

Target Malaria Project in Ghana

– Michelle Lynn D'Souza

Target Malaria is a not-for-profit research consortium aiming to reduce the transmission of malaria in sub-Saharan Africa, where 90% of all malaria-related deaths occur. Their current efforts are concentrated in Burkina Faso, Mali, Uganda, and Ghana with each country encompassing a team with unique experiences and expertise. Researchers in Ghana are assessing the role and consequences of reducing populations of *Anopheles gambiae*, the most important vector for malaria transmission in the region.

The project in Ghana aims to build a local DNA barcode reference library from insects collected around two rural communities. The library will enable identification of the diets of insectivorous birds, bats, and other predatory arthropods analyzed by metabarcoding techniques. This work will reveal the interactions among communities of arthropods and vertebrates and build a quantitative ecological network that will help model the effects and shifts that may occur with the reduction of populations of *An. gambiae*.

This ecological research in Ghana is a collaboration between Dr. Fred Aboagye-Antwi at the University of Ghana, and Prof. Sir Charles Godfray, Prof. Owen Lewis and their team at the University of Oxford. Part of the UK team, postdoctoral researcher and project coordinator Dr. Talya Hackett is organizing efforts between countries. While I'm unclear as to when Sir Charles approached Paul for help with the barcoding efforts, I got brought on in June 2018 to help Talya with the details surrounding barcoding 100,000 specimens over the following years.

In late February this year, I was invited to the University of Ghana to help streamline the DNA barcode pipeline. Although CBG had been recruited to sequence arthropod specimens for the project, all the samples collected were being sorted to morphospecies, pinned, and plated in the labs at the University of Ghana beforehand. While there, I also had the opportunity to go out into the field and get familiar with the sampling protocols being employed. We also filmed some of the Target Malaria work with an excellent local crew.

I had the pleasure of interviewing Dr. Fred Aboagye-Antwi, Divine Dzokoto, the senior stakeholder engagement advisor, as well as Talya. I trained three young and vibrant lab technicians, Bernard Aiye Adams, Ezekiel Yaw Donkor, and Naa Na Afua Acquah as well as spoke with several other students conducting independent research projects under the scope of the larger research goals.

I have been observing the project's progression from a distance, since I got involved almost two year ago. Great care has been taken to design the research effectively, gather permits efficiently, and gain community permission respectfully. The project has experienced several challenges along the way, but every problem has been solved with ingenuity, quite notable given the scale and intricacy of the project. At the end of this collaboration, we will have contributed to generating one of the largest ecological networks to date and have helped make significant strides in eradicating malaria – how's that for the power of DNA barcoding and our international community!



Above: Michelle D'Souza interviewing Dr. Fred Aboagye-Antwi, in-country PI at the University of Ghana with the support of Lema Concepts Africa.

Below: Fiona Wilberforce, Talya Hackett, Bernard Aiye Adams, Ezekiel Yaw Donkor, Naa Na Afua Acquah, and Michelle D'Souza (top to bottom, left to right) at the Target Malaria lab in Ghana.

