BOOK REVIEWS

Forest Mensuration A handbook for practitioners (2nd edition). Robert W. Matthews and Ewan D. Mackie 2006 ISBN 0-85538-621-5. i–vi + 330 pages. Forestry Commission Publications, PO Box 25, Wetherby, West Yorkshire LS23 7EW (Quote stock code FCBK039) £24.00

This is an updated version of Forestry Commission Booklet No.39, Forest Mensuration Handbook, first published in 1975 and reprinted a number of times since then. It covers much the same ground, although it has been expanded in length by about 20%. It is described in the flier which came with the review copy as an essential handbook for all those working in the timber trade and forestry. However, if you have access to the previous version and are not very heavily involved in this subject you may not see any great need to purchase the revised version, as the differences between the 1975 and 2006 versions are not enormous.

The book covers general aspects of measurement, sampling, and basic measurement conventions [e.g. breast height is 1.3m in forestry, not the rather strange “chin height” figure of 1.5m which is sometimes used in arboriculture]. The measurement of the height and diameter of standing trees is discussed in some detail, followed by the various approaches to the assessment of timber volume. There is then a substantial section on the assessment of the volume of standing timber by “tariffing” (which involves felling a sub-sample of the measured trees), a section on the measurement of felled timber, and 100 pages of tables. While at least some of this information will apply to uneven-aged stands of trees, much of it is derived from even-aged stands of single species and there appears to be nothing in this book which is specifically designed for irregular stands. In a book of this title I would have expected at least some guidance on methods of measurement specifically designed for use in uneven-aged stands and the application of these to their management, but perhaps I am expecting too much from this publication.

There appears to be some confusion as to the relative merits of random and systematic sampling. On page 40 it is stated that the selection of sampling points for the assessment of the basal area of a stand by the use of a relascope should preferably be systematic, yet on page 43 it is stated that assessment by the use of sample plots “must be chosen at random”. The reason for this difference may be explained somewhere, but remains unclear to me. On page 16 the difficulties of using random sampling of trees appear to be exaggerated. It is stated that it would be necessary to visit a stand twice, firstly to allocate numbers to every tree and then to measure those whose random numbers have then been selected. However I would have thought that one could devise a method which would enable a random sample to be taken on a single visit, either by taking the nearest trees to a series of random points or by using a series of random numbers while simultaneously counting all the trees in the survey area; and I would have thought that there should
be a presumption in favour of random sampling, if only because no statistical probabilities can correctly be ascribed to the results of systematic sampling.

If you are in the round timber trade or you need to know how to measure the height and diameter of a tree correctly, how to estimate the volume of wood in a stack of logs, the probable weight of that wood, the probable assortment of sizes of logs of different sizes, or the most cost effective way to estimate the volume of timber in a thinning of an even-aged plantation, then this book will be helpful.

Rodney Helliwell

Forest Pathology: From Genes to Landscapes. Lundquist, J.E. and Hamelin, R.C. (eds) (2005) APS Press, The American Phytopathological Society, St. Paul, Minnesota, U.S.A. Softback $ 69.00.

The genetic basis of forest pathology and its influence right up to the landscape level was the basis of the 1999 Montreal symposium of the American Phytopathological Society. Much of what was discussed then has been updated in a volume that emphasizes how rapidly long lived trees and forests can be devastated by pathogens and microscopic organisms such as fungi, bacteria, phytoplasmas and viruses. Pathogens have important effects on biodiversity, greatly influencing plant populations of both natural forests and plantations. The numbers of important indigenous species may be greatly reduced; some may be eliminated altogether. On the other hand pathogens themselves contribute to the biological diversity of the ecosystems they inhabit.

In the brief space of this review it is impossible to summarize the book’s total of 16 chapters, so comments are restricted to a number of detailed aspects of considerable interest. The use of molecular genetic tools in studies of forest pathosystems described in Chapter 2 by Kim, Klopfenstein and Hamelin, is of particular interest and deals primarily with DNA-based markers. The use of molecular markers to explore the complex relationships between bark beetles and their associated blue stain fungi, described in Chapter 4 by Six, represents an advance whose greater resolution makes it possible to study of genes of adaptive significance.

