

Book Review

The Secret World of Lichens: A Young Naturalist's Guide

By Troy McMullin. 2022. Firefly Books, Buffalo, New York, USA, and Richmond Hill, Ontario, Canada. Pp 48, over 50 colour photographs and illustrations, 20 × 20 cm. ISBN 13:978-0-2281-0398-1, Softbound. Widely available, including from Blackwell's and Amazon (\$19.75 + postage).

The last decade has been remarkable in terms of the growth of Citizen Science in which members of the public, including amateur naturalists, students and school children, have participated in collecting data on biota around where they live or in places visited on vacation. Collection of data has been facilitated by the availability of GPS devices and Apps on cell phones. The latter allow identification of a photographed plant or animal. The coordinated results have enabled changes in ecosystems and habitats to be related to climate change, pollution and/or anthropogenic developments. With respect to lichens, this has led to the recent publication of a book on urban lichens, the habitat where most of the human population spend their lives¹. Citizen science and the crusades which urge nations to cut global carbon emissions have been led by school and university students. They have achieved high profiles and support. This all justifies the publication of manuals and books aimed at young people. The latest contribution, perhaps better described as a booklet, is on lichens.

This new book is 48 pages in length; 35 contain a lichen photograph of stunning quality that covers two thirds of each page. Both the Latin binomial and an English name are given at the top. Overall, this makes for a very attractive book and encourages the reader to flip through from page to page and then dwell in more detail on the explanatory sections. The photographs range from tiny stubble lichens, to leafy lichens, and to shrubby forms. They include some well recognized lichens such as the tree lungwort (*Lobaria pulmonaria* (L.) Hoffm.) and beard lichens (*Usnea* spp.) but also other visually attractive species that are rare or less well known. Each page includes a brief description of the illustrated lichen and where it might be found.

An introductory section at the start of the book explains what lichens are and how they reproduce. It points out, by means of photographs, that lichens can look very different when wet compared with dry, a fact which often confuses beginners. This was also emphasized in *The Observer's Book of Lichens*² (plate 17) which is one of a previously published series aimed at amateur naturalists. In this new book, there is a drawing of a lichen in cross-section showing the thallus structure and the means of

reproduction (isidia, soredia and apothecia). The first two reproductive structures are not very easy to interpret, and the asci seem to be buried within the apothecium, which leads a reader to wonder how the spores could be shot out. I think this drawing could be improved.

The next section deals with lichen growth, fossils and how lichens have been used by mankind. Information is provided on the yellow dyes derived from the wolf lichen (*Letharia*) and on purple dyes from rock tripe (*Umbilicaria*). The former is the only photograph in the book that is not of outstanding quality. It does not show either the real colour of the lichen (yellow with chocolate brown fruit bodies) or the colour of the dyed cloth, both of which are of a more intense colour. Information on the use of lichens for producing brown dyes (crottle) for Harris Tweed can be found in the notes for the tree lungwort (*Lobaria*). Other uses in medicine, for monitoring pollution and as food and camouflage for various animals are mentioned to stimulate the interest of young readers.

The main part of the book consists of the lichen illustrations (pp. 10–46) and this section is introduced by a page entitled 'Looking for lichens'. This provides advice on where to look and exhorts the observer not to collect or remove the lichen from rocks or trees. Instead, it instructs a person to take a photograph and write down where it was growing, as well as the nature of the substratum and the date. The reader is told that the data can then be fed into Apps such as iNaturalist.org to help identify the lichen. For a young naturalist, this is the only mention of where to go to find out more about lichens or to identify the lichens found.

In conclusion, this is a beautifully illustrated small book on lichens that I think will enthuse the young naturalist. There is a glossary at the end explaining the technical terms used in the book. However, this volume could be improved by having at least one page at the end that includes a list of online information sources on lichens. Young naturalists extensively use the internet to extend their expertise and gain knowledge. Currently, there are quite a number of titles on YouTube that provide commentaries and valuable instruction on many aspects of lichenology, including instructions on how to examine lichens under the microscope, making cross-sections and the use of chemical spot tests. Listing some of these at the end of the new book would have been a

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valuable addition. Readers could also have been encouraged to consult the web for research results on particular lichens. These additions would help a young naturalist reading this book to move on to the next level of lichen study. For older or more traditional readers, a list of books or publications on lichens such as *Lichens of North America*³ could also have been included. In summary, this new book is a really attractive addition to the lichen literature, and I hope it will be widely read and enjoyed by both young and older readers.

References

1. **Allen JF and Lendemer JC** (2021) *Urban Lichens: A Field Guide for Northeastern North America*. New Haven and London: Yale University Press.
2. **Kershaw KA and Alvin KL** (1963) *The Observer's Book of Lichens*. London and New York: Frederick Warne.
3. **Brodo IM, Sharnoff SD and Sharnoff S** (2001) *Lichens of North America*. New Haven and London: Yale University Press.

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