

Transhumance in Gran Canaria: Cultural Heritage and Territory

La trashumancia en Gran Canaria: patrimonio cultural y territorio

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Abstract

Transhumance is a territorial management model based on an adaptive learning process demonstrated in the ecological knowledge accumulated by transhumant shepherds over generations, shaping landscapes of high heritage value. The aim of our study is to provide an overview of the current state of transhumance in Gran Canaria, also drawing on its historical evolution. This research employs a methodology that combines historical and geographical analysis, including in-depth interviews with the last 23 transhumant shepherds on the island, and the representation of territorial outcomes using Geographic Information Systems (GIS). Through this work, for the first time in the scientific field, specific data contributions regarding the current reality of this activity in Gran Canaria are made. It is concluded that transhumance is at great risk of disappearing on the island, although the practice of transhumant herding generates numerous ecological, economic, and social advantages.

Keywords: Transhumance, Pastoral System, Gran Canaria, Landscape, Heritage, Sustainability.

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Resumen

La trashumancia es un modelo de gestión territorial basado en un proceso de aprendizaje adaptativo que se muestra en el conocimiento ecológico acumulado por los ganaderos trashumantes durante generaciones y que configura unos paisajes de altísimo valor patrimonial. El objetivo de nuestro estudio es realizar una radiografía del estado actual de la trashumancia en Gran Canaria, apoyándonos además en su devenir histórico. Esta investigación emplea una metodología que combina el análisis histórico y geográfico y que incluye entrevistas en profundidad a los 23 últimos pastores trashumantes de la isla y la representación de los resultados territoriales mediante el uso de un Sistema de Información Geográfica. Mediante este trabajo se llega, por primera vez en el ámbito científico, al aporte de datos concretos de la realidad actual de esta actividad en Gran Canaria. Se concluye que la trashumancia sufre gran peligro de desaparición en la isla, aunque la práctica del pastoreo trashumante genera numerosas ventajas ecológicas, económicas y sociales.

Palabras clave: Trashumancia, sistema pastoril, Gran Canaria, paisaje, patrimonio, sostenibilidad.

1. INTRODUCTION. BRINGING THE ISLAND AND MOUNTAINS TOGETHER

Since December 6, 2023, transhumance in Spain has been considered Intangible Cultural Heritage of Humanity by the United Nations Educational, Scientific and Cultural Organization (UNESCO). For generations, 125,000 km of livestock routes have been traced in the Spanish territory from the 13th century to the present day, shaping a natural and cultural landscape of extremely high heritage value. Transhumance is an extensive grazing system that involves the movement of livestock throughout the year between two regions to take advantage of fresh pastures, resulting from the different climates and microclimates produced by the presence of mountains or other natural elements. These movements between pastures cover a distance of approximately 200 km or more. Movements below this figure are considered typical of translocation, a type of mobile grazing between closer locations that does not imply the total disconnection of herders from their place of origin during part of the year.

This livestock model thus constitutes a clear example of the evolution of a social system that adapts to climate and territory conditions through a process of adaptive learning over many generations, as evidenced by the ecological knowledge accumulated by transhumant herders (HEVIA y GONZÁLEZ, 2017). The interaction between humans and nature has given rise to the so-called transhumance landscapes, defined by HERZOG *et al.* (2005) as cultural landscapes sculpted over centuries by transhumant pastoral activity through the adaptation of livestock practices to an extremely fluctuating environment.

In the Canary Islands, a territory of small islands, this ecological and cultural management of the territory is known as “*mudá*”, as the shepherds call it. It is one of the few activities that has a historical traceability of at least 2000 years in the islands. Seeking suitable ecological conditions for the development of this livestock practice in continental spaces entails travelling hundreds of kilometres.

In the islands, those same conditions are found within just a few dozen kilometres, which speaks to the diversity and richness of our landscapes and leads to defining transhumance based on territorial scale. The Canary Islands are mountainous, and together with the special bioclimatic conditions that characterize them, they represent the best scenario of ecological diversity that this traditional practice needs and exploits. Probably, horizontal and vertical movements of livestock were carried out on all the islands, although they predominated on the higher ones. Currently, “*mudá*” is only carried out in the archipelago on the island of Gran Canaria, and there are very few remaining transhumant herders in search of the green spring.

From the transversality of its historical journey, transhumance in Gran Canaria is one of the oldest activities of intangible heritage in the Canary Islands. Its landscapes have generated notable benefits throughout history of enormous importance for the ecological and food well-being of the island. Transhumance has contributed to making Gran Canaria an island with a high potential for biodiversity, with 43% of its surface under some form of protection. Transhumant uses have diversified this natural wealth, originating specific historical ecosystems (such as meadows, farmhouses, grasslands, etc.) and livestock breeds adapted to resist local conditions and face changes, giving rise to these processes of adaptability to what we now know as native breeds.

The persistence of transhumance in Gran Canaria for more than two millennia is one of the most evident proofs of its validity as a productive system compatible with the natural system. Hence, the accumulated ecological-social knowledge is very valuable, and its conservation is essential. But we must not forget that we are talking about an island with a land area of just 1,560 km², highly affected today by the pressure exerted on its soil by urban activities and natural protection, two phenomena that strain livestock activity. As a consequence, this practice has been decreasing at an accelerated rate since the beginning of the 21st century. The traditional land use system has become polarised, and along with new economic strategies and agricultural intensification, mountain areas face challenges related to land abandonment and population aging. As a result, landscapes, biodiversity, and cultural heritage related to transhumant grazing are threatened (NORDERHAUG *et al.*, 1999; RENDU, 2006).

How has the livestock landscape on the island been constructed? How many transhumant shepherds are there? How many animals are engaged in transhumance? How many hectares of pastures remain? How many kilometres of livestock routes persist? What awaits this activity in the near future?... This study seeks to answer these questions. The main objective, therefore, is to provide an overview of the current state of transhumance in Gran Canaria.

2. STATE OF THE ART

There are many ways to approach the analysis of transhumant landscapes, to understand the reasons behind their emergence. This field of study has been

addressed by a long tradition of research. Perspectives from history, law, and veterinary science have dominated most of the studies and approaches (DANTÍN, 1940; GARCÍA y SÁNCHEZ, 1986; MANGAS, 1992; MANZANO, 2020; MANZANO y CASAS, 2010; MARTÍN, 2003; MINISTERIO DE MEDIO AMBIENTE, MEDIO RURAL Y MARINO (MARM), 2011; RODRÍGUEZ, 2001; RUIZ y RUIZ, 1986).

In recent decades, new approaches have been documented from geography, economics, ecology, or the study of natural and cultural heritage (ANTÓN, 2003; GARCÍA-RUIZ y LASANTA, 1992). Their maintenance is necessary for the preservation of habitats of high ecological value (BUNCE *et al.*, 2004b), paradigms for sustainable landscape use (OLEA y SAN MIGUEL, 2006). The role of cattle routes as ecological corridors has been demonstrated (MANZANO y MALO, 2006), and extensive livestock production provides indirect economic services that far exceed the monetary income they generate (CASAS y MANZANO, 2007). Furthermore, the value of pastures as carbon sinks adds interest to these systems in the fight against climate change (TENNIGKEIT y WILKES, 2008). A high sustainable production system of this kind is particularly attractive in a global society facing the challenge of seeking sustainable production and consumption systems (LEBEK y LOREK, 2008). Mountain landscapes are among the most valued in terms of aesthetic enjoyment, opportunities for leisure tourism activities (ZODERER *et al.*, 2016; ANTÓN, 2007), and maintain a close connection with cultural landscapes and biodiversity (BUNCE *et al.*, 2004; PALAZÓN, 2016; VENEGAS *et al.*, 2021).

Research on this topic in the Canary Islands is very scarce in terms of scientific research. Journalistic and popular pieces outnumber academic material. There is much to analyse and write about. At a general level, very recent contributions on the characteristics and legacy of transhumance and pastoralism in the Canary Islands stand out, such as those of CANO y PÉREZ (2022), as coordinators, and SABATÉ (2021) on transhumance as a territorial articulation element in the archipelago.

