

## Book Reviews

*The history and natural history of Lugg Meadow.* A. Brian & P. Thomson. Pp. viii + 56. Anthea Brian in association with Logaston Press. 2002. Paperback. £4.95. ISBN 1 873827 38 5.

This delightful booklet seeks to highlight the national importance of Lugg Meadow near Hereford, the largest surviving Lammas meadow in England (132 ha). The first chapter provides an historical overview of the development of meadow systems since the Bronze Age, with particular reference to the Lower Lugg Valley. This is followed by two engaging and comprehensive chapters detailing the medieval system of land management and tenure still observed on Lugg Meadow today. These are based on the rich corpus of archival material held by Hereford Cathedral, some of which dates back to the eleventh century, together with the history embodied in the mere and dole stones of the meadow itself. In contrast only a short section is devoted to the meadow's natural history (12 of the 56 pages) and much of the botanical discussion is understandably focused on ancient flood meadow indicators (e.g. *Fritillaria meleagris* and *Oenanthe silaifolia*). There is however a useful appendix listing the plants of the meadow.

This book provides an extremely informative account of the geological and cultural heritage of an ancient Lammas meadow and is therefore of relevance to anyone involved or interested in the development, ecology or conservation of traditional hay-meadows.

C. PINCHES

*Oaks, dragonflies and people.* N. W. Moore. Pp. 132. Harley Books, Colchester. 2002. Paperback £15.95. ISBN 0 946589 71 2.

Norman Moore described aspects of his long and distinguished career in nature conservation in his perceptive commentary on the science and politics of conservation, *The bird of time*, published in 1987. *Oaks, dragonflies and people* is a more personal memoir based around the small, private nature reserve at his home in Cambridgeshire. The first half of the book covers the establishment and management of the reserve since the Moore family moved to Swavesey in 1961. The reserve was created from a pasture field on heavy calcareous clay and now includes grassland, a planted wood (dominated by *oaks*), and a large pond (or mere as Moore prefers to call it) excavated in 1983. A quarter of the book describes the colonisation of the reserve by animals, especially *dragonflies* on the mere. Two chapters on planning and planting the wood and the mere contain most of the botanical interest, together with the appendix listing plant species mentioned in the text. A section of 36 colour plates divides the chapters on the reserve from the second half of the book. This consists of seven short chapters. Each is an essay on important themes in nature conservation and environmental policy and practice, including a new concept termed 'Future Care' politics. Each chapter starts from the local scale of his Swavesey reserve, but then ranges widely to embrace global issues, always from an unambiguous, personal standpoint. True to its title, throughout this book *people* (family, friends, neighbours and colleagues) form a distinctive thread in his story. The book includes several appendices, a glossary, a short bibliography and a comprehensive index, covering topics as diverse as Dutch Elm Disease, grandchildren and the Kyoto Treaty! It is illustrated with the author's line drawings, maps and a few monochrome photographs, in addition to the colour section.

P. T. HARDING

*The Broads: the people's wetland.* B. Moss. Pp. 392. Harper Collins, London. 2001. Hardback ISBN 000 220163 1, £34.99; paperback ISBN 000 712410 4, £19.99.

In this book, Brian Moss describes the most famous British lowland wetland. "A set of around 50 very small lakes linked with four rivers, on a world scale tiny, and the equally minuscule remnants of a mosaic of wetlands, they have a remarkable prominence in national sensibilities, and a key role in the scientific research literature". The emphasis of his account is deliberately ecological. Moss explains that this is not "a traditional naturalist's book, emphasising lots of species, and

delighting in the appearance of this or that flower". The author is an environmental scientist, whose greatest enthusiasm comes when writing about water chemistry, "an intensely interesting subject", and limnology. This approach is somewhat unexpected in the *New Naturalist* series, but the book is well planned to complement George's superbly encyclopaedic *The land use, ecology and conservation of Broadland*\* (1992) and Williamson's land-use history *The Norfolk Broads* (1997). Together, these three books replace the earlier *New Naturalist* volume *The Broads* by Ted Ellis (1965), long outdated but increasingly valuable as an historical account of a vanished Broadland.

