Decomposition of fine woody debris from main tree species in lowland oak forests

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INTRODUCTION

Decomposition is an important process in forest ecosystems, and the corresponding carbon flux has to be accounted for in forest carbon balance estimates (Schulze et al. 2005, Gough et al. 2007). Leaf litter decomposition is a well-investigated phenomenon (Edmonds 1980, Harmon et al. 1990, Knoepp et al. 2005, Pérez-Corona et al. 2006, Zhou et al. 2008) considering its importance in the biological cycle and the direct influence on ecosystem productivity.

Woody debris (coarse and fine) is recognised as an important carbon pool to be considered within national inventory reporting, accounted for under dead biomass, as one of the three main forest ecosystem carbon pools (IPCC 2003, 2006). Recently, in an effort to deal with climate change issues, woody debris became recognised as a potential source of renewable energy (Stupak et al. 2007, Nijnik et al. 2010). Coarse woody debris has been a subject of many studies because its decomposition represents a substantial flux in the forest ecosystem (Gough et al. 2007). In addition, it is important for preserving biodiversity in forests, acting as a valuable biotope for a multitude of organisms (Nordén et al. 2004, Castro and Wise 2010).

Fine woody debris, on the other hand, accounts for a relatively small fraction of the total forest carbon stock, but the number of studies on this pool is increasing (Eaton...