For Gran Canaria, undoubtedly, the works of RODRÍGUEZ PÉREZ-GALDÓS (1985 and 1993) offer us the best radiography of the pastoral world in Gran Canaria in the 20th century and, therefore, of transhumance on the island. Reading his work is essential, as he pioneers in the scientific rescue of the shepherd community in the field.

Also notable are the contributions of SUÁREZ MORENO (1997, 2004, 2008, 2019), who unravels the livestock territory of western Gran Canaria with great meticulousness in the treatment of data. An impressive historiographical work that sets the path for the study of these issues in the rest of the municipalities on the island.

For the study of the agro-livestock landscapes of the humid midlands of the north that occupy part of the municipalities of Gáldar, Santa María de Guía de Gran Canaria, and Moya, the land of the sheep, the works of ESTÉVEZ (2004), MELIÁN AGUIAR (2004), and AGUIAR CASTELLANO (2003, 2004) are paramount. This landscape is spatially organized into farmhouses, meadows, and settlements – a pastoral system built over hundreds of years.

Additionally, in 2007, a first and exhaustive analysis of transhumant grazing through cattle routes was carried out for the Recovery and Management Plan

of the Cattle Routes of Gran Canaria, prepared by AIDER GRAN CANARIA in collaboration with the Island Council.

More recently, two works have emerged that, from the perspective of dissemination and photography, immerse us in the world of transhumance in Gran Canaria, highlighting its protagonists and landscapes (MILLARES y GONÇALVES, 2013; GIL, 2019).

Our study aims to update the importance of transhumance on the island by providing, for the first time, a series of data that have been missing in existing works until now, providing a closer and – we believe – more accurate dimension to the analysis of this economic, social, and territorial phenomenon.

3. SOURCES AND METHODOLOGY

The historical and geographical study of transhumance in Gran Canaria required the combination of primary and secondary sources. The first were vital to understand the reality of transhumant shepherds and their mobility across the territory. In this regard, 31 semi-structured interviews were conducted, covering all shepherds who currently engage in this activity, totalling 23, thus allowing an understanding of the phenomenon from the memory and voice of the true protagonists of this world.

The extensive interviews were structured into five blocks of questions. The first focused on the interviewee's experience as a shepherd, with questions such as from whom they had learned the trade, how long they have been practicing, the continuity of their work, and its complementarity with other activities.

The second block aimed to delve deeper into the agricultural exploitation, its characteristics, functioning, and cultural aspects. It was important to know the number and type of animals, the exploitation regime, the relationship with the owners, the destination and mode of sale of the produce, the agricultural tasks carried out throughout the year, and the traditional material artifacts used or made in connection with the exploitation, among other issues.

The third block focused on the study of the transhumant calendar and the way shepherds and their families organize themselves. In this case, it was fundamental to understand the movements the shepherds make with the livestock throughout the year and their relationship with climate, productive, and family factors, among others. It was also of great interest to analyse the shepherds' way of life, as well as to understand what goods are used for the transfers, how they organize the necessities of shelter and food, the level of collaboration maintained with other shepherds, or how they balance the activity with family life.

In the following block, questions focused on understanding the territorial dimension of transhumance, gathering information about routes, water sources, and pastures, among other aspects. The last block of questions was dedicated to analysing the future of the activity and studying the measures that could be taken to assist the shepherds and ensure the survival of the activity.

The interviews were semi-structured, with a certain level of personalization

depending on the interviewee and the way in which they were conducted. Most of the interviews took place at the interviewees' homes or during the time of work. The responses were recorded and transcribed.

In addition to interviews, the other basic primary source was direct and participatory observation of the activity, for which extensive fieldwork was carried out, often accompanying the shepherds when performing their tasks. This facilitated identifying the main pastures on the ground and making precise traces of the cattle routes.

Among the secondary information sources used, it is important to highlight the systematic consultation of historical documentary sources in various archives. In the Provincial Historical Archive of Las Palmas, six notary documents from the 16th century (1576, 1578, 1587, 1591, 1593, 1598), 19 from the 17th century (1606, 1609, 1610, 1611, 1613, 1617, 1618, 1632, 1634, 1650, 1653, 1657, 1673, 1675, 1683, 1691, 1694, 1696, 1697), and three from the 18th century (1703, 1710, 1743) were consulted. Also, in this archive, 17 files of judicial proceedings from the Royal Court and a file from the convents section were accessed. Lastly, in the Parish Archive of Agüimes – a town in the east of Gran Canaria, a file (1559) was consulted. The documentary information allowed reconstructing the transhumant activity from a historical perspective and highlighting its cultural and heritage aspects.

Finally, among the secondary sources, it is important to note the use of digital information provided by SIGPAC Canarias (Geographic Information System for Agricultural Plots of Land) for plots of land, a tool that details the crop map, which, together with the primary information obtained from the shepherds, allowed the localization of pastures and routes.

The methodology of the research process included, firstly, the historical analysis of documentary information, which involved locating and reading files, and extracting data. Secondly, the textual treatment of the surveys, which entailed a process of categorization and coding of discourses in an inductive manner, without pre-existing categories prior to transcription, conducted in several coding phases based on the diversity of information and allowing for the establishment of links between categories. Lastly, the geographical study of the data, which involved the digitization of transhumance routes and pastures in a GIS, based on the testimony of interviewees, participatory fieldwork, and reference bibliographic documents, all aimed at recovering the spatial-temporal expression of the activity.

4. RESULTS

The analysis of the data collected through preliminary studies, historical sources, interviews with shepherds, and cartographic work allows us, in general terms, to have a very approximate vision of the past and current reality of the transhumant practice in Gran Canaria. The main characteristics of transhumance are contextualised and enumerated from a historical perspective below.

4.1. Transhumance in Gran Canaria: a living activity with geographical-historical traceability

Legitimising the geographical-historical traceability of transhumant pastoralism in Gran Canaria is feasible. The shaping of the Gran Canarian livestock space (physical and cultural), from pre-European occupation to the present day, is sufficiently documented by Canarian historiography and by the evident presence of livestock farmers and their pastures in the current society and landscape of the island. This conformation is a process (time and space) of continuity and adaptive change, but which does not cause an interruption in the historical traceability of the data. Pastoralist society is communal, they need each other, and although it is a world that is sometimes closed or not very permeable, it relies on the figure of the transmitter. Shepherds need to become trainers in management techniques, not only for their herds but also for the island territory. Their degree of knowledge of the agro-biological functioning of the island and their adaptive capacity has led them to be present and to manage island territory, from the ancient Canarians to the present day (SANTANA, 1996).

This will be followed by a historical tour of the activity in order to document its background in relation with the practice of transhumance and to reaffirm the crosscutting nature of the activity from its beginnings to the present day.

4.1.1. Transhumance in pre-Hispanic times and during the Modern Era

Reconstructing the way of life and social relationships of the first inhabitants involves delving into their strategies aimed at maintaining biological status and their social reality (RODRÍGUEZ *et al.*, 2011: 102). These first settlers attempted to transfer to this island the productive modes practiced in their places of origin, adapting products and production strategies to the biogeographic singularities of Gran Canaria, where cereal agriculture and minor livestock constituted the base of their economy (VELASCO, 2018).

This population was unevenly distributed across the territory. A notable number of settlements occupied the ravines, the midlands, certain summit areas, and part of the coastal strip. In the island, cultivated fields proliferated, taking advantage of the flatter spaces where they sowed barley, wheat, beans, and lentils or planted fig trees, simultaneously combined with goats, sheep, and pigs. And in others, there was a more dispersed settlement in population clusters, the realm of goats, with much less space for crops (VELASCO, 2018).

The livestock practice was based on three types of exploitation: domestic livestock (goats, sheep, and pigs); semi-domestic or semi-wild livestock (mainly goats and pigs) and wild livestock (especially goats). Following this scheme, goats primarily, and sheep and pigs to a lesser extent, became fundamental animals and, along with the Canarian shepherds, designed and created paths. These were the ones that opened the first transhumant routes.

