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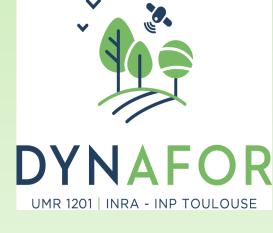
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Farmers compose with ecosystem services & disservices for managing rural forests

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.

Rural forests and the Common Agricultural Policy (CAP)

- Since 2013, green payment schemes require farmers to reserve 5% of their arable land for Ecological Focus Areas (EFA) that include agroforestry areas and farm trees.
- Yet, the effectiveness of this policy in protecting rural forests in the face of the diversity of local contexts remains open to discussion.

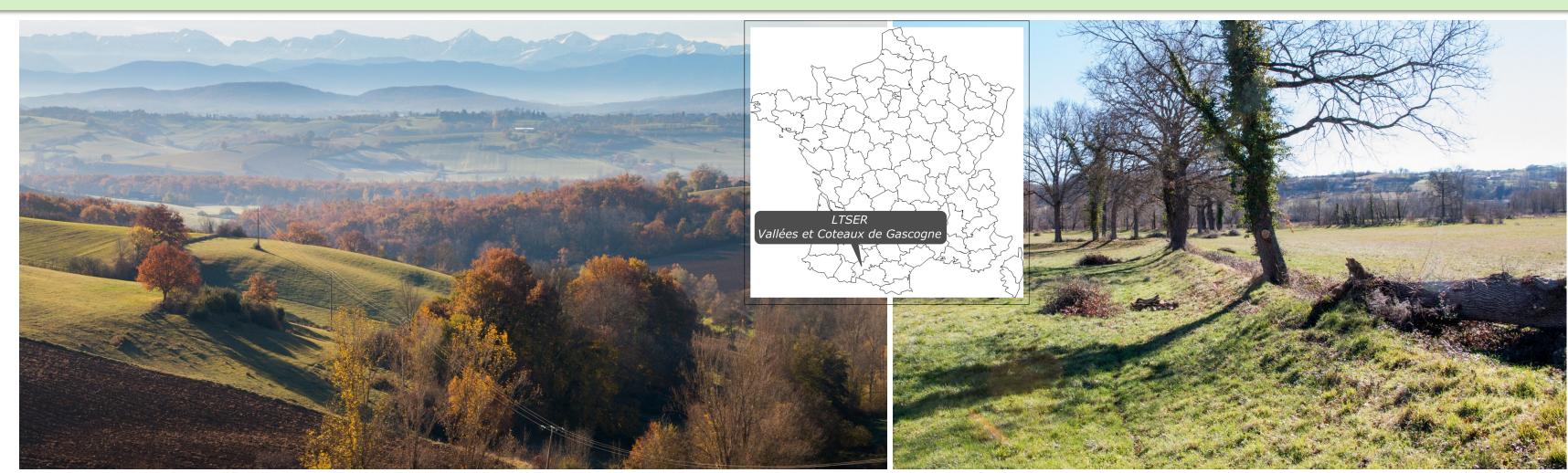


Fig. 1: Location of the study site and sceneries of the studied landscape (Photos: J.Blanco).

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?

Nanterre

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.

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.



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 cabins..."

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."

