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Preferences for Ecosystem Service bundles in changing landscapes : Deliberative Valuation in the Cevennes, France

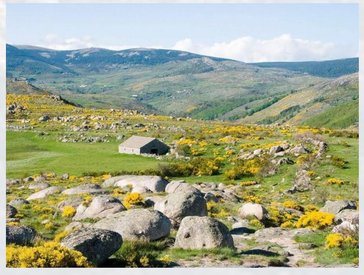
Michaël Tropé*, Marcus Kieslich, Jean-Michel Salles

CEE-M, Univ Montpellier, CNRS , INRA, Montpellier SupAgro, Montpellier, France

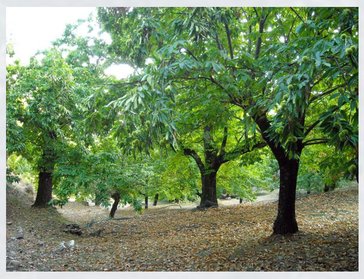
1. Study Area

The Cevennes

The Cevennes is a mountainous region in Southern France and a national park covering 372'000 hectares. Its diverse cultural landscape is marked by agro-pastoral highlands in the north and forested mountains (chest nut) in the south. The remarkable interaction and transformation between human and environment led to its inscription as a World Heritage site of the UNESCO in 2011. Aiming to preserve traditional transhumance and open grassland, the national park encourages extensive agricultural and economic activity even in its inhabited core zone.



Agro-pastoral landscape



Chest-nut forest

Group discussion led by experienced moderator

Process of natural reforestation

Agricultural terraces (« bancèls »)

Nevertheless, declining number of farmers lead to reduced pressure on vegetation and caused a (still ongoing) process of natural reforestation by pines, endangering the cultural landscape and wildlife habitat of chalky soil grasslands.

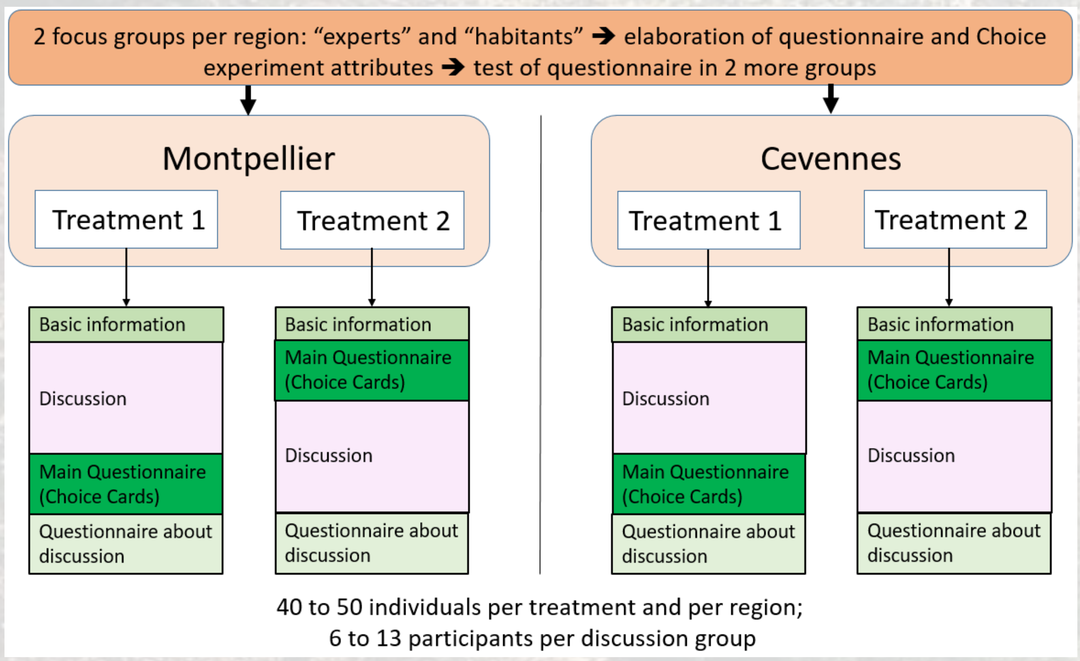
The rich cultural history impacted the landscape in different ways, either by architecture *(agricultural terraces, small buildings for livestock and houses built with dry walling),* by war *(protestants during French Wars of Religion, sanctuary for Jews and partisans during World War II)*, or land use changes *(silk production, chest nut production, mining industry)*.