The new agricultural and livestock exploitation forms after the Castilian

conquest broke with those established until then by the pre-Hispanic society settled in the Archipelago. In the Modern Age, agricultural and livestock income was a factor of special relevance within European economic systems, making the land the central means of production and the main structuring asset of the socio-economic relations system, both to elucidate its form of appropriation and to obtain the maximum fraction of its surpluses. Within the primary sector, the livestock subsector became one of the most solid economic benchmarks during the studied period since it not only had to supply the population with meat, milk, cheese, leather, or wool, but its development depended on land transport of passengers and goods or the animal traction necessary for fieldwork.

Livestock was a fixed capital of special relevance within the productive structure of the Modern Age, representing in mountainous areas, sparsely populated zones, and areas close to extensive markets, a considerable source of income and even high profitability depending on the fluctuating prices of each product. The intrinsic value of the livestock and its production became significant for the agrarian society of the time, becoming a substantial fraction of the peasant's capital and also an important source of income.

In Gran Canaria, the pressing need for supplies of meat, cheese, leather, or wool and the increasingly urgent interest of the local authorities to solve this important aspect of daily life led the councillors at the end of the 15th century to demand their own legislation to be able to fence in and create the necessary commons for livestock grazing. In this way, the first landscapes linked to this activity began to be shaped. These lands would go on to increase the Council's funds, granting on February 20, 1495, to Governor Alonso Fajardo a royal decree that empowered him to reform the misdeeds and abuses perpetrated by Pedro de Vera during his mandate, in addition to favouring the island by first setting aside what is necessary for lands and meadows for the Council, and for common grazing (CULLEN DEL CASTILLO, 1995: 132). Based on the aforementioned legislation, the ordinances of 1531 recorded the public grazing lands on the island, located in Tafira, Tamaraceite, Tasaute-Vega Vieja-Vegueta de Porrás, Tasautejo, and Gamonal, all of them destined for livestock involved in agricultural labour or transport, not allowing the grazing of goats, sheep, and pigs.

In the 18th century, most of these grazing lands had disappeared after years of usurpations or by their distribution among the neighbours for breadmaking or urbanization, with only the Tamaraceite, Tamaragáldar, Arucas, and Pico de Viento remaining as Council meadows – a total of 1,764 “fanegas” of land (1 fanega generally equals 0.55 ha, although this may change depending on the location) used for grazing (SUÁREZ, 1987). The Island Council auctioned the meadows in public auctions, receiving low incomes from them.

The regularisation of livestock farming was supported by the Council ordinances of each island, such as those established by the Council of Gran Canaria in 1531, which placed special emphasis on livestock farming and the supply of its products to the population – an aspect that was widely echoed in the daily life of local politics. Transhumance was regulated by the aforementioned ordinances and the Mesta councils themselves, proposed by the Town Council

or, in the case of the Lordship of Agüimes, by the territorial lord, whose members were responsible for solving the problems that arose between shepherds, between shepherds and farmers or those generated by daily transhumance. The obligation and control of livestock branding, fines for not complying with the rules established by the specific ordinances or the inspection of leather, especially that destined for export, were the tasks of these livestock councils (AZNAR, 1992). In Gran Canaria, the presence of Mesta mayors, in charge of resolving conflicts between livestock farmers and their representatives before the authorities, is documented in Agüimes during the first half of the Modern period, although during the first decades of the 500s the island's Council also maintained the so-called livestock mayors, whose task was to separate infected livestock in general epizootics or, if it was an isolated case of disease, the heads of cattle infected, in addition to settling disputes arising between the members of the island's Mesta (MORALES, 1978).

Cheese production was an incentive for livestock farming, as the yields per input could, if the situation was favourable, generate a significant surplus. In some regions, such as Agüimes, this subsector absorbed a part of the low-skilled labour force with little income in the summit areas, located in places near the large grazing areas such as Pajonales, Areñul, Los Corrales, El Granillar, Camacho, La Pasadilla or Lomo Guaniles, where over the course of time new population centres emerged (Lomo Trejo, La Pasadilla, El Roque, or Los Corralillos) or others with a historical tradition such as Temisas were strengthened.

The weight of the livestock subsector in each region, jurisdiction or place in Gran Canaria had its own peculiarities, evolution and differentiated function, which in some cases fluctuated during Modernity. The number and type of livestock in Gran Canaria varied according to the economic function of each area, the characteristics of the demand, the geomorphological-climatic peculiarities, the development of the productive forces, the functions carried out in that jurisdiction and the communications network. In the port areas and the most important population centres, the weight of the equine herd was notable and, to a lesser extent, that of small livestock, such as pigs and goats, as well as farmyard animals such as pigeons, hens and rabbits. In the midland areas of the island, the space set aside for agriculture boosted the presence of cattle during a large part of the Modern period, before the presence of equines began to increase through the use of mules and donkeys. In this area, the predominant small livestock was stabled.

In the highland areas of the island - mostly sparsely populated with low agricultural yields, vast spaces owned by the powerful group, and the proliferation of grazing rights, meant that the weight of the smaller livestock was absolute. In the highlands of the north and northwest, where the terrain tended to be rugged but not very uneven, there was an abundance of pasture and numerous water troughs, with sheep predominating among the herds. In the leeward regions - Tejeda, Agüimes, or Tirajana - and in the coast where areas with less than 500 mm of annual precipitation were abundant, average annual temperatures exceeded 20°C, with xerophytic vegetation and rugged terrain, the presence of goats was omnipotent.

This broad division was nuanced in any of these areas when the herds were examined closely due to numerous particularities, as was the case, for example, with the livestock of the Lordship of Agüimes where private lands and communal plots of neighbouring valleys limited the movement of the herds and forced their confinement or concentration in certain grazing areas. Or, the case of the coastal areas where small livestock in extensive and transhumant exploitation was abundant, and where it was common for communal cereal valleys to be guarded by watchmen whose work was remunerated with a share of the common cereal.

The list in Table 1 shows some of the land used for permanent or temporary grazing of livestock. In some cases, these areas were only accessible to small livestock, large livestock or certain types of livestock, such as mares or camels. Not all of them were used at the same time, as areas that were part of the Council's own property – such as Vegueta de Porras or Vega Vieja – disappeared at the beginning of the 16th century, while many areas were created at the end of the 17th century. Alongside the Council's properties governed by the ordinances, watched over and used by livestock farmers, peasants or loggers, there were the communal pastures where the livestock of neighbours was fed, as in the case of those registered in Agüimes, where there were livestock controlled by shepherds and stone enclosures (“guaniles”).

Table 1
Types of pastoral space in Gran Canaria in the Modern Age (1500-1800)

Council meadows	Livestock areas	Communal grazing
Tafira	<i>Agüimes-Tirajana:</i> Veneguera	<i>Agüimes-Tirajana:</i> Lomo Caballo
Tamaraceite	Pajonales	Roque Aguyaro
Tamaragáldar	Llanos del Polvo	Jable de Arinaga
Pico Viento (Gáldar)	Majada Ciega	Costa de Gando
Arucas	Vega de Sardina	Amurga
Tasaute-Vegueta de Porras-Vega-Vieja	<i>La Aldea:</i> Barranco La Aldea	Balos Ravine
Monte Lentiscal	Montañas	Los Roques
Gamonal de Santa Brígida	Tazartico	El Pajonal
	Los Molinos	Vega Castaña
	<i>Gáldar:</i> Los Picachos	El Peladero
	Las Arenas	Ana de León
	Artevirgua	Pozo Izquierdo
	Facarcas-Facaracas	Las Vacas
		Palmital
		Areñul
		Los Corrales
		El Granadillar
		Camacho
		La Pasadilla
		Lomo Guaniles
		Juan Grande
		Maspalomas
		Arguineguín
		Barranco de Tirajana
		La Vega
		Beliandra

Grazing	Pastoral farmhouses	
<p><i>Agüimes:</i> Miraflor</p> <p>From Colonel Pedro Huesterlin</p> <p><i>Agaete:</i> Tamadaba</p> <p><i>Moya:</i> Lomo Blanco</p> <p><i>Telde:</i> Madrid Los Corrales, en Montaña de Ávila</p>	<p><i>Agaete:</i> Palmar de Tirma Visvique Guayedra</p> <p><i>Agüimes:</i> Pajonales</p> <p><i>Guía-Gáldar:</i> Del Poleo Caideros Buenvista Sidron Verdejo Trior San Isidro</p>	
<p>Gallegos Cuevas Blancas Los Rodríguez Sardina Gamonal Los Espinos Falcones</p> <p><i>Tirajana:</i> Lomo de En Medio, Llano del Tonelero and Filipinas</p>	<p>Vergara Bascamao Fagajesto Palmital Nuevo Palmital Viejo El Lomo</p> <p><i>Moya:</i> Fontanales Pajaritos</p> <p><i>Telde:</i> Guinea Botija</p>	

Source: Provincial Historical Archive of Las Palmas. Collection of Notary protocols and Royal Hearings. Prepared by the authors.

