BOOK REVIEWS

Merkle, S.A., Andrade, G.M., Nairn, C.J., Powell, W.A. AND Maynard, C.A. (2007) Restoration of threatened species: a noble cause for transgenic trees. Tree Genetics and Genomes, 3(2), 111-118 Heidelberg, Germany; Springer-Verlag GmbH [En] Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA 30602, USA. Email: merkle@forestry.uga.edu

Some of the first applications of transgenic trees in North America may be for the conservation or restoration of threatened forest trees that have been devastated by fungal pathogens or insect pests. In some cases, where resistance has yet to be found in the natural population of a tree species, incorporating genes from other organisms may offer the only hope for restoration. In others transgenics may play a role as part of an integrated approach, along with conventional breeding or biocontrol agents. American chestnut (Castanea dentata) was wiped out as a canopy species by a fungal disease accidentally introduced into the United States around 1900. Similarly, American elm (Ulmus americana) virtually disappeared as a favoured street tree from Northeastern US cities after the introduction of the Dutch elm disease fungus in the 1940s. In both cases, progress has been made toward restoration via conventional techniques such as selection and propagation of tolerant cultivars (American elm) or breeding with a related resistant species (American chestnut). Recently, progress has also been made with development of systems for engineered antifungal candidate genes into these “heritage trees”. An Agrobacterium-leaf disk system has been used to produce transgenic American elm trees engineering with an antimicrobial peptide gene that may enhance resistance to Dutch elm disease. Two gene transfer systems have been developed for American chestnut using Agrobacterium-mediated transformation of embryogenic cultures, setting the stage for the first tests of potential antifungal genes for their ability to confer resistance to the chestnut blight fungus. Despite the promise of transgenic approaches for restoration of these heritage trees, a number of technical, environmental, economic and ethical questions remain to be addressed before such trees can be deployed, and the debate around these questions may be quite different from that associated with transgenic trees developed for other purposes.

Liu YanJu, Zhu YongGuan and Ding Hui. (2007) Lead and cadmium in leaves of deciduous trees in Beijing, China: development of a metal accumulation index (MAI). Environmental Pollution, 145(2), 387-390 Oxford, UK; Elsevier [En, 12 ref] Beijing Center for Physical and Chemical Analysis, Beijing 100089, China. Email: liuyanju@hotmail.com

Lead and cadmium uptake was investigated for common deciduous street trees in Beijing in this study. Species having Cd accumulation included Populus tomentosa,
Sophora japonica and Catalpa speciosa. P. tomentosa had the highest ratios between leaf and soil Cd (0.848), followed by S. japonica (0.536), C. speciosa (0.493), Paulownia tomentosa (0.453) and Juglans regia (0.415). Pb levels were high in leaves of C. speciosa, J. regia and Pa. tomentosa. S. japonica had the highest ratio between leaf Pb and soil Pb (0.146), followed by Pa. tomentosa (0.143), Ginkgo biloba (0.103) and C. speciosa (0.095). A predictive foliar metal accumulation index (MAI) was developed and C. speciosa was calculated to have the highest MAI value (53.8). This suggests that C. speciosa would be a good choice for planting in areas of Beijing where soil contamination with Cd and Pb may be a problem.

LüHongXia, Chen Dong and Zhang WanLi. (2007) Structural characteristics of plant communities in new green space in Shanghai. Journal of Northeast Forestry University. 35(3), 31-33, 40 Harbin, China; Editorial Board of Journal of NEFU [Ch, en] College of Life Sciences, East China Normal University, Shanghai 200062, China.

A preliminary survey was conducted to study the structural characteristics of plant communities in new urban green space of different types and scales in Shanghai. Results show that the species diversities in tree and shrub layers in uptown area are the highest (18 and 23 species, respectively), while those in factory area are the lowest (9 and 11 species, respectively). The highest ratio of evergreen tree to deciduous tree is shown in factory area (0.95) and the lowest one in organization area (0.58), the ratio of deciduous shrub to evergreen shrub is the highest in resident area (0.33) and the lowest in organization area (0.14), and the ratio of tree to shrub in factory area is the highest (0.82) and that in organization area is the lowest (0.66). With green area increasing, the species diversities of tree, shrub and herbage as well as the total species increase, but tend to be stable, and the ratio of deciduous shrub to evergreen shrub increases, the ratio of evergreen tree to deciduous tree decreases, the ratio of tree to shrub increases at first and then decreases. The distributions of size class and height are reverse ‘J’ shaped or approximate reverse ‘J’ shaped.

