Animal, Man and Treescapes

The interactions between grazing animals, people and wooded landscapes.

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Animals, Man and Treescapes

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Smuggling and surviving in the uplands: a landscape builder of grazing and cattle on the Portuguese and Spanish Borders in the nineteenth century

Cristina Joanaz de Melo
Sheffield Hallam University; post-doctoral grant from FCT, Portugal.

Summary
This paper deals with the importance of the strategy developed by the highlanders to keep their flocks intact throughout the second half of the nineteenth century in the Portuguese uplands bordering Spain. The strategy occurred within the climatic context of torrential floods and subsequent devastation. The analyses will then focus on the extent that the success of highlanders in avoiding cattle losses, because they were away from the flood waters, would have triggered competition for the pastures on the slopes, which were now desired by the lowland agrarian landowners. The latter, being unable to legitimately expel the secular occupants, attempted that action by making the highlanders guilty of one crime: smuggling cattle. This attitude would justify a strong intervention by public authority in the uplands decreeing the restriction of the highlanders' rights over the common lands. Eventually this would lead to the highlanders being pushed away from the alternative pasturing system and the lowlanders being assured food for their flocks the year round namely during winter flooding and summer drought.

Introduction
After the cycle of torrential devastation which occurred in Portugal in 1854 and 1858, areas considered to be of low agrarian value acquired a higher significance for lowland farmers. In the torrential downpours of the 1850s, unlike the situation in the valley bottoms and plains, where meadows and cultivated fields were devastated, flocks and vegetable crops did not suffer the same degree of loss on the slopes and summits of the uplands.

Thus, the highlanders' economic system appeared to be better prepared to overcome hydrological natural hazards, such as torrential downpours, than the system carried out in the lowlands. Such a difference in economic response due to the effects of heavy rains and flooding in the territory were noticed by politicians, as they were part of the agrarian elite. The cattle raising system of the highlanders was clearly more efficient in facing the impacts of the hydrological hazards in the territory than the ones followed in the lowlands. The slopes, even holding weak arable soils could be seen with new appeal to raise cattle.
Hence, despite their renewed interest in the potential pasture areas on the slopes and summits, the wealthier landowners had to overcome many obstacles to access to them. As in other European regions, it could be expected that there would be strong opposition from the highlanders to having their commons occupied by wealthy farmers from the lowlands. Once upland communities had secular rights over pasturing they could not simply be pushed away. Even any attempt to implement a state-led public regime for the management of natural resources would present a major challenge for the administrative and police bodies in the districts.

Portuguese parliamentarians were well aware that the equivalent attempts to impose an administrative regime to convert pasture to forest on the slopes and the summits of the French Pyrenees had not been accomplished in the best way in France. Indeed, these attempts resulted in very heavy conflicts between the local population and the state officers, in 1828 and again in 1846. Therefore it was obvious that another legal path had to be followed in Portugal.

One alternative was to challenge the legitimacy of the highlanders' way of life and their trading practices. It was reasoned that there could then be action taken under the main duty of executive power to restore order or legality. A criminal activity allegedly practiced by the cattle producers in the mountains was found. In 1860, highlanders were believed to be smuggling cattle across the inland border with Spain. Therefore it was decided that a wider and stronger surveillance should be carried out in that area to gather evidence about the situation. Linking the issue of the highlanders' cattle raising activities with the crime of smuggling in the parliamentary debate in 1860 might have a two-fold outcome. As well as highlighting the need to police the highlanders' agrarian activities and trade, it could also enable the cattle producers to be pushed aside and justify a legal transfer of land and land-use to other landowners.

**Primary constraint and incentive to pasture uses and management: geography**

Bells clanging and sheep running in the fields could be pictured as an old memory of the past countryside. However, in nineteenth century Europe, more than a relic image of the Romantic period, rearing cattle represented a major activity in a wide range of rural landscapes.

A considerable number of studies about the management of commons have shown that raising cattle was an activity held by a wide range of economic and social agents. Historiographically, its relevance throughout the Modern period and across the nineteenth century has been tested as well, across a vast geographical area within Europe. This has covered both the United Kingdom and continental regions such as the
North Western, Circum-alpine chain, the North Mediterranean and the Iberian Peninsula.

