

An approach to cork oak forest management planning: a case study in southwestern Portugal

A. Costa · A. C. Oliveira · F. Vidas ·
J. G. Borges

Received: 25 June 2008 / Revised: 24 July 2009 / Accepted: 14 September 2009 / Published online: 27 November 2009
© Springer-Verlag 2009

Abstract This paper presents results of research aiming at the development of tools that may enhance cork oak (*Quercus suber* L.) forest management planning. Specifically, it proposes an hierarchical approach that encompasses the spatial classification of a cork oak forest and the temporal scheduling of cork harvests. The use of both geographical information systems and operations research techniques is addressed. Emphasis is on the achievement of cork even flow objectives. Results from an application to a case study in the Charneca Pliocénica of Ribatejo in southern Portugal encompassing a cork oak forest extending over 4.8 thousand ha are discussed. They suggest that the proposed approach is capable of effective spatial classification of cork oak management units. They further suggest that it may be used to select optimal cork even flow scheduling strategies. Results also show that the proposed approach may lead to a substantial increase in net present value when compared to traditional approaches to cork oak forest management planning.

Keywords *Quercus suber* L. · Cork oak forest management · Linear programming · Cork harvesting · Harvest scheduling

Communicated by M. Moog.

A. Costa (✉) · A. C. Oliveira · F. Vidas · J. G. Borges
Centro de Estudos Florestais,
Instituto Superior de Agronomia,
Technical University of Lisbon,
Tapada da Ajuda, 1349-017
Lisbon, Portugal
e-mail: augustac@isa.utl.pt; augusta.costa@efn.com.pt