Book Reviews

A Flora of Norfolk. G. Beckett and A. Bull pp. 320. G. Beckett 1999. Price £38.00. ISBN 0-9534999-0-1

Just when recent county Floras, such as Hampshire and Cumbria, had set new standards in content, mapping and presentation that seemed unlikely to be easily surpassed, along comes this new Flora, covering all political and Watsonian areas of Norfolk and incorporating bryophytes as well as vascular plants and ferns. It is a superbly integrated work, produced over a relatively short period at a price I consider quite acceptable.

The introductory chapters have a particularly valuable section on man's influence on the various habitats, showing a deep and welcome understanding of the subject. This is supplemented by chapters on habitats using the National Vegetation Classification (NVC) and on soils, reminding readers of the wealth and diversity of habitats, particularly wetlands, created by drift deposits, calcareous and acid, overlaying chalk. There is an excellent section on Norfolk botanists which manages to place predecessors into context rather than just be a recital of names.

These introductory chapters end with an excellent and welcome map, an unaccountable rarity in modern Floras. Because of this there is no gazetteer, which would have been useful if only to locate the places named in the illustrations. It would also have been useful to have had an indication of where political and vice-county boundaries differ.

The species accounts cover the bulk of the book; vascular plants and ferns, 215 pages, and bryophytes 22 pages. These are supplemented by maps on a tetrad scale for the plants and on a 10 km scale for the bryophytes, showing only records made during the survey (1985 to, I assume, 1998). This latter is my main reservation over the book – the complete lack of older records on the maps, although declines are often noted in the text. By and large I feel that "snapshot" floras, mapping only those species and sites seen during the survey, omit an important dimension by not illustrating change and it is this that is a weak point in recent Floras, of, say, Kent and Wiltshire. Purists might argue that there is a degree of difficulty in allocating tetrads to old records. I think this problem is overstated. In this flora historical maps of species such as *Lycopodiella inundata*, *Lathyrus palustris*, *Trifolium ochroleucon* and many others would have added much to the text. A minor point would have been a wish that the authors had resisted temptation and stuck to their original 1987 start date – to tie in with the BSBI Monitoring Scheme and the new Atlas 2000.

A further concern is the extent of incorporation of published records. I noted, following a query on some aquatic plants, that records on *Potamogeton compressus*, in *Scarce Plants in Britain* (Stewart *et al.* 1994) and on *Potamogeton* \times *cooperi*, in *Aquatic Plants in Britain and Ireland* (Preston & Croft 1997) were not included. Also, it did not seem that extensive surveys by C. Doarkes (on aquatic plants) or R. J. Driscoll (on *Luronium* and other subjects) had been used.

The text of the accounts is first rate, and is one of the few I would use when writing ecological accounts on a countrywide scale for the new Atlas 2000. There is also a very welcome injection of horticultural knowledge, particularly in the accounts of aliens. The germination details are also very useful and rarely encountered elsewhere. Relatively unimportant criticisms here would include a frequent lack of any comment on native or alien status, numerous errors and omissions (over 25) in the national status of rare plants, and occasional difficulties in tying up tetrad frequencies with the text for the unmapped species. The coverage of Brambles is absolutely first-class, and not at all too long.

The maps and the superimposing of the tetrad distribution over coloured soil types where relevant, or over rivers or roads for aquatic or wayside species, are really elucidating and pleasing to the eye. They add explanation to the distribution of all but a very few species. I found it difficult, by eye, to assign a tetrad dot to a precise grid reference and have made myself a little overlay. I wish there were more maps of aliens, but it may be that the authors considered those they mapped told a story, whereas those they omitted did not. Since tetrad totals are given for the species not mapped it would have been useful to have had totals for those mapped. There are many more records, particularly in East Norfolk, of species that were mapped in *Scarce plants in Britain*

(Stewart *et al.* 1994). Finally the colour illustrations are first-rate, and incorporated into the text with very little loss of quality -a most pleasing arrangement, and a great improvement over the traditional and obligatory block.

It is not often that my non-botanist friends enthuse over the county Floras that they see strewn around our dining room. A Flora of Norfolk is a rare exception, with the species pages setting new standards in presentation and integration of maps, plates and text. It is instantly accessible, with the coloured underlays of soil types and rivers and roads a real bonus. Just as its predecessor was the first to carry colour (*Flora of Norfolk*, C. P. Petch and E. L. Swann, 1968), so this takes us into the computer age in new ways that must arouse admiration and trepidation in equal measure in those who would emulate in other counties.

D. A. PEARMAN

Illustrations of the British and Irish orchids. D. M. Turner Ettlinger. Pp. 214. Published privately by the author (Royden Cottage, Cliftonville, Dorking, Surrey). 1998. Price £24.50 + £1.10 p & p. ISBN 0–9530380–1–7.

