



BOOK REVIEWS

Schnabel, S. and A. Ferreira (eds.) 2004. **Sustainability of Agrosilvopastoral Systems – Dehesas, Montados**. Advances in GeoEcology 37. Catena Verlag GMBH, Reiskirchen, viii+389 pp. ISBN 3-923381-50-6, US ISBN 1-59326-245-0, hardcover, price: EUR 119.00, USD 119.00.

Available at <catena-verlag.de>.

Agrosilvopastoral systems, usually formed by evergreen oak woodlands and referred to as dehesas and montados in Spain and Portugal (but existing also in other semi-arid areas of the world), have been maintained traditionally for several centuries. Their complex management covers livestock breeding, forestry and cultivation, but they play a significant role in the life of these rural areas also as holding environmental, social and economic values through their diversity, landscape and products. Land abandonment and parallel intensification of land use, however, have disrupted their balance during the past half century, leading to land degradation, lack of tree regeneration, growth of shrubby areas, soil erosion, wildfires etc. The book is a collection of papers selected from those presented at the symposium „Sustainability of Dehesas, Montados and other Agrosilvopastoral Systems” (Cáceres, Spain, 2003), dealing with the above mentioned processes and problems.

Chapter 1 contains contributions dealing with general aspects of agrosilvopastoral systems of the Mediterranean region. Topics cover the different types of land use applied in these systems and changes in land cover (supported by case studies), their effects on the degradation of vegetation, observations on the role and sustainability of grazing and a study on sustainable economics of agroforestry systems. Chapter 2 gives an overview on social and economic aspects of agrosilvopastoral systems, including their effects on land degradation and the multiple use of Scotch pine (*Pinus sylvestris*) and Pyrenean oak (*Quercus pyrenaica*) forests and the commercial economics of a public dehesa. Hydrological and degradational processes evoked by land use in dehesas are highlighted in Chapter 3, dealing especially with soil water dynamics, soil texture, nutrients and degradation, tree water status and presenting a model to analyse stability in commercial grazing systems.

Chapter 4 describes relationships between livestock and pastures and gives case studies about the exploitation of environmentally sensitive territories, the productivity of dehesas, the diet composition of livestock and presents the biomass turnover as an ecological indicator of vegetation dynamics in the observed habitats. Chapter 5 presents numerous studies on tree cover and forest use. Species distribution and landscape diversity patterns of cork oak (*Quercus suber*), holm oak (*Q. ilex* subsp. *ballota*) and Pyrenean oak (*Q. pyrenaica*) woodlands and their nutritive value and role in livestock (especially small ruminant) breeding complete our view on agrosilvopastoral systems. Chapter 6 deals with the sustainability, management, conservation, extensification, improvement and diversification problems of these systems, collecting examples from the Mediterranean region (especially Spain), but California is also included in the case study areas.

Although made up by separate studies, the book gives us an overall view on the present status and sustainability of Mediterranean agrosilvopastoral systems and may attract the interest of both researchers and practitioners.

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Horn, R., H. Fleige, S. Peth and X. Peng (eds.) 2006. **Soil management for sustainability**. Advances in GeoEcology 38. Catena Verlag GMBH, Reiskirchen, x+497 pp. ISBN 3-923381-52-2, US-ISBN 1-59326-246-9, hardcover, price: EUR 139.00, USD 139.00. Available at <www.catena-verlag.de>.

Soils are under heavy pressure caused by the traffic of an increasing number of machinery, soil management, fertilizing and herbicide used in agriculture, soil sealing caused by highway construction, industrial buildings and settlement booms etc. This book addresses sustainability in connection with soil management and gives an overview of its effects. The editors felt important to define sustainability in connection with soil management, so they start the preface with the following definition: “Soil management techniques can be labeled sustainable when their requirements for land use consider and respect the site spe-

cific properties and functions that soils fulfill in ecosystem". The four editors from the Christian Albrechts University in Kiel and eight associate editors and reviewers from Finland, Netherlands, Germany, Poland, Scotland, USA and Australia did great efforts to provide us high value material about soil management. The authors from 23 countries discuss various aspects of sustainable soil management. Most of the articles are from Germany but Switzerland, the USA, UK, Canada and Finland are also represented by several papers.

