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1. Areas, animals and extension

The physical configuration of Spain, with mountainous systems surrounding vast and arid plateaus, generates a seasonal difference in pasture production that has been exploited since ancient times by herbivore herds through their annual migrations. According to the Ministry of Agriculture, Fisheries and Food¹, at least more than a third of the national territory is occupied by areas suitable for livestock use, most of which can be used almost exclusively by extensive livestock farming using breeds that are highly adapted to the territory. In particular, approximately 17 % of the national territory is covered by pastures, 12 % by *dehesas* and 5 % is fallow land that could be used as pasture. Also, other areas could be added, such as some forests mixed with pastureland or arable land, or dedicated to temporary meadows for mowing or grazing, but they are very difficult to quantify.

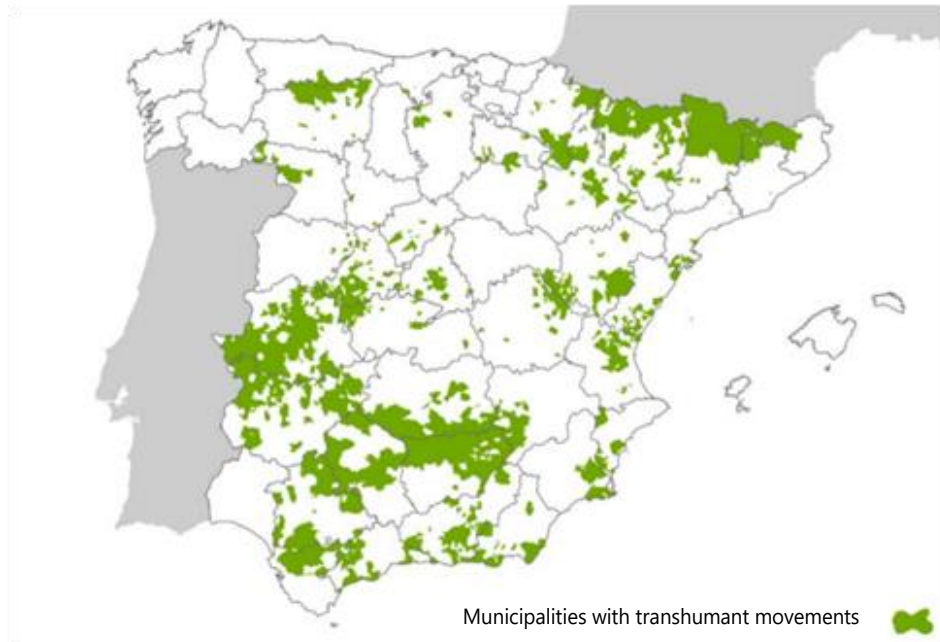
Transhumance in the Iberian Peninsula ranges from short movements at small-scale inside some valleys, to long-distance south/north transhumance, mainly inside or among regions described in graphic 1. Summer pastures are found in mountain areas and winter pastures corresponds mainly to *dehesas*, where the herds remain for half the year until the following spring (see Table 1) (MAFE 2013). Summer pastures include several types: mountain pastures (called *puertos*), short alpine grassland with some shrubs predominating in the central and north ranges; mountain pastures with scattered trees - pines - in the high central ranges. In the Atlantic fringe (north of Spain), north facing mountain pastures are connected with winter meadows and wet pastures, near to the coast (Sal and Lorente 2004). The last survey measuring animal movements was carried out by the Ministry of Agriculture in 2013. It reflects all animal movements, so it also includes semi-extensive management models, where sheep and cattle graze communal high mountain pastures in the summer and spend the winter enclosed in barns and stall-fed on hay and grain. In that survey a list of transhumance movements was made using data from the Integral Animal Traceability System (SITRAN) in 2011 for cattle, sheep and goats with the following results:

For cattle, approximately 20.000 intra-community transhumant movements have been recorded with some 365.000 animals involved, mainly in Cantabria, Castilla y León, Cataluña, Aragón and Extremadura. Of these movements, 43,26 % were made on foot and 51,34 % by truck. Considering inter-community traffic, approximately 2.000 outward transhumance movements and 1.600 return movements were recorded between Autonomous Communities, with some 45.000 and 30.000 animals involved. In terms of the number of animals, the following movements stand out: Castilla y León with Extremadura, Asturias with Castilla y León, and Cantabria with Castilla y León and Cantabria with Castilla y León. Of the total number of transhumant movements between Autonomous Communities, 83,29 % of them were carried out by truck, compared to 10,22 % that were made on foot.

In the case of sheep and goats, approximately 2.000 intra-community transhumant movements have been recorded with some 450.000 animals involved, mainly in Cantabria, Castilla y León, Extremadura, and Navarra. Of the movements carried out, 43,06% were made on foot and 53,91%

¹Statistical Yearbook 2021. General Technical Secretariat of the Ministry of Agriculture, Fisheries and Food. <https://www.mapa.gob.es/es/estadistica/temas/publicaciones/anuario-de-estadistica/>

by truck. As for transhumance between regions, approximately 200 movements were recorded in 2011, involving some 50.000 animals. In terms of the number of head of livestock, the movement of small ruminants between the Autonomous Communities of Castilla y León and Extremadura is worth noting. A total of 9,63% of the movements were carried out on foot compared to 81,65% by truck.



Graphic 1. Transhumance areas in the 1990s. MAFE 2013.

To carry out many of these movements, shepherds have traditionally relied on an extensive network of 30.607 stock driveways distributed throughout the Spanish territory, with a length of 11.400 km (see [Graphic 3](#)). This network it was progressively replaced by trains, which left the animals in the closest stations at either end of the route, and recently by trucks, mainly in long distance displacements.