My recent review in *Watsonia* (22: 201–202) of what I termed "an illustration-free iconograph" by Derek Turner Ettlinger (*Notes on the British and Irish Orchids*, 1997) has, thanks to the fiscal generosity of an insightful uncle, now been joined by an illustration-rich, genuinely iconographic companion. This welcome A5-sized volume consists of 519 well reproduced photographs organised in 100 colour plates – the images, drawn from a vast reservoir, are excellent. Their primary role is to document the wide range of morphological variation observed within the 49 *bona fide* species recognised as native by the author; coverage varies from one plate for the disappointingly uniform to five for notoriously variable species such as *Dactylorhiza incarnata* and *D. fuchsii*, plus *E. helleborine* if considered to include the genetically undifferentiable *E. "youngiana.*" Colour morphs, achlorophyllose plants and, where possible, pollinating insects are included, supplemented with a few "accidental" and extinct species.

Opposite every plate is a page of information relating to specific photographs; each carries approximate locality, habitat, date, and magnification for close-ups. Here, much space is wasted and the opportunity to highlight diagnostic characters of the taxa is largely eschewed. Rather, brief, footnote-style commentaries are occasionally provided, most relating to conservation *sensu lato*; examples include under- and over-grazing, de- and re-afforestation, hoof-poaching, draining, vandalism, landfill, development, over-collection and re-introduction.

Most taxonomic insights from recent DNA studies (e.g. Pridgeon *et al.*, *Lindleyana* **12**: 89–109, 112–141, 1997) are supported in principle, though in practice the classification of Ettlinger (1997) is followed for consistency (if not brevity, given that it includes 72 often-obscure varieties). The taxonomy is especially brave when dealing with critical genera such as *Epipactis* and *Dactylorhiza*. One exception to the uniformity between the two volumes is the upgrading of Stace's (*New Flora* 2nd ed., 1997) three "varieties" of *G. conopsea* to full species on the basis of extensive (albeit mostly unpublished) molecular data, though they remain notional subspecies in the associated account of hybrids. Flicking between selected plates can be instantly informative; for example, it usefully reinforced my prejudices regarding the synonymy of the orchidological "Celtic fringe" represented by the Scottish *Dactylorhiza majalis "ssp. majaliformis*" and the Welsh "ssp. *cambrensis.*"

The sparse treatment of hybrids (focusing on those between distantly related species) and omission of the many wonderful teratological "hopeful monsters", each a potential species in its own right (Bateman and DiMichele, in D. S. Ingram & A. Hudson, eds., *Shape and form in plants and fungi*, 63–102, 1994), lead this reviewer to hope that a third volume may one day emerge. In summary, like its predecessor, this book could be viewed as targeted primarily at committed orchidophiles. However, I trust that its extensive use of colour will encourage the wider readership that it merits.

R. M. BATEMAN

The Box Hill Book of Box. Lalage Grundy. Pp 334. Friends of Box Hill, Dorking. 1998. Price £3.00*. ISBN 0-9534430-0-0

Box Hill in Surrey was one of the earliest properties of the National Trust, acquired at the turn of the century. In spite of its enormous popularity, it retains a wildness and a rich and varied flora and fauna, including many rarities. Of these the eponymous box (*Buxus sempervirens*) is locally so plentiful that its special interest deserves to be drawn to the attention of visitors. This attractive, well illustrated and informative booklet with a superb colour photograph on its front cover will surely fulfil this purpose.

The booklet is, however, much more than a glossy advertisement. It is written in an engaging style, which should make it accessible to a wide range of people, and it is full of facts about the botanical interest of box: its relatives world-wide, its toxicity to mammals and the specialised invertebrates which nevertheless feed upon it, its extraordinary smell, its geography, ecology, history and its uses to man. The wood of box is valuable and from time to time the trees on Box Hill have been cropped and there is evidence that some areas on Box Hill are old plantations. For this reason it has often been questioned whether a sub-Mediterranean species is truly native so far north, even though a place-name, Boxlands, shows that it was a significant feature in the fourteenth century. There is, however, a remarkable feature of Box Hill which makes the native status much more plausible: the river Mole undercuts the south-western slope to produce a very steep curved amphitheatre facing the afternoon sun. Here, as the author points out, temperatures can rise to 40°C! On this slope, known as the Whites because of its long-established stripes of eroded chalk, box thrives and is dominant over several hectares and forms, with yew and privet, a sombre dark green scrub which is unique in Britain. One of the beautiful photographs shows this special place with its two sentinel whitebeams.

This type of booklet has great value, both educationally and for adding to the visitor's enjoyment, and, as a credit to the National Trust who protect Box Hill, it mirrors the handsome guide-books which are provided for historic houses. Box is of course unusual because it is a rarity that is not endangered by advertisement but the Friends of Box Hill and the author are to be congratulated on setting a precedent which should surely be followed with attractive guides to the geology, vegetation and animals of other open-space properties.

