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Techno-herds and cyborg-shepherds in the age of spectacularized bucolism: What lies behind the postcard

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ABSTRACT

This paper focuses on what shepherds must do to ensure that their herds can peacefully graze on the upper meadows of the Catalan Pyrenees. These days, this image, a classic icon of bucolic traditional rurality, cannot happen unless the shepherds are in permanent contact with public administration officials to confirm their compliance with a plethora of strict policies relating to their animals. These policies span a number of fields, including sanitation (vaccinations and tests), animal welfare, insurance, supervised mobility and production processes, environmental impact and subsidies, and have led to very strict supervision and control of animals and their caretakers. In other words, the herd is the result of a cautious combination of technologies of power that track every single animal and the shepherds themselves. The herd, the epitome of the spectacularized patrimonial economy that currently predominates in these mountains, is, in Haraway's words, a cyborg. The symbol of an area and an economy that revolves around the allegedly harmonious coexistence of nature, culture and tradition is, in fact, a compliant techno-hybrid.

1. Introduction: bucolic postcards

We have been walking for a couple of hours and have finally reached the pass, near the Coll de la Creueta on the eastern slope of Puigllançada (2408 m). We are close to 2000 m above sea level and the black pines that utterly dominated the slopes have gradually receded and have now faded away at the edge of the alpine meadows. Heading through a mountain pass is always an exhilarating experience. After hours of trekking uphill, you are rewarded with the possibility of witnessing a new world, a new valley, a new landscape, a new topography behind the flattening curve of the pass, while also being able to turn around and see the places you have left behind, unfolding in the distance like a diorama. At the threshold of a mountain pass, the world splits into a beautiful past and an exciting future downhill. In our case, we are leaving the Cerdanya district and slowly moving into the deep valley of Lillet in the upper corner of the Berguedà district in Catalonia (see Fig. 1).

There are always surprises lying in wait behind the slope of a pass: a narrow valley with dark, steep sides; a ski resort rolling down the opposite side of the new valley; or the ruins of an abandoned village. If we are lucky and we show up against the wind, we might surprise a few elk or chamois grazing on the far side; an unending landscape of ranges and mist. Today we have run into Josep's herd. Josep is a 66-year-old shepherd from the plains that lie two days away by foot. He has been coming here, to the pastures of the upper slopes of the Canigó range, three months every summer for the last 50 years. He has a herd of 400 sheep, 30 goats and four dogs. They all belong to his older brother, the heir of the house. The view before us is breath taking. Josep is standing by the rocks, dressed in a hat and corduroy trousers. His hands rest on his stick, two dogs lie at his feet and two others are running around the eastern side of the herd in response to Josep's whistles, preventing the sheep from wandering off towards the forest. Several hundred sheep and goats graze peacefully around him. The soundtrack for this bucolic image is nothing but the sound of the sheep bells, the occasional bark, and the whistles from the iconic protagonist of the scene. Nothing else seems to be happening. This image symbolizes and invokes one of the cornerstones of rurality. In the 21st century, it encapsulates several fundamental narratives about western history, tradition, culture, rurality and nature (Williams, 1975).

This image and the description we have used to convey this bucolic rurality also constructs a reductionist narrative that ascribes a surfeit of contradictory attributes to shepherds and their way of life (Vaccaro, 2006). From a positive perspective, this image and the shepherd embody

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peacefulness, a connection to the land and nature, bucolic rusticity, the beauty of land and tradition (Archer, 2018). The vision of a practice connected to nature also gives rise to the idea of authenticity, of an environmentally sustainable, artisanal process to produce high-quality food (a consequence of the animals' diet and the management practices used); traditional farming, which respects the animals and the environment, unlike the inhumane practices of industrial husbandry; and a practice that has been going on for centuries. This naturalization of culture emphasizes the power of the image to simplify (Del Mármol and Estrada, 2018). On the other hand, the shepherd is also seen as backwards, a remnant of the past, prone to isolation and an obstacle to modernization in these mountains (Marsden et al., 1993; Wilson, 2001).

In any case, this image is not as common as it used to be. The number of shepherds in the Pyrenees has declined dramatically over the last 40 years. However, most valleys are still home to a few herds that wander from the lowlands to the upper pastures in spring and back again in late summer. Some shepherds even still practise transhumance and travel to even more remote landscapes.

This bucolic postcard draws a sharp contrast with another image, just as pervasive as the former, if not more so, even though it is hidden from most people: queues of shepherds at the offices of the Catalan government's agriculture department. They all wait, clasping a thick folder, bursting with a myriad of documents awaiting inspection to ensure that their herd is legal, they are permitted to move around, and they can sell their animals. These papers deal with issues such as sanitation and health-related matters, management technologies and subsidies, mobility permits and so on. This is the dark, hidden side of the seemingly rustic business of husbandry that lies beyond mountain passes, dogs, sheep bells and picturesque settings. For contemporary shepherds, detailed knowledge of the processes and language used by the bureaucratic state and sanitation authorities is just as important as the meticulous ethnobiological knowledge their ancestors acquired and passed down through the generations, or perhaps even more so (Altieri et al., 1987; Ferguson, 1990; Goody, 1977; Nadal et al., 2010). In these discourses, one can identify traces of what Carroll called distinctive "narratives of technonatures"; ways of explaining the interactions between society and nature that have very specific political consequences (Carroll, 2018). These days, shepherds' intricate centuries-old ethnobiological knowledge is not sufficient to navigate the murky waters of the scientific and bureaucratically driven neoliberal governmentality (Lave et al., 2010), since new sociotechnical imaginaries have emerged (Jasanoff and Kim, 2015; Levidow and Raman, 2020; Sismondo, 2020; Sovacool et al., 2020).

