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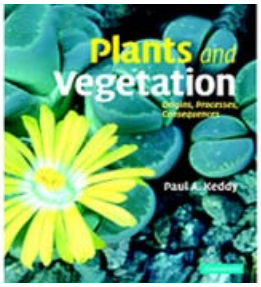
Scientific Program

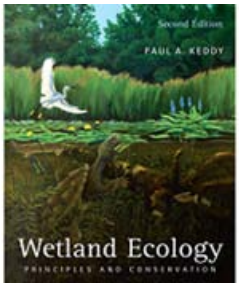
Invited Key Speakers (Preliminary list)

Doctor Paul KEDDY

Vegetation In and Around Water—Two Perspectives on Wetlands: Special Features and General Rules for Vegetation Science

In this presentation, Dr. Paul Keddy (www.drpaulkeddy.com) will begin with some special features of vegetation in wet places, such as plant traits that allow flood-tolerance, and striking zonation patterns. The majority of the talk will then focus on general principles from wetlands that can be applied to all plant communities. These principles will include (1) competitive hierarchies, (2) zonation patterns, (3) stress-tolerant plant communities, and (4) assembly rules from traits and filters. He will draw upon examples from his two recent books, Plants and Vegetation: Origins, Processes Consequences and Wetland Ecology: Principles and Conservation – and include mention of the Camargue and its flamingos, which are only a short drive south from Lyon.





Professor Christian KORNER

Alpine vegetation under environmental change

Environmental change has many facets and alpine vegetation may respond to all of them, though to variable degree. I will address responses to 5 categories of change: (1) rise in temperature, (2) associated likelihood of drought, (3) rising CO2 concentration, (4) enhanced soluble nitrogen deposition and (5) change in land use. With temperature, we are dealing with a rather curious situation. While the cold climate at high elevation had been traded as a major constraint to life, it is now believed that warming is a threat. Obviously, it cannot be both at the same time. The conflict emerged from a wide spread misconception about the nature of 'stress', which will be the starting issue of this lecture. Climatic warming will interact with plant phenology (which is often controlled by photoperiod rather than temperature) and with topography effects on microclimate. Although, the water balance improves with elevation in most temperate mountains, extreme drought events are likely to affect also alpine biota, and these affects may be enhanced by fire in low latitude alpine vegetation. As far as we know from in situ experiments, elevated CO2 has no direct effect on alpine plants (yet some long-term, species specific responses cannot be excluded), but even minor increases in soluble nitrogen loading exert a major impact in a species specific way. Changes in landuse, though often forgotten in the global change debate, are of paramount significance and associated effects may overrun any other global change influence, although effects may be absent in the uppermost alpine and nival belt, but can become overruling at the treeline interface. I will close by discussing the likelihood of an advance of the alpine treeline and the consequences for alpine land area, should treeline position track climatic warming. It will be concluded that mountain biota in general are in a better position than many lowland biota when environmental conditions change, because topography offers a mosaik of alternative microhabitats at short distance. Not surprinsingly mountains have always been refugia in a changing climate. Yet the areal extent of certain types of vegetation and distributional ranges of some species will shrink, while others will expand.

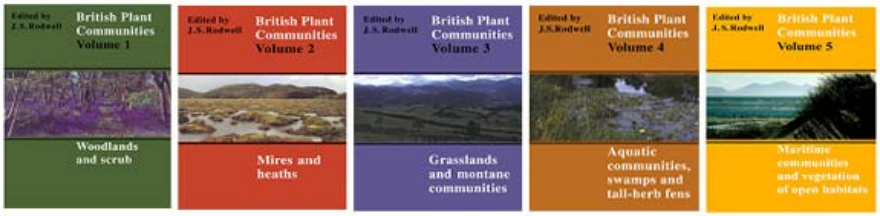
Doctor Eric GARNIER

A framework to scale-up from species to ecosystem functioning using species traits and abundance

One pending question in ecology is to understand how species influence ecosystem functioning (EF). It is now admitted that functional diversity, defined as the value, range and relative abundance of functional traits present in a community, is one of the major factors affecting this functioning. In particular, some specific traits of the dominant species, called effect traits, are thought to strongly influence EF, which is often referred to as the "biomass ratio hypothesis". In parallel with these questions, the current development of standardized protocols for the measurement of plant traits and data bases centralizing the wealth of information on species traits and relevés makes it possible to predict EF on a unprecedented scale, within the range of applicability of the biomass ratio hypothesis. This will be possible if (i) the trait(s) relevant to the ecosystem function of interest is (are) clearly identified, and (ii) the trait value(s) extracted from the data bases can be used in the situations where the relevés are available. This will depend on whether the differences in environmental conditions between the location of the relevé and that where the trait was initially measured are large, and whether the intraspecific variability of the trait is substantial. Here, I will present a framework that articulates the different steps involved in the approach presented above, and apply it to the case of litter decomposition. Community-level decomposition of leaf litter measured in a Mediterranean old-field succession in Southern France was significantly related to the community weight mean leaf dry matter content (LDMC), calculated from species abundance and LDMC of individual species measured in situ. I will show here community-level decomposition can also be successfully predicted when species LDMC data are taken either from an experiment conducted in an experimental garden or from the LEDA data base, in which trait data are available for populations from the North-Western part of Europe. These findings validate the general framework proposed in the case of a particular process for which a relevant trait can be identified.

Professor John S Rodwell

A place for ecology



Emeritus Professor J Philip Grime

The twin-filter model of plant community assembly and ecosystem functioning

This talk will summarise arguments and evidence that address an old conundrum in plant ecology "How similar must two organisms be to exploit the same environment and how different to coexist?"

Theme and Topics

The special theme of the symposium will be "Vegetation in and around water: patterns and processes".

A preliminary list of proposed topics for papers includes:

- A. Biogeochemical approaches to understanding plant communities and ecosystem functioning
- B. Modeling biodiversity: tools and concepts
- C. New insights in descriptive vegetation science
- D. Biological invasions: towards general models and increased predictability
- E. Conservation, management and restoration of plant communities
- F. Understanding wetland functions and services: a challenge for conservation
- G. Alpine vegetation: threats in a changing world

- H. Anthropogenic impact on vegetation: climate, land-use, habitat alterations
- I. Describing biodiversity patterns at multiple scales: from the patch to the biome
- J. Landscape dynamics in result of anthropogenic disturbances
- K. Computational vegetation science: structure and dynamics of plant assemblages in silico
- L. Climate Change Experiments in Temperate Grasslands
- M. Clonal growth in plant communities: patterns and role in community dynamics
- N. Warm-Temperate Deciduous Forests in southern Europe,East Asia, and elsewhere around the Northern Hemisphere
- O. Biodiversity and functioning of riparian habitats: indicators of change
- P. Ecosystem functioning and nutrient cycling

We encourage any proposal of new topics and sessions. Please contact the symposium organizers.

We invite you to submit abstract(s), preferably related to the topics listed above. Communications may be presented orally or as posters. The second circular will contain more detail on the topics of the Symposium and submission of abstracts.