In the first half of the book, the gradual development of the Broadland Ted Ellis knew as a young man is described. Geological history, the vegetation and water chemistry of the pristine river systems, the origins of the lakes as medieval peat-cuttings and the development of the grazing marshes are all covered. The detailed account of events in the rather isolated Broadland area is set in its national context. In theory this is a good idea, but unfortunately it takes the author well outside his field of expertise. Thus the Anglo-Saxon Chronicle is described as a "book written ... by a monk, the Venerable Bede", Britain is said to have been drawn into the Second World War "by movements of hostile forces into Belgium and now also Holland in 1939" and Arthur Bennett, who collected charophytes in Broadland in the 1880s, is depicted as a clergyman and a member of the leisured Victorian middle-classes.

The really important part of Moss's book is the description of developments after the Second World War (pp. 186 onwards), a period when the area "was to suffer almost all of the ills to which freshwater systems are prone under severe human pressure". In particular, the aquatic macrophytes and fringing communities of both lakes and rivers declined and reedswamps ceased to be managed and became overgrown. At first boats were blamed for the changes to the water bodies, or indeed regarded as the obvious culprits; they were highly visible whereas increasing levels of nitrate and phosphate were not. The long research programme undertaken by Brian Moss and his colleagues from the 1970s onwards to establish the true reasons for the changes is clearly and honestly described. The current understanding of the ecology of the Broadland waters was achieved gradually, using both experimentation and the intelligent interpretation of chance events. This understanding relies on the idea of alternative stable states. The aquatic systems of the Broads might be either turbid and phytoplankton-dominated or clear waters with flourishing macrophytes, even under the same environmental conditions, and there are a number of possible switches from one state to the other. This raises the possibility of reversing the changes by reducing nutrient levels followed by "biomanipulation". The latter includes planting aquatic macrophytes, protecting them from grazing and reducing fish populations (to reduce predation on zooplankton, and thus increase their consumption of phytoplankton). The many ecological and institutional obstacles to achieving this restoration are clearly outlined, the greatest of all being the absence of any body with powers to manage the whole catchment. (An interesting chapter analyses the organisations of Broadland as if they were species under evolutionary constraints.) Moss concludes that the best we can expect in the future is "isolated nuggets of high quality in a bedrock of mediocrity". The pressures on grazing marshes, which for a period were threatened with conversion to arable land, are less ecologically complex, but in viewing the present situation Moss has "a sense of impermanence, of waiting to see what might happen next" as both fens and grazing marshes "are artefacts of history and history has changed".

This account of the complex ecology of Broadland is well-written and, although I found that it required concentrated reading in places, it is not difficult to understand. It is an engrossing account of the difficulty of understanding the complex ecology of the area, and then of putting this hard-won knowledge into practice. It provides a description of Broadland as it really is, and a very stimulating (though not necessarily encouraging) read for anyone interested in the environment and seeking to get beyond the soundbites of pressure groups and the posturing of politicians.

C. D. PRESTON

\* Regrettably, although this book was received for review in *Watsonia* it was never reviewed, for circumstances beyond the editors' control. I therefore take this opportunity to recommend it wholeheartedly.

*The flora of Ely*. R. M. Payne. Pp. 30. Privately published at King's Lynn, Norfolk. 2002. Paperback £4.50 incl. p. & p. from Summerfield Books. No ISBN.