The aim of this article is to describe parts of the complex assemblage of practices, regulations, ideas and technologies that currently sustain, inform and control an age-old practice such as sheep herding in Western Europe and how everyday life is changing through these new practices (De Certeau, 1984). We argue that today's herds, composition, behaviour and mobility cannot be understood without considering the health and control technologies that regulate them and their derived products (Bérard and Marchenay, 2004). In other words, these herds are techno-herds; "cyborgs" in the words of Haraway (1991). Sheepherding is perceived by its unsuspecting audience as clean, almost ahistorical in its traditionalism; this performance that is also a practice depends on a plethora of political and technological processes that are mostly hidden while the sheep pace the slopes (Scott, 1990). There, only the small plastic tags on the ears of the animals hint at the presence of the state and its all-seeing sanitizing eye (Foucault, 2008).

To a certain extent, the goal of this article is to complete the ethnographic picture that both authors have drawn after decades of anthropological fieldwork in the Pyrenees interacting with shepherds and herds, sharing conversations and experiences with them (Beltran

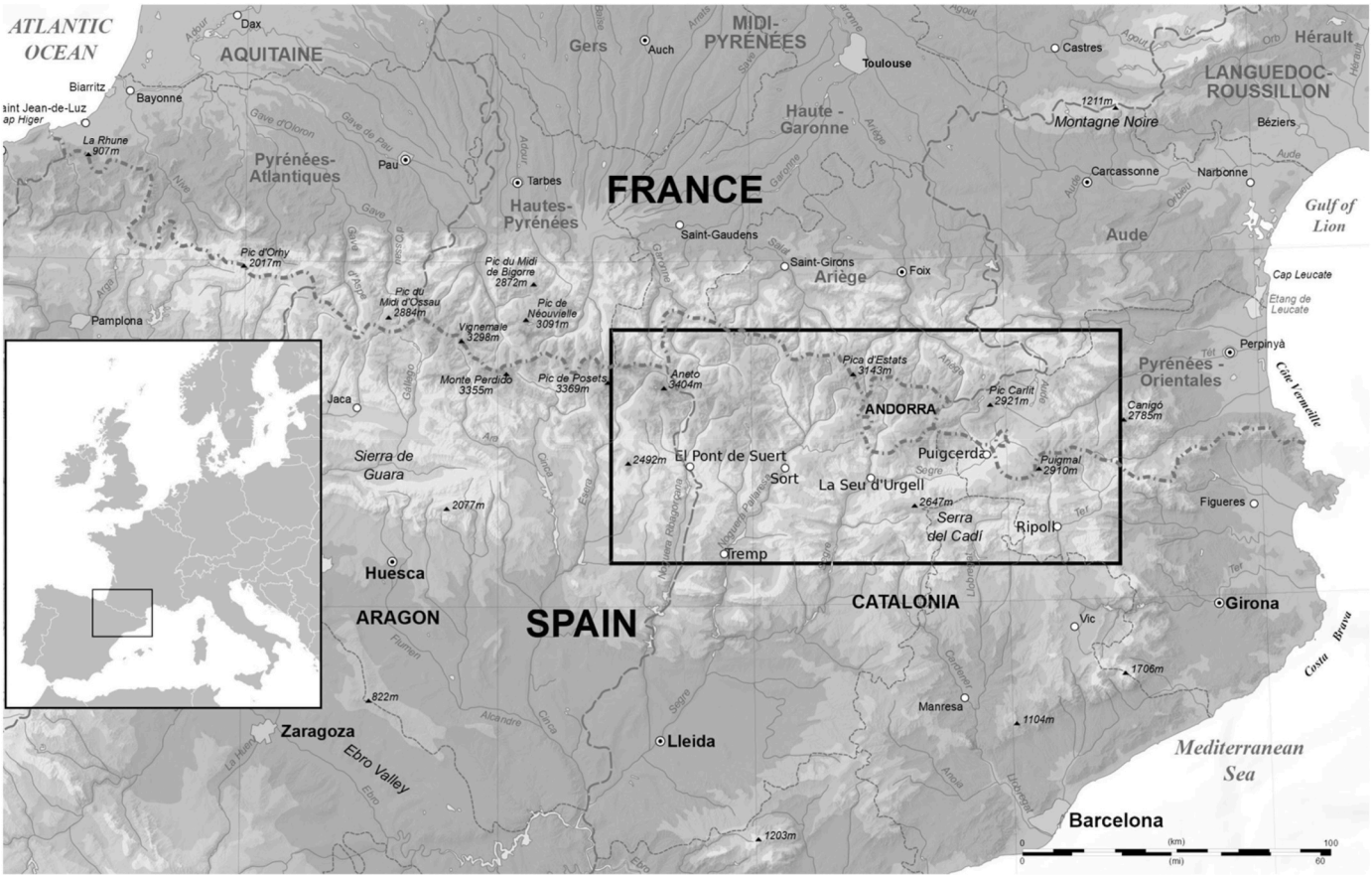

Fig. 1. Localization of the Pyrenees in Europe and the study area inside the Pyrenees.

and Vaccaro 2014; Estrada et al., 2010; Nadal et al., 2010; Vaccaro and Beltran, 2010). In previous work, we have focused on the transhumance, on the mobility across ecological niches and ownership regimes, but we have not analysed the paperwork behind the scenes with the same depth. This tension between the idyllic image and the bureaucratic and technological processes that lie behind the scenes stands as a metaphor that embodies the dispute between different versions of what rurality ought to be (López-i-Gelat et al., 2008; Walford et al., 1999). This tension between tradition and modernity embodies, on a local scale, the manifestation of the great transformation (Polanyi, 1944), a socioeconomic transition (Godelier, 1991), an integration of the peripheral areas of Europe into the aegis of the state and capitalism (Vaccaro, 2010).

