Tropical moist forests' ecosystem services perceived by stakeholders:
A case study from South-Eastern Cameroon

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Background

Human populations are increasing with their associated needs (food, timber and fuel wood) and pressure on forest ecosystems.

Land use changes, caused by increasing human pressure on those ecosystems, are major threats to biodiversity in the tropics (Sala *et al.*, 2000 ; Pereira *et al.*, 2010).

Concept of ECOSYSTEM SERVICES

= **ES** = "the benefits provided by ecosystems to humans, which contribute to making human life both possible and worth living" (MEA, 2005).

Most ES evaluations only use ecological and economic approaches (Chan *et al.*, 2012 ; Tengberg *et al.*, 2012). Social research methods are then generally overlooked, despite their fundamental relevance in understanding real provision of ES (Orenstein & Groner, 2014).

Research questions

*How do forest stakeholders **perceive** the **ecosystem services** provided by Central African moist forests?*
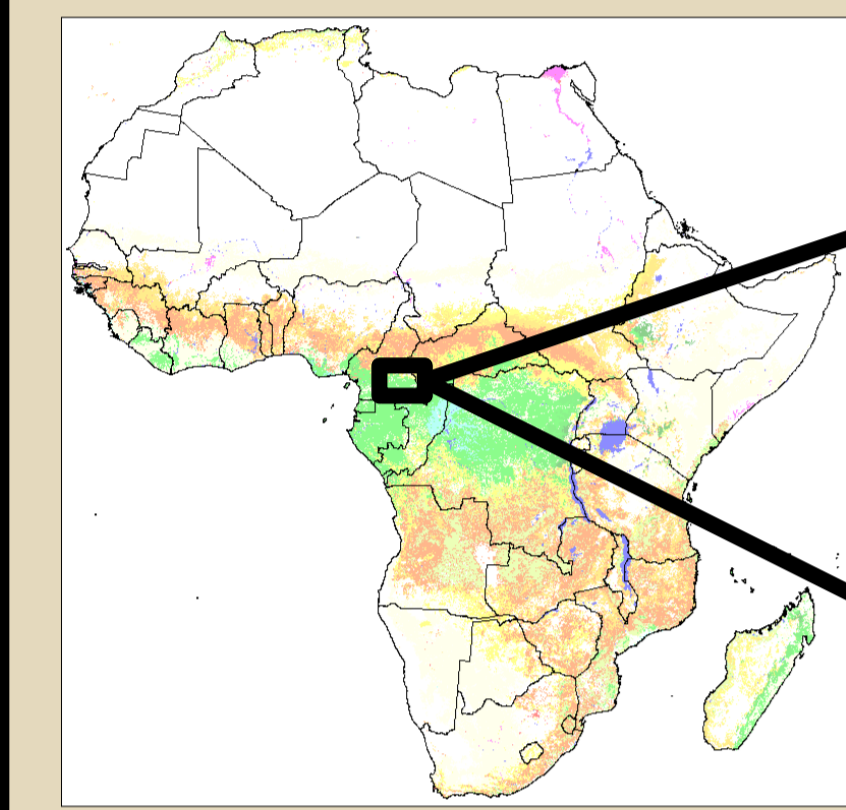
*Are perceptions of ecosystem services influenced by **land use categories**?*
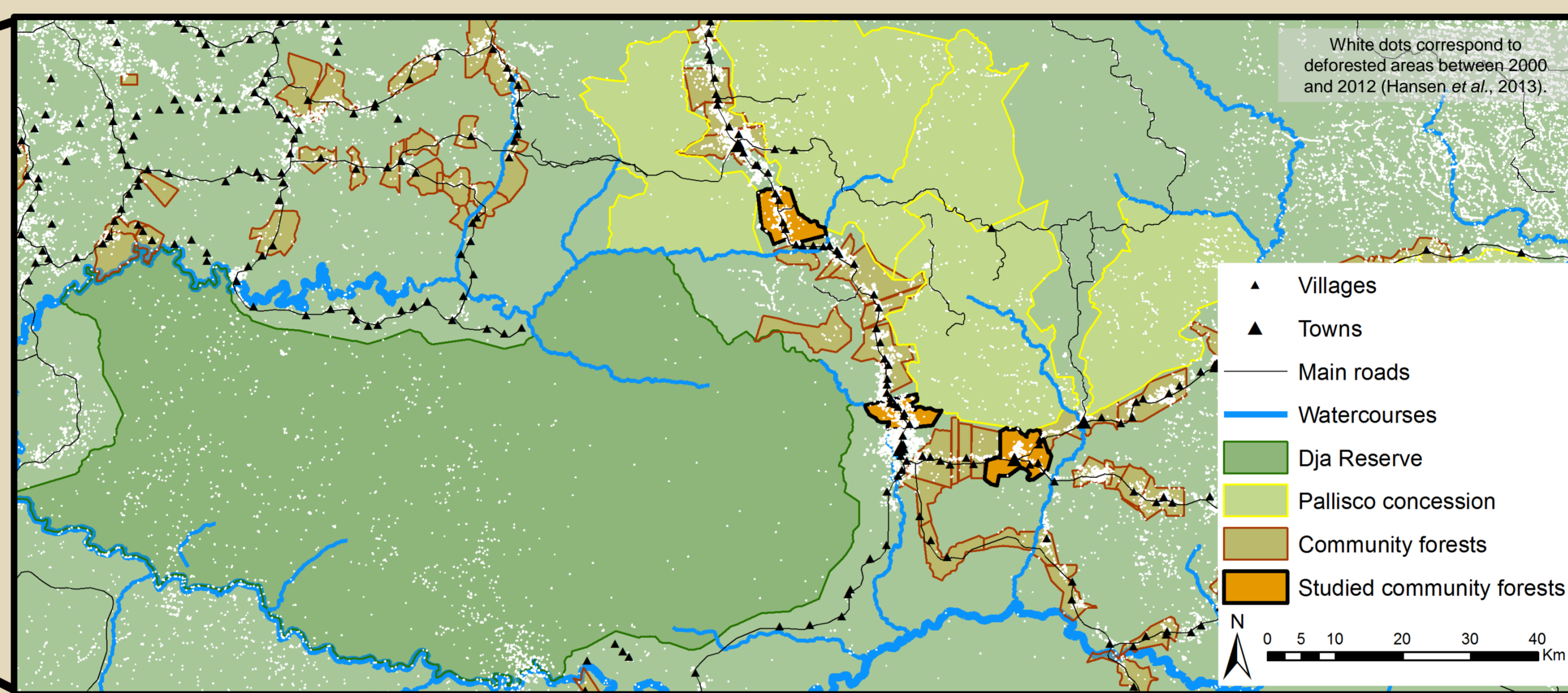
Methods & Results

