





*Specifiers* (Hirons and Sjöman 2018), we have determined a four-level qualitative scale (Tolerant, Moderately Tolerant, Moderately Sensitive, and Sensitive) that is underpinned by trait data wherever possible. This is then used to help inform recommendations for the “use potential” of a species. For example, a key criteria for species recommended for paved environments is that they must be tolerant or moderately tolerant to drought.

As well as providing information on the drought tolerance of species, we provide information on shade and waterlogging tolerance, ornamental qualities, tree and crown characteristics, and known species-specific issues. Please go to the *Trees & Design Action Group* website ([www.tdag.org.uk](http://www.tdag.org.uk)) if you are interested in this free guidance (Figure 3).

It is critical to note that the selection of appropriate species is only one element of successful tree establishment. Designing high-quality rooting environments, procuring excellent plant material, and sound arboricultural practices are also required if trees are to establish and thrive in our urban landscapes (Hirons and Percival 2012).

If any readers are interested in discussing this work further, please feel free to contact Dr. Andrew Hirons: [ahirons@myerscough.ac.uk](mailto:ahirons@myerscough.ac.uk). 🌿

### Citations:

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### Acknowledgements

This work is kindly supported by the Hyland R. Johns Research Grant (TREE Fund), Fund4Trees, and NERC (NE/N017773/1).

### Recommended Viewing

[Selecting Species for a Better Urban Landscape](#)  
With Drs Andy Hirons and Henrik Sjöman



# Nina Bassuk Reviews *Applied Tree Biology*

by Andrew Hirons and Peter Thomas

Reprinted with permission from the April 2018 *Arborist News* (Volume 27, Number 2).

The first thing to notice in this very excellent text is the title, *Applied Tree Biology*. This is not exactly an arboriculture manual or a tree biology textbook. It very deftly explores tree biology and then links it to the art and practice of arboriculture. Although the “applied” part of the text is not limited to managing trees in difficult environments, there is a definite subtext focusing on the trials of trees growing in managed or urban environments.

Ten comprehensive chapters address tree structure (wood, leaves, and roots), seed growth, water relations, carbon acquisition, nutrition, interactions with other organisms, and finally, environmental challenges. Each chapter is lavishly illustrated with graphics and pictures; it is difficult to find a page that does not have some illustrative feature. Given that this book is up-to-date and rather dense in content, the illustrations are very welcome.

Also notable is the inserted content written by other authors with specific subject-matter expertise. It is useful and interesting to have a different voice explain an issue in greater detail than what was previously provided by the authors. Engaging material expressed in multiple ways serves to solidify the content for the reader.

The most impressive feature of *Applied Tree Biology* is its seamless linking of what we might call basic functions with applied use in the landscape. For example, the chapter “The Next Generation of Trees: From Seeds to Planting” begins with a thorough discussion of pollination, flowering, fruit and seed formation, asexual reproduction, and then growing trees, including a discussion on provenance. Considerable time is given to seed dormancy, germination, and initial seedling growth. This fundamental discussion leads to a comprehensive section on transplanting that includes plant selection, nursery production, root growth in containers, and planting specifications.



Arboricultural practices at planting, including initial care, are presented to finish the chapter.

The chapter “Environmental Challenges for Trees” is particularly current given the changes in climate and urban microclimates that we expect trees to grow in. The authors’ exploration of plant response to stress is particularly elucidating. Trees have developed mechanisms to avoid and/or tolerate stress that directly inform our decisions about species selection and landscape management. The authors deftly break down how each category of environmental stress affects trees. Conditions of

low and high temperatures, water deficits, flooding, and salt stress are discussed in some detail.

Who should use this book? Undoubtedly, university courses in arboriculture, woody plant physiology, and landscape management and technology would make good use of *Applied Tree Biology*. Because the practical is intertwined with the fundamental, it meets many needs and provides a scientific basis for best practices in the managed landscape.

This book will also be of use to researchers in our field. I wholeheartedly recommend this new text for everyone who is involved with the management of trees in the urban and managed landscape. I am particularly thankful for the copious and up-to-date references at the end of each chapter. 🌿

*Reviewed by Nina Bassuk, Professor and Program Leader, Urban Horticulture Institute, Horticulture Section, School of Integrative Plant Science, Cornell University, Ithaca, New York, U.S.*

**Hirons, A.D., and P.A. Thomas. 2018. *Applied Tree Biology*. John Wiley & Sons, Ltd., Chichester, UK. 432 pp. ISBN 978-1-118-29640-0.**