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Pastoralist conservation

Local Ecological knowledge and collective action for grassland conservation in Sierra de Segura (Spain)

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1. Introduction

Considering the role of local communities in the management of the territories they take advantage of and govern (Ostrom, 1990), the main aim of the research is to define how forms of local governance incorporate ecological knowledge for the management of grasslands and the whole livestock system. Three aspects of this body of knowledge are addressed in this poster:

1. Ecological knowledge of characteristics and key functions of pastures and spatial mobility along seasons.
2. Configuration of local institutions for regulated access to grasslands.
3. Collective strategies for environmental and socio-economic adaptation.

2. Methods

Data collection

Analysis

Participant observation (12 months)

In-depth interviews (N=17)

- Rangelands ecosystems knowledge and pastoral practices
- Local governance institutions
- Climatology
- Change perception and challenges

Daily notebooks and transcribed interviews were imported into and coded in QSR NVIVO (QSR International, 1999)



3. Study site

The case study is located in the mountain region of the Sierra de Segura, in the south-east of Spain (38°01'05.5"N 2°42'25.5"W; Figure 1). Rangelands on a karstic substrate of about 30.000ha between 1.400 and 1.900 masl (i.e. subalpine areas), with snowy and cold winters reaching down to -15 °C, and dry and hot summers with temperatures reaching up to 35 and 40 °C. Livestock activity in the area is based mostly on sheep (40.000), but also there are goats (1.500) and some cows (100).

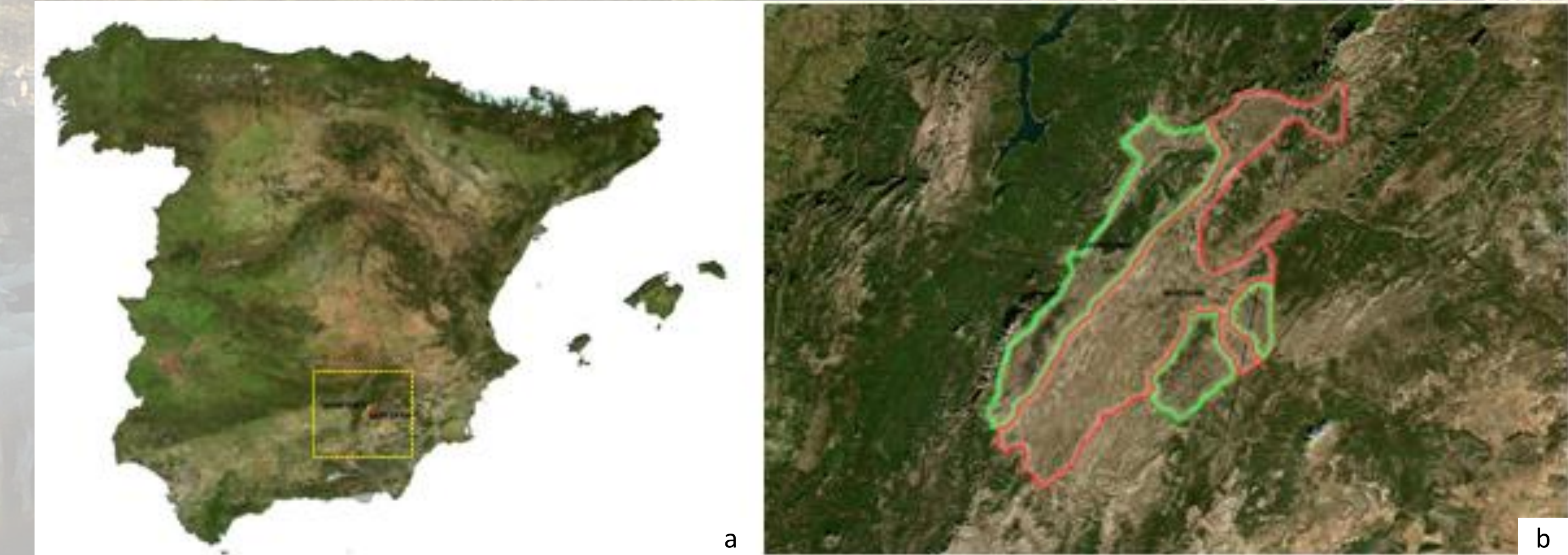


Fig1.a) General localization of study site, within a mountain area in the south-east region of Spain. b) The main rangeland area in Sierra de Segura, highlighting Pontones' grassland area in green and Santiago in red.

This rangelands are used and commonly managed by 85 shepherds, organized into two formal governance institutions (SAT Santiago with 53 shepherds, and SAT Pontones with 22 shepherds). However, its management affects other areas, since approximately 67% of the shepherds practice transhumance to winter lowlands, so their decisions and activities go beyond the Sierra.

4. Results

Ecological knowledge of pastures and spatial mobility

Shepherds especially value perennial grasses, which guarantee food throughout the summer season

Spring is the critical period for grasslands' growth and reproduction, so herders take special care in that period to have them in good condition throughout the summer and for its regeneration year after year

According to local perceptions, increasing periods of drought is the most critical environmental risk. Also, There is a perception of progressively drier winters, with less snow, which subsequently affects pasture productivity

Mobility to winter areas is encouraged through the payment of a higher price for those farmers who decide to spend the winter in the Sierra (commons)

Methods for monitoring the state of the pasture or *an adaptive regulation* of spaces and dates of use of the pastures are not considered.

Regulated access to grasslands

The main function of local governance institutions is to distribute access to pastures reasonably and relatively democratically. The process is aimed at the use of pastures by local herders, through agreements and recognition by institutions on which access to pastures depend.

There are different rules for grasslands use: In Santiago there is free mobility within grasslands zone, even if de facto most stay in their traditional zones. But in Pontones, from May 1st each flock must be within their zone. Moreover herders that take their flocks to grasslands before that date should pay an extra fee per animal

Self-imposed sanctions are contemplated by the livestock community and these are of monetary nature in case of non-compliance, or even exclusion from the group in case of repeated non-compliance.

A price is established per animal that accesses communal pastures, so that livestock farmers with large herds must pay more than ones with smaller herds (presumably with fewer economic resources).

Collective strategies for environmental and socio-economic adaptation

Shepherds try to guarantee access to water for all herds, installing accessible drinking troughs all along the grassland area, as water deficit is one of the major concerns in the area.

Cooperation in pastoral tasks and the collective use of infrastructures such as transhumance roads or water points, is a key point, and continues to require mutual support and collective organization.

Herders express always the great impact of European Common Agricultural Policy (CAP) and subsidies in their activity, which affects the relationship with the territory and the dynamics of governance institutions, determining the amount of livestock that can access pastures.

The identity, and sense of belonging to a group and a territory contributes to mutual collaboration and respect between people and to grasslands.

5. Discussion

The case studied represents a complex system of communal grasslands use, considering the partial contradiction that who maintains and takes advantage of them does not own the land. The lack of recognized rights creates tensions and uncertainty to stimulate investment. However, the two communities of herders establish a series of formal norms and informal relationships, product of a deep historical and cultural legacy and adaptations within an ever evolving socio-ecological context.

Loss of land tenure is identified as one of the key challenges pastoral communities are facing (Galvin, 2009; Reid et al., 2014) and this case study provides an example of communal governance without property that puts communality at a great risk.

The low presence of women and youth in both pastoral activities and decision making spaces is also a problem for the present and future sustainability of the system.

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