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The current status of transhumance systems in the province of León (Spain), towards a multi-dimensional evaluation

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Abstract. A multi-dimensional approach is proposed to evaluate the changes in transhumance systems associated to natural resources management in León (Cantabrian mountain, Spain), in order to know their sustainability status. This evaluative model focuses on the production system, owing to the fact that agroecosystem sustainability depends on the ecological integrity (the maintenance of ecosystem functionality) and specifically on the ecological coherence (the appropriate connection between the production system and the ecosystem). Two different methodological proposals are used to assess production system qualities: one based on farmers' opinion evaluation and the other on experts criteria assessment. The results show that the ecological rationale of transhumance is still rooted and adapted to resources management in León's territory: firstly, the new transhumance model of short movements has demonstrated flexibility and adequacy to the current conditions, being, indeed, an opportunity to develop a transition towards more sustainable systems. And secondly, beef cattle expansion in the mountain pasturelands with speculative aims is degrading natural pastures and increasing the land abandonment process.

Keywords. Transhumance - Multidimensional evaluation – Sustainability–Mountain pastures.

État des lieux des systèmes de transhumance dans la province de León (Espagne), en vue d'une évaluation multidimensionnelle

Résumé. Une approche multidimensionnelle est proposée pour évaluer les changements des systèmes de transhumance en lien avec la gestion des ressources naturelles dans la province de León (Monts Cantabriques, Espagne), afin de connaître leur situation sous l'angle de la durabilité. Ce modèle d'évaluation est axé sur le système de production, dû au fait que la durabilité des agroécosystèmes dépend de l'intégrité écologique (maintien de la fonctionnalité de l'écosystème) et spécifiquement de la cohérence écologique (connexion appropriée entre le système de production et l'écosystème). Deux propositions méthodologiques différentes sont utilisées pour évaluer les qualités des systèmes de production : l'une basée sur l'évaluation de l'opinion des éleveurs et l'autre sur l'évaluation de critères par des experts. Les résultats montrent que la logique écologique de la transhumance est encore enracinée et adaptée à la gestion des ressources sur le territoire de León : d'abord, le nouveau modèle de transhumance de courts mouvements a fait preuve de flexibilité et d'adéquation aux conditions actuelles, et constitue indéniablement une opportunité pour développer une transition vers des systèmes plus durables. Et ensuite, l'expansion des bovins dans les pâturages de montagne à des fins spéculatives est en train de dégrader les pâturages naturels et d'augmenter le processus d'abandon des terres.

Mots-clés. Transhumance – Évaluation multidimensionnelle – Durabilité – Pâturages de montagne.

I – Introduction

The geographical diversity of the Iberian Peninsula results in different areas which are complementary on pasture productivity along time, within the Mediterranean climate region. Transhumance is an extensive traditional livestock breeding system based on recurrent movements for aimed to take advantage of this ecological circumstance.

Some areas on the Northern Mountains, very productive on summer, complement the pastureland on the South-West (Extremadura), productive during the winter and spring (Gómez Sal and Lorente, 2004). Transhumance has enabled humans to link this disposition of primary productivity, along history.

In León province, placed on the south aspect of Cantabrian Mountains, Transhumance has been a constant activity since Middle Ages. However, this activity has suffered a recession since the XVIII century, when an agriculture based productive model was favoured. In the last century, most of the traditional large sheep flocks were abandoned, divided or sold. The overall number of transhumance livestock has been reduced significantly and the long displacements with Merino sheep between León and Extremadura have been partially replaced for a model of shorts movements inside the province, to the new irrigated lands (Gómez Sal y Rodríguez Pascual, 1992). In parallel, on the mountain pasturelands sheep has been replaced by cattle, due to the better price on the markets and an easier management (free ranging, without shepherding in the summer pastureland). The production system has nowadays a meat orientation (instead the wool), more intensive, with a lack of interest at improving or maintaining the productivity and composition of mountain pastures.

In León there are more than 300 units of a specific mountain pastures, known as “puertos de merinas”, historically devoted to transhumance uses, integrated on public and common lands. Recent studies show that the recession of Transhumance has an effect on these ecosystems. A half of their surface is now occupied by shrubs (Tecnosylva, 2005). In addition, there is a lack of control and a loss of ancestral knowledge of pastoralism in the “puertos”.