Up until about two decades ago, the historiographies of the commons and forest management tended to dichotomize cattle rearing both socially and geographically. According to this vision, powerful economic landlords would keep the most fertile pastures for their flocks while highlanders would shepherd cattle on poorer soils in the upland slopes.

More recently, within the last decade, studies have shown that these sharp divisions between the social actors and geographical areas have become blurred. It has been carefully stressed that there is a vast palette and quality of natural resources which are unequally distributed both in the lowlands as well as in the uplands. This is apparent in a range of different territories including within the British Isles, North Western Europe, the alpine region and the Iberian Peninsula. Furthermore, the variety of natural stages within ecosystems would determine diversity of the commons economies as well as of the practices on the recollection, uses, regulations and management of untamed wild flora. At the same time, different cultures could and did end up developing similar economic behaviours.

This new trend in commons research takes into consideration a complex set of factors, geographical, cultural and political which explain the plurality of practices taking place in the management of the commons. The characteristics of the terrain inside political boundaries, the soil thickness of the slopes, the hydrology and snow distribution over the topography, the altitude and the finally atypical weather conditions throughout the year are all contributory factors towards the contraction or enlargement of the areas for shepherding.

Obviously, the geomorphological characteristics of the land inside political borders would clearly determine access to the kind of pastures existing within these boundaries. It is easy to understand that independently from the wealth of the farmers, for instance, in the Helvetian Confederation the struggle for the meadows in the slopes would take place among the uplands, while in Holland, flocks and herds would be raised in the lowlands. Yet in the second half of the nineteenth century in France, Spain or Portugal, territories which encompass a vast range of landscapes, similar competition for cattle raising areas could take place in the lowland plains as well as in the mountain regions, mostly in meadows which weren’t farmed for arable crops.

It has been extensively documented, in the nineteenth century in France and in Portugal that there were parliamentary debates around the theme of the legitimacy of the landowners from the lowlands to occupy the pastures of the commons both in the plains and in the highlands.

Within the liberal new legal order within these countries (abolishing Ancient Regime rights), the new framework, which endorsed equal
opportunities to accessing public land, had opened up the possibility for other farmers to claim access to the upland pastures, besides the traditional community of shepherds. Historiographically, it has been shown in some cases, that cattle growers were interested in pastures in both the lowlands and at higher altitudes, in order to assure food for their cattle throughout the year.

The upland pastures had actually been managed for centuries, since the Middle Ages, from the Spanish Pyrenees through the Central Chain across Portugal and Spain and down to Beticà. Nonetheless in the nineteenth century, in Spain, these Mesta privileges were taken back. Transhumance was not a problem in itself but granting low-level pastures in summer as well as in winter could be avoided by using pastures at different altitudes ie. in the mountainous regions.

However, the relationship between the lowlands and uplands was not simple. A set of questions springs to mind when trying to understand the motives of the wealthy farmers in the lowlands. Who would really be interested in investing in areas subject to the impact of natural hydrological hazards? Who would be interested in investing in risky areas of annual erosion brought about by the impact of torrential rains, falling annually in winter and spring? Then, what altitude would individual wealthy farmers be prepared to use, at what height and fertility of the soil? Would it be cost effective from the point of view of both the land and also their cattle movement across such a wide range of territories? Secondly, what were the odds of obtaining free permits to explore public land in the mountains and compete successfully with existing highland communities of shepherds, especially after the failed attempts of the public services to forest the summits? Thirdly, why would they explore such a difficult alternative if the lowlands were richer than the upland pastures? Even wet lands, the moors, swamps or marshlands could be converted into artificial meadows.

A further question presents itself, why were they making a claim on for what at first glance seemed to be the most difficult option? Why, if these wealthy farmers were living in areas of richer soils, either arable farming or rearing cattle near to areas of major concentrations of population which would be better for trade and easy transport of goods, would they be looking to expand into the uplands?

A crucial element for the understanding of this apparently similar problem in so many 'upland' regions across the European Mountain chains lies in the meaning attached to the words 'uplands' or 'highlands' in each region. The same expression is being applied to a quite different spectrum of landscapes. It seems to me that both altitude and latitude matter in order to
explain the different reactions and uses of lowland farmers to their regional uplands across Europe.