In fact, 40 or 50 years ago, one would have seen several herds wandering around villages, crossing and grazing on slopes covered by fully functional agricultural terraces (thus helping to keep them clean and fertile), and the herds would probably spend the night on the ground floor of the village farmhouse. These days, this practice is forbidden by health regulations, and the animals must stay outside villages in their own sheds. The decline in the number of herds and the human population has also contributed to the disappearance of cultivated fields as forests encroach (Meyfroidt et al., 2010).

In fairness, shepherds deal with a range of technologies on a daily basis (Adas, 1989; Miller et al., 2005) in relation to material aspects (construction and maintenance of infrastructure, different drugs and fodder for the animals, electrified fences) and the knowledge associated with management of the herd in the barn and pastures (mobility, reproduction, suitable resting places). This article does not overlook these aspects of this way of life; however, it focuses on the technologies of control imposed on them by the public administration, how they have learned to live with these technologies of power and how these, in turn, have transformed shepherds' lives and identities (Foucault, 1975; Thompson, 1968).

Fieldwork was conducted in the Catalan districts of the Berguedà, Ripollès, Alt Urgell, Pallars Sobirà, and Alta Ribagorça and the Aragonian district of the Ribagorça in the Spanish Central Pyrenees (see Fig. 1). These are mountainous areas with altitudes that range between 700 or 800 m above sea level at the bottom of the valleys to 3000 m at the summits, characterized by a harsh climate and rugged orography. This is a territory dominated by forests, meadows, and alpine pastures, where agriculture and mechanization are difficult to implement, but ideal for extensive herding.

Until the mid-twentieth century, farms were diversified family-based exploitations that combined small scale agriculture with herding of sheep, cows, and horses. The animals spent summer on the high pastures and descended to the valleys during Winter. The domestic groups complemented their revenues with forest work and the seasonal migration of some of their members. Nowadays, tourism is the main economic activity of the region, and agriculture and herding have lost economic and demographic presence. Despite this fact, they remain symbolically relevant for the local identity or for the image these districts project to the rest of the country.

2. Governing the herds

For almost a century, mountain farming remained at the margins of the industrial modernization processes that completely transformed agriculture and husbandry in the lowlands of the entire western world (Diser, 2012; Fitzgerald, 2003; Henke, 2008; Planes, 2013). Mass production, technology and genetic improvements required too much capital investment for the small-scale, low-productivity operations that characterize high mountain regions (Stone, 2010). At some point, however, the expansion of the dairy industry in the case of farmers with cows (Del Mármol and Vaccaro, 2015; Tulla, 1994), the increase in the size of the sheep herds that survived the demographic collapse of mountain areas in order to fully benefit from the EU subsidies (Estrada et al., 2010), and the introduction and implementation of state and European sanitation regulations (Buller et al., 2000) meant that mountain herds and their keepers started to experience the heavy hand of technogovernance (Foucault, 2008; Latour, 1988).

On the one hand, the goal of agroindustry has always been to increase efficiency, productivity and, ultimately, profitability. This is the justification for the successive technological choices that have transformed agriculture and farming from a self-sustaining, low-productivity form of agriculture with a diverse crop portfolio to a specialized monocrop system dependent on significant mechanization and the widespread introduction of fertilizers and pesticides; from the domestic selection of strands to lab-controlled genetic improvements (Heller and Escobar, 2003; Oguamanam, 2007); a system that involves transformation of the rural workspace into a factory where time, agency and mobility are permanently regulated due to productivity and sanitation concerns (Planes, 2013; Vaccaro et al., 2014). Those first steps paved the way for the current emergence of the precision farming paradigm (Berckmans, 2017; Wolf and Wood, 1997).

On the other hand, the goal of the public administration in this framework is to regulate the entire sector in terms of productivity, sanitation, handling protocols and environmental impact via policies and supervised subsidies. The complexities introduced by the technification of production have, in turn, warranted a more complex management approach that spans multiple fields.

This external pressure, the combined action of a rapidly evolving agroranching industry and the unfolding role of the state (and the European Union), has resulted in a loss of farmers' decision-making autonomy; because the process is more complex, because policies and technologies are accompanied by a low degree of flexibility, and because the knowledge required to operate under these conditions is often so specialized, these developments often put the farmers in an inferior position vis-à-vis the representatives of the public administration and agrotechnology companies (Burton, 2004; Dudley, 2002; Gardezi and Stock, 2021; Pauschinger and Klauser, 2022), thereby even transforming self-narratives (Carolan, 2008). Farmers are forced to hire people to translate the modern procedures, administrative managers, accountants and technical experts (mechanics, veterinarians, geneticists, etc.). Their children leave home to study genetics, veterinary medicine or agroranching engineering in order to keep up or to get ahead in the agro-capitalist race (Arqué et al., 1982). This mechanization invariably results in the disciplining of users, i.e. the family in the case of farmers (Blad, 2010; Carney and Watts, 1991).

In the mountain areas of Spain, this process, that had started after the death of the dictator Franco, intensified after joining the ECC in 1986. This entry resulted in radical market and legislation changes. This is a process, however, that had been occurring at a global scale for quite a while. In Europe, this transformation was accelerated by the 1962 implementation of the CAP and its successive posterior reforms that have pushed agriculture and husbandry towards a post-productivist model (Wilson 2001).

This process, which is already complete in the large farms of the lowlands, is still under way in the mountains. The transformation of husbandry in these areas, however, has not been minor. There are fundamental issues relating to obligatory compliance that have forced these farmers to be in permanent contact with the state regarding sanitation controls, insurance policies and EU subsidies. The rule of state and its experts have had a fundamentally transformative impact on these communities (Carr, 2010; Carroll, 2012). To manage this industry, public administrations, as per usual, needed to develop the capacity to identify, count, and impose disciplinary measures (Scott, 1998).

2.1. Identifying and counting

According to current legislation on the identification and registration of sheep and goats, all animals born after 2010 must be individually identified in two different ways: a visual system (i.e. an ear tag) and an electronic device (i.e. an electronic ruminal bolus or subcutaneous microchip).[1] In addition, all farms must have a register in which, on top of general information on the farm, the farmer must list each animal individually with its identification code, race, genotype, date of birth and date of death.