Sal and Lorente, 2004, classified all these movements in 6 different types of transhumances due to environmental and historical reasons:

1. Short displacements in the Atlantic mountains, where different types of livestock breeding systems coexist based in traditional breeds like cattle Mountain Asturian, [Tudanca](#) or [Monchina](#), or [Latxa](#) sheep. They all make altitudinal displacements between intermediate levels, or near the coast (winter pasture) as opposed to the high mountain pastures, facing to the north and are under humid winds (wet and misty sites)
2. Long term transhumance based on Merino sheep, built up on a single basic breed with high quality wool and hardy enough for long transhumance journeys. Winter pastures are usually located in the plains of Extremadura in the southeast and summer pastures of this long transhumance are located on the south face of the northern mountains (Cantabrian and Iberian ranges). The main national livestock drove road network was associated with this specialized form of transhumance, which was originally economically very profitable.

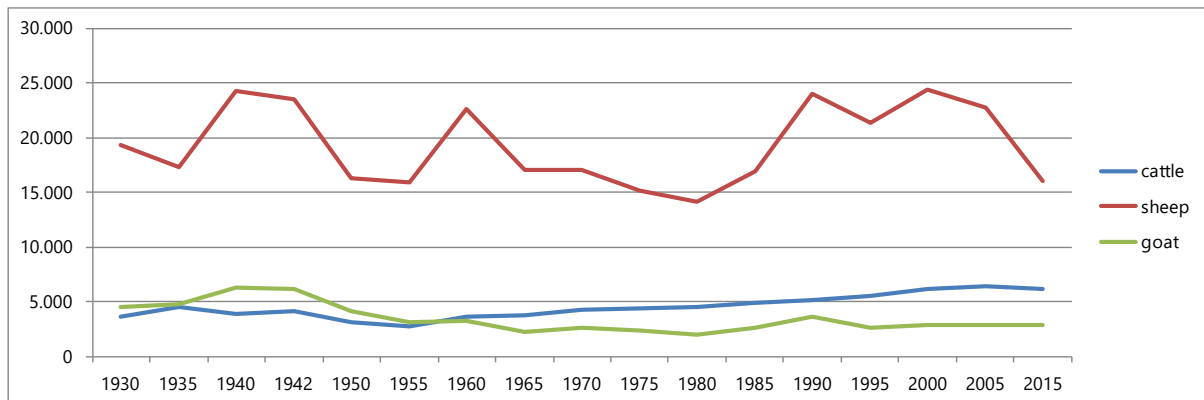
3. Long distance (100-200 km) sheep transhumance in the Pyrenees, where winter pastures are, to the central area of the Ebro basin (in the south of the mountain range). The sheep belong to two different breeds: Entrefina, obtained by the crossing between [Merino](#) and local ancient breeds (Rasa [Aragonesa](#), Roncalesa, [Ripollesa](#) and others) and [Churra](#). Although traditional winter zones in the East (Cataluña) have now almost disappeared due to the new land uses such as irrigated land, industrial settlements and urban development, it is kept in the West (Aragon and Navarra)
4. Cattle transhumance in Central Mountains. There is an important area connecting the two faces of the Central System (Sierra de Gredos): the winter is passed in the Extremadura dehesas, and the summer in high pastures of the North of Gredos. Cattle of traditional breeds, able to carry out long displacements and to bear harsh climatic conditions. The [Avileña–Negra Iberica](#) cattle prevails in this area, although Lidia livestock is also frequent.
5. Transhumance in the South - Mediterranean Mountains. In this type of system summer pastures are placed in two main areas: Sierra Nevada, with altitudes over 3,000m and a certain alpine character, and Cazorla and Alcaraz ranges, more Mediterranean and covered to a greater extent by pinewood pastures. Both mountains receive herds from a certain sort of variety winter zones such as the Guadalquivir valley or Sierra Morena, where there are many dehesas and they coincide with other herds coming from the Iberian ranges. This kind of transhumance is characterised by altitudinal displacements linking areas with wide differences in altitude. A variety of species and breeds (sheep, goats and some cows like [Retinta](#), which move between different Andalusian Mountains).
6. Transhumance in the eastern coast, where we also find examples of short transhumance which are mainly made by sheep (sometimes goats) coming from the relatively high mountain areas (over 1500m) like the Maestrazgo, that are 150 km away from the Mediterranean coastal plains. Two breeds are the most representative: the Entrefino group in the north, and the [Segureña](#) sheep, more in the south. It is the type of transhumance system tourism is having a great impact as it has taken many winter pastures (some wet coastal plains) away.

Table 1. Main regions where summer and winter pastures are located (MAFE 2013)

Summer pastures	Winter pastures
Sierra de Gredos	Valle de Alcudia
Montaña de León	La Serena
Alto Macizo Ibérico	Sierra Morena Oriental
Pirineo Aragonés	Los Pedroches
Albarracín-Cuenca-Molina	Extremadura
Alcaráz, Cazorla y Segura	Campos de Calatrava y Montiel
Sanabria	Bardenas Reales

