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Functional signatures, epizoochory, mapping from satellites and Editors' Award

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Editors' Award 2004

The editors give their award for the 2004 paper in *Applied Vegetation Science* that impressed them the most to Hunt et al. (2004): "A new practical tool for deriving a functional signature for herbaceous vegetation". Ecology has more difficulty than most sciences in finding generalities – and we hardly dare speak of laws. In recent years hope has been seen through the use of ecological groups of species – functional types, guilds, syndromes, rôles, strategies – whatever we call them. The first phase, still continuing, was to identify the important characters and to define the types of species and/or the associations of traits (Grime et al. 1997; Lavorel & Garnier 2002; Lawesson et al. 2003; Pillar & Sosinski 2003; Diaz et al. 2004). The second phase was to find correlations with the physical environment (Duru et al. 2004; Barboni et al. 2004) and with the disturbance regime (Gondard et al. 2003; Lloret & Vilà 2003; Pausus & Lavorel 2003). Application of this research to guide and evaluate management would complete the research programme (Rusch et al. 2003 and references therein), and Hunt et al. (2004) are the first to provide a user-friendly, ready-to-use, automated system to do this. You put in the species list for your patch of vegetation, the program calculates its position in the C-S-R triangle, then it uses this to estimate the degree of eutrophication of the habitat, and its past disturbance, as well as to predict the vegetation's resistance to any future disturbance and its resilience (i.e. rate of bounce-back) after a disturbance. Not everyone is convinced that the C-S-R scheme is the answer to all of vegetation ecology's problems. However, Hunt et al. applied their procedure to the classic Bibury roadside survey (recorded yearly since 1958), and it revealed a subtle but believable decrease in fertility and increase in disturbance. Applied to a survey around Sheffield first made by Phil Grime's group in the 1970s and repeated 20 years later, the clearest trend was eutrophication in less-managed habitats. The method is not tied to the C-S-R framework – it can be used with any functional classification under which the characteristics of the species are known. The authors just argue for "an ecological language ... which classifies species in terms of their ecological characteristics rather than their evolutionary ancestry".

Other papers receiving the Editors' commendation

The Editors would also like to commend two runners-up: Couvreur et al. (2004) and Stibig et al. (2004). It has puzzled ecologists in North America and in Europe that when we compare the rate of migration of species as seen in the pollen etc. with the species' known dispersal ability, they in fact dispersed faster than we know they could have done (Birks 1989; Clark et al. 1998). One answer to this is that the dispersal was not real, but comprised expansion from small refugia, but often this explanation is unlikely. Cain et al. (1998) concluded that "there is no documented mechanism by which most of these species could have reached their present geographical range since the last glacial maximum. This suggests that occasional events leading to long-distance dispersal". Couvreur et al. (2004) hypothesise that one of these 'undocumented mechanisms' is dispersal by attachment to the coats of animals: epizoochory. They tested this by examining the diaspores present on 125 cattle, 30 horses and 46 donkeys from nature reserves (brushing each animal for 15 minutes with a very fine horse brush to get the seeds off). The animals sometimes travelled, with their seeds, most of the way across Belgium from one reserve to another. At first, one wonders how they got out of the reserves, and how they travelled, but then one realises that they travelled in lorries, being moved between different nature reserves to optimise grazing. However, they would have travelled this far on their own in the pre-agricultural landscape, with their seeds attached. One

of the 'undocumented mechanisms' is now documented. Moreover, the work emphasises that the movement of animals in conservation is important not only to manage grazing but also to replace the dispersal that would have occurred naturally, years gone by.

Stibig et al. (2004) in "A new forest cover map of continental southeast Asia derived from SPOT-VEGETATION satellite imagery" present a map of forest cover that the authors created for continental South East Asia from 1-km resolution SPOT-VEGETATION imagery. There is a well defined need for improved information regarding land cover and forest cover in tropical continental southeast Asia. The map includes 12 forest and land cover classes. The authors make useful and admirably candid comments about how the quality of the resulting map is expected to vary with forest class (deciduous forest classes remain challenging) and with forest fragmentation, given the relatively low spatial resolution of the data used. Importantly, this discussion is based upon their efforts to validate the forest cover estimates using a sample of higher-resolution Landsat Thematic Mapper images. Independent validation is essential in order for regional scale datasets to be improved upon and utilised as a baseline for future monitoring. This map provides a consistent view of current forest cover across the entire region of *c*. 300×10^6 ha. The authors estimated that only about one third of the region is still forested. While this paper is of immediate interest to any users of this important map, it should also be of broader interest to applied vegetation scientists seeking to use low spatial resolution data to map large tropical regions and therefore needing to develop mapping strategies that work well in areas of persistent cloud, haze and smoke.

Web site

The web pages of *Applied Vegetation Science* are hosted by the publishers – Opulus Press – who have recently revised and improved their site (Wilson et al. 2005). A particular item to note is that there is now a list of the abbreviations of journal names to be used in the References. There is also the opportunity to sign up to be sent an e-mail when a new issue of *Appl. Veg. Sci.* is published on the web site, and the latest issue of the journal will be available for anyone to read the articles online and download them for free.

The web site will now be the sole source for Instructions to Authors, which will allow us to develop it beyond the constraints of a single page.

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