and the associated disease risk.



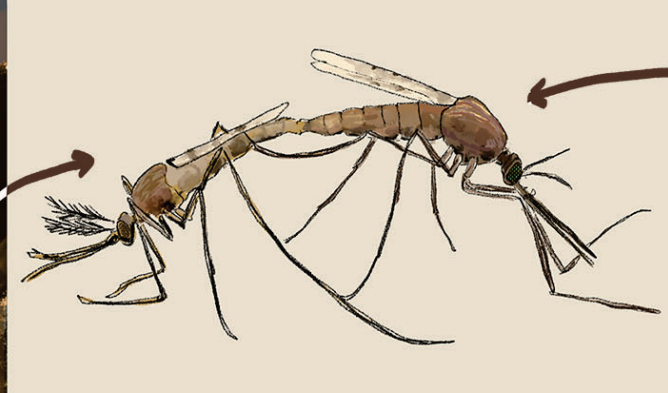
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Irka Blosser and Yoosook Lee (UF/IFAS)

## MATING BIOLOGY

Mating occurs in swarms at dusk.

Swarms form over species-specific markers (e. g. an open patch of ground or a pile of wood).

Males fly in a stationary holding pater and mate with females entering the swarm.



Female mosquitoes mate only once, while males can mate up to four times.

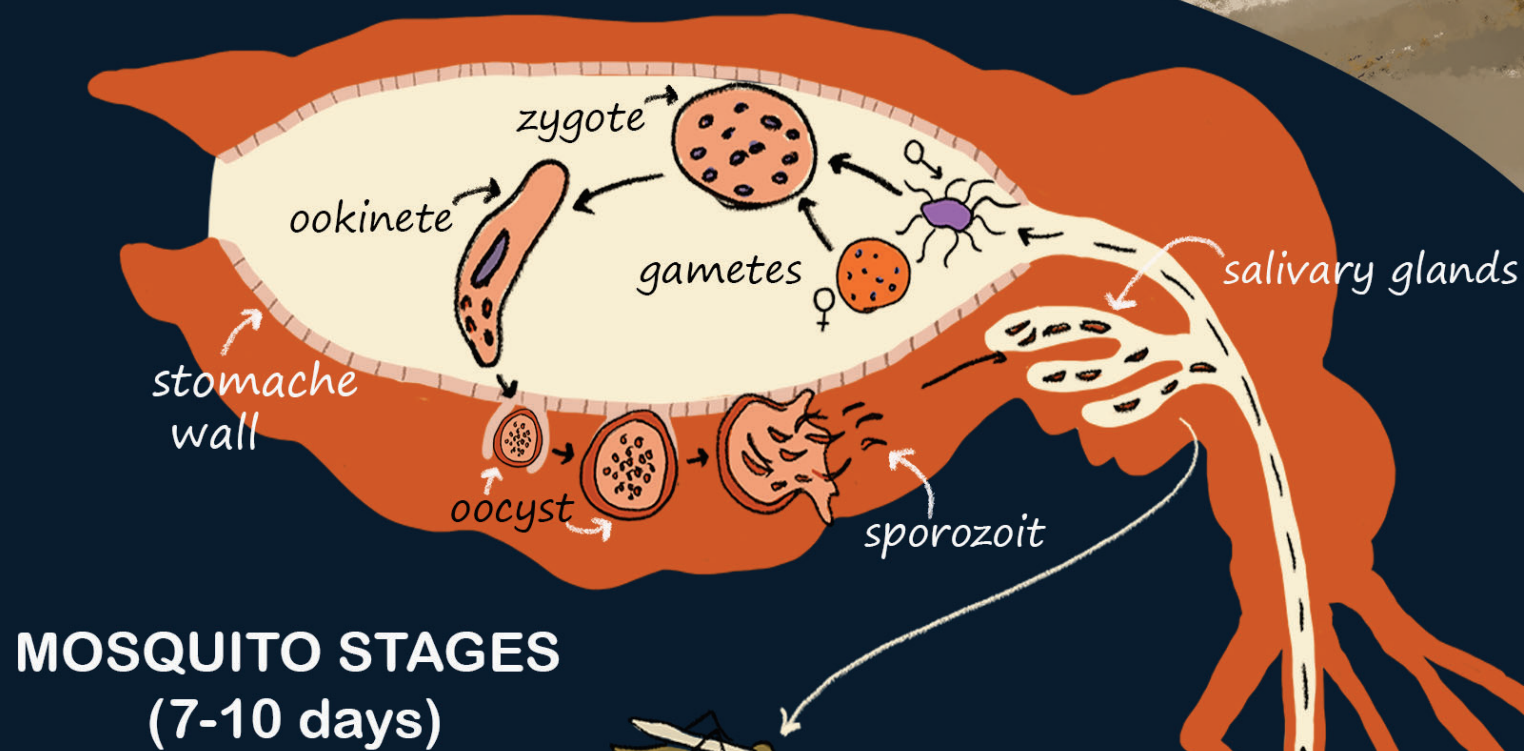
## ONLY FEMALE MOSQUITOES BITE!