Wang YaQin, Qi Wei and Zhang ChongBao. (2007) Relationship between pest and disease of street afforestation trees and soil physical and chemical properties. Journal of Northeast Forestry University, 35(3), 56–58 Harbin, China; Editorial Board of Journal of NEFU [Ch, en, 4 ref] College of Biological Sciences and Technology, Changchun University, Changchun 130022, China.

An experiment was conducted to study the physical-chemical properties of soil in the main streets of Changchun City. Results show that the main reason for serious occurrence of pest and disease on street afforestation trees is the deterioration of the physical-chemical and biological properties of soil. Moreover, some effective measures for decreasing the occurrence of pest and disease on street afforestation trees are put forward in terms of the improvement of soil properties.
Harris, J.R. (2007) **Transplanting large trees.** *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources,*** 2(024), 7pp Wallingford, UK; CABI [En, 89 ref] Virginia Tech, 301 Saunders Hall, Blacksburg, VA 24061, USA. Email: rharris@vt.edu

Rapid urbanization has resulted in an increased need for installed landscapes. Transplanting large trees (over 2m tall) into these urban and residential landscapes has become an essential practice because smaller trees do not have significant impact when first planted. In addition, poor site conditions and vandalism severely limit the chances that a newly-planted small tree will eventually grow large enough to provide such intended services as cooling shade, air pollution and storm-water abatement, and psychological well-being. Transplanting large trees poses a different set of challenges to those normally encountered for transplanting small trees or annual agricultural crops. In addition to requiring longer attention to production details, large trees take much longer to fully establish after transplanting than small trees planted for reforestation purposes, and compared with annual agricultural crops, the long-term expectations for the transplanted large tree increase the importance of good transplanting techniques. This paper is a review of the biological underpinnings of the challenges encountered when transplanting large trees and how these challenges have been identified and addressed.

Gaag, D.J. van der and Scholte, E.J. (2007) **Anoplophora: a threat to Dutch deciduous trees.** *Anoplophora: een bedreiging voor Nederlandse loofbomen.* *Gewasbescherming,*** 38(2), 37-41 Wageningen, Netherlands; Koninklijke Nederlandse Plantenziektkenkundige Vereniging [Ni, 13 ref] Plantenziektkenkundige Dienst, Postbus 9102, HC Wageningen, Netherlands. Email: d.j.van.der.gaag@minlnv.nl

*Anoplophora glabripennis* and *A. chinensis* are quarantine species in Europe. A meeting was organized in November 2006 in the Netherlands to discuss the risk and possible control measures. The life-cycle of both species is described, as well as host plants (mainly *Acer* spp), damage, and detection. Bonsai trees seem the main source of infection. Control in the USA and Canada is based on the removal of damaged trees and host trees around damaged trees. Guidelines are presented in case of Dutch finds.

Abstracted from Ornamental Horticulture 2006 Vol. 32 No. 3 by Dr Tom Hall

**Timber measurement – field guide.** Ewan D. Mackie and Robert W. Matthews. (2008). ISBN 978-0-85538-749-5 (Plastic covered softback). The Forestry Commission, Edinburgh. Price £16. 56 pages plus iv.

This useful little guide replaces the old Booklet 49 which was published back in 1983. It is well-designed for field use with a pocket-size and plastic cover plus plastic protection to the pages. It gives the standardised ways of measuring trees
and timber on site and applying forest mensuration procedures in the field. The sections dealing with weight measurement have been totally revised from the earlier edition and other aspects have been brought up-to-date with the current Forest Mensuration Handbook. Flow diagrams and 'decision trees' help swift interpretation and the authors have aimed to give the guide more clarity in key areas. There is additional guidance on estimating the volume of timber felled and removed from a site. For anyone dealing with timber aspects of tree management, this is probably an essential purchase.

