

MSc Thesis

The land abandonment process:

Locals' perspectives from Western Iberia



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Preface

This thesis is the final step of my master in Urban Environmental Management at Wageningen University. Working at this thesis I could look at the land use planning aspects behind nature restoration projects which I instead tackled from a natural science perspective during my bachelor. I, therefore, believe that this thesis constitutes a link between what I have studied in my bachelor, Environmental Sciences, and the social, management and land use planning perspectives which I deepened in my Master.

Writing this thesis was a long journey, made up of both pleasures and challenges: I drove for the first time alone in a foreign country, I interviewed farmers, a challenging task; I conducted my research in Spanish, which was not my mother tongue. I enjoyed tackling these challenges along the way.

Completing this thesis would not have been possible without the following people:

My supervisors Martha Bakker and Clemens Driessen who guided me and gave me advice during the research on content and the qualitative method, both new to me. I enjoyed and was challenged by their different approaches to research. This was really mind-broadening and will be definitely useful for me in the future.

The Land Use Planning Chair Group who helped me with the expenses of my fieldwork in Portugal and Spain;

My family, friends, housemates and in particular, Alessandro, who kept supporting me and motivating me in every moment;

ATN staff who was supportive in finding the first contacts and an accommodation in the very remote location in Portugal;

The interviewees who spent time answering my questions, and who helped me to get to know the Portuguese and Spanish culture, sometimes even offering me lunch and precious advice on the area.

Thank you all.

I hope you enjoy reading this report,

Silvia Cocuccioni

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Abstract

Land abandonment has proved to be a challenging phenomenon to define and constitutes a highly debated topic in literature. Despite these difficulties, in many places, environmental NGOs define large areas of agricultural land as abandoned basing their claims on policy documents and land use models and use these areas for rewilding purposes. Models and policy documents, however, may overlook finer dynamics happening on the ground at smaller scales. Consequently, environmental NGOs may also confront with agricultural land which is still being used. This way they might influence the process of land abandonment. The purpose of this research is to enrich existing debates by collecting local people's perspectives on land abandonment which may be overlooked by previous quantitative studies. The study focuses on Western Iberia, an area where environmental NGOs have started a rewilding process. This study follows a qualitative approach using interviews combined with observations on the field. Results indicate that locals define abandoned land in multiple ways. Moreover, there is no single driver that can be reconducted as a main cause of abandonment. The complexity and the connection between different ecological and socio-economic factors make it difficult to spot a precise geographical and social pattern under which land abandonment occurs. Among its drivers, nature restoration does not constitute a main cause of abandonment as it mainly involved land defined as abandoned. It can also be argued that environmental interests softly push towards a faster abandonment of land. However, that land was said to be bound to be abandoned anyway in the future. Overall, the study of the process of land abandonment confirmed to be a challenging task that can be compared to shooting to a moving target. Since people define and experience it in different ways, the object of study is not fixed. Every aspect regarding land abandonment is subject to multiple interpretations and varies between different groups of stakeholders, within each group and even within the same person. This means it is not easy to assume that an area is widely affected by land abandonment, as instead it is claimed by environmental organisations that make use of policy documents and models.

Key words: *Land abandonment, nature restoration, rewilding, land use change, marginalisation*

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1. Introduction

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1 Introduction

Over the last centuries, European landscapes have gone through considerable transformations (Vacquie et al., 2015). The change in pace and intensity of human activities have led to major land use and land cover changes. People and the way they use land are indeed considered to be one of the most significant drivers of global environmental change (Prishchepov et al., 2012). One of the land uses that has shaped landscapes all over Europe for centuries is agriculture as it represents a big share of total land use (Vacquie et al., 2015, Brouwer, 2006). Nowadays agriculture and forestry cover respectively 45% and 38% of land of European countries (FAO, 2015). According to some academics, since the Second World War, two prevailing trends have dominated agricultural land-use changes: agricultural intensification and agricultural extensification (Brouwer, 2006). Both trends have been discussed in literature; however, their magnitude, spatial pattern, likelihood of occurrence and consequences are still debated. Intensification generally involves an increase in the use of agro-chemical substances, mechanisation, buy-out of small farmers, specialisation of mixed farmers (van der Sluis et al., 2016). Extensification, on the other hand, includes those processes where nutrient and labour inputs decrease (van der Sluis et al., 2016).

In this context of recurrent land use changes, a discussed topic present in literature is land abandonment, a relatively complex phenomenon which is subject to multiple definitions (Hatna and Bakker, 2011). For van der Sluis et al. (2016), extensification is what may eventually lead to agricultural marginalisation and land abandonment. Land abandonment is indeed often defined as a gradual process which starts with a progressive marginalisation, for example, a withdrawal of land management which then leads to a reduction of farming intensity (Keenleyside and Tucker, 2010). However, many definitions and different driving factors are found in literature. In general, it is said to occur mainly in areas with unfavourable conditions for farming such as poorer soils and adverse topographic conditions; yet, some studies prove that it does not necessarily occur in these marginal areas (Hatna and Bakker, 2011). Consequently, drawing the line and defining what can be referred to as abandoned farmland and what cannot might reveal to be a challenging process (Keenleyside and Tucker, 2010).

As agricultural land-use has decreased in the last decades in Europe, it is commonly said that agricultural areas have been abandoned. The abandonment of land, as other changes in land use, has numerous repercussions on ecosystem services, biodiversity and the economy (Prishchepov et al., 2012, Munroe et al., 2013). At the same time, consequences and changes due to land abandonment can be considered as potentially negative or positive (Leal Filho et al., 2016). The impact varies from region to region (Leal Filho et al., 2016); for example, in Mediterranean climates, the early successional vegetation that develops on abandoned fields often acts as fuel for wildfires (Prishchepov et al., 2012) and causes the loss of cultural and aesthetic values (Rey Benayas et al., 2007). On the other hand, it may serve as a chance for vegetation regrowth that may lead to increased carbon sequestration (Munroe et al., 2013) or as a possibility to reduce agricultural chemicals pollution in areas that were previously intensively managed (Pointereau et al., 2008).

In particular, land abandonment is seen by some as an opportunity for significant large-scale restoration of non-agricultural habitats, a process often named as rewilding¹ (Keenleyside and Tucker, 2010). Rewilding consists in creating natural functioning landscapes and ensuring the return of wildlife (Rewilding Europe, 2016). It can be carried out following different management approaches: it

¹Please note that in this thesis the terms “rewilding” and “nature restoration” are used as synonyms

generally entails no or low levels of management, a reduction of human control to restore natural ecosystem processes. In practice, it often involves some human intervention, especially in the early restoration stages (Navarro and Pereira, 2012). According to the promoters of such initiative, rewilding does not only bring benefits for nature but it also is a win-win solution for local landowners, businesses, users and governments, providing new jobs and acquired dynamicity to marginalised rural areas (Rewilding Europe, 2017).

Thanks to policy documents and models, environmental organisations seem to have pinpointed perfect locations where abandonment has struck which are ready to be used for rewilding or which will be abandoned in the next decades. In these locations, they are acquiring land from farmers in which rewilding is or will take place. However, as described in literature, land abandonment is a complex and multifaced concept, not easily defined and identifiable. Agricultural activities can therefore still be present in the areas designed for nature restoration, impacting on farmers and on local livelihoods. By selling their land, farmers are definitively abandoning land and contributing to the phenomenon of land abandonment. Moreover, nature NGOs can convince or even urge land owners to sell enhancing or pushing the process.

Since abandonment can have both positive and negative consequences and at the same time it is used as an opportunity for rewilding, monitoring and understanding this type of agricultural land-use change is important and can be used to guide land-use policy and management (Prishchepov et al., 2012).

Over the last decades, many European land-use studies have attempted to research the extent, the location and the drivers of land use changes, focussing on agricultural abandonment, as this happened more frequently, and less extensively on agricultural expansion (Hatna and Bakker, 2011). Most of the studies make use of land-use modelling to identify areas that are more likely to be abandoned in the future. Their main aim is to describe land use changes in quantitative terms, providing valuable information on the system's behaviour under a range of conditions (Prishchepov et al., 2012). However, by definition, models fail in incorporating all aspects of reality (Prishchepov et al., 2012). According to projections, there is likely to be significant levels of farmland abandonment in Europe over the next 20–30 years (Terres et al. 2013). The modelled projections, however, need to be used with caution as they sometimes lag in policy assumptions and are often limited by available data and uncertainty over future socio-economic and policy developments (Keenleyside and Tucker, 2010).

Although the value of models is undiscussed, using another approach can be useful to research the process of land abandonment under a different light. Few studies follow a qualitative method when researching land use changes and even less focus on the process of land abandonment relating it to nature restoration projects. The qualitative method adopted in this study can be useful to provide a different insight into the process of land abandonment, especially in a context where land abandonment is used by environmental organisations to run their projects.

The objective of this research is to complement existing literature on land abandonment collecting participants' stories and establishing the complexity of the issue which may be overlooked by large-scale models and by environmental NGOs. In this study, the process of land abandonment is analysed from the locals' perspective, consulting people locally and not analysing the land through models or policymakers as studies in this field tend to do. To achieve this objective the following research questions were formulated.

Main Research Question:

- What are locals' perspectives on land abandonment in terms of how it is defined, what causes it and how it is experienced?

Sub-Research Questions:

- Who are the involved parties and what is their role in the process of land abandonment?
- Is there consensus among and within parties on how land abandonment is defined and on what causes it?
- Is land abandonment spontaneous or pushed by particular interests?
- What are the attitudes of locals towards land abandonment?

In particular, the research focussed on Western Iberia, a trans-boundary region in the North-East of Portugal and the West of Spain. This area is characterised by a large-scale rewilding process and nature restoration projects carried out by local and international environmental NGOs. Basing their claims on models and policy documents, environmental NGOs define agricultural land in this area as abandoned or prone to abandonment and, consequently, use it for their rewilding projects. At first, the land abandonment process was studied comprehensively, also farther away from the actual rewilding site. This allowed to examine the phenomenon by itself, making light on commonalities and differences in opinions regarding its definitions and its drivers. Then, while answering the third sub-research question more attention was given to the role of nature restoration in the process of land abandonment.

1.1 Document structure

This thesis is divided into eight chapters. In Chapter 2 the theoretical framework is presented, introducing the relevant theories and concepts concerning land abandonment. Chapter 3 outlines the methods used for this research and is followed by a chapter which describes the study area while explaining the reasons why this was chosen (Chapter 4). Chapter 5 presents the results which are then discussed in Chapter 6, following the order of the sub-research questions. Moreover, in this chapter research limitations and recommendations for future research are explained. Finally, the following chapter concludes the thesis by answering the main research question and by providing recommendations for policymakers. Additionally, Annex I includes extra information on the interviews.

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2. Theoretical Framework



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2 Theoretical Framework

Although agricultural land abandonment is a recurrent topic in literature, it appears as an inherently contested concept. It is difficult to draw the line and define strictly what can be referred to as abandoned farmland and what cannot (Keenleyside and Tucker, 2010). People nevertheless have tried to define abandoned land often glossing over the complexities on the ground.

In this chapter, the different theories and concepts regarding land abandonment are analysed and combined to have a theoretical framework to guide the research.

2.1 Marginalisation and its drivers

Some authors describe agricultural marginalisation as a precursor of land abandonment, therefore this sub-chapter will start with an explanation of this phenomenon.

According to Keenleyside and Tucker (2010), at the core of land abandonment, there is always a process of marginalisation. Some academics define “marginalisation” as a shift from a more profitable condition to a less profitable one (Bethe and Bolsius, 1995). Here, more weight is put on the economic perspective, as a marginalised economy can lead to a marginalised agriculture. According to Brouwer et al. (1997), agricultural marginalisation is “*a process, driven by a combination of **social, economic, political** and **environmental** factors, by which certain areas of farmland cease to be **viable** under an existing land use and socio-economic structure*”. Marginal land is also defined as land which is less favoured for agriculture due to **biophysical conditions** such as low fertility or location on steep slopes (Corbelle Rico and Crescente Maseda, 2008). Most academics when defying agricultural marginalisation focus on describing the drivers that cause it. In the presence of these drivers, marginalisation is likely to occur.

As it can be seen from the different definitions, agricultural marginalisation is not always a result of solely economic factors; neither the drivers of marginalisation are only natural, linked to the biophysical conditions of land. Several studies identify different drivers that lead to agricultural marginalisation and consequently to land abandonment. This section will give an overview of the main drivers mentioned in literature in order to compare them to people’s perception gained from the interviews and to inform the research question “What are the causes of land abandonment?”.

Different classifications of drivers are present in literature. Overall, the principal drivers of agricultural marginalisation and land abandonment can be divided into ecological factors and in socio-economic factors (Figure 2.1).

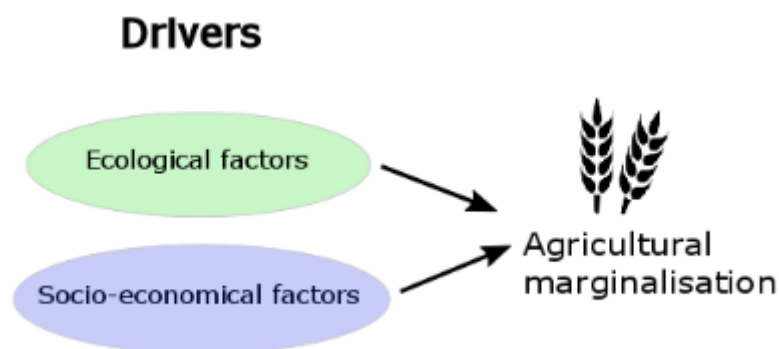


FIGURE 2.1 THE DRIVERS OR CAUSES THAT LEAD TO AGRICULTURAL MARGINALISATION AND LAND ABANDONMENT

Ecological factors (also referred to as structural or bio-physical drivers) firstly include factors related to soil such as fertility, soil depth, soil erosion. Secondly, they regard the location or characteristics of the parcel, as its size, slope, altitude and climate (Brouwer et al., 1997, Corbelle Rico and Crescente Maseda, 2008, Rey Benayas et al., 2007). These drivers can be found mainly in the Mediterranean or in a temperate mountain context such as in Spain, Greece or Swiss mountains (Rey Benayas et al., 2007). Furthermore, other drivers that have a negative impact are homogenisation and biodiversity loss, often due to fires and reduction of water stocks (Leal Filho et al., 2016). All these ecological factors constrain agricultural production, leading to low productivity (Rey Benayas et al., 2007).

Examples of the previously mentioned ecological factors are found in Mediterranean areas. These areas are often characterised by a dichotomy between plains and valleys and hilly areas. The first ones, being characterized by more favourable ecological condition, are intensively cultivated with vineyards, fruit trees and vegetables; the second ones are left unmanaged and become covered by shrubs (Pinto Correia, 1993). This contrast is present in all Mediterranean countries: from Spain to Portugal, from Greece to Italy. Consequently, according to Pinto Correia (1993), structural factors identified by Brouwer et al. (1997) and Corbelle Rico and Crescente Maseda (2008) such as slope, altitude and location of land are among the first reasons that lead a farmer to abandon land in Mediterranean areas.

However, contrasting opinions can be found in literature. Hatna and Bakker (2011) suggest that agricultural land abandonment and agricultural expansions are not caused by opposite spatial characteristics. Farmers abandon their land not only in marginal areas where biophysical conditions are poor and economic activity is low. In Southern Europe, observed abandonment is more closely linked to spatial factors, such as steepness and limited soil depth; whereas areas with opposite conditions, such as flat areas with deep soils, are prone to agricultural expansion. On the contrary, some factors are common causes for both abandonment and expansion. For example, drought, warmness and accessibility are three factors that make it difficult to foresee whether the area will be prone to abandonment or expansion. This is especially true in Western Europe where also accessible and populated areas can be subject to abandonment. At a smaller scale, it can be said that abandonment happens on relatively unsuitable land but at broader scales, this cannot be generalized. The quality of land compared to surrounding close-by areas is considered to be more important than its absolute quality (Hatna and Bakker, 2011).

Socio-economic factors include demographic trends and settlement patterns (Leal Filho et al., 2016) which include high farmers' age or unavailability of younger relatives to take over the activity (Brouwer et al., 1997, Corbelle Rico and Crescente Maseda, 2008). This is often linked to rural depopulation and urban migration or by new economic opportunities developing in the area (i.e. tourism, industrialisation) (Rey Benayas et al., 2007). Other drivers are connected to accessibility: distance from roads, proximity to forest and shrubs, distance from rivers (Leal Filho et al., 2016), proximity to towns, cities or consumption centres (Munroe et al., 2013). Profitability plays also an important role: market incentives and subsidies (Corbelle Rico and Crescente Maseda, 2008, MacDonald et al., 2000), high cultivation costs, low land price, decrease of crop prices are all said to play a role (Leal Filho et al., 2016, Pointereau et al., 2008). Furthermore, difficult inheritance because of dissension between children and parents within the farm was also identified in the literature overview conducted by Pointereau et al. (2008) as a driver of abandonment.

In the Mediterranean area, many of the ecological and socio-economic factors are more common than in Northern Europe: habitat diversity, poor and stony soils and climatic conditions, lower productivity levels, make Mediterranean farmers not able to compete with areas of specialized agriculture (Pinto Correia, 1993), leading to abandonment. Whether the process is mainly driven by socio-economic factors or by ecological ones is still a debate. Some academics conclude that abandonment of agricultural land is mostly driven by social factors, rather than ecological ones. Rural-urban migration to areas where new economic opportunities are offered is of primary importance in the process while ecological factors such as fertility or precipitation come in after, aggravating the situation, making land even more prone to abandonment (Rey Benayas et al., 2007).

The previously mentioned drivers do not necessarily have to be all present to lead to agricultural marginalisation. Moreover, the relationship between the drivers and the consequence, the abandonment of land, is more complex. In many cases, a link between ecological, socio-economic drivers and agricultural marginalisation is present as it was described by the previously mentioned authors, but it is not always true that unfavourable factors automatically lead to agricultural marginalisation. For example, unfortunate and marginal socio-economic conditions do not always translate automatically in the marginalisation of land (Pinto-Correia et al., 2004). Figure 2.2, the updated version of

Figure 2.1, represents this.



FIGURE 2.2 AN UPDATED VERSION OF FIGURE 1. INSTEAD OF CONTINUOUS LINES, DASHED ARE PRESENT TO SHOW THAT THE SAME DRIVERS OR CAUSES OF AGRICULTURAL MARGINALISATION DO NOT ALWAYS TRANSLATE INTO THE SAME LEVEL OF ABANDONMENT

Some processes of marginalisation only regard agriculture, some only society, some both. Consequently, marginalisation can have a broader character, not only affecting agriculture but also

society and economy at the same time or it can be defined as a smaller phenomenon when exclusively regarding agriculture or one of the other two (Pinto Correia, 1993)(see Figure 2.3).

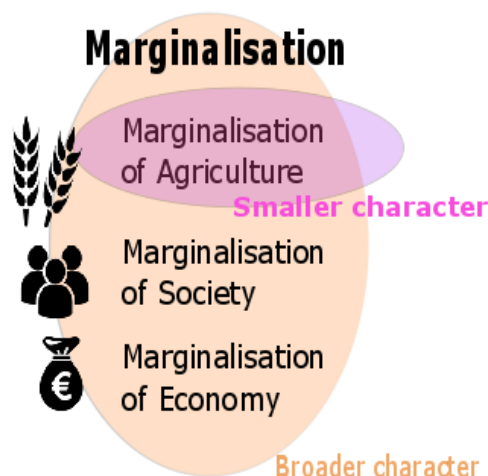


FIGURE 2.3 THE CHARACTER OF MARGINALISATION CAN BE BROADER IF IT ALSO REGARDS SOCIETY AND ECONOMY ALONG WITH AGRICULTURE OR SMALLER IF IT ONLY AFFECTS THIS ONE

The entity of marginalisation can vary depending on the region. In Northern Europe, it is usually confined to agriculture; thus, it usually does not regard society and economy. It generally only happens at farm level when cultivation is less profitable (Pinto Correia, 1993). On the contrary, in Mediterranean regions, the term usually refers to larger scale processes which also include economic and social aspects, and not only agriculture (Pinto-Correia et al., 2004).

Different combinations of margination can, therefore, occur regarding society, economy and agriculture. In order to try to classify all the different combinations, the Portuguese Ministry of Agriculture distinguishes four different dynamics which occur in rural areas (Ministério da Agricultura, 2003). This is explained by Pinto-Correia et al. (2004) and it is illustrated in Figure 2.4. They identify two axes, assigning a theme to each: rural society and agriculture. The two axes have two different extremes, fragile and dynamic for the horizontal axis regarding society and competitive and fragile for the vertical axis regarding agriculture. In the four quadrants, the four different dynamics for rural areas are present, each characterised by different aspects.

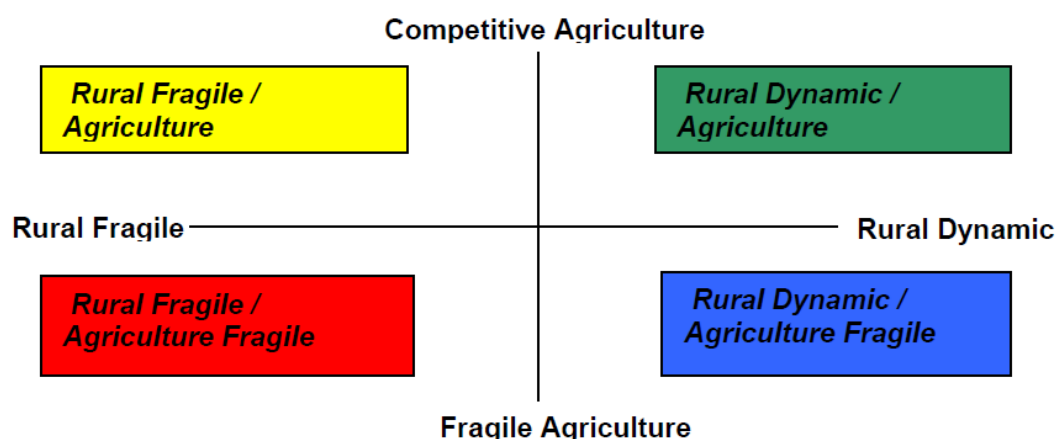
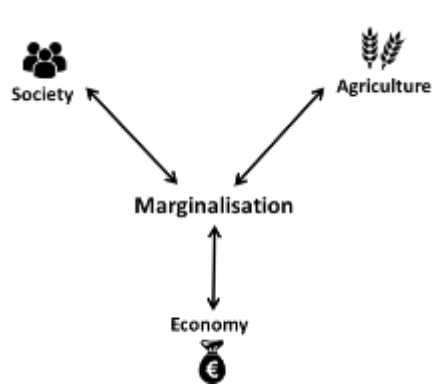
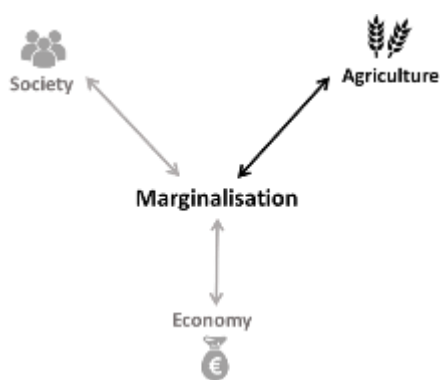


FIGURE 2.4 DIFFERENT DYNAMICS IN THE PROCESS OF MARGINALISATION AFFECTING RURAL AREAS IN PORTUGAL (PINTO-CORREIA ET AL., 2004).



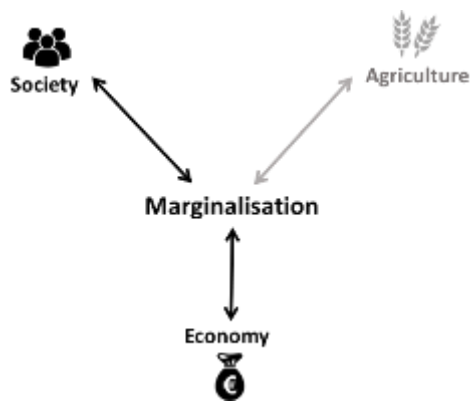
The bottom-left quadrant “**Rural Fragile / Agriculture Fragile**” is the most acknowledged process that affects rural areas. These areas are characterised by a lack of socio-economic dynamism and, at the same time, marginalisation of agriculture. This happens because restrictive biophysical conditions and low productivity are accompanied by a lack of socio-economic alternatives leading to people leaving the area. Consequently, land is abandoned or afforested, increasing the wildfire risk. Often these types of areas are isolated and not easily accessible. According to Pinto-Correia et al. (2004) an

example, are the mountain areas in the centre (Beira Interior), in the North and in the South of Portugal. Here it is not only agriculture to be marginalised, but also economy and society. The three are closely interlinked creating a vicious circle in which one affects the other. In this context, many of the ecological and socio-economic drivers identified in previous studies play an important role in agricultural marginalisation. For example, ecological factors lead to low productivity (Rey Benayas et al., 2007). Moreover, in these areas the lack of availability of young farmers (Brouwer et al., 1997, Corbelle Rico and Crescente Maseda, 2008) due to rural depopulation and urban migration (Munroe et al., 2013) and the lack of economic or demographic viability (Leal Filho et al., 2016) play the biggest role.