4.1.2. Transhumance in the 20th century

After the first three decades of the 20th century, the cycle of the Civil War and the Second World War (1936-1945) arrived, accompanied by periods of dry years. At that time, a severe crisis arose, bringing hunger and scarcity of vital resources. The island suffered greatly, and the livestock even more. The situation relatively normalised, and export agriculture and livestock recovered after 1946. Although other droughts followed (1963-1966 and 1974-1979) during the 1950s and 1960s, Gran Canaria hosted the largest livestock burden in its history. Grazing and its landscapes (farmhouses and pastures) stood out in the island's territory.

It is essential here to mention the work of RODRÍGUEZ PÉREZ-GALDÓS (1985b), who carried out an exhaustive research of herding in Gran Canaria as part of a research project entitled "Desertification and Herding". He documented 184 shepherds on the island, analysing the geographical framework in which they carried out their activity, the historical development of herding on the island, the production bases and associated behaviours, and the territorial and family

structure of subsistence pastoralism on the island of Gran Canaria (RODRÍGUEZ PÉREZ-GALDÓS, 1985a).

TRADITIONALLY in Gran Canaria, for environmental reasons, sheep and goat herds could not exceed 500 heads without resorting to stabling. There is a direct relationship between the number of livestock and the availability of family labour. The most common type of herd on the island in those years was that of goats, followed by sheep, the mixed herd of sheep and goats, and the least frequent, that of sheep and cows. They were all primarily composed of females, since the main exploitation was dairy. Sheep were more profitable than goats, so whenever a shepherd could choose, they preferred sheep over goats. Managing a herd in the traditional way (i.e. without stabling) was profitable through cheese production and some meat only if the livestock feed could be obtained at an extremely low price.

The herds moved on foot, led by their shepherds. They lived and spent most of the year (8-9 months) in areas where the animals could eat and drink normally (in the highlands and midlands). In times of scarcity, the shepherds went to lands with secondary pastures rented for short periods because, due to their limited extent or low quality, they had a low carrying capacity and could not accommodate herds continuously.

On the island, both cultivation and pasture areas were small and highly fragmented – due to their physical layout and land ownership structure, except in the driest and least productive areas of the south and west. To make the best use of the available resources in Gran Canaria, the shepherds, before planning the route for the corresponding year, reviewed the state of the pastures they knew and gathered information from relatives and friends about potentially useful areas elsewhere. Grazing at the end of the 20th century was already a marginal mode of production. Among other reasons, due to the serious limitations imposed by the natural environment in much of the island – very steep slopes and aridity. Goats adapted better to these situations. Sheep were more demanding, needing flatter lands, better roads, and grass at ground level.

RODRÍGUEZ PÉREZ-GALDÓS (1985a) listed the following pastoral areas:

- North, where sheep were reared, sometimes complemented with cows or stabled goats. It was also common to practice small-scale forage cultivation. There was a form of collective transhumance exclusive to this area of the island, involving gathering several smaller flocks to make the operation more profitable.

- East. It included a fairly flat coastal area with large plots of land where monoculture agriculture for export was practiced. The flocks tended to be mixed – goats and sheep. The profitability of the livestock operation was low, and the shepherds combined the activity with sharecropping. Additionally, on the eastern side of the island, there was also the area of the high basins, richer in pastures, water, and caves that could be used as dwellings. Shepherds would settle in the area adjacent to Caldera de Los Marteles. They typically spent summers in the highlands and winters on the coasts. The movements were regular, and the places were repeated with some variations year after year.

- South. In this arid, warm, and resource-poor area from an agricultural and

livestock perspective, sheep and cows disappeared, and only goats were present. The operations were larger, and the regime of sharecropping was widespread.

- West. This area was as dry as the southern part of the island, but very steep and poorly communicated. Pastures were scarce, so goats were reared, although there were some sheep stabled at some point in Valle de La Aldea. Therefore, cliffside grazing prevailed, risky both for the shepherd and the livestock, yielding even less benefit. It was more of a subsistence activity. The goats roamed alone through the cliffs looking for food, and the shepherd would gather them every three days to milk them during the milking season.

- Summits. Corresponding to the area between 1,200 and 1,900 m altitude. Until the 1950s, it was the richest area in pastures on the island, with abundant mountain legumes. Later, reforestation of pine trees completely changed the landscape. The herds lost access to the peaks. The animals ate the small pines, the new shoots, and the tender leaves, but once the pine forest stabilized, the pine needles did not allow an underbrush that could feed the livestock to grow. The most common were mixed herds of sheep and goats. Formerly, it was sheep territory. Traditionally, the peaks were divided into farmhouses, belonging to absentee owners, some of whom were expropriated for reforestation.

Documentary sources allow defining the farmhouses as a type of agro-livestock exploitation, most often typical of the midlands (north and south) and highlands of Gran Canaria. It is characterised by extensive land use, with a predominance of dryland cereals, although its main feature was the importance of livestock activity. The farmhouses took advantage of the manure from the flocks for planting, while grass production was increased thanks to the ploughing of the cereal lands. Also, herding the flocks conducted in rotation allowed better economization of the pasture available at each time of the year. As a result of this land exploitation system, the farmhouses gave rise to a characteristic agrarian landscape shaped by grazing and dryland cereal cultivation (NÚÑEZ, 2018).

These properties, especially those located in the mid-north-northwest of the island, stand out for their long-standing presence in the landscape, without the social change processes that mark contemporary times having disrupted their traditional operating model. Today, many of the farmhouses are a landscape resource, included within the network of Natural Spaces of the Canary Islands or the Natura 2000 Network, as some of them were acquired by the Gran Canaria Island Council to ensure their protection and initiate their reforestation. However, until recent times, they were true agricultural and livestock operations that were only abandoned from the 1970s onwards. Therefore, it can be said that many grasslands or farmhouses have been absorbed by the new territorial logic with the administrative designation of natural spaces, although in reality, they are true cultural landscapes, socially constructed by the communities that inhabited them and exploited their resources (NÚÑEZ, 2018).

AGUIAR CASTELLANO, in 2004, accounted for 21 farmhouses in the northwest of the island (see Fig. 1): Galeote, La Herradura, Artazo, Las Mesas, Pavoncillo, San Martín, del Caballo, de Castillejos, de las Montañetas, Buenaventura y Cherinos, Fagagesto, Palominos, La Solapilla, La Hoya de la Vega, Agazal, del

Poleo, Saucillo, Pavón, Tamadaba, Artacillo, del Palmito, and del Lomito. This undoubtedly demonstrates the strong territorial and temporal connection existing between the territory and the shepherds.