They use the energy derived from a blood meal for egg production.

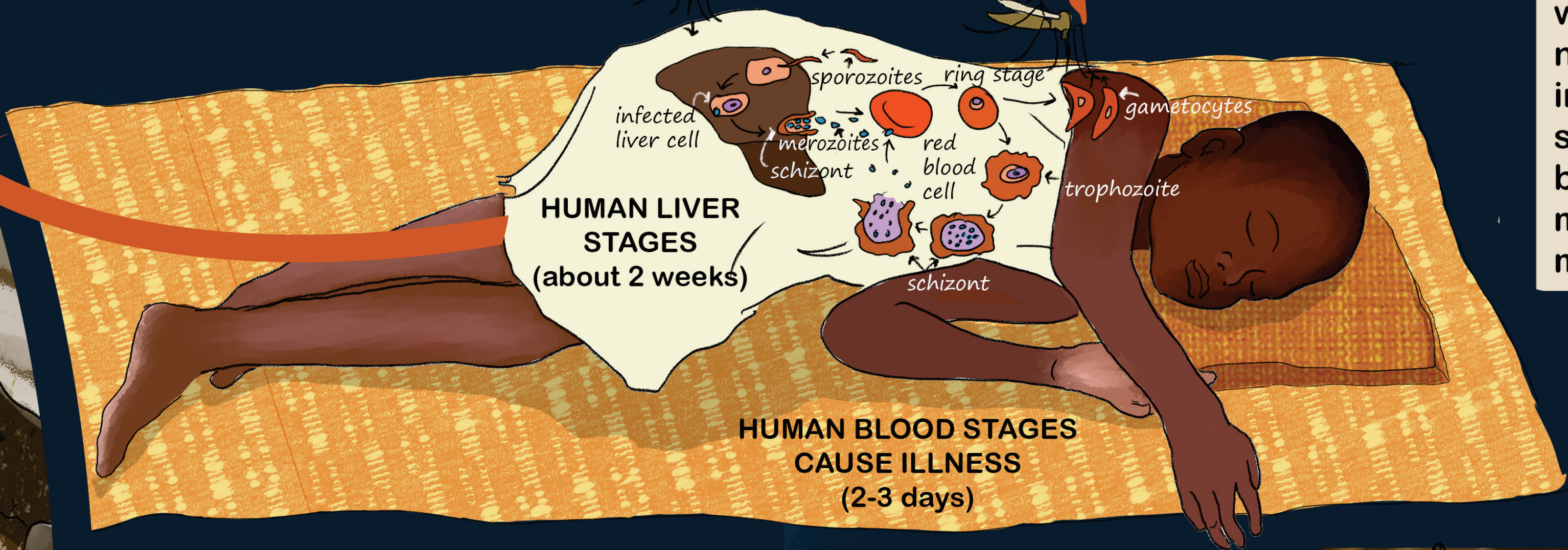
Mosquitoes find their hosts by detecting carbon dioxide and odor, and use visual cues, temperature, and humidity up close. Most blood-feeding occurs in the evening and at night.

Both male and female mosquitoes drink nectar from flowers for energy.

## MALARIA CYCLE



MOSQUITO STAGES  
(7-10 days)



HUMAN LIVER STAGES  
(about 2 weeks)

HUMAN BLOOD STAGES  
CAUSE ILLNESS  
(2-3 days)

## BREAKING THE CYCLE

Vector control is crucial for reducing malaria transmission, with insecticide-treated nets (ITNs) and indoor residual spraying (IRS) being the most effective methods.



Malaria is a disease caused by *Plasmodium* parasites, spread through bites from infected female *Anopheles* mosquitoes. It is not contagious between people. Five *Plasmodium* species can infect humans, with *P. falciparum* and *P. vivax* being the most dangerous. Symptoms include fever, fatigue, and headaches, with severe cases leading to jaundice, seizures, or death.

Malaria is both curable and preventable.

\* Any site with stagnant water, natural or man-made, can be a breeding ground. Examples include: swamps, puddles, rice paddies, canals, broken water pipes, gardens

## ADULTS

Anopheles can be distinguished from other mosquitoes by the maxillary palps, which are as long as the proboscis, their light and dark scaled wings, and their resting position

## LIFE CYCLE

### 1 EGGS

Eggs are laid singly on water, have floats on each side, and hatch in 2-3 days. They are not resistant to drying.



### 2 LARVAE

Larvae are suspended parallel to the surface, breathe through spiracles, and feed on microorganisms. They develop through four stages (instars), molting after each stage, which takes 5-10 days.



### 3 PUPAE

Pupae do not eat, but still need to surface to breathe. The adult mosquito emerges after two days.



### 4 ADULTS

Adults are fully developed and can fly. They feed on blood and lay eggs.