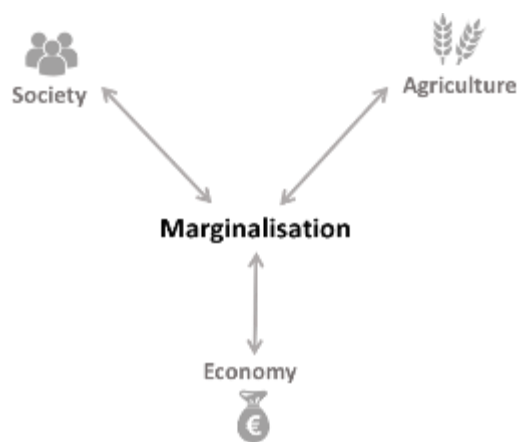
For the lower-right quadrant “**Agriculture Fragile / Rural Dynamic**”, different dynamics constitute a different type of marginalisation. Here traditional agriculture is also marginalised but from the socio-economic point of view, dynamism has been maintained or reacquired. Young people still live in the area and are involved in new activities, both in the agricultural sector and in other sectors. Traditional plots are used for family consumption of wine and vegetables; however, economic pressure from outside pushes towards new land uses, new functions and new services such as rural

tourism. This situation is typical of more accessible areas, close to urban centres, such as the region of Entre Douro e Minho, to the East and Northeast of Porto. Here the non-linear relationship between society, economy and agriculture is clear. Marginalised agriculture does not coexist with social and economic marginalisation. In this context, the rural-urban migration factor described by Brouwer et al. (1997) and Corbelle Rico and Crescente Maseda (2008) as a driver for agricultural marginalisation is not present: the problem instead is that youngsters that could work the land still live in the area but they are involved in other types of activities. This phenomenon is already described in literature: when new economic opportunities such as tourism and industrialisation arise there is a shift in the sector of young labour (Rey Benayas et al., 2007). Moreover, biophysical factors such as accessibility mentioned by Corbelle Rico and Crescente Maseda (2008) do not prevent agricultural marginalisation, since according to Pinto-Correia et al. (2004) these areas are closer and better connected to urban centres.



In the top-left quadrant we can find “**Agriculture Competitive / Rural Fragile**”. These areas are characterised by a decline in rural communities but competitive agriculture. Few large land-owners, who often do not live in the area, make a profit out of agriculture although land is generally poor. Agriculture remains a profitable activity due to the larger scale of the properties, extensive management and the subsidies received. However, the profits they make end up outside the area, having few positive consequences directly on the rural area. Furthermore, investments in new technologies and new

initiatives are lacking. Since young people leave due to a lack of job alternatives outside the agricultural sector, there is a lack of socio-economic dynamism: the villages are disappearing, the population is ageing and the sense of isolation is increasing. According to Pinto-Correia et al. (2004), this can be found in the Alentejo region, in the South of Portugal. In this context, marginalisation does not regard agriculture, which remains competitive even if society and economy in the area are marginalised. Here the size of properties and profit make the difference (Corbelle Rico and Crescente Maseda, 2008, Keenleyside and Tucker, 2010). The absence of young people, lack of dynamism and the distance from consumption centres do not play an important role as they do instead in other contexts (Brouwer et al., 1997, Corbelle Rico and Crescente Maseda, 2008, Leal Filho et al., 2016, Rey Benayas et al., 2007). This demonstrates that the same drivers lead to different situations in different contexts.



The last dynamic which characterises rural areas is “**Agriculture Competitive / Rural Dynamic**”. This happens when no marginalisation is happening, neither regarding society, nor economy, nor agriculture. Agriculture is competitive and society is dynamic. This is typical of the coastal areas, which are close to bigger urban centres such as Porto, Lisbon and Faro (Pinto-Correia et al., 2004).

The study in Portugal “Portugal Rural: territorios e dinâmicas” (Ministério da Agricultura, 2003) classifies the study area as yellow “Agriculture Competitive / Rural Fragile”. However, the types of processes affecting rural areas are often mixed (Pinto-Correia et al., 2004). Indeed in Figure 2.5 an area falls under one of the four marginalisation dynamics if more than 50% of the surface has the respective characteristics. Thus, although as there the agriculture is defined as dynamic there might still be internal differences in the area.

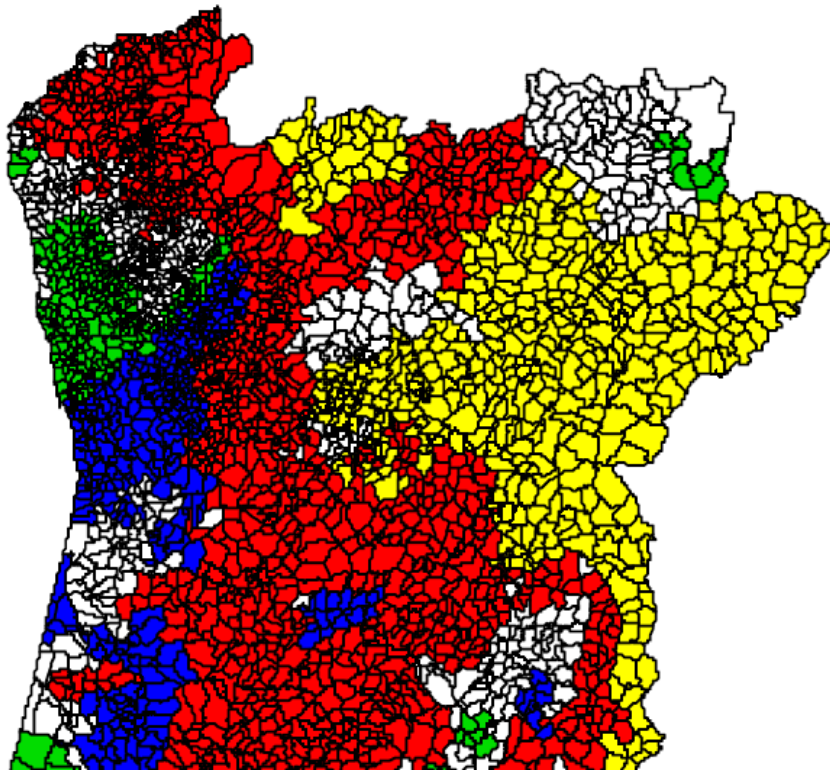


FIGURE 2.5 MARGINALIZATION PROCESSES IN PORTUGAL. PARISHES, WHERE MORE THAN 50% OF THE SURFACE HAS THE CHARACTERISTICS OF EITHER ONE OF THE FOUR MARGINALIZATION PROCESSES, ARE COLOURED IN THE RESPECTIVE COLOUR: (RED: RURAL FRAGILE / AGRICULTURE FRAGILE; BLUE: AGRICULTURE FRAGILE / RURAL DYNAMIC; YELLOW: AGRICULTURE COMPETITIVE / RURAL FRAGILE; GREEN: AGRICULTURE COMPETITIVE / RURAL DYNAMIC) (SOURCE: MINISTÉRIO DE AGRICULTURA, 2003)

The four dynamics will serve to describe the process of land abandonment and to analyse its drivers. This large-scale model on land abandonment will be compared to locals' experiences gained through interviews.

2.2 The loop of (abandoned) land: land abandonment definitions and what happens to abandoned land

As previously described, the presence of some or all agricultural marginalisation drivers do not translate into agricultural marginalisation; neither do marginalised society or economy. Similarly, agricultural marginalisation does not always translate into a **total** land abandonment; marginalisation may also bring the farmer to take other measures to avoid it (Brouwer et al., 1997). In other words, total land abandonment is only one of the different responses a farmer might have to marginalisation.

According to Brouwer et al. (1997) other responses a farmer may have to marginalisation are:

- **Shift of agricultural land use:** (i.e. from crops to permanent grassland, from mixed farming system to livestock production only)
- **Extensification:** land use remains unaltered but the farming system changes (i.e reduced input, reduced maintenance of infrastructure)

- **Contraction:** Intensification of production on the better land and running down or abandonment of poorer, less accessible parcels
- **Restructuring of holdings:** other farmers take over the land that some farmers leave to increase farm size
- **Change of land use:** the land goes out of agriculture (i.e. shift to forestry or urban buildings)

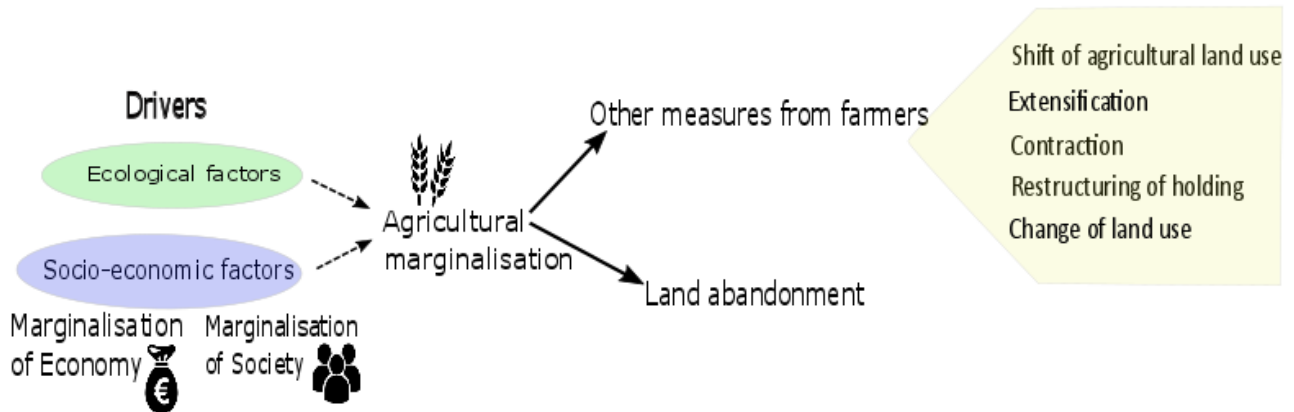


FIGURE 2.6 WHEN AGRICULTURAL MARGINALISATION OCCURS DUE TO VARIABLE DRIVERS, FARMERS CAN TAKE SOME MEASURES TO OVERCOME THE PROBLEM (IN ORANGE) OR ABANDON THE LAND

One of the possible answers to progressive marginalization is agricultural land abandonment (Brouwer et al., 1997, Keenleyside and Tucker, 2010). Land abandonment can be defined both as a state or as a process according to two different views: the static approach and the dynamic approach.

The academics that follow the **static approach** define land abandonment as an end state. Abandoned land is land that is no longer cultivated or used by farmers, without considering land that is still being affected by some changes, such as extensification of practices. Statistical surveys usually use the static approach as they need clear, quantitative, comparable results.

An example is the economic quantitative definition of land abandonment: “the Utilised Agricultural Area (UAA) loss observed between two FSS censuses, that has not been converted into artificial areas” (Pointereau et al., 2008) or afforested (tree plantation) (Terres et al., 2013). The “Utilised agricultural area” is the “total area taken up by arable land, permanent pasture and meadow, land used for permanent crops and kitchen gardens” (Eurostat, 2017). This land is not included in the crop rotation system and will be gradually covered by scrubs and trees in the future.

The results based on UAA changes, at a large scale, do not accurately estimate farmland flows. The net result of UAA loss usually underestimates the flow of farmland abandonment since it also considers agricultural expansion in other areas. The processes of agricultural expansion and land abandonment occur at different times, with different intensities and in different regions or countries since they depend on the socio-economic and political context (Pointereau et al., 2008). For example, certain regions of Spain in which farmland abandonment was observed were characterized by an increase in the UAA net result (Pointereau et al., 2008).

The static approach is not able to grasp the complexity which constitutes land abandonment. This can be explained better by the **dynamic approach**. Keenleyside and Tucker (2010), FAO (2006) and Corbelle Rico and Crescente Maseda (2008) see land abandonment as a dynamic and continuous process of extensification of management which leads to a less intensive use of agricultural land.

Consequently, it is a continuation of the already dynamic process of marginalisation. According to these studies, there is, therefore, a gradient of abandonment in which a parcel of land can find itself. This gradient can be divided into two main categories: actual (or total) land abandonment and semi (or hidden) land abandonment, identified by both Keenleyside and Tucker (2010) and (Corbelle Rico and Crescente Maseda, 2008) (see Table 1 and).

TABLE 1 AGRICULTURAL CATEGORISATION ACCORDING TO KEENLEYSIDE AND TUCKER (2010) AND CORBELLE RICO AND CRESCENTE MASEDA (2008)

Actual (total) abandonment	Semi (hidden) abandonment
Total withdrawal of management	Very low level of management (farmland is used by the farmer) Formally is still agricultural land
No income for owners	Very low or zero economic return CAP payment may still be claimed
Growth of natural vegetation and deterioration of structures	Growth of natural vegetation usually kept under relative control by occasional management or by grazing
Abandonment of land	Abandonment of agricultural activity

Semi-abandoned land is land that is still subject to some very low or occasional form of management. It can be very extensively managed or used only intermittently. This leads to low or no direct economic returns (Corbelle Rico and Crescente Maseda, 2008, Keenleyside and Tucker, 2010). Consequently, semi-hidden abandonment can also fit in the “extensification of practices” which was previously identified as a farmer’s response to marginalisation (Brouwer et al., 1997). Although agricultural activity production may cease, the land may formally be maintained as agricultural land. Subsidies such as CAP payment may still be claimed by the owner. The practice may be continued for social and cultural reasons or for nature and landscape conservation (Keenleyside and Tucker, 2010). Often this type of occasional management remains active for a longer period than expected. Some reasons for this continuation are external sources of income when farming is only part-time, inheritance by younger people, continuation even after the age of retirement (Corbelle Rico and Crescente Maseda, 2008).

What is abandoned can be the activity or the land (Pinto Correia, 1993). In the case of semi-hidden abandonment what is abandoned is **agricultural activity**. For the sake of this study agricultural activity abandonment and semi-hidden abandonment will be used as synonyms. In this case, the land from an external viewer might not be defined as abandoned as the growth of natural vegetation can be kept under relative control by occasional management (Corbelle Rico and Crescente Maseda, 2008). In certain regions such as Iberia land may be left fallow for many years or parcels may be unfenced; therefore, land in which agricultural activity that has been abandoned by the owner may be still grazed

preventing natural successions and may not look abandoned (Brouwer et al., 1997). This makes this type of abandonment difficult to detect (Corbelle Rico and Crescente Maseda, 2008).

Under this concept of semi-abandonment, it is possible to include also other definitions present in literature:

Land abandonment is not reduced to stopping farming exploitation but it can also correspond to a change in the farm use of the soil, from a traditional use to a less intensive use (Baudry, 1991)

A shift from a given pattern of land use (often extensive/traditional farmland) to a less intensive one caused by the reduction of human activity, leading to a recovery of scrublands and eventually forest (but an alternative pattern is possible) (Russo, 2003)

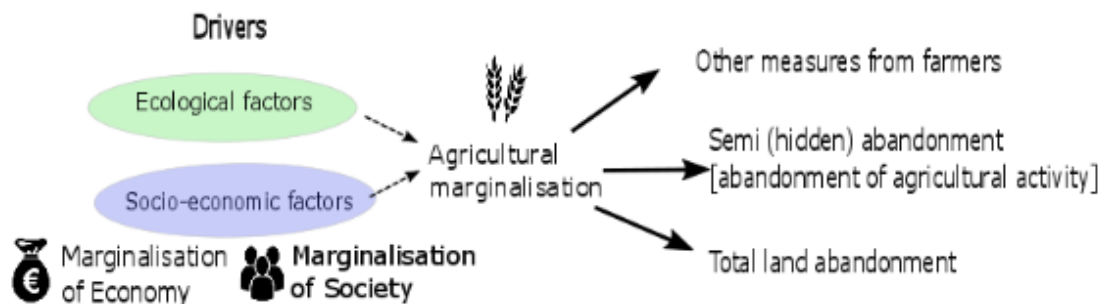


FIGURE 2.7 THE DRIVERS THAT LEAD TO AGRICULTURAL MARGINALISATION AND THE OPTIONS THAT OCCUR WHEN THIS HAPPENS

Being dynamic, the process of land use change cannot be considered simply as a linear process as represented in the previous figure. Munroe et al. (2013) state that agricultural activity abandonment (semi-hidden abandonment) and the following early vegetation succession may not be the end states of a land use change; abandoned agricultural activity can be put back to production in the future. Occasional management and grazing which occur in this case allow the recovery of agricultural activity in a less costly and time-consuming way. Therefore, it is possible that land may also only be temporarily out of use or waiting for a new owner. It may also have an owner, living in a town or city, who may decide to use it one day (Brouwer et al., 1997). As it is gradual and reversible, the semi hidden abandonment phenomenon can be represented by a loop (Figure 2.8), where land is slowly taken out of production, extensifying practices, but eventually can be entirely managed and taken into full production again, going back to its original managed state and closing the loop (Munroe et al., 2013).

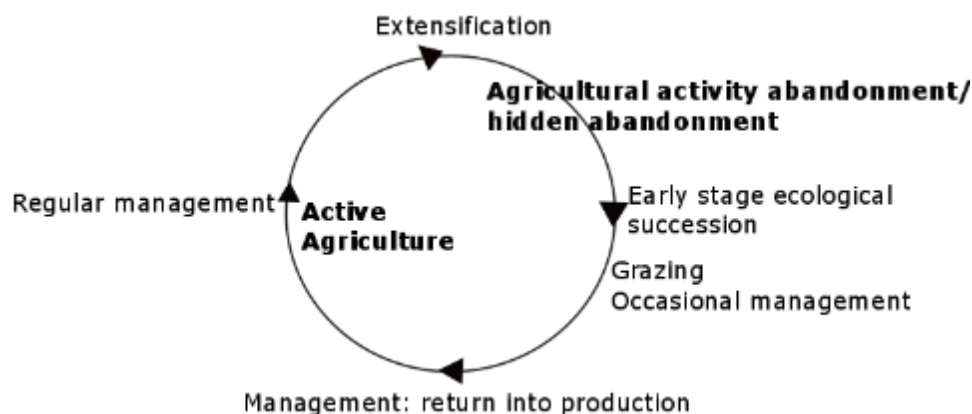


FIGURE 2.8 SEMI HIDDEN ABANDONMENT: LAND THAT IS TEMPORARY TAKEN OUT OF PRODUCTION RETURNS BACK INTO THE LOOP IF ECOLOGICAL SUCCESSION IS LIMITED AND KEPT UNDER CONTROL (ADAPTED FROM MUNROE ET AL. (2013))

On the other hand, **totally abandoned land** is the land that does not support any kind of activity and consequently generates no income for the owners. The total withdrawal of management causes the growth of natural vegetation and the deterioration of structures such as fences or irrigation systems (Brouwer et al., 1997, Corbelle Rico and Crescente Maseda, 2008, FAO, 2006, Keenleyside and Tucker, 2010). While semi hidden abandoned land (abandoned agricultural activity) is not the end state of a process, total abandoned land goes out of the loop (Munroe et al., 2013). It is usually impossible or too costly to return this type of land to cultivation both due to natural conditions (i.e desertification or overgrowth of natural vegetation) or social reasons (i.e. the lack of someone willing to take over) (Brouwer et al., 1997, Corbelle Rico and Crescente Maseda, 2008, FAO, 2006).

This case is thought to be the most typical situation in the Mediterranean regions since the landscape, once exploited in an extensive manner, is now left completely unmanaged and natural vegetation is left free to develop (Pinto Correia, 1993) What is abandoned here is not only the farming activity but also the land itself (Pinto-Correia et al., 2004) since no occasional management and no grazing is present.

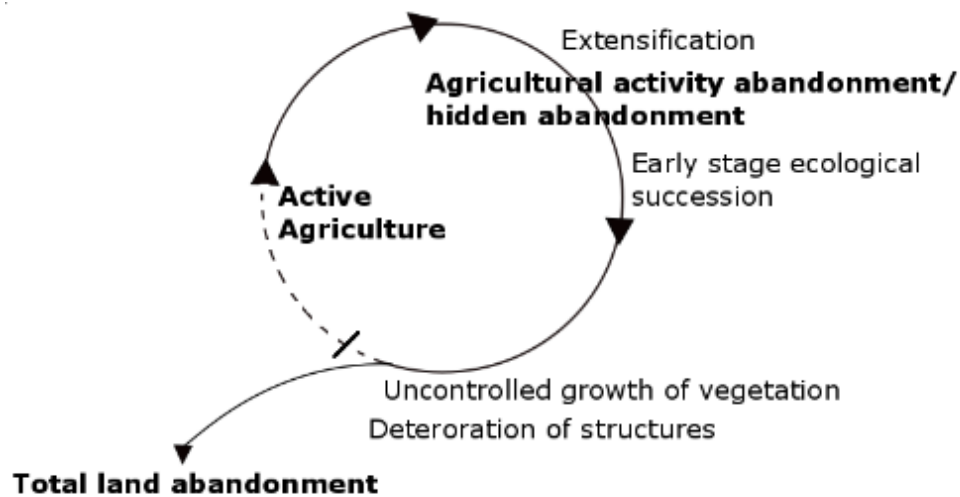


FIGURE 2.9 TOTAL LAND ABANDONMENT (ADAPTED FROM MUNROE ET AL. (2013): THE EXCESSIVE SPONTANEOUS VEGETATION GROWTH AND THE DETERIORATION OF STRUCTURES MAKE IT IMPOSSIBLE OR TOO COSTLY TO RETURN THIS TYPE OF LAND TO CULTIVATION; CONSEQUENTLY IT IS TOTALLY ABANDONED AND GOES OUT OF THE LOOP

Some authors quantify the amount of time land has to be left unmanaged or not used for agricultural production in order to be considered abandoned (Pointereau et al., 2008):

Farmland is abandoned if left unmanaged for more than 5 years.

Land which has not been used for agricultural production for 2 years

If land has not been managed or used for agricultural production for less than two\five years, depending on the different definitions, it is still part of Munroe's loop (2013). In the present days, it may only be temporarily out of use or waiting for a new owner(Brouwer et al., 1997). This is because, as previously stated, it is not too costly nor socially unfeasible to bring it back into production (Munroe et al., 2013).

2.3 Pushed land abandonment

As explained in Chapter 2.1, socio-economic and ecological factors in a more or less marginalised context may lead to landowners abandoning their land. The process previously described in literature and summarised in Chapter 2.1 will be referred to, in this thesis, as “**Spontaneous land abandonment**”.

Abandoned and not abandoned land can be sold to environmental NGOs for nature restoration and rewilding purposes. By agreeing to sell to environmental NGOs, landowners definitively contribute to the abandonment of land. The way land transactions are carried out may add up or constitute by themselves a reason for which a landowner wants or is forced to sell, therefore abandoning land. This can constitute a new form of land abandonment which will be here referred to as “**Pushed land abandonment**”. As this is a new type of abandonment, never described in literature, in order to analyse this new phenomenon, the concept of “land grabbing” is used. The intent is not to give these land transactions a negative connotation but to have some points to guide the analysis of results regarding the sub-research question “Is land abandonment spontaneous or pushed by particular interests?”.

All over the world, large farmland areas are being sold and acquired. This phenomenon sometimes goes under the name of “**land grabbing**” or under more neutral names such as “large-scale land acquisitions” or “large-scale land deals”. Indeed, not all land deals are considered to be land grabs. As described by van der Ploeg et al. (2015), land grabbing does not simply apply to a set of transactions in which land is acquired but it also involves other aspects which differ from author to author as different attempts have been made to define land grabbing (European Union, 2014). In this section, these attempts will be summarised, explaining the different aspects which constitute land grabbing according to different authors.

Land transactions which can be defined as land grabbing usually involve **extra-economic coercion**. This means that landowners who originally are not thinking about selling are pushed to give up their land through subtle mechanisms such as orchestrated publicity to generate confusion, good political connections, support of governments or skirting of law (van der Ploeg et al., 2015).

According to the International Land Coalition (2011), an alliance of civil society and intergovernmental organisations in order to be defined as “land grabs” land transactions need to have some characteristics. One of these is the **violation of human rights**. According to the European Union (2014), the most obvious human right that is at stake is land (or property) right due to the loss of access to land and its resources. This reveals to be especially critical when owners depend on the land for food security. In many developing countries land officially belongs to the state and farmers have conditional use rights. However, the users are only legally protected from land expropriation when land is productive. Consequently, land that is not being visibly used at the time of the acquisition, because it is used for grazing, wood gathering or because it is set aside for future use, may be regarded as empty and expropriated even if villagers may claim rights over it. Another human right that is affected is labour right as new emerging jobs are often declared to be the main economic benefit that is provided through the land deals (European Union, 2014).