Altitude, weather behaviour and water erosion impact

The term 'uplands' in the Pennines of England, in the Alps or in the Central Chain on the Iberian Peninsula describe different environments of flora, pedology, hydrology and erosion impacts upon the slopes. Hydrological factors linked to the steepness of the topography and the altitude of the valleys were features that might have influenced specific economic systems. In the uplands, these would be based on cattle and sheep rearing, dairy products and perhaps also in a higher fibre diet of dry fruits and a wide variety of nuts, rather than in cereals which constituted the default diet in the lowlands.

In areas where the altitude varies from sea level to 4,500m asl in the Mont Blanc region of the French and Italian Alps, or up to 3,500m asl in the Béticà in Spain, the word 'uplands' hardly means the same as in continental Portugal where the highest peak of Serra da Estrela rises to 2000m asl. These differences in altitude have different consequences in terms of weather conditions and hydrological performance.

The mountains of Portugal don’t have perpetual snows. This results in the projection of flooding incidents in Portugal to be normally expected to be within a specific period, November and February, each year. To some extent, as it will be further examined below. It might also explain why in Portugal when the length of the rainy season increased, in the years between 1854 and 1857, from October to May, and then again in 1859 to 1861, the population and the rulers were just not culturally prepared to deal with weather conditions that were thought to be exceptional, of short duration and not repeatable.

Whilst, in other countries where some of the mountain ranges are higher, such as France, Italy, Germany, Austria or Switzerland, the seasonal water-flow is likely to last longer with summer pastures available at higher altitudes but in more difficult conditions of access than in Portugal.

In the Pyrenees, the Alps or the Béticà, the drainage patterns drive strong flows of water into the lowlands, twice a year. The river margins and adjacent lands and the plains are charged with two seasons of floods: devastating mudflows during the winter, the period of both torrential rains and snow, and again in the spring, due to the melting of snow and ice cover from the mountain slopes.

In this sense I will be put forward the argument that the lower altitude of the headsprings in the Portuguese mountains (up to 2000m asl), the lack of perpetual snow on the summits, leads to a band of vegetation above the altitude of the torrential waters' destructive impact which contain leaf shedding trees with rich nutritional fruits or nuts, such as Quercus castanea, between 900m asl and 1500m asl1,
would enable cattle and people to survive more easily than in the higher altitudes. Cattle would live in new or renewed pastures and the highlanders diet of animal proteins, vegetable and fruits would be different from the cereal based diet of the lowlands.

Across Europe between 1850 and 1855, there was a short cycle of heavier than average rainfall. This exacerbated the trend in Portugal where an increase in average rainfall had begun at the beginning of the century. Since the early 1800s, in Portugal, precipitation had been increasing with rolling average values of annual precipitation in the second half of the century significantly higher than ones measured at the start. The peaks of rainfall during the 1850s were much higher than in the 1800s. (See Table 1. and Figures 1 and 2).

From qualitative data it appears that the summers of 1854 to 1858 and again in the 1860s were “quite warm”.2

Although there is no accurate data from the time about the effects of the warmer temperatures, one might presume that steady wet weather and heat could have produced more fertile pastures at higher altitudes where previously such a quality of grass had never been expected to develop. Furthermore, such a set of atypical conditions developing in a relatively short time, might also have encouraged shepherds to move higher up into the mountains. Thus they would have avoided their flocks being affected by either flooding or the effects of the heat at lower altitudes in the mountains or on the lowland plains.

All of these hypotheses and questions emerged from two episodes which I have studied and which appear to me to have unsatisfactory explanations. The first episode centres around the apparent 'oddness' of the statement from the Civil Governor of the Guarda, one of the highest and poorest regions of the country in 1856. He asserted that the area under his responsibility had no problems with food supply. This was in marked contrast to most of the rest of the country. In that year the country was dominated by a famine amongst the population at all levels and agriculture crises all over the country. Guarda happened to be the only District where administrative officers did not report a severe crisis. The second episode which drew my attention to the Guarda region's food production occurred four years later, in 1860. Here some members of the national parliament raised concerns about the apparent cattle smuggling over the inland border with Spain. This enquiry was centred precisely in the correspondent area of mountains of the Guarda District.