Trees, logs and sawn timber are all influenced by stain fungi, as Breuil, Fleet and Loppnau point out in Chapter 7. Sap stain is also known as blue stain, though its colour may vary from blue to brown or black depending on the species of wood-inhabiting fungus and the type of tree it is growing in. Sap stain is generally caused by three groups of fungi. These are ophiostomatoids, mainly Ceratocystis, Ophiostoma and Leptographium, black yeasts such as Hormonema dematiodes and Phialodophora spp. and dark moulds including Alternaria alternata and Cladosporium spp. Wood products stained by them are substantially devalued because of their cosmetic appearance. Customers may also assume that such timber is also infected with moulds, white or brown rot. More seriously, several sap stain fungi are pathogenic and if dispersed by bark beetles or wood-borers contribute to the death of standing trees by disrupting the flow of water to the tree crown. The dead trees may then be attacked by decay fungi or form the initial fuel of dangerous forest fires. The colour patterning caused by these fungi, known as spalting, is
Forest managers are of course particularly concerned with any approach designed to improve the health of their trees, so Chapters 8 (Mentag and Seguin: 'Transgenic Approaches to Increase Pathogen Disease Resistance in Forest Trees: A Case Study with Poplar') and 9 (Hunt and Ying: 'Operational Uses of Disease Resistance in Conifer Tree Improvement Programs') are of particular interest to them. Chapter 15 is concerned with patterns in diseased landscapes and uses a case study of a lodgepole pine (*Pinus contorta*) forest infected by dwarf mistletoe as an example. In this study Lundquist uses the current pattern of disease severity in an attempt to describe the spread of the dangerously parasitic dwarf mistletoe (*Arceuthobium*) over a period of more than a century in the Snowy range of southern Wyoming.

The editors endeavour to place the studies described in the book in context by providing a conclusion headed 'Forest Pathology in the Era of Integration and Synergy'. Although this takes little more than a page it is a valuable exercise which demonstrates the rapidity with which forest pathology, which Boyce (1961) defined as "the branch of botanical science that deals with diseases of forest trees for the purpose of preventing or controlling such diseases", has moved on and become much more complex. This volume is a useful exercise that should prove to be of value to forest managers and pathologists alike.

Reference

Boyce, J.S. (1961) *Forest Pathology*, Ed. 3. McGraw-Hill Book Co. Inc. New York

John R. Packham

Hedgerow History – Ecology, History & Landscape Character. Gerry Barnes and Tom Williamson 2006 ISBN 1-905119-04-6 viii + 152 pages Paperback. Windgather Press, Macclesfield Cheshire £18.99

Both authors live and work in Norfolk, Dr Gerry Barnes is an Environment Manager at Norfolk County Council and Dr Tom Williamson is Reader in Landscape History at the University of East Anglia.

The book starts by clearly defining hedges and notes the regional variations. It then delves into the known history of a landscape feature so common, but so easily overlooked.

Chapter one explains to the reader that although the book deals with the history of hedgerows in Britain the research and its finding are based on the work the authors have completed in Norfolk. Norfolk provides a diverse amalgam of hedgerows that have been established through time for various reasons, most notably medieval and parliamentary enclosures. The soil types in Norfolk are also diverse, particularly with regards fertility; this has been invaluable in the research carried out.

This first chapter deals with hedgerow management and history. It explains well the development of hedges especially in a landscape where agricultural practices have had such an influence. Once an open field system dominated areas of Norfolk but many changes through time have produced one where hedges defined ownership
in an organised planned field system. More recently dramatic changes are highlighted with the practice of hedgerow removals post the Second World War. ‘Between 1946 and 1970 around 4,500 miles of hedges were destroyed each year in England and Wales’

The second chapter is devoted to the Hooper Hypothesis. I was not familiar with the name Hooper but like many I was aware of his hedge dating method by counting numbers of species in a 30 metre section. The resulting number is supposedly the number of centuries since the hedge was planted. A very simple method of hedge dating. Clearly a hypothesis that ignores the complexity of the landscape and its creators. Other hypotheses on the same subject are examined and equally found wanting.

