

# Easy Visualization of Forest Inventories and Land Cover Maps with Forest Explorer

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Cross-Forest (<https://crossforest.eu/>) is a European project aiming to develop digital service infrastructures and services towards forest fires control and forestry management in Spain and Portugal. This requires the exploitation of a wide range of datasets such as forest inventories, land cover maps, or forest fires historical data, to name a few. Unfortunately, forestry datasets are typically isolated, described with disparate data schemas, and using unfamiliar formats. This challenge is addressed in Cross-Forest through the proposal of a suite of ontologies and by publishing forestry resources as Linked Open Data. The current version of the Cross-Forest dataset integrates the Spanish forest inventory and the Spanish land cover map, although more datasets will be included and released as Linked Open Data in the following months.

Browsing the contents of the Cross-Forest dataset requires some knowledge of Semantic Web languages. This cannot be assumed for prospective users that include forest stakeholders, operational foresters, data journalists, start-up promoters, and citizens, among others. For this reason, we have proposed Forest Explorer (<https://forestexplorer.gsic.uva.es/>), a web tool for easily browsing the contents of the Cross-Forest dataset. Forest Explorer offers an interactive map for navigating to the area of interest and presenting forestry data with different levels of detail according to the zoom level. As a result, users can explore any place in Spain to find existing trees and biomass per province, plot data, forest species, or dendrometric measurements. Importantly, Forest Explorer can run in any device with a modern browser (even mobile phones) without requiring any further installation.

We have ran a survey to evaluate Forest Explorer, obtaining 27 responses (14 from Spanish respondents and 13 from Portuguese ones). Most of the survey participants consider Forest Explorer an easy-to-use tool. The integrated dataset is assessed as a very useful resource, especially for decision-making regarding forest management. Some users highlighted the importance of the articulation of neighbor countries in relation to these matters. In general, the harmonization of spatial data from Spain and Portugal is considered as one of the main contributions of Cross-Forest.

We are in the process of completing an Iberian forestry ontology that can accommodate forest inventories and land cover maps from Portugal—IFN6 (Inventário Florestal Nacional) and COS (Carta de Uso e Ocupação do Solo de Portugal Continental)—and Spain—IFN3 (Inventario Forestal Nacional) and MFE50 (Mapa Forestal Nacional). The Cross-Forest dataset will then incorporate all these resources that will be automatically browsable through Forest Explorer as a result.

## PALAVRAS-CHAVE

Cross-Forest, data visualization, Linked-open data, Portugal, Spain.

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