In addition, farmers must complete specific paperwork to move animals between farms and pastures or to the slaughterhouse. This documentation must include data on the origin and destination farms, travel dates, means of transportation and individual identification of each animal. All this information is centralized in a general register and a digital database. Mobility is also regulated at national level and the law on animal health[2] establishes that the Spanish state must create a national register that must contain basic data on the movement of animals within the national territory. It is important to highlight that implementing the mandatory manual registration of all animals before moving them, as required by the 2004 regulation, was so difficult that in 2012 the EU postponed compliance with this requirement until December 31, 2014. All these regulations have imposed administrative deadlines as the herd management framework. An activity that was previously regulated by the seasons now has to comply with the hectic demands of the bureaucratic calendar (Attali, 1982; Le Goff, 1980). Timescales have also become a major issue; shepherds, Brussels bureaucrats, satellites, veterinarians, testing facilities and rural police practices do not unfold at the same pace, in accordance with the same timescales (Duvall, 2011).

Implementation of all these measures aims to establish thorough INDIVIDUAL traceability of all animals in the industry. This three-pronged approach (individual identification, farm register and mobility records) establishes, de facto, a system of biological passports that tracks mobility, vaccination, illnesses and interaction with wild game or animals from other farms that complements traceability via ear tags and the electronic ruminal bolus. This mobility control process that starts the day the animals are born does not end until they are slaughtered and processed for consumption.

The regulations concerning animal health and identification not only establish how farmers must carry out their activities, but also involve a series of bureaucratic protocols that require an ever-increasing personal effort. This trend establishes significant constraints to their practices and ends up generating resistance on the farmers' part as well as the perception of a diminishing autonomy (Robinson, 2017). Having all paperwork required to maintain a farm requires a knowledge base and an investment of time and finances that many small farmers struggle to provide. Several polls identify that herders feel that bureaucracy is one of their main problems, especially in the Pyrenees (Lecegui et al., 2021; Morales-Reyes et al., 2017).

In 2019, a highly active network of women devoted to extensive herding called "Ramaderes de Catalunya"[3] published an article in Catalan titled "The Monster of Bureaucracy" (Ramaderes de Catalunya, 2019). This article listed the many paperwork procedures they had to undertake in their interactions with different departments of the administration to legalize a farm and sell their products directly. The authors stated that "bureaucracy in the primary sector took time, money and energy away from farmers, male and female alike". The community that emerged as a mutual support group found that the most pervasive problems, those with the hardest solutions that demanded greatest effort, were those related to what they called "the bureaucratic labyrinth" and stated that "a non-negligible percentage of our days is lost to paperwork; many of us must pay a *gestor* to handle this paperwork, and still we are overwhelmed" (Ramaderes de Catalunya, 2019).

A common scenario among our informants is that one household member ends up specializing in bureaucratic protocols and taking responsibility for keeping all the required documents up to date. This might be this member's main contribution to the family business. In other cases, the farmers themselves do it by carving out time from other activities and delegating care of the herd to others whenever they are required to go to the capital of the district to do the paperwork. Very often, however, they must hire specialists to take care of part or all of the paperwork (unions, professional associations, banks, *gestors*, etc.), as they are simply unable to deal with it (Nadal et al., 2010).

The pandemic has added a new complication for many shepherds, as they are obliged to perform many of these bureaucratic tasks remotely. In many areas, the internet connection is poor and many farmers lack the digital means or knowledge to carry out these procedures online (Bowen and Morris 2019; Unió de Pagesos, 2020).

2.2. Discipline via the conditionality of subsidies

> "We live on what they give us. It is shameful and sad, really. We live on paperwork, subsidies, and more subsidies … Four from here, two from there … Everybody! Nowadays I don't think there is a single self-sufficient farm, a farm that can survive from its animals alone" (farmer from the Vall de Boí, cited in Nadal et al., 2010:163).

Implementation of the sanitation and environmental regulations and the identification and control systems that limit agricultural and farming activities has been simplified by the fact that the profit margin on sheep farming is very low, especially in extensive farming farms in mountain regions. The survival of these farms depends on the public subsidies they receive, which might amount to 40–60% of their income (MAPA, 2019; Nadal et al., 2010). This fact creates a situation of dependency on the administration that facilitates the implementation and acceptance of these measures. The farmers quickly realize they do not have many options; if they are to survive, they need the public subsidies, which are conditional on their compliance with a significant number of regulations that affect their daily activities.

EU subsidies for farming are included in the Common Agricultural Policy (CAP). In place since 1962, the CAP is a set of EU policies and regulations devoted to supporting agriculture and the rural world. It is one of the EU's oldest policy bodies and one of its basic pillars. Until the beginning of the 1990s, over 60% of the EU's budget was devoted to agricultural policies and, despite their gradual relative decrease, they accounted for 33.1% of the EU's 2021 budget (Massot, 2021).

The initial goals of the CAP were defined in the Treaty of Rome (1957) and included the promotion of agricultural production to guarantee European food sovereignty, ensuring reasonable market prices for consumers and supporting farmers to help them achieve a dignified quality of life.[4] These goals were gradually modified by successive CAP reforms implemented after the 1980s. The CAP, in fact, shifted from a policy based on guaranteed prices to a model of subsidies disconnected from production. A key moment was the 1992 MacSharry reform,

[1] Council Regulation (EC) No 21/2004 and successive updates (1560/2007, 933/2008, 759/2009 and 45/2012). Spanish Royal Decree 685/2013 of 16 September.

[2] Article 53 of Law 8/2003 of 24 April.