South-Eastern Cameroon:
Moist semi-deciduous forest (Fayolle *et al.*, 2014), canopy dominated by long-lived light-demanding species and long history of human disturbance (Morin-Rivat *et al.*, 2014)

Local communities (Bantu and Baka Pygmies) are widely **dependent on the forest** for their daily activities: **hunting**, **fishing**, gathering of **NTFP**, extensive **agriculture**.

The background of the map represents the classes of vegetation defined by Mayaux *et al.* (2004).

White dots correspond to deforested areas between 2000 and 2012 (Hansen *et al.*, 2013)

Legend:
- Villages
- Towns
- Main roads
- Watercourses
- Dja Reserve
- Pallisco concession
- Community forests
- Studied community forests

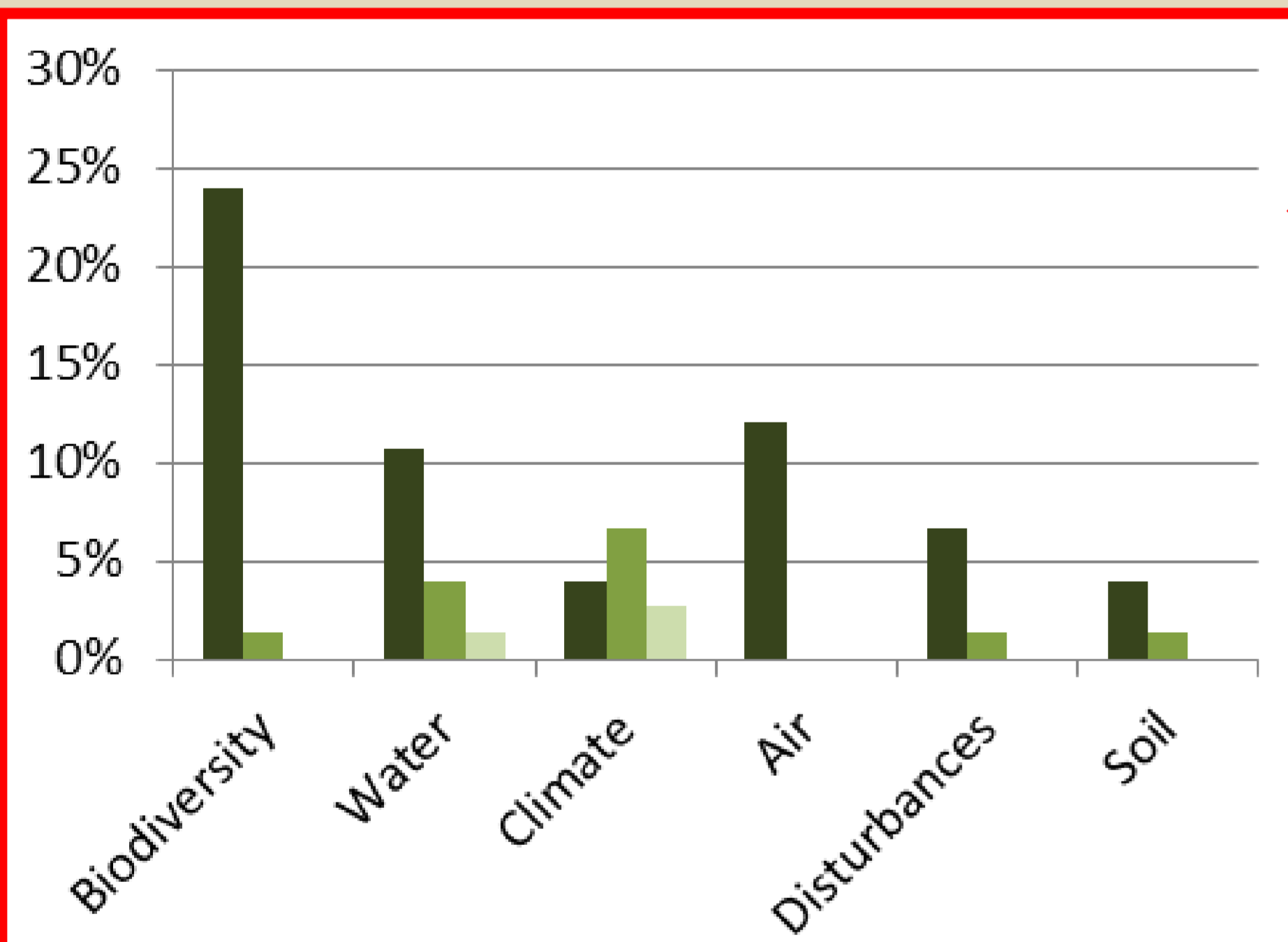N 0 5 10 20 30 40 Km

3 land use categories are studied:

- A **protected area**: the Dja Reserve
- A **FSC-certified logging concession**: Pallisco company
- Three **community forests**