C. D. PIGOTT

(* obtainable from the Friends of Box Hill, Pixham Mill, Pixham Lane, Dorking, Surrey, RH4 1PQ at £3.50 to include postage and packing.)

Three-language list of botanical name components. A. Radcliffe-Smith. Pp. vi+143. Royal Botanic Gardens, Kew. 1998. Price £9.99. ISBN 1–900347–50–4.

In 1675 John Ray produced his *Dictionariolum trilingue*, a vocabulary of physical, biological and other terms under 32 headings in English, Latin and Greek, mainly for the use of schools, best known today through the Ray Society's facsimile edition of 1981. This might well have been the inspiration for the present list, but Mr Radcliffe-Smith mentions in his introduction that he heard of it only in 1984, the year after he embarked on a 16-part list of Greek "roots or elements", with their Latin and English equivalents, published in Kew's *Nomenclatural forum*. This formed the basis of his new list (or rather lists, for, thanks to "the amazing alphabetizing ability of the Spreadsheet", the list is repeated with the Latin roots first and then with the English meanings first).

The original list was apparently compiled "in order that mixtures of Latin and Greek in new compound-coinages might be avoided", but "an additional purpose, namely to help its users understand the meanings of Latin and Greek compound-coinages already in the literature", seems of wider relevance, at least for the 'Greek-first' and 'Latin-first' sections. The main lists, it should be noted, are of 'building-blocks' for compound words. Thus "poly- multi- many" and "-phylla -folia -leaved" allow the creation of the specific epithets *polyphylla* and *multifolia* but not *multiphylla* or *polyfolia*. But it is nowhere explained that in adjectival terminal elements the lists usually give precedence to the feminine form: *Lupinus* (masculine) must be *polyphyllus*. There is a strong bias towards initial elements: for example, I looked in vain for "-prasum" (as in the specific epithets of three *Allium* species) and "-scordum" (as in the names of the related genera *Nectaroscordum* and *Nothoscordum*).

There follow plant-name and numerical supplements, each again in three sections. It would have been easier to find one's way about the book if the resulting nine sections had carried running heads. The first supplement contains 297 Ancient Greek plant-names for which plausible Latin and English equivalents can be found, not always according with modern botanical usage (e.g. "daphne laurus laurel"). The second is a mixture of indispensable roots such as "proto- primi- first" and "amphi- bi- two", useful extras (e.g. "didymo- gemini- twin"), and impossibly complex monstrosities like "diplasiepitetrapempto- duo et quattuor partes [*not* in fact an element usable in a botanical name, even supposing one wanted to!] two and four-fifths".

It was wise to transliterate the Greek (unlike Ray) "to keep costs down", but surely also to be accessible to present-day readers, but crazy to do it so literally, with "k" for kappa, "ai" for alpha iota, and "gch" for gamma chi (usually but not consistently). The Romans invented a consistent system of transliteration, which is generally used in botany: thus "chamaikissos" (groundivy) would be better written as "chamaecissos", "orobagche" (broomrape) as "orobanche", and "sogchos" (sowthistle) as "sonchos".

Another mistake was to present the second and third sections of each part as exact replicas of the first (apart from their word order). This has produced five successive entries for "cup" followed by four for "curl", with much repetition in the Latin column also, because of the richness of the Greek language. (The Greeks often had *several* words for it!) Again, because "tip" appears in the 'Greek-first' section only as a synonym for "point" (under "-acme"), it cannot be found alphabetically in the 'English-first' section, while there are ten entries there for "point". So much for that "amazing ability of the Spreadsheet"! The moral is surely not to trust a computer to operate without close supervision.

One final grumble: in the plant-name supplement, 13 Latin names have abbreviated (but unexplained) generic names. Especially odd are "p. cerasus" and "pr. cerasus", with different English and Greek equivalents and separate "alphabetized" places in the 'Latin-first' section.

But these are all things which, with a little human interference, could easily be set right in a second edition. Mr Radcliffe-Smith deserves warm congratulations on his stupendous labour and the Royal Botanic Gardens on a tidily presented book at a very modest price.

P. H. OSWALD

The Plants of Nottingham, A City Flora. P. Shepherd. Pp. v + 76. Wildtrack Publishing, Sheffield. Price hbk. £15.00, pbk. £8.00. ISSN 1354 0270.

This is a source of much interest and information. Accounts are given of Nottingham's very varied geology and of the impact of the urban environment on plants. There are descriptions of the City's habitats and vegetation, following, as far as possible, the National Vegetation Classification. The final chapter lists, in Kent order, the 700 plant taxa recorded since 1985. Localities are indicated but no grid references given.

There are, however, numerous mis-spellings, (including the rather apt "ravishes" of Dutch elm disease), ambiguities and inaccuracies in the text, for example, *Saxifraga granulata* is said to be "Restricted to Church Cemetery and Forest Recreation Ground" and then four more localities are given; *Cochlearia danica* is said to be alien but some known non-natives are not so designated; *Sagittaria sagittifolia* is called Marsh arrowgrass – and are all the city's railways really laid on clinker and ash instead of the more usual ballast?

