

ENTOMOLOGY

The Secret Life of Flies

By Erica McAlister. 2017. Firefly Books. 248 pages, 29.95 CAD, Cloth.

When was the last time you really, truly looked at a fly? Admired the shimmery blues and greens of a Housefly (*Musca domestica*) before swatting it away from your dinner? Gawked at the Stalk-Eyed Fly (*Achias rothschildi*) as it swallows air to inflate its own eyes (think bicycle pump)? Step inside the brain of Erica McAlister, the Senior Curator for Diptera at the Natural History Museum in London, United Kingdom, and you will see flies for what they are: an order of species with astonishing diversity, usefulness, and beauty.

Imagine the most enthusiastic teacher you've ever had, and you get close to the experience of reading this book. The writing is liberally peppered with exclamation points, and it is infectious! There are enough jaw-dropping fly facts in here to catch the attention of any reader who wants to know more about the natural world. Truly, Diptera are lucky to have such a passionate advocate in McAlister. As she rightly points out, too often are flies, and insects in general, ignored by "mainstream conservationists" in their campaigns to protect the charismatic macro-fauna. Where, she argues, is the campaign to save the endangered Bee Louse (*Braula coeca*) that has not been seen in the United Kingdom for years? When was the last time you expressed concern for the Rhino Bot Fly (*Gyrostigma rhinocerontis*), which may be one of the most threat-

ened species of animal on the planet? If we will only conserve what we love and only love what we know, then let this book become your guide to giving flies the respect they are due.

Flies are often underappreciated, but they are essential to our daily lives. They pollinate many economically and culturally important crops (thank a fly from the *Forcipomyia* genus the next time you enjoy chocolate!), control other insects that are agricultural pests, are a food source for animals that we enjoy watching, such as birds, and do an excellent job of decomposing plant and animal waste.

However, McAlister does not spend all her time trying to convince the reader that flies are only worthy of our attention because of their usefulness to humans. She constantly regales us with descriptions of how fascinating these animals are as objects of scientific study. The Gray Bee Fly (*Anastoechus melanohalteralis*) is "possibly the cutest animal on the planet" (p. 205); horse flies often have "the most spectacular bands, squares, triangles, circles and wiggles on their eyes" (p. 216), and parasitic flies "are some of the most extreme in terms of modifications from the basic plan, which of course leaves even the most experienced of dipterists with feelings of childlike pleasure" (p. 211). These descriptions made me simultaneously feel like

I was missing out by not being a dipterist, and glad that I had been pulled along for the ride in this joyfully written book.

McAlister has divided her book into 10 chapters based on functional feeding type, such as the Pollinators, the Coprophages (the eaters of animal waste), the Vegetarians, the Parasites, and the Sanguivores (blood-suckers like mosquitos and black flies). Within these chapters McAlister nimbly jumps among species and anecdotes that connect flies to history, medicine, agriculture, forensic science, conservation, and even pop culture. One of my favourite passages is a rant about the use of a dinosaur-DNA-filled adult crane fly in the opening scene of the original Jurassic Park movie. Adult crane flies, as I learned, do not possess the mouthparts to pierce the skin and would therefore never be filled with another animal's blood. So egregious is the error that "many a performance must have been disrupted due to excessive tutting by indignant dipterists" (p. 129), and now you too can join in the indignation. It is precisely this commitment to connecting flies to our daily lives in a way that inspires an "Oh neat!" rather than an "Oh gross!" that makes this book so engaging and worthwhile.

Here's something to ponder the next time you're getting chewed on by mosquitos in a bog: did you know that there are species of mosquito whose larvae live inside the water body (the phytotelma) of pitcher plants? Older plants produce less of the digestive enzyme needed to break down insect material. The mosquito larvae, in the midst of their feeding frenzy in the belly of the pitcher plant, leave behind finely shredded insect remains that are more accessible to the smaller supply of enzymes available in older plants. At the very least, reading this book will leave you with many such neat facts for your next nature hike or cocktail party.

I hope *The Secret Life of Flies* will bring you more than fodder for small talk. It has the power to inspire you to pay closer attention to all the small things around us, like the mosses, plankton, insects, bacteria, and fungi that collectively make the world work in ways we don't understand. As naturalists, ecologists, and conservationists, we should strive to learn as much as we can about all life, and McAlister's engaging look into the world of flies is a great place to start.

EMMA BOCKING

St. John's, NL, Canada