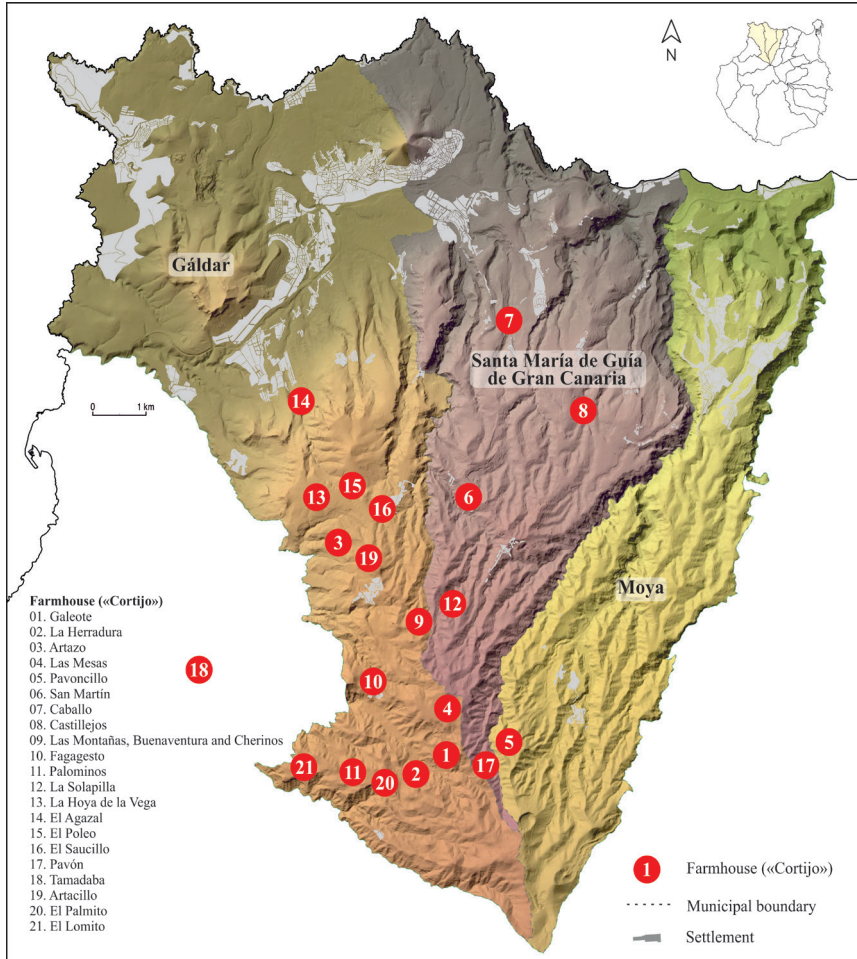


Figure 1. Livestock farms in the northwest of Gran Canaria. Source: AGUIAR CASTELLANO (2004). Own elaboration.

The study of the livestock world of Gran Canaria in the first two decades of the 21st century is marked by the progressive abandonment of the activity. The tremendous territorial pressure that for many decades other economic activities have exerted – and continue to exert – occupying the coast, the lower midlands, and the summit sectors, severely limits the pastoral space. In the following section, we will present the current state of transhumance on the island (Fig. 2).

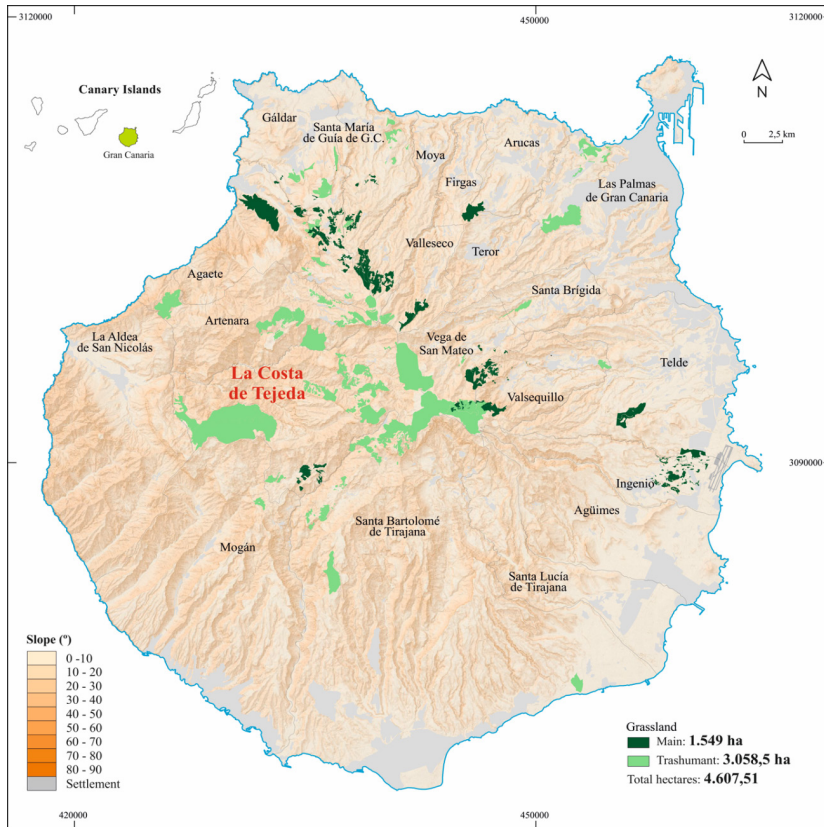


Figure 2. Area of main and transhumant pastures managed by pastoralists. Source: MORENO-MEDINA *et al.* (2021). Cartographic base: Grafcan. Own elaboration.

4.2. Insights on the current state of transhumance in Gran Canaria

The traditional rural world of Gran Canaria still harbours people who, to the eyes of the general population, seem invisible, but who manage the balance of the island's ecological cycles, searching for and providing food. They are sages of the land, a potential that cannot be overlooked for the green future so many aspire to. At the beginning of this century, there were about 50 shepherds in Gran Canaria who practiced transhumance; today only 19 continue this activity (although we have gathered information of 23 protagonists).

This small universe is made up of both men and women, with only five of the current 19 transhumant shepherds being single. Women have an extremely high level of participation in shepherding tasks. Even though the transhumant routes and stays in the high pastures are usually carried out by men, women never stop working in the realm of the family home. There, they take care of all agricultural activities, stabled livestock, cheese making, purchases and sales, and carry out

logistic support activities for the shepherd while he is away from home (they bring him food, clean clothes, collect the milk, etc.). In addition, they take care of elderly or dependent family members and young children; to all these caregiving duties, we must add the domestic tasks, which are not few.

The average age of the shepherds is high – 60 years old. Furthermore, the family nucleus is complemented by an average of 2 children who, in many cases, will not dedicate themselves to the jobs their parents did or have done. Although all interviewees come from shepherding families, there is no guarantee of generational replacement; in fact, from this point of view, there is a serious risk of the activity disappearing.



Figure 3. Transhumant shepherds in Gran Canaria at the beginning of the 21st century.
Source: Javier Gil.

It is a world heavily marked by endogamy, which may be detected by the mere repetition of the surnames of those interviewed, as well as their geographical distribution (for example, the Guedes and Ramírez from the south; the Mayors from the summit; the Morenos, Medinas, and Mendozas from the northern midlands). Indeed, shepherds, in addition to coming from shepherding families, as already noted, tend to marry daughters of other shepherds – women who from a young age know the complexities and demands of the activity and are aware of the enormous quantity and variety of tasks they will have to carry out throughout the year.

4.2.1. What transhumance cycles do they develop?

With the movement of their livestock, most of these shepherds try to compensate for seasonal variations and difficulties arising from environmental conditions, along with problems caused by the excessive fragmentation of the island territory and the small size of the island. To this, we must add the intense growth of infrastructures and urban and tourist settlements in the areas closest to the coast, and the notable presence of protected natural spaces in the higher areas – often coinciding with pastures and farmhouses. The reality we describe generates a kind of enveloping movement that seriously limits pastoral and livestock activities. And much of the little productive territory that remains is destined for agriculture, so that grazing – relegated to spaces that could be called leftover or marginal – does not allow the survival of livestock in one place. Therefore, it becomes necessary to search in other areas for food to compensate for the annual pastoral cycle. Fig. 4 schematizes the spatial impact of the current transhumance cycles. Eight seasonal and territorial typologies that mainly formalise in the mountain and northern and eastern midland areas, through vertical movements (SABATÉ, 2008).