Other characteristics that constitute land grabs, according to the Tirana Declaration, are the **absence of effective democratic planning** and meaningful participation (International Land Coalition, 2011). Moreover, they usually do not involve a previous assessment or study of social, economic and environmental impacts (International Land Coalition, 2011, Borras and Franco, 2012) and they are characterized by the **absence of transparent contracts** that specify clear and binding commitments

about activities, employment and benefits sharing. Finally, they do not take into account free, prior and informed **consent** of the affected land-users (International Land Coalition, 2011). Lack of consultation and non-transparency are recurrent characteristics which were also identified by other authors (Borras and Franco, 2012).

Sometimes this loss of land is accompanied by significant **disruption and trauma** for local groups (European Union, 2014) and it usually involves a **reordering of land use** which ruptures with the previous function of the land (Borras and Franco, 2012, van der Ploeg et al., 2015). Furthermore, land is sometimes bought at a **price below real market values** (Carroccio et al., 2016).

In most of the studies, it usually refers to the acquisition of land for the production of food to export or biofuels and it is associated with countries in the Global South (Borras and Franco, 2012). The main drivers found in literature which push some countries to buy land abroad are the achievement of food and energy security. However, in some recent studies, the meaning of land grabbing is also expanded to the appropriation of land and resources for **environmental ends** with the name of “**green grabbing**” (Fairhead et al., 2012). In other words, it is land grabbing in the name of the environment (van der Ploeg et al., 2015). Cases of green grabbing exist all across the globe, also in Europe and not only in the Global South. These have been mainly related to renewable energies (van der Ploeg et al., 2015) and CO2 emission reduction (Carroccio et al., 2016).

Verifying the presence of these characteristics (see Figure 2.10) in the research context will help to analyse how land acquisitions and land deals with landowners are carried out. The goal will not be to define strictly whether the land acquisitions can be considered an example of land grabbing or not which will be a semantic debate but will be more that of using the land grabbing phenomenon as a lens to analyse the process.



FIGURE 2.10 THE CHARACTERISTICS THAT CONSTITUTE A LAND GRAB ACCORDING TO LITERATURE

2.4 Conceptual model

Figure 2.11 summarises all the previously mentioned concepts and theories. Agricultural marginalisation, the precursor of land abandonment, is driven by ecological and socio-economic factors. However, this relationship is complex (dashed line) since in different contexts the same drivers lead to marginalisation or allow for a productive agriculture. Agricultural marginalisation sometimes is closely connected to a marginalised society or economy; occasionally, however, the link between economy, society and agriculture is not as strong. Moreover, agricultural marginalisation does not necessarily entail a linear process that leads to the total abandonment of land. Farmers can take other measures to withstand this marginalisation or abandon their agricultural activity causing hidden abandonment. This is difficult to spot since occasional maintenance is still carried out and grazing keeps the development of natural successions under control. A return to active agriculture and agricultural production is still possible if farmers take back the management of the land (the loop closes). If hidden abandonment goes on for too long, if occasional management and grazing are not happening, total land abandonment occurs and land goes out of the loop: vegetation grows in an uncontrolled way and structures deteriorate making it too costly to use the land for agriculture again. External forces such as nature restoration or rewilding projects which use agricultural land may aggravate the process of land abandonment. Landowners who are still using the land for active agricultural production can be subtly convinced or forced to sell or to stop using their land, making it enter the land abandonment loop (land grabbing). This is referred to, in this thesis, as pushed land abandonment. It is also possible, however, that land used for nature restoration was already abandoned before the environmental projects started. The dashed lines represent the gaps or debated topics in literature that should be filled by answering the research questions.

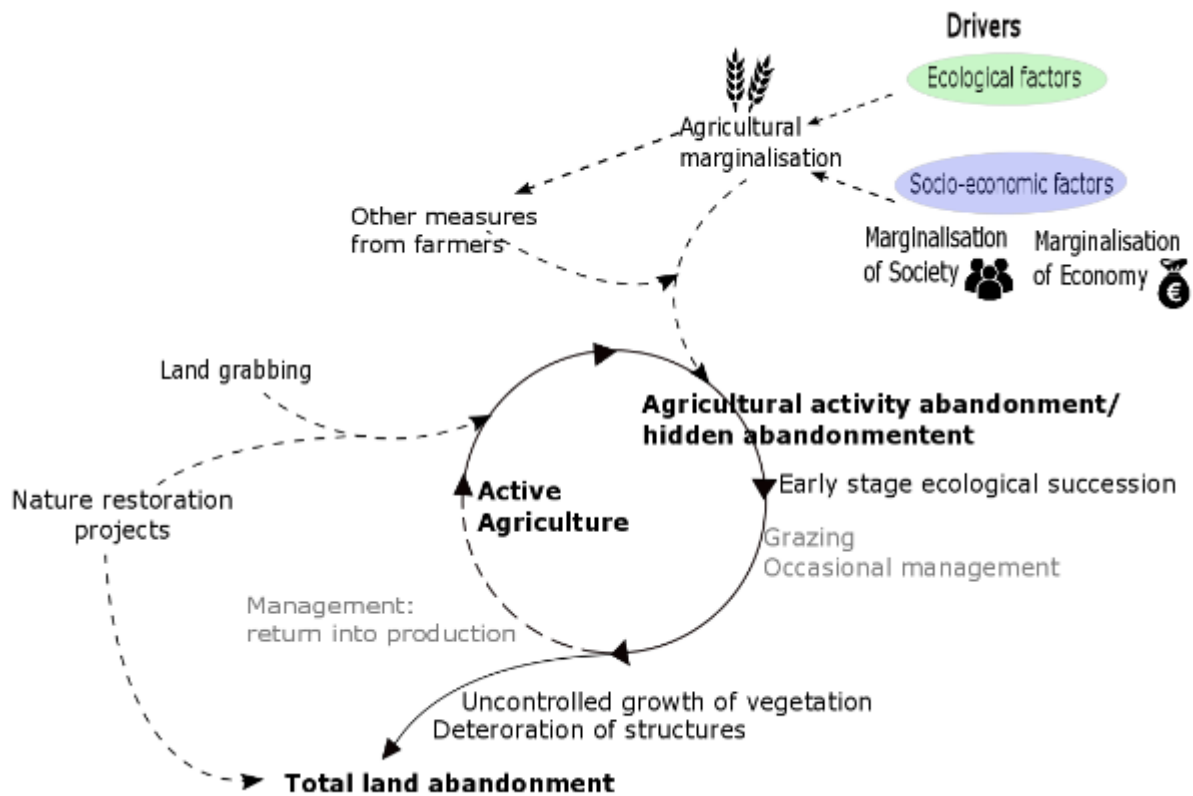


FIGURE 2.11 CONCEPTUAL FRAMEWORK: ALL THE PREVIOUSLY MENTIONED CONCEPTS AND THEORIES MENTIONED IN THIS CHAPTER WERE PUT TOGETHER AS A PUZZLE (ADAPTED FROM MUNROE ET AL. (2013)): SOCIO-ECONOMIC AND/OR ECOLOGICAL FACTORS CAN LEAD TO THE MARGINALISATION OF AGRICULTURE. WHEN THIS HAPPENS, FARMERS CAN TAKE MEASURES TO SOLVE THIS PROBLEM OR SLOWLY ABANDON THEIR AGRICULTURAL ACTIVITY. THE EXCESSIVE SPONTANEOUS VEGETATION GROWTH AND THE DETERIORATION OF STRUCTURES MAKE IT IMPOSSIBLE OR TOO COSTLY TO RETURN THIS TYPE OF LAND TO CULTIVATION; CONSEQUENTLY, IT IS TOTALLY ABANDONED AND GOES OUT OF THE LOOP. OTHER PRESSURES APPLIED AT DIFFERENT STAGES SUCH AS NATURE RESTORATION PROJECTS AND LAND DEALS (WHICH MAY BE CONSIDERED AS LAND GRABBING) MAY CONTRIBUTE TO THE PROCESS OF LAND ABANDONMENT.

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3. Methods

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3 Methods

The research followed a qualitative design. Qualitative research is used to describe and understand a phenomenon, collecting participants' stories, establishing the complexity of the issue without quantifying its variations (Creswell, 2009). This approach was chosen as the research mainly aims at exploring perceptions and experiences rather than generalising the findings in an analytical manner (Kumar, 2014). This way respondents' perspectives remain more intact and multiple points of views can be provided to understand the studied phenomenon.

The chosen study area and the reasons that brought to its selection are described in Chapter 4.

3.1 Data collection

Data used to answer the research questions was mainly gathered on the field from **interviews** and observations. In particular, to share the outcome of the latter, **pictures** were taken. Additionally, secondary data from other sources was also used at different stages. Before the field work, documents² were used to choose the study area and to get acquainted with the area itself; after the fieldwork, they served to solve doubts when analysing and summarising the transcripts since respondents were not available anymore for doing this.

Moreover, the original research set up envisioned the use of cadastral data, in particular regarding land that was sold for nature restoration projects. This type of data was difficult to retrieve. Detailed cadastral data is not available for the general public in Spain. In Portugal instead, a rural cadastre is just being implemented so data on the study area is still not accessible. The use of this type of data would have allowed to obtain more objective information such as parcel size, farmer's age, registry data of previous and current landowners, in order to pinpoint land that was sold for nature restoration and highlight the previous use. Furthermore, cadastral data would have been useful to gain contact information on landowners who left the area in order to have a broader study population.

Table 2 summarises the methods used during the fieldwork to acquire data in order to answer the research questions. For each of these, the respective interview questions and other specific information are listed in the third column. The sub-research questions, the respective topics they focus on and the interview questions are all interlinked, so sometimes different sub-research questions were answered by the same interview question.

Since the two sources of primary data were interviews and observations, the way these were collected are described more in depth below.

² Policy documents, documents from environmental organisation, Google Earth

TABLE 2 THE DATA SOURCES USED TO ANSWER EACH SUB-RESEARCH QUESTION

Sub-research question	Data source	Interview questions/ topics/ info
Who are the involved parties and what is their role in the process of land abandonment?	Interviews	Info on land and agricultural practices Linked to other questions below
Is there consensus among and within parties on how land abandonment is defined and on what causes it?	Interviews Observations (Pictures)	How would you describe abandoned land? What does land abandonment look like? Pictures of land considered as (not) abandoned Why did you stop using the land? What are the causes of abandonment? Pictures of causes of abandonment
Is land abandonment spontaneous or pushed by particular interests?	Interviews	Linked to questions above such as: Why did you stop using the land? What are the causes of abandonment? What is your opinion regarding your participation in nature restoration projects? What is that of other inhabitants? What are the impacts/effects of nature restoration on your life? And on your land/agricultural activities?
What are the attitudes of locals towards land abandonment?	Interviews	Description of land abandonment process What are you going to do in the future? How do you see the future for agriculture in the area?

3.1.1 Interviews

Due to the impossibility to use cadastral data, the data source that was mainly utilised was interviews. Semi-structured interviews were used to collect information from respondents on the field. A list of questions was prepared in advance (see Annex 1). However, since interview transcription and analysis started along with data collection, interview content was adjusted according to the findings along the way as interesting topics emerged.

Interviews were chosen over questionnaires as they are more appropriate to describe complex situations, feelings and thoughts. Through interviews questions and answers can be explained and repeated in case of misunderstanding. Moreover, information gained from interviews can be supplemented by observations and non-verbal reactions (Kumar, 2014).

Study population and sampling – The study population was composed of owners or former owners of agricultural land located in the study area. All of the respondents who were interviewed had not left the study area; no people that had left the area were interviewed directly. Due to time constraints

and a large area to cover, the number of interviews per sub-area was limited (see Chapter Study area to understand what is meant by sub-area). However, to ensure some triangulation more than one respondent was interviewed per sub area. Overall the interviewed farmers who were involved or who had relatives involved in the selling of land were five; landowners who had stipulated a management deal the same number.

Interviewees were selected in different ways. The first interviews in Portugal started from contacts given from the nature restoration organisation. Then, once I got used to the interview mechanism, the contact network was expanded through snowballing in Portugal and asking around in local bars in Spain. Being not only a stranger but also a foreigner in a very closed environment made finding people to interview very challenging (see Research limitations section).

Language – The interviews were conducted in different languages according to the languages spoken by the interviewee. Two younger participants spoke English. Most of the respondents spoke Spanish as a second language. The level of Spanish, however, was variable, from almost mother tongue to almost completely Portuguese. This negatively influenced the amount of information acquired in some interviews. Due to this problem encountered on the field, some interviews were translated. Finding a translator not involved with the nature restoration organisation was sometimes not possible with the little time available. In these cases, due to the absence of other options, an intern of the organisation helped to translate. When possible, respondents who spoke Spanish were used as translators for respondents who did not.

Setting -- As for the language, the settings of the interviews varied among different participants. When possible, a quiet environment was preferred but this was not always achievable. Some examples of places where interviews were carried out are fields, bars, cars, even a house while being offered a lunch.

Recording and notes – Interviews occurring in a quiet environment (i.e. houses, bars) were all recorded after asking for permission from the interviewee. At the same time notes of the major points were taken. Interviews taking place in noisy environments were still recorded but more thorough notes were taken to compensate for the potential failure of the recording due to noise.

Ethical factors – Respondents were asked before the interview whether they could be recorded and whether their name could be used in the report. Some of the respondents preferred to stay anonymous. However, since the villages are small even a small description of the respondent would make it very easy to guess who the respondent is. Due to practical constraints (i.e. language, difficulties in interviewing farmers, the age of respondents, time constraints), interviewees did not have the chance to go over the transcript of their interview. They were mentioned anonymously as “P” (for participant) followed by a number when their quotations were mentioned in the result section. An anonymous list of interviewees with their location is present in Annex 1.

Other factors to take into account- Interviews conducted in bars happened in groups. Farmers were more easily approachable together so this format was chosen. Moreover, due to difficulties in interviewing farmers, language constraints and cultural reasons, not all interviews were used for data analysis. Furthermore, although all the participants still lived in the area, they could present a broader picture talking about relatives or other acquaintances’ experience.

3.1.2 Observations and photographs

Photographs were taken while exploring the area during or after the interviews in order to document the level of abandonment of agricultural land. Specifically, the pictures focused on areas that the

interviewees defined as abandoned and as not abandoned. Through the use of images, it was possible to integrate the participants' descriptions and experiences with representations of what land abandonment looks like on the ground. Photos were taken and stored on a smartphone. This way also the geographic location of the portrayed farmland was registered.

3.2 Data analysis

After being collected as previously described, data was analysed.

3.2.1 Interview data transcription

Interview transcription started to be transcribed as soon as data collection started. They were translated and transcribed at the same time. During translation, the meaning of the answers was kept as intact as possible, using a dictionary when necessary and writing down original Spanish/Portuguese words when in doubt. The parts relevant to the research were transcribed literally, while parts which were not relevant were just noted down summarily. After transcribing, transcripts were read as a whole, making notes about first impressions and recurrent themes, polish typo mistakes, making the last translation adjustments from Spanish. This first reading served to have a broad overview and to become fully familiar and freshen the memory on the content of the interviews as a whole. Then they were read more in depth, one by one, line by line.

3.2.2 Interview coding

After the previous step, transcripts were coded using Atlas.ti. The objective of coding was labelling sections or passages of text to identify interesting features of data. The analysis at first was done at a general level. Relevant words, phrases, sections were coded. Every passage of text could be coded in different ways according to the question in mind to be answered in the moment of reading. I decided what was relevant to code looking at words, phrases, concepts and sections that would be informative and somehow answer the sub research questions. This was done constantly referring back to research questions, making sure that what was being coded was answering either broadly or in depth the questions. At the same time, I kept an open mind selecting as codes also extracts that were surprising or that were considered important by the interviewees. In the first phase, the reasoning behind the assignment of a certain code and the name of the code itself were noted down on paper to have a systematic list to refer to in case of doubt. For some codes with a vague name, the note feature in atlas.ti was used.

Once the first interviews were coded some recurring categories of information started to appear. These categories were changed and adjusted throughout the first screening of all the interviews. There was a continuous going back and forth from the transcripts, to the codes and to the research questions. Furthermore, also the theories and concepts of the theoretical framework were observed again and polished through the data analysis process. However, specific concepts from the theoretical framework were not used as preconceived codes. Literature from the theoretical framework was used, but in a following phase, the discussion. This way the results could be as objective as possible; using part of theories as codes would have already seemed as interpreting the results, giving them a direction not imposed by the respondents but by academics and other authors. Results instead represent new knowledge about the world from the perspective of the participants.

In Atlas.ti, different categories were used to group and analyse data:

Code prefixes -- this is the most basic way to keep data organised. Broader categories of codes were spilt into more specific ones. In order to remember what kind of code each code was, some initials were put before the actual name of the code³.

Families -- they constitute the broader concept to which its parts relate to. These were useful to keep codes and documents organised, to filter them and to find them more easily. When clicking on a family, only the codes or the documents which are part of it are visible, making it easier to sort out information, for example, per area or per country³.

The codes were developed reading the text keeping an open mind and looking back at the research questions. The process of coding was repeated every time the codes were adjusted.

Once the coding was finished for the entire data set, networks between codes/families were created. This way connections between different codes could be made. Networks are used in Atlas.ti to put order to the codes: having all the codes in one page helps to adjust them, merging or also separating them. The codes and their connections constitute the core of the results.

In order to study differences in opinions between different areas and different actors, primary documents families were created to distinguish the transcripts per area and per type of actor. This way quotations belonging to different areas could be filtered, read and compared. For example, documents were divided in the family of "Portugal" and in that of "Spain", in "Douro region" and "Faia Brava region".

To analyse and extrapolate the results other features of Atlas.ti were used too: the output feature and the query tool. Through the output figure a list of quotations per selected code can be displayed making it easier to compare information. Once identified the useful quotations for answering a certain question, these were also read again in the general context, not as a single sentence which can often be misinterpreted but also a part of a longer paragraph.

3.2.3 Photographs analysis

Photographs were analysed after the interviews were transcribed and coded. Their content was connected to that of the interviews in order to have a graphical representation of what the interviewees were talking about. Thanks to the geographic location related to each picture it was also possible to observe pictures divided by areas.

³ For example, "causes of land abandonment" was divided into the single causes which could be found in the transcripts. Each cause was highlighted and set as a quotation, all these quotations belonged to the family "Causes of land abandonment" and to the broader family "Land abandonment" in general. Each cause was given a different code: "Causes of la: age", "Causes of la: inaccessibility" etc all starting with the prefix "Causes of la" where "la" stands for land abandonment in order to be able to find the codes quicker from the list in the code manager and to filter them.

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An aerial photograph of a river valley. The river is a deep blue, winding through a valley with steep, terraced hillsides. The hillsides are covered in green vegetation, likely olive trees, arranged in neat rows. In the foreground, a winding road is visible on a hillside. The sky is a clear blue with scattered white clouds. The overall scene is a vast, open landscape.

4. Study area

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4 Study area

This section firstly describes physically the area, giving information on geography, climate, vegetation and land use. Secondly, in order to have a clearer view of the context in which the research was carried out, it clarifies why this specific area was selected while serving as a preliminary description of the area. At this stage, only information that was available before the beginning of the research phase on field will be presented. What was discovered on site through interviews and observations will be part of the results chapter.

4.1 Geography, climate, vegetation and land use

The study area is on the border between the North-east of Portugal and western Spain in the so-called **Western Iberia**. The three main interest spots on which the research focuses are the Douro (Duero in Spanish) the Coa, and the Agueda valleys.

The Coa Valley, located in the Guarda District, stretches from the South of Pinhel to the North, where the Coa river flows into the Douro river. It hosts the Faia Brava reserve and it is recognised as a Special Protected Area (SPA) of the Natura 2000 network and a Birdlife International Important Bird Area (IBA). Besides being an Archaeological Park, it is also a UNESCO World Heritage Site due to its carvings and paintings which date back to the Palaeolithic Era.

The Douro valley stretches in the district of Braganca, on the East side of Portugal, from North to South and parallel to the Coast until Barca De Alva, marking the border with Spain. Until this point, the valley is narrow and deep. From Barca D'Alva, the Douro becomes larger, flowing from East to West until it reaches the Atlantic Ocean in Porto. Barca d'Alva is also the point where the Agueda river, coming from the South, flows into the Douro river. As for the Douro river, the Agueda marks the boundary with Spain in the Southern part of the region.

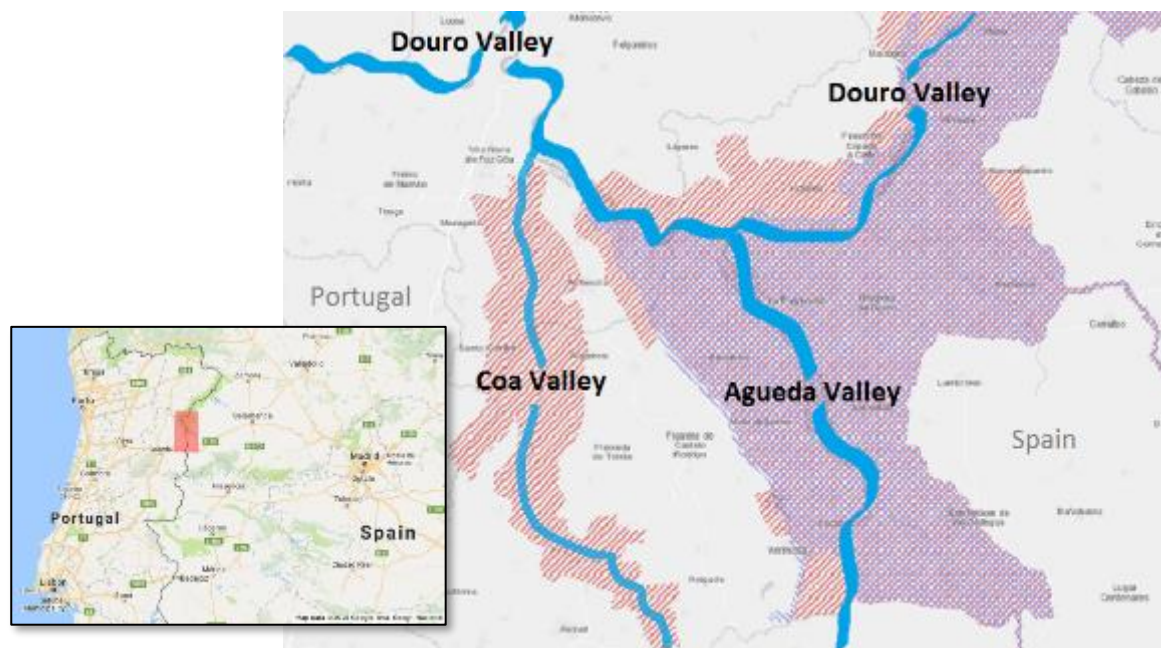


FIGURE 4.1 STUDY AREA: THE DOURO, AGUEDA AND COA VALLEYS. IN RED AND BLUE, THE NATURA 2000 AREAS (MODIFIED FROM GOOGLE MAPS)

The region has a Mediterranean climate, characterised by hot summers and cold winters. Annual rainfall is generally low, mainly concentrated between November and April. Along the Douro, the further East, the drier the climate becomes (Tomé & Catry, 2008).

In the area the majority of the soil consists of **granite** (Tomé & Catry, 2008). It is characterised by hard stone and a thin layer of soil. Being acidic and poor in organic matter, with low capacity for natural regeneration, it is challenging to use for agriculture (LIFE, 2014).

The dominant vegetation that can survive with this climate and soil is mainly composed by scrubland such as broom and lavender. Natural successions appear in abandoned agricultural land and after the passage of fire. These are mainly composed by juniper (*Juniperus oxycedrus*) and holm oaks (*Quercus rotundifolia*). Cork oaks (*Quercus suber*) are also present in areas where the soil is deeper and more humid (Tomé and Catry, 2008). However, they are not as common as holm oaks, being scattered around and limited compared to the typical agroforestry systems, the Portuguese “montado”, and the Spanish “dehesa”. These are not located in this area but more in the South.

In granitic soils, some family-scale agriculture is also present, mainly vegetable gardens (potatoes, cabbage, beans etc.), small vines or small fields of corn, wheat or hay. These parcels are often surrounded by stone walls which shelter reptiles and contribute to the local mosaic of flora and fauna. The type of agriculture is mainly dry, extensive, in small parcels and family managed (Tomé and Catry, 2008).

In the **flat plateaus** both in Spain and Portugal, cereals and fodder crops used to be common in the past. Now plateaus are mainly used as grassland for the grazing of sheep and goats. In these open areas, the previously mentioned vegetation is also present in different numbers and density (Tomé and Catry, 2008). Furthermore, natural pastures have poor seed banks due to intensive grazing and use of fire, and they are less nutritious for both livestock and wild prey populations (LIFE, 2014).