At least two cited references are missing from the list. Two sketch maps have no scale and the rivers are represented differently on all three maps. There is repetition; "Calcicole" is defined twice, though not on first appearance, (but we are never told what a forb is, nor what is meant when *Fumaria officinalis* is described as a "widespread segetal species of flower beds, cultivated ground and recently landscaped areas") and I wonder if it is necessary to give both English and Latin names each time a plant is mentioned. I would have preferred to have the parentage of hybrids given in the text and to have the major roads shown on the maps.

This very useful publication would have been greatly improved by more rigorous editing but, nonetheless, I look forward with eagerness to the promised historical account of the flora of Nottingham.

John Lindley 1799–1865 gardener-botanist and pioneer orchidologist. Edited by William T. Stearn. Pp. 232. Antique Collectors' Club in association with the Royal Horticultural Society, Woodbridge. 1999. Hardback. Price £29.50. ISBN 1–85149–296–8.

John Lindley is probably most familiar through his association with the Royal Horticultural Society. The Lindley Library has his own library at its core, while the Lindley Medal is awarded for exhibits of special scientific or educational interest at RHS shows. His name is also linked to a few of our native plants, including the eponymous *Rubus lindleianus*, and many more garden plants – he was responsible for such generic names as *Chaenomeles, Photinia*, and *Victoria*. However it is in the world of sumptuous, exotic orchids that he is most notable.

John Lindley was born at Catton near Norwich on 5 February 1799, the son of a nurseryman and pomologist – this symposium volume is published to mark that bicentenary. He was a contemporary of William Jackson Hooker, and his life overlapped with that of Sir James Edward Smith. This Norwich-born triumvirate dominated English botany through the early nineteenth century. While Smith's *The English flora* (1824–1828) stuck doggedly to the obsolescent, artificial, Linnaean system of classes, Hooker in his *Flora Scotica* (1821), with Lindley's help, and later Lindley himself, championed natural orders (families) as a better method for classifying flowering plants. Lindley, appointed Professor of Botany at the University of London in May 1828, went so far as to forbid his students from using any of Smith's botanical texts because of the archaic classification system, and so he published *A synopsis of the British flora; arranged according to the natural orders* ... in 1829 (new editions appeared in 1835 and 1841).

This celebratory book contains six original essays. The first is an invaluable biography by Professor William T. Stearn, incorporating information from the hitherto obscure archive of family papers now in British Columbia (these papers are the subject of a brief essay by Kathryn Bridge). Lindley the botanist, perpetually writing and publishing, is interwoven with Lindley the family man, administrator and inter alia defender of Kew Gardens. Dr Phillip Cribb discusses Lindley's contribution to orchidology, concluding that he really was the founding father of orchid taxonomy. To illuminate this, the book is illustrated with 35 colour plates of orchids – there are also six colour plates showing plants from other families. Chris Brickell expands on Lindley's career as a horticulturist, and Professor W. G. Chaloner discusses The Fossil flora of Great Britain (1831-1837) that was jointly produced by Lindley and William Hutton. Dr Brent Elliot, the present Librarian of the Lindley Library, describes the history of the library and John Lindley's own books. A history of the Lindley Medal by William L. Tjaden is reprinted from Archives of natural history. Miss J. M. Allford's bibliography of John Lindley, compiled in 1953, forms the tenth chapter and, to quote Stearn, "graphically demonstrates [his] astonishing industry". Yet this bibliography of 238 works is unlikely to be complete as it takes no account of Lindley's 20 years as editor of *Gardeners' chronicle* which he co-founded. Two of Lindley's lectures, delivered at the University of London in 1824 and 1834, are also reprinted.

All told, this is a scholarly, handsomely produced tribute to a botanist whose studies and publications become even more astonishing when it is remembered that, as a boy, he lost the sight of one eye.

E. C. NELSON

Alternative Agriculture. A History. From the Black Death to the Present Day. Joan Thirsk. Pp. 365. Oxford University Press. 1997. Hardback £25.00, ISBN 0–19–820662–3.

This book can be taken as precisely what its title suggests, a scholarly examination of a rather obscure aspect of social history. The author, now President of the British Agricultural History Society, was formerly a Reader in History at Oxford. It came to me highly recommended by a fellow botanist, and I looked forward to it as a useful reference book, a help with questions about the historic status of plants. We all now accept that our precious and declining arable weeds must largely have arrived from the continent as crop seed impurities, and that plants from monkish gardens and apothecaries' satchels become long-term denizens, so I certainly hoped that *Alternative Agriculture* would be <u>useful</u>. I had not anticipated a real delight, a book so rich in interest and information that the writer has joined Pennington, Rackham and Salisbury as one of the authors who has changed my life.