The question lies in understanding why that it was only by 1860 that politicians raised their concerns about smuggling in the mountains. Or at least expressed them more strongly than in the previous decades, when the problem was known to have existed in that region of the country since the eve of time? Was the reason for their interest that the parliamentarians were looking to reduce the illegal smuggling activity, and use this potential food reserve as a preventive measure against future
famine? Or, did they want to acknowledge the success of raising cattle in the uplands? Whereas in the lowlands, floods had severely damaged pastures and flocks, in the past six years of heavy rainfall leading to shortages of food, the upland region had appeared to escape. Smuggling might have become then a precious indicator of an economically successful practice of cattle rearing in the mountains, which had been unexpectedly brought to light within a framework of more general agricultural, health and economic calamities in the rest of the country.

Figure 1. Average rainfall between 1816-1826, 1836-1850, 1851-1886 over the curve of absolute annual values.

Figure 2. Average rainfall in annual absolute values and for periods of five years between 1816 and 1886.
Table 1. Annual absolute values of rain fall and average for periods of five years, in millimetres. (1816 to 1886)4

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Stormy weather and flooding: the knights of the Apocalypse

In Portugal, the 1850s were beset by a set of hazards which led the country into a desperate material, economic and social environment. The impact of weather conditions provoked an Armageddon-like picture of floods, famine, diseases, death and conflicts. It started with unexpected flooding in the winters of 1852 and 1853, at a regional level in the largest river catchments of the Tagus and Mondego rivers resulting in crops being severely damaged. This localised framework of natural disaster developed into a general state of increasing public calamity over the subsequent four consecutive years, 1854-1857, and then repeated between 1859 and 1861.

The crises in agriculture, economic, social and public health were more profound in the autumn and winter of 1854-55, due to unexpected torrential rains which led to flooding of farmed lands. This devastation continued and was further exacerbated in 1856 when the country was subject to a similar weather and hydrological pattern. As a result, cereal production was scarce and the potential for recovery was worsening as the amount of seed left for new plantations, had drastically diminished. This drove the country's population into a general state of poor nutrition and famine.

Within this context, the Portuguese rulers decided to evaluate the real dimension of food scarcity and also the capacity of the public bodies to distribute provisions amongst all the population. The government ordered the public administrative regional service to compile a survey looking at cereals and farming production. The information sought to cover all the territory. Civil Governors were urged to describe the economic, social and health situation of their District as part of the survey.

Replying to this survey, the Civil Governor of the Guarda (as previously mentioned), reported a scenario of no concern either with food production as a whole or with its distribution.

Set against the general framework of famine, pest, pain and death across the country as a whole, the information provided for the Guarda district painted a completely different picture. Although if it had provided detailed information about what kind of goods would be available to feed the population, this testimony would probably have unburdened the immediate concerns of the Central Power upon this region. Furthermore, it revealed an unexpected economic autarchy in the highest inland mountains of the territory - Serra da Estrela,
which suffered from scarce transport facilities and difficult access to the expected fruitful markets of the Portugese lowlands, with a higher population to trade with.

Albeit that this area seemed to be under control, the following years of 1857-58 saw a deepening crisis across the rest of Portugal. Due to under nutrition and the wet and warm weather, epidemics such as yellow fever, typhus and *cholera morbus* became widespread all over the country. The crisis had reached its zenith. In Lisbon, the capital, these diseases were solely responsible for killing between 7% and 10% of the population\(^8\).

By 1857, the impact of the weather conditions including floods seemed to have created a *status quo* of public calamity around agriculture, economy and health. Flood prevention measures in the uplands to mitigate against the effects of flooding were perceived as crucial. In 1857 an attempt was made by the Head of the National Government to implement public forestry and water regimes.

**Hazards control: a failed legal attempt**

In 1857, the Marquis of Loulé, uncle of the King D. Pedro V, and head of the Government brought forward legislation to implement a public forestry regime across Portugal encompassing land under all forms of ownership: state, common and privately owned.

Using the colonial dimension of a similar project presented to the deputies in 1849 (which had never been discussed in that forum) his goal was to create a statute that would allow public intervention in areas of natural risk, which had been subjected to damage from the torrential flooding. According to his project the goal would be achieved by afforestation projects along river margins, in swamps, on hillsides and in the upper reaches of the mountains. State institutions would carry out all the tasks of afforestation as well as the management of these new woodland plantations\(^9\).

The draft bill was presented to parliament by the Head of the Government on the 5th of March 1857, published in the official newspaper ten days later, but it was never put on the agenda for parliamentary discussion. It was completely ignored by the parliamentary bodies in 1857 and throughout the period until the end of the Monarchy in 1910.

