

## BOOK REVIEW

***Urban Lichens: A Field Guide for Northeastern North America.* J. L. Allen & J.C. Lendemer. 2021. Yale University Press, New Haven and London. 158 pp., 121 colour photographs and illustrations. Flexibound. ISBN 9780300252996.**

Lichenologists tend to concentrate their lichen hunting in interesting rural habitats, and most of the species found in field guides are those that occur away from busy habitats in populated places. This handy and well-thought out guide to urban lichens reminds us that there is indeed quite a variety of lichens to be found in densely populated cities. The guide's range is the northeastern US megalopolis, and the large Canadian cities of Ottawa and Toronto, with an acknowledged New York City bias. It covers approximately sixty species in detail. There are suggested habitats to explore in any northeastern city that are relevant to Halifax and urban areas in Atlantic Canada, as well as specific locations for lichen hunting in New York City.

*Urban Lichens* is a comfortable size, 8x5 inches (21x12 cm), has place-marking flaps back and front, and at 9.75 ounces (270 g) is light and easy to carry. Each described species has one or more photographs to accompany it, along with a species description, where to find it, and notes that include potential lookalikes. All of the species photos have either a coin or a Metro-card (a train pass the same size as a credit card) as a size reference. The photographically illustrated glossary is very useful for a beginner, though some unfamiliar yet germane terms are missing, *e.g.*, leprose, fibrils.

Most of the introductory material on lichens, covering their structure, lifestyles and uses, is aimed at making a guide that is "accessible to everyone and anyone who might be interested" in lichens. Indeed, the conversational tone and clear descriptions are well suited to that end. Yet there are sections that, given an interested but largely untutored reader, should have started with the simplest most visual concepts rather than the most complex. For example, the actual progression of lichen reproduction is somewhat complicated and does not make the easiest reading. For the novice, reading about sexual reproduction (fungal spores finding a compatible alga), apothecial shape and colour, etc., would be easier to grapple with before

launching into the complicated interactions of asexual reproductive processes and structures involving pycnidia and conidia, which are not usually as obvious on the lichen's surface.

The authors make some statements about lichens that might more accurately have been modified by the addition of "most" or "generally" or "in many cases". For example, in the section 'The Lichen Lifestyle: Basic Biology and Identification' on p. 3, the description of foliose lichens reads: "In foliose lichens the algae are kept in a single layer close to the upper surface...". While there may not be many cyanobacterial jelly lichens in urban areas, saying "In most foliose lichens" at the start of the sentence would be more accurate without confusing the beginner, who most probably will not care about the exceptions. There is also the statement (p. 3) that the upper and lower surfaces of foliose lichens are different colours. While technically that could be the case, the difference in colour for *Physcia millegrana* and *Physcia adscendens*, for example, is not obvious. Again, a simple modifier would be more accurate.

Also, there may well be "thousands of chemical compounds that are unique and occur nowhere else in the natural world" as the authors assert on p. 9, but surely "hundreds" or "many hundreds" is a more accurate estimate?

The species pages helpfully show a broad view of each lichen with a magnified insert of details that help identify it when the lichen's features are small. This reviewer was unable to find mention in the text of the need for a hand lens or magnifying device to see the details. This omission is surprising, since for those just starting to look at lichens, the often tiny details are crucial for identification and may not be obvious to the naked eye. Closer close-ups would have benefitted the new observer so that the difference between *Caloplaca feracissima* and *Caloplaca flavocitrina*, both yellow and easy to spot, would be more distinct, even though the verbal details in the descriptions are certainly adequate enough.

It is unfortunate that the colour reproduction is not a bit brighter and sharper. One example is the photo of Common Greenshield (*Flavoparmelia caperata*, p. 93), which does not display its recognizable-from-a-distance yellowish colour, more adequately presented by the photo of Rock Greenshield (p. 92) on the facing page. The authors do suggest that urban lichens can look somewhat different in cities than the very same species does in a rural habitat.

Yet, the examples of usnic acid's yellow-green colour do not stand out much in contrast to the colour of other chemical compounds such as atranorin (p. 9). The photos of organisms that might be mistaken for lichens are handy, but the photos are not crisp and bright enough to be really helpful.

A key to the species should be easy to use. The authors offer an easy to understand description of what a dichotomous key is at the beginning of the section, for those who have never used one. But having done that, they fail to mention that if a couplet brings the reader to a lichen name in brackets, it is referring to a species that is not described in the book. As an example, couplet #7 offers the reader *Xanthomendoza fallax*, which has its own species page and [*Xanthomendoza weberi*]. The latter appears only in the list of lichens found in NYC. It is also absent from the index. To add to the confusion, Section 3, On rock, has a choice (#8) of *Candelaria concolor* or *Squamulea subsoluta*. There is no species page for the latter, it is not in the index, nor is it on the list in the section called Lichens of New York City: The Complete List. A beginner might well scratch his or her head.

These few criticisms do not diminish the usefulness of *Urban Lichens*. To date, there has been a gap in the popular literature about lichens in urban settings. Despite its shortcomings, this small volume should encourage interested city dwellers anywhere in the northeastern US and Canada to have a go at seeing and identifying the variety of lichens around them.

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