

Cambridge University Press  
0521453518 - Trees: Their Natural History  
Peter Thomas  
Frontmatter  
[More information](#)

---



# **Trees:** Their Natural History

Peter Thomas

Trees are familiar, and often beautiful, components of many landscapes, vital to the healthy functioning of the global ecosystem and unparalleled in the range of materials that they provide for human use. Yet how much do we really understand about how they work? This book provides a comprehensive introduction to the natural history of trees, presenting information on all aspects of tree biology and ecology in an easy-to-read and concise text. Fascinating insights into the workings of these everyday plants are uncovered throughout the book, with questions such as how trees are designed, how they grow and reproduce, and why they eventually die, tackled in an illuminating way. Written for a non-technical audience, the book is none the less rigorous in its treatment and will therefore provide a valuable source of reference for beginning students as well as those with a less formal interest in this fascinating group of plants.

Peter Thomas is a lecturer in environmental science at Keele University, UK, where his teaching encompasses a wide range of tree-related topics including wood structure and identification, tree design and biomechanics, tree ecology and identification, and woodland management. His research interests focus on the reconstruction of past environments from tree rings, the role of trees in nature conservation and the interaction of fire with trees.

Cambridge University Press  
0521453518 - Trees: Their Natural History  
Peter Thomas  
Frontmatter  
[More information](#)

---



# **Trees:** Their Natural History

Peter Thomas



Cambridge University Press  
0521453518 - Trees: Their Natural History  
Peter Thomas  
Frontmatter  
[More information](#)

---

PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE  
The Pitt Building, Trumpington Street, Cambridge, United Kingdom

CAMBRIDGE UNIVERSITY PRESS  
The Edinburgh Building, Cambridge CB2 2RU, UK [www.cup.cam.ac.uk](http://www.cup.cam.ac.uk)  
40 West 20th Street, New York, NY 10011-4211, USA [www.cup.org](http://www.cup.org)  
10 Stamford Road, Oakleigh, Melbourne 3166, Australia  
Ruiz de Alarcón 13, 28014 Madrid, Spain

© Cambridge University Press 2000

This book is in copyright. Subject to statutory exception  
and to the provisions of relevant collective licensing agreements,  
no reproduction of any part may take place without  
the written permission of Cambridge University Press.

First published 2000

Printed in the United Kingdom at the University Press, Cambridge

Typeface Minion 10/12½pt. System QuarkXPress™ [wv]

*A catalogue record for this book is available from the British Library*

*Library of Congress Cataloguing in Publication data*

Thomas, Peter, 1957–  
Trees: their natural history/Peter Thomas  
p. cm.  
Includes bibliographical references (p. ).  
ISBN 0 521 45351 8. – ISBN 0 521 45963 X (pbk.)  
1. Trees. I. Title.  
QK475.T58 2000  
582.16–DC21 99-15473 CIP

ISBN 0 521 45351 8 hardback  
ISBN 0 521 45963 X paperback

Cambridge University Press  
0521453518 - Trees: Their Natural History  
Peter Thomas  
Frontmatter  
[More information](#)

---

But blessed is the man who trusts in the Lord, whose confidence is in him.  
He will be like a tree planted by the water that sends out its roots by the stream.  
It does not fear when heat comes; its leaves are always green.  
It has no worries in a year of drought and never fails to bear fruit.

Jeremiah 17:7–8

## Contents

	<i>Preface</i>	ix
1	An overview	1
2	Leaves: the food producers	9
3	Trunk and branches: more than a connecting drainpipe	36
4	Roots: the hidden tree	72
5	Towards the next generation: flowers, fruits and seeds	112
6	The growing tree	157
7	The shape of trees	187
8	The next generation: new trees from old	213
9	Health, damage and death: living in a hostile world	231
	<i>Further reading</i>	269
	<i>Index</i>	271

Cambridge University Press  
0521453518 - Trees: Their Natural History  
Peter Thomas  
Frontmatter  
[More information](#)

---

## Preface

Why write a book on trees? The motivation for me came from the frustration of trying to teach a subject where much is known but is scattered over a huge range of journals and books from many countries. There are so many fascinating stories to be told about the ways in which trees cope with the world and the problems of being large and long-lived: they are extremely well designed. *Someone* had to write this book!

My goal was to draw together strands of information to create a readable book that would answer common questions about trees, set right a number of myths and open up the remarkable world of how trees work, grow, reproduce and die. It is for you, the reader, to judge whether I have been successful. Please let me know where you find errors or would wish to argue with the logic.

I am indebted to all those who helped with this book, especially Roger Davidson and Bill Williams who read and commented on the whole manuscript and numerous colleagues who commented on parts. Val Brown, P.B. Tomlinson, Colin Black and K.J. Niklas kindly provided detailed information. Maria Murphy and Lynn Davy at Cambridge University Press are to be congratulated for their extreme patience with a faltering author. And, of course, my wife and sons are thanked for putting up with my pet project.

The following are gratefully acknowledged for their help with the diagrams: Ian Wright, Lee Manby (who drew Figures 4.2 and 7.7–7.14) and John Stanley (for drawing Figures 3.6 and 3.16). Crown copyright material is reproduced with the permission of the Controller of Her Majesty's Stationery Office.

Peter Thomas  
Keele  
May 1999