2. Context

- Changing **landscapes can be represented as different Ecosystem Service (ES) bundles**, each containing **interactions and dependencies** *(Raudsepp-Hearne et al, 2010).*
- How to **integrate** landscape as ES bundle **in valuation exercises** instead of focussing on individual services *(Bunse et al, 2015)*? How to include **cultural ES** *(Hirons et al, 2016)*?
- Does it help to **apply a deliberative approach** to obtain a "richer" valuation *(Kenter et al, 2016)*?
- Is it a **matter of information, familiarity** *(LaRivière et al, 2014)*, **distance** *(Hein et al, 2006)*?

➔ We take the example of natural reforestation and the loss of cultural landscape to approach these questions and **how the landscape should evolve in the eyes of a local, rural or a near-by, urban population ?**

3. Study design



- Elaboration and test of questionnaire by focus groups
- 2 Treatments in each of two regions (Montpellier and Cevennes)
- Organization of group discussion with buffet
- Participants compensated by gift basket containing local products

➔ Design allows for:

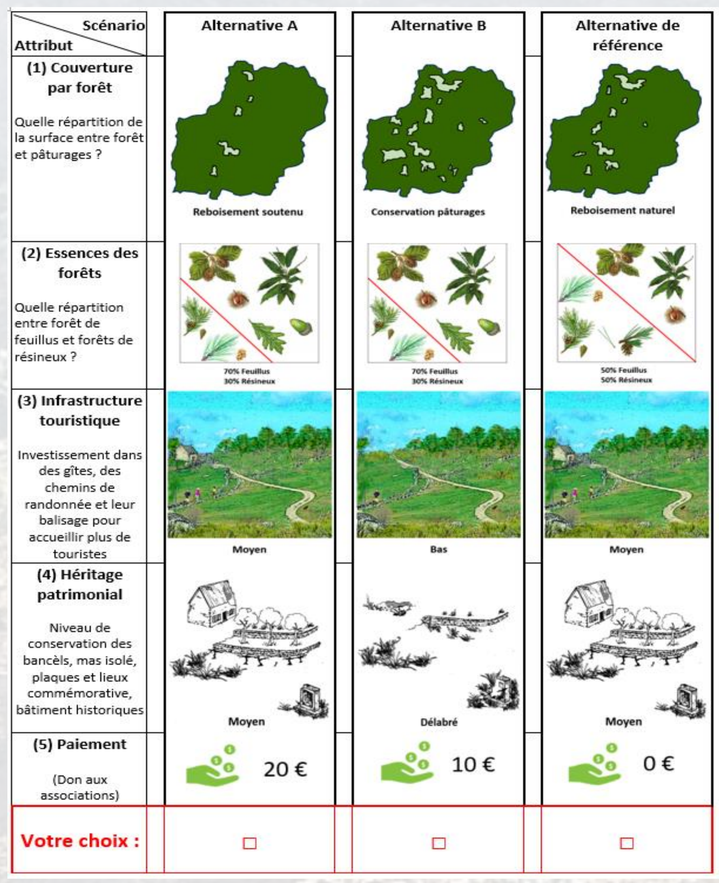
1. Comparison among regions
2. Comparison among groups with or without preliminary discussion

4. Method: Choice experiment

- Questionnaire includes *Choice experiment:*
- Respondents are confronted with two scenarios and the real situation (3 columns in the *Choice Card*)
- Each of these three alternatives contain five attributes (rows in the Choice Card):

1. *Forest Cover*
2. *Proportion of different tree species*
3. *Level of tourism infrastructure*
4. *Level of cultural heritage conservation*
5. *Payment (donation to local association)*

- Respondents choose one alternative from each Choice Card
- Utility differences among alternatives can be calculated using Logit Model *(Train, 2009)*



Choice Card

- Follow-up questions allow to identify ES associated to attributes and whether interdependencies were considered

5. Hypotheses

1) The conservation of cultural landscape is more preferred at place than in near-by Montpellier.
2) Tourism is less appreciated by people from Montpellier in order to preserve the "authentic" character of the Cevennes. Meanwhile, it is more important for local people as a source of income.
3) The categories of ES considered in valuation will be more diverse in groups with preliminary discussion than in groups without. Therefore, deliberation helps to foster the representation of landscape as ES bundle instead of individual ES.
4) Given that discussion groups in Cevennes already hold better local knowledge, the process of deliberation will have less impact than in groups at more distant Montpellier.
5) The overall diversity of information will be higher at local groups in the Cevennes than in Montpellier. Therefore, a trade-off between small-scale local well-informed valuations and higher-scale regional less-informed valuations exists.

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*** Contact:** **Michaël Tropé**
Center for Environmental Economics – Montpellier (CEE-M)
2 Place Pierre Viala
Building 26; Office
34060 Montpellier, France
michael.trope@inra.fr

Université de Montpellier
163 rue Auguste Broussonnet
34 090 Montpellier, France
Tel : 04 .67.41.74.00