

# The Canadian Field-Naturalist

## Book Reviews

**Book Review Editor's Note:** The Canadian Field-Naturalist is a peer-reviewed scientific journal publishing papers on ecology, behaviour, taxonomy, conservation, and other topics relevant to Canadian natural history. In line with this mandate, we review books with a Canadian connection, including those on any species (native or non-native) that inhabits Canada, as well as books covering topics of global relevance, including climate change, biodiversity, species extinction, habitat loss, evolution, and field research experiences.

**Currency Codes:** CAD Canadian Dollars, USD United States Dollars, EUR Euros, AUD Australian Dollars, GBP British Pounds.

### BOTANY

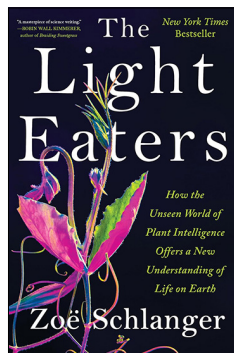
The Light Eaters: How the Unseen World of Plant Intelligence Offers a New Understanding of Life on Earth

By Zoë Schlanger. 2024. HarperCollins. 304 pages, 36.99 CAD, Hardcover, 24.99 CAD, Paper, 11.99 CAD, E-book.

As the culmination of years of interviews and study, *The Light Eaters* is at once a celebration of plant science and an investigation into our collective understanding of our vegetal neighbours.

Chapter 1 describes how Schlanger fell into plant research and her discovery of botany as a fascinating, living science. It also introduces the villain in the plant intelligence story: 1973's *The Secret Life of Plants* (Harper & Row) by Peter Tompkins and Christopher Bird, a disastrous pseudoscientific bestseller that made the topic anathema for decades.

Chapter 2, How Science Changes its Mind, outlines the history of scientific thinking (and disagreement) about plants, animals, and consciousness. The subsequent nine chapters each address different elements of the plant intelligence question. For example, Chapter 3 explores research in plant communication (including studies of tobacco and sagebrush) that suggests differences in how individual plants respond to chemical cues sent by other plants of the same species. This is expanded upon in Chapter 5, An Ear to the Ground, which explores the developing field of phytocoustics—how plants respond to sound/vibrations. In some cases, plants have developed to amplify or interact with sound to their pollination advantage, as



seems to be the case with bat echolocation and *Marcgravia evenia* flowers (p. 102).

*The Light Eaters* presents plants as neither miniature humans nor automatons, but instead as active beings inextricably connected to their environments, eluding our attempts to fit them into neat and tidy boxes. Take, for example, the plant species *Boquila trifoliolata*, a South American climbing vine. Dr. Ernesto Gianoli and (then undergraduate student) Dr. Fernando Carrasco-Urra discovered it behaving strangely—it can mimic the leaf shape, gloss, dentition, venation, and colour of diverse plants near it, even mimicking the leaves of different plant species in different areas of a single *B. trifoliolata* individual. In subsequent observations, *B. trifoliolata* has been shown to also mimic plants from different continents, dispelling any possible co-evolutionary explanations for its behaviour. This extreme plasticity, varying within and across individuals, is beyond our current understanding of plants. How can the same species mimic the leaves of an introduced *Ranunculus repens*, create a spiny leaf tip to emulate *Rhaphithamnus spinosus*, and change its form to mimic a fern?

Schlanger's curiosity and openness to new ideas shines through in her writing. Her own developing viewpoint is not concealed but neither is it the dominant narrative presented; in true scientific fashion, she includes and considers conflicting perspectives. In an excellent example of popular science writing, Schlanger names the scientists and humanizes the work—what the researchers were thinking and their

reactions. As a curious explorer of the science, Schlanger is a stand-in for the reader while also acting as a translator. She grounds complex research methods and results in easy-to-understand language and demystifies the process of science, how scientists approach questions and design studies to explore them.

*The Light Eaters* is a fascinating exploration of modern plant science written for a general audience that may not otherwise have access to this world. More broadly, it is also a thoughtful critique of the

current Western scientific approach, acknowledging both the positives and negatives of an approach that is highly skeptical of (and at times resistant to) new ideas. There is plenty in *The Light Eaters* to follow-up on for those so inclined, and, as a thoroughly thought-provoking read, I recommend this book without reservation.

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