Dr Thirsk writes with a sparse donnish elegance. Each chapter is concise, factual, lucid, and immaculately referenced. Her general argument is that agriculture follows historical cycles. Mainstream agriculture, concentrating on producing beef and corn, reaches a stage when supply exceeds demand, prices drop, and farmers then have to diversify. This thesis is extremely topical, as since the 1980s Britain has been entering an alternative phase, and it is both fascinating and reassuring to read that the current "ruin" moans of farmers have been uttered "at least three times before in our documented history". The phases of alternative diversity have been roughly 1350–1500, 1650–1750, 1879–1939, and we are now in the fourth phase. A glance at the popular press can confirm this current trend, as crops such as borage, linseed, evening primrose and calendula have been attracting notice.

For instance oilseed rape, castigated since the 1970s as a modern blight on the landscape, and currently even more of a bugbear as part of the GMO controversy, was actually introduced in the 1560s, and was grown for some 300 years before going out of fashion in the 1880s.

Some of the species involved, such as woad, have direct relevance to county recording, as they survive as rare denizens, and some fascinating possible lines of spread (and countries of origin) can be postulated from this book. Others such as madder and saffron are gone, but remain in place names and folk lore. (Saffron caused my <u>only</u> complaint: Latin names are not always given, and I had a panicky little search of other references before I was sure that *Crocus sativus* was the plant in question, not *Colchicum autumnale*). The only direct botanical reference in the bibliography is Syme's *English Botany* 1863–86, which isn't perhaps quite familiar to most of us, but the botanical (and in particular horticultural) information is accurate and to the point. Both native plants, such as teasels or weld *Reseda luteola*, grown commercially for a time to supply changing industries or trade shortages, and more exotic species such as safflower or vines are discussed. The accompanying details are one of the great pleasures of the book, and often illuminate historical county records.

Not only is this a clear and readable account of the characteristic crop plants in the British landscape for more than six centuries, but the material for the book is enriched by a multitude of ripping yarns. Diversification produces entrepreneurs, people of vision, imagination, daring, and the new crops they tried, the deals, journeys, tithe wars, quirks of fate make wonderful reading. The larger patterns of wars, peace, international trade, disease and immigration are clearly presented, but within this matrix individual stories have entrancing life. For instance early in the nineteenth century in Lincolnshire, a Mr Cartwright improved his father's business based on movable woad mills by working a fixed 200 acres by the New Forty Foot Drain near Boston, and the labourers were housed in a specially built hamlet called "Isatica"! Treasures like this abound, with much "serious" information which is directly relevant to field botany, such as the use of Anthyllis vulneraria to fodder rabbit warrens, or the novelty of crop legumes in the seventeenth century (the treatise Sainfoin Improved was printed in 1671). My many unsuccessful searches for plants such as *Mentha pulegium* or *Damasonium alisma* were explained when I read that William Cobbet saw 10,000 geese on one Surrey common in the 1820s, where now there may be only dogs on leads. I was also delighted to read of the feminist sensibility of a poultry commissioner in 1896 acknowledging the superiority of French egg production where women are in charge and "men there do not hinder as in some cases here".

Enthusiasm makes for an unbalanced review, but this really is a book with relevance for most of the botanical community. Tales of individual species, and fashions in land use, and the origins of imported plants, all give clues to current plant distributions. For conservationists, reassurance is perhaps the most welcome lesson. A paradox affecting many of us is that we work to conserve, but believe that it's already too late. Dr Thirsk's calm and elegant exposition of "things coming around and around" is most comforting, especially against the current background of millennium hype. And nobody with any curiosity about the oddities of nature, or with a liking for a good story, should resist this book.

R. FITZGERALD

Flora of the Russian Arctic, Vol. 1, Polypodiaceae – Gramineae, ed. J. G. Packer, transl. G. C. D. Griffiths. Pp. xxxviii + 368. University of Alberta Press. 1995. Hardback \$65, ISBN 0–88864–269–5. (A translation of the original Russian edition ed. A. I. Tolmachev.)

The ten volumes of the original Russian work were published in softback between 1960 and 1987 and cover the vascular flora of the Russian arctic islands from Franz Joseph Land to Wrangel Island and the generally 200–300 km wide mainland from the Murmansk peninsula to the western shores of the Bering Sea. The Flora contains a wealth of information of interest to western botanists but this has remained largely untapped on account of language difficulties. It was, therefore, a bold and imaginative initiative on the part of the University of Alberta Press to publish in hardback an English edition in six volumes under the editorship of Professor J. G. Packer. The first volume covers the first two Russian volumes and deals with the Pteridophyta, Gymnosperms and monocots from Sparganiaceae to Gramineae. In his preface Packer gives projected publication dates for the remaining five volumes concluding in 1998. However, this laudable and longed-for project terminated prematurely with the publication of volume 2, Cyperaceae – Orchidaceae, in 1996. At least these volumes cover the two largest families in the arctic: Cyperaceae and Gramineae; the latter includes such exclusively arctic genera as *Arctophila*, *Dupontia* and *Phippsia* and is represented in the Russian arctic by at least 162 species.