This attractively produced booklet describes the results of a survey of the urban part of the city of Ely in 2001–2002, analysing, by habitat and frequency, the occurrence of 416 species in 103 recording units. There are numerous interesting notes on individual taxa, such as *Myosoton*, *Humulus*, *Duchesnea* and an apparently unnamed fertile *Senecio* hybrid. As in most other urban floras, annuals, Asteraceae and Poaceae are disproportionately well represented in comparison with the rest of the county or country. The base of walls was the richest habitat, with 191 species, and walls themselves had 157. The author's thoroughness can be judged from the list of 38 species from such an inaccessible habitat as roofs and gutters. There have been a number of accounts of urban floras in recent years, including those of Dublin, Belfast, Hull, Cambridge, Aberystwyth and Payne's own of King's Lynn. It is with the latter that the Ely flora is chiefly compared, with for example *Sagina procumbens* being strikingly more abundant in King's Lynn, and *Parietaria* even more so in Ely. Lack of earlier detailed records means that no changes over time have been described, but a very good baseline has now been set for any future resurvey. More analysis of the ecological and climatic requirements of the species might perhaps have been worth while, but as it stands this booklet is strongly recommended to B.S.B.I. members both for its intrinsic and original botanical information and as an inspiration to produce similar surveys of other urban floras. The more such accounts are available, the more we will learn about the nature of this very human environment and the differences between one town and another. It also demonstrates that, for the observant botanist, a day in town can be just as productive as one in the countryside.

A. O. CHATER

*New Atlas of the British and Irish Flora*. Edited by C. D. Preston, D. A. Pearman & T. D. Dines. Pp. xi + 910. Oxford University Press, Oxford. 2002. Hardback £99.95. ISBN 0 19 851067 5.

*The changing flora of the UK*. C. D. Preston, M. G. Telfer, H. R. Arnold, P. D. Carey, J. M. Cooper, T. D. Dines, M. O. Hill, D. A. Pearman, D. B. Roy & S. M. Smart. Pp. 36. Department for Environment, Food and Rural Affairs, London. 2002. Paperback. Available on [www.defra.gov.uk/wildlife-countryside/index.htm](http://www.defra.gov.uk/wildlife-countryside/index.htm). ISBN 08459 556000.

A peaceful army of 1600 botanists spread out all over Britain and Ireland during the last half decade of the 20th century under the leadership of the Botanical Society of the British Isles. It must be rewarding for them to see that the results of their careful field observations have been put together so quickly and yet so thoroughly in one heavy volume: the *New Atlas*. It was an excellent idea of DEFRA (Department for the Environment, Food and Rural Affairs), who provided the main funding for the project, to bring out the separate booklet *The Changing Flora of the UK*, which explains important parts of the mapping project to a wide public, including the policymakers themselves. (Despite the title, most of its maps cover records in the Isle of Man as well). This finely and adequately illustrated booklet should be used at schools and universities, not least because it shows the effects of the degradation of the countryside (especially) in England very clearly, pointing to modern agriculture and traffic as the wrong-doers. It becomes very obvious, too, that the changes in the English temperate flora are equal quantitatively and qualitatively to the changes in the temperate lowland floras of Western Europe.

The *New Atlas* treats all species in Stace's *New Flora* and covers the whole of the British Isles (Britain, Northern Ireland, Republic of Ireland, Isle of Man and the Channel Islands). The distributions are marked by the presence of dots in the 10 × 10 km squares of the Ordnance Survey National Grid, of which there are over 3800 in the British Isles. However, not all the maps are printed in the book itself; a CDROM has been included for the missing species (all introduced species in fewer than 50 squares). The CD also contains all the maps from the book, allowing one to make species selections from parts of the country. However, when trying to find the map of a certain species, one has to know already whether it is also depicted in the book or only in the CD: there is no complete index from which one can start. I did not fully understand why the CD does not contain maps of *Hieracium* sections (or of *Rubus*, *Taraxacum*), yet other aggregates (like *Euphrasia*) are treated fully in the book. But these are only minor points. The CD works quickly, and allows all kind of comparisons not easily done with just the book to hand.

