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Goods and services provided by forest ecosystems of Catalonia

A recent study published by CREAF and the UAB shows that the combination of multiple sources of information helps to have a broader and better understanding of the forest ecosystems of Catalonia and the services and goods they provide, which are key for human well-being. The results obtained allow better strategies for land planning and management of natural resources.

Forests play a key role for biodiversity conservation across world's biomes and their functioning provides a wide variety of goods and services (e.g. materials for construction or firewood for energy, carbon sequestration or soil protection against erosion) that are key for human wellbeing.

The Mediterranean Basin is a highly biodiverse and highly populated region where the landscape has been modified by anthropic impacts for millennia. This area involves a mix of different forest and agricultural uses currently affected by different drivers of global change, including frequent and intense wildfires and severe droughts.

An accurate assessment of forest ecosystems and their services is key for their integration within strategies for land planning and management of natural resources. A group of researchers at CREAF (Centre for Ecological Research and Forestry Applications; http://creaf.cat) and UAB has explored how information from multiple sources can provide an accurate and spatially-explicit

assessment of forest ecosystem services in Catalonia. The services studied (Fig.1) included the three main groups generally considered: i) provisioning (mushrooms, timber and water); ii) regulating (climate regulation, soil fertility, water storage, flood protection and erosion control); and iii) cultural (recreational, protected areas, wildlife observation and recreational routes).

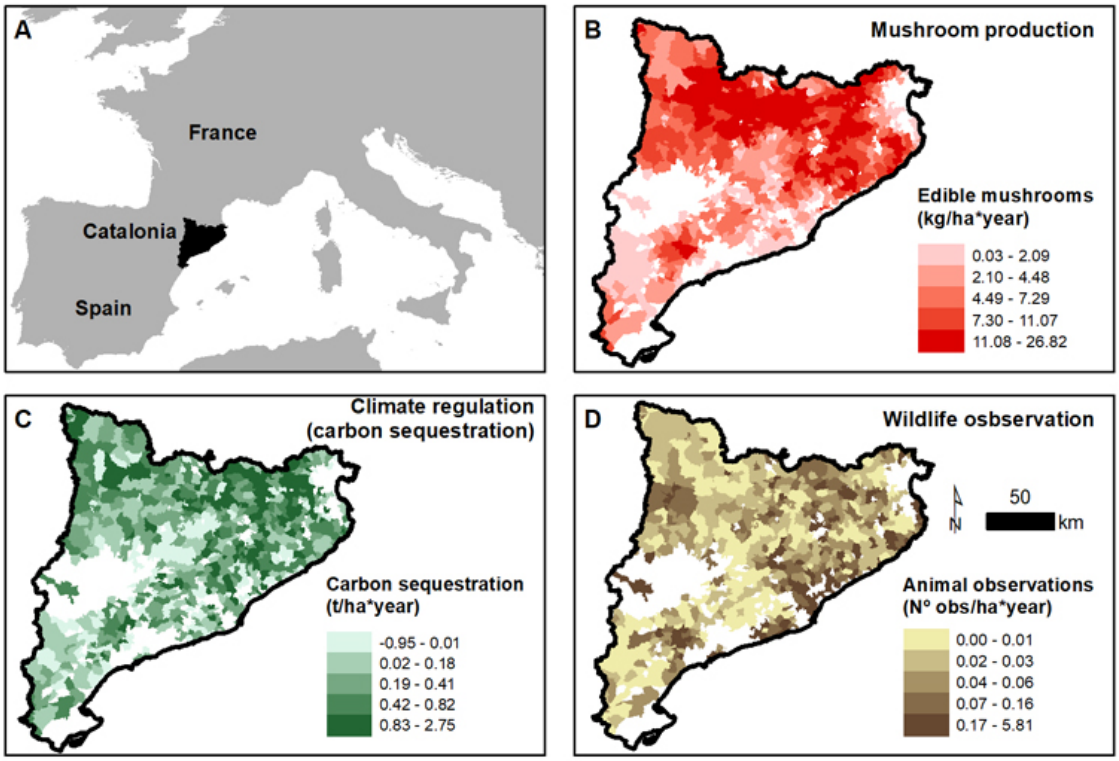

Figure 1. Location of the study area (a) and some examples of ecosystem services mapped: mushrooms production (b), climate regulation (carbon sequestration; c) and wildlife observation (d).

We created maps of 12 ecosystem services at municipality level, combining data from: national forest inventories, simulations from different, previously validated models, land use/land cover maps and administrative official and un-official –e.g., NGO's- statistics.

Our results showed that the montane forests are particularly important for most services, such as provisioning (mushrooms or water) and regulating (carbon sequestration or protection against soil erosion). However, forests at lower altitudes and closer to large population centres (Barcelona) were highly relevant for cultural services (e.g., observation of wildlife).

Overall, our findings showed that the combination of multiple sources of information allowed developing detailed analyses of forest goods and services. In addition, the focus on municipalities as study units makes our results directly relevant for land management and planning strategies, including forest management, at local to regional levels.

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