If this bill had been approved, it would have had a profound effect on property of a private nature, both individual and collective. Neither the elected deputies who would have been amongst the biggest contributors of land, as they were in the majority landowners, nor rural communities and municipal authorities would have been in favour of such a take over of their lands by the central administration. In the 1850s the collective view of the representatives, notwithstanding that they were aware of the benefits of a forestry regime to protect lands, was
that they did not support any action towards plantations of trees nor for the reinforcement of State institutions, like a national forestry service or even less the forestry regime. For them, any amount of budget allocated for forestry actions would mean taking away public funds from other investments which they deemed much more important, such as transport infrastructure which they thought would serve to distribute agrarian goods and promote trade more easily.10

On one hand the agrarian sector was not interested in the reinforcement of the public forestry sector while on the other hand, Guarda’s Civil Governor made it clear that there was already sufficient local control in the highlands from the municipal authorities. And, they intended to keep that same regional administrative status quo. Therefore showing that the uplands were under tight control might have been seen as an intentional strategy to be followed by the Civil Governor of Guarda, while describing the economic performance and social control of the district.

No conflicts, no economic problems, then, no need for state control
In the 1856 report, the Civil Governor of Guarda confirmed quite clearly to the Minister of Public Works that the District under his administration wouldn’t need help of any kind from Central Government. He reinforced the fact that both social and economic agencies were under the control of the municipal authorities. Furthermore, he testified to the absence of conflicts over land management in the region because there were no common land. All the land was managed under private or direct municipal administration. Thus, a syllogism could be deduced: because there were no commons and no conflicts would arise between the landowners and the highlanders, therefore Central Government didn’t have to worry about the Guarda region11.

This declaration seems to acquire extraordinary meaning for Guarda, precisely in 1856, when Central Government had shown an interest in it. This district, located in the highest mountains of the country, had for centuries from the Middle Ages onwards been an area where cattle rearing had been carried out by the highland communities.

The Portuguese law passed on 13th August 1832 specified that the summits of mountains were to be regarded as national property and come under state administration12. The same act ruled that the state had an exclusive duty and right of surveillance over national properties. Whilst it hadn’t been changed since its enactment this law was not being enforced by the mid 1850s. Thus, in 1856, Central Government was entitled to act upon those territories defined as national property and as a consequence of the legislation, this included part of the mountains of Serra da Estrela in Guarda.

However, the 1832 piece of legislation did not specify the altitude at which summits would be defined. This
imprecision could lead to discussions about how state property in the mountains could be classified and about which areas the state would be entitled to intervene in. Indeed in the following year, 1857, neither the private landowners nor the local municipal powers showed any intention of supporting an increase of State power over the mountains. They chose to ignore the bill of law that proposed the definition of what would come under the public domain across the country.

From this opposition to state control, it could be deduced that farmers from the lowlands may also face major difficulties in their attempts to compete for the pastures in the mountain areas, because of the locally established administrations. Independently of the debate about the altitude above which summits would be defined, regional control was already being implemented. However, if the state took control only over its notional properties on the lower summits, it could still have been worthwhile for the lowland farmers to explore other pastures that might serve their agrarian interests.

Eventually, the rural elite would have a better chance to manage and use these territories perhaps under some legal act of concession, agreed between them and the municipal administrations. Presumably though, these economic agents would be more interested in negotiating with the state rather than dealing with municipal powers. Hence in order to induce Central Government to implement stronger control over those landscapes, a political solution to achieve this goal had to be found.

On the other hand, in the 1850s, the local district and municipal powers had no interest in calling attention to what could become a flourishing activity in the uplands: cattle rearing. Up until then, they had been quite independent from state controlled taxation. However, both in 1856 and again in 1860, the highland economy and strategies to prevent cattle losses proved to be able to overcome the impact of natural hazards. Altitude was probably the key to the successful performance of these strategies.

The importance of pastures on the slopes above the watershed

Whilst between 1854 and 1857, torrential rain had almost become a pattern in the Portuguese lowland valleys and plains, in 1858 a more normal weather cycle prevailed. A short period of rain and a dry summer along with improved hygiene, led to the contraction of disease epidemics and improved agricultural production. Nonetheless the reprieve was short-lived. In 1859 and 1860, albeit on a smaller scale, torrential floods returned and damaged agricultural production as in previous years.

