Farmers compose with ecosystem services and disservices for managing on-farm trees: insights from a French case study

Julien Blanco, Anne Sourdril, Marc Deconchat, Cécile Barnaud, Magali San Cristobal, Emilie Andrieu

PROJET SOUTENU PAR FONDATION DE FRANCE

Zones Ateliers LTSER FRANCE PYRÉNÉES GARONNE

4th World Congress on Agroforestry
20-22 May 2019
Le Corum Conference Centre
Montpellier, France

DYNAFOR
UMR 1201 | INRA - INP TOULOUSE

Farmers compose with ecosystem services & disservices for managing rural forests

Insights from a French case study

Julien Blanco[a,b*], Anne Sourdril[c], Marc Deconchat[a], Cécile Barnaud[a], Magali San Cristobal[a], Emilie Andrieu[a]

[a]Dynafor, Université de Toulouse, INRA, INPT, INPT-EI PURPAN, Castanet-Tolosan, France
[b]UMR CNRS 6554 LETG-Angers, UFR sciences, Université d'Angers, France
[c]CNRS, UMR 7533 Ladyss, Université Paris Ouest-Nanterre
***Contact: Julien.blanco.pro@gmail.com**

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?

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."

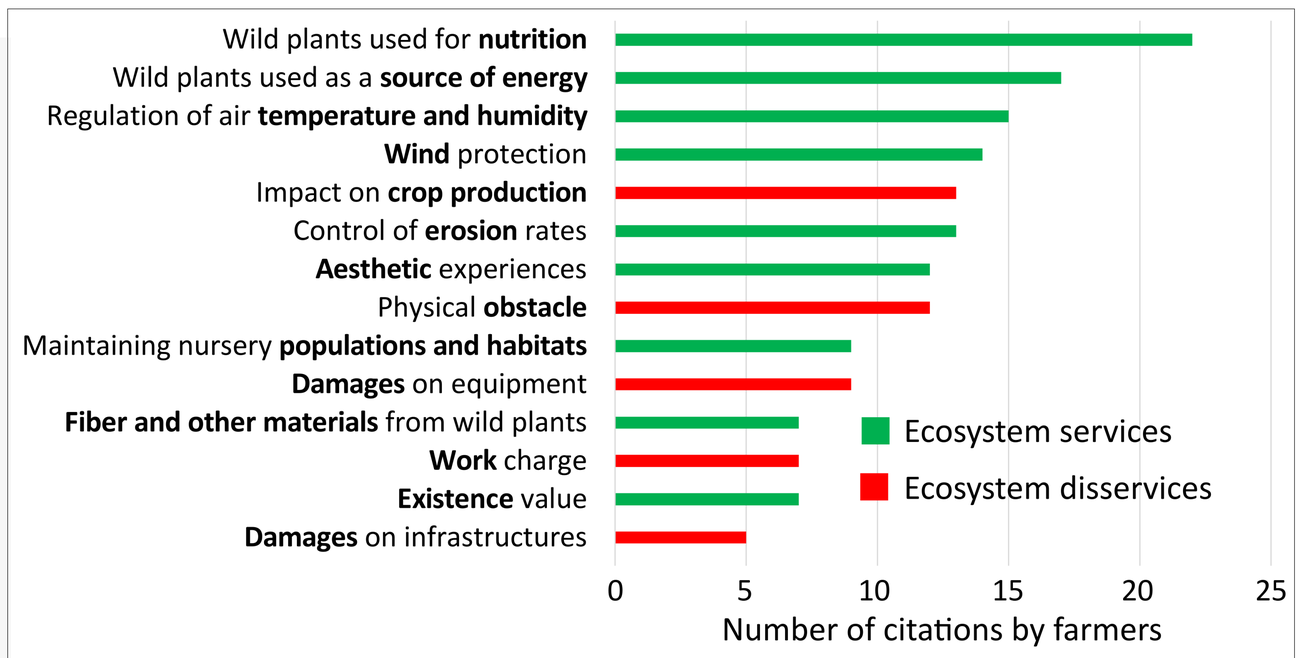

Fig. 2: Number of times each type of rural forest contribution was cited by farmers. Only contributions with a least five citations are represented.

Variability in farmers' perceptions & attitudes towards CAP greening measures

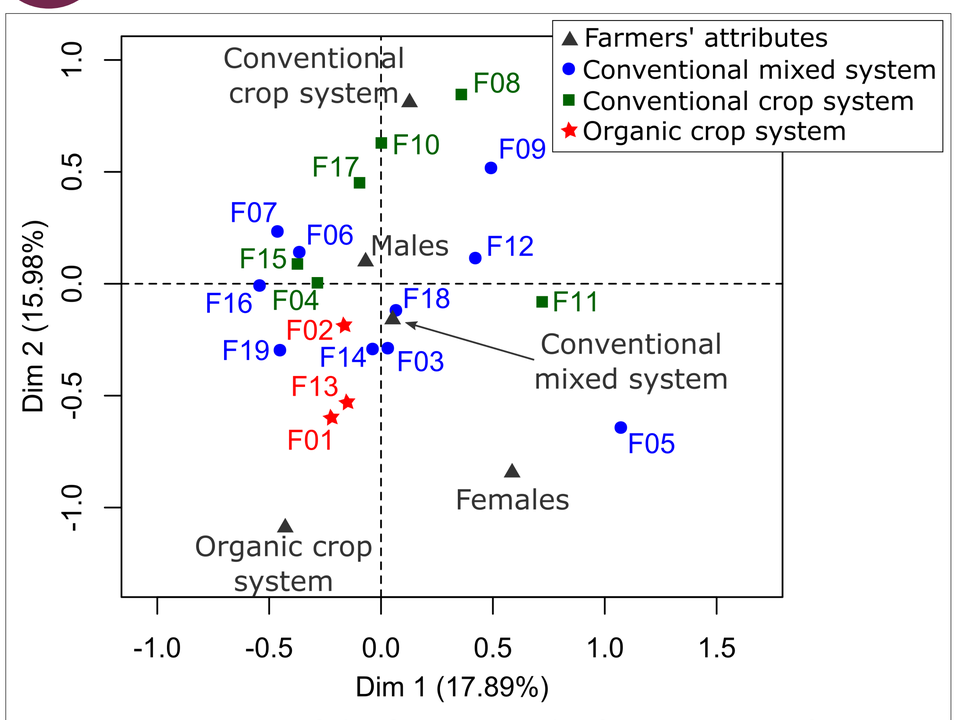

Fig. 3: Projection of the farmers in the first two axis of a MCA performed on the basis of cited ES & EDS.

- **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."

- **ES & EDS are complementary** to assess farmers' valuation of tree contributions.
- 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.

MORE

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