TARGET MALARIA
A Vector Control Research Alliance

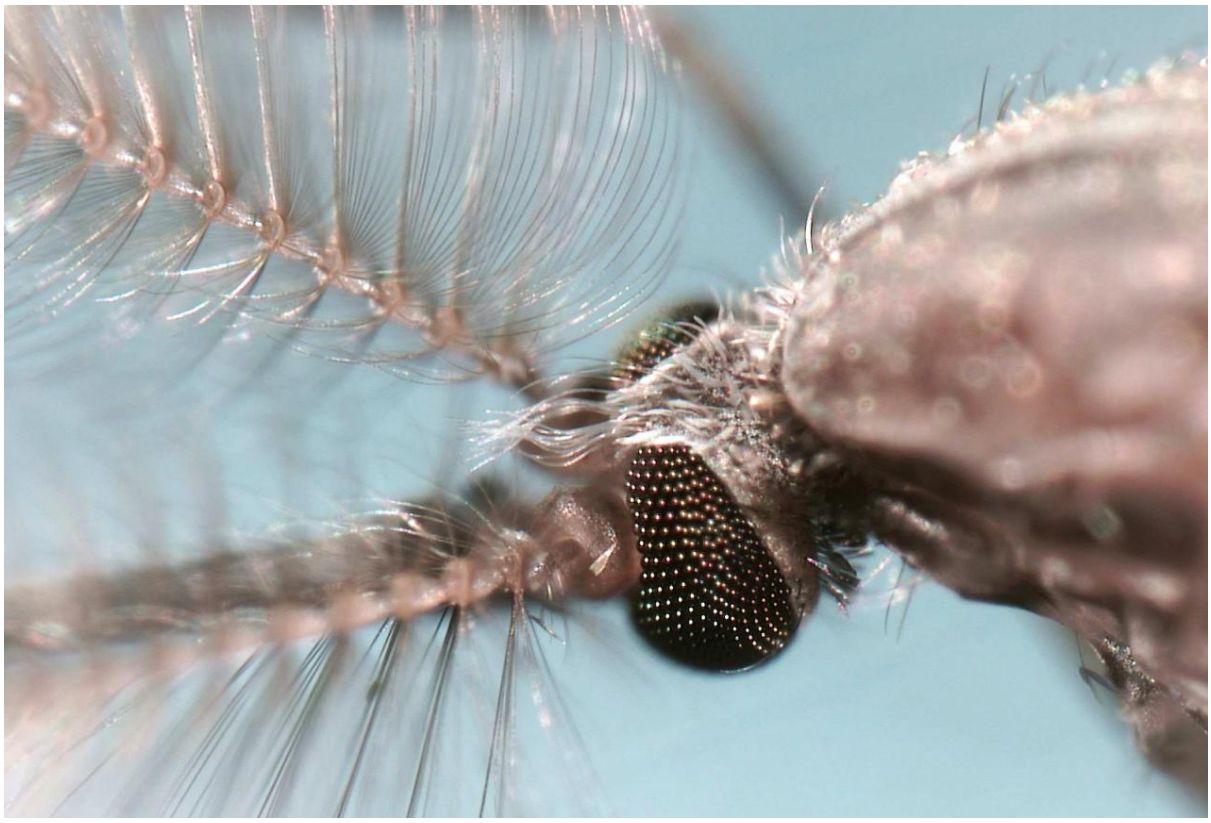
Press release

The mosquito is one of the world's most studied insects. Here's why.

Kampala, Uganda, 22 June 2026 – Despite weighing only a few milligrams, mosquitoes have proven that some of the world's biggest challenges can come in very small packages. This week (22-28 June) is Insect Week, and scientists are answering why mosquitoes are one of the most researched, and notorious, insects on the planet.

Despite its tiny size, the mosquito has shaped human history more than perhaps any other insect. Responsible for transmitting diseases that have affected millions of people, mosquitoes continue to command the attention of researchers around the world. For scientists working to combat malaria, understanding the mosquito remains one of the most important scientific challenges of our time.

While there are more than 3,500 mosquito species globally, only a small number can transmit malaria. Among these, mosquitoes belonging to the *Anopheles gambiae* species complex are particularly effective vectors and are responsible for much of the malaria transmission in sub-Saharan Africa. The *Anopheles gambiae* complex is often referred to by scientists as one of the most efficient disease-transmitting insects on Earth because of its strong preference for feeding on humans and its ability to thrive near human settlements.



Close up of an Anopheles mosquito. Photo credit: Target Malaria

Rogers Atugonza, a field entomology officer part of the Young Scientist Network (YSN) for Target Malaria at the Uganda Virus Research Institute (UVRI), says that what makes malaria mosquitoes so fascinating is their remarkable ability to adapt and survive.

"Malaria mosquitoes have evolved alongside humans for thousands of years. They are highly specialised, exceptionally resilient, and have developed behaviours that make them incredibly successful at finding human hosts and reproducing."

Research has shown that mosquitoes rely on a sophisticated combination of senses to locate people, detecting carbon dioxide from our breath, body heat, movement, and even chemical compounds released through our skin. Female mosquitoes, which require a blood meal to produce eggs, can accurately identify and track hosts over surprisingly long distances.

One of the mosquito's most remarkable adaptations is its reproductive efficiency. A female mosquito will usually mate just once, storing enough sperm to fertilise multiple batches of eggs over her lifetime and potentially produce hundreds of offspring.

Unlike females, male mosquitoes do not bite people at all. Male mosquitoes feed on plant sugars and spend much of their short adult lives searching for mates.

Scientists have also observed how malaria mosquitoes adapt their behaviour in response to environmental changes and disease control efforts. In some regions, mosquitoes have altered when and where they feed or rest, helping them survive despite widespread malaria interventions.

This adaptability is one of the reasons malaria remains such a formidable public health challenge in Africa.

"Every time we develop a new way to reduce mosquito populations or prevent bites, we learn more about how remarkably adaptable these insects are," says Rogers. "Continuous investment in science is essential because it helps us design better tools to reduce ongoing malaria transmission."

Over the years, the growing body of scientific research on mosquitoes has contributed to significant advances in malaria control, including improved bed nets, new insecticides, vaccines, and emerging technologies like gene drive - currently under research.

Although substantial progress has been made against malaria over the past two decades, the disease continues to disproportionately affect African communities, particularly young children under five, and pregnant women.

"Malaria mosquitoes are small but powerful. They have influenced human settlement patterns, public health systems, economic development, and scientific research for centuries. Few insects have had a greater impact on human history," says Rogers.

By continuing to study the mosquito, young African scientists are helping build the knowledge needed to support future efforts to reduce the burden of malaria and move closer to a world free from the disease.

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About Target Malaria:

Target Malaria is a not-for-profit research consortium that aims to develop and share new, cost-effective and sustainable genetic technologies to modify mosquitoes and reduce malaria transmission. Our vision is to contribute to a world free of malaria. We aim to achieve excellence in all areas of our work, creating a path for responsible research and development of genetic technologies, such as gene drive. www.targetmalaria.org.

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