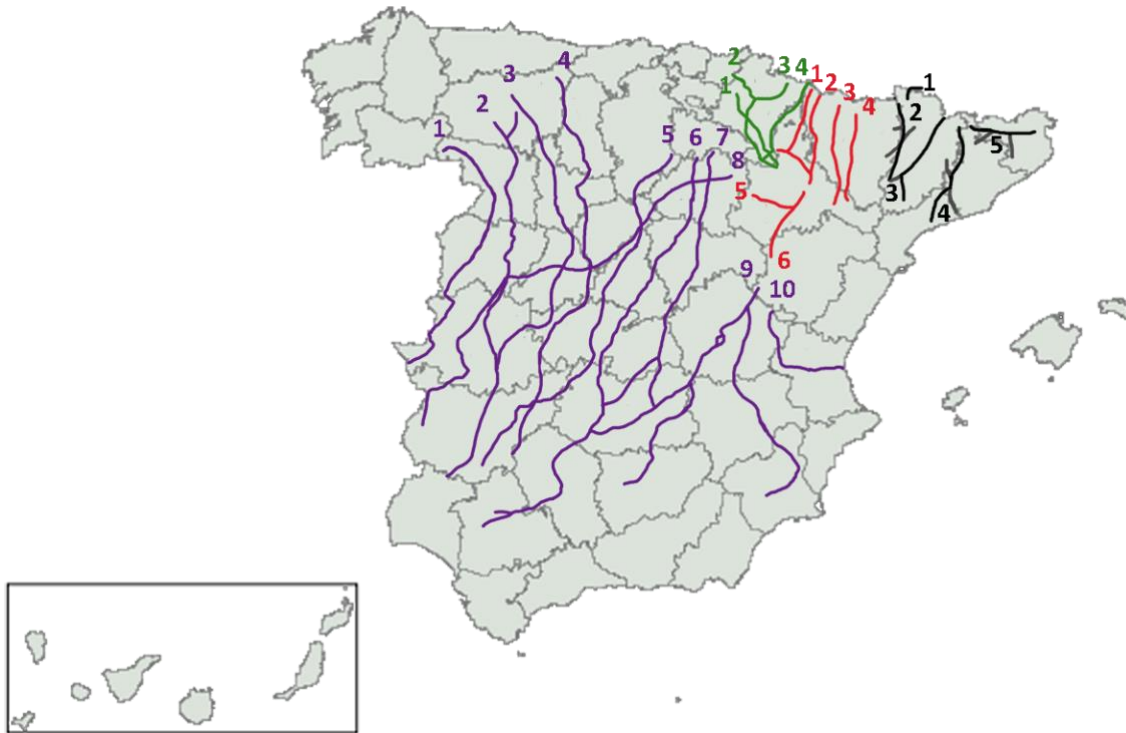
Sierra Nevada	Mediterráneo
Pirineo Catalán	Segovia, Ávila y Salamanca
Gúdar-Maestrazgo	Bajo Guadalquivir
Pernia-Páramos-Alto Campoo	
Pirineo Navarro	
Sierras Penibéticas	
Andía-Urbaasa-Encía	

As we have seen before up to 400.000 cattle and 500.000 sheep were involved in a certain type of transhumance movement in 2011. These numbers include both semi-extensive systems and extensive livestock production, although the last one has experienced an overall reduction in the second half of the twentieth century (O’Flanagan, et al., 2011). Therefore, to study the current relevance of this practice it is important to compare these data with official census. Over the last hundred years (see [Graphic 2](#)), the overall figures of animals and the distribution between species have remained remarkably stable. Only the sheep sector seems to suffer larger variations, showing a steady decline since 2006 to 15.4 million animals in 2014. This trend has come to a halt, with the census remaining relatively stable at least until 2020, at around 15-16 million animals (MAFF 2020). When analyzing the combined data, we can conclude that about 6 % of the cattle and 3 % of the sheep are linked to transhumance.



Graphic 2. Number of animals ('000) (MAFF 2021)

Vías pecuarias principales de España: ■ Cañadas reales de la Corona de Castilla 1.- Zamorana 2.- de la Plata 3.- Leonesa Occidental 4.- Leonesa Oriental 5.- Segoviana 6.- Riojana 7.- Soriana Oriental 8.- Soriana Occidental 9.- Conquense o Murciana 10.- del Reino de Valencia ■ Cañadas reales del Reino de Navarra 1.- de Andía 2.- de las Provincias 3.- de Aezkoa 4.- de los Roncaleses ■ Cabañeras del Reino de Aragón 1.- de las Cinco Villas 2.- de Aísa 3.- de Viñamala 4.- de Ordesa 5.- del Moncayo 6.- de Albarracín ■ Carrerades Cataluña 1.- Aranense 2.- Oscense 3.- Leridana 4.- Leridano-tarraconense 5.- Gerundense



Graphic 3. Main Livestock Routes. (MAFE 1995; METD 2020)

The main types of livestock, which are extensively exploited and maintain transhumant movements are:

- Cattle, which have historically constituted one of the pillars of national livestock farming and are also closely linked to the social fabric of the rural environment.
- Sheep, which is the best suited animal to Spanish conditions due to its threefold productive aptitude (meat, milk and wool), its frugality, resistance and capacity to adapt to the harsh conditions of the Mediterranean climate.
- Goats, which have always been closely related to sheep, from both a productive and socioeconomic perspective.

The main products obtained from extensive livestock production in Spain are meat and milk and its derivatives such as cheese and yogurt². Other products such as wool have lost all their value

²An extensive catalog of farms and coops where you can buy products directly from transhumant producer can be found at: <https://trashumanciaynaturaleza.org/mapa-de-la-trashumancia>

and are now even seen as a problem, even for the highest quality wool³. Although the latter had an upturn in prices in recent years, the COVID crisis seems to have sunk demand again Torres Herrero, M. (2020).