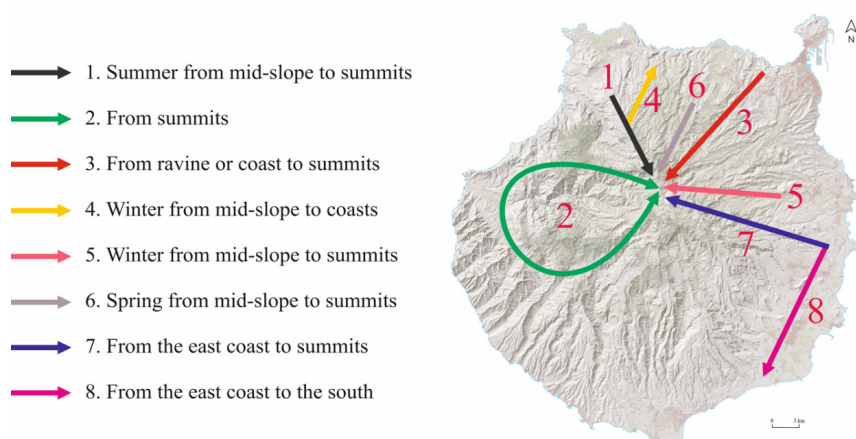


Figure 4. Territorial scheme of the typologies of transhumance cycles in Gran Canaria. Source: MORENO-MEDINA *et al.* (2021). Cartographic base: Grafcan. Own elaboration.

Although almost every shepherd has a different transhumance strategy, there are some models that are repeated and generalised. Such is the case of Cristóbal Moreno Díaz, a 51-year-old shepherd with 350 sheep under a grazing regime. His main residence is in Cortijo de Caideros, in the highlands of Gáldar, and his transhumant cycle mainly depends on the availability of pastures offered in the high locations he has contracted. The main transhumant pasture is that of Tejeda, which he uses from August to October or November. This type of summer transhumance from mid-slope to summits is the most widespread by

the shepherders of the northern mid-slope of the island, especially from the neighbourhoods of Montaña Alta, Caideros, Fagagesto, Lomo del Palo, Pavón Gusano, etc. In the summer months, these mid-slope pastures are quite exploited and they move up to the summit which, although dry, usually has more food than the pastures of origin with dry grass, scrub, almond-tree leaves, etc. The calendar is set by himself, as Moreno explains in his interview:

El primer calendario para la primera venida lo marcamos nosotros al ponerle a los carneros, porque si nosotros le ponemos los carneros el 25 de mayo, sabemos que el 25 de octubre ya tenemos que regresar a casa porque ya pega a dar la leche y eso fuera de la casa es imposible. Con las crías que no las pierdan. Ordeñarlas, ya lleva una ración, hay que ponerle un grano, ponerles paja, controlar el ganado porque son muchas ovejas. Entonces date cuenta que puede haber aquí, puede haber parto en un plazo de 15 o 20 días, pueden parir 200 ovejas, una medida de todos los días 20, 15, 20 ovejas diarias... Eso sí, tienen los quesos. Entre más cerca esté la quesería de la zona de ordeño, mejor calidad. Eso lo tenemos ya comprobado los maestros, lo que hacemos queso, que la leche entre más pronto la ordeñamos, más pronto se elabora, mejor calidad de queso.¹

Another particular transhumant shepherd who deserves all consideration is José de la Cruz Mendoza Mendoza. He is one of the shepherds who covers the most kilometres with his more than 500 sheep across the island territory. A total length of 110 kilometres. The strategy followed by this shepherd is very varied, taking into account the different possible combinations for a better use of natural resources. One of them is the winter transhumance from mid-slope to summits, which typically involves flocks of sheep whose usual settlement is the mid-slope of the north of the island – the wettest area – but in December and January they climb to the south-facing summit areas, where grasses start to sprout at that time but do not yet do so in the usual area of the flock, which is colder. José de la Cruz describes this strategy as follows:

Lo primero es ver si hay de comer. La fecha que siempre ha sido para la de invierno es la de Pascua, entre Pascuas y Reyes. Si sales antes porque haya llovido más luego se pasan muchas fatigas porque hay muchos corderos y los corderos no te caminan y la oveja va para adelante y luego vuelve para atrás a buscar a la cría y se forman unas revoluciones en el camino que tardas más en llegar. Después de Reyes ya están los corderos eliminados y el ganado aligerado. La de verano, contando que haya llovido, entre Santiago y las Nieves.²

1 [Translation] We set the first calendar for the first move when we mate the rams, because if we mate the rams on May 25th, we know that by October 25th we have to return home as the sheep will start to give milk and that is complicated if we are elsewhere. They can lose their cubs. To milk them, you already need a ration, you have to give them grain, use straw, control the livestock because there are many sheep. Bear in mind cubs may be born within 15 or 20 days, 200 sheep can give birth, an average of 20, 15, 20 sheep daily... That's right, they have the cheeses. The closer the cheese factory is to the milking area, the better the quality. The masters are aware of this... those of us who make cheese. The sooner we milk, the sooner it is processed, the better quality of cheese.

2 [Translation] The first thing is to see if there is food. The date that has always marked the winter move is between Christmas and the Three Wise Men's Day. If you leave earlier because it has rained more, then you suffer many hardships because there are many lambs and the lambs do not walk and the sheep goes forward and then comes back to look for the young cubs which lead to revolutions on

Another strategy of José de la Cruz is the spring transhumance from mid-slope to summits. Only a few flocks of sheep do this, which, once they have grazed the first shoot of legumes – especially clovers – in their usual pasture, move to take advantage of that same shoots at the summit in later areas. He does this when he goes from the main pasture of Cortijo de Pavón to Los Morros and El Colmenar in Artenara. When making decisions, he considers several factors regarding whether to move or stay:

Todos mis abuelos eran pastores, y tiene que ser de mucho más atrás, porque yo me acuerdo de cuando yo era chico y mi padre hablaba de su abuelo, que iba para Tejada, y los años ruines, y que cambiaban de vueltas (...) Antiguamente había muchos ganados y tenían que pelearse hasta por las vueltas y se alejaban, hasta a Tirajana llegaron a ir. Una vez fue mi padre con las ovejas acima de la Aldea, acima de Pino Gordo, allá arriba en Inagua. Donde quiera que hubiera un cachito de vueltas, como estaba muy ocupado porque había muchos pastores, pues allí se iba... Cientos de años deben ser, si mi padre contaba del abuelo de él (...). Y la trashumancia la he hecho yo siempre porque mi padre también la hacía, y cuando tenía yo 10 o 12 años empecé a dir a Tejada, nunca llegué a dir a guardar, pero sí para ayudarlas a llevar y a traer, y a recoger y ordeñar; de siempre, y ya cuando me hice cargo del ganado, seguí la tradición, hice lo mismo. Lo que pasa es que aquí el sitio es muy frío y tiene mucha humedad, si llueve mucho no sale, y si no llueve tampoco sale. La de invierno es necesario de hacerla para ir a las costas a buscar hierba. Buscamos zona baja. Muchos años fuimos a Tirma, y ahora que tengo bastantes terrenos dejé Tirma y estoy con el Cortijo de Majada Alta, en la presa de las Niñas, que la utilizo de invierno. Es alto, es fresco, pero es otro clima con mucha diferencia 'a' estar aquí arriba; no es costa-costa, pero está en lo alto de Mogán. Y también salgo de verano, cuando llueve y sale pasto en Tejada. Ahora estoy llevándolas entre Artenara y Tejada, en el sitio que llaman Los Morros, y en El Colmenar debajo de Artenara. Y 'frente', la Umbría y la parte del Bentayga.³

the way that makes it harder to arrive. After the Three Wise Men's Day, the lambs are eliminated and the livestock is lightened. The summer one, assuming it has rained, takes place between Santiago and Las Nieves.