The more than 2,400 maps in the book are presented in a good size (three to a page), with the records sorted out in two categories: native (blue) and introduced (red). Very often a map has blue as well as red dots, indicating that part of the records are considered as introductions. The records are divided into three time classes: pre-1970, 1970–86, and 1987–99, presented with increasing contrast, the pre-1970 records having been printed so faintly that one needs a good illumination to see them. The best characteristic of the atlas is the combination of map and text. The species accounts are concise but very informative, and commendably uniform in content and style. The accounts include brief information on habitat, trends in the distribution inside the British Isles, altitudinal limits and key references. A very important tool to illustrate the trends is the change index, which is presented for every species; it compares the present day distribution with that of the results of the 1962 *Atlas of the British Flora* (after all kinds of statistical exercises), ranging between +4·70 and –7·86. Important information is also presented on the history of the species in the British Isles, not only giving information on the first date of introduction and the first record in the wild, but also the much more relevant information on the period of real naturalisation. Before going deeper into this matter, I must confess that I missed one aid: an overlay with ecologically important factors like altitudinal ranges, rainfall, frost days, etc.

Because the individual change index number is presented, together with precise dates of historical relevance, I did an exercise to compare the data of all Atlas species from England which also occur in the Netherlands with our national data and with those recently presented for Germany and the Czech Republic. The preliminary results of this comparison are amazing in several respects. Firstly, there is a great similarity between dates of introduction and expansion of many temperate species in these countries. The fact that Britain is an island is not very apparent for those plant species of lowland man-influenced habitats: many introduction and expansion events occurred almost simultaneously with those of 'the Continent'. Secondly, and this may be bad news for Dutch botanists, the change index leads to comparable results with data collected for a 10 × 10 km grid as for our the Dutch 1 × 1 km grid. Perhaps it would be a good idea to repeat this promising exercise less hurriedly. And thirdly, there may be reason to discuss the biologically important distinction between 'native' and 'alien' in treatises on flora and fauna, because, and this is my only real point of criticism on the New Atlas, I feel that the black-and-white distinction between the blue and the red dots has gone too far. Not only is it difficult to interpret archaeological data, but to me it seems odd to treat a species like *Verbena officinalis* as alien, despite it already being known in the Stone Age! Many species now treated as alien are known from the Bronze age (*Silene latifolia*, *Lithospermum arvense*, *Hyoscyamus niger*) or the Iron Age (*Agrostemma githago*, *Ballota nigra*, *Anthemis cotula*, *Centaurea cyanus*). Another interesting result of this distinction between native and alien is the fact that many maps of native species have many red dots, reflecting changes in the recent distribution that are considered to be more influenced by man than the old distribution patterns. To take one example, a quarter of the dots for *Clematis vitalba* are in red. Also in the Netherlands, Traveller's-joy (its name alone!) has been expanding rapidly in recent decades outside its traditional habitat. Because of its ability to form monocultures, it was usually eradicated outside woodlands on limestone. When this practice stopped, it was free to colonise shrubbery in cities, railway borders and waterway edges, and it did so successfully! I feel it unnecessary to consider its London localities as alien, those of Greater London as native.

Another minor point of criticism is the taxonomic order of presentation, which exactly follows Stace's sequence in his *New Flora*. Especially in the present exciting era wherein DNA research leads to a better understanding of evolution, resulting in some considerable changes of position and circumscription of some families and orders, it might have been better to present the Atlas taxa alphabetically by binomial.

It is really amazing that the whole Atlas project has been finished within only seven years. Not only the B.S.B.I. field botanists are to be praised, but also the whole group of scientists behind the raw data are to be congratulated on this fine result. Undoubtedly, this Atlas is the best that has ever appeared in Europe, and it will lead to a better understanding of the British and the European flora. Hopefully, policymakers will also understand that it is necessary to support organisations like the B.S.B.I., and that they must invest in measures which will lead, eventually, to landscapes with a great diversity of wild flowers. The next atlas might reveal this in another 40 years.