The **Agueda and Douro valleys**, carved by the rivers, are deep and steep and they are part of the International Douro Parc. Beyond the previously mentioned vegetation, the **riverside** is characterised by the presence of Mediterranean cultivations such almond trees, olive trees, and, of course, vines (Tomé and Catry, 2008). The Portuguese side of the Douro valley is famous for its wine production. It is known for the famous Port wine and more recently for the Douro wines, classified as a World Heritage Site by UNESCO in 2001. In particular, the study area is in the Douro Superior (see Figure 4.2), the zone of the valley which extends until the Spanish border, where Barca d’Alva is located. Being on the East, it is the least rainy and warmest part of the Douro valley. Consequently, this is also the least cultivated region of the Douro, where only a small portion of the huge area is used for viticulture (Niepoort, 2017). Given severe water shortages, olive and almond trees are also dominant in the landscape. In the Douro valley, the soil is more commonly made of schist, rather than granite, allowing for more dense cultivations. These are also present along the Agueda and the Coa valleys, in plateaus and on granitic soils, although less intensively.



FIGURE 4.2 THE PORTUGUESE SIDE OF THE DOURO VALLEY, DIVIDED IN THREE PARTS. THE STUDY AREA IS IN THE DOURO SUPERIOR PART (MILES AWAY, 2017)

4.2 Reasons for selecting the areas and main activities present

The area, in general, was selected after the proposal phase of the research, after considering several areas in Europe. The area was selected for the following reasons:

- Rewilding site in the area (Section 4.2.1)
- Agricultural and nature restoration activities are present in the area (Sections 4.2.2)
- Practical reasons (Section 4.2.3)

4.2.1 Rewilding Europe-Western Iberia pilot

Rewilding Europe is a Dutch foundation, established in 2011, which aims to bring back to a natural and wild state one million hectares of land by 2020. The objective of the organisation is “*to make Europe a wilder place*”. Through the creation of space for wild nature, wildlife and wilderness, new opportunities for men can also arise both for leisure and livelihoods. Creating natural functioning landscapes and ensuring the return of wildlife, provides a chance for society to reconnect with nature potentially generating new jobs and sources of income (Rewilding Europe, 2016). This way, rural livelihoods, which originally relied on farming, can depend on newly developed activities such as eco-tourism and environmental education. According to Rewilding Europe, through the process of rewilding, after an initial support phase carried out by man, natural processes and wild species are able to take care of themselves and prosper. Rewilding Europe operates through the creation of ten pilot areas which serve as a source of inspiration to replicate similar projects elsewhere. Since 2010, specific areas have been selected and rewilding processes have started. Western Iberia, in particular, the Reserve of Faia Brava, is one of these pilot areas. According to the founders of the project, the project potential to become world-class destinations for nature tourism, offering multiple economic benefits (Rewilding Europe, 2017). Rewilding Europe is a partner with important institutions such as WWF and is funded by influential organizations such as the EU Commission and the Dutch Postcode Lottery (Rewilding Europe, 2017).

Western Iberia was originally designed as a large transboundary rewilding site under the guidance of Associação Transumância e Natureza (ATN), a Portuguese environmental NGO, and Fundación Naturaleza y Hombre (FNYH), a similar Spanish NGO. The project started with very ambitious goals: FNYH was planning to rewild around 1 million hectares. This was then downscaled to the standard rewilding size (100,000 hectares) by Rewilding Europe. Due to a difference in expectations and practices, the Spanish FNYH left the project in 2014: consequently, now, the “western Iberia” project area is only located in Portugal and ATN constitutes its only local partner (Pellis and de Jong, 2016). In order to keep the cross-boundary character the study area borders were then set by the researcher and expanded to the North and to Spain (see next sub-chapter 4.2.2).

Why was it necessary for the study area to be a rewilding site? Abandoned areas are at the core of the Rewilding Europe project: rewilders plan to use lands by them considered abandoned to let nature expand (Rewilding Europe, 2016). Citing their own words, the organisation focuses on “*transforming the problems caused by ongoing and extensive land abandonment into mutually beneficial opportunities for man and nature*” (Rewilding Europe, 2016). The focus of the research is to investigate land abandonment, also considering external pressures such as nature restoration projects and analysing the process from a locals’ perspective, trying to grasp what models and large-scale studies may overlook. Therefore, the ideal area needed to be characterised by the coexistence of (presumed) abandoned land and nature restoration projects. Being a rewilding site was, therefore, a useful characteristic the area needed to have.

4.2.2 Nature restoration activities present in the area

The main actors in nature restoration in the area are Associação Transumância e Natureza (ATN), and International Douro Natural Park, often helped by other local partners.

Associação Transumância e Natureza (ATN)



Associação Transumância e Natureza (ATN) is a Portuguese NGO created in 2000. Their mission is to “*conserve, value, study and promote the natural heritage of Northeast Portugal, through sustainability and community participation, by managing and protecting*

natural areas”(ATN, 2018). Their vision consists of creating new spaces for both ecological and economic reasons. This way, species and habitat conservation can be achieved but in the meantime, economic and social dynamism of the region can be enhanced(ATN, 2018). ATN’s vision is therefore similar to that of Rewilding Europe.

The main activities of ATN consist in the study and the conservation of the fauna and flora in the Côa, Águeda and Douro valley, environmental education, elaboration and implementation of environmental projects for rural development (agriculture, livestock, forestry and game) consistent with nature conservation. This is achieved also through the establishment of partnerships with national and international foundations(ATN, 2018).

Since 2000 ATN has acquired several properties in the Coa Valley and in Douro Internacional and Vale do Agueda parc where several restoration projects were developed, especially focused on cliff-breeding birds, such as Bonelli's eagle, golden eagle, eagle owl, griffon vulture, Egyptian vulture and Black Stork.

Faia Brava Reserve

The most renowned rewilding and nature restoration project of the area is the reserve of Faia Brava, the actual Rewilding Europe site. Faia Brava is the first private protected area in Portugal. In the past, its land used to be agricultural land, which was then acquired bit by bit from ATN for the realisation of the reserve. The term “Faia”, a local Portuguese name for “inaccessible and wild cliffs”, which describes the type of landscape the reserve is located in. It is situated along the deep granitic gorge created by the Coa River between the Marofa mountains on the West and the Douro vineyards on the East. It is surrounded by three small parishes: Algodres in the north-eastern side and Vale de Afonsinho, in the south-western side (municipality of Figueira de Castelo Rodrigo) and Cidadelhe in the western side (in Pinhel).



FIGURE 4.3 THE RESERVE OF FAIA BRAVA, OWNED BY ATN (GOOGLE MAPS, 2017)

The reserve was established to increase the forest cover, improving its structural complexity and its diversity in vertebrates; to increase the nesting and the reproduction of rupicolous species (*Neophron percnopterus*, *Aquila fasciata*, *Apus melba*, *Oenanthe leucura*), to maintain the agricultural biotopes, increasing their diversity of threatened species and, finally, to increase the members of the association and the number of visitors (ATN, n.a.).

In order to achieve these goals land was acquired by ATN to guarantee autonomy of action in the land and to reduce human perturbations. Furthermore, ATN staff carries out artificial feeding of birds through repopulation of pigeon houses and vulture feeders and sensitization of the local population to the conservation of flora and fauna, decreasing conflicts between man and protected species (ATN, n.a.).

Inside the boundaries of the reserve, no inhabitants are present. The closest inhabitants are in Cidadelhe, located at about 120 meters from the reserve entrance. Vale de Afonsinho and Algodres are respectively 2800 and 830m away from the reserve (ATN, n.a.). In the last decades, the population of the three parishes has decreased considerably. As it can be seen from the table below, Cidadelhe was the parish that was the most affected by depopulation (INE, 2017).

TABLE 3 POPULATION TREND IN THE LAST DECADES IN THE FAIA BRAVA AREA (INE, 2017)

	Algodres	Vale de Afonsinho	Cidadelhe	Figueira de Castelo Rodrigo
Parish area (ha)	30,98 km ²	13,14 km ²	26,80 km ²	27,88 km ²
Pop 1981	573	180	124	2128
Pop 1991	470	155	93	2356
Pop 2001	352	122	52	2253
Pop 2011	294	83	40	2211

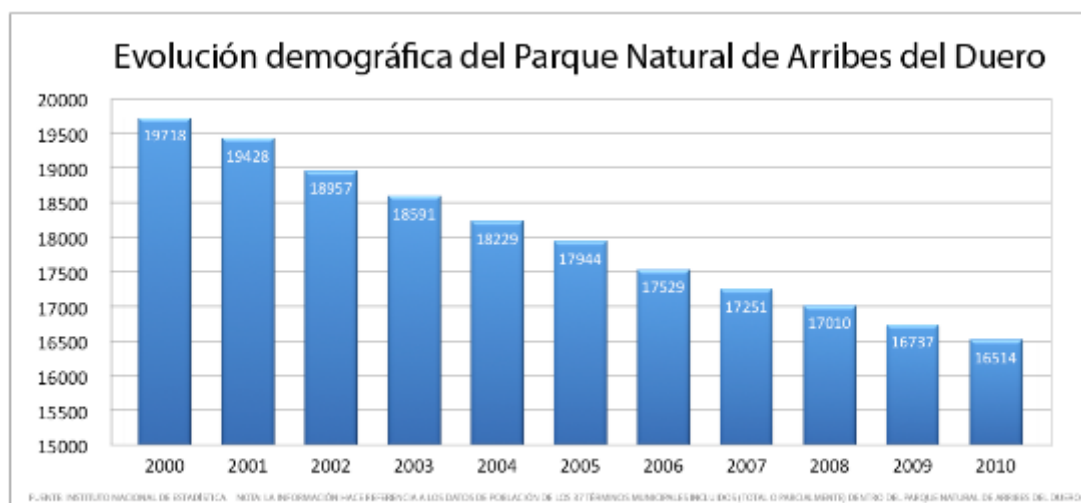


FIGURE 4.5 POPULATION OF THE NATIONAL PARK ARRIBES DEL DUERO (INE, 2017)

The parishes in the Portuguese and Spanish area of the project are therefore going through a process of depopulation (see Table 4 and Table 5) as it is happening in the parishes surrounding the Faia Brava reserve. The only exception is constituted by Freixo de Espada à Cinta, the largest parish, where the population has increased of 2,7% in the 2001-2011 decade (Table 4).

TABLE 4 POPULATION TREND IN THE LAST DECADES IN THE PORTUGUESE SIDE OF THE RUPIS PROJECT AREA (INE, 2017)

	Almofala	Escalhão	Poiares	Freixo de Espada à Cinta
Parish area (ha)	18,60 km ²	78,81 km ²	40,74 km ²	74,76 km ²
Pop 1981	547	1 376	721	2 396
Pop 1991	367	1 110	636	2 261
Pop 2001	279	931	507	2 131
Pop 2011	228	770	411	2188

TABLE 5 POPULATION TREND IN THE LAST DECADES IN THE SPANISH SIDE OF THE RUPIS PROJECT AREA (INE, 2017)

	La Fregeneda	Hinojosa de Duero	Lumbrales	Saucelle
Parish area (ha)	45,16 km ²	92,98 km ²	69,94 km ²	45,99 km ²
Pop 1996	601	894	2 315	484
Pop 2001	543	827	2 152	411
Pop 2011	440	722	1 894	387
Pop 2017	363	691	1 662	295

The aim of the LIFE Rupis project is to strengthen the populations of Egyptian Vulture and Bonelli's Eagle in the Douro International valley, by improving breeding success and reduction of mortality. Despite their protected status, national and European populations of these species are declining nationally and in the wider EU, in part due to poisoning but also due to poor habitat quality and disturbance (Ogada et al., 2012).

The main threats to the target species include poor habitat quality, electrocution, disturbance of nest sites, illegal use of poison and food shortage (Ogada et al., 2012, LIFE, 2014). The principal reasons for food shortage are the following:

- the closure of open feeding stations due to the mad cow disease
- the decrease of the pigeon houses due to the abandonment of traditional agricultural practices
- the decrease in wild-rabbits and red partridges populations due to agricultural land abandonment and destruction of the Mediterranean agro-forest mosaic (LIFE, 2014).

Consequently, as for the Faia Brava reserve, the specific actions to be carried out in order to achieve the project's objective regard increasing food availability and improving habitat quality, through better management of farming and grazing practices (LIFE, 2014).

On the Portuguese side, the majority of the properties are privately owned, divided in small areas, with an average of 0,5 hectares, with multiple landowners, which, over the last decades, has made public conservation strategies for the target species very difficult to implement. Furthermore, according to ATN, agricultural abandonment in the region has led to a visible deterioration of suitable habitat for the target species of the project, mainly for their prey species. Consequently, the success of the project relies on the support from local hunters, local farmers and cattle and sheep breeders (LIFE, 2014).

Priority spots such as breeding sites were identified by ATN and the partner organisations. Considering the strategic location of these properties and their relevance to the project, both ATN and Palombar decided that the best option to manage the areas and to achieve their goals is the acquisition of the land, which also ensures the long-term maintenance of the conservation actions after the project. Through the acquisition of land, existing nest sites can be directly protected and accessed; moreover, disturbance by human activities, such as infrastructure development, hunting, tourism, agro-forestry machinery work, is reduced. In case the acquisition is not possible, the second preferred option is custody agreements between landowners and the organisations (LIFE, 2014). For example, custody agreements have been signed with landowners and producers associations for the management of feeding stations. Livestock producers and meat distributors collaborating to the project can provide animal sub products to the feeding stations, increase the target species overall food availability (LIFE, 2014).

Figure 4.6 shows the properties owned by ATN overall. Some of the properties constitute the Reserve of Faia Brava, others are part of the LIFE Rupis project in the Douro International Natural Park. Overall, they sum up to 1600 ha. More land is managed by ATN as land owners have signed a deal with the organisation (ATN, 2018).

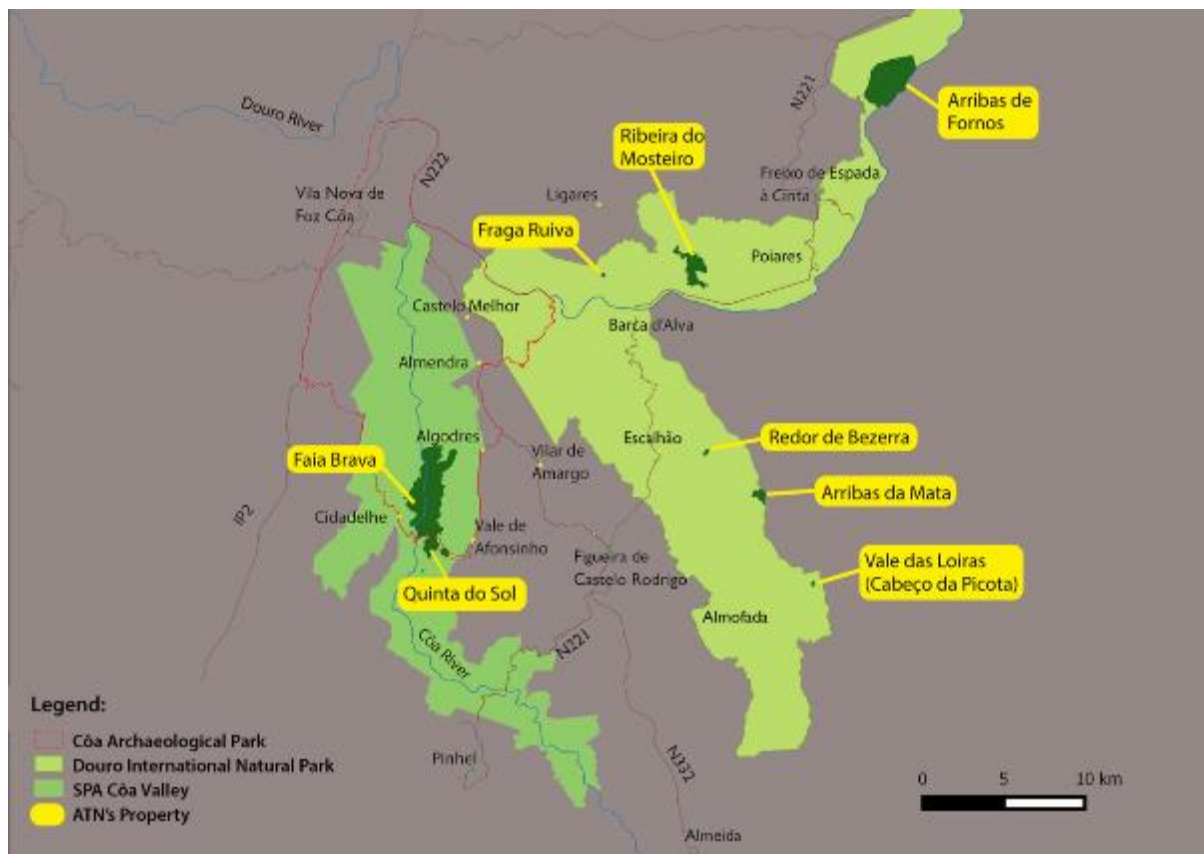


FIGURE 4.6 THE PROPERTIES OWNED BY ATN (IN YELLOW): THE RESERVE OF FAIA BRAVA, ON THE WEST SIDE, AND THE RUPIS PROJECT AREAS, ON THE EAST (ATN, 2018)

Why is the presence of other nature restoration projects relevant to the thesis scope? Traditional agricultural fields provide shelter, food and water to the prey of the target species. According to ATN and Palombar, *“the properties to purchase are abandoned and the landowners are actively interested in selling them, since they have abandoned all agricultural activities”* (LIFE, 2014). On the contrary, agricultural abandonment and intensive agriculture, with the use of herbicides, damage those habitats, subsequently impacting the predators. Moreover, the presence of shrubs and unpruned trees increases the fire risk for the breeding sites. Furthermore, the lack of open areas makes it impossible for the birds to hunt for food. Creating discontinuity in the landscape is therefore essential for the survival and successful breeding of the protected species. Without the right balance constituted by the Mediterranean agro-forest mosaic the protected species cannot successfully live and reproduce (LIFE, 2014). Nature restoration and agriculture are therefore strongly interconnected in this area, making it suitable for the research. Furthermore, being the natural park and the Life Rupis project both Spanish and Portuguese, the transboundary character of the project can be maintained also if the Rewilding project is now only taking place in Portugal.

4.2.3 Spoken language and contacts

This area was also chosen because of the spoken language: Spanish. Being at the border between Portugal and Spain, most of the people spoke or understood Spanish. Speaking the same language as the interviewed people is fundamental during the interviews. Of course, other areas were available in Europe, but the local language was not spoken by the researcher.

Furthermore, the presence of an available first contact person for organisational matters (accommodation, basic information) contributed to the choice.

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5. Results

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5 Results

This chapter presents the findings of the research. For analytical purposes, the results are presented following the research questions topics. However, since the topics are interlinked, research questions answers can sometimes be found in more than one section. When present, similarities and differences between different areas are pinpointed in each section.

The results summarise the content of the interviews but, when pertinent, they are also accompanied by fragments of the interviews to help giving the reader a better idea of local people's opinions. The interviews focused on the personal experience and opinion of the interviewed people, however, often the interviewees could help in drawing a broader picture since the answers included relatives' or other acquaintances' experience.

Please note that the results which are sub area specific (i.e. focusing on a village only) are usually based on interviews with one to three respondents maximum.

5.1 The types of farmers present in the area

This subchapter describes the actors involved with agricultural activities and consequently with land abandonment. It focuses on the interviewed actors and on their families and acquaintances.

In the study area, current and former (abandoned) agricultural land is mainly owned by local inhabitants, people that have left the area, people coming from outside the area such as foreigners, tourism businesses, nature restoration organisations and unknown people.

The land owners who are still using their land are both living in the area and living far away, for example in bigger cities. On the one hand, all the interviewed land owners who are **still living in the area** and have not abandoned their land manage their land in first person. On the other hand, the land owners who have **left the area** to go to the city or abroad generally designate other local people to work the land for them or abandon their land. Although land owners who have completely left the area were not interviewed, some land owners referred to uncles, sons, acquaintances who were abroad or to the fact that they were managing land of people who were away. Many land owners who have moved away from the area are not interested in having agricultural land who they often have inherited from their parents who passed away.

The land owners who use the land for farming, are involved in different **types of agriculture**. To simplify, they can be divided in two main groups (see Table 6): agriculture related to crops and extensive agriculture related to animals. The first principally includes almonds, olive trees and grapes. Moreover, many local inhabitants also have small vegetable gardens close to their houses. Most of the farmers of this group own the land they produce products from. The second group generally regards cows and sheep, both for meat and for milk. It is common for those involved in animal farming, for example shepherds, to also use land that does not belong to them. In general, the first group is more commonly present in Portugal, with a bigger more intensive cluster near Freixo a Espada Cinta, while the second in the Spanish side.

TABLE 6 AGRICULTURE TYPE IN THE STUDY AREA

Crops	Animals
<i>Almonds</i>	Cows
<i>Olive trees</i>	Sheep
<i>Vineyards</i>	
<i>(Vegetables gardens)</i>	

All the interviewed livestock breeders still live in the area. On the contrary, people involved in crop agriculture sometimes also reside outside the area, are part time farmers or have other jobs and some have local workers that work their land. For example, some land owners originally from Cidadelhe are now doctors, professor or lawyers and live in bigger cities such Porto or Lisbon and have some locals from the village that work their fields. The latter are both younger and older farmers and keep agriculture running for money or other types of compensation, for example the possibility to use the land for sheep grazing.

The **size** of the parcels owned by land owners differs greatly from area to area. Land owners who carry out subsistence agriculture generally have small patches of land. For this scope, patches of five ha or less are very common in the area, especially around the Faia Brava area. Land owners who use the land for olive trees, almonds, vineyards and livestock, for greater scale productions have parcels of larger dimensions, even of more than 500 ha. This is more common in the area of Freixo, where big properties or “Quintas” are located. Land owners from the Faia Brava area have generally inherited the land from parents or other relatives, while in other areas it is also common for land owners to have bought the land later.

The **products** of agriculture are either used for self-consumption in the case of subsistence farmers, sold to other people of the same town or even internationally. In particular, cheese produced in the Spanish side, olive oil and wine in the Portuguese one are sold for big distribution and abroad.

Many of the people that have left still own land in the area or used to own it before selling it in the last years. It is not as common, but worth referencing, the presence of foreigners that bought land for different uses: not only for agriculture but also for nature restoration. ATN is the largest land owner whose land is destined for nature restoration projects. They buy land from other actors at different stages of abandonment and have land deals with other land owners. These are mainly young or middle-aged farmers, sometimes living in a city, sometimes more educated. ATN has good political connections with local municipalities and with the International Parc. Other locals are trying to buy land for the same scope, but due to an unavailability of resources they are at the moment leasing it. For example, one of these locals is not only a land owner and a farmer himself but also the mayor of a local village. Another case worth mentioning is a big land owner from Porto who owns 600 ha for multiple functions: a forest area, olive and almond trees, a nature restoration spot where birds are nesting in which he stipulated a management deal with ATN, and is planning to open a hunting reserve too.

The **age** of farmers is generally high; most of them continue working even after retirement pushed by passion and by routine and not by profit. Older farmers often have small patches of land from which they produce oil and almonds for personal or family use. However, they are aware that when they will pass away no one will use their land anymore since they sons are often in the cities. The age of the

farmers reflects the age of the population of the parishes in the area. Many families and young people have left for the city for studying or to look for a job leading to depopulation of the villages. Although most of the young people have left the villages, some rare cases of younger farmers still exist in all areas analysed. Younger farmers started farming thanks to subsidies; the land and the activity was usually inherited from other relatives. Moreover, there are some rare cases of younger people or families that came back to the villages either to work in agriculture, in house renovation or in tourism.

Among all the previously mentioned land owners, there are some who possess or used to possess land considered as abandoned. Owners with specific characteristics such as very high and young age, residence away from the villages are more prone to abandoning land. However, these characteristics alone do not represent a certainty of abandonment (see Chapter 5.3 for a detailed description of the causes of land abandonment).

5.2 Land abandonment definitions

This section elaborates on how land abandonment was defined by locals. It does not only list the definitions given by the interviewees but it also reports the location and characteristics of what they considered as abandoned land in the area. In order to better inform the reader, these definitions are here combined with photographs taken in the study area.

Most of the interviewed people, both in Portugal and Spain, defined abandoned land as land with **uncontrolled spontaneous vegetation growth**, in particular Mediterranean scrubs such as broom and lavender or high grass. Two of these interviewees in Algodres included in uncontrolled vegetation growth also unpruned trees (P1, P5). Another was very specific, referring even to the height the grass needs to have for a field to be considered abandoned (see Box).

“Abandoned land is agricultural land with brooms and grass higher than 50 cm” (P6)

The presence of scrubs of broom and lavender and high grass are already considered by some as a first tangible sign of change. Figure 5.1 shows this as it represents a field with olive trees surrounded by Mediterranean scrubs.



FIGURE 5.1 OLIVE TREES SURROUNDED BY THE GROWING OF SPONTANEOUS VEGETATION NEAR THE FAIA BRAVA AREA

Interviewed farmers said that in the past land was more managed; in this context uncontrolled vegetation is seen as an evidence of disinterest in land and as abandonment.

My parents tell me that at the time of my grandparents, along the cliffs of the river (Agueda) there were olive trees and almond trees and it was fully taken care of; there were no wild bushes growing. You could see it was used by someone. Now instead it seems as people forgot about that land, it is common for land to be abandoned, full of broom and other bushes (P10).