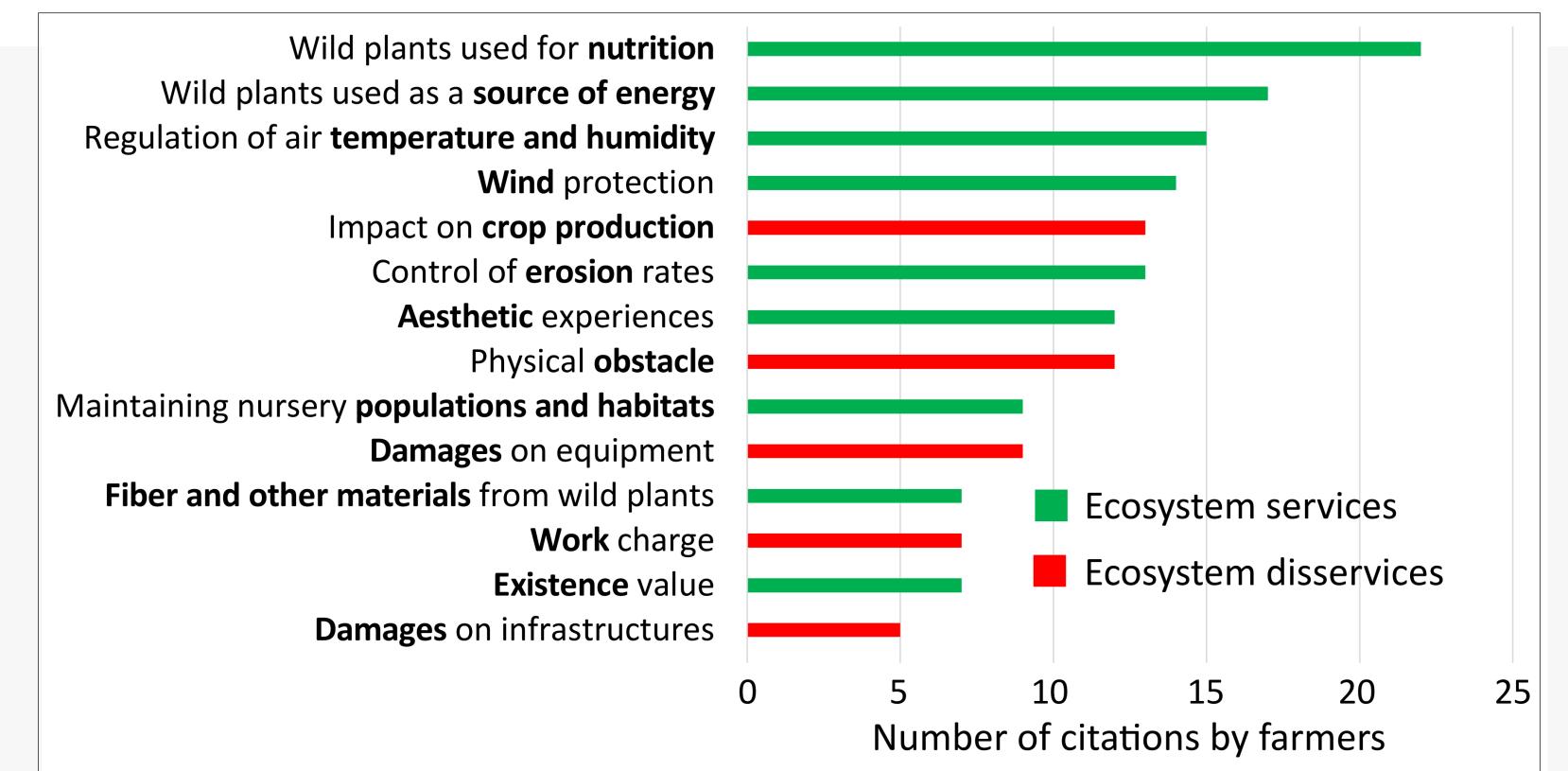


Fig. 2: Number of times each type of rural forest contribution was cited by farmers. Only contributions with a least five citations are represented.