Besides, the agriculture sector and rural society in León has been deeply restructured in the last decades due to the adhesion of Spain to the EU and the application of the Common Agrarian Policy (CAP) with important changes on the land use and the industrialization of the activity (Modino, 2012). At the same time, a rural depopulation, really intense in mountain areas, has taken place.

The present study aims to understand and evaluate the current status of Transhumance in León, the changes that have occurred and present problematics, taking in consideration the whole context and the different dimensions which interact in this activity.

II – Materials and methods

The methodology used in this study has included two different phases. In the first one, heuristics, proceeded to search and collect information including: official and private documents, applied research, consulting experts on transhumance and pastures ecology, conducting 9 deep interviews with transhumance farmers and contacting the regional services of livestock and environment from the regional administration.

The second, hermeneutics, has analysed and evaluated all the information collected, to understand the context, the status and problematics that Transhumance has nowadays.

Social research techniques were chosen, given the fact that the different participants in transhumance, still present in León, could intervene and have an active role. Semi-structured interviews were applied, allowing collecting descriptive information of technological, social and cultural dimensions. At the same time, it allows to understand the context of this activity.

The heuristics phase has intended to perform an assessment of the management systems presented in León province through a multi-criteria approach. The evaluation model used is based on the methodology proposed by Gómez Sal (2001, 2013). Two different approaches were applied;

a) A sustainability assessment of the different transhumance systems based on the farmers' opinion, which is used to quantify the importance of the different problematics. That allows obtaining a comprehensive view of the status of each system evaluated.

b) The second is a theoretical model based on expert's criteria. It evaluates the different indicators (derived from above mentioned problematics) and compares three different livestock systems in the mountain pastures: (1) long transhumance movement, around 500 km length displacements from Extremadura, (2) short ones, known as "transterminancia", altitudinal movements within the province 100 km approx. and (3) cattle transhumance, about 100 km from pastures place on the North side of the "cordillera", near the coast, in the Atlantic zone. These actual transhumance systems were collated with 3 references scenarios; traditional self-sufficiency agriculture, conventional intensive agriculture and sound sustainable land use system (Gómez Sal and González García, 2007).

The evaluative dimensions selected were 5:

- Ecological dimension: Ecosystem assessment, it aims to determine the supporting capacity of ecosystems and their conservation value.
- Productive dimension: Evaluation of the production system. An evaluation of its efficacy (yield).
- Economic dimension: Profitability assessment.
- Cultural dimension: Documentation and valuation of heritage.
- Social dimension: Social functions. Indicators for human development.

The evaluative model focuses on the technological or production system, due to the fact that agroecosystem sustainability depends on a degree of the ecological integrity (the maintenance of ecosystem functionality) and on the ecological coherence (the appropriate connection between the production system and the ecosystem). The productive dimension is considered as a link between ecological and economic systems and it is where lies the essential ability to make the system sustainable. The social and cultural dimensions emerge from the interaction of the previous ones (Gómez Sal, 2013).

The main problems detected in the heuristics phase have been selected and summarised for evaluating the dimensions. They have been taken as indicators for the components of each dimension.

III – Results and discussion

Both sheep transhumance systems (long/latitudinal and short/altitudinal) have shown a high sustainability value in both ecological and productive dimensions (Fig. 1). The knowledge about the pasture ecosystems of these shepherds allows utilising and maintains the mountain pastures productivity and composition. However, these shepherds discern that the productive dimension is threatened, for example by the actual scarcity of expert shepherd and the intensification of some process. Additionally, "transterminant" farmers have to interact with other agriculture systems, utilising stubble of cereal land and agriculture gardens, being affected by agroecosystem degradation.

The long movements have increased their cost significantly because of the abandonment of walking displacements and the use of tracks. Also because of the raise of the land rent, both in mountain pastures and Southern Pasturelands, owing to beef outcompete and its better price on markets.