3 [Translation] All my grandparents were shepherds, and it has to come from much further back, because I remember when I was a child and my father spoke of his grandfather, who went to Tejada, and the bad years, and that they changed pastures (...) In the old days there were many livestock and they had to fight even for the pastures and they wandered off, they even went to Tirajana. Once my father went with the sheep above La Aldea, above Pino Gordo, up there in Inagua. Wherever there was a bit of pasture, as it was very busy because there were many shepherds, there he went... It must be hundreds of years, if my father talked about his grandfather (...). And transhumance I have always done because my father also did it, and when I was 10 or 12 years old I started to go to Tejada, I never went there to guard, but to help them to carry and bring, and to collect and milk; always, and already when I took charge of the livestock, I followed the tradition, I did the same. What happens is that here the place is very cold and has a lot of humidity, if it rains a lot, it does not come out, and if it does not rain it does not come out either. The winter one is necessary to do it to go to the coasts to look for grass. We look for a low area. Many years we went to Tirma, and now that I have quite a lot of land, I left Tirma and I am with Cortijo de Majada Alta, near Las Niñas dam, which I use in winter. It is high, it is cool, but it is another climate with a lot of difference if compared to being up here; it's not coast-to-coast, but it's at the top of Mogán. And I also leave in summer, when it rains and grass grows in Tejada. Right now, I'm taking them between Artenara and Tejada, in a place they call Los Morros, and in El Colmenar below Artenara. And opposite, Umbría and the part of Bentayga.

4.2.2. *What animals are engaged in transhumance and where are the pastures?*

Collectively, on the island, between 6,000 to 8,000 sheep and about 20,000 goats are grazed. The livestock is predominantly distributed across the midlands and highlands due to the environmental conditions of these areas, which favour the growth of forage plants and grasslands compared to the more arid and saline coastal areas. We can also observe the establishment of livestock farms on lands that lack agricultural interest. According to the census compiled in this study, out of a total of 5,243 animals, sheep are the predominant animal among the transhumant shepherds' livestock, with 4,092 heads of cattle, which represents 78% of the total sheep in extensive farming. One hundred percent of these animals are of the native Canarian breed, which speaks to the genetic improvement that these professionals are implementing. Meanwhile, goats only represent 23% of the total with 1,224 specimens, and cows represent a scarce 0.1%, with 7 animals. These last two species are kept stabled for milk production and mixed cheese making. Until the beginning of the 21st century, most shepherds had cows, but, unfortunately, they have been disappearing from their pastures.

The shepherds mainly live in the midlands. These are the best lands, as a result of more favourable humidity conditions, cooler temperatures than those of the coasts without being too cold. On the other hand, the hydrogeological organization of the subsoil favours the location of some of the main springs, in the form of fountains, that guarantee water supply. From a logistical point of view, the midlands have a middle position that facilitates the organization and practice of the wide range of agro-silvopastoral uses, developed from the seashore to the summit. In some cases, the need to make the most of the effort deployed to dominate and extract resources from the territorial ensemble is at the root of certain seasonal residential movements. Table 2 lists the pastoral surfaces exploited by the 23 shepherds, always in a rent-paying system, and in Fig. 2 they are spatially expressed. The hectares of transhumant pastures double those of the main pastures close to their operations. This indicates the importance of this activity in the search for natural pastoral surfaces, of great importance in the ecological management of the territory.

Table 2
Overview of the area of pasture used by transhumant pastoralists

No.	Main Pasture Area (ha)	Area Transhumant Grassland (ha)	Total area (ha)
1	107	688	795
2	49	59	108
3	3	39	42
4	74	444	518
5	45	39	84

6	37	151	188
7	88	135	223
8	57	161	218
9	120	145	265
10	6	128	134
11	44	76	120
12	83	42	125
13	27	71	98
14	84	174	258
15	15	58	73
16	0,01	42	42,01
17	51	63	114
18	26	93	119
19	88	139	227
20	47	134	181
21	146	0	146
22	86	112	198
23	266	65,5	331,5
	1549.01	3058.5	4607.51

Source: MORENO-MEDINA *et al.* (2021).

4.2.3. What are their paths?

Some 568 kilometres make up the network of paths that connect the pastures used by the current or recent 23 transhumant shepherds. These are 21st-century cattle routes that are only a part of those that once crisscrossed the island (see Fig. 5).

For most of the year, shepherds remain at their family residence, where they have their main pastures. The movements that are made are fundamentally two, based on their duration and the distance travelled: on the one hand, movements not exceeding 15 days in which they go to places located within a radius of between 3 and 5 kilometres and, on the other hand, those that last no less than 2 or 3 months in which they go to any place on the island with sufficient availability of pastures – between July and October. The average kilometres travelled by shepherd is 28. It must be taken into account that these are round-trip paths with an average width of between 7 and 8 meters on the main route and between 4 and 5 meters on secondary roads.

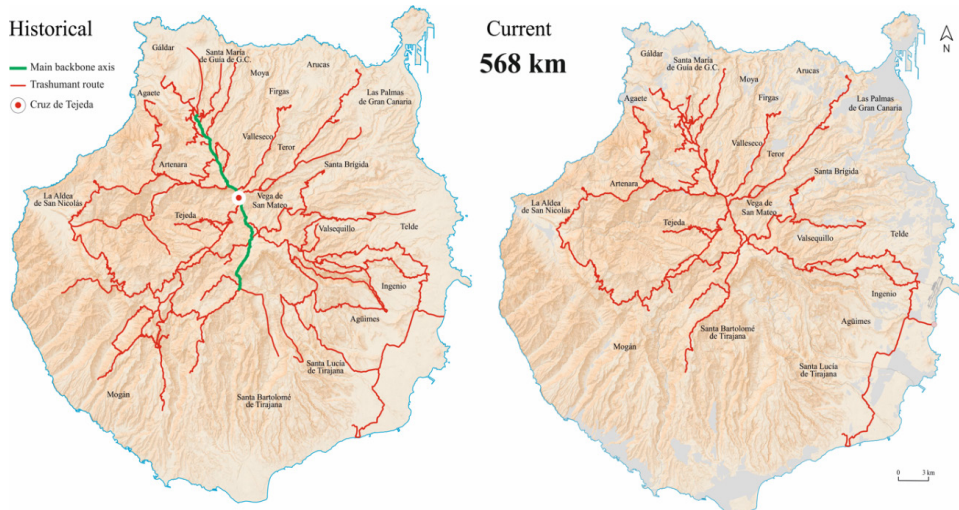


Figure 5. Maps of the historical and present-day cattle routes of Gran Canaria. Source: MORENO-MEDINA *et al.* (2021). Cartographic base: Grafcan. Own elaboration.

Currently, 70% of traditional pastoral paths are roads. Many shepherds already using roads, as the old paths are notably deteriorated. In general, the state of the paths is not good. Some of them have benefited in their restoration from policies external to the activity itself, such as the Island Plan for Tourist Paths, which took advantage of the virtue of these paths as corridors between the different spaces of interest around the island. Others are maintained by the shepherds themselves, but only with daily use, without any kind of conditioning work. Lastly, many of the old routes unfortunately only survive in the minds of the most veteran shepherds.

The importance of the paths not only lies in the number of animals that traversed them but also in the pastoral and path heritage they hold. In this sense, elements with as much heritage significance as the existence of counting places or walls on the sides of the roads must be highlighted. This is the case of the stretch of road as it passes through Cuesta de los Pinos de Gáldar. This path was always delimited by dry stone walls from the upper part near Caldera de los Pinos de Gáldar to its lower part, Puerta de la Montaña [Spanish for “Mountain Gate”], the beginning of the ascent to the summit pastures. At some points along this stretch, the livestock route reached up to 30 meters wide, while at the “gate”, it narrowed to just 2 meters (see Fig. 6). Traditionally, this road infrastructure was designed in this way so that the large herds returning to their main pastures in the northwest, after their stay on the coast of Tejeda, could be counted, as the animals would pass through Puerta de la Montaña one by one.