A welcome feature are the detailed keys, sometimes even unduly detailed, and the expansive remarks on many critical species, there being no attempt to produce accounts of uniform length. Of especial interest for western botanists are the long accounts of the critical genera *Calamagrostis* (including all the British taxa) and *Puccinellia*. The remarks under *Lycopodium annotinum* and *Huperzia selago* should help to focus western attention on their neglected subspecies. There are useful habitat and ecological notes and data on distribution outside Russia. About half the species are provided with dot maps and the distributions of all the species in the 16 districts are summarised by tables in the Appendix.

Since nearly 40 years have elapsed since the original Russian edition it is not surprising that several statements are now outdated. The northern limit for *Potamogeton (P. filiformis* in Greenland) is now 77°N, *Puccinellia tenella* occurs in Spitsbergen, *Poa hartzii* in Spitsbergen and Canada, *Alopecurus borealis* in England, and *Poa pseudoabbreviata* is not a Russian endemic since it occurs in Alaska. There are few other errors: *Hierochloe odorata* and *Alopecurus aequalis* occur in Greenland, *Cystopteris dickeana* is stated to occur in the mountains of Scotland and for some reason *Puccinellia capillaris* is said to occur in Britain "only as an introduction".

The species concept is generally similar to that in the west. A glaring exception to this is the inclusion of *Festuca baffinensis* in *F. brachyphylla*. No chromosome numbers are cited and there is no indication that only tetraploid *Polypodium vulgare* occurs in the arctic. The nomenclature has in many cases been superseded. *Dryopteris* species are erroneously called shield ferns and I was blissfully unaware that *Roegneria* was the "rhizomeless wheat grass" genus.

The format is pleasing and clear although the margins are excessively wide and the running heads are in smaller type than the text.

While applauding the appearance of this fine volume one must deeply regret the demise of such an imaginative project. One can only guess at the disappointment experienced by Professor Packer and his able translator and hope that an altruistic publisher will come to their rescue.

G. HALLIDAY

Carmarthenshire rare plant register. R. D. Pryce. Pp. xvi + 88. Published by the author and available from him at Trevithin School Road, Llaneli, Carmarthenshire, SA15 4AL. 1999. Price £15.00. No ISBN number.

Just as the *Atlas of the British Flora* encouraged the production of many county local plant atlases after its publication in 1962, so too has the publication of national Red Data Books encouraged the production of local equivalents. In some cases these have been published books dealing with rare species in many different plant and animal groups, such as the Red Data Books for Cambridgeshire and Cornwall reviewed in *Watsonia* **22**: 289–290 (1999). Other counties have decided not to follow this route, preferring instead to produce "rare plant registers", working documents listing the nationally and locally rare species in a county and detailing the sites in which they occur.

The current volume covers the vice-county of Carmarthenshire. It has its origins in a rare plant list produced by Richard Pryce in 1984, "the product of the early days of home computing". It has been revised and produced as a spirally bound report which makes full use of current computer facilities. It includes internationally rare species, nationally rare and nationally scarce species and species which are rare, scarce or declining in the vice-county. Red text is used to label international and national rarities and green for the local rarities. Thus the criteria for inclusion are set out clearly, and species such as *Liparis loeselii* are marked by a plethora of conservation designations, detailed in red. The register is richly illustrated by colour photographs and also includes tetrad distribution maps of the more frequent species.

The criteria for inclusion are said to follow those recommended by Perring & Farrell in *BSB1 news* **71**: 10–11 (1996), though they have been interpreted very liberally. One example is that species are included if they qualify under the criteria regardless of whether or not they are native or alien in the county, so that *Galanthus nivalis* is included as an internationally protected species, even though only native populations are protected and the species occurs in the county as an alien, and *Arenaria balearica, Erinus alpinus* and *Lagarosiphon major* are listed as locally rare species. A particularly interesting inclusion is *Yucca recurvifolia*, thought to have become established on sand dunes from seeds or vegetative fragments which have drifted from North America. If so this would establish the Agavaceae as a family native to Europe! Subspecies, varieties and hybrids are included where appropriate. Occasionally the criteria appear to have been "bent", as for the orchids *Anacamptis pyramidalis* and *Gymnadenia conopsea*, which are frequent on the coast but included as they are rare inland.

The accounts of individual species include a list of records made since 1950, detailing the grid reference, native status, date of last record, recorder, site protection details, site name and habitat for each record. The species accounts are a model of clarity, an exception being the baffling treatment of *Asparagus officinalis* subsp. *officinalis*, which identifies several native populations of this introduced subspecies and applies to it an English name ("Wild Asparagus") and a Biodiversity Action Plan priority rating which presumably refer to subsp. *prostratus*. Many of the accounts include a brief paragraph describing trends in the distribution and current threats to the plant. These provide a valuable insight into the changes taking place in the flora of this area. The individual accounts could have been usefully supplemented by an introductory chapter drawing together these themes, and explaining the various acronyms and initiatives mentioned in the text (CADW, Tir Cymen scheme, Millennium Coastal Park scheme) which might be familiar to the residents of the area but less well known outside Wales.