2. Sociology of transhumance practitioners

In 2011, 8.393 farms made any transhumance movement in Spain, of which 1290 were sheep farms and 7.103 cattle farms (MAFE 2013). There is no detailed study of workers in these transhumant livestock farms, although there are studies on the profile of workers in the livestock sector, where relative importance of family labor is high. The percentage of men working in these farms is 71,9 %. They are older than workers in other sectors, 46 years old with only 20 % of them with less than 35 years; 73,3 % have studied up to the first stage of secondary education; and finally, up to 11 % may be foreigners⁴. Particularly important, in those cases where shepherds and shearers are hired to carry out the activity, is the fact that a substantial part of them are immigrants (MAFE 2013).

There are different associations representing transhumance practitioners in particular or livestock farmers in general, although there is no record of the affiliation of transhumance practitioners to any professional association. There are three main farmers Unions at national level: [ASAJA](#), [COAG](#) and [UPA](#), and an unknown number of associations with more regional presence in some provinces. Also, there are specific groups defending transhumance practices, drove roads or traditional breeds like the [Asociación Trashumancia y Naturaleza](#), [Ganaderas en Red](#), [Federación Estatal de Pastores \(FEP\)](#), [Asociación Pastores por el Monte Mediterráneo](#), [Plataforma por la Ganadería Extensiva y el Pastoralismo](#), [Trashumancia Viva](#), [Ganadero ibéricos unidos](#), [Federación Española de Asociaciones de Ganado Selecto](#), [Plataforma ibérica por los caminos públicos](#), [Asociación caminos libres](#), and finally environmental groups like [Amigos de la Tierra](#), [Ecologistas en Acción](#), [Seo Birdlife](#) and [WWF](#), that defends transhumance very actively.

3. Purpose of transhumance

As we can find in Houzer and Scoones (2021), transhumance has great environmental and economic benefits. Traditionally, transhumance limited land use conflicts between the need to produce food directly for the population and the need to feed livestock, taking advantage of mountain pastures, stubble and Mediterranean scrubland (Garcia-Ruiz and Lasanta-Martínez 1992). It mimics the grazing and seed dispersal patterns of wild migratory herbivores, positively influencing biodiversity (Manzano-Baena and Salguero-Herrera 2018), pollinator populations (García- Fernández et al. 2019) and tree regeneration (Carmona et al. 2013). It also avoids land fragmentation and enhances mobility, with major positive impacts on ecosystems, and therefore

³ <https://elpais.com/economia/2021-05-29/el-mercado-de-lana-se-enreda-por-la-falta-de-demanda.html>

⁴ Diagnóstico de situación del sector agrario. Ministerio de empleo y seguridad social (2016) <https://www.insst.es/documents/94886/96076/Diagnostico+de+situacion+del+sector+agrario.pdf/1c8ba621-1c0c-434f-b3da-e3177e56b5d6>

has been promoted by associations and organizations like *Transhumancia y Naturaleza*⁵. However, as these environmental services are not rewarded, the main purpose is still the use of pastureland for livestock farming. If we do not consider other social factors associated with living and working conditions (Luengo 2005), transhumance might be a more interesting alternative to other types of livestock management, not only from the environmental, but also from the economic point of view (Fernández-Giménez and Ritten 2020). The economic benefits would be even greater if all the positive externalities were considered (Casas-Nogales and Manzano-Baena 2010). Nevertheless, there are other examples of secondary purposes of transhumance: i.e., herds are used for the prevention of forest fires⁶, problems of safety of the power lines of the electrical networks⁷ and the care and maintenance of urban parks⁸.

4. Awareness about transhumance

There is a growing interest in the dissemination of the transhumance phenomenon through monographic museums⁹, livestock fairs, transhumance festivals¹⁰, publication of monographs, congresses and specialized seminars on the geography, history, ethnology, or economy of transhumance (i.e., I Congress of Transhumance and stock driveways of Catalonia¹¹ or the II International Congress on Transhumance in the Mediterranean¹²). In addition to its contribution to valuing its role from an environmental, sociocultural and educational point of view, this dissemination is generating a growing social interest in the survival of this legendary type of livestock farming (Antón Burgos 2007).

Specific actions such as the passage of a sheep herd through the capital, already established as a tradition and followed by tens of thousands of people, the approval of Law 3/1995 that protects stock **driveways** and the declaration of transhumance as intangible cultural heritage by the Council of Ministers in 2017 have served to promote transhumance in the society (Garzón Heydt 2017). The recovery for public use of sections of stock **driveways** makes available to citizens a great landscape and cultural diversity linked to transhumance (MAFE, 2013), and thus enable thematic itineraries or integrated tourism products on the recreational, cultural and tourist possibilities that the **drove roads** have to structure the development of many regions, now depressed and doomed to abandonment (Garzón Heydt, 2017).

The protection of national stock **driveways**, guaranteed by law 3/1995, has been subsequently extended to other regional trails by various Autonomous Communities like Navarra (Provincial Law 19/1997), Extremadura (Regulation 49/2000), Madrid (Law 8/1998), Andalucía: (Decree

⁵ <https://trashumanciaynaturaleza.org/nosotros-trashumancia-y-naturaleza>

⁶ <https://acortar.link/sSNSOU>

⁷ https://www.ree.es/sites/default/files/Guia_Pastoreo.pdf

⁸ <https://inland.org/product/pastoreo-urbano/>

⁹ <https://museodelatrashumancia.com/>

¹⁰ An extensive catalog of fairs and festivals where you can buy products directly from transhumant producer can be found at: <https://trashumanciaynaturaleza.org/mapa-de-la-trashumancia>

¹¹ <https://www.miteco.gob.es/es/red-parques-nacionales/boletin/trashumancia-catalunya.aspx>

¹² <https://www.ucv.es/oferta-academica/congresos-y-jornadas/congresos-y-jornadas-2016/ii-congreso-internacional-trashumancia-en-el-mediterraneo/programa>

155/1998), Castilla-La Mancha (Law 9/2003), La Rioja (Decree 3/1998), Comunidad Valenciana (Law 3/2014), Aragón (Law 10/2005) and has allowed the recovery, classification and demarcation of stock driveways, and its utilization for other tourism-related uses^{13,14,15}.