The book is organized into 10 chapters, with a preface by Rainer Horn. Chapters contain classical areas – soil structure formation and physical processes – and areas concerning soil management. Some chapters contain only 1 to 5 articles while others have 7-11.

Chapter 1 includes four articles about soil dynamics and traction, discusses the effects of well-known rotating disc and vibratory tillage but introduces a new approach for modelling with PLAXIS. Chapter 2 discusses traffic, tillage and soil deformation with examination of pore structure, distribution of vertical stress, effects of tyre inflation pressure, microstructure changes, linkages between soil micro-mechanics and hydraulic conductivity, surface crack patterns and stress-deformation behaviour. Chapter 3 is about conservation farming, forestry land use systems and environmental quality, examining a wide range of land use: arable land, forest and grazing land.

Chapter 4 is not a pioneering one but rarely seen; it presents analyses of the linkage between soil biological quality and health. Chapter 5 has only one article about soil amendments. It examines the availability of heavy metals in soil with injected sludge and composted-sludge soil, so we might even imagine this in the previous chapter. Chapter 6 provides an overview of precision farming. This form of agriculture can be considered as the most sustainable form of soil management so it will require increasing attention.

Chapter 7 is essential if we wish to discuss soil management and sustainability. Water and wind erosion, soil translocation highly decrease the chance of sustainability, the problem cannot be addressed without examining soil movements over the slope. Chapter 8 is about economical aspects discussed by only two articles and these are not about the economy of soil management. One of the articles is about energy plants; the other one is about reduction of gas emission from degraded areas. Chapter 9 discusses the problems of one of the top issues of not only sustainability of soil management but of the survival of all mankind: global change. The chapter specifically targets soil management induced global change effects. Chapter

10 provides studies on the most classic soil management issues: soil structure formation and physical processes. We can read about new approaches and well-known topics, like soil aggregate stability, minimum tillage and migration of clay or evaluation of soil physical quality.

Various authors used models, e.g. PLAXIS for analyses of deformation and stability in geotechnical engineering projects, SIMPLE for modelling crop emergence, RUSLE for comparison of potato and maize on the amount of soil loss, WEELS model for wind erosion prediction, STICS model to calculate change in soil water content during a growing season, COMPSOIL for calculating soil compaction intensity etc.

Soil experts find a complex set of information in the book that can be used not only in the area of soil management but also of water erosion, wind erosion, soil contamination, soil biology and soil ecology. The figures and tables are of high quality, as well as the editorial work. The book is highly recommended for experts and for those who just started to learn about soil management.

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G. Fekete and Z. Varga (eds.), **The Vegetation and Fauna of Hungarian Landscapes**. 2006. MTA Társadalomkutató Központ, Budapest, 461 pp. In Hungarian with English summary. ISBN 963 508 4900, ISSN 1419-3507, hardcover, price: 6990 HUF.

The natural vegetation and fauna of the Pannonian biogeographic region represent a unique piece of nature in Europe. It is the Carpathian Basin where species from the eastern steppes and semideserts meet with boreal, Mediterranean and Atlantic elements, thus forming a peculiar flora and fauna. The editors took the attractive job to bring together a book that describes in detail the historical background and recent status of this phenomenon. They invited eighteen botanists and zoologists, true experts of their own research fields, to give a faithful and enjoyable account of Pannonian vegetation and fauna. The book is richly illustrated by colour photographs, the majority of them taken by the inventive Hungarian plant photographer, the late T. Seregélyes. Many tables and diagrams, an index of geographic names and a general index supplement the subject matter.