[3] "Ramaderes de Catalunya" is a group of women who work in extensive sheepherding and started out as a WhatsApp support group. The goal of this group is to raise the visibility of women working in husbandry: Twitter @ramaderescat. Instagram @ramaderes.cat, Facebook https://www.facebook.com/Ramaderescat-787838001413853. About the role of women in extensive herding in Spain and the specific case of the "Ramaderes de Catalunya", see Fernández-Giménez et al. (2019, 2021 and 2022).

[4] Art. 39, *Treaty on the Functioning of the European Union*. https://eur-lex.europa.eu/eli/treaty/tfeu_2012/oj [accessed September 2021].

designed to liberalize the market and to reduce the productive surplus and the costs generated by the price stability support model. In this sense the GATT negotiations and the WTO Agricultural Agreement had a significant impact on these and to following transformations (Daugbjerg and Swinbank 2009, 2016). An additional tipping point of the European agricultural policies was provided by the 2000 Agenda[5] and the 2003 reform, both promoted by Franz Fischler which incorporated the promotion of rural development programs, as marked by the 1996 Cork Declaration, A Living Countryside, that became the CAP's second pilar, and the agricultural and environmental standards to be observed by farmers and farmers in order to receive subsidies (Leduc et al., 2021). This shift was consolidated by the 2008 Health Check and the subsequent 2013 modifications (Daugbjerg and Swinbank, 2011, 2016).[6]

All these shifts have contributed to the transformation of the CAP towards a post-exceptionalist political model (Daugbjerg and Feindt, 2017), as, although the liberalization of the market and the elimination of the production subsidies seemed to end the agriculturalist exceptionalism, agriculture and husbandry have remained an exception and the State intervention persists and, moreover, the regulating role of the public administration (agro-environmental regulations, animal welfare, food security) has in fact intensified. In this context, the primary sector has been reconceptualized as multifunctional, as producer of food, but also as provider of environmental and territorial services (Garzon, 2006).

These days, the goals of the CAP are mostly economic in nature, but also concern environmental and territorial equilibrium. The goal is not to produce large quantities of foods but to provide full guarantees in relation to quality and health and to make farming and agriculture compatible with preservation of the environment and landscape. As previously stated, the primary sector has incorporated new functions besides production: sustainable development, the fight against climate change, public health, territorial organization, landscape preservation and the diversification and revitalization of rural economies. Supporting these non-remunerated activities has become one of the CAP's essential roles (Daugbjerg and Swinbank, 2016; Massot, 2021; Nori and Gemini, 2011; Potter and Burney, 2002); thus, the payments received by farmers and farmers are based not on their production but primarily on the environmental and territorial services they provide. This is the CAP's so-called "environmental turn".

The CAP's political framework and subsidies have changed over the years.[7] In the current period (2015–2022), there are two types of subsidies: a) direct payments from the European Agriculture Guarantee Fund (EAGF), which are given directly to farmers for their activity and have a direct impact on agricultural practices; and b) rural development grants from the European Agricultural Fund for Rural Development (EAFRD), which are earmarked for collective or individual projects related to some of the administration's priorities.[8]

There are four direct payment schemes: basic payments, green direct payments (or "greening"), payments for young farmers and coupled support. The first two are connected to production and are awarded to farmers who keep their land in good condition. The actual amount of basic payment they receive is based on the area of farmed land declared in 2013 and the productive use of each parcel of land. These subsidies can be complemented with green direct payments if farmers adopt practices that are considered beneficial for the climate and the environment: ecological agriculture and farming, crop diversification and rotation, maintenance of existing pastures and preservation of areas of ecological interest within the farm. Payments for young farmers are given to individuals under the age of 40 who join the primary sector to help replace the retiring generation. These payments have become a key factor to understand generational replacement (Góngora Pérez et al., 2020). Finally, coupled support refers to funding for the production of certain products that are considered vulnerable, including sheep and goats, and depends on the number of eligible animals.

In 2003, many of the subsidies were decoupled from productivity and the conditions to receive them, known in EU administrative lingo as "cross-compliance", were incorporated into the CAP. This conditionality is based on compliance with specific CAP standards and EU, national and regional regulations on public health, animal welfare and environmental protection. These obligations are grouped under Statutory Management Requirements (SMRs) (such as the obligation to identify animals and report illnesses) and the Good Agricultural and Environmental Conditions (GAEC) (such as respecting the minimal and maximum farming capacities established for permanent pastures).[9] Failure to comply with the requirements can result in a reduction in or complete loss of the subsidies received, depending on the severity and intentionality of the violation.

The first consequence of complying with all these requirements is a dramatic rise in the number of administrative tasks that the farmers must deal with and that affect almost all activities on each farm: to register on the Livestock Farming Register (REGA in Catalan), to identify all animals and record their arrival and departure dates and all incidents affecting them, to list the feed and veterinarian products used, to disclose all health issues, to request mobility permits for the animals, to adopt some of the practices for maintaining fields and pastures, to manage waste and animal deaths, to process payments applications, to digitally update the farm's data on the Land Parcel Information System (LPIS)[10] and so on. As indicated in the previous section, all farmers are forced to devote a significant number of working hours to these bureaucratic obligations or to hire specialists to do it for them, and the deadlines on all this paperwork ends up conditioning the timing of farming tasks that are usually dictated by the climate or the animals' reproductive cycles (Iglesias et al., 2010, 21).

The number and complexity of the rules and obligations that shape this "bureaucratic labyrinth", in addition to the constant changes, often lead to paperwork being filed incorrectly or late, thus resulting in sanctions for farmers. In 2019, for instance, 17% of Spanish sheep farms that were randomly chosen for inspection did not comply with the legal management requirements in relation to the registration of animals (MAPA, 2020).