Copies are available direct from: Forestry Commission Publications, P.O. Box 25, Wetherby, West Yorkshire, LS23 7EW

Ian Rotherham

The Woodland Heritage Manual – A Guide to Investigating Wooded Landscapes. Edited by Ian D. Rotherham, Melvyn Jones, Lindy Smith, and Christine Handley. (2008) ISBN 978-1-904098-07-2. (Softback) Published by Wildtrack Publishing, Sheffield. 212 pages. Price £25.

Since the Arboricultural Journal editor was involved in this publication, we have extracted two reviews from independent sources and these are reproduced with their permission.

Malcolm Tait, Editor, Tree News Issue 15 Autumn / Winter 2008:
'It has been a justifiable while in the making, but this important new publication is now on the shelves. A 'hands-on' guide for volunteers and professionals who want to find out more about woodland history, archaeology and ecology, this book gives details on how to carry out documentary research, field surveys, interpretation work as well as providing hints on woodland management. Developed as part of the Woodland Heritage Champions Project, which was funded and supported by the Heritage Lottery Fund, the Woodland Trust, the Forestry Commission, South Yorkshire Biodiversity Research Group, and English Heritage, the manual's authors are drawn from a range of experts on ancient woodlands and surveying. It will be perfect for beginners, but more advanced readers will also be able to take advantage of its detailed surveying and research techniques. All in all, this is a valuable addition to the woodland managers' tool-kit.'

Jon Stokes, The Tree Council's Director of Rural Programmes, The Tree Guardian, Issue 14, Autumn 2008:
'This 202-page ring bound A4 book is produced by the Woodland Heritage Champions Project and is aimed at volunteers, groups and individuals who would like to find out more about their local woods. It contains six sections and aims to provide the information needed to interpret the history of your local woodland. The main elements of the manual focus on: ancient woodland history and use; information on how to research using maps and documents; how to interpret archaeological features and other physical structures; and what to do with your researches once you have finished. Full of information, references, case histories, survey sheets and more, this publication is a fantastic resource for anyone planning to research or
survey a woodland. Also, having been designed for volunteers, the editors have ensured that if they use jargon or technical terms they have explained them fully to the reader. I feel that the editors have met their aim for this publication, and done it well, and if you feel you would like to know more about your local woodlands, this volume is an excellent way to start.

The Woodland Heritage Manual is currently on offer to Arboricultural Association members for £15 a copy (a £10 discount) plus £3 postage and packing, from Wildtrack Publishing, Venture House, 105 Arundel Street, Sheffield S1 2NT. E-mail info@hallamec.plus.com.

City Trees: A Historical Geography from the Renaissance through the Nineteenth Century. Henry W. Lawrence. 2006. ISBN 0-8139-2533-9 (Hardback). University of Virginia Press, Charlottesville and London. $75.00 hbk $35.00 pbk

This is a deeply researched tour of the history of trees in urban areas and as such is very relevant to many practicing arboriculturists. It will inform, interest and excite those already with an interest in history. The approach taken is to take four centuries of city development in Europe and North America, and to show how trees have become integral to the urban cityscape. Lawrence considers how the greenspaces into which trees were planted evolved and also how they were used.

The author draws on images and written accounts to delve into how trees interacted with the basic urban functions and activities, and generates a unique look at the emerging role of the tree in the urban landscape. He goes on to relate this to important aspects of culture with aesthetics, power, national traditions and politics. In some cases trees have been a show of prosperity of the city, and in many cases have developed distinctive national identities and styles. Over time these have often merged and blurred into what are now recognisable international approaches to tree planting and maintenance.

This is a very readable account and will be a joy for anyone with a serious interest in urban trees. There are lots of black and white images from the cities and periods discussed. The only grumble I have is that perhaps a few good colour images, perhaps of these trees and landscapes today, would have been a useful addition.

Ian Rotherham

Trees in Towns II: A New Survey of Urban Trees in England and their Condition and Management. Chris Britt and Mark Johnson. 2008. ISBN 978 785 112 8891. HMSO.

