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Diachronic analysis of medieval livestock and present-day bullfighting livestock: effects on territorial structure in Cádiz province (Spain)

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1. INTRODUCTION

Livestock's relevance in the Cadiz territory productive structure since the late Middle Ages has been documented, when the leasing of pastures outlined a dividing line between agricultural and livestock uses, located respectively north and south of the Guadalete River and its main tributary, the Majaceite river. Subsequent agricultural expansion pointing south has substantially masked the geographical factors causing this clear distribution. Its analysis allows for the detection of locational patterns similar to the current distribution of bullfighting livestock enclosures in the countryside.

2. BACKGROUND

The cattle tradition in Cadiz has historical roots with a verifiable geographical correlate since the 15th century. The place names associated with livestock uses in the so-called "echos", cattle pasture concessions from the 15th century, are located on the line formed by the Guadalete and Majaceite rivers, which acts as a dividing line between agricultural uses, to the north, and livestock uses, to the south.

This productive structure is maintained nowadays, thus is not likely to be the result of a historical accident. Both Geography and History, interacting in the Late Middle Ages, explains the vineyard implantation in the Sherry albarizas soil, located northwest of that river line, while irrigated soils in the northeast are covered by cereal crops in which surroundings there are historical farmhouses agglomerated. Aligned to the south of this dividing line are grouped most of the cattle ranches, in coherence with the soils lower



agricultural capacity. The second echos agglomeration focus is in the Campo de Gibraltar, and the third is around the Janda lagoon.

History shows the complementarity of extensive livestock farming with other late-medieval productive sectors, such as agriculture, early modern industry, and bullfighting. Between Utrera and Cádiz there are pastures of exceptional quality and productivity, especially in the Guadalquivir-Guadalete interfluvium, lands of Eriteia where the legendary red oxen of Gerión, stolen by Hercules, grazed.

The emergence of modern bullfighting had its most probable place of origin on the Seville-Cádiz axis, and its main driver in the cattle business. Along with meat and leather production, the profits coming from wild cattle sales increase since 1401, when first bullfights in Seville are documented, and especially since the bullfights of 1661 in Cádiz, the most probably birthplace of bullfighting on foot. The popularity of this mass spectacle stimulated the price and selection of fighting cattle, which culminated in 1990 with the creation of an official genealogical registry by the Spanish Government Ministry of Agriculture.

3. OBJECTIVES, METHODOLOGY AND SOURCES

Having historical roots as a solid starting point, and having also available official data from the Andalusian Environmental Information Network, the Andalusian Institute of Statistics and Cartography, and the Agricultural Geographic Information System, the first objective is to achieve a rigorous spatial analysis to contribute to the knowledge of a unique case study, both in historical as in geographical point of view. In both aspects there are few precedents that relate livestock with the historical moment and the physical environment in which they develop, and even less on wild bull livestock.

The primary objective to the locational analysis is verifying the existence of geographical factors to explain the role of livestock in the productive structuring of the province since the 15th century, along with the survival of spatial patterns related to the current bullfight cattle enclosures. Last, not least, a second objective must allow to take into consideration the role of livestock in the necessary territorial reactivation agenda.

4. RESULTS

The spatial analysis developed with Geographic Information Systems (ArcGIS Pro) corroborates the specific advantages for medieval livestock, substantially coincident with those currently presented by the enclosures of bullfighting livestock agglomerated in La Janda.

Following an automated preliminary analysis of the physical environment available information, filtering those factors of the physical environment whose distribution presents a close correspondence with the presence of a greater number of echoes allows a detailed analysis to compare the 15th century cattle distribution and the current bullfighting livestock. Results confirm similar locational patterns, that is, geographical roots explaining both historical distributions.

There are eight relevant location factors. They can be grouped into three blocks, beginning with the capacity for agricultural use, with four factors: affiliation to certain agrological classes of the echoes; and distance from the echoes to vineyard lands north of Guadalete; to land of first-class agricultural quality; and to land currently under irrigation.

Second: agrological quality is also related to edaphology and potential vegetation, highlighting the preference for locating livestock on medium-low agrological quality soils, over Vertic Cambisols, Chromic Vertisols and Calcic Cambisols with Calcareous Regosols, where the wild olive grove of the countryside predominates; followed by the humid and hyper-humid cork oak grove in the Aljibe mountain range.

Finally, orography and hydrology also allow us to categorize the livestock vocation of the territory, detecting a preference for locations close to river courses with moderate and steep slopes, reserving the flatter lands for agriculture and the steeper rocks for sheep and goat farming.



5. CONCLUSION

In the Cádiz countryside there are two well-differentiated sectors whose limit is marked by the Guadalete and Majaceite rivers. In the north side, agriculture and settlement have been eased by soils of higher agricultural quality and an attenuated easterly wind. In the south side, the strong Levante wind and clay soils, hardly conducive to agriculture, have discouraged dense population settlement.

This division has shaped two complementary uses distribution, agriculture and livestock; its conjunction with forests arises the strong tanning industry, still remain today. South of Guadalete, 15th century cattle ranch became an adaptation of a social structure of a chivalrous character to a physical environment and a historical, border moment, advantageous for this activity.

Once the link between agriculture and livestock has been broken by 20th century mechanization and fertilizers, agricultural intensification has been occupying the former existing livestock lands on its periphery, reducing extensive livestock farming distribution to those lands with lower agricultural yield. This process has been partly slowed down by the survival of fighting cattle, notably concentrated in the region of La Janda and its surroundings, where a large number of pastures of wild cattle remains.

The physical environment spatial analysis allows us to split the territorial components found in the enclosures currently associated with bullfighting livestock, and compare them with the locational preferences manifested in the pastures of the 15th century, the echos. There are substantial coincidences in geomorphology, slope, edaphology, agricultural capacity and potential vegetation series.

Achieved the main objective, is time to remember this is nothing but a prerequisite for the second objective, the one really relevant to practical purposes: to contribute to an adequate valuation of the historical-cultural heritage of the territory, which is a key factor in territorial reactivation.

Given that locational advantages for certain activities are closely related to the cultural roots of the population in its territory, by identifying the geographical factors imbricated in the historical structuring of the productive fabric is more likely to properly assess the cultural heritage, thus contributing to increasing the territorial resilience.

The productive structuring and the survival of livestock in the Cadiz province southern countryside have favored the preservation of its natural values and related historical-cultural heritage. From a territorial point of view, the relevance of livestock cultural heritage is as unarguable as it is complex and difficult to define because of three linked aspects: its multidimensional profile (cultural, economic, functional, social, commercial); the variable intensity of the relationships between each of the elements of the territory and the built heritage assets; and due to the singularity of the actions that can be carried out by the different farms and their surroundings, in the public or private domain.

A holistic approach should take into account the enhancement of the province's livestock resources in its geographical context, which is located in a complex rural and coastal area. In accordance to various authors statements in terms of tourist experience and heritage tourism management, the Janda region needing may be summarized in the attached scheme we suggest for the analysis of the cultural heritage of livestock tourist viability.

The seasonal "sun and sand" mass tourism pauperized tertiary sector in Cádiz, which, however, has quality territorial resources as to prevent that issue. The extensive livestock farming may complement tourist activities, as it uses to complement agriculture in the past. Special remarks deserve the andalusian equine cattle as a support of activities related to bovine cattle. Both allows to diversify spatially and seasonally the tourist offer, acting in territory custody against the expansion of urbanization in rural areas.

In conclusion, the coevolution of livestock and landscape in southern Cadiz countryside has created an exceptional natural and historical-cultural heritage, hallmarks to be preserved as a fundamental asset in the necessary territorial reactivation.