In addition, the law defines the technical requirements of farms in relation to environmental protection, public health and animal welfare. It defines a set of conditions in relation to the location of stables (distance to other stables, population centres and water sources), space for the animals (number of square metres per animal) and storage of fodder, medicines, machinery, waste, etc. These are fundamental requirements to register a farm and operate legally. Despite subsidies to improve farm infrastructure, the high costs and low returns make it difficult to recover the investment in a reasonable time frame. Complications increase when the farmer does not have access to land suitable for the construction of

[5] *Agenda 2000: For a Stronger and Wider Union.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3Al60001 [accessed September 2021].

[6] Council Regulation (EC) No 1782/2003 of 29 September 2003; Council Regulation (EC) No 73/2009 of 19 January 2009; Regulation (EU) No 1306/2013 of 17 December 2013.

[7] On November 23rd, 2021, the European Parliament approved a new CAP that will be implemented starting in 2023. The accepted changes reinforce the environmental emphasis of the subsidies.

[8] See the list of priorities in Art. 5, Regulation (EU) No 1305/2013 of 17 December 2013.

[9] EU obligations are defined in Annex II of Regulation (EU) No 1306/2013 and those applicable to Spain can be found in Royal Decree 1078/2014.

[10] LPIS is a database that includes georeferenced satellite and aerial images of all parcels. For each parcel, it includes data on surface area, land use, vegetation, carrying capacity, ecological value, landscape elements worth protecting and other administrative information. Regulation (EU) No 1306/2013 of 17 December, Commission Delegated Regulation (EU) No 640/2014 of 11 March and, in Spain, Royal Decree 1077/2014 of 19 December.

new facilities (in mountain regions, planning restrictions and competition with tourism exacerbate the problem of a lack of suitable land).

A significant problem highlighted by farmers is that the technical requirements are the same for every farm, regardless of its size, which makes it complicated for small operations to comply. The slaughter process has also changed. The technological and sanitation requirements make it impossible for farmers to sacrifice their own animals on the grounds of the farm. These days, animals cannot be killed on farms and must be transported to official slaughterhouses, which are subject to stringent controls. This final part of the process has also been removed from the farmers' hands and, of course, the obligatory transportation has increased the cost of the process. The current sanitary regulations for slaughterhouses are so wide-ranging that only large industrial operations can afford the implementation costs. This has forced most small, local abattoirs to close and, as a consequence, has increased the transportation costs for farmers. Large slaughterhouses often refuse to sacrifice just a few animals. This forces farmers to carry out long journeys to sacrifice their own animals, which increases costs and stresses the animals further. As a result, many farmers have forgone direct sales and have no option but to sell to intermediaries, which further reduces their revenues. A common request from the sector to the administration is to adapt the regulations to the local context to facilitate the installation of low-capacity slaughterhouses near farms.

The conditions required for access to the subsidies also include parameters relating to the size and productivity of herds. In the specific case of sheep farming, contributions are paid depending on the number of reproductive females recorded on the farm. To be eligible for the subsidies, farmers must have a minimum of 30 and all animals must be properly identified and registered, with a yearly production of at least 0.6 lambs or 80 L of milk per registered sheep.

At the same time, the health and animal welfare regulations also dictate the conditions for herd management and mobility which often contradict farmers' practices, knowledge, and values (Jaye et al., 2021). The type of fodder, medications and stable-cleaning materials are also defined by the state. The transportation conditions and frequency with which animal welfare must be checked are also established by the regulations.

A controversial issue is animal health. The regulations stipulate that all animals must undergo a yearly check-up. Depending on the results, each farm receives a rating. There are protocols to deal with possible issues: the affected individuals must be sacrificed, the herd must be immobilized or, in the worst cases, the entire herd must be sacrificed. The rating permits or impedes travel to other areas with a different health rating. Herds that move across borders are subject to stricter regulations. These issues have a particular impact on transhumant herds that move from winter to summer pastures. These herds must undergo an additional health check-up 30 days before travel and be issued with a health certificate before they can move. In these cases, immobilization has dire consequences, as the farm's viability depends on access to the best pastures during each season as it constrains access to food and facilities. Herds often come into contact with wild animals. Wild ungulates often carry illnesses that can be transmitted to herds, so farmers could comply with every single health requirement and still experience outbreaks in their herds.

Farmers highlight the fact that the classification of good practices and pastures and carrying capacity are defined by bureaucrats from their offices in Barcelona, Madrid or Brussels with no regard for the local context. Nature is redefined from afar, deconstructed into categories that shape a new, administrative way of classifying their historical reality (Jorgensen et al., 2013; Waterton, 2002). Paradoxically, certain activities that have helped create and sustain valuable landscapes are being forbidden. This is the case, for instance, with the *dehesa*, a silvopastoral system that combines pastures and trees and represents one of the most important spaces in sheep farming on the Iberian Peninsula, and that was excluded from the CAP until2018.[11]

Although farmers recognize the environmental role played by extensive farming and highlight this when defending their trade, many do not share the "environmental turn" of the CAP. They consider themselves to be meat and milk producers and request that they be appreciated because of their product rather than because of their collateral effects. A Ribagorça shepherd told us, "If we have a herd, our aim is to make a living from it. The positive effect on the land is all well and good, but we are not gardeners". Another farmer from Ripollès tweeted the following: "Some want to turn us into alternative folkloric gardeners who live off public subsidies. But the shepherd's credibility is underpinned by the quality of his lambs. We want to live off the animals and the land".[12] Despite the forcefulness of these statements, they do not object to the need to identify and use more sustainable practices or even the need of a certain level of control. What they reject is the meticulousness, complexity, and bureaucratization of the control mechanisms. Instead of regulations that, they feel, consider them ignorant or delinquents, often designed for productive contexts very different from their actual everyday life. Herders demand the recognition of the value of their knowledge, developed in proximity with the territory and respectful of the environment, a respect for their capacity to take decisions, and administrative expectations that take into account the reality of their small or midsize mountain exploitations.