In the winter of 1860, a parliamentary debate took place which accused the Government of not being able to deal properly with the situation\textsuperscript{13}. This happened
independently of which political group was in Government or in opposition. The scandal was even greater because whilst the population was starving in some areas, cattle and meat smuggling was being developed freely across the inland borders with Spain\textsuperscript{14}.

This happened to be the same region, Guarda, that in 1856 had claimed not to have suffered from food shortages. Again the economy of the highlands was mentioned as being able to survive these extreme weather impacts and flooding disasters. What characterised it then?

The District of Guarda located in Serra da Estrela was one of the biggest wool producers and had been granted crown support since the eighteenth century for raising flocks. By the 1750s the Prime Minister, Marquis of Pombal, had promoted the woollen industry in the Guarda area which he had also realised was very rich in hydrological resources\textsuperscript{15}.

Profiting from good natural conditions for sheep rearing and sources for hydrological energy, textile factories had been built inside the steeply draining valleys. The woollen textile industry had then been encouraged and favoured in these areas of natural capacity. Still, enmeshed in the middle of this topography, when the heavy rains and downpours increased enormously in the 1850s, both the sheep pastures and industrial mills suffered from the impact of the torrential rainfall.

Unlike the livestock, the industrial mills and dams could not be transported further up the valleys to avoid being damaged or drowned. This almost absurd comment is in itself the key to understanding the truthful statement made by the Civil Governor of the Guarda District in 1856 about their food autarchy. Because the population was able to move food away from the natural hazards, they did not experience shortages of food and other economic goods such as: leather, meat and dairy products that could be traded.

In other words, in the context of torrential floods, the risk of cattle loss was reduced in the uplands compared to that in the valleys and fertile lowlands, where there was no spare land for landowners to move their livestock into. The size of the landholdings, their judicial regime, territorial divisions and topographical characteristics doomed the plains to flooding and the agrarian economy was left with no alternative resources in the lowlands.

However, in the uplands there was an alternative to flooding and this was to go higher into the mountains. Living in the highest place in the country, where population was also scarce and already living on a mountain-products based diet, it was possible for local inhabitants and their authorities to efficiently collect and distribute resources which would cover Guarda’s food supply\textsuperscript{16}.

As long as they could live at the altitude line for nut trees\textsuperscript{17}, they could rely on their pastures and nutritional fruits. The Serra da Estrela had woodlands of \textit{Quercus castanea} trees.
Eventually due to the weather pattern across the decade of 1850s and without being subjected to torrential flows, the organic cover of the ground could be increased with enough humidity and warm temperatures in the summers to aid the decomposition of the moist leaves. Pastures could also be burnt in winter to allow fresh vegetation to erupt in the following season.

Actually, during 1856 to 1860, the population of Serra da Estrela might have just been repeating what their ancestors had been practising for centuries in the uplands. In a transhumance regime from the South to the North of the Iberian Peninsula, changing from winter to summer pastures, they had learnt how to survive on cattle and dairy products as well as profiting from other mountain food resources from bushes and woodlands. They would have learnt how to overcome torrential rains in the uplands better than the population in the cultivated lowlands.

In the early 1860s, whilst the richest agrarian and economic areas were facing an apparent endless cycle of economic and food crises, which kept increasing through physical causes, the uplands provided enough resources for the highland population to survive. Whilst the landowners on the plains were suffering losses of their flocks and raw material for the wool industry, the highlanders had developed a strategy for surviving the torrential floods. Therefore, summits and slopes at high altitudes presumably previously taken as risky areas for investing in flocks by these landowners, might have now become more attractive as an alternative.

However a problem remained before it would be possible for them to occupy the uplands and its commons. This problem was the property rights and ownership of the slopes and summits. In my view, three factors played a crucial role in finding a political target that would serve private interests without jeopardizing private property rights. Landowners had rejected the idea of supporting the enlargement of the public domain as this would set a very risky precedent over property rights. Thus, in a very subtle way, in the 1850s and 1860s, an investigation into smuggling in the inland mountains served also to get information about the mountains, the living conditions of livestock, sheep production and the meat trade.

