



Where I work Erica McAlister

Photographed for *Nature* by
Leonora Saunders.

We don't know the exact number of dead insects in the entomology collection at the Natural History Museum in London, but it's more than 34 million.

Our collections, for me, are a place of wonder. The specimens they contain are the biological heritage of the planet: splendid to look at and packed with genetic information about the past. Some have come to us from across the globe, and make me feel how small I am, as part of our biosphere.

The insect collection stretches back hundreds of years. For example, we have a robber fly caught in 1680 by the queen's gardener at Hampton Court Palace, near London.

Flies are my focus. Not only are they amazingly diverse, but they're cute. We've got stalk-eyed flies; flies that are less than a millimetre in size; and my favourites, *Mallophora* robber flies, which look like massive bumblebees and are highly venomous. I also have a soft spot for botflies, one species of which (*Cephalopina titillator*) matures in camels' nostrils.

The collection isn't static; there's so much research going on. We're always updating

nomenclature, revising evolutionary family trees and describing new species.

The museum lends specimens by post, and we host not just scientists, but visitors such as designers looking for inspiration. We're also trying to digitize the entire collection so that anyone can access it.

I'm collaborating with Mara Lawniczak at the Wellcome Sanger Institute in Hinxton, UK, on what we call Project Neandersquito. We're trying to recover genomes from mosquito samples collected over the past century. In the past, people would cut off legs or destroy whole specimens – which fills a curator like me with terror. Instead, we are washing the specimens with chemical solutions to extract DNA.

Genetic analysis will help us to distinguish between old mosquito specimens that look similar, and to learn how populations have changed. For example, we hope to see when genes for insecticide resistance arose.

Erica McAlister is a senior curator at the Natural History Museum in London, UK, and author of *The Secret Life of Flies* (Firefly Books, 2017). **Interview by Amber Dance.**