However, increasingly, farmers prefer to draw attention to their environmental role, as, on top of being aware of the need to produce in a sustainable fashion, this gives their products an intangible value. This is the case, for instance, with "Herds of Fire",[13] a brand run by farmers from Girona who highlight the fact that their animals contribute to fire prevention by feeding in forests. In a context where environmental protection has become a universal moral principle, this adds value to their products.

The environmental services are not rewarded by the market and are paid by the public administration (Kvakkestad et al., 2015). This adds uncertainty to an activity that is unpredictable by nature and affected by the variability of the market, political criteria, and the availability of public budgets.

2.3. *Insuring the pastoral ideal*

The different administrative regulations (regional, national, and European) do not require that farmers take out insurance for their activities. That being said, the grave consequences of an environmental or health emergency on farms in the current context makes insurance a de facto obligation to mitigate against unforeseen risks. In addition to translating into additional costs for farmers, this also results in the obligation to comply with yet another set of requirements imposed by the public administrations and insurance companies.

The central government regulates the conditions for basic insurance on a yearly basis via the *Plan Anual de Seguros Agrarios Combinados*. It also promotes them amongst farmers by running publicity campaigns and providing subsidies for insurance included in their annual plan (up to 45% of the cost). Insurance policies must be taken out with a private company, but the public administration establishes the coverage and the technological and health-related requirements that farms must fulfil to qualify, acceptable animal management practices and the value of the insured animals. Farms must be registered and must also comply with all animal identification protocols. In addition, they must have a minimum health and sanitary rating in relation to infectious diseases. The regulations also include requirements relating to feeding, herd mobility and

[11] Regulation (EU) 2017/2393 of 13 December.

[12] https://twitter.com/xaiecologic/status/1402492717045850114.

[13] *Ramats de foc* [https://www.ramatsdefoc.org] [accessed September 2021].

the processing of dead animals.[14]

In essence, insurance policies cover two types of risk: first, the potential economic costs of the operation, with insurance policies that cover the animals and other production resources (buildings, vehicles, machinery and pastures); second, the negative collateral effects that farming practices might have on third parties, with civil liability insurance for damage caused by livestock, guard dogs or general activities (these additional insurance policies often come with supplementary conditions imposed by the insurance companies).

Basic insurance covers the death of animals due to accidents, mass deaths caused by disease and sacrifice due to infection by foot-and-mouth disease and scrapie. This insurance can be complemented with other services such the removal and destruction of carcasses and sacrifice due to an outbreak of brucellosis or goat tuberculosis. It is also possible to cover any rise in the cost of animal fodder in the case of extensive farming as a consequence of losing access to pastures because of climate issues or herd immobilization in the wake of a health emergency.

2.4. Herds and conservation

Herding is an economic activity and, as such, is regulated by EU agricultural policies, but the vast majority of mountain herding occurs in areas that have a huge presence of (or are impacted by) national and European conservationist legislation. Despite owning mountain lands, herders often carry out their activities in territory that has been declared a protected area. Depending on the level of protection to which the area is subject, shepherds find that their activities are limited to some degree and subject to the directives imposed by the bodies responsible for protected areas. Conservation in the mountains is, of course, about conservation and tourism (Vaccaro and Beltran, 2007, 2008).

A conservation policy worth highlighting is the reintroduction of wild species. In some areas of the Pyrenees, the conservationist public administrations of France and Spain have reintroduced the brown bear (Vaccaro and Beltran, 2009). After a few years, the density of bears had increased to such an extent that bear predation on herds was starting to become a problem. The administration subsidized a series of measures to reduce the impact on the industry; chief among them was the creation of large herds by combining many small, individual herds and the use of public money to pay for a permanent shepherd, electrified fencing, trained mastiffs and so on. To be fair, this has had a positive impact on bear attack trends, but herders have been forced to radically change their working practices to adapt to the new public policy (Pons-Raga et al., 2021).

Europe's mountains are covered by protected areas, regions where the most prominent state agents are representatives of the branches of government dedicated to environmental protection. Thus, governance, governmentality and everyday practices occur under the aegis of environmental policies, so-called "environmentality" (Agrawal, 2005; Fletcher, 2017). In other words, citizens' agency in this area is more often than not limited or shaped by the conservationist public framework. This is especially true for farmers, as they carry out all their activities on land that has fallen under state jurisdiction based on the environmental protection mandate.

2.5. Satellite vigilance

This article began with a description of an idyllic image of a shepherd with his herd in a mountain pass. Before the conclusion, we want to offer a short ethnographic snippet to provide an example of the other side of the coin. When we were putting the final touches to this article, we received a call from a colleague and friend who had recently moved to the mountains and is currently living there with his partner, a long-time shepherd in charge of 1500 sheep.

One of us picked up the phone and our friend Hellen, on the other side of the line, said, "Guess what I'm doing right now?" Of course, we could not possibly answer this question. "I'm taking pictures of marginal patches of pasture and scrubs for a surveillance satellite!" Our inevitable answer was "What?"

In 2018, the EU authorized its member states to use drones, georeferenced images and satellites to monitor farms receiving CAP subsidies to assess their compliance.[15] As explained above, every year all farmers must declare the patches of pasture that will be used by their herd, the surface area, the type of pasture and the eligibility coefficient. This coefficient, recorded in the LPIS, reflects the percentage of the parcel that can be used by the animals, depending on vegetation coverage and slope. The coefficient is automatically calculated based on the satellite images generated by the Sentinel 2 satellite (the irony implicit in this name will not be lost on readers), and it is used to define the area that can receive a subsidy. As the classification generated by the system might present errors and the actual vegetation might change every year, farmers must revise the information on the land they declare annually, as they are legally responsible for the accuracy of the information registered. The brochure received by farmers at the beginning of the season also warns them that some crops are prone to generate confusion in the digital analysis and might require clarification down the line, as the satellite might not be able to definitively identify them or might assume non-compliance. The list of crops that might be problematic is surprisingly long. If this occurs, they will receive a form from the authorities with a description of the parcels that require clarification. Shepherds have the option of: a) removing the affected parcel from their application, thereby losing the subsidy attached to that particular patch, or b) downloading a couple of mobile applications and taking georeferenced images of the patches in dispute before uploading them to the LPIS system. The letter they receive states "If you fail to respond to this communication with one of the two possible options, your application will be penalized".