Figure 5.2 shows the land around river Agueda which the previously mentioned interviewee was referring to. As it possible to see from the photograph, the land is rocky and bushes have developed.



FIGURE 5.2 THE LANDSCAPE AROUND RIVER AGUEDA

Several respondents refer to a shift in agricultural practices when describing the process of land abandonment. For some this shift does not constitute abandonment. In the past the spontaneous growth of shrubs was usually kept under control by farmers who used the land for sowing and for the production of olive oil, almonds, and wine. For example, in the Southern Spanish side, in Fuentes de Onoro, a respondent mentioned that land which once was used for olives, is now used for livestock (see quotation below). Since the animals stop the wild expansion of bushes, land is not perceived as abandoned, although agricultural practices have changed. Although livestock farmers are becoming less and less every day, animal farming is still more common in the Spanish side compared to the Portuguese side, especially in the northern area. Having more available land that is not used for other types of agriculture anymore, peasants walk in those fields as well, keeping the vegetation under control.

"I have cows and pigs for meat... in the town there are also people with sheep. All the land here is used by animals, it is extensive agriculture, nothing is abandoned. Where before it was sowed or where there were olive yards that were lost, now there are cows. It changed from olives to cows, sometimes sheep. It became more extensive but not abandoned. Just the type of agriculture changed. But abandoned is when the vegetation, shrubs is not under control. Cows...and also sheep, keep it under control and something is produced, meat, so land is somehow used" (P19)

For this Spanish farmer, although agricultural practices have shifted in the same fields from crops to animal grazing, as far as there is a product, land is not considered as abandoned. Also according to other interviewed farmers in the northern area of Spain, in Hinojosa de Duero, this shift has happened.

The following extract is from a group interview between the interviewer and three farmers.

-Interviewer: To the sides of the road far from the town, towards the river, land is not used for farming. What is happening there?

-Farmer 1: Nobody wants to work the land there, it takes too much effort. It is left without management, it is abandoned.

-Farmer 2: the soil is very bad so it is abandoned.

-Farmer 3: Before everything was used for olive oil, almonds, also vineyards. As you see in Portugal now. Portugal is poorer, they have no money so they have to work the land. Now what is left here has more to do with animals.

-Interviewer: For how long has it been like this there?

-Farmer 1: Discarded/ degenerated? 30 years more or less (...) while close to the town it is tidier and not abandoned.

-Farmer 1,2,3: Land is not abandoned near here (the town).

-Farmer 2: Even if the owner does not use the land for other types of agriculture others, like us, rent it and use for cattle. It is full of sheep because it is easier than having other animals or crops. Near the town it is also accessible to machines.

-Farmer 3: That's true. (...) Close by, it was more common to have olives and sown land but now as farmers become less, what remains is more animal farming as it is more profitable. The fruits are not picked as much anymore but the fields are not abandoned as they are used for cattle to produce milk for cheese. There are cheese factories in the area so you gain money. There are cheese factories in the area. What is abandoned is what is more far away, near the river Duero, there is steeper and with scrubs. There, there are no animals, some oaks, a lot of scrubs, generally no products from land (P8).

As it was mentioned at the end by one of the three farmers, one of the main characteristics of abandoned land for farmers was the **absence of agricultural production**, be it meat, milk, olives or almonds. The type of land mentioned by this Spanish (Farmer 3) in the previous extract is shown in Figure 5.3. Although some fields are still used for agriculture (i.e. olive trees) in others spontaneous vegetation developed and no products are gained from land.



FIGURE 5.3 SPANISH LAND NEAR THE RIVER WITH SCRUBS

Also in Portugal, several respondents concluded that land can only be considered abandoned not only when there is uncontrolled vegetation growing but also when the agricultural activity ceases, nothing is gained from the land or it is not even used for animal grazing. Moreover, the products of the land may be there but there is no interest from men to use them.

"(Abandoned land) is land that once was used for agriculture. It is not worked anymore so, for example, although maybe olive trees still produce some olives they are not picked anymore, they are abandoned "(P11)

(Land is abandoned) ..."when there is no agriculture. So nobody is using that land for gaining something out of it to eat or drink. The trees may be there but there is no use at all by men" (P12).

On the contrary, for other respondents, especially in Portugal, land can already be considered abandoned when there is a **rupture in agricultural practices** compared to the past. Consequently, also if it there is some agricultural production (for example, olives and almonds for family use) if this does not happen as it was in the past, it is considered as abandoned. This refers especially to older farmers who compare the present situation to how it used to be when they were younger and fully active in agriculture. Thus, a difference in how intensively the land is used seems to be reconducted to land abandonment. For example, this is how a local inhabitant of Algodres described abandoned land:

There are some trees, but they are not used for intensive production of almonds and olives, maybe they can be used for personal use or for family use, but they are not pruned properly, not cared for and managed in the proper way, in the past land was used more thoroughly and intensively. Now only a small percentage is like that, not as much as in the past though. Olives are not picked as much as in the past, same with almonds, they are there but not completely picked...so I would say they are abandoned, so it is not a problem if others use the land for other scopes (P1)

Her family had land which was sold to ATN and is now part of the reserve of Faia Brava and more land is waiting to be sold. She defined this land as abandoned for the following reasons.

-Interviewer: How would you define the land involved in the deal? Abandoned?

-Local inhabitant: They were abandoned, both, my father's land and my relatives'. At different stages but both abandoned. My father's one was not as in the original state as when my father was younger. We were somehow using it, picking olives but just because it was there. It would have been possible to make it return to its original state, make it as cured as it used to be with my father. But me and my husband did not want to, so it is good my father sold. It would have involved time, money and effort to do it. You should have seen it, it was clearly abandoned that piece of land. A shame for how many years my father worked there, but you know, life changes. We are not interested. I live here still but I work in a factory, not in agriculture. On the other hand, the land of my relatives in USA was totally not used, nothing was picked, zero, since they are far away. Even more abandoned. I do not even remember ever seeing it in a state like my father's. Also, it was mainly rocks and shrubs, not worth even trying spending money. It would be too much effort, for what? A bad piece of land for agriculture (P1)

Both fields described by this local inhabitant were considered as abandoned although they presented different characteristics: one was only partially abandoned and agricultural practices (olive picking) were continuing also if not as intensively as in the past; the other instead was considered even too costly to use it again for farming in the future. Also another landowner in the Faia Brava area considered as abandoned land that was **too costly to bring back into production** due to the intense development of scrubs and bushes.

(...) More time passed by without management. Scrubs started to develop, the private road that would lead to the field was not managed anymore. Everything was left there abandoned and waiting for a decision. It would have taken some effort and money to bring it back to the original state so it was easier to let go and to sell it (P2).

As described by the previous quotes, this rupture in agricultural practices is particularly common in the Faia Brava area. Another local inhabitant from Algodres described this:

(Abandoned land is) Land that is not used intensively because owners live far away like my cousin that lives in Brazil. People don't care, he's stupid. He doesn't care if he owns or does not own some hectares. He just leaves it there for grass to grow. So, me, that I stayed here, I go and check it every now and then. So I keep the grass from growing wild, I use it as much as my health allows me to, but decades ago it was used effectively. Now it is just kept in order thanks to me and other people I ask, but not used as much as it could as that stupid cousin is in Brazil. Let's say that it is left behind, it is there but not really used" (P3)

Moreover, an important distinction that was underlined by a farmer in Hinojosa del Duero, in Spain, was the difference between land that is not worked by farmers for agricultural production (in Spanish "dejada"), which includes land that is left fallow, and land whose owners are not identified (in Spanish "perdida").

""Dejada" is that they are not cleaned but they do have an owner. "Perdida" is when the owner is unknown, and people got lost track of that so it becomes abandoned" (P8)

In the village, most of the land has a known owner. Farmers consider abandoned, in the sense of not used, from one third to half the available agricultural land. This is land which is left with scrubs without management.

The **absence of an official owner** constituted an area of concern in Portugal, where there is no rural cadastral system for the study area. Often people who now live far away inherit the land from relatives without even being aware of it or the owner of a parcel can be someone who died many years ago. Consequently, in Portugal, the term abandoned includes both land without an official owner and land not used. The situation is even more complicated.

"Here also another problem exists that is not easy to explain but I will try. This has been happening in the last 20-30 years. Many people went out to Porto, Lisbon or France and they abandoned the land. People or farmers that stayed here registered their land as their own lands but they are not the real owners. The only registered it for the EU subsidies. They don't pay a rent, they don't buy the land, but for subsidies, they behave like the land is theirs. Those farmers now after 20-30 years they really use the land that was abandoned but they don't want to buy it and neither rent it. If they stop using it they cannot sell it because it is not theirs officially (...) When Portugal entered the EU it was easy (to start working in agriculture). You would just go to the ministry of agriculture and show in the map the area and declare what you use. You didn't have to give them the certificate of property. When I came back from Lisbon, I could see a lot of land that I knew was my father's, was now used by other people. Of course, I regularized this, it was of my father, I was here, I fixed it. But of course, many people that are not here, that have left the town, they don't care and do nothing. So, these young farmers are now a problem: they don't pay anything because officially do not own the land but also, they don't want to lose the land that they are using (P11).

Furthermore, several farmers directly associate land abandonment with **fires** when trying to define the phenomenon. This is connected to the presence of low shrubs which constitute the land that they consider as abandoned. When describing an abandoned land, more than one farmer does not only refer to visible characteristics, like the presence of scrubs, but they also mention what caused it. This will be analysed in the next subchapter which focuses on the causes of land abandonment.

" Abandoned land is land that is dangerous for fires because of growing vegetation...land that people like me do not use that much because of age and health, far away from the town, not as accessible as the ones here in the town. Land that is not used intensively because owners live far away like my cousin that lives in Brazil. " (P3)

5.3 Causes of land abandonment

This subchapter describes the causes of land abandonment according to local people. These are often connected to the reasons why people continue using the land or start using land again. Some physical causes of land abandonment which characterise the land are also shown through photographs taken in the area.

The most mentioned reason for the abandonment of land was **rural depopulation**. It is common for younger people and families to move to cities to find a job or to continue studying. In Portugal, secondary education can only be continued in bigger urban centres such as Pinhel and Guarda; Porto and Coimbra are also popular destinations for higher education such as university. In the Spanish side,

secondary education is only found in Lumbrales forcing young people to commute daily to go to school; the closest university is in Salamanca. Once people complete their education, they do not return to the area due to a lack of jobs, especially those outside of the agricultural sector. According to most of the respondents, there is a movement of people and money towards outside the area which started more than fifty years ago.

“Things are different from the past, worst, before there was a community, now even the town is not as lively as before. There are not many young people that keep it alive, like him, he’s one of the few. The others, bye, gone”.(P20)

Due to a lack of facilities in the area people travel to bigger centres for purchases and some commute to work daily. Especially on the Portuguese side, most of the interviewees mention that many relatives and acquaintances also moved abroad, mainly to France and Brazil. The remaining population is, therefore, ageing and decreasing. For example, in La Fregeneda, in Spain, most of the inhabitants who remained in the village are engaged in agriculture and retired. Although some land that before was used for crops is now used for animals, a lot of fields are considered abandoned. According to local inhabitants, this happened because there are not enough people to work the land.

-Farmer 1: (Fields are abandoned) due to depopulation. People leave and go to the city...inhabitants are decreasing. With all the land there is we are not able to cope with it, handle it and manage all of it. We have 200 inhabitants, 100 are retired.

-Farmer 2: I would say more, 150 are retired... but the retired ones often continue to work (P20)

Also in Portugal rural depopulation plays an important role in the abandonment of agricultural activity. Working the land is not considered appealing by new generations. Only few younger farmers remain. Young people prefer to leave the area as few opportunities are available outside the agricultural sector. For example, a young interviewed farmer affirmed that most of his closest friends have left the area for these reasons. Instead, he returned to the area after military service and followed his parents’ example. However, he only constitutes an isolated case.

“People have left for the city...since I left for the military service every younger person I knew left. My closest friends moved away to work, or they live here but work out of the town. This is except me and another guy who continue working in agriculture. There is no employment in other sectors, so they go looking for opportunities somewhere else. My friends didn’t want to work in agriculture because you must work every day without holiday and with every weather condition. Most of their parents were farmers but they decided to change. Also, life here is not exciting for young people, there isn’t much to do. The older the population becomes, the less exciting it is to stay for a young person...so even more people tend to leave” (P10).

The following quotations are from farmers in Cidadelhe. Both an old peasant (P9) and a younger woman (P12) described the same process.

“Before there were more people in the villages so more people worked the land. Then people left for the city; some older people that could not work the land sold. Not only have the people left to go to bigger cities but also the percentage of people that fully works in agriculture is less. Many are old and many have other jobs too, like you, you renovate houses too (referring to P14, the translator). In general, there are not many other jobs

other than agriculture, it is an isolated place so people preferred to leave looking for opportunities somewhere else” (P9)

“Fifty years ago everything was cultivated...but people went away, only the old people stayed; the young went to Africa, France, everywhere so they stopped cultivating (...) For example, if you see these houses here, they are all empty, the owner of this one is in Lisbon, the owner of this one is a doctor and he is away, we have lawyers, all away. They left to study and work and come back in the weekend or during the holidays.” (P12).

When people leave for the city, they either stop caring for the land or they look for someone who is remaining in the town to look after it. For example, the previously mentioned old peasant is using other people’s land to walk his sheep, keeping the vegetation under control and in exchange, he is taking care of their almond and olive trees. Nevertheless, the number of people leaving is increasing, while people that are staying are gradually becoming older and retiring.

Consequently, the **age** of the farmer was also considered as an important cause of land abandonment. Getting older, health conditions start to worsen and, at one point, the cessation of the agricultural activity seems the only option for the farmer. This would not happen if they had younger people to pass it to. Nevertheless, as it was previously described, younger people are rare in villages since they move to bigger towns for jobs and studying. In particular, the retirement of the landowner does not constitute a cause of abandonment per se. Farmers who actually reached the retirement age often continue working in agriculture. However, as they get older they stop, as it was the case for this old woman in Algodres and this old shepherd in Cidadelhe, in Portugal.

I’m retired, I don’t work the land that much anymore since I’m old and my health is a bit of a problem. I just cultivate some things for myself. I think it is a passion, I continued until I could, even after retirement, but now I have some aches and pains, I’m old, I had to leave some fields behind. In the near future probably even more, what can I do, my sons are in Lisbon, I don’t think they’ll do much with them. (P3).

I work with animals: these are my sheep. I also do some maintenance to the fields of people who are away. I am officially retired, but you see, I am still here, not as active as when I was young, but as long as the health is there I can’t sit at home. It is curious, there are people that are young that could work the land and don’t, I am old and I do it. Young people are not like me (P9).

The amount of land to be worked by remaining people is growing. One case that is worth mentioning is taking place in the Faia Brava region, in Cidadelhe: a young couple (P12) decided to come back from Coimbra and is taking care of land of people who are away. Land was considered abandoned when they arrived as people moved away to study and work; however, having a stable job as a doctor or lawyer in the city allowed these people to pay local inhabitants, such as the young couple, to clean their fields, put them back into production for family consumption and even renovate old houses. Now, this land is not considered as abandoned anymore and the village is acquiring slightly more vitality during the weekends and holidays. The type of agriculture that is started is usually small scale for family consumption, using the more accessible fields. Thus, the going back to agriculture is not the cause of the increased vitality but rather a consequence of this process (see prospects for farmers section).

Freixo a Espada Cinta is the only centre in which the phenomenon of depopulation is not as strong. Here the population is larger and it has slightly increased from 2001 to 2011. As it was mentioned by an ATN employee, *“as soon as you approach Freixo, you can see the more urban character of the area.*

Here houses are spread also in the surrounding areas of the town, roads and concrete pavements make the fields around more accessible. It is also more difficult for wild fauna to find proper habitats due to the more intensive agriculture” (P23). Agriculture is more intensive here as the area is internationally known for its production of wines, among which the famous Porto. Although land abandonment is present and mentioned also in this area, it was said not to be as common as in the other areas.

Another reason that pushes some landowners to abandon the agricultural activity is the **lack of profit** gained from land and its products. For example, a landowner in Freixo mentioned a decrease in the number of livestock farmers in the area due to unprofitable conditions.

Some activities are stopping though. Up to five years ago we had 60 farmers that had sheep and cows, now we have 20 because they stopped. In Spain (Hinojosa del Douro) instead, they have three factories....it is a town of 600 people, they have 3 big factories which supply "El Corte Ingles", the main supermarkets in Spain although it is a small town. They have 15 producers and three factories, here none instead. Here they didn't manage to sell products so the farmers decreased since many ceased their agricultural activity. I tried to establish a cooperative for cheese producers but there was no help from the municipality with the previous mayor. Altogether we could have managed to sell our products more. If we had done that we would have increased to 90 farmers now instead of 60, instead it decreased to 20. Those who have not stopped, some younger people, have ceased with livestock and started with almonds, olives because they couldn't sell their products so it was unprofitable. With almonds, they got more subsidies...Others just gave up and stopped using their land” (P6).

Accordingly, also in the Spanish counter side, Hinojosa del Duero, profit moves agricultural land use changes. Thanks to the cheese factories in the area, producing milk is considered profitable so crop agriculture has stopped and livestock farming has proportionally increased near the village. Since farmers obtain some profit from land, fields close to the village are not abandoned and used for milk production. This land use shift, however, has not happened with the same intensity in the areas farther away from the village due to fewer farmers being present now compared to the past. Moving away from the village where land is also less flat is considered unprofitable.

Close by, it was more common to have olives and trees but now as farmers become less, what remains is more animal farming as it is more profitable (...) There are cheese factories in the area so you gain money. What is abandoned is what is more far away, near the river Duero, there is steeper and with scrubs. There, there are no animals, some oaks, a lot of scrubs, generally no products from land. People are leaving agriculture and the villages in general and it is less profitable to go till there to work the land, so it was abandoned before (P8).

Profit is also closely connected to subsidies. These constitute a reason for which land is not abandoned or even brought back into production. This was only mentioned in Freixo, where 300 new hectares were planted in fields that before were abandoned:

Since there are the incentives "PDR 2020" more and more areas that are abandoned are used by young people. These projects encourage young people from 18 to 40 years old to plant almond trees. In the last 5 years in Freixo ca 300ha were planted... Land that more than 20 years ago were seeded with cereals (rye, oats, wheat). In these 20 year gap there was nothing, no concern about it. These guys are now planting principally almonds. This way land is not left abandoned and they do not become ruined. Now there is a shortage of land for almonds. Other land already has plantations set up (olives, vines). There are

always more areas with agriculture. In the last 5 years, I would say, 70% of land that was abandoned has been used. More young people would like to set up new projects but there are not a lot of free spaces (P6).

According to several farmers, it is only possible to achieve profit out of land when the scale of production is larger. This regarded both crop and animal farmers, in Spain (first extract) and Portugal (second extract). Due to this factor, smaller producers often abandon the land as they cannot compete with larger ones. This land is then bought by larger producers.

It is not profitable having cultivated land here. You can have for example 200 orange trees in such a space. But it is profitable only when you have 1000. It is better not to do anything because it is very expensive (P20).

I continue with my cows because I have many hectares and many cows (...). It is not possible to produce a lot in a small parcel here, with any type of agriculture. You put a lot of time and effort, and money of course, and this land does not produce much (...) However, in the future, I believe that the small farms are going to stop and the bigger ones are going to become bigger, as it is happening already now, but more. (...) If it is small-scale agriculture, it is only for everyday consumption, to eat, not to make any money out of it; so, at one point, when the owners die, it is going to stop. If you have large scale agriculture, you have to be specialized to sell to supermarkets with higher quality and with a name, certified. You need some to do quality tests and quality costs money, so of course, you need bigger numbers: animals, space, bigger plots also for animals. With 15-20 cows you have no output (P13).

Having a large production is not always possible due to **unfavourable physical conditions** that affect agricultural land. One of the physical factors that leads to abandonment mentioned by interviewees was the **size** of parcels. It was indicated by many respondents that having a plot smaller than four or five hectares does not allow any type of agricultural business nor profit. In small parcels, the output of products produced is small, sometimes so small that not even production for family scale is guaranteed. Owners often have small patches of land distributed in the area, making it not only economically challenging but also logistically difficult to move from one plot to another. When an owner has small plots far away from each other, machinery must be transported on roads, sometimes in poor conditions, leading to breakdowns and malfunctioning. Both the economic and the organisational factors ensure that small plots constitute a problem for both larger and smaller scale farmers, making it one of the most mentioned physical conditions that lead to abandonment. Small plots are more common in the Faia Brava area and in Spain compared to the Douro region. However, along the Douro, when small plots are present, they still play a role in the abandonment process. Here is an example from a local producer from Freixo.

The reason (for abandonment) is that the size of parcels is small, so they are not viable. They are only usable by older farmers that are left in town for subsistence agriculture but they are not used for selling and larger scale agriculture (...) Being small it is not possible to do much with them singularly, you don't produce enough oil and almonds even for your own family. Only joining lands, it can become viable as it was for me. But joining is not always possible so in this case, it becomes abandoned as small is equal to not profitable (P7)

However, not all the people that work the land have a large-scale production as was the case for the farmer of the previous extract. Some are not selling their products extensively and do not have large profits but they continue farming for family consumption in their small parcels.

Farmer 1: You can find only 4-5 young people like me that are more concerned about almonds, and produce other products such as pistachios but not to live out of it or to become rich (...). Also the plots are small, the biggest parcel is 3 ha(...). Here we have olive trees for personal use. We get 2000-3000 kg of olives each to eat and to make olive oil, for home use, not to sell. Because also if there are many olive trees everywhere it's not a big thing(P20).

My parents used the fields more, my father was a farmer. He was making oil and he had a vegetable garden. Small-scale, food for us and for selling to relatives and people from the villages here, but still more than now. Now we have a small patch for us, it's more like a hobby, I wouldn't say we become rich out of it (P1)

The size of parcels is changing over time. After the death of the original owner, parcels are inherited and pass from one single owner to many different relatives. **Inheritance** after inheritance, parcels become too small to be used and subsequently they stop being used for agriculture. Furthermore, different people, even if part of the same family, have often different opinions on what to do with the land. This can be because some are away in the city and have other jobs, while others stay in the village and work in agriculture, because they are in other continents and unreachable or simply because they do not get along well with one another. Therefore, it sometimes seems easier to abandon it without finding a practical solution for it. In some cases, to end the disputes between relatives, selling is an option for some. In other cases, the selling-not selling debate keeps the land stuck into an abandoned state until the owners finally decide on what to do, as this local producer in Freixo recalled.

I know an owner over there who had 4 sons. When he became older they did not agree with each other. The land belongs to the 4 of them now. If they split it they would get a small patch each, useless; they would not make the same profit if they separate the land in four. Also, they want different things: selling the land together to make more money, buying it from the other brothers to have it all, but the others disagree....so nothing happens. The majority of abandoned land, it's not a lot, is in this situation (P6)

The following is another example from Algodres, Portugal.

The land used to belong to my father. My brothers and I inherited it later. We had diverging ideas on the future of our land. They wanted to sell while I didn't want to, I wanted to continue the agriculture. (...) There were some strong disagreements because they left the town and do not work in agriculture. They were very stubborn in not wanting to use the land. If we divided the land among us it would have impossible for me to use it as it would have been too small. It was already quite small, it would have become extremely tiny...and I could not afford to buy land from them at that moment. Since the future of the land was uncertain, nobody was doing anything with it. So, more time passed by without management (...). It would have taken some effort and money to bring it back to the original state so it was easier to let go and to sell it. The possibility to sell to ATN made them even more stubborn. But we are not the only ones, it is common for heirs to want different things as many are not living here anymore. When they want different things, the land is often abandoned as we are speaking of small plots. It's easier not to think about it than to keep on with family discussions (P2).

When selling is possible, sometimes also neighbouring farmers are interested to buy these small parcels to have more land and make it more viable. When the size increases, landowners are more prone to continue farming. This way land is not abandoned. In Castilla y Leon, land consolidation is

taking place: parcels are being reallocated to obtain larger plots. The interviewed Spanish farmers generally saw this as a positive process to overcome the problems created by parcel size but were not sure on how the process would actually work in practice and on the time necessary to achieve it (P20).

Inheritance is, even more, a major cause of abandonment when some or all the heirs moved away or abroad and are not even aware of owning such fields. Consequently, in this case, the death of the original owner establishes the end of the agricultural activity. This makes it problematic also for people that want to buy the land or for authorities that want to keep vegetation under control (P11).

Other physical factors that were mentioned as a cause of abandonment were **steepness and accessibility**.

For example, land near the Coa river is not only far away from the villages but also very steep. Consequently, locals from the neighbouring villages all said that year after year, the fields were abandoned starting from the steepest ones.

On the top, between the two rivers, there are the good fields for agriculture. They are still being used as they are not steep, I am also bringing back to production some here in the upper part. Faia Brava cannot jump the village so I do not think they want anything from the other side. Before in the side that is now theirs, there were mainly stones and land for sheep. The good fields are only on top of the hill. 50 years ago, everything was cultivated...but people went away, only the old people stayed, the young went to France, bigger cities such as Guarda and Porto, even to Africa, everywhere, so they stopped cultivating. Only the more accessible parts with good roads, good, bigger and especially flatter fields are used. The people that stayed left the other fields for the animals and cultivate just that, the more accessible and flatter fields near Cidadelhe (P12).