R. VAN DER MEIJDEN

*Rare Plants of Shetland*. W. Scott, P. Harvey, R. Riddington & M. Fisher. Pp 166. Shetland Amenity Trust, Lerwick. 2002. Hardback £21.75 (£19 to B.S.B.I. members if ordered directly from Shetland Amenity Trust). ISBN 0 9543246 0 9.

This concise, accurate and well-produced work focuses on Shetland's rarest plants. The information provides a useful update to that contained in the superb *The flowering plants and ferns of the Shetland Islands* of 1987 by Walter Scott and Richard Palmer. There are three very informative introductory chapters. The first charts the discovery of the Shetland flora, beginning with James Robertson in 1769, then documents the achievements of the most notable botanists such as Thomas Edmondston (who died aged 20 not 21 as stated), William Hadden Beeby, George Claridge Druce and, not least, Walter Scott and Richard Palmer. This is followed by an account of the conservation of the flora of Shetland and a useful section on the legal provision for the protection of wild plants in Great Britain. These two chapters provide very useful background information.

The accounts of the 138 taxa are arranged botanically and each taxon is assigned to one or more of seven conservation categories that are stated in colour below the name of the plant in each account. A few categories seem to be omitted from the accounts where a plant belongs to more than a single category or sub-category (e.g. several of the *Hieracia*). The accounts are succinct, giving date of first record and notes on distribution, habitat and threats. Each taxon is mapped at tetrad scale where possible, otherwise at hectad scale. Date classes for records follow that of the recently published *New atlas of the British and Irish flora*.

The stated aim of the book as an essential reference for planners and conservationists is admirably achieved as the clarity and high quality of the layout makes the information extremely accessible. A selection of colour photographs further increases the attractiveness of the work. This is a high quality work in all respects but this is what we have come to expect from Shetland botanists.

P. LUSBY

*Plant Life of Edinburgh and the Lothians*. Edited by P. M. Smith, R. O. D. Dixon & P. M. Cochrane. Pp. xii + 545. 2002. Hardback £25.00. ISBN 0-7486-1336-6.

This is a handsome and inexpensive volume that handles well. Within its covers lie a compendium of papers and fine photographs by 22 authors with sharp contrasts in style and content, and indications of an editorial struggle for compression.

This book is much more than a flora, it has an educational mission to present as broad as possible a picture with the physical and historical background, an inventory of all forms of plant life, and papers to add analysis and to cover related topics. This mission is largely evangelised by Philip Smith and colleagues at the University of Edinburgh. Balanced against this are the highly scientific but equally accessible contributions by the enviable team of botanists at the Royal Botanic Garden Edinburgh in relation to fungi, lichens, bryophytes, ferns and flowering plants. As if that were not enough in itself there is also a full bryophyte flora and a vascular plant flora that includes a report on a massive and complex field survey by a considerable army of volunteers backed up by historical records and further field work by three able B.S.B.I. Vice-county Recorders, Jackie Muscott, Douglas McKean and Helen Jackson.

The administrative region of the Lothians does not coincide with that encompassed by the three vice-counties on which the botany is based. This has led to a mismatch between the maps of physical features and those of the floras, which is a pity. Otherwise the physical background is informative and I enjoyed the portrayal of the toposequence of Lammermuir soils and the insight into the mosaic of soils near the coast. In the historical section I was delighted to see acknowledgement of Albert Long's pioneering work on the fossil plants and appreciated the section on the old lochs of Edinburgh.

Microfungi are illustrated by familiar examples. Roy Watling presents an inventory of the macrofungi and an overview packed with lively anecdotes and the provocative statistic that the 1,238 species recorded so far might potentially rise to 7,500 in the future. Eutrophication is suggested as the reason for the loss of 4 of 9 charophytes, but the last records were in 1821, 1897, 1935 and 1961 so other factors may be involved. Seaweeds are introduced to the reader and an

inventory is given. In contrast Brian Coppins is not allowed to list his 591 lichens but this does mean space for a compelling overview.