Executive Summary free to download from www.communities.gov.uk/publications/planningandbuilding/treesintownsii

It hopefully comes as no surprise to readers of this journal that trees in the urban environment bring a whole host of benefits, of which a buffer for climate change is only the most recently identified. It is also unlikely to shock those accustomed to looking at trees either professionally or as a hobby that our urban tree stock is not
in the best shape and is not delivering those benefits as it might. Cue the timely release of Trees in Towns II, the latest OPDM-funded survey of the English urban forest, jointly conducted in 2004 by ADAS and Myerscough College. Extending the scope and analysis of the previous Trees in Towns survey of 1992, Trees in Towns II seeks to quantify and qualify the state of our urban forest and looks at the resources and methods available for its improvement in the local government sector. The survey and resulting report is divided into two parts: a national tree survey (Strand 1) and a survey of local authorities (Strand 2).

Fifty-five pounds buys you a printed and bound copy of the 34-page Executive Summary plus the full report and appendices in PDF format, a geodatabase and a mapping tool on a CD. For those of us who baulk at the thought of having to read 644 pages of text on screen, this format is somewhat dismaying, and as there are no hyperlinks within the PDF it is not easy to navigate through the document. Saving paper is laudable in most cases, but a report as important as this surely merits at least the option of purchasing a full printed version. In addition, it is necessary to download the free ArcReader software (not available for Mac) from the Internet to be able to properly view the geodatabase, although a static PDF version of the maps is also included on the CD. Disappointingly, especially as it is the only part of the study that many will look at, the printed Executive Summary lacks clear analysis, burying the reader in a bewildering array of statistics and allusions to the study’s achievements without giving an accessible précis of the findings, surely the function of any summary. This detracts from the wealth of valuable data and analysis contained in the full report and may unfortunately dissuade the casual reader from exploring further.

Strand 1 of the survey aims to create a picture of the extent, age, status and condition of the urban tree population through desktop and field surveys of 147 towns (including 10 London boroughs) in England. Clearly, anybody undertaking such a Herculean task faces the twin problems of methodology and deciding how best to deploy their limited resources to sample and extrapolate in a meaningful way. The authors of Trees in Towns II have carefully devised a robust survey methodology that is reported in meticulous detail, providing as a by-product a valuable reference for researchers undertaking similar projects. As there is no ideal solution to conducting a survey of this size and complexity, it would be easy, although fruitless, to criticize in detail the approach taken here. However, a couple of problems do merit comment. The inclusion of shrubs in the survey muddies the waters somewhat, as shrubs perform very different functions to fully grown trees. Changes in the survey parameters since 1992 mean that in many instances the two datasets cannot be compared for the 66 towns included in both surveys. This is a missed opportunity to trace longitudinal trends, and it must be hoped that any future surveys will use the parameters established in the 2004 survey so that progress can be ascertained. Finally, much of the Strand 1 data is reported by region, yet such a breakdown is of limited relevance. Clearly, there are marked regional differences in the urban tree population, but only some of these are due to differences in local resources and efforts, which is after all the link that the survey is trying to make. The histories of land use and urban development are surely also determinants of why, for example, the tree population in the North West is smaller, younger and of worse quality than that in, say, the southern London boroughs.
These gripes notwithstanding, Strand 1 largely fulfils its brief of providing an overall assessment of the urban tree stock, which is also, once accessed, handily presented in graphic and map form on the CD. The reader cannot avoid concluding from the findings that our urban tree stock is getting smaller, shorter and increasingly imbalanced in age distribution (in short, it is in decline), thus backing up in quantitative terms what many of us have already apprehended in a rather more anecdotal and haphazard fashion. Notably, the report arrives at a figure for overall urban canopy cover of 8.2%. It would be interesting to see how this compares with the figure for other countries, particularly in the EU, and how it measures up against recent projections of canopy cover required to buffer climate change.