This register is designed to be comprehensible to both botanists and others such as county planners who might need it, and it will undoubtedly provide a useful tool for conservationists in the vice-county. It will be interesting to see how effective it will be in promoting the conservation of the threatened species which are identified. For *Lemna trisulca*, for instance, will the "urgent remedial measures required by local authority in order to maintain this species in the vice-county" be undertaken in time? In addition, the register will certainly be of considerable interest to botanists outside the vice-county. Most of the records in this register come from Carmarthenshire Flora Database, built up by recorders working towards a Flora of Carmarthenshire. This publication increases the anticipation with which we await this important Flora.

C. D. PRESTON

Field Flora of the British Isles. C. A. Stace. Pp. xiii + 736. Cambridge University Press, Cambridge. 1999. Price £17.95. ISBN 0–521–653150–0.

The New Flora of the British Isles by C. A. Stace was first published in 1991 and appeared as a second edition in 1997. It has, as predicted, now become the standard British Flora. Only in Ireland, where many botanists remain loyal to Webb's An Irish Flora, does it have a serious rival. The aim of the new Field Flora is, in the words of the author, "to present the essential data contained in my New Flora...in a more compact and portable form suitable for taking into the field or on holiday". Thus it includes "the means of identification of all the species and subspecies contained in the New Flora" (although I note that no attempt is made to separate the three subspecies of Dryopteris affinis recognised in the latter!).

The *Field Flora* is a light and compact book with a flexible plastic cover. It weighs one pound, less than a third of the weight and occupying less than a third the volume of its predecessor. This

condensation has been achieved by reducing the keys and descriptions which formed the bulk of that book to brief descriptions of the families and genera and to annotated keys. In addition to the details required to key out a species, the keys include a brief indication of the size of the plant as well as ecological and distributional information about the species. Thus the dichotomy which separates two *Helianthemum* species appears as:

4 Petals white; leaves grey-tomentose on upperside. Stems to 50cm. Native; dry limestone grassland; N Somerset and S Devon

White Rock-rose - H. appeninum (L.) Mill.

4 Petals yellow; leaves green-pubescent on upperside. Stems to 50 cm. Native; base-rich grassland; common in suitable places over most of Br, E Donegal

Common Rock-rose - H. nummularium (L.) Mill. The hybrid between these species is mentioned in a brief note after the key. Where there is only a single species in a genus the data are presented as a numbered "monachotomy" rather than immediately after the generic description. Thus for *Tuberaria*:

1 Stems ± procumbent to erect, to 30cm but often <10 cm; Native; dry barish ground near sea; W & SW Ir, NW Wa, Jersey and Alderney

Spotted Rock-rose - T. guttata (L.) Fourr.

The line drawings of individual (often alien) species which appear in the *New Flora* are omitted, but the comparative illustrations of features such as the leaves of *Alchemilla* and *Sorbus*, the utricles of *Carex*, the fruits of *Rumex* and the labella of *Dactylorhiza* are included.

Although the format of this Flora is designed for use in the field, the content remains similar to that of the larger Flora. Rare native and alien species are given the same treatment as commoner plants. This is a wise decision, as although these species are less likely to be encountered while undertaking routine recording, they are just the species one might need to check if one thinks one has come across them. As Stace points out, this is a major difference from Clapham, Tutin & Warburg's *Excursion Flora of the British Isles*, which provides descriptions of commoner species but simply keys out the rarer species. Perhaps more debatable is Professor Stace's decision to retain the same characters to identify the species as are used in the *New Flora*; no attempt is made to concentrate on characters, but sometimes (as with *Trifolium*) I feel that more use could have been made of vegetative characters at the early stages of the key to species. The paradox that so many species in our flora are instantly identifiable to the experienced botanist on sight but can only be keyed out in a Flora by a series of difficult technical questions will continue to puzzle and frustrate beginners.

I would also have liked to see, in addition to the keys which are included in the book, some extra aids such as the vegetative key to commoner grasses included in C. E. Hubbard's *British Grasses*. Most ecologists would expect some help with the identification of vegetative grasses in a *Field Flora*, but little is provided here. All one is told about vegetative characters in the account of *Arrhenatherum* is that *A. elatius* is a loosely tufted perennial.