Sure enough, summer came, and Antonio received a letter identifying some patches that required clarification. Hellen spent a whole day downloading apps and watching YouTube tutorials to learn how to use them. They went to the patches in question, where they took a few photos (10 per parcel) and tried to guess what a satellite would like to see to prove that the landscape was being used for agricultural purposes (Robbins, 2001). Meanwhile, we could hear Antonio, the shepherd, cursing away in the background: "And we can't take them at dawn or dusk! Who is going to take care of my 1500 sheep during the day if I have to leave to take these pictures? We are shepherds! We're not supposed to know how to do all this!"

Many of the shepherds we work with are around or over the age of 60. Many do not feel ready to interact with a satellite with their phone and take and upload pictures of georeferenced patches of land. Some ask their children or the village youngsters to do it for them, while some are forced to ask professionals to do it or simply give up those subsidies. But all of them are being monitored by satellites and all of them are being forced to use self-discipline to provide the additional information the satellite is unable to gather (Carolan, 2022; Marescotti et al., 2021).

3. Conclusion

These transhumant herds have survived at the edges of modern western societies. The farmers and shepherds that own and take care of them have lived in fairly remote areas for generations. Many spend most of their days alone with the animals and many go to the upper pastures with their herds for most of the summer. The herder ethos includes a

[14] Order APA/464/2020 of 14 May 2020.

[15] Regulation (EU) 2018/746 of 18 May 2018 amending Regulation (EU) No 809/2014 as regards modification of single applications and payment claims and checks.

fierce emphasis on self-reliance and independence and a huge amount of pride in their ability to live in extremely harsh conditions. This article not only refers to the mechanization of an economic activity, but also describes the transformation of the individual and collective identity of entire communities and even of the idea of rurality itself (Woods, 2010).

The "modernization" of the mountain has had a profound impact on their way of life. For one, despite owning animals and mountain lands, farmers feel they are becoming outsiders, wage earners who are always dependent on the whims of external agents acting on behalf of the public interest (i.e. the state). They have been losing their decision-making capacity. In addition, the paperwork and technification (on both an administrative and sanitation level) imposed on them have also made them dependent on specialists to take care of the obscure bureaucratic details that lie on the dark side of the bucolic postcard. This rise in the complexity of the technology needed to conduct and manage farms and to handle the associated paperwork has also created a generic dependency on the technical expertise and know-how it requires. The cognitive misalignments between technology and users, between satellites, software, computers and farmers who are often well into their sixties, are often key to understanding the tense interaction that has developed between the sector and the administration (Fischer et al., 2020; Rotz et al., 2019). That being said, rejection of these changes amongst farmers occurs across all age groups and is mostly associated with the feeling of losing independence and the increasingly overbearing sense of being controlled that goes hand in hand with all these measures.

Yes, the subsidies are fundamental to their survival. They help but, as they like to remind us, many of the additional costs are the result of the administrative demands bestowed upon them by the state.

Spain's accession to the EU and the implementation of the Common Agricultural Policy translated into a radical increase in two areas of the regulation and control of farmers' activities: a) rules and sanctions, and b) contributions and subsidies. This situation has eroded some highly valued elements of the shepherds' lives, such as freedom of movement, personal autonomy and decision-making capacity, which have been replaced by a rise in administrative control and economic dependency on agricultural policies (Nadal et al., 2010). The general feeling amongst farmers is that they have lost their capacity to make decisions about their lives and that they are owners of their animals in name only; that they are merely allowed to oversee them.

In addition, public subsidies have become increasingly attached to an environmentalist agenda, so they often relate not only to the quality and safety of the product, but also to protection of the environment. Although farmers describe themselves as caretakers when needed, sometimes they resent the fact that they are forced to justify their activities in terms of environmental protection. They produce animals, healthy, cleared or biodiverse environments might be a collateral effect of what they do, but it does not define them. These policies are increasingly pushing these environmental concerns to the fore as if they were the most important aspect of the activity, and this attitude is not appreciated.

Behind the sanitation and animal inspection policies lies an implicit narrative that criminalizes shepherds and/or considers them as backwards, rooted in knowledge and practices of the past, inefficient and non-scientific. From this perspective, the state must control farmers because, according to bureaucrats and experts, their knowledge and practices cannot control diseases and have a negative impact on the environment, or they engage in fraudulent productive practices and tax fraud.

The negative consequences of these policies for farmers are not taken into account: the increased mobility obstacles to access pastures (sanitation measures, permits, higher costs) make farmers more economically dependent on the subsidies and conservation policies cause pasture loss and increase wildlife that competes with herds for the grass and carries uncontrolled pathogens that could have devastating consequences for domestic herds if infected. The inability to sacrifice animals at the farm or at local abattoirs impedes direct sales and makes farmers dependent on intermediaries, thereby increasing costs and the obstacles to self-sufficiency.

This article started with an idealized description of herding as a visual spectacle for urban consumption as a natural and cultural asset (Debord, 2012; Del Mármol, 2012). This narrative was based on a biased and partial exploration of herding, a narrative that ignores the impact of modernization (via science and the "rationalization" of management) on these practices. In fact, we explain that, behind this bucolic tradition, lies a plethora of not-so-romantic activities focused on counting, sanitization, mobility control and so on; practices that connect those folkloric figures, herders, with a tonne of mundane paperwork, vaccinations, systematic health controls and reporting back and forth between the farmer and a diverse array of state representatives.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jrurstud.2022.07.025.

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