

Adapting to City Life

BOOK REVIEW

Darwin Comes to Town: How the Urban Jungle Drives Evolution,
by Menno Schilthuizen. 2018. Picador division of Macmillan Publishing Group,
New York. 293 pp.

[ISBN 978-1-250-12782-2 (hardcover); 978-1-250-12783-9 (ebook)]

Reviewed by:
SARAH SLAYTON¹

In *Darwin Comes to Town*, Dutch evolutionary biologist and urban ecologist Menno Schilthuizen takes readers on an exciting, unexpected journey through the cities of our rapidly urbanizing world. By embracing the growth of human cities as a “fully natural phenomenon” and accepting continued urbanization as inevitable, Schilthuizen rebrands global metropolises as biodiverse “urban ecosystems” where the dynamic and inexorable forces of evolution are hard at work in our own backyards.

Through engaging storytelling and many well-researched examples, Schilthuizen reveals a hidden side of cities and evolutionary theory that is surprising and captivating to scientists and non-scientists alike. However, his evolution-focused rhetoric misses the point when it comes to thinking about conservation of species that will never be able to call places such as New York, London, or Singapore home.

The author develops his natural framework for modern cities in just under 250 pages (plus ample references and notes) divided into four primary sections, each building on the concepts and evolutionary examples introduced in the last. He starts by defining the characteristics of both urban ecosystems and the organisms that manage to survive, and even thrive, under some of the least “natural” conditions conceivable. He then spends the bulk of the next two sections introducing a cast of surprisingly well-adapted characters and some of their unexpected ecological interactions, most of which could have never occurred without human influence.

Japanese crows that drop nuts in front of moving cars for a little cracking assistance, genetically distinct mosquitos living in separate subway lines, and sparrows that sing at higher frequencies to be heard over the ubiquitous urban cacophony are just a few of the examples invoked to show how organisms are adapting to human-dominated landscapes. Although the

¹ SARAH SLAYTON — Environmental Studies Program, Washington University, 1 Brookings Drive, St. Louis, MO 63130. email: sarahslayton@wustl.edu

multitude of examples and evolutionary concepts they illustrate can start to feel repetitive at times, the author's persistent enthusiasm for the natural world keeps the reader engaged and eager to see what unusual adaptation he'll introduce next. Finally, Schilthuizen concludes his celebration of urban evolution by reflecting on the future of these urban ecosystems, and the increasing similarities among species able to take advantage of the new ecological niches created by human activity.

All of this information is incredibly accessible to the reader, regardless of their scientific background. The author doesn't avoid complex scientific concepts such as phylogenetic analyses, phenotypic plasticity, or epigenetics; instead, he strips away the jargon and integrates narrative examples that bring them to life. His clear excitement and curiosity about evolutionary processes is palpable and infectious, and his playful tone and moments of self-reflection make the text inviting and engaging to a popular audience. Furthermore, his ability to showcase the diversity and determination of life on earth encourages city-dwellers to appreciate the natural world, and their place in it, in a brand-new way.

Although this book provides us with a window into the rapidly evolving field of urban ecology while inspiring an appreciation for nature in unlikely settings, some aspects of Schilthuizen's overall argument are somewhat misleading or oversimplified. For example, he describes cities as "ecological oases" that provide habitat for species from around the globe, without really acknowledging that the habitat surrounding these developed areas are often rendered uninhabitable for a wide variety of native species. He also spends an enormous amount of time idealizing novel interactions between organisms naturally found on different continents, but barely touches on how introduced species can become dangerously invasive. Additionally, his measurement of biodiversity assumes that high species richness is inherently a good thing and relies on a simple count of species present regardless of their origin or effects on their environment. When he briefly mentions the need for conservation of "unspoiled wilderness areas," he writes about them as if there are many intact, pristine ecosystems on earth that are not in danger from intense human impacts. These messages are not only unrepresentative of the true environmental and ecological crises facing our planet, but could also give readers the false impression that a perfectly biodiverse and sustainable urbanized future is attainable without other conservation efforts.

This brings me to my final critique of this book's overall optimistic view of the fate of species occupying cities. Although Schilthuizen spends most of this book discussing cases of urban/wildlife relationships, he chooses to omit an incredibly important part of the story. Aside from tacking on a few sentences about the importance of conservation near the end of his book, he largely ignores how city organisms, including humans, *heavily* depend on natural ecosystems for survival. He also omits the myriad ways in which urban development and growth endanger sensitive biodiversity at both the organismal and system level. He frames "the wild" as "a source of pre-adapted species and genes that urban ecosystems may put to good use," but fails to mention city-dwellers' reliance on agriculture, clean water, and energy sources that come from beyond

cities and require intact ecosystems to persist. He discusses habitat fragmentation within cities, but spends no time discussing the effects of continued urbanization on habitat destruction and fragmentation around the world. Urban and natural ecosystems cannot be disentangled, and not taking even a page to reflect on the other side of the story is misguided.

Overall, this book is a fun set of stories about the flexibility and tenacity of life on earth, and a beautifully written exposé on the extraordinarily powerful forces of evolution acting on short time scales. If you're looking for an introduction to the fascinating world of fast-paced urban evolution, I would happily recommend this book. However, I would be wary of its somewhat glibly optimistic conservation message, and omission of key aspects of the effects of continued urbanization of our planet.