5. Legal and funding situation

According to MAFE 2013, due to the historical evolution of land ownership, grazing land may belong to a wide variety of owners, both public and private. However, some distinguishing features can be noted:

- The large areas of medium and high mountain pasturelands are mostly owned by public owners (Local Authorities, Autonomous Communities and the State General and the General State Administration). They are usually assigned to the Catalog of Public Utility Forests that grants special protection (7,000,000 ha. are in this Catalog) and managed by the Forestry Administration of the respective Autonomous Communities.
- The large areas of winter pastures and which are southern *dehesas*, belong mostly to private owners. The leases of these pastures are basically based on an agreement between the parties of annual renewal. They are usually large estates where the possibility of other uses - big game hunting and livestock grazing - which are more profitable for the owners, makes it difficult or impossible for transhumant stockbreeders to gain access to them, as the rental prices are increased, especially in the South. Uncertainties of continued access to the pastures discourage lessees to make medium- and long-term debt operations, and therefore, there is no investment in buildings, infrastructure or other improvements.
- The grazing areas in agricultural crop areas (fallow land, stubble fields and gleaning fields) are distributed throughout the country. Shepherds, in certain cases, are allowed to enter with their animals according to the legislation "In the terms in which transhumant livestock are traditionally admitted, a quota of seasonal pastures will be reserved for the needs of transhumant herds, based on the average number of livestock admitted in the last ten years" (art. 48 of the 1954 Regulation).

Below are listed the main legislation affecting transhumance in Spain:

- Law 3/1995, of 23 March 1995, on Livestock Routes.
- Law 42/2007, of 13 December, on Natural Heritage and Biodiversity.
- Law 45/2007, of 13 December, for the Sustainable Development of the Rural Areas.

¹³ https://www.niusdiario.es/sociedad/convertirse-pastor-trashumante-durante-dias-parque-nacional-monfrague-oferta-agencia-turismo-extremadura_18_3195946050.html

¹⁴ <https://www.mapa.gob.es/es/prensa/ultimas-noticias/luis-planas-subraya-que-la-red-de-caminos-naturales-de-espa%C3%B1a-es-un-elemento-vertebrador-del-desarrollo-sostenible-en-las-zonas-rurales/tcm:30-620306>

¹⁵ <https://caminosnaturales.es/>

- Royal Decree 1274/2011, of 16 September, approving the Strategic Plan for Natural Heritage and Biodiversity 2011-2017.
- Royal Decree 1980/1998 of 18 September, establishing a system for the identification and registration of bovine animals.
- Royal Decree 947/2005 of 29 July 2005 establishing a system for the identification and registration of ovine and caprine animals.
- Royal Decree 1515/2009 of 2 October 2009 establishing a system for the identification and registration of equine animals.
- Royal Decree 479/2004 of 26 March establishing and regulating the General Register of Livestock Holdings.
- Royal Decree 728/2007 of 13 June 2007 establishing and regulating the General Register of Livestock Movements and the General Register of Individual Animal Identification.

Food safety

- Regulation (EC) No. 178/2002, establishing the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety.
- Regulation (EC) No. 852/2004, on the hygiene of foodstuffs.
- Regulation (EC) No. 853/2004, laying down specific hygiene rules for food of animal origin.
- Royal Decree 1945/1983, of June 22, 1983, regulating infringements and penalties in matters of consumer protection and agri-food production.
- Law 14/1986, of April 25, 1986, General Health Law.
- Law 8/2003, of 23 April, on Animal Health.
- Royal Decree 640/2006, of May 26, 2006, regulating certain conditions for the application of Community provisions on hygiene, production and marketing of foodstuffs.
- Royal Decree 361/2009, of March 20, which regulates the information on the food chain that must accompany animals destined for slaughter.
- Law 17/2011, of July 5, 2011, on food safety and nutrition.
- Royal Legislative Decree 1/2015, of July 24, 2015, approving the revised text of the Law on guarantees and rational use of medicines and health products.

- Royal Decree 109/1995, of January 27, 1995, on veterinary medicines, and its subsequent amendments.
- Royal Decree 1086/2020 relaxes certain conditions for the application of European Union provisions on hygiene in the production and marketing of foodstuffs and regulating activities excluded from its scope of application, especially for the direct marketing of small quantities.

6. Public support

The common agricultural policy establishes several support schemes (MAFF 2022):

1. The basic payment scheme is an aid system decoupled from production, based on having payment entitlements linked to an eligible agricultural area, understood as that in which agricultural activity is carried out, either for maintenance or production. The implementation of this scheme has been made on the basis of agricultural regions, so that the eligible area for the basic payment has been distributed in 50 different regions, each with a regional average value from 2015 to 2020, determined once the period for submitting applications for direct payments of the 2015 campaign and the process of final allocation of rights ended.
2. Greening or payments for climate and environmentally beneficial practices, which is a percentage (just over 50 %) of the total value of basic payment entitlements and corresponds to the maintenance of existing permanent pastures.
3. Coupled aid for sheep in the form of an annual payment per animal with a budget of 125 M € (12.05 euros/animal in 2015).
4. Coupled aid for farms keeping suckler cows with a budget of 188 M € (97.19 euros/animal in 2015)

Insurance programs

To cover losses, there is a public-private insurance that covers most of the risks due to accidents, diseases, or animal attacks¹⁶. The farmer can count on a maximum subsidy (according to certain conditions) of up to 61 % of the value of the premium for the contracting of this insurance (Agroseguro 2022). However, to cover damages to third parties (one of the risks that most concerns the transhumant farmer), the farmer must take out a private policy without any type of subsidy.