Chapter three starts to set the scene for the research undertaken to examine the relationship between hedgerows and species. It examines the questions posed in chapter two. Chapters four and five complement three by providing the details of the hedges and their context in the landscape of Norfolk.

Particular interest to myself was chapter five that deals with regional character. I have been travelling to Norwich many times over the past two years and wondered about the Scots pine hedges by the side of the A11. It was interesting to note they appear to have originated in Victorian times with no clear reason for choosing such a species apart from being easy to establish on the Breckland soils.

Chapter six concludes with the results of the research and provides a baseline for hedgerow formation and ageing. It is clear that hedgerows have a complex history in the landscape. Their species type and make up relates more to soil type, fashion and proximity to woodlands than the Hooper Hypothesis.

It was interesting to read the comments from the authors with regards species choice in hedges being planted today and the fact that hedges with such mixed species will not allow us in the future to carry out similar research.

For Arboriculturalists this book may be overlooked, but it describes an important landscape feature that requires greater understanding. The ability to recognise important native hedgerows should be part of every development site survey. They contain plants equally as old as the veteran trees that we so cherish.

I am sure that the book will encourage others to look into the history of their regional hedgerow history and shine a light on a landscape feature that is to easily neglected.

Brian Wallis

Flora Dendrologischer Fotoatlas, Willi Faahsen and Dieter Lappen A4 ring binder €51 plus VAT and postage (includes the Supplement Series 1 and 2.) Baumschulen Lappen GMBH www.lappen.de

and

Van den Berk on Trees 2nd Edition Van den Berk Nurseries 2004 880 pp. Hardcover €85 (excluding shipping and packaging costs) Van den Berk Nurseries, P.O Box 130, 5490 AC Sint-Oedenrode, Netherlands. www.vdberk.nl

The publication Flora – Dendrologischer Fotoatlas (€51) produced by the German tree nursery Baumschulen Lappen, commonly known as ‘Lappen’s Flora’, has been
around since 2000 though it is considered timely to review it in light of the more recent (2004) publication *On Trees* (£85) by the Dutch nursery Van den Berk.

It should be emphasised that both publications are by way of a semi-camouflaged nursery catalogue as much as an information resource: as such, their species coverage is inherently circumscribed by the range of plants on sale. For example, Lappen offered only seven Acer species in 2004 (though six variations are available on a Norwegian theme), which seems unduly limited; Van den Berk offered 23 in the same year, including under *A. platanoides* a staggering 19 Norways.

The two publications are presented very differently: *Flora* is a loose-leaf binder containing alphabetised A4 photocard inserts, with text on the reverse of each in four languages. *On Trees* is a book proper, and although rich in illustration it in no way competes with the simply magnificent photographs that comprise the majority of the German offering.

Lappen expect their readership to work for their information: a series of annual supplements have been issued, comprising punched A4 photocards for inserting within the listing, as new plants become available. This task is, so the accompanying letter from Dieter Lappen informs, one to savour. Whilst it may be that those with time to spare might indeed find this exercise pleasurable, for this author, however, only limited enjoyment can accrue from locating the correct position for yet another *Acer platanoides* cultivar.

This is the chief difficulty with *Flora* and also *On Trees*: the commercial need to offer an array of cultivars makes some of their listing seem repetitious, or perhaps studiously written to express differentiation where none material exists; even the specialist may struggle to split the difference between cultivars of several of the species offered.

A further difficulty with *Flora* is that too little information is provided on problems with the featured plants: whilst care is taken to describe suitable uses, the limitations to this advice are somewhat lacking. Ultimately, however, the sheer quality of the majority of the photographic material in *Flora* inveigles forgiveness of all complaints bar one: would that the range of species were greater so that there were more of the trees to enjoy.

