Farmers compose with ecosystem services & disservices for managing rural forests

**Insights from a French case study**

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**RURAL FORESTS are key social-ecological components in agricultural landscapes**
- Rural forests encompass *farm forests and trees outside forests* managed by farmers — incl. hedgerows, isolated trees and small groves — and play key socio-economic, cultural and ecological roles in agricultural landscapes.
- Rural forests provide various *Ecosystem Services (ES)* that contribute to the resilience of ecosystems and to human well-being. Yet, they also represent a source of *Ecosystem Disservices (EDS)* that undermine farmers’ well-being.

**Materials & Methods**

1. **Semi-structured interviews**
   - Face-to-face interviews with 19 farmers in organic or conventional agriculture.
   - Topics: uses and management, main advantages & drawbacks of rural forests, key stakeholders and policies influencing management practices.

2. **Data analyses**
   - Classification of cited advantages & drawbacks as ES and EDS, respectively.
   - Multiple Correspondence Analyses (MCA) to analyze variability in farmers’ perceptions.
   - Qualitative analysis to understand management practices & farmers’ views and strategies.

**Fig. 1**: Location of the study site and sceneries of the studied landscape (Photos: J. Blanco).

**Fig. 2**: Number of times each type of rural forest contribution was cited by farmers. Only contributions with a least five citations are represented.

**Fig. 3**: Projection of the farmers in the first two axis of a MCA performed on the basis of cited ES & EDS.

**Vallées et coteaux de Gascogne**
- The Long-Term Social-Ecological Research platform (LTSER) *Vallées et coteaux de Gascogne* is an agricultural landscape near the city of Toulouse (Fig. 1).
- **Mixed farming** combining *cereal cultivation* (wheat, maize) and *livestock* rearing (for milk & meat production) is the dominant farming system.
- Over the last decades, along with their decline in number, farms have increased in size and *specialized in crop cultivation*.

**Farmers’ perceptions and uses of rural forests**
- Farmers collect *firewood* as they prune hedgerows and remove fallen trees from their fields. These practices depend on *mutual-aid networks*.

   “the wood for heating, we get a lot around the edges, the wood in the streams, things like that. Or we prune back the branches that come up to the tractor cabin...”

- According to farmers, rural forests *contribute positively and negatively to agriculture*.

   “Further on there was a bank, and all that’s been removed, and now when there’s a thunderstorm, it [the earth] starts up there and slides down to here.”

   “In a field of corn, you’ll see a ring around an oak, and that shows you the spread of the roots.”

**How do farmers perceive & manage rural forests in the coteaux de Gascogne, South-Western France? What are their strategies for balancing ES and EDS, and the implications for agri-environmental policies?**

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