Steepness does not constitute a problem for animals, as they can reach less accessible sites; however, it makes access with machines and cars difficult, causing abandonment of crop-related agriculture. Also along the Agueda, in the past, vegetation was kept under control even on slopes and steep places. According to a local farmer from Mata de Lobos, in the past land was not abandoned because everything was done by hand. There was not as much difference between accessible and inaccessible land since there were no machines that had to access the area.

"In the past, everything was done by hand, now there are machines. Before since everything was done by hand it was possible to access even steeper and inaccessible areas. Now they are accessible only to bush cutters so it's easier to let them grow wild and to abandon them." (P10)

The villages of La Fregeneda and Hinojosa del Duero, in the Spanish side and Cidadelhe, in the Portuguese one, are on relatively flat areas compared to the land towards the rivers that is instead steep. In these villages, local inhabitants said that land which is still being used for agriculture is often the flat one as it is located on the plateaus where the villages are. There, the land is generally used for the grazing of sheep (Figure 5.4). and for almonds fields (Figure 5.5). Year after year, the fields were abandoned starting from the steeper ones that are farther away from the village.



FIGURE 5.4 GRAZING LAND ON THE FLAT PLATEAU JUST OUTSIDE THE VILLAGE OF HINOJOSA DEL DUERO



FIGURE 5.5 AN ALMOND FIELD IN THE FLATTER AREA WHERE LA FREGENEDA IS LOCATED

The next quotation explains the similar phenomenon that occurred in Cidadelhe:

On the top, between the two rivers, there are the good fields for agriculture. They are still being used as they are not steep, I am also bringing back to production some here in the upper part (....) Fifty years ago, everything was cultivated...but people went away (...) so they stopped cultivating. Only the more accessible parts with good roads, good, bigger and especially flatter fields are used. The people that stayed left the other fields for the animals and cultivate just that, the more accessible and flatter fields near Cidadelhe (P12).

Sometimes the **distance from the villages** or the **households** of the landowners also constitutes a reason for abandoning land by itself. When farmers start abandoning land due to age or disinterest, the choice falls back into the land that is more far away from villages or that takes more time to reach as distant from the house. So, also if it is not steep, that land is abandoned. Land is said to be abandoned for this cause in the Faia Brava region, for example between Figueira and Algodres, described in this example.

A lot of land is abandoned for real. It is obviously abandoned, anyone would say so. For example, my uncles had some land that was eventually abandoned. It was between Figueira and Algodres. They had sons and the sons have other sons, my cousins. They are all living in Figueira and the land is more to the North, in the middle of nowhere. The fields are far away from the villages. Of course, distances are relative, we are not in the United States, not extremely far. However, they are more far away compared to others. It was not profitable for them to keep that far away land just for family consumption. My cousins are not farmers, one works at the supermarket. They could have continued farming if it was closer but they say it is quite far. I could use it for my animals if I wanted but for me it is even more far away since I am here in Almofala. Being far away nobody even wants it so it is abandoned, with scrubs, it seems to be in Africa there (P4).

Figure 5.6 and Figure 5.7 show this type of land, located far away from villages. Although the land is not steep, similar sceneries are present to those inside the reserve, also along the main roads that connect the villages of the area. Land is less steep and more accessible by roads but the landscape resembles to that of the reserve as it is rocky and bare (see Figure 5.6 and Figure 5.7).



FIGURE 5.6 A VIEW FROM THE ROAD WHICH LEADS TO ALMENDRA FROM ALGODRES, ON THE EAST SIDE OF THE FAIA BRAVA RESERVE



FIGURE 5.7 A VIEW FROM THE ROAD THAT CONNECTS ALGODRES TO FIGUEIRA DE CASTELO RODRIGO

As it was described by locals, getting closer to the villages in the Faia Brava area, the landscape changes as more agricultural fields appear and Mediterranean scrubs decrease. The fields that are used for agriculture are mainly flat and accessible by roads. In those fields, less rocks are present (Figure 5.8 and Figure 5.9).



FIGURE 5.8 AN OLIVE YARD ALONG THE ROAD, IN VALE DE ALFONSINHO



FIGURE 5.9 ALMOND TREES ON THE FLATTER AREA WHERE CIDADELHE IS LOCATED

In these areas however, it was possible to observe also abandoned land. Being located close to the cultivated ones they present similar features: steepness, soil quality and accessibility are the same. The uncultivated fields have the same characteristics mentioned earlier: they are covered in scrubs and vegetation successions have developed. For example, just on the left side of the previously shown almond field, rocks and scrubs characterise the landscape. In the distance though, an olive yard is visible (Figure 5.10).



FIGURE 5.10 LANDSCAPE NEAR CIDADELHE. AN ALMOND FIELD ON THE RIGHT, ABANDONED LAND ON THE LEFT

Moreover, some respondents in the Faia Brava area and in Spain mentioned **poor soil quality** as a cause of abandonment. They said the soil is scarce, with few nutrients and low moisture retention power; the land has to be moved often in order to obtain some production. Consequently, a lot of effort, time and money is necessary, constituting a challenge for farmers. Land with thinner and rocky substrate, such as the one along the river Coa, was abandoned before than land with better soil.

Figure 5.11 shows abandoned land with all the previously described characteristics. It is located at the Southern border of the reserve, away from the village of Cidadelhe. It is steep, the soil is thin and full of rocks. Moreover, only a steep road connects the area to Cidadelhe. According to locals, these are the reasons that led to the abandonment of this agricultural land.



FIGURE 5.11 THE LANDSCAPE ALONG THE ROAD THAT CONNECTS THE COA RIVER TO CIDADELHE. THIS IS LOCATED AT THE SOUTHERN BORDER OF THE FAIA BRAVA RESERVE.

In the Portuguese side of the Douro region, near Freixo, farmers did not mention steepness, low accessibility, distance from villages and poor soil quality as causes of land abandonment. There,

despite land is often still characterised by these unfavourable factors, it is intensively cultivated with vineyards, almonds and olive trees. These characteristics instead were said to lead to abandonment in the Spanish counter side (Figure 5.12).

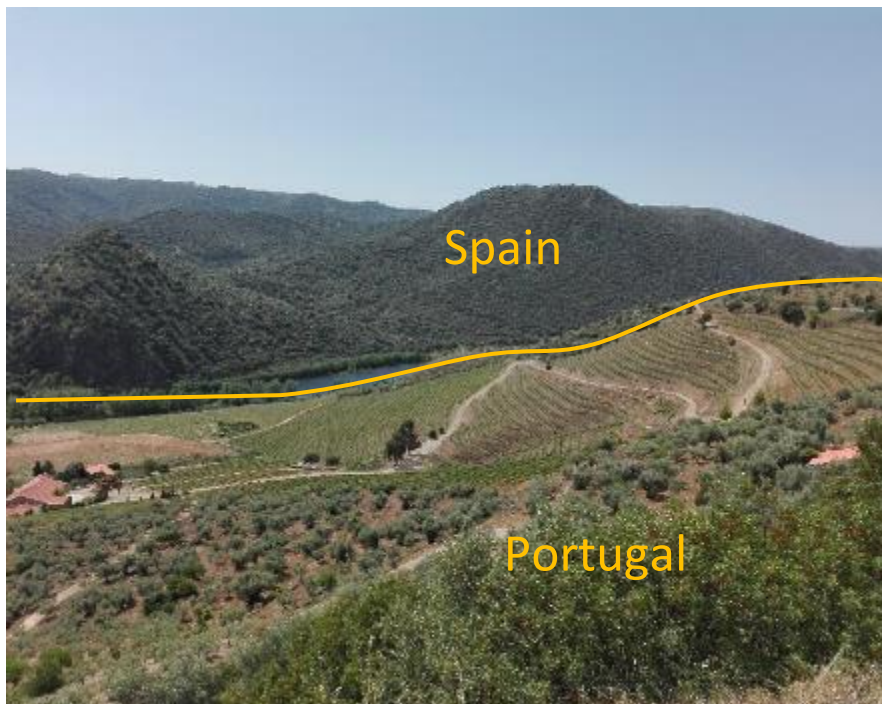


FIGURE 5.12 VINEYARDS AND OLIVE TREES IN THE PORTUGUESE SIDE, NEAR FREIXO, ALONG THE DOURO RIVER WHICH SEPARATES SPAIN FROM PORTUGAL

For example, in Ribeira do Masteiro, a small tributary of the river Douro, between Barca de Alva and Freixo some land is largely cultivated also if steep, far away from the villages and accessible by unpaved roads (Figure 5.13). However, other land along the small river is left fully covered with scrubs (Figure 5.14).



FIGURE 5.13 RIBEIRA DO MASTEIRO, ALONG A SMALL RIVER THAT FLOWS INTO THE DOURO. HERE OLIVE AND ALMOND YARDS ARE PRESENT CLOSER TO THE RIVER AND MEDITERRANEAN SCRUBS IN THE HIGHER PART OF THE CLIFF ARE PRESENT



FIGURE 5.14 RIBEIRA DO MASTEIRO, WHERE ONLY SCRUBS AND ROCKS ARE PRESENT

Moreover, some big producers also in other areas recognised the presence of these disadvantageous characteristics but still had no intention to abandon the land. For example, a producer in Figueira who owns 200 ha of land allocated to the production of almonds, olives and wine stated this:

I don't want to abandon the land nor sell it for now, I'm not going to stop (...) The conditions and the methods used for agriculture are different from Italy, Spain, and other areas in Portugal. Here there is another climate, it's either very cold or very warm. We manage to produce also if the soils are poor, without water. We need to move a lot the soil to compensate for the lack of water (P17).

Not all the land with the physical characteristics that by some are considered as causes of land abandonment is abandoned. In some cases, for example, around Freixo, land is cultivated intensively to produce wine and almonds and abandonment is rarer also in steeper areas and far away from the village.

5.4 The role of nature restoration

Over the past years, land was bought by Associação Transumância e Natureza (ATN) in Portugal and is now part of the Faia Brava reserve. Other land is located in the International Parc of the River Douro. Moreover, the Portuguese organisation has carried out some land deals with the landowners in the areas where the protected birds reproduce. Some of the inhabitants who sold the land and who were involved in the land deals were interviewed. Overall the interviewed farmers who were involved or who had relatives involved in the selling of land were five; landowners who have stipulated a management deal the same number.

Only one interviewee spontaneously related **nature restoration** to **land abandonment**. She is an old lady of Algodres, one of the first local inhabitants who sold land to ATN, around seventeen years ago. When she was approached she was still using her parcel of land: five hectares with olives, oranges and almonds. She initially had a deal to keep using the land for then selling it officially after one year, but the newly born reserve posed many challenges to her agricultural activities and pushed her to sell and therefore abandon her agriculture activity earlier. In other words, the land deal speeded up the process of abandonment:

The land had a high ecological value because it was close to the water, so the soil was better for crops. I realised the importance later, so if I had to sell it now, I would ask for more money (...) I was interested in the deal because although I was still using the land because of the age, I would not have been able to manage the land in the future. I was interested in the money so I accepted. The deal was that I could keep on using the land and then sell it at the end of the season. If I look at the land now I regret selling it a bit because the land is not being managed as I used to do it. It is abandoned. The trees are not as they used to be, they are not pruned anymore, everything is left unmanaged. So now it is for sure more abandoned than it used to be before. Before it was tidy, I used to put a lot of effort to clean and manage the land. There were not as many shrubs. (...). In the last period, cows and horses were going in our land damaging the trees and the grass. Since it was still mine for that year I asked for the animals to not go in the land; however, the agreement was not respected. Even the gates they put were starting to be a problem because of my age. I also had a deal with shepherds so they could bring sheep on my property but the horses that entered my land stepped everywhere so I received no money from the shepherd because he could not use my land for pasture; the deal was cancelled and in the end, I just sold (P5).

Nevertheless, she acknowledged the value of the rewilding project in Faia Brava and she said to be still in good relationship with the people of ATN, even if some arguments had happened before.

I believe that Faia Brava brought more value to the region. It does look pretty messy compared to how it was before. It is not exploited, it is not used for agriculture anymore, it is a shame for that. However, I do see the importance of the natural area. There also are some young people that come to Algodres thanks to them (ATN), times have changed from fifty years ago, there are not so many people that work in agriculture here anyways. Much of the land that now is part of the reserve was abandoned already when the deal was carried out. Or even if it wasn't, the steep land in the Faia, along the Coa, probably would have become abandoned anyway by itself sooner or later. Something like fifty years ago it was cultivated but then it started to be abandoned because people started to leave the town. The land along the cliffs is not good for agriculture. More land that has not been

sold is not good either. For sure you will see that there are more people that still want to sell. Nobody else except them would have bought that land for agriculture. This makes it easier for them to find land to buy (P5).

The other interviewees affirmed that land abandonment was a common process in the area, regardless of nature restoration projects. Some landowners were not even aware of the type of activities carried out for nature restoration; nevertheless, they did mention the presence of abandoned fields and had an opinion on this. In the proximity of the Faia Brava reserve, especially in Cidadelhe and Algodres, almost all inhabitants have sold land to ATN or have relatives who did. Two people in Algodres stated that selling was a way to put an end to already existing problems such as ending disputes between relatives due to inheritance or finally getting rid of land that belonged to relatives who now moved far away. These two factors were mentioned as causes of land abandonment that were present before the deal eventually took place.

In general, inhabitants of Algodres and Cidadelhe, knew about the existence of the nature restoration project in Faia Brava as they all were somehow involved in land deals. However, their level of awareness and knowledge of the project itself differed from person to person. Some respondents, in particular younger ones, knew what the project was about: they were aware of its participants, its goals and the presumed benefits it would bring to the area. Older inhabitants instead were often not fully aware of the project. When asked about it, they gave vague or uninterested answers such as:

It's a new activity in the area. Before nobody was thinking about conserving nature. I don't know, they have some horses, cows. They buy land, people get money so they are happy, sometimes it is complicated to make the deal because of money availability like for the American relatives. I don't understand exactly what they do. (...) There are some young people that come here because of Faia Brava, it's nice. They work there, help. I know they are there, I see the cars going around. When I see those jeeps, I think "they are Faia Brava". I know they have feeding stations for vultures, but I'm not sure exactly on what they do (P1).

A younger respondent confirmed this:

I don't think that people here know exactly what is Faia Brava. They think that a bunch of people likes nature and want birds, cows and horses. Because here there are old people: me, my husband and my kids are the youngest here. the rest of the people are 70-80-90 so they don't know exactly the meaning of a reserve. "it's strange people that come here and they like this". For me I think it is a good thing, not only for the preservation of nature but also for the tourists. More people can come to see things. Lots of people come here now to sleep in the hostel and they go to Faia Brava. Here they work together with Faia Brava to make the walks (trails). I think it is good for us to bring people here. I don't think it is many young people though, it is more 40-50 years old: they have more preoccupation for nature, young people at most come for a walk and go away. They need more nightlife and here we do not have any (P12).

At present, ATN employees inform farmers, hunters and local inhabitants on the activities conducted in the reserve through presentations, workshops and guided tours. Not everyone seems to be interested: although children activities attract a lot of participants, adult ones do not. In the past, when the project started, information on land acquisition was not spread. The same is happening South of Faia Brava, where another project has just started: a new nature restoration area is being

acquired. The starter of the project is a local landowner but also the mayor of the village Freineda and collaborates with ATN.

Farmers in the surrounding often don't even know the existence of the project. We haven't spread the word too much. They know there are the horses. They realize the land is cleaned, so they actually think it's good. (...) It's a long process, you need to work a lot with awareness and sensibility of different people, with different mentalities. You can't arrive and say, "I want to do all this". They need to see some results, so it's easier for people to understand. If you just say, "I want to make a project with animal etc for nature restoration". Nobody understands "he's stupid", they would think. They also might see you as an opportunity to gain a lot of money raising the prices. So you have to talk one by one, slowly. There are younger people that don't live here anymore to whom you can talk. They understand the project; they like it too and they can make a deal with you. But you can't talk the same way to everybody else, older people for example. They don't understand. They have a different mentality. They are used to see the landscape and to work the land in a certain way. They have a different way to look at land (P11).

For this project, the land is rented from the owners since there is no money available to buy it at the moment. This land that was said to be abandoned as the owners were away from the village.

According to local inhabitants, the reserve of Faia Brava does not only bring benefits, such as new people visiting the area, but also drawbacks. Sometimes the horses of the reserve escape and reach the close-by village of Cidadelhe. An old shepherd of the village is now used to this situation that occasionally happens and serves as a point of contact to call ATN to bring the horses back into the fence. This is his opinion on the subject:

I am contrary to the introduction of horses, because this leads to the construction of fences, so the paths to Faia Brava are more closed compared to the past. Owners or other people sometimes leave it open so the horses escape. They go to Cidadelhe and they have to come and get them.

Interviewer: Does this create problems to agriculture?

A bit yes, also if not much is cultivated along the way, of course, there are some fields that they enter and they might be damaged. In my fields before selling them they did a mess but now it is a problem also for the town. Imagine you go out of the house and you see running horses. The reasons why the fields are abandoned are others, I wish it was as simple as the horses. Of course, they make it more stressful to work the fields. They leave the reserve when they do not have enough water. In the fields, they sometimes ruin the lower branches but usually, there is someone that calls them (ATN employees) quickly so they can go back to the reserve. (P5)

Citizens of neighbouring villages do not see this positively but they do not connect it to current land abandonment:

Two or three months ago there was a horse here in the garden, the dogs were barking. It is not good but it is not a big problem, Of course, people are not happy if the horse goes to a field and destroys things. There are a few people that say I have a gun and I shoot horses. Of course, they are not going to do that, not now not ever. They are just annoyed because it is something we are not used to. But I would not say that this is why the fields are not used there, it is more complex than just horses...the soil, the rocks, it's all rocks down there.

For example, even if horses reach the village sometimes... fields are not abandoned up here(P12).

This landowner however did not refrain from stating that the reserve created some problems not related to agriculture. Some local people would have wanted to use the area for mining due to the high presence of granitic rocks, but the explosions needed to obtain them would have scared the animals so they were forbidden(P12).

Another impact the reserve has had on the area is that it started a land market that was not present before. This was mentioned by a foreign landowner who bought land for ATN for nature restoration adjacent to the Faia Brava reserve:

ATN has started a land market in the area. The land is not used intensively for agriculture because of poor soils, inaccessible areas but the trigger to sell is ATN's willingness to buy. They do not want farmers to stop what they are doing, but they do want to expand the reserve. They asked us to buy more land. Some people were not thinking about selling before because nobody would buy that land. Since now there is someone to sell to more and more people are selling. Not because they are forced to, because they want a little money in change of a not very useful field (P15).

This also emerged from an interview with an elderly lady in Algodres. She was looking forward to making more deals to make a bit of money. She had sold ATN already other pieces of land which she did not consider suitable for agriculture but now as she is getting older she wants to even sell the land in front of her house. Surely, she was not asked to sell that parcel by ATN since it was in the middle of the houses but for her, it would have been a good deal.

Interviewer: Were you thinking about selling that land before they asked you?

Well, it was left to itself there, half-abandoned as much of other land in the same area. It was more common for people to stop farming there then to buy. Now that I think about it, I never thought of selling it to others before because...who would these others be? There was no line of people waiting to buy my land. So as soon as the occasion arose, I accepted of course. (...) I want to sell more properties, I don't use them... I can get some money out of this. For example, look at this. I want to sell it. (P3)

Other than making some small profit, the reasons that pushed people to sell are closely related to land abandonment. According to the interviewees, the land involved in the transactions was located in places characterised by the previously mentioned unfavourable conditions: steepness, inaccessibility and poor soil quality.

People are interested in selling because the land is not useful. It does not give much. The soil is not fertile, you have to put a lot of effort to obtain something. The area in Faia Brava was not an area that was very much used for bigger scale agriculture, not 30 years ago at least. This takes place somewhere else, more towards the Douro and Agueda, or the villages (P9).

My father sold the land because he didn't need that kind of field. It was not good for making agriculture because of the soil, it was also quite steep, not easy to move there, so he wasn't interested in it. It was there, abandoned. He could make some money out of it. There was no reason to keep it. Only broom was growing there. He had lots of good fields so he sold that one and made some investments in the other ones. It was also good for Faia Brava because they had more space and it was good for him because the production

was very low. It was an opportunity for both: who sells gets the money, Faia Brava has more space. Also the land that the other people sold was very steep, inaccessible. There are no easy roads there so it is hard to get to those fields (P12).

In some cases, these conditions had already caused the total ceasing of the agricultural activities. For example, when the official landowners had moved away themselves or when they were getting older. In other cases, the land was still being used. However, some respondents mentioned the absence of interested heirs to pass the land to in the future. Since the land was not used for agricultural activities or was thought to be abandoned in the future, owners accepted or even proposed the deal themselves.

An exception to this general setting was one interviewee who owns the land inside the reserve and does not want to sell. The reason for this is connected to the type of agricultural activity he is involved in. While the majority of the other people had land that was used for crops, he is a shepherd. Being a shepherd, he is not influenced by steepness and inaccessibility as much as the others: *“For 50 years the fields haven't been used, only sheep, but even shepherds are less. I don't really mind walking there even if it is steep, it is beautiful. It is steep but for sheep it is not a problem, while instead it is more difficult for almonds and olives as you have to go with machines. It is not easy, how will I do as a I get older...I don't know” (P9).* According to him, ATN never asked nor forced him to sell. He currently as a deal with them:

We have a deal, so both are satisfied. I use my land and when I go there I put water to the horses and check the situation. They put a fence so my land is part of the reserve, we work together. I can also go in land that is not mine inside the reserve (P9).

Outside the Faia Brava reserve, in Portugal, ATN arranged deals with other landowners in the context of the Life Rupis project near the Douro and Agueda rivers. The deals here do not involve only buying but also management agreements. No people who sold land in this area were interviewed; on the contrary, some respondents had an agreement with the organisation. ATN cleans the land for the owners in order to prevent fires and to increase the population of prey species of the endangered birds who nest inside or near agricultural land.

They don't want to buy my land, we have a deal, they can clean scrubs and plant wheat and rye to increase the population of rabbits and partridges. So there will be more partridges for the eagles...and for me also! This way we can all share, there is an equilibrium. They are going to try, now I have nothing to lose, only to win: because they do the cleaning, they increase wild species. I cannot say already if it works because it is the first year(...). For sure this way the little eagles are protected because no people can enter, only those who go check. (...) The nature conservation projects are not a problem for me, I personally have not heard anyone who has problems with them. They are neutral people, they are young, they have a good perspective on life. (P7)

I have land in the park, near the Agueda River, in front of where the birds have their nests. I don't have to do anything special though. I can't make a road according to the deal, for example, otherwise, the noise of the cars would scare off the birds, but I was not planning to. I have a deal with them. They cut the bushes, for me they can cut whatever they want. It's not a problem, less work for me. And they want to sow a mixture of seeds. They will try but they want to do this in the lower part. The soil is very poor. So they are not going to succeed I guess (P10).

The interviewed landowners who were aware of the actions conducted by ATN saw it positively as they would also contribute to the prevention of fires, a huge threat to agriculture in the area. In general, landowners who have sealed a deal are more aware and interested about the activities that are carried out for nature restoration compared to the ones who have sold their land as they still own and use the land used for the project. Furthermore, the bird species protected by the Life Rupis project generally do not create problems for farmers. According to most of the interviewees, they prefer dead carcasses and never approach agricultural fields for food. According to few, when they cannot find food they might attack calves. Nevertheless, this never happened directly to the respondents.

Sometimes there are problems with griffons and vultures. In the past, if a cow or a sheep would die, they could leave it in the field so that the vultures could eat it. Now it is not possible, they have to call a company that comes and picks it up to incinerate it. When the vultures have no food, they can try to eat calves. This is just because they are hungry, otherwise, this would not happen if they had more food. ATN leaves carcasses taken from farmers and butchers so birds can eat them, so I don't hear around that they attack calves. Before there was a site where it was possible to leave it ourselves, now it is ATN who is trying to establish again this practice through feeding stations. (P10)

In more productive areas people are not willing to sell land. The reasons why owners do not want to sell land is closely related to profit: not only from the goods they produce but also from subsidies. Selling most of their land would mean they would have to look for more land elsewhere or for another job. Another reason which exists among older farmers is attachment. People who have worked a patch of land for all their lives sometimes do not want to let it go even if they do not exploit it much anymore. However, often they are aware that their heirs are favourable to selling, being away or not interested in their land.

According to some farmers who own fields in the Douro International park, being in a natural park poses limitations to farming. However, these were not mentioned spontaneously but only when asked and were not considered as the main cause of abandonment. It is important to specify that these farmers were not talking about ATN's actions and often confused them with the International Park authorities. Differently from ATN, the Park is sometimes not well seen by farmers in the area, both in Portugal and in Spain:

The park we are in only brings disadvantages. Because if you want to build a storage house you have to ask for permission. You have to leave 50m from the neighbouring field. Otherwise the park does not authorize. There are limitations to what you can do on your own land. There are vultures but they do not create problems. The wolves yes, they kill animals, also in Spain is the same. There are more than in the past because they release them. They say they don't do it but they do(P4).