David Chamberlain's Bryophyte Flora is a major work which I am not competent to review, but I can applaud the presentation of the meticulous field work over 30 years, much of it in a productive partnership with David Long. Full records are given for the rarer taxa and for local taxa, found in 8 or fewer 10 km squares, at least one detailed record is given for each square. Thus *Marchantia polymorpha* ssp. *polymorpha* is recorded in square '46 – damp soil by stream, Birns Water, near Stobshiel, 28 July 1974, D. G. Long 3632'. 3632 appears to be a herbarium reference rather than a grid reference, though this is not stated. The ferns have a comprehensive separate review, though I looked in vain for comment on the spread of *Phyllitis scolopendrium* mentioned in the flora.

The Botany of the Lothians Project had the ambitious goal to record in detail one 1 km square in each tetrad, some 555 squares, which has virtually been achieved over 14 years. For each taxon its frequency in the square as a whole was estimated together with each habitat occupied, choosing from a standard list of 41 habitats. In a Scottish context 1 km recording on this scale is unparalleled. The resulting flora presents maps of about 400 taxa with the frequency shown as shading over the tetrad containing the 1 km square sampled. Unfortunately the shading is not self-explanatory as rare appears more deeply shaded than occasional and abundant, in solid black, stands out more strongly than the rather poor consistency of the underlying data would appear to warrant. The habitat information is used in the species accounts. Thus *Buddleja davidii* is noted from 'waste ground, roadsides, woodland, quarries, buildings' but not, strangely, from railways, seemingly because the standard habitat 'railway embankments/cuttings' appears to exclude railway sidings and the like.

The species distributions are given by vice-county as '*Hypericum pulchrum* – WL: widespread especially in W.; ML, EL: widespread in S. local in N.'. This adds nothing to what is evident from the map. For scarcer species the Vice-county Recorders have provided a list of current (1981–2000) and historical localities. These cover the whole area, not just the project sample. There is no general commentary at all, so we learn nothing of fine populations of scarce plants, nothing to set the Lothians populations in a Scottish or British context, and find no background to the lost localities and extinctions. Commentary is left to later chapters. Alien species coverage is exemplary, no doubt aided by the services of the herbarium at the Botanic Garden. Thus Malvaceae includes 12 species (compared to 6 in the Glasgow Flora) and *Quercus* 7 taxa (4 in Glasgow). This coverage exacts a toll in terms of pages.

Extensive notes on the rarer casual aliens follow the flora before the all-too-brief overviews of each vice-county by its B.S.B.I. Recorder. These nevertheless portray vividly the flora of some features of the area, such as the bings, Holyrood Park, Roslin Glen, the Union Canal, the East Lothian Coast and the volcanic outcrops. A chapter on phytogeography focuses excessively on species with only a toehold in the area. This seems to result from following the work of J. R. Matthews rather than that of C. D. Preston and M. O. Hill, which does not get a mention.

The presentation of the project's results recognises twenty distinct plant distribution patterns, but these do not, unfortunately, appear in the species accounts. A surprise to me was a group of familiar species, such as *Achillea ptarmica* and *Senecio aquaticus*, with a distribution even more concentrated in the west than the New Atlas data would suggest. Interesting gaps in distribution at 1 km scale occur in the intensive arable areas for some very widespread species such as *Anthoxanthum odoratum* and *Veronica serpyllifolia*. Statistics are strangely absent from the account and I could not even trace the total number of taxa recorded. These may follow once the CD-Rom of the underlying data is available, as promised at the book's launch.

The worthy chapter on land use is map free, which is a shame, as I had hoped to be able to compare data from forestry and agricultural sources to the interesting maps of different crop types obtained from the species habitat data. The finale on ethnobotany taught me that *Isatis tinctoria* was in commercial use to the end of the eighteenth century and that *Salix myrsinifolia* has had a place in osier beds.

This is a book that Scottish and northern botanists will not wish to be without.

M. E. BRAITHWAITE