**Smuggling as a gateway to collect information about pastures in the uplands**

The smuggling issue was approached in 1860, in the Portuguese Deputies’ Chamber under a renewed context of torrential rains and the destruction of cultivated lands\(^\text{18}\). It had been alleged that hundreds or even thousands of head of cattle heads were being taken off to Spain, preventing Portugal from having access to this food supply. Adding to this shocking offence, the illegal activities produced income for the shepherds who then avoided paying taxes on this profitable activity to the State\(^\text{19}\).
Apart from the exaggeration in numbers that picture was – for the highlanders- an unproblematic truth. As Conceição Martins has shown in the Portuguese case, in the nineteenth century neither the upland communities nor the shepherds had any real understanding about the concept of “smuggling”. Under their way of life they did not think they were taking any illegal action. On the contrary they were simply repeating what had been traditionally practiced for centuries in their region.

The second non-problem was the concept and location of the “border”. Firstly, politicians were raising the problem of crossing a line that hadn’t yet been drawn or even officially established. The surveys for mapping the country on which the border would be designed, would not be finished until 1884. Consequently the border was a notional idea of frontier that was not even set down in any administrative tool. This un-identified line which animals were being crossed over was then at the heart of the "smuggling" question denounced in parliament. This was actually, in my view, hiding the real aim of the discussion, namely provoking a scandal in order to obtain reliable information about what was really going on in the highlands, as the Civil Governor appeared to be stating controversial information.

Indeed the smuggling issue became an element of pressure and maybe an accelerating factor in promoting a survey on cattle production which was undertaken a decade later. In the early 1870s, the first census on cattle rearing was carried out across the country. In the case of Portugal this information was juxtaposed with the geographic map (1865) and report on the recognition of territorial information and mapping for geological minerals which had been finished in 1867.

Initially put in motion to evaluate the areas for urgent afforestation, this report included a map for forestry and water distribution, uncultivated land (not cereal production) and by default the cultivated area. In its final conclusion, it revealed that out of 9,000 hectares, 5,000 were cultivated. It also gave information about the extensive areas of wetlands and usable slopes that could be converted to natural pastures. The authors of the report strongly recommended investment on cattle both for the wetlands as well as in some of the upland areas.

In the following years of that decade the most relevant agricultural journals often explored the subject of cattle rearing and drainage works while in the two preceding decades they had been scarcely an object of scientific articles.

Thus, by 1873, when the survey on cattle distribution was published, the core of the inquiry was more than anything about trying to split the information by regions. Its primary concern was not to evaluate smuggling but internal production. Nonetheless the report produced a rough estimate of the cattle data, as highlighted by the authors.
The records had been collected under extensive fieldwork. But despite this, the survey was extremely inaccurate. The farmers and shepherds especially in the mountains thought that the surveyors were tax collectors, therefore, they lied extensively about the number of animals in their ownership.

In the end the cattle survey provided information about the locations in which to invest and in which species of cattle. It became a tool for more efficient state financial control over the cattle trade and subsequently stricter control over shepherds’ activities in the highlands as well as reducing excessive local municipal intervention on this sector. But ultimately, the issue which had provoked discussion about the need for the inquiry regarding the cattle situation, ie. smuggling, was the one for which there were almost no records in the report.

Smuggling across the Portuguese Spanish border was in the end not the real question but a mere excuse to investigate the economic interests of the highlands to provide information for other economic and social agents to invest there.

Although it had limitations, this document provided useful information to some of the Central Administration’s questions about cattle rearing. From the economic point of view, it produced an image of the distribution of different species of livestock across the country. It suggested which regions would be better for investing in cattle and sheep production and also considered which wetlands and uplands could and should be converted to grassland and pastures (confirming mostly what had been suggested in the report of 1867).

**A conclusive suggestion: torrential floods encouraged economic activity higher in the uplands**

Against the backdrop of the torrential floods of mid-nineteenth century Portugal, the highlanders were forced to find a further strategy for their flocks’ survival in the highlands. These floods provoked more human intervention in the mountains that extended the cover of green at higher altitudes. This was fuelled by both the highlanders themselves and through private and public investment. This exploitation was probably noticed by the powerful agrarian sector interested in those pastures as an alternative to their flooded ones in the lowlands. Given this new interest from lowland owners, at least in them thinking whether investing in these areas would be worthwhile in responding to an emergency situation; and the absence of taxation over the livestock trade and meat production, this exploitation appeared to be a good route towards bringing the subject forward for parliamentary debate. In order to get decisions taken on this subject, this economic group exerted pressure for greater attention to be paid from Central Government in order to control activities in the uplands. This resulted in the collection of environmental and economic data about the area in question.
As with Portugal, the cycle of torrential downpours across the different mountain ranges in other European countries had also probably encouraged the use of higher pastures. In the long run, the afforestation of slopes and summits at the altitudes of the watershed and above (which was promoted by central administrations) would eventually produce new green cover in what used to be areas that were above the snowline.