¹⁶There is also compensation from some administrations to improve compensation for animal attacks by supplementing deductibles or other damages.

Vet offers

There are some shepherd schools that offer non-formal training. In general, these are private schools run by foundations or non-profit organizations. These schools are located Madrid¹⁷, País Vasco¹⁸, Aragón¹⁹ Cataluña²⁰, Andalucía²¹, Extremadura²², Canarias²³, Castilla y León²⁴ and Castilla-La Mancha²⁵, Murcia²⁶ and Valencia²⁷.

However, many organizations, including public agencies, organize courses on very specific aspects related to transhumance, such as cheese making, regulatory changes, sanitary aspects, insurance, like National farmers Unions ([ASAJA](#), [COAG](#) and [UPA](#)), [the Cheesemakers network](#) and [Cooperativas Agroalimentarias](#).

History

Origins of transhumance in Spain date back to the very origins of animal husbandry. Roman historians confirm the abundance of **drove** roads and the importance of transhumance. Transhumance continued in the Early Middle Ages, first with the Visigoths who invaded the country in the 5th century, and afterwards with the Arab invasion in the 8th century (Manzano-Baena and Casas 2010).

But the Muslim kingdom decline, and the instability originated by the Reconquest of territories by Christian Kingdoms, affected transhumant practices, especially in the early Middle Ages. For this period, documentation of transhumance becomes scarce, however we know that it continued even on routes that went across borders (Fernández Otal 2006). But once peace was restored, pastoralists were able to continue their seasonal movements. It was probably at this time when the local sheep, whose good-quality wool was known in Rome, were crossed with Moroccan sheep to create the merino breed with its unique wool (Klein 2013). The influence of transhumance and merino sheep husbandry was greatest during the Late Middle Ages and the Modern Era; and because of two

¹⁷<https://escueladepastores.es/>

¹⁸<https://www.gomiztegi.eus/?lang=es>

¹⁹<https://www.escueladepastoreo.com/>

²⁰www.escoladepastorsdecatalunya.cat

²¹<https://escueladepastoresdeandalucia.es/es/inicio>

²²<https://fundacion.cooprado.es/>

²³<https://www.aidergc.com/proyecto/escuela-de-ganaderia-y-pastoreo/>

²⁴<https://milcaminos.es/index.php/actuaciones-concretas/>

²⁵<https://www.castillalamancha.es/actualidad/notasdeprensa/el-primer-curso-de-la-escuela-de-pastores-de-castilla-la-mancha-se-celebrar%C3%A1-en-la-finca-%E2%80%98la-nava%E2%80%99>

²⁶[http://www.carm.es/web/pagina?IDCONTENIDO=102157&IDTIPO=14&RASTRO=c2889\\$m](http://www.carm.es/web/pagina?IDCONTENIDO=102157&IDTIPO=14&RASTRO=c2889$m)

²⁷<https://www.agronewscomunitatvalenciana.com/la-estacion-experimental-agraria-de-elche-impartira-el-primer-curso-de-ganaderia-extensiva-y>

highly prized characteristics, having high quality wool and being an animal hardy enough for long transhumance journeys. Spain maintained a strict ban on the export of these sheep until 1760.

In 1273, the Castile king created a professional association of merino breeders that would be the equivalent to a modern lobby showing the importance of the merino wool trade. It was named *Concejo de la Mesta* and it enjoyed privileges over the following five centuries, providing the country in exchange with its most valuable export commodity (García Martín 2004), the finest wool in the world. The more profitable long-distance transhumant regime was reserved for the merino wool sheep, leaving the less profitable short-distance movements for sheep breeds specialized in milk production. The Mesta acquired legal recognition and classification of **drove** roads to protect them against invasions from the farmers who cultivated adjacent lands and guaranteed rights over pasturelands, thus deepening the age-old conflicts between both communities (Klein 2013).

According to Garzón-Heydt 2004, in the golden days of transhumance in the 16th, up to five million sheep, goats, pigs, cattle and horses would travel twice a year along the “*cañadas*” (**drove roads**), establishing a dense network of pasturelands throughout the peninsula that linked the warm lowlands (less than 400 m above sea level) in Extremadura, Valle de Alcudia and Valle del Guadalquivir in the southwest, with mountain ranges in the north (more than 2.000 m above sea level). In traditional transhumance, the herds would leave their winter quarters in the south at the beginning of the dry season, in early or mid-May, and reach their destination in the north some four or five weeks later, at the end of June, just when mountain pastures start to grow after the snow melts. However, this ancient pattern changed suddenly some hundred years ago, following the construction of railway lines that linked the south and north of Spain. During the late 19th century, the basic Spanish railroad network was built, converting the traditional trip on foot that took one month in spring and another month in autumn into a quick one-day journey. This left **drove** roads unused and, consequently, victims of all kinds of misuses. Most of the herdsmen welcomed this modern way of transport that saved them the long and often arduous journeys of walking. Thus, in just a few years the herds began to be transported mainly by rail, in trains that were specially constructed for the transport of livestock. But this apparently unimportant change had a major environmental impact, until now not adequately taken into consideration. The journey to northern mountain areas by train, and more recently by truck, takes only one day, and therefore the herds do not leave their winter pasture areas until mid- to late June, which may have caused overgrazing in certain areas.