To cut trees you have to ask for a permission, it is a bit bureaucratic, people do not want to ask for this because it is their own land. But talking to people I can see that about 10% of people do not want the park. It is not so negatively seen as it is believed to be (P6).

In the past people were freer, they could cut trees for wood and could do it. Now they need a licence to make changes to something that is theirs. Older people see it as a limitation. Sometimes having a natural reserve or park close by complicates things a bit. I had a project and I wanted to close a parcel of land putting concrete poles and wires and I had to ask for the permission. It is a complication. Also if I want to make some modifications to a house in the field, sometimes they do not let you (P10).

5.5 The future of the area

This section analyses the prospects for agricultural activities and for the area according to farmers and landowners. The attitude towards the future varies according to the area the respondents were located in.

In the **Faia Brava** area, there are two different stands when talking about the time to come.

Older people have assisted to severe changes in the last decades. The villages they have always lived in have lost inhabitants who moved away and with them some vitality. Along the Coa river the fields are not cultivated anymore and the land is now part of a natural reserve. Moreover, fewer people are engaged in agriculture and fields are often abandoned. Not only they assisted to a negative trend in agriculture in the past but also they do not see the chance of a reverse trend in the future. When asked about the future they kept a pessimistic attitude.

It's different to what we're used to, the landscape changes before there was more agriculture, now more nature. But at one point, maybe not now but in the next generation everything would be abandoned anyway, or at least used even less here (P2)

Maybe some sons of the owners will come here (laugh)... city boys, they don't know how to do things. If younger people don't come back from the city many fields will be abandoned like it happened to other land. It is sad that old traditions are lost, even if some young people come, they have been living in the city, they don't know how to prune a tree or how to work the land. I learnt to look at my father and my grandfather day by day. It's not something you can learn in a few days, it takes years. And if older people stop, who do they learn from? (P9)

On the contrary, some **younger people** living around Faia Brava affirmed that some changes are happening in the little villages. One young woman originally from Algodres came back from Coimbra to live in the village with her family from a couple of years. She noticed that some people who left for the city are coming back more often during weekends and holidays and are putting money and effort in renovating houses and cleaning fields. In particular, she is helping those people with that:

"Lots of people living in Porto and Lisbon are taking care again of the fields. They are cleaning, taking care of the trees. Why? They like to return when the kids and grandchildren are big. Others love to come back to enjoy the countryside during holidays. Now they also have some people that could help them work the land. Now we have 2 couples of young people (me and the other one) that can take care of the land. It is our work; they pay us and we make the job. We are trying to put the fields again without broom and shrubs. (...). Those who have more money want to clean. We have a lot of doctors and lawyers here. Now the houses are also being recovered. They think: If my neighbour does something, then I do it too" (P12).

Although the process of rural depopulation was acknowledged by all interviewees, some respondents in Portugal, mentioned new emerging jobs in the tourism sector in the Faia Brava area that are potentially stimulating people to come back, contrasting the phenomenon of rural depopulation. A few of the landowners and inhabitants interviewed in the Portuguese side, aside from land, also owned a tourism activity from a few years. The tourists in the area are interested in hiking in the reserve, bird watching and in visiting historical sites such as Castelo Rodrigo. Some also stay overnight in the small villages surrounding the reserve. Coming from bigger cities and from abroad, they are not

only interested in nature but also in the agricultural practices that are taking place. They taste local wines, almonds and olive oil and sometimes spend time talking to farmers and local inhabitants. This was described by the previously mentioned woman from Algodres:

I think that the people that come here as tourists know that this is a little village. People are usually very kind, they talk to inhabitants. I think there is no tourism without the old part of the village: the agriculture, the sheep...one thing needs the other. If we stop to have our products the tourists don't want to come. We need them and they need us. Tourism is nothing without traditions as sausages, cheese, olive oil, almonds. They like that. They come for the good things we have. They are not coming to see rocks and grass. Tourism needs agriculture and agriculture needs tourism. Near Coimbra, there is a village without anyone and English people bought the village and made new houses. The tourists come but they do not have anything. They don't have people from there to tell them stories. So now there is no one there, even after a big investment, they don't find anything from traditions etc...I think everyone knows this here. When they will stop singing, laughing, telling the stories people will not want to visit anymore. The guy from the hostel promotes the parties and get-togethers between people from here and tourists. We get together, go for walks. Tourists feel part of this. That's good for us and good for them. We like to help tourists. Sometimes people come here looking for Faia Brava and we answer, "it's on the other side but if you need something we're here for you" and they go and sometimes they come back to have a coffee with us. Before there were less people coming independently. There were only people with friends here that talked about the area. Now there are new people because there is the hostel and Faia Brava. (P12)

For example, another landowner who also owns a Bed & Breakfast in Quinta De Pero Martines has hopes for the area in the future. These are not connected to agriculture but they involve tourism instead.

We have to think about this like waves. You have nobody at all...since the Christians when they regained the Iberia peninsula this has been happening: you have fewer people, then you work the land and you have more people. You go and try to gain more land so fewer people...it is like a wave. Now we are down but it is impossible for Lisbon, Coimbra to have so many people. People are now thinking about returning, it is not going to be now, but in the next 20 years, people with a different mentality are going to be here and change the way of thinking. We came back, there are people that come back...but they are a little rock...we have a bigger rock that is going to come in the future. We have a project that is so well known in the area, it is like a big magnet and it attracts people. Not now but in the future, the migration is going to be backwards (P14).

This is a newly born phenomenon in the Faia Brava region and it was not mentioned on the Spanish side. In the **Northern area of Portugal**, instead, tourism has been present for longer. Barca d'Alva has a small harbour where cruise ships that travel along the river Douro stop. The number of tourists here is larger scale compared to the Faia Brava region; however, they do not stay overnight. They only come with the boat and leave.

Not many tourists stop by although hundreds stop in Barca D'Alva with the boats. They don't come to Freixo to try the products of farmers. They don't stop in Penedo Dourau to view the birds. To increase tourism, they should put more trails, touristic itineraries, distribute leaflets. Now it doesn't work, this should all be advertised in tourism agencies in Lisbon and in Porto. From 0 to 10 it works 2 (P6)

There and even more in **Freixo** the future is still seen as **connected to agriculture**. An interviewed local for example stated that agriculture is even expanding and will continue to expand thanks to subsidies involving also younger people more and more (P8). Another local landowner who also owns a bed & breakfast mentioned the difficulties encountered by tourists she hosted. Although a famous park with birds and wildlife is present, according to her, this is not exploited as much as it could. Since agriculture produces a profit in the area and fields are mostly used, the park authorities are not motivated to expand the tourism business:

I think the park does not work well, it works very bad actually. Because there is a difference between here and Spain. (...) It doesn't do anything here. Naughty boys. I have many problems with my guests to take walks or go by bike. They just kill our tourism business. The only reason why the park is good is that people can't construct houses as they like. There are houses abandoned, in bricks and the park doesn't allow these things. But that's all. Two years ago there were a group of tourists that wanted to do a circuit by bike but the park didn't allow because they said they would destroy things. They don't ask to the people. In Spain they do bike and walking trails, they put information, they have activities, like how to make soap with olive oil, they invite people to learn things. Here nothing. (P16)

Away from the reserve of Faia Brava, for example, closer to the river Agueda, and in the **Spanish side**, both younger and older farmers showed the same pessimism as in the Faia Brava area. The following is an example from La Fregeneda in Spain.

Interviewer: What do you mean by "the future will be worst"?

Farmer 2: The future here is almond. Here now it is more popular to have sheep. Milk is coming from France and Italy at very cheap prices. They produce sheep cheese here but it will stop, as other cultivations stopped in the past. Land use here is going to change. It is going to be abandoned and there will be a radical change. There are younger people like him, they have 10-15 years to still work the land. People are not coming back from the city. (...) Everything will be left without cultivating. It's either there will be a radical change or the rest will be also abandoned. (P20)

Also in Hinojosa del Duero farmers do not think that agricultural expansion is possible in the future as most of the younger people do not want to continue with agriculture. Now, even if the younger farmers stop there is someone older interested in buying the land near the town. However, they are uncertain about what is going to happen later when these older ones will stop too.

Farmer 2: before we were 100, now we are 25...10-15 will remain. Among those 25, 10-14 are around 60 years old...I am honestly not sure if the future will continue to be agriculture.... I am not sure about the number of people that are about to live here in general (P8)

Even a young farmer who continued farming following his parents' example and who owns land near the river Agueda is sceptic about the future for agriculture:

If there are no more people, not only no one will work in the field anymore, but also no one will live here anymore during the year. There is already a town nearby that has no more young people. If old people sell the land and someone from outside arrives and cultivates the land then there is hope but I do not know this. (...) Also, the problem is that certain traditions and knowledge on how to work the fields is gone for the people who have already left for the city (how to prune a tree, how to plough a tree). It will take years from someone from the city to learn these things, while me since I was young my father thought me day by day to do things. (P10)

Some respondents also proposed a series of actions to improve the current agricultural situation.

A local producer of Freixo and a landowner in the Southern area of Portugal mentioned the “Bolsa de terras” as a good way to deal with abandoned land (P6- P11). This is an instrument created by the Ministry of Agriculture, Forestry and Rural Development to mediate between owners of abandoned land and farmers who need to expand their land. The second also proposed to re-establish the “Lei das Sesmarias”, a law of the XIV century which intended to oblige the owners to cultivate the land by means of a penalty of expropriation (P11).

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6. Discussion

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6 Discussion

After analysing the results, land abandonment still proves a challenging topic to tackle and to describe. No simple and straightforward answer can be given to any of the research questions. In order to analyse the process of land abandonment thoroughly, in this chapter, the sub-research questions are answered one by one (sub-chapters 6.1-6.4). Where possible, the results are linked to the theoretical framework in order to put the findings of the research into context. In the sub-chapter 6.5, the conceptual model which summarises the selected concepts and theories is updated considering the findings of this research. Moreover, the limitations of the research are explained. Considering these limitations and the results, recommendations for future research are also provided (6.6).

6.1 Who are the involved parties and what is their role in the process of land abandonment?

The actors involved in the process of land abandonment were not easily classifiable. Through the interviews, the complexity of the different roles and the difficulty in defining each group of actors emerged. Simply defining the involved actors as “farmers” leaves out many other actors who instead own or used to own agricultural land in the study area. Many stakeholders are involved, each having different roles and multiple interests. They all affect and are affected at the same time by the process of land abandonment.

Figure 6.1 shows how each group of stakeholders, which apparently constitutes a defined group by itself, is partially incorporated into other groups of actors. The coloured circles represent the defined groups of actors, while the shades of colours between the circles represent the actors that are included in more than one main group. Therefore, there are no set boundaries between one group and another. The size of the circles is not representative of how the different stakeholders are distributed among the groups or subgroups.

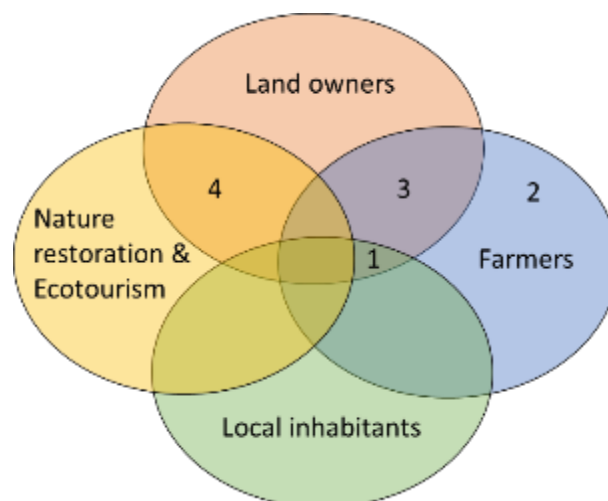


FIGURE 6.1 : STAKEHOLDER GROUPS AND THEIR OVERLAP (1: LANDOWNERS WHO USE THE LAND FOR AGRICULTURE. 2: FARMERS WHO USE LAND NOT OWNED. 3: LANDOWNERS THAT COME FROM THE CITY THAT USE THE LAND FOR FARMING. 4: LANDOWNERS WHO USE THE LAND FOR NATURE RESTORATION AND CONSEQUENTLY FOR ECOTOURISM)

For instance, some **landowners** use their land for farming so they can be also classified as **farmers** (1). Farmers constitute the vast majority of local inhabitants since nearly all of them mainly live from agriculture. In general, farmers who work with crops own the land they work on. On the contrary, many of those involved in animal farming, for example shepherds, use land that does not belong to them, so they cannot strictly be defined as landowners but they can be classified as farmers (2). Furthermore, some people living in bigger cities and abroad have recently bought land in the area for large production of wine and olives (3-in the Freixo area) and for nature restoration (4- in the Faia Brava area). Moreover, a large landowner in the area is the NGO ATN, who does not strictly use the land for farming. They, however, exploit it for nature restoration and for ecotourism (4). On the one hand, they are interested in maintaining the landscape mosaic with agriculture and nature coexisting, on the other hand, they are also in favour of nature expansion, for example in the Faia Brava area.

Some landowners who have moved away still own land in the area: some have hired someone to look after their land while others are uninterested and are not planning on using it again in the future. Retired people generally keep on working their fields intermittently, but their heirs are not interested in continuing with agricultural practices.

These are just a few examples of the complex network of actors who are related to land abandonment in the area. Moreover, certain aspects which characterise each group of actors can be both obstacles that push them to abandon or to sell the land or triggers to continue farming. For example, high age of the landowner was often considered as a driver of land abandonment but cases of old farmers that continue farming and example of young farmers who stopped are also common.

Due to this complex system, not only it is challenging to label each stakeholder within a group of actors but also it is not possible to specify which group of actors is more prone to abandon their land.

6.2 Is there consensus among and within parties on how land abandonment is defined and on what causes it?

In this subchapter, to start with, the first part of the sub-research question regarding land abandonment definitions will be answered (Section 6.2.1). Then, the second part of the definition on the causes of the process will be addressed (Section 6.2.2). Both sections make use of the concepts and theories mentioned in the theoretical framework to put the results into context and to compare them to previous studies.

6.2.1 Local perspectives on the definitions of land abandonment

All the interviewees recognised the phenomenon of agricultural land abandonment in both Portugal and Spain. Most of the people interviewed referred spontaneously to the concept of land abandonment without the interviewer mentioning it beforehand. However, when asked about a definition, opinions seemed to differ. Table 7 shows the different definitions of abandoned land given by the interviewees. These definitions represent the main concepts retrieved from the definitions coded with Atlas.ti. Some respondents mentioned more than one definition at the same time.

TABLE 7 MAIN DEFINITIONS OF LAND ABANDONMENT ACCORDING TO INTERVIEWEES

Land with uncontrolled spontaneous vegetation growth (broom, lavender, high grass or unpruned trees)
Farmland that is not used at all for agricultural production
Farmland that is not used as much/the same way as in the past
Farmland that is too costly to bring back to production
Land with owner unknown
Farmland that is dangerous for fires

From the interviews, it is possible to state that there is no unique definition of abandoned land since people have different opinions on what constitutes abandoned land. In general, it is possible to state that land that interviewees define as abandoned is positioned at different stages of the abandonment process described in literature (Figure 6.2). Some respondents already consider as abandoned land which some authors define as semi-abandoned or as agricultural activity abandonment (Corbelle Rico and Crescente Maseda, 2008, Keenleyside and Tucker, 2010); for others, land is actually abandoned only when there is a total withdrawal of management.

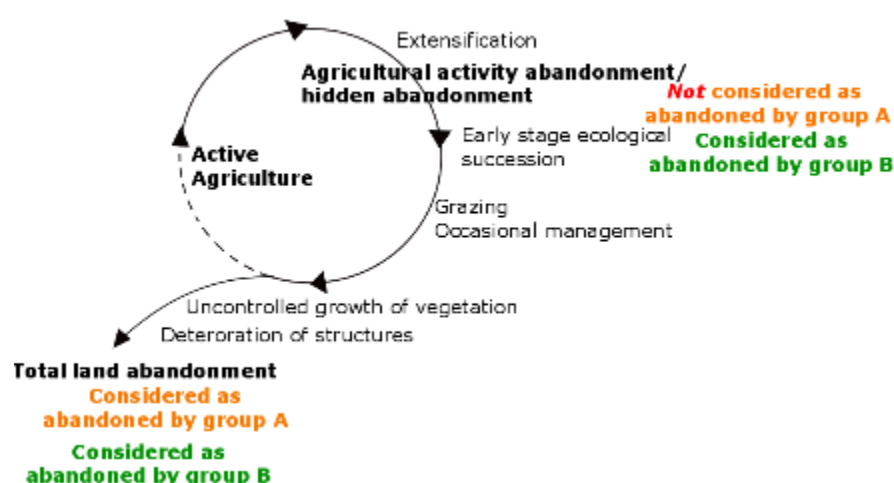


FIGURE 6.2 THE LOOP OF ABANDONED LAND: SOME LOCALS (GROUP A AND GROUP B) GIVE A DEFINITION OF LAND ABANDONMENT THAT IS CLOSE TO THE "TOTAL LAND ABANDONMENT" CONCEPT DESCRIBED IN LITERATURE. FOR OTHERS INSTEAD (GROUP B) LAND IS ALREADY CONSIDERED AS ABANDONED AT EARLIER STAGES (ADAPTED FROM MUNROE ET AL. (2013))

For most of the interviewees (**Group A** and **Group B**) land is considered as abandoned when there is an uncontrolled growth of vegetation and a total withdrawal of agricultural management. In this case, land does not produce any type of good and it does not lead to any income for the owner. This description of land is in line with what authors define as "Totally abandoned" land (Corbelle Rico and Crescente Maseda, 2008, Keenleyside and Tucker, 2010). This definition of abandonment was common throughout the area, even in Freixo, where land abandonment is rarer. Moreover, this is often the case of parcels without an official owner, or which are being inherited and discussed between heirs, or with owners that are away from the villages who are uninterested in their land.

These circumstances that affect the owner lead to a total growth of spontaneous vegetation such as Mediterranean scrubs and to the deterioration of structures, such as the unpaved roads that lead to the fields. This makes it difficult from the economical and practical point of views to bring land back into production even after the situations among owners are resolved. This is not a new phenomenon as also other authors described this (Brouwer et al., 1997, Corbelle Rico and Crescente Maseda, 2008, FAO, 2006)

In the study area, often landowners cease their agriculture activity but land keeps being lowly managed by shepherds and cattle breeders. Spontaneous vegetation growth is kept under control by grazing or rarely by the landowner who keeps on using it intermittently to avoid fines by authorities or for cultural reasons. Frequently the landowner of this type of field is away, old or has another job outside of agriculture, leaving little time available to dedicate to the agricultural activity. In this type of land, a shift in agricultural practices has taken place, from an already extensive use to a less intensive one. This description of the agricultural landscape fits well with what some authors call as semi or hidden abandonment (Corbelle Rico and Crescente Maseda, 2008, Keenleyside and Tucker, 2010). This type of situation more or less common throughout the study area; however, some interviewees do not consider this type of land as abandoned (**Group A**) while others do (**Group B**).

For the respondents of **Group A**, the fact that land is not used as it was in the past does not entail that land is abandoned. As far as the vegetation growth is limited and land is lowly managed, land is not said to be abandoned. For example, this situation is common in the Spanish side, near the villages. While in the past land was used more for sowing and for crops, now those fields are used more often for grazing. It is mostly older farmers, often already retired, that carry on these practices; frequently also using land close to the villages which belongs to people who have left the area. This agricultural activity continues as it generates a profit, since milk is sold to local factories, but also cultural reasons play an important role. The agricultural activity is slowly ceasing as the working farmers are getting older but the fields look managed. This is a phenomenon commonly reported in literature (Brouwer et al., 1997, Corbelle Rico and Crescente Maseda, 2008).

For other interviewees instead (**Group B**), a rupture from the past in agricultural practices is already a sign of abandonment per se. The semi-abandoned condition described in literature (Corbelle Rico and Crescente Maseda, 2008, Keenleyside and Tucker, 2010) is here already considered as land abandonment. If the land is not used as much as in the past, for example by not picking olives or almonds, or by not pruning trees properly, the land is described as abandoned. For one interviewee land would have even been easily brought back to its original productive state, but this did not stop her from calling her land abandoned. Even if land actually seems used from the outside, owners are aware that it will soon totally stop being used due to the unfavourable conditions of their fields, to their age or to disinterest in land in general. According to them, what is bound to happen in the future pushes them to already define this land as abandoned (see section 6.3 for more explanations on attitudes and feeling towards land abandonment). This justifies their selling of land for other scopes such as nature restoration. The questions that arise here are whether they are defining it abandoned as a justification for selling it for nature restoration purposes or because they had no interest in using it in the future. This definition of abandoned land is more common in the Faia Brava area, where nature restoration is taking place more intensively and where abandoned land is now part of the reserve.

This semi-abandoned land which is defined by some as abandoned (**Group B**) is difficult to detect (Corbelle Rico and Crescente Maseda, 2008). Since often this land is still officially classified as agricultural land and subsidies are still being claimed (Corbelle Rico and Crescente Maseda, 2008,

Keenleyside and Tucker, 2010), it may not be spotted by statistics and models which follow the static approach. Land that is affected by changes, such as extensification of practices and hidden abandonment may not be well represented by this approach. The large variety of opinions and the numerous land use changes which affected the study area prove that the dynamic approach is better able to grasp the complexity behind land use changes which affect the landscape. Simply studying how much agricultural land that has been converted into artificial areas or into afforested ones may not give a full picture on the intricate socio-economic and spatial dynamics which are behind land abandonment.

This is even truer considering that some land is now being brought back to production. This is happening near Cidadelhe in the Faia Brava area where land considered abandoned in the past is starting to be used again for small-scale family farming, and near Freixo, in the Douro region. Land in Cidadelhe belongs to people who have left the area who now come back during weekends and holidays and is taken care of by people who still reside in the area. Land in Freixo instead was used for sowing and had not been used for decades; thanks to subsidies new almond trees were planted and agriculture started again. However, since this was only briefly mentioned by two interviewees, it is not known what its abandonment state was, whether it was semi or totally abandoned before. The second option would mean that previous studies which see total abandonment as an end state in which land goes out of the loop (Munroe et al., 2013) would need to be reviewed and updated (Figure 6.3). More detailed research is therefore needed in this area (see Chapter 6.6).

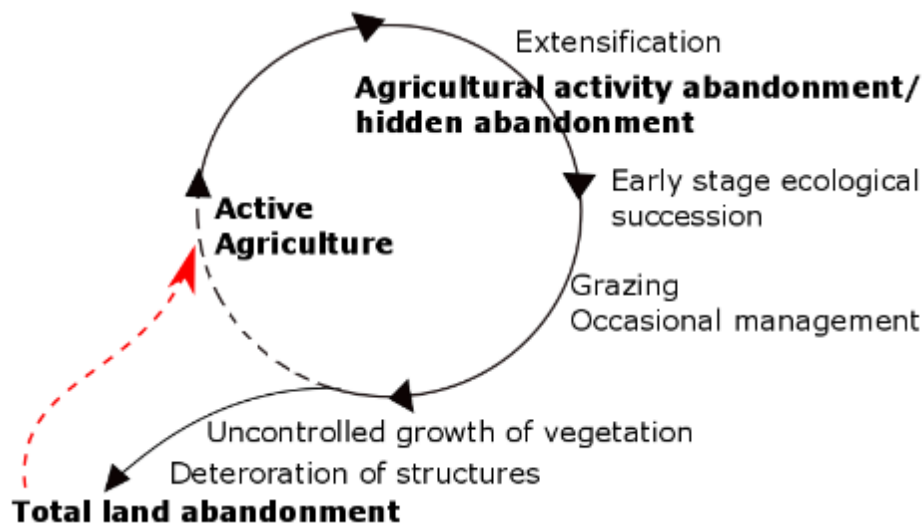


FIGURE 6.3 SOME LAND CONSIDERED AS ABANDONED IN THE PAST WAS BROUGHT BACK INTO PRODUCTION. HOWEVER, THE STAGE OF ABANDONMENT IS NOT CLEAR. THIS IS WHAT THE LOOP OF ABANDONED LAND WOULD LOOK LIKE IF LAND WAS TOTALLY ABANDONED BEFORE BEING BROUGHT BACK INTO PRODUCTION

6.2.2 Local perspectives on the causes of land abandonment

The type of agriculture, the intensity of farming, the scale of production differ not only between the two states but also internally between different regions. For example, a different level of abandonment is present between the Faia Brava and the Douro region. Similarly, the causes of land abandonment identified by landowners show some differences between areas and between the types of interviewees.

