

Classified information

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British Plant Communities. Vol. 1. Woodlands and Scrub. Editor-in-chief J. S. Rodwell. Cambridge University Press: 1991. Pp. 395. £70, \$150.

It is curious that in a place like Great Britain, where there is such an outstanding tradition of mapping the detailed distribution of plant species, it should have taken so long to produce a comprehensive classification of our plant communities. This probably reflects two traits peculiar to British ecologists: on the one hand, a pragmatic admission that classification of woodlands at an everyday level is trivially easy (for example, oak woodland versus beech woodland); on the other, a more deep-seated feeling that distributions within woodlands are controlled by factors so numerous, complex and interacting that any attempt at a more elaborate taxonomy of plant communities would be futile. Thus, while most British plant ecologists are happy to divide oak woodlands into bluebell woods and bracken woods, and to split beech woodlands into dog-mercury woods and bramble woods, many feel uneasy with the full-blown phytosociological approach adopted by some of their continental colleagues.

This book steers a middle course between the extremes of oversimplification and undue elaboration. Its aim was to provide a simple easy-to-use list of plant communities that could be adopted by the Nature Conservancy Council in the production of vegetation maps. In this respect it has been highly successful, the draft keys and woodland descriptions having already been praised for their effectiveness.

Subjective assessment

The philosophy behind the classification was to 'let the plants do the talking', and so the communities are defined on the basis of floristic similarity without any recourse to environmental factors such as geographical location, substrate and altitude. But the study plots may well have been selected on the basis of prior conceptions about the range and composition of different woodland types, meaning that the resulting list of communities sometimes has an air of self-fulfilling prophecy about it. Nevertheless, the degree of selection is much less blatant than in earlier studies of British vegetation, such as that in *A Nature Conservation Review* (Cambridge University Press, 1977). The fragments of woodland left in Britain are so small and

so heavily influenced by their histories of management, that almost any random sample area of 50 × 50 metres is likely to be internally heterogeneous or to contain 'edge effects' of one sort or another. This is the principal justification for locating the study plots in subjectively assessed 'representative' stands rather than randomly.

The scheme recognizes 19 woodland types — 4 oak, 3 beech, 3 willow, 3 alder, 2 ash and 1 each of birch, pine, yew and juniper. Each of these is divided into subcommunities, typically on the basis of the ground flora. There are species lists and dot-distribution maps for each subcommunity type. For each community type there is an annotated list of synonymy, lists of the constant and rare species, a detailed discussion of the physiognomy of the woodland (including variations in the canopy, ground layer and shrubs of the understorey), descriptions of the subcommunities, a full account of habitat, notes on zonation and succession, details of geographical distribution, and mention of affinities with woodlands in other parts of the northern temperate region (including comparisons with European phytosociological classifications). The index of plant species is excellent, listing all the woodland and scrub community types in which a given plant is found; constant species appear in bold type, and species that are constant in one or more subcommunities are in italics. There is a comprehensive bibliography.

I tested the keys on a pedunculate oak woodland fringing the estuary of the River Fowey in southern Cornwall, and on the species-rich scrub on the chalk under-cliff at Folkstone Warren. In both of the cases the key worked extremely well; the oak woodland turned out to be W10 (*Quercus robur*-*Pteridium aquilinum*-*Rubus fruticosus* woodland; *Hedera helix* subcommunity), the scrub to be W21 (*Cratagegus monogyna*-*Hedera helix* scrub; *Viburnum lantana* subcommunity). It is one thing to name a community, but much more difficult to predict its species composition. Again, the book worked well: all but 8 of the 67 species found in the woodland were predicted by the classification.

A difficulty with the presence/absence approach to classification is that it ignores variation in the relative abundance of the dominant plant species. Thus, two woodlands with the same classification can look completely different. For example, woodlands belonging to W10 can have a dense shrub layer or no shrubs at all, and a completely bare to a completely vegetated ground layer.

No one disputes that there are characteristic assemblages of species worthy of the name 'plant community', but it is a moot point whether the notion of defin-

able communities has added anything of substance to our understanding of vegetation. The description of the fine-scale variation within plant communities is likely to tell us more about the history of small-scale disturbances, historical contingencies and local differences in land management than about the tendency of pre-adapted species to group in particular ways. Instead, might there be characteristic combinations of environmental conditions (such as latitude, altitude, aspect, soil type, substrate stability, drainage) that define the subset of plant species that can thrive at a given site? The group of plants growing in the site is then nothing more than a sample from a pool of available species, its composition being influenced as much by chance as by biological interactions between plant species. Indeed, the extent to which such interactions determine the structure of a plant community and the resulting systemic integrity of the group of species are both highly contentious issues. The editors of the book are aware of these difficulties and are self-effacing about their efforts, having "tried to be honest about admitting deficiencies of coverage and recognising much unexplained floristic variation".

More than a list

Any quibbles about omissions (there is no mention of aspen woods or of urban *Buddleja* scrub) are outweighed by the excellence of the material included in the volume. Given the current interest in vegetation change under global warming, I would like to have seen more about alien trees such as *Quercus cerris* and *Robinia pseudoacacia* (although commoner aliens such as sycamore and sweet chestnut get reasonable coverage).

This is a splendid work, sure to provide the basis for classifying woodland plant communities for decades to come. It does much more than simply list the species of different woodland communities, and provides a wealth of information on the consequences of various kinds of woodland management, on the effects of habitat and on geographical differences in the composition of ground flora. Much of this is distilled from the vast experience of the editorial team and is published for the first time.

The book will provide ecologists with a nearly inexhaustible supply of questions about community structure and function, which should stimulate a new phase of field experimentation and theoretical modelling. It is a pity that there is no prospect of a zoological equivalent, even for our modest and relatively well-known fauna. □

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