It is always easy to suggest additional features which a book might contain. I must therefore make it clear that, having carried the book in the field for several weeks, I already regard it as totally indispensable. Not only does it help identify unknown plants, it is an ideal aide-mémoire for dim-witted botanists like me who can never remember whether *Viola reichenbachiana* or *V. riviniana* has the darker spur, and what are the differences between the fruits of *Rumex conglomeratus* and *R. sanguineus*. Even though botanists who have bought the first two editions of the *New Flora* may initially feel they have already paid twice for the information in the *Field Flora*, it is sure to prove a worthwhile purchase. It is in some ways a more satisfactory book than the *New Flora* itself, for whereas the absence of extensive descriptions in the larger Flora is disappointing, the format of the *Field Flora* is perfectly suited to its intended purpose. Whereas I have retained my copy of Clapham, Tutin & Warburg's *Flora* to use alongside the *New Flora*, I am sure that I can now discard my copy of the CTW *Excursion Flora*. (Indeed, I have already tried to throw it away, but I succumbed at the last minute to sentimental affection for this battered and water-stained companion of 18 years fieldwork.) Professor Stace has again placed us greatly in his debt.

Urban Flora of Belfast. S. Beesley and J. Wilde. A Project of the Belfast Naturalists' Field Club. Pp. viii + 196. The Institute of Irish Studies and The Queen's University, Belfast 1997. Price £8.50. ISBN 0 85389 695 X.

Ever since writing the *Flora of Inner Dublin* (Wyse Jackson & Sheehy Skeffington 1984) I find it hard to walk in any city without examining what is emerging from the pavement cracks or glancing at a promising bit of waste ground. I was therefore delighted to be able to review the Urban Flora of Belfast. Belfast is, in many ways, similar to Dublin, as both are large cities on the east coast of Ireland with a large commercial port and therefore comparisons are inevitable.

The Flora is very systematically surveyed. The city, which has been divided into 76 one kilometre squares, covers the whole of urban Belfast, much more than the Dublin inner city flora, which covers an area of approximately 9 km² and is defined along "natural" lines. The Belfast Flora also includes suburban and more rural areas. As with the Dublin city flora, many aliens and garden escapes are present. The criteria for their inclusion are well set out and a list of garden escapes is also included. The Flora inventory was carried out over a short time interval so that it could act as a baseline for future study of this ever-changing environment. Each square was visited at least twice over the period 1993–1995, with seasonal differences taken into account where possible.

The total number of species is 592, 63% of which are native. The proportion of non-native species is high, as in inner Dublin, where the number of casuals and aliens was also recorded as approximately 35%. The Dublin city Flora has less records (358), but this is not proportionally less in relation to the area covered (c.9 km² vs 76 km²), which suggests the existence of an intrinsic urban flora, regardless of the area in question. Twenty-five species were found in every square, all very predictable (e.g. *Taraxacum, Plantago* spp., *Sonchus* spp. and several grasses) and including one tree, the elder, *Sambucus nigra*. Though an opportunist, it seems quite an achievement for it to turn up in all 76 squares. *Buddleja* is also common, as in Dublin, though it is not so common in other Irish cities.

There is an impressive list of records new to the counties of Antrim and Down, but also many are listed as new to the *Census Catalogue of Ireland* (Scannell & Synnott 1987). However the majority of these last are adventives, mostly garden escapes ranging from potato *Solanum tuberosum* to ornamentals such as *Mahonia aquifolia* and nasturtium *Tropaeolum majus*. I would not have expected these to be included in the Irish census, which includes native species or "established aliens". However, it does bring into question whether some, such as the *Mahonia*, merit inclusion in the *Census*. I would not consider potato or nasturtium as established, though they probably do get renewed from cultivation very regularly. Other species, such as *Sanguisorba minor* are native to Ireland, but are still considered adventive to the area - as is the surprising record for *Euphorbia hyberna* - almost certainly a garden escape.

The introductory chapters deal with the methodology and summarise the results in terms of records per square and new records. A most valuable section discusses each square in turn, listing its main habitats and species of note. This is not only very useful for the current botanist, but also for future comparison of changes. It also gives some insight into the problems of urban recorders, permission being necessary to enter some grounds. In the case of the Balmoral Golf Club, recording involved getting up at 5a.m., presumably to avoid early golfers!

Conducting a botanical survey of any inner city area requires a certain amount of courage and great credit is due to the Belfast Naturalists' Field Club for this survey of a not entirely untroubled spot. There are some interesting asides like the reference to the Malone Road residents who (sadly!) keep their gardens and pavements weed-free! But it is clear too that everyday life, including that of botanists, continued throughout a very rough time, hopefully now relegated to the past.

The Flora is very accessible to the amateur or professional, whether resident or not in Belfast and readers should derive much pleasure in dipping into this book. It is not much bigger than *An Irish Flora* (Webb *et al.* 1996) and therefore can also be carried about the streets of Belfast. It is also illustrated by some attractive line drawings of plants in a Belfast setting –which are very similar in style to those of the Flora of Inner Dublin. I am therefore disappointed that they do not refer at all to this sister Flora, even as suggested further reading.