The first chapter provides a summary of geobotanical terms and principles necessary to understand what follows. Then, the contents is divided up according to the

major geographic regions of Hungary, that is, the Hungarian Plains, the Mountain Range of Northeastern Hungary and Transdanubia, and the western and southern periphery of the country with more emphasized Alpine and Mediterranean influence, respectively. Emphasis is always placed on community types and flora and fauna elements that cannot be found easily outside the country. The closing chapter discusses future perspectives, with much attention devoted to the effect of climatic changes, land use and sustainable development of inhabited areas.

Throughout the book, the reader feels the effect of expertise and careful editing. The material is enjoyable for a wide range of people, from the novice to the experienced ecology lecturer. However, there is perhaps one drawback that needs to be noticed. The book has been written in Hungarian, deliberately for the local audience, and the English abstract is limited only to 7 pages. In order to make the book available to a much wider public, the text certainly deserves an English translation. I am sure that foreign students and researchers interested in the vegetation, flora and fauna of Europe would also be happy to read this multi-authored and multi-sided monograph.

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Roni, P. (ed.) 2005. **Monitoring stream and watershed restoration**. American Fisheries Society, Bethesda, Maryland. x + 350 pp. ISBN 0 85199 907 7, softcover, price: USD 65.00.

Available at <http://www.afsbooks.org>

The birth of the book was initiated by the U.S. government asking Philip Roni and his colleagues to develop guidance on monitoring and evaluating restoration actions for threatened and endangered salmon. Finally, a more general paperback has been published to, in the editor's words, 'provide a comprehensive, practical resource for developing monitoring and evaluation programs for restoration activities at various scales – from individual, site-specific actions to multiple projects throughout a watershed'.

The book, written by 29 authors, is organized into 12 Chapters with a Preface, a List of Symbols and Abbreviations, a Glossary and an Index. At the end of each chapter, an extensive References section lists the relevant literature.

Chapter 1 presents a short introduction surveying the history of harmful human activities and also the restoration efforts carried out on temperate streams, rivers and estuaries of North America. Different restoration terms (such as restoration, rehabilitation, enhancement-improvement, reclamation, creation and mitigation) and types of monitoring (i.e., baseline, status, trend, implementation, effectiveness and validation) are also defined here.

Chapter 2 discusses steps for designing an appropriate restoration monitoring (for example, how to determine the number of sites and years to monitor) and for developing an effective program regardless of project type.

The following chapters cover the major restoration categories and examples of specific restoration actions: roads and hydrology (road removal, resurfacing, regrade or upgrade stream crossing, Chapter 3); riparian silviculture and forestry (vegetation replanting, thinning, removal of invasive plants, Chapter 4); grazing management (fencing, removal of ungulates, rest-rotation, or other grazing management strategy, Chapter 5); floodplains (levee removal or set back, grade control structures, dam removal, beaver reintroduction, Chapter 6); estuaries (reconnect estuarine areas, excavation of fill materials, additions of gravel or substrate, planting of aquatic vegetation, Chapter 7); instream habitat enhancement (log structures and large woody debris placement, engineered log jams, boulder and gravel placement, cover structures/brush bundles, gabions, Chapter 8); nutrient enrichment (addition of organic or inorganic fertilizers, placement of salmon carcasses, Chapter 9); reconnection of isolated freshwater habitats (culvert replacements, barrier removal, reconnection of isolated sloughs and other off-channel habitats, Chapter 10) and habitat protection (conservation easements, land acquisitions, Chapter 11). Chapter 12 discusses the economic evaluation of stream and watershed restoration projects.

Wetlands are increasingly endangered habitats all over the world, and protection and restoration of these territories and their flora and fauna are one of the most significant tasks for an environmentalist. This book surely provides useful guidance for its intended audience: scientists evaluating restoration techniques, technicians and watershed groups implementing restoration and agencies and entities funding restoration.

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