INDIVIDUAL INTERVIEWS → Spontaneous identification of the **most important ecosystem services** for the local populations
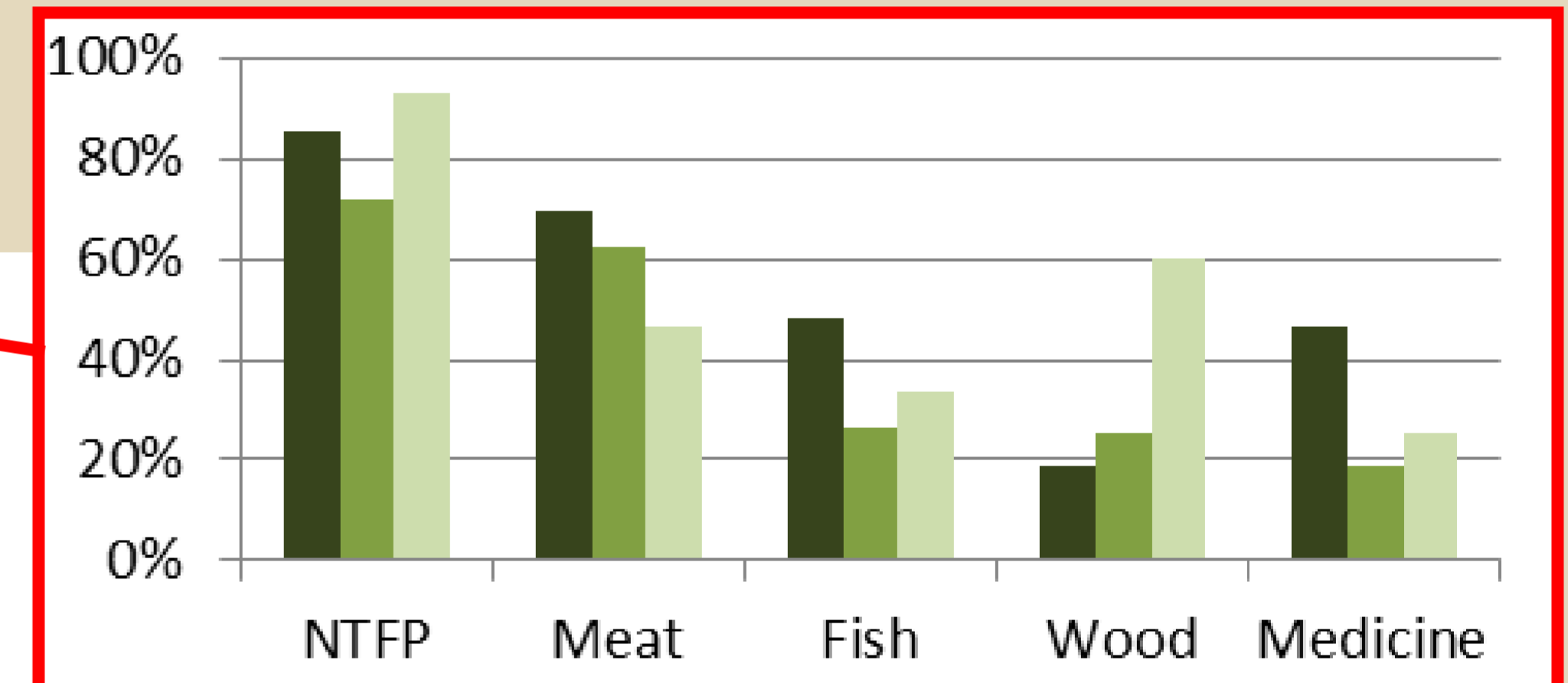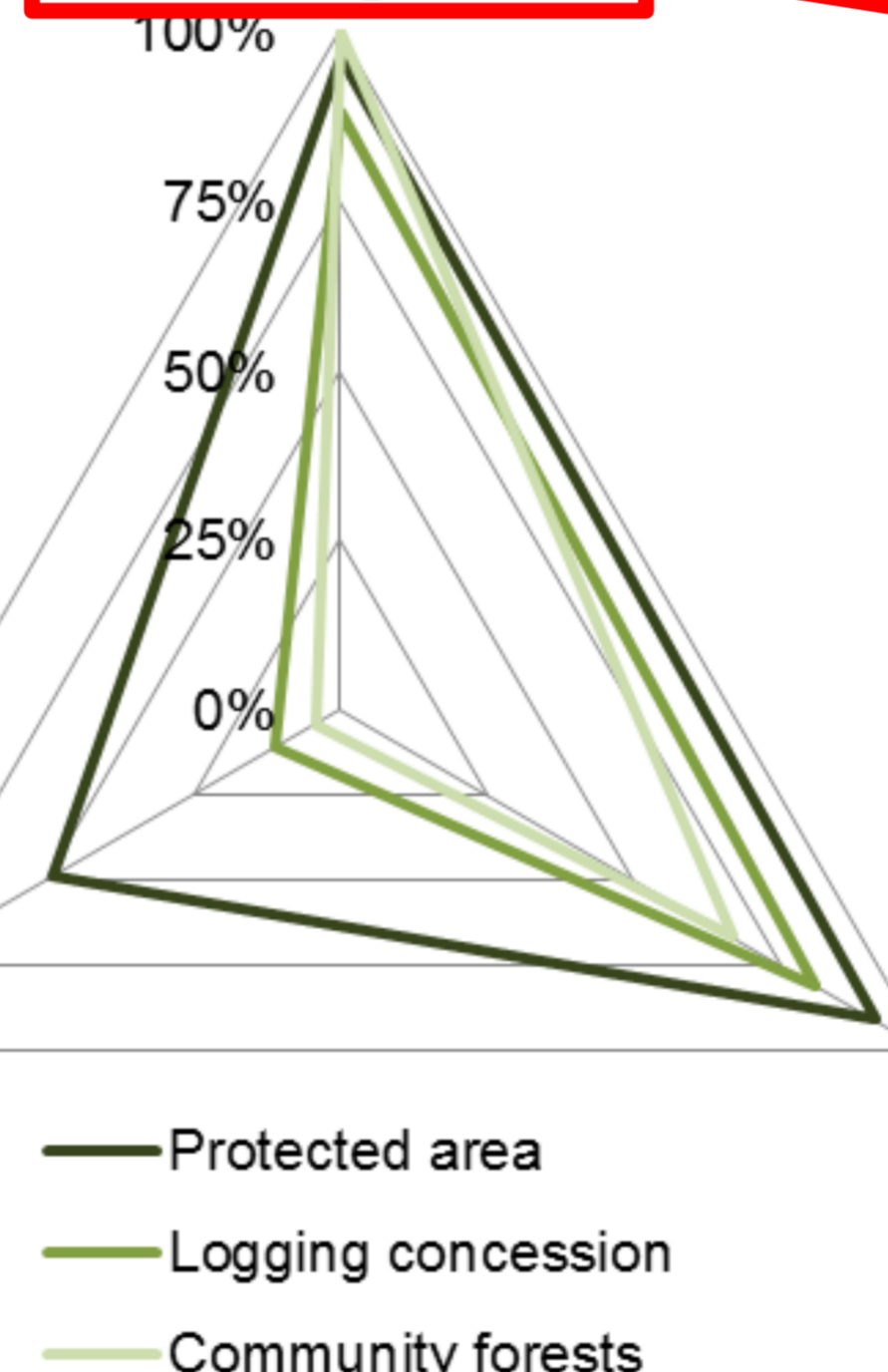
225 respondents (**75** in each land use category) + **7** experts