Variability in farmers' perceptions & attitudes towards CAP greening measures

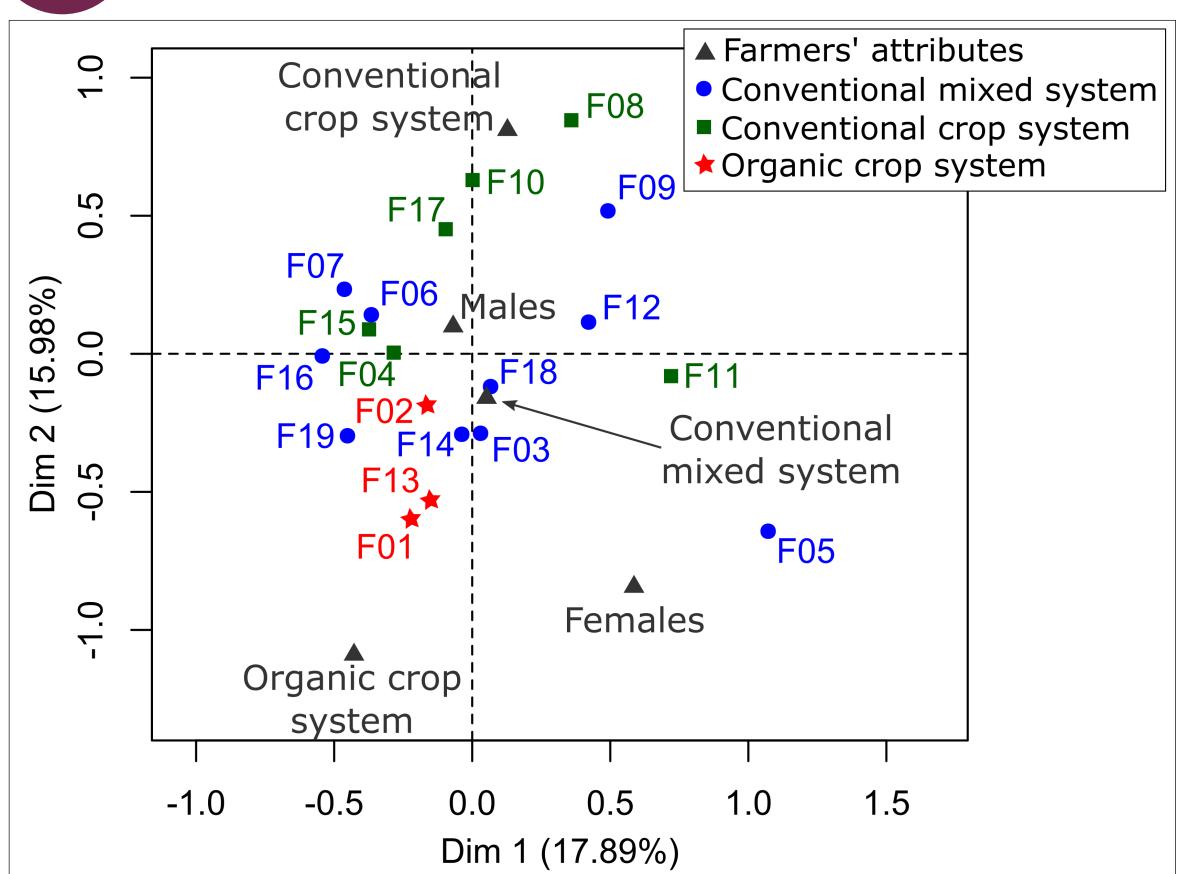
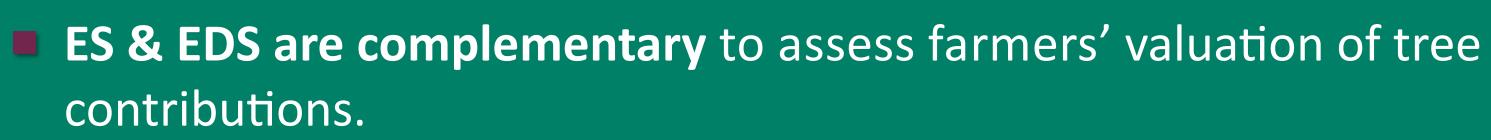


Fig. 3: Projection of the farmers in the first two axis of a MCA performed on the basis of cited ES & EDS.

- Farmers' perceptions varied according to their farming system (Fig. 3).
- Some farmers promoted a 'land sparing' model while other promoted a 'land sharing model.
- Uncertainties around CAP evolution make farmers more susceptible to cut hedgerows and isolated trees as they fear additional constraints.

"Some farmers are influenced by the CAP, they're afraid that if there's a yard of hedge which goes into the field, they'll be penalized, [...], the CAP and the interpretation of the CAP has had a very harmful effect on the survival of the hedges."





- Perceived ES can serve as leverages to promote agroforestry practices, yet perceived EDS should not be overlooked.
- CAP greening measures are differently received by farmers, and should be better communicated and adapted to local contexts.



Teixeira, F. Z., L. Bachi, J. Blanco, I. Zimmermann, I. Welle, and S. M. Carvalho-Ribeiro. 2019. Perceived ecosystem services (ES) and ecosystem disservices (EDS) from trees: insights from three case studies in Brazil and France. Landscape Ecology. https://doi.org/10.1007/s10980-019-00778-y Blanco, J., A. Sourdril, M. Deconchat, S. Ladet, and E. Andrieu. 2018. Social drivers of rural forest dynamics: a multi-scale approach combining ethnography, geomatic and mental model analysis. Landscape and Urban Planning. https://doi.org/10.1016/j.landurbplan.2018.02.005