

Forest Landscapes and Global Change

New Frontiers
in Management,
Conservation
and Restoration

Abstracts

Edited by
João Carlos Azevedo
Manuel Feliciano
José Castro
Maria Alice Pinto



IUFRO Landscape Ecology Working Group
International Conference

Bragança · Portugal
September 21 to 27, 2010

Title: Book of abstracts of the IUFRO Landscape Ecology Working Group International Conference: Forest Landscapes and Global Change - New Frontiers in Management, Conservation and Restoration.

Editors: João Carlos Azevedo, Manuel Feliciano, José Castro & Maria Alice Pinto

Published by: Instituto Politécnico de Bragança
Apartado 1038, 5301-854 Bragança, Portugal
<http://www.ipb.pt>

Printed by: Serviços de Imagem do Instituto Politécnico de Bragança

Number of copies: 350

Depósito legal nº 315525/10

ISBN: 978-972-745-111-1

Cover design: Atilano Suarez, Serviços de Imagem do Instituto Politécnico de Bragança

Poster Session **Tools of landscape assessment and management PT 4**

EVALUATION OF PEDOTRANSFER FUNCTIONS FOR PREDICTING SOIL WATER RETENTION IN PORTUGUESE SOILS

ANTÓNIO CASTRO RIBEIRO

CIMO/Instituto Politécnico de Bragança, Portugal

Estimates of soil water retention characteristics using pedotransfer functions (PTFs) are useful in many studies, such as hydrological modelling and soil mapping. The determination of the parameters for these functions can be obtained from direct laboratory and field measurements. However, these measurements are time consuming which makes it costly to characterise an extensive area of a land. As an alternative, the existing databases of measured soil hydraulic data may be used to obtain hydraulic parameters by fitting the water retention functions or to develop PTFs from easily measured properties, such as texture, bulk density and soil organic matter content. The objective of this study was to evaluate four published PTFs (Rawls – Brakensiek, Vereecken, Mayr – Jarvis e Campbell) to estimate the parameters of soil water retention functions for Portuguese soils. Two different soil data sets from North of Portugal (231 horizons), consisting of a full description of soil properties and soil water retention characteristics, were used in this study. Soil water retention function parameters were estimated for Campbell, Brooks – Corey, van Genuchten and Hutson – Cass functions by fitting to soil water content-pressure data, using an algorithm based on the simplex method and by application of a PTF for each function. The PTFs were evaluated by comparison of predicted and measured water contents at field capacity and permanent wilting point. The results showed a good performance of Brooks – Corey function with parameters predicted by Rawls – Brakensiek PTF.

Poster Session **Management and sustainability PM 2**

DISENTANGLING RECENT CHANGES IN FOREST BIRD RANGES IN MEDITERRANEAN FORESTS (NE SPAIN): ASSESSING GLOBAL CHANGE IMPACTS AND GUIDING LANDSCAPE MANAGEMENT

ASSU GIL-TENA¹, LLUÍS BROTONS^{2,3} & SANTIAGO SAURA⁴

1-Departament d'Enginyeria Agroforestal, ETSEA, Universitat de Lleida, Spain; 2-Àrea de Biodiversitat, Centre Tecnològic Forestal de Catalunya, Spain; 3-Institut Català d'Ornitologia, Museu de Ciències Naturals, Zoologia, Spain; 4-Departamento de Economía y Gestión Forestal, E.T.S.I. Montes, Universidad Politécnica de Madrid, Spain

In Mediterranean Europe, after the widespread afforestation and forest maturation following a large-scale decline in traditional uses, such as some types of silvicultural treatments, many forest bird species have expanded their ranges in the last decades of the 20th century. Nevertheless, forest management could help to buffer the expected negative impacts of global change in the years to come. Providing guidelines for a proactive management is of fundamental importance in ecological research. In order to disentangle the processes mediating recent range changes of forest birds in the Mediterranean region of Catalonia (NE Spain) and to provide management guidelines, we studied the relationships between the variations in forest bird species richness at 10x10 km and forest landscape dynamics associated with land abandonment (afforestation and maturation), fires and management. Data from bird atlases, forest inventories, fire perimeters' and land-use maps was used. The widespread afforestation and forest maturation appeared to counteract the potentially negative effects of fires on species richness, being the impact of forest management on birds much smaller than the impact of the former. Nevertheless, forest practices of moderate intensity and an adequate management of landscape connectivity pattern may be beneficial, allowing species to better face range changes associated with global change.