Once state policies for afforestation of the summits were attempted in one country there was as an almost domino reaction across the Alps, as Joseph Bruggmeir suggested, with national laws for afforestation in France in 1860, Switzerland 1876, Italy 1877 and Austria 1884. To which might be added the Portuguese case with the law for coastal protection in 1872 and for the mountain tops in 1884, as well as in Spain with the national law for afforesting mountains in 1877 and estuaries and the coastal area in 1882.

What previously would have been thought of as a risky investment for landowners, who had developed drainage schemes on moorland and irrigate arid lands in the lowlands, might now be promoted in the uplands as was the case of Switzerland where lowlands are scarce.

Christian Pfister has demonstrated that afforestation of the Helvetian uplands in the 1870s took off in response to the impact of torrential rains, mudflows and inundations in the valleys. By stimulating the process of afforestation it would be likely that following the natural course of autumn and winter, organic cover would increase and occur further up in the mountains.

In the first half and in the mid-nineteenth century, in the Alps, Pyrenees, Central Iberian Chain and Sierra de Granada, wet weather and warmth combined with long periods of rain from Autumn to Spring, might have not just produced extensive erosion. It may also have stimulated a renewal and creation of new safe environments against natural hazards in areas above the heads of the rivers, among the slopes which were still covered by natural forest and could accumulate sufficient humus to develop grazing.

What I am then suggesting, but which would require a thorough investigation and analysis from a comparative perspective, is that beyond the Portuguese case, the wet weather context of the nineteenth century might have produced significant changes in the traditional pastured landscape by greening the uplands at a higher altitude than before. Weather conditions might have naturally changed the upland pasture landscapes, later managed and improved by cattle farmers.

In other words torrential floods strengthened the renewal of pasture landscapes at higher altitudes in the uplands than before. The actions of afforestation taken to prevent the impact of torrential flooding brought attention to the pastures in the uplands which might have helped to promote a political argument for more state control over the
uplands. This ultimately meant opening a door for the privatisation of pastured uplands\textsuperscript{37}.

Notes


3. The data were collected from different sources and compiled together in order to produce an annual value. The values between 1816 and 1855, come from Franzini, Marino Miguel, “Mappa geral da primeira serie de observações feitas em Lisboa, acerca das chuvas que caíram desde o ano de 1816 até Julho de 1826; Segunda serie de observações, que começam em março de 1835 e fíndam em 1855”, precedidos de várias considerações sobre o assunto, in Diario do Governo n.º 59, de 11.3.1859. There are no published data for 1817-1835. The data for 1856-1875 have been taken form: Annaes do Observatório do Infante D. Luís, Resumo das Principais Observações Meteorológicas executadas durante o Período de 20 Annos Decorridos Desde 1856-1875, Lisboa Imprensa Nacional, 1877. Os dados relativos aos período de 1876 a 1886, dos relatórios anuais do observatório do Infante D. Luís, Annaes do Observatório do Infante D. Luís, 1876-1886 XIX, Lisboa Imprensa Nacional.


6. Melo, Cristina


9. Duque de Loulé, Projecto de Lei para um Código Florestal, 17.03.1857, Diário do Governo (Diary of the Commons), Março 1857, p. 319.


12. Lei de Extinção dos Bens da Coroa e Ordens, de 13 de Agosto de 1832.


14. 18.05.1860, Diário da Câmara dos Senhores Deputados/ Diary of the Commons, Maio de 1860.


19. 18.05.1860, Diário da Câmara dos Senhores Deputados/ Diary of the Commons, Maio de 1860.


27. Ministério das Obras Publicas Comércio e Indústria, *Recenseamento Geral dos Gados no Continente do Reino de Portugal em 1870*, Lisboa, Imprensa Nacional, 1873

28. *Idem*.