It is notable that many of the Lappen and Van den Berk plant entries include information on rooting habit, presumably arising from the excellent familiarity with this end of a tree achieved in nurseries. This data may prove helpful in contexts other than plant selection.

Overall, chiefly as a result of the care taken by Lappen over illustration, *Flora* becomes a very useful publication: the ability to show photographs to clients/managers something more meaningful than labels on a planting scheme drawing unquestionably mitigates against the cost.

This high praise for illustrations in *Flora* leaves this author with not much to say over the photographic material in *On Trees*. Indeed, *On Trees* is severely let down in places by poor photography: the illustrations for the pagoda tree (*Sophora japonica*) and for the foxglove (*Paulownia tomentosa*) are very poor in consideration of the beauty of the plants they seek to portray. This disappoints in relation to its cost and its otherwise high quality.

Notwithstanding the illustrations, many of which, to be fair, are generally as good as those found elsewhere, in all other respects *On Trees* is superior to *Flora*:
partly, in the opinion of this author, because it originates from a more adventurous nursery (one gets the feeling that they will try and grow anything), and so the plant range is huge: 835 species and cultivars are listed and described.

Clearly, the two nurseries each took a decision: Lappen to produce a photographic guide, in which endeavour they have wholly succeeded. Van den Berk, possibly in light of the difficulty in bettering *Flora*, decided to provide an encyclopaedia; it is therefore against this aspiration that *On Trees* should be tested.

The attributes of the plants featured in *On Trees* are summarised with stylised symbols (e.g. a line drawing of a cactus for drought tolerance, a factory for industrial area planting, a lighthouse for coastal planting, and so on). Indeed the number of these would threaten to bewilder were it not for the two oversized fold-out reference sheets, one each inside the front and rear covers, that provide the reader with a key for permanent display.

The list of attributes considered is extensive: frost, wind, de-icing salt, park, avenue, street, small garden, coastal, landscape, industrial, flowers, fruit, autumn colour, three categories of hard surface tolerance, four soil types, drought and waterlogging; then thirteen crown habits, three ultimate heights, three crown densities, four leaf colours and finally ornamental bark.

As a result of this quite careful study, Van den Berk offer information on their trees which frequently and transparently describes their limitations: as a guide to plant selection *On Trees* is therefore an excellent reference. In addition, many arboriculturists will enjoy the frequent tree trivia that litter the book, although commonly this author found it to be irritatingly meaningless. For example: “In earlier times troughs were often shaped from *Magnolia acuminata*‘s straight trunk.”

Finally, it is worth noting that a comparison between the two publications identifies many instances where they disagree. Whilst these instances generally offer low significance for plant selection, such disagreement between experts is unsettling in promotional material.

Concerning a recommendation, this author is very happy to have both in his library, which naturally will annoy those who have yet to purchase either and only wish to buy one. However, until Dieter Lappen can be persuaded to send his photographer round the species list in *On Trees*, both it will have to be.

Julian Forbes-Laird

**Porous Pavements Integrated Studies in Water Management and Land Development.** Volume 5. Bruce K Ferguson 2005 ISBN 0-8493-2670-2 566 pages CRC Press, Taylor & Francis Group www.CRCpress.com Hardcover £92.00

Bruce Ferguson is a landscape architect who has authored over 130 scientific and technical papers on environmental management of urban watersheds. He is more than an academic having guided new development in many metropolitan regions of Atlanta, Miami and Los Angeles.

Porous Pavements is one of a series entitled ‘Integrative studies in Water Management and land Development’. This book, to quote from the preface: “... does not provide fixed recommendations to be followed blindly into all project sites. Instead it advocates a complete “toolbox” from which designers can choose
... anyone who does not acquire the ability to use porous pavements is not working with a complete professional toolbox”. Those who rely solely on Arboricultural Practice Note 1 as a solution should take heed.