But as Manzano-Baena and Casas 2010 point out, the situation was made worse with the introduction of trucks for livestock transport, reducing even more the travel time and the use of **drove** roads. Many herders intensified their production and stopped doing transhumance, bringing food to the animals instead of bringing the animals to where the peak in food production was located. The mass production of man-made fibers after World War II (Ruiz 2001) greatly affects sheep profitability, and together with the rural exodus after the industrialization of the country, turned transhumance into a marginal activity. Even if livestock is largely extensive now (Casas Nogales and Manzano Baena 2007), keeping livestock in the ancient wintering areas throughout the year prompts overgrazing problems, while the abandonment of summer pastures is causing severe losses in biodiversity (Garzón-Heydt 2001, Ruiz 2001).

7. Values and meaning transhumance

Transhumance has not only served to improve livestock herds and optimise pastures. Transhumance routes have contributed to creating a valuable cultural heritage that has permeated folklore, architecture, crafts, gastronomy, toponymy and even law, and has led to an enriching exchange between the different regions of the peninsula. For these reasons, in 2017, transhumance was declared a Representative Manifestation of Intangible Cultural Heritage²⁸.

The secular transport of livestock along the routes and to the pre-established destinations ended up leaving its mark on toponymy, a mark that in some cases is evident. But not only the toponymy; the arrival of the shepherds accompanying the sheep meant a constant stream of new people who contributed with their presence to populate new lands.

Although shepherds' culture, due to its mobile character, has left little and very perishable remains, many livestock bridges, roman arches, mills, resting places, shearing houses, wool laundries persist. The *Chozos* (huts) related to the guarding of livestock, especially those made of stone, are perhaps the main architectural footprint. Also, the transhumant culture has left a deep mark on our gastronomy. Recipes such as *gazpacho*, *migas* or *caldereta* still have a place on our tables.

In terms of intangible heritage, the transhumance routes were channels for socio-cultural exchanges between the regions of the north of the Iberian Peninsula and Extremadura and Sierra Morena: through them, there was a continuous traffic of ideas, customs, religious devotions, perhaps also of linguistic forms, romances and legends (Estevez 2017). This heritage is maintained and disseminated through [fairs and festivals](#) or [museums](#).²⁹

MAFE 2013 resumes the main cultural, economic, social and heritage services as:

- Generation of indirect economic services.
- Economic sustainability
- Maintaining the population in rural areas.
- Production of differentiated and quality foodstuffs (meat, milk, cheese...) and other associated products (wool and leather).
- Production of handicrafts associated with the transhumant activity.
- Guarantee of the maintenance of the historical network of drove roads
- Maintenance of the architectural heritage, infrastructures, and cultural legacy in general.

²⁸ https://www.boe.es/diario_boe/txt.php?id=BOE-A-2017-4009

²⁹ <https://trashumanciaynaturaleza.org/mapa-de-la-trashumancia>

- Preservation of knowledge and good practices: training and use of shepherd dogs, ethnobotanical knowledge, etc.
- Provision of specific capacities for mobile livestock farming at the global level, which can be offered on the international market.

The maintenance of transhumance through the centuries following a consistent pattern has allowed the conservation of original ecosystems with an outstanding biological diversity in Spain until the present time (Fernández-Guisuraga et al. 2022). The pasturelands grazed by transhumant herds hold one of the highest floristic diversities known in Europe, with more than 40 different plant species in some places. The diversity of insects is also exceptional, with more than 8,000 different Coleoptera and 4,000 Lepidoptera species (Garzón-Heydt 2004). **Drove roads** constitute a natural corridor that contributes to the maintenance of habitat connectivity (Manzano-Baena and Casas 2010). They are of particular importance in areas with a fluctuating climate such as the Mediterranean, where many animal populations depend on complementary environments to ensure their survival. They also allow genetic exchange between different populations (Garzón-Heydt 2004) and act as reservoirs of wild bees (Hevia et al 2016). In fact, mountain pastures where livestock no longer arrives lose diversity and productivity, resulting in a loss of environmental quality and resources as well as increasing fire hazards. Degradation is caused in areas denuded by fire or overgrazing, the first rains after the summer season trigger severe erosion events, washing away the fragile Mediterranean soils. In areas where livestock stays all year round, there is excessive pressure in late spring and in summertime that ruins the quality of grasslands and prevents regeneration, alters the delicate balance of ecosystems, destroys tree generation, pollutes, and depletes water points, destroys shelter and food resources vital for terrestrial fauna and disturbs the reproductive cycles of sensitive species (Garzón-Heydt 2004)

A summary of the main environmental benefits can be found in MAFE 2013.

- Optimization of resource utilization through:
 - Exploitation of marginal lands.
 - Use of agricultural by-products that are difficult to dispose of.
 - Renewal of pastures and preservation of their good condition.
 - Saving of feed, fertilizers and industrial pesticides and provision of manure.
 - Contribution to land use planning, as it favors preservation of habitat of high ecological value and revaluation and management of Mediterranean woodlands.
 - Prevention of rural depopulation by providing jobs with a sustainable activity.
- Fight against the loss of biodiversity, through:

- The conservation of the ecological functionality of public goods, by creating ecological corridors being their greatest value, due to:
 - Role as corridors of grazing ecosystems and as a contribution of connectivity between protected areas.
 - Guarantee of animal and plant dispersal processes.
 - The contribution of heterogeneity, which preserves habitats of high ecological value and shelters a multitude of species.
- Fight against soil degradation and desertification, through:
 - Prevention against forest fires, by clearing the forest and controlling biomass controlling the development of grasses and shrubs.
 - Protection against soil erosion by supplying fertilizer with high water retention and slow water retention and slow degradation (manure).
 - Transhumance allows a sustainable use of pastures avoiding overgrazing and therefore, maintaining a continuous vegetation cover that prevents erosion.
 - Regulation of water resources by improving soil quality.
- Fight against climate change, through:
 - Transhumance emits compared to other to extensive shelving, approximately 75% less CO₂ emissions compared (Casas and Manzano, 2010).
 - A good pasture management, such as transhumance, makes them important CO₂ sinks (Rodeghier et al. 2011).
- Adaptation (
 - Transhumance has the capacity to use changing resources in space and time.
 - Contribute to the conservation of native livestock, better adapted to arid conditions

Support platforms³⁰ have played a decisive role in recognizing the key role of pastoralism. In developed countries, mainly the EU, the platforms have been made up of scientists who have become aware of its importance for environmental processes. Nevertheless, the pastoralist collectives have been too weakened and marginalized, both because of the orientation of economic development and the perception of society in general, to be able to effectively defend their livelihood. The claim for the importance of transhumance has been therefore, led by the scientific

³⁰ i.e Spanish Platform for Extensive Livestock Systems and Pastoralism (<http://www.ganaderiaextensiva.org/about-us/>)

community and more linked to the environmental services that are no longer provided (MAFE 2013).

8. Challenges to face, needs/opportunities

There are some studies that compile opportunities and needs described by transhumant livestock keepers themselves based on interviews and surveys (i.e., MAFE 2013; Zabalza et al. 2013)

Needs/challenges

- For marketing, one of the major difficulties in starting the activity is to find the critical mass and logistic networks necessary to carry it out. To overcome these barriers, two types of actions are usually used:
 - producers' markets (Rodríguez 2019)
 - taking advantage of networks of the (agro)organic movement, with a culture of self-management and self-organization to solve problems that affect both types of protagonists involved in the issue: both producers and consumers, rural and urban (Sevilla et al. 2019).
- Extensive models, and transhumance, lack differentiation from other livestock productions based on intensive management not linked to the territory. The recognition of all the benefits of transhumance is lost in the value chain.
- Likewise, zootechnical management, regulations, sanitary controls, or the calculation of greenhouse gas emissions, to give several examples, are not designed based on the conditions of extensive livestock farming, which generates important handling and management problems at the farm level, and confusion at the level of the consumer.
- There are fewer and larger slaughterhouses left (industrial model), due to the closure of many small slaughterhouses, mostly municipal slaughterhouses, which provided a service of proximity to livestock farms in the area. Royal Decree 1086/2020 relaxed conditions on hygiene in the production and marketing for the direct marketing of small quantities, open the opportunity for small farms opened an opportunity for small farms to invest in meat-cutting plants, but it is still a very high cost. The distance between farms often makes it difficult to share cutting rooms.
- Lack of generational replacement and lack of manpower, especially professional shepherds., as a consequence of two major structural problems:

- lack of social recognition for those engaged in extensive livestock farming as consequence of the growing disconnection between the rural and urban worlds.
- the hardness of the tasks involved and the lack of support for this type of production through the Common Agricultural Policy (CAP) (Velado 2021).
- Transhumance implies higher risks of accidents and losses.
- Climate change in Spain may have a negative impact on both the productivity (Del Prado et al. 2014; Dumont et al. 2015) and on the quality of pastures (Myers et al 2014).
- Transhumance requires large sacrifices in personal life, as it is necessary to spend days, weeks or even months away from home.
- There is a drop of sheep meat consumption, mainly in favor of chicken and pork, generally produced intensively. Also, the prevalence of large cooperative models, in which there is a lack of differentiation, discourages a higher quality but less productive production, with less prolific breeds and less reliance on external feed.
- In the case of wool, the abandonment of genetic improvement and management aimed at obtaining quality wool has placed national wool production in a difficult situation, which means that it cannot compete either in price or quality with merino wool from other origins. Of course, this has negative repercussions on the economy of livestock farms and on the competitiveness of the Spanish textile sector (Marsa et al., 2009).
- To promote the consumption of this type of products, awareness, and sensitization at the level of the final consumer is required.

Opportunities:

- It is essential to advance in marketing, adding value to the agricultural production by bringing the product closer to the consumer. In this sense, until the approval of Royal Decree 1086/2020, small livestock establishments had difficulties in complying with the hygiene package legislation. Only a few Autonomous Communities had their own regulations. This new legislation has meant an important advance for livestock production, although on farm transformation facilities still important investments are required.
- Society's increasing appreciation of environmental sustainability and artisan or organic products.
- Grazing represents a cost saving of up to 70% in fire prevention work, compared to fire prevention work compared to mechanised clearing (Ruiz-Mirazo et al. 2009, Varela-Redondo et al. 2008).

- Need for greater synergy with agriculture to take advantage of fertilization with livestock waste. The increase in fertilization costs, together with greater environmental constraints, opens an important way forward.
- New technologies improve livestock control and allow the development of small meat processing facilities such as small slaughterhouses (Pontijas and Salguero 2021).
- There is room for improvement in the ecotourism business.

Questions not linked to a specific section in the report but important for us to know about for the project:

- What kind of information do you expect the TRANSFARM-project to provide? Case studies of how to promote extensive husbandry
- What issues regarding transhumance deserve special attention and should be in focus of awareness increasing? How to differentiate transhumance from the rest of the meat production
- Do you have any examples of transhumance practitioners who can be used as good examples of how to establish and manage transhumance?
In <https://trashumanciaynaturaleza.org/mapa-de-la-trashumancia> can be found a complete catalog of farms that practice transhumance.

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