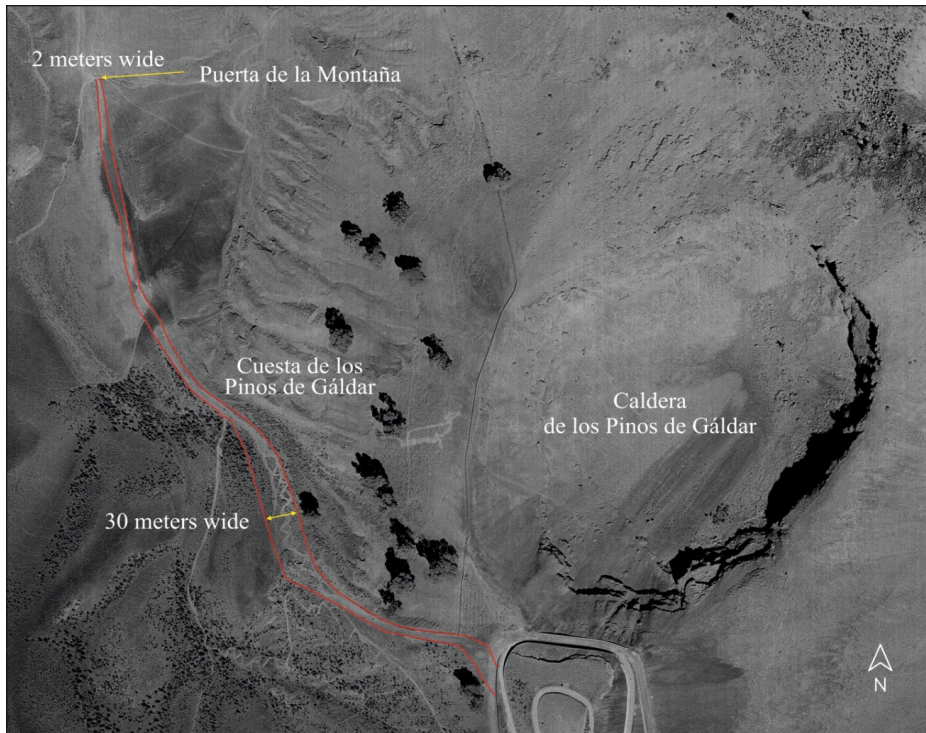


Figure 6. The main transhumance road on the island as it passes through Cuesta de Los Pinos de Gáldar. *La Puerta de la Montaña*. Source: Photogram GC 6216008100773 at a scale of 1:16000 from 1962. IDE Gran Canaria Island Council. Prepared by the authors.

5. DISCUSSION, CONCLUSIONS AND ACTIONS FOR THE FUTURE

The geographical-historical traceability of transhumant herding in Gran Canaria is a fact. The transhumant system has adapted to the environmental characteristics of the island, while generating its own landscape. The degree of knowledge about the agro-biological functioning of the island and the adaptive capacity of the shepherds has allowed transhumance to be present on the island for more than two millennia, as we have shown in this study. Even today, when the activity is in clear decline, 19 shepherds and their flocks still practice transhumance across most of the island's space, mainly through the midlands and summits, among protected areas and tourists in the countryside and trails.

The practice of transhumant herding on the island generates numerous ecological, economic, and social benefits. The livestock model of transhumance is a clear example of the evolution of a natural system and a social system through a predominantly adaptive learning relationship.

Transhumance undoubtedly contributes to preserving biodiversity as livestock disperse seeds and connect ecosystems. It also helps mitigate climate

change by fixing carbon in the soil and preventing forest fires, in addition to offering a sustainable model of food production and maintaining a traditional culture and ancient knowledge. These contributions, recognized by academia and administrations, unfortunately, remain invisible to most of society and their value has not been adequately transferred to planning and decision-making processes.

For example, regarding the ecosystem services provided by transhumant livestock farming, there are plenty of references. It has been shown that in the vicinity of active cattle routes, biodiversity is higher (HEVIA *et al.*, 2013); that it aids in fire prevention by reducing biomass and the surveillance efforts of shepherds (RODRÍGUEZ-ORTEGA *et al.*, 2014); that transhumant livestock farming reduces erosion processes through the maintenance of vegetation cover (IBÁÑEZ *et al.*, 2009); it fertilizes the soil and serves as an active element in the intercommunication of protected areas (ORÚS, 2005). In Gran Canaria, all these services are present, but further in-depth studies are required in this regard.

This study has also allowed us to highlight the exceptional nature of transhumant livestock farming in the Spanish insular context. Alongside livestock development on the island of El Hierro (LORENZO PERERA, 2002) and livestock mobility in the Sierra de la Tramontana and the eastern Pla of Mallorca (ROSSELLÓ I VERGER, 2013), Gran Canaria emerges as the best and almost the only living example of transhumance. Therefore, its model of social and economic organization and its cultural practices have great value as they represent a unique system. However, unlike other rural areas in Spain, sufficient measures have not been taken to ensure the survival of the activity, neglecting its potential for rural development on the island. Not even progress has been made in the tourism potential of the activity, as has been done in many other mountainous areas in Spain, where fairs are organized, and activity museums have been created with an essentially educational and tourist purpose (ANTÓN BURGOS, 2007).

In this same vein, it has also highlighted the extent and importance of the network of cattle routes in Gran Canaria, as the main element of territorial articulation derived from the permanence of transhumant livestock farming activity. This gives Gran Canaria special relevance in the context of island spaces, something that, however, has not received sufficient academic attention and administrative protection, in contrast to what happens with the cattle routes of the National Network.

From all of the above, the special relevance of transhumant livestock farming in Gran Canaria is concluded, especially in the context of island spaces, but also the difficulties the activity faces for its continuity. There are many challenges that this activity must face to withstand the passage of time. Among them are the lack of generational succession, administrative obstacles in the performance of the activity, the low economic profitability obtained, the lack of land ownership among shepherds, the harshness of the work and the difficulties in balancing with family life, the quasi-structural social isolation of this way of life... to which must be added the special impact that climate change seems to have on permanent and transhumant pastures.

Therefore, the persistence of this pastoral system requires the implementation

of measures from public administrations. Among the possible ones, we highlight:

- Normative actions that promote the protection of the activity and the goods associated with the pastoral culture, legislating or arbitrating aid suitable for the needs of the sector.

- Actions to improve the knowledge of the activity for its management. Creation of a Transhumant Shepherds Registry and promotion of specific technical managers, or failing that, an interinstitutional (Island Council/Municipalities) and intersectoral body that should assume specific functions for the monitoring and conservation of the activity.

- Measures aimed at the socio-economic integration of the activity and its managers, seeking in parallel an improvement in the perception and social valuation.

- Promotion of the Shepherds' School to guarantee the continuation of these practices.

- Improvements related to the management of animal health. It is necessary to simplify or expedite procedures and management.

- Actions to increase the economic and social value of the final product of the transhumant work. Cheese and meat, as transhumant products of excellent quality, must be economically compensated and socially recognized since their production and management are based on ecological balance.

- Actions for the conservation of infrastructures associated with transhumant activity. Creation of an Inventory of Cattle Routes. Also, its use should be diversified with other activities to strengthen its maintenance.

- Promotion of research, integrating the scientific community to promote research works and spaces for reflection.

- Integration of the transhumant livestock farming of Gran Canaria and herding into other national or international networks.

The underlying rationale behind all these potential measures is the need to disseminate evidence that this activity holds significant value regarding the traditional management of agrobiodiversity, landscapes, and food security. This is so that the population of Gran Canaria understands the relevance of its heritage identity, and administrative and political managers take effective measures for its conservation.

In short, this ancestral cultural practice must be promoted, not only as a cultural legacy but as a living activity. Likewise, we need shepherds to remain on the territory, not only for economic reasons but also for environmental ones. The territorial management model of transhumant shepherds provides keys to facing numerous problems related to the proper sustenance of our territory, beyond the pastoral activity itself. The preservation of transhumance should, therefore, be approached as a necessity for the whole society.

6. ACKNOWLEDGEMENTS

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