The scope of the book extends, as one might expect, well beyond arboricultural issues. It considers the broad remit of impervious surfaces as a cause of a wide variety of environmental problems from flooding, pollution, groundwater replenishment to microclimate regulation. For the arboriculturist and landscape architect Chapter 1 sets out the promise of long lived trees in urban areas and concludes that “porous pavements transform “urban wasteland” into a thriving habitat for people and trees together”.

Chapters 2 and 3 contain familiar ground for the arboriculturist. There is a wide range of information clearly explaining concepts like California Bearing Ratio and Proctor Density which will help us communicate with engineers and the landscape industry. Chapter 4 discusses porous pavement hydrology and examines how the various types of surface materials actually work in terms of run off, infiltration, storage and discharge and the effect of different types of soil types they overlay. It also contains a nugget of information on page 63 about “performance” specifications. The failure of most of the “no-dig” surfaces that I have seen have arisen because they have been specified by an arboriculturist with no involvement of an engineer. Using a performance specification enables the arboriculturist to describe the desired qualities in measurable terms and leaves the methods and materials up to the engineer. There is a neat tie-in here to the 2005 British Standard 5837: Trees in relation to construction – Recommendations, Chapter 11.

Chapter 5 contains 23 pages of information on porous pavement tree rooting media from sources familiar to arboriculturists including Bassuk, Craul, Grabowsky, Kopinga and Watson to name a few. This is required reading for any Arboriculturist involved in Planning or advising on trees and landscape design, as are the following chapters which provide a great depth of detail on materials introduced in Chapter 2. Here we get a chapter each on porous aggregates (Chapter 6), plastic geocells (Chapter 8) and porous concrete (Chapter 10) as well as turf, porous asphalt and open –jointed paving blocks. What impressed me was the range of materials that is available in the US, and the variety of uses to which they are put. How refreshing this is for someone who is usually handed a photocopy of APN1 with the words “we’re doing one of these”. I also found the description of maintenance regimes (and costs) highly informative.

In Chapter 13 and 14 Soft Porous Surfaces advises on the use of mulch, bark chips, wood fibre, recycled rubber and decking extend the pallet of materials from those designed to function as a vehicular/formal pedestrian surface to ones suitable for soft landscape and amenity space.

I like the use of tables throughout the book which contain both definitions and, of equal value, websites of resources. My only small quibble would be that there is no index of these tables.

I accept that the Highway Standards that we work to in the UK are different to those in the States, and that this book is very much drawn from the US experience. However, we will not be heeding the advice in the preface, nor complying with Planning Policy Statement 1 Delivering Sustainable Development guidance “to seek to enhance the environment as part of development proposals” unless we take
the opportunity provided by this book to challenge the conventional wisdom and introduce new ideas. Which is why, even at £90 odd I would strongly recommend this excellent reference book to all landscape architects and arboriculturists.

Richard Nicholson

Tree Roots in the Built Environment. Research for Amenity Trees No. 8.
John Roberts, Nick Jackson & Mark Smith 2006 ISBN 0-11-753620-2 xviii + 488 pages Paperback The Stationary Office, London £47.00

As well as offering a decent amount of genuinely new information, TRIBE is an excellent literature review, with many nicely understood and well extrapolated references which would be difficult for the non-academic to track down and then unravel as to significance.

Information on root morphology and distribution is generally of assistance to those seeking to implement the recommendations of BS5837:2005 in relation to identifying the root protection area. It is good also on soil conditions, urban soils, tree establishment, water supply and drought amelioration. It is somewhat arcane but still good on soil contamination.

However, the chapter on growth and function of roots (excepting the excellent section on fungal associations), and the various chapters covering trees and structures, are to a notable extent disappointingly duplicative of justifiably well-known texts that deal with the issues covered at least as competently. That these sections are propped up with good references only partly militates against the feeling that this generally worthwhile and undeniably must-have book has strayed beyond its central purpose.

Of greater concern is the apparent inclusion of obsolete ‘balancing’ data, giving an appearance of quasi-political correctness that has no place whatsoever in a text of this sort.