Furthermore, sheep transhumant systems contribute to made use and preserve a wide and important heritage, as the "cañadas" (transhumance drover roads). It is necessary to develop the economical profitability in both sheep systems, gaining independence from subventions

The social dimension obtains lower values in long displacements (Fig. 1), mainly due to the problems it has to satisfy present lifestyle conditions and expectations. The short movements offer a more sustainable way, compared with long transhumance displacements. The first ones are more adapted to current lifestyle, near home and family; the second unfortunately is nowadays a very de-structured profession that needs social support and recognition.

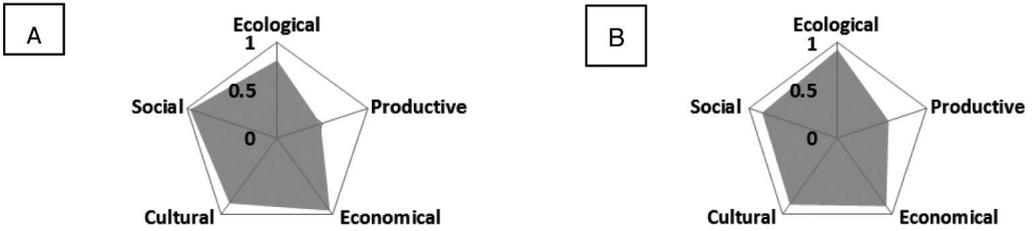


Fig. 1. Comparative schemes of sheep transhumance systems Multidimensional Evaluation of detected problematics based on Shepherds' opinion. A: Long Transhumance Movements, B: Short "Transterminant" Movements.

However, short movements just as much as long displacements are close to sound sustainable land uses system.

The beef cattle obtain lower values comparing to the sheep raising. These unsustainable results of cattle (Fig. 2) are explained because of its economical speculative aims, not linked with the natural resources of the area. This activity is not based on traditional knowledge, and does not care about the livestock management and the use of the natural resources of the mountain pastures or the development of new techniques. This system does not try to consolidate marketing lines or have a diversified production. It depends completely on the subsidies, which ensure the return of investment, and does not interact with the rural society of the mountain area. In many cases, the effect is the degradation of pastures in the "Puertos", as its productivity and composition.

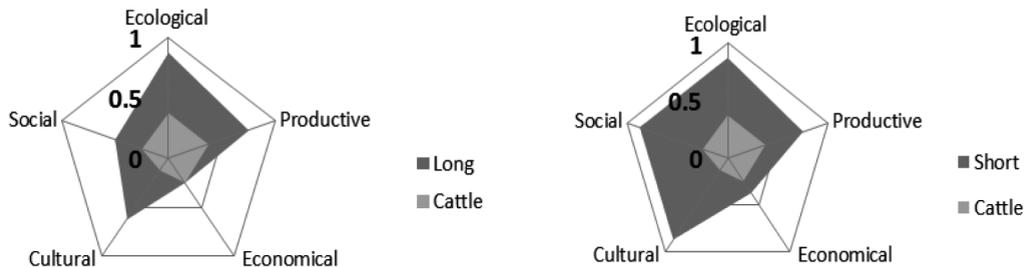


Fig. 2. Comparative schemes of Multidimensional Assessment of three transhumance systems sheep transhumance, "transterminance and cattle transhumance. Expert criteria assessment.

IV – Conclusions

Transhumance is an original production system, highly adapted to the characteristics of the territory and available resources in the province of León. The suffered recession has not affect Transhumance to adequate to new contexts. The shorts movements are an example, more flexible and adapted to current socio-cultural concerns and to the use of natural and new agricultural resources available in the region. This fact has shown a potential to promote a transition to more sustainable scenarios.

A new agent, whose effects were not sufficient evaluated in former studies, has appeared: the beef cattle short transhumant raising spreading with an unsustainable speculative model, which is degrading natural pastures. This system has also a negative impact and displaces the traditional sheep based Transhumance systems.

The mountain pastures have suffered an abandonment process, with serious changes in their ecological integrity and coherence. The Administration has had a role in this process promoting agrarian intensification policies, and not supporting sheep Transhumance in the region. The mountain society increases the lack of opportunities and the depopulation trend.

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