Percentages of respondents who spontaneously identified at least one of each category of ecosystem services

Provisioning services

Regulating services

Cultural services

- Protected area
- Logging concession
- Community forests

Local populations mainly find Non-Timber Forest Products and wood in community forests, whereas provision of meat, fish and traditional medicine is coming from further, either from the logging concession or the protected area.

(Provisioning services bar chart: NTFP, Meat, Fish, Wood, Medicine — 0% to 100%)

(Regulating services bar chart: Biodiversity, Water, Climate, Air, Disturbances, Soil — 0% to 30%)

Regulating services are mainly identified spontaneously in the protected area, showing that the status of Reserve is well understood by the local populations. In contrast, community forests are almost never associated to regulating services and the logging concession shows intermediate results.

Spontaneous answers show that the heritage and the symbolic values of the forest are particularly high, especially for the Dja Reserve. However, people clearly do not go inside forests to relax, but rather to work and gather various products, as seen in the provisioning services graph.

(Cultural services bar chart: Heritage, Housing, Tourism, Education, Rites, Relaxation — 0% to 100%)
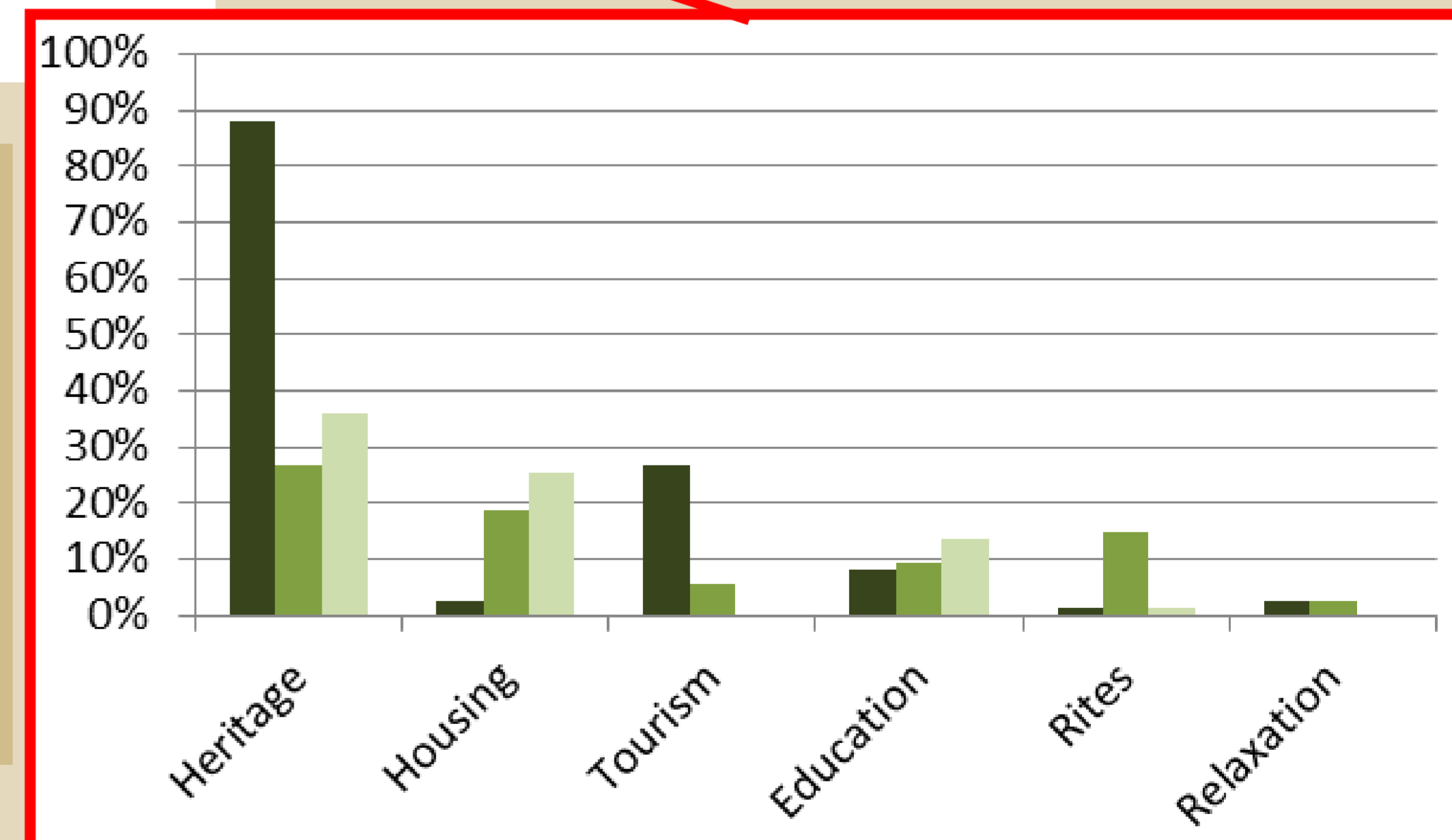
Perspectives

In addition to spontaneous answers about ecosystem services provided by the forests, interviewees were also asked to rank the provision of a list of services individually cited. These results are not presented in this poster, but multivariate analyses are ongoing in order to identify more precisely the trends in the perceptions of ecosystem services between land uses and to test the influence of social variables such as the job, gender, age or ethnicity. Preliminary results reveal clear differences between the perceptions of ES valued spontaneously and by the ranking of a list of services.

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