Examples of this include the reprinting of a tree assessment method withdrawn by its author in favour of another one in 2002, and the inclusion of the inefficacious ‘APN1’ driveway detail, complete with back-of-envelope amendments made without any apparent engineering credentials. That BS5837:2005 specifically recommends against using two-dimensional load suspension systems, such as that which underpins APN1, makes the inclusion of the latter doubly disturbing.

Finally, when cataloguing research needs, the authors appear to have missed published doctorate work; see, for example ‘Water relations and soil moisture requirements of transplanted amenity trees during establishment’, by one Marcus Bellett-Travers.

Fortunately, though somewhat undermined by this sort of annoying lapse in rigour, TRIBE is overall a credit to its authors and to the Department for Communities and Local Government (or DeCLoG as it often known, perhaps in hopeful anticipation), and it certainly vindicates the continued Government support for arboricultural publishing in the RAT series.

TRIBE emerges from scrutiny appearing a bit like an omlette made with curates’ eggs: many mouthfuls all good in parts; a camel, perhaps (albeit a good one), where presumably a thoroughbred was the objective. However, the savvy reader will
quickly identify where resides the best information, heaving a deep of relief along the way that so much data has been reviewed and summarised within the space of a single publication, and by people who clearly know their métier.

Accordingly, there is little doubt that Research for Amenity Trees No. 8 will sit comfortably on the bookshelf, adjacent the three other principal texts on which our profession relies so heavily.

Julian Forbes-Laird

**Urban Forests and Trees A Reference Book.** Konijnendijk, C.C., Nilsson, K., Randrup, T.B. and Schipperijn, J. (Eds.) ISBN 3-540-25126-X 2005, XX, 516 pp., 168 illus., Hardcover £100.00

This book is long overdue. At a time when sound planning and investment in our urban “Green Infrastructure” is being championed ever more loudly, it is important for the relevant professionals (practitioners, planners, developers and politicians alike) to be able to reference an authoritative, up to date academic text. This book not only reinforces the arguments in favour of urban trees and woodlands, but demonstrates the importance of a “multi-disciplinary” approach – “It takes more than an understanding of trees and woodland to sustain a successful urban forest” (Jones et al. – chapter 7).

To the best of my knowledge this is the first European reference book to treat urban forestry as serious field of knowledge in its own right. Based upon the five year research programme undertaken by the European Commission initiative, Cost Action 12 – Urban Forests and Trees. This impressive work is a tribute to the hard work of a dedicated group of European urban forestry specialists, including the editors and the 65 specialist contributors.

The book is divided in to five sections, Form Function and Benefits; Planning and Design; Plant Selection; Management; Future Perspectives. Eighteen Chapters (papers) are placed under the most relevant section heading and cover the diverse subject of urban forestry pretty comprehensively. Professional arborists may not learn a great deal from the chapter on Arboricultural Practices, but urban forestry is multi-disciplinary and this chapter may well be of benefit to the non-arborist. However, with chapters on “Concept”, “History”, “Benefits”, “Planning” and “Design”, “Partnerships”, “Involving People”, “Management” and “Information Gathering”, this book offers local authority Tree Officers (and lets face it, these are the people who are usually – rather unfairly in my view – charged with coordinating the delivery of the urban forestry package in most towns and cities) a comprehensive guide to current thinking.

Now for the criticisms. The decision to publish all papers in English is welcome. However, the insistence by the publisher to use American English is puzzling and, to this reviewer at least, rather irritating. Translation in some of the chapters is poor and seriously detracts from what would otherwise be serious works for reference and further research. The book (like all academic publications) is expensive, although

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1COST ACTION E12 – URBAN FORESTS AND TREES. Cost stands for (European) CO- operation in the field of Scientific and Technical Research.
the quality of the paper and binding is very high. Whilst the poor translation in some of the chapters is regrettable and the use of American English is annoying (in a book on European Urban Forestry), I believe that these are small criticisms when compared to the overall benefit that reading and referencing this book will bring to the urban forest professional. If that is what you are or aspire to be, I urge you to acquire a copy.

Glenn Gorner