Strand 2 reports the results of a questionnaire survey of local authorities (LAs) regarding arboricultural resources, strategies and management and an additional survey on the recruitment of tree officers. The data from Strand 2 is then compared with the data from Strand 1 to try and elucidate the reasons for the current state of the urban forest. It seems to show that LA tree teams are underfunded, understaffed and somewhat directionless (only 28% have a current tree and woodland strategy, for example). If this seems like harsh criticism, then it must be remembered that most of the information was supplied by the LAs themselves, and must to some extent reflect the current situation. However, the language that is used and some of the analysis do present a rather strident criticism of LAs, and risk alienating the very people that stand to gain most by studying the report. Hopefully, Tree Officers will not take the findings as personal criticism of their endeavours, but will use them as a basis for campaigning for more resources and for developing better tree strategies. The list of 10 targets to raise national standards in LA tree management at the end of the report is as good a starting point as any, and in aiming for these targets Tree Officers should find the 12 case studies in the Appendices useful and inspiring. These give examples of LA best practice in areas such as strategy, green waste disposal, tree risk management and community involvement, and show how the efforts and creativity of often just a small group of people can turn things around.

Trees in Towns II points out that the burden of managing the urban tree stock (both directly in the case of public trees and indirectly through the planning process in the case of private trees) has fallen squarely on the shoulders of LAs. Whether this is right is not addressed, but it is made clear that LA tree teams are struggling and need outside support. Trees In Towns II suggests that LAs achieve this by securing more outside funding and entering into partnerships with the community. It must be remembered our wonderful Victorian tree heritage (which Trees In Towns II emphasises is declining faster than we are replacing it) was in many cases not created by municipal bodies, but by wealthy and enlightened individuals. In the absence of these (or at least any willing to spend their money on trees), Trees in Towns II and companion work from such groups as the Urban Canopy Initiative and the Forestry Research's *Condition Survey of Non-woodland Trees* will prove useful as we explore how a municipally managed urban forest performing both amenity and environmental functions might be created.
Trees in Towns II offers an important set of baseline data on our urban trees and the management of the urban forest in England. The snapshot that it provides of the decline of our town trees is alarming, certainly, but will hopefully spark a debate on how we can improve matters. It is a great pity that it was not published in a more user-friendly format, but that should not dissuade readers from exploring its contents.

Andrew Cowan
ArborEcology

Weed and Pest Control in Trees & Amenity Sites. Colin Palmer, Rural Services, Ledbury, 2007 ISBN 978-1-897781-31-9. Rural Services, Woodview Cottage, Raycomb, Coddington, Ledbury, Herefordshire, HR8 1JH Tel/Fax +44 (0)1531 633 500 email: forestry@branchline.demon.co.uk www.ruralservices.info £19.95

This is without doubt a useful and well-researched reference book for those who are looking for helpful guidance on pesticides and their usage in and around trees and amenity sites. The book uses lists and tables well to inform the reader on which pesticide to use and how to use them. The book is small and this hides the volume of information found within it. It is a must for those who are looking for good advice while not being bogged down with technical data.

It is divided into four sections. The first being 'The Basics', this includes the legislation that applies to the use of pesticides in the environment. An excellent guide to reading and more importantly understanding pesticide labelling is included. Methods of application, handling and protective equipment are all covered briefly but with enough detail to provide the reader with the information they will require. The final part of this section provides nozzle selection and calibration that will allow the correct dosage to be applied thus preventing environmental damage and effective use of the pesticide (plus saving money!).

Section two specifically deals with herbicides and is divided into two sub sections, the first dealing with each herbicide’s active ingredient, its mode of action and a very good over view of it with regard to approved usage, plus what it controls, how and even a guide to cost. The second part details specific plants and plant types, providing a brief description about the plants and which chemicals are able to offer control.

Section three deals with insecticides, fungicides and pest control. It also includes Plant growth regulators that may have been better placed in the herbicide section. Also, the change from section three to four is only distinguished by a colour change on the page edge.

Section four provides guidance on forestry, Christmas tree growing, and pesticide usage in amenity sites. This section is probably the least successful, as the use of colour on the page edges seems confusing and a guide to the use of colour would have been good at the beginning of the book.

This is really only a minor criticism of a useful publication for those seeking a quick reference guide. However, it will of course need regular updating as the number of pesticides available and restrictions on their usage is constantly changing.

Brian Wallis