When asked about the causes of land abandonment, respondents gave multiple answers. Table 8 summarises the causes identified by local people during the interviews classified through the coding

in Atlas.ti. All the factors mentioned, listed in the table below, were already identified as major causes of land abandonment in literature. In line with previous studies, the mentioned causes can be divided into ecological and socio-economic (Table 8).

TABLE 8 CAUSES OF LAND ABANDONMENT ACCORDING TO RESPONDENTS DIVIDED INTO SOCIO-ECONOMIC AND ECOLOGICAL FACTORS

Socio-economic factors	Ecological/structural factors
Depopulation	Small plot sizes
Age	Poor soil quality
No profit	Steepness
Inheritance problems	
Distance from village/ house	
Inaccessibility	

For academics, whether the process is mainly driven by socio-economic factors or by ecological ones is still a debate. Overall, also the results from this study do not give a general clear answer on which of the two groups of drivers plays the biggest role. The listed causes are often interlinked making it difficult to say which was the triggering one.

In the study area, rural depopulation, a socio-economic factor, was identified as a major cause of abandonment. This was spontaneously mentioned by almost all the respondents both in Spain and in Portugal. This is in line with previous studies that indicate this socio-economic factor as a primary cause of abandonment (Rey Benayas et al., 2007). Respondents did not indicate urban migration alone but they mentioned it along with other factors confirming the results of Rey Benayas et al. (2007). Rural depopulation led to unavailability of younger relatives to take over the agricultural activity and to high age of remaining farmers, aspects already acknowledged by Corbelle Rico and Crescente Maseda (2008) and Brouwer et al. (1997).

Moreover, if it was rural migration alone to cause land abandonment, land with favourable and unfavourable ecological and structural conditions described in literature would have been abandoned equally. However, this was not the case. For instance, in Portugal, near Faia Brava and in the Spanish side, land was said to be abandoned due to rural depopulation and its consequences, but the specific choice on which land to abandon first was made according to structural factors such as steepness, size of the parcel, soil quality and other socio-economic factors such as the distance from the villages and accessibility. Since all the younger people have left and the remaining ones are ageing it was not possible to continue farming the same amount of land that was used in the past so a choice was made. The two types of factors are therefore strongly connected. Looking at previous studies, Rey Benayas et al. (2007) concluded that the phenomenon of land abandonment is mainly driven by socio-economic factors whereas ecological ones aggravate the situation, leading to further abandonment. According to these academics, agricultural land with limited production due to ecological factors is more prone to abandonment when socio-economic factors are present. The results from the Faia Brava area and from the Spanish side confirm these findings.

For the people that have stayed in the study area, another cause of abandonment is lack of profit, another socio-economic factor. Even when rural depopulation is not as present, such in Freixo, abandonment does occur. Profit is also linked to structural and ecological factors such as parcel size and soil quality. When a parcel is too small and when the soil is poor, obtaining a profit out of land

and its products becomes challenging, forcing the landowners to cease their agricultural activity. Also in this case, socio-economic and ecological factors are closely connected and the presence of factors belonging to one category is worsened by the simultaneous presence of factors belonging to the other category.

In the Portuguese side of the Douro region, when socio-economic factors are less intense, farmers continue farming also when unfavourable ecological and structural factors are present. For example, in Freixo, large-scale-production goods are sold even internationally and fewer people have left the town compared to other villages. There also the steeper sides of the Douro valley are used for vineyards, olive and almond trees (Figure 6.4). Land that once was used for sowing cereals was abandoned in the past and now thanks to subsidies, a profit that the land can guarantee, it is being brought back to production. This, however, does not happen in the same way in Spain, on the other side of the river (Figure 6.5). The profit made from producing and selling goods may overpass the difficulties caused by physical conditions, suggesting that socio-economic factors may play a bigger role. Also in other cases, such as near Figueira when farming is profitable, some physical conditions such as poor soil quality are ignored, again confirming the results of Rey Benayas et al. (2007).



FIGURE 6.4 STEEP FIELDS USED FOR AGRICULTURE IN THE PORTUGUESE SIDE OF THE DOURO REGION



FIGURE 6.5 DIFFERENCES ALONG THE DOURO RIVER BETWEEN PORTUGAL AND SPAIN

According to previous studies, Mediterranean areas are often described as being characterised by a dichotomy between plains and valleys and hilly areas (Pinto Correia, 1993). At a first glance, this seems to be a characteristic also of the study area, where for example the land on the steeper sides of the Coa and of the Agueda river is more abandoned while the flatter plateaus where the villages are located such as Cidadelhe are more cultivated. Nevertheless, when looking at smaller scales, even on the plateaus abandoned land is present. The same happens in the Coa valley, where rarely agriculture is still taking place (i.e. a shepherd who owns land for sheep inside the reserve). Consequently, the results show that the dichotomy seems to be an oversimplification of what actually happens on the ground.

This dichotomy is also not always present in the Douro region. Along the river, the same structural and ecological conditions are present on the Portuguese and Spanish side. However, they allow the continuation of agriculture (and even expansion), in Freixo, and they lead to land abandonment in the Spanish counter side (see images above).

Furthermore, in Figueria de Castelo Rodrigo and in Freixo itself where agriculture is more competitive, land is abandoned by smaller producers and bought by larger ones who instead expand. The interviewed farmers stated that profit is only possible when the production is larger and given the unfavourable conditions of land this is only achievable in bigger patches of land so bigger producers are willing to buy what the others abandon.

The same physical conditions can, therefore, lead to agricultural expansion and to land abandonment, making a potential generalisation of the results even more challenging (Figure 6.6). Nevertheless, this is not a new phenomenon as Hatna and Bakker (2011) have already demonstrated it in their study: according to them agricultural abandonment and expansion do not happen in places with opposite spatial characteristics.

Moreover, in some rare cases even when farming is said to be unprofitable or when farmers are retired, farming continues, for example as a part-time activity. It is still difficult to understand why this happens in some cases while it does not in others. Consequently, as described for ecological factors, the same socio-economic factors do not always lead to total abandonment (Figure 6.6).

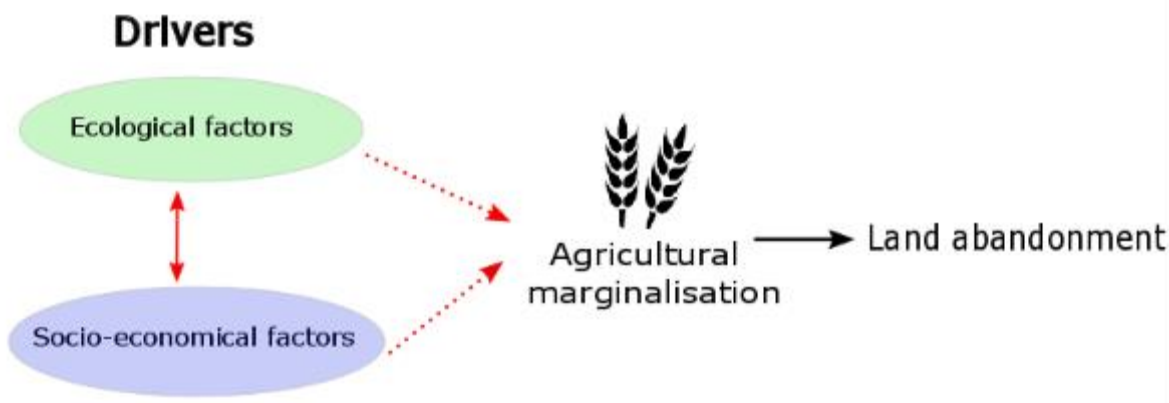
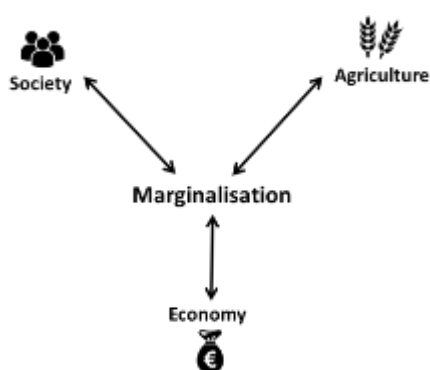


FIGURE 6.6 DRIVERS OF AGRICULTURAL MARGINALISATION: AN UPDATED VERSION OBTAINED FROM THE RESULTS OF THIS RESEARCH. THE RED LINES SHOW THAT ECOLOGICAL AND SOCIO-ECONOMIC FACTORS ARE STRONGLY INTERLINKED (RED DOUBLE ARROWED FULL LINE) AND THAT THE SAME DRIVERS DO NOT ALWAYS TRANSLATE INTO THE SAME LEVEL OF ABANDONMENT

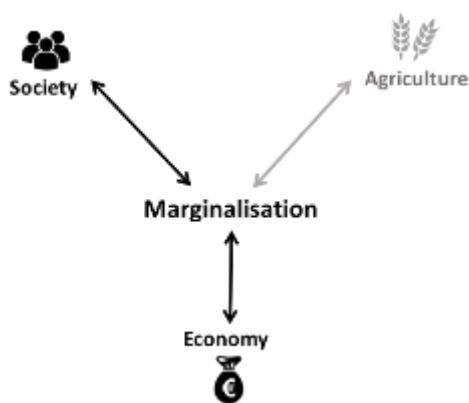
As previously stated, results show that socio-economic factors play a big role in the abandonment of land in the study area. The entire area is characterised by an unfavourable socio-economic context but its entity differs from village to village. According to Pinto-Correia et al. (2004), marginal socio-economic conditions do not always translate automatically in the marginalisation of land; furthermore, farming and socio-economic processes do not always occur at the same scale nor pace. The following paragraphs elaborate on the marginalisation of land happening in the study area and the relationship between this and the encompassing socio-economic context. When looking beyond agriculture and more into society and economy, the sub-areas that compose the study area show some differences.



According to most of the respondents, the **Faia Brava** area is characterised by a lack of socio-economic dynamism. In the last decades, the interviewees have assisted to a decrease in population in the villages surrounding the reserve especially regarding younger people who have left the area looking for opportunities somewhere else. Very few jobs are available outside of agriculture. As previously mentioned, unfavourable ecological and structural factors, closely interlinked with socio-economic ones characterise the land. Most of the land that is now part of the reserve is in steep, stony, inaccessible areas. Moreover, parcels are small due to inheritance. Almost all the unfavourable socio-economic and ecological factors that lead to abandonment mentioned during this research are present in this area. In other words, in this area what is marginalised is not only agriculture but also society and economy. All these characteristics can be reconducted to the "Rural Fragile/Agriculture Fragile"

dynamic described by Pinto-Correia et al. (2004). This categorisation represents just a broad classification of the area and does not mean that no agriculture at all is present.

In Figueira de Castelo Rodrigo and towards the Douro international park, similar socio-economic conditions are present. However, putting the results on a scale, compared to the Faia Brava villages, the area is less marginalised from the agricultural point of view. Some of the interviewed farmers owned up to 200 ha of land, making a big profit out of agriculture. This area constitutes a sort of gradient, a half-way condition, between the Faia Brava villages and the Freixo a Espada a Cinta area.



Freixo, compared to the surrounding villages, is affected less by marginalisation regarding society and economy. In the town, rural depopulation has not taken place as much. Moreover, it is connected to major cities of the area by public transport. However, the population is ageing and few jobs are available outside of agriculture. Agriculture, in general, remains a profitable activity as properties are larger and soil conditions better. Additionally, subsidies stimulate younger people to take on agricultural activities. Land abandonment was still mentioned as something happening in the area and it is linked to small parcel sizes

and inheritance problems. Sometimes big landowners do not live in the area and products are often also sold internationally so profits end up outside the area. Freixo, in relation to the Faia Brava area, does not strictly fall under the dynamic "Rural Fragile/Agriculture Fragile" described by Pinto-Correia et al. (2004). The area is more shifted towards "Agriculture competitive / Rural Fragile".

According to the map realised by the Portuguese Ministry of Agriculture in which the different dynamics of marginalisation processes are attributed to the different parishes of the Portuguese territory, the entire study area should fall under the category "Agriculture competitive / Rural Fragile". This is because the different dynamics were attributed to parishes where at least 50% of the territory presented the characteristics typical of that dynamic. The number of respondents and the number of observations of this study were not enough to cover the entire territory of each parish. However, the results show that studies such as the one conducted by the Ministry of Agriculture often hide dynamics that take place at a smaller scale. Compared to Lisbon and Porto parishes as Cidadelhe and Freixo may be more similar to each other in terms of agriculture, society and economics. However, when the last two are compared with each other they present different dynamics. The results show that these complex dynamics are hidden in studies as such.

To summarise, analysing the results it is not possible to find a single cause of abandonment even if separating the area in sub-areas. The complexity and the connection between different ecological and socio-economic factors make it difficult to spot a precise geographical and social pattern under which land abandonment occurs. This was already acknowledged by other academics (Corbelle Rico and Crescente Maseda, 2008) and the debate present in literature on the possible causes of abandonment prove this difficulty.

6.3 Is land abandonment spontaneous or pushed by particular interests?

In the study area, several land acquisitions and land deals have taken place in the past and are still taking place nowadays. The buyer is usually ATN, a local environmental NGO who managed to acquire 1600 ha of land and to stipulate land deal with owners in the Portuguese side of the project. In order to pay for the land acquisitions, ATN obtains funds from Rewilding Europe, European Life project and the selling of local products produced inside the reserve. In this sub-section, the land deals and acquisitions are analysed. Since no landowner who had a deal or who had sold land in Spain was interviewed, this part will only regard the Portuguese area.

When land is sold to environmental NGOs for rewilding purposes, it officially becomes abandoned from the agricultural point of view. By agreeing to sell land that was previously still used for agriculture, landowners contribute to the phenomenon of land abandonment. Sold land, however, might have been spontaneously abandoned before the deal took place. The ways these land deals are carried out constitute an important aspect to be examined to understand if land abandonment was caused only by the spontaneous drivers mentioned in the previous sub-chapter or if it was pushed by other actors, such as environmental NGOs. In order to analyse the role of nature restoration in the process of land abandonment, the characteristics that constitute a land grab encountered in literature are used to assess the process (see Section 2.3). The goal of this step is not to define strictly whether ATN land deals can be considered as land grabbing, nor does this approach want to give a negative connotation to these land deals.

Land grabbing usually involves a **reordering of land use** (Borras and Franco, 2012, van der Ploeg et al., 2015). This is what occurred in the Faia Brava reserve over the past fifty years there has been a shift from agriculture to wild areas, now used for nature restoration. The scope of this section is to understand whether this shift happened before the area was bought for nature restoration, or whether it was pushed by environmental organisations.

The reordering of land use sometimes creates **disruptions and trauma** (European Union, 2014). In the case of Faia Brava, one landowner from Algodres had her land invaded by wild animals while she was still using it for agriculture. The invading horses and cows ruined the lower parts of the trees and pushed her to sell and therefore to completely abandon her land before than agreed. Moreover, this disturbance also caused her deal with a shepherd to use her land to fall apart, additionally causing an economic problem. Other farmers of the area referred to the fact that these wild horses sometimes escape the reserve looking for food and water and therefore reaching the village. When this happens dogs bark, some fields are said to be damaged, inhabitants occur, some even threaten to shoot at the animals. In a place where horses are usually not present, the appearance of new animals not only creates wonder but also disruptions. From the interviews, some inhabitants did seem annoyed by these happenings but not traumatised. The animals are not considered dangerous and usually, employees of ATN quickly occur to the area called by locals and the situation goes back to normality. Many fields on the way from the reserve to the village were said not to be used for agriculture; consequently, the disruptions are nowadays limited. After analysing the interviews, it is still not certain whether does fields were abandoned because of these disruptions as no farmer that currently owns the land in that area could be interviewed. In this regard, one local said that the fields were not abandoned because of this reason but because of the soil quality. This answer could be affected by the fact that she might not have been aware of what had happened since it did not involve her in first

person or that she did not want to give a negative opinion about ATN. However, she did not refrain from mentioning other non-agriculture related limitations that the reserve imposed.

Landowners who live in the area were not asked for consent regarding the introduction of animals. The landowner mentioned earlier who eventually sold after the introduction of horses was not informed on the possibility that her land might have been accessed by wild animals in the time she was still planning to use it. This brought her to sell and therefore to abandon her land before than expected. Nevertheless, it is important to take into account that she would have sold the land to ATN anyway at the end of the season.

These findings lead to the think that there was a **lack of prior and informed consent** and an **absence of a transparent contract** which specified the advantages and disadvantages of stipulating such a deal. These are two of the characteristics that constitute land grabbing (International Land Coalition, 2011). Yet, since few local landowners were interviewed, it is not possible to state the extent of this phenomenon and how common it was in the area.

Although the interviewed inhabitants of the neighbouring villages of Faia Brava all knew about the existence of the project, their level of awareness and interest on the types of activities carried out for the project itself differed from person to person. In general, some people who sold land did not seem to have an opinion on the project and showed indifference for nature restoration topics. While on the field, it was possible to observe that workshops and public meetings were organised for the population by ATN but very few or no participants at all showed up. A younger inhabitant instead seemed to be interested and almost proud to have sold land for such a scope. Moreover, all the interviewed landowners who had a management agreement seemed way more aware of the contents, methods and scope of the project. This might depend on the fact that they were better informed or on them being younger and/or better educated, therefore more receptive to this type of information. Moreover, having all stipulated a management deal or having accepted to sell land, they might represent only a part of the total part of the population. In the light of this, it is not possible to determine if there was a **lack of participation** in the project which would constitute a land grab (Borras and Franco, 2012, International Land Coalition, 2011). A similar land acquisition process is starting nearby, supported. The initiator, a local landowner and also mayor of a village, is renting land with the support of ATN to subsequently acquire it in the future. He said that the word has not been spread extensively since locals often do not understand such projects and because otherwise, the price of land would rise. This raises some concern in the matter of public consultation and participation and on the fact that land might be acquired below market value, factors recognised to be constituents of land grabbing (Borras and Franco, 2012, Carroccio et al., 2016, International Land Coalition, 2011). At the moment this remains a speculation since it was not confirmed by other interviewees who took part in the Faia Brava land deals.

Money is one of the reasons that brought and is continuing to bring people to sell land in the Faia Brava area. This is especially true for older farmers who have a small patch of land and know that their heirs are uninterested in continuing agriculture there. Although they might still be limitedly using the land, they are convinced that it will be abandoned in the future. Even after interviewing landowners, it is not clear whether they were already planning to sell land before they were approached by ATN or if this idea was born later when the opportunity to make some money appeared.

In the area, not only land acquisitions were carried out, but also land deals with the current owners. Although agriculture is fully active in those fields, nature restoration does not interfere. ATN has offered to cut spontaneous grass and scrubs and to sow cereals in order to preserve and increase the

prey species of the protected birds. These actions were even said to be useful for the landowners, overall requiring them less work in the management of land.

After analysing the interviews, due to limitations of the study population, it is not possible to generalise and have a full idea on the entire process of land acquisitions and land deals. As Bakker and van Doorn (2009) explained, acquiring information from farmers regarding land use change proved to be a challenging task. Regarding farmers, doubts remain on their level of awareness and consciousness and on the ability and willingness to express their motivations when making choices regarding land use choices (Bakker and van Doorn, 2009). However, from the few interviews obtained, it is possible to say that nature restoration regarded agricultural land situated at different stages in the process of land abandonment; this is illustrated in Figure 6.7. Some land was already fully abandoned and in the stage that authors refer to as “total abandonment” (Corbelle Rico and Crescente Maseda, 2008, Keenleyside and Tucker, 2010). Other land was not; as previously described it can more be reconducted to the “semi or hidden abandonment” stage (Corbelle Rico and Crescente Maseda, 2008, Keenleyside and Tucker, 2010). Interviewees of the Faia Brava area were all of the opinion that land was going to be fully abandoned anyway in the future. As previously described in Chapter 6.2, landowners around Faia Brava (**Group B**) defined both stages of the loop as “abandoned”.

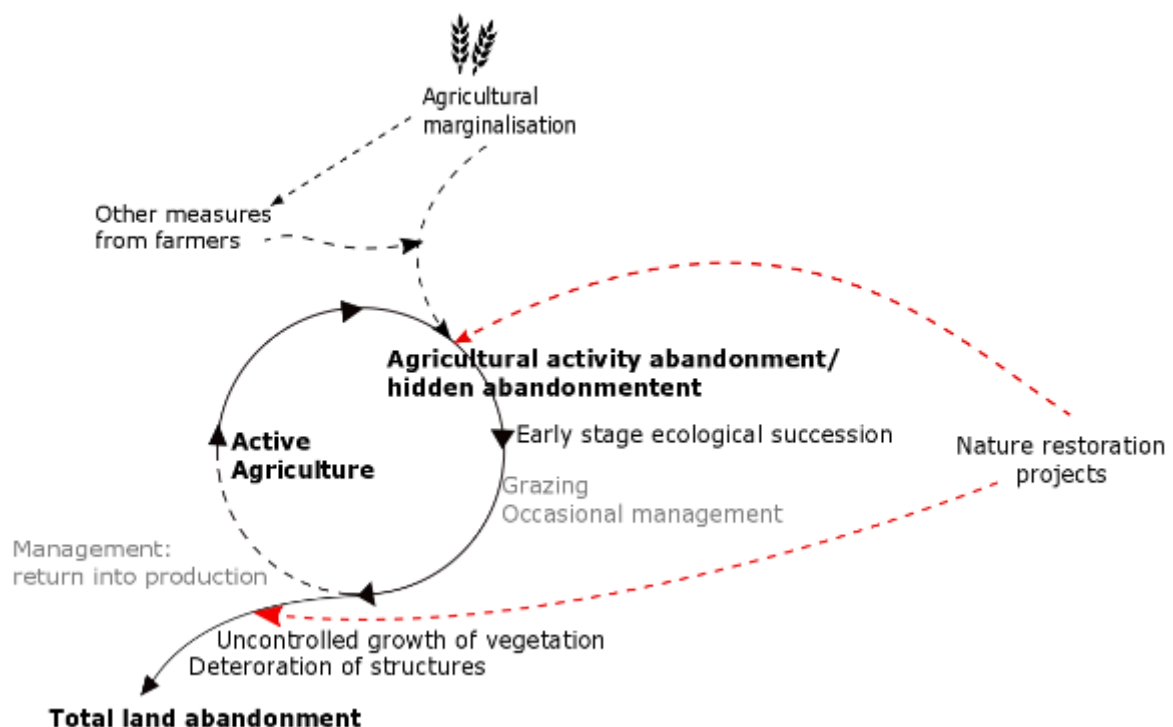


FIGURE 6.7 THE ROLE OF NATURE RESTORATION PROJECTS IN THE PROCESS OF LAND ABANDONMENT. NATURE RESTORATIONS COMES IN AT DIFFERENT STAGES OF THE LAND ABANDONMENT PROCESS, ON SEMI AND TOTALLY ABANDONED LAND. HOWEVER, LOCALS IN THE FAIA BRAVA AREA DEFINE BOTH AS ABANDONED OR AS BOUND TO BE ABANDONED (SEE CHAPTER 6.2)

Taking for granted the interviewed farmers’ words, although some characteristics which constitute a land grab occurred (i.e. lack of prior and informed consent and presence of disruptions), nature restoration does not constitute per se a cause of the abandonment of land. These projects were born in a context already affected by land abandonment. Consequently, land abandonment in the area cannot be considered as *forcefully* pushed by interests such as nature restoration. Interviewed people believe that land was bound to be totally abandoned anyway even if they were still (partially) using it. The possibility of selling and making a small profit contributed to making this process faster. Therefore,

it can be said that such interests softly push towards a process that is expected to happen anyway for other reasons.

6.4 What are the attitudes of locals towards land abandonment?

From the interview analysis, it is possible to state that locals have different opinions and attitudes towards land abandonment and toward nature restorations projects. A major distinction can be made. As described by Pinto-Correia et al. (2004) some individuals are strongly pessimistic not only regarding agriculture but the area in general, while other feel more optimistic.

The more **pessimistic** ones show a strong feeling of discouragement towards the future. They acknowledge the fact that younger people are usually not interested in agriculture and that older people will soon stop farming due to their age and they surrender to this. They often believe that farmland will be even more abandoned in the future since the phenomenon of rural depopulation will not cease. This will also make villages become more empty and dull; therefore, the marginalisation will continue to regard not only agriculture but also society and economy. Since young people prefer to leave for the city and work in other fields, the know-how related to agriculture will be lost. This will cause major problems since, as the elderly will die, they will not have anyone to learn that from even if one day they plan on coming back to the area. Furthermore, according to them, this is a process that is bound to happen without any correlation to nature restoration. Many of them show disinterest towards this type of projects: although nature restoration impacts their life (i.e. horses reaching the village), they often seem to have no opinion regarding them. Although environmental NGOs depict this type of project as a solution for the marginalisation of the area, some of them cannot picture the future differently from how it is now, related to agriculture. Many however see the possibility of selling land as an opportunity. Being aware that the fields will become abandoned anyway, they see this as a last reserve, a chance to gain money which would not have taken place without environmental NGOs buying. Among all interviewees, pessimistic respondents were mainly older people in the Faia Brava area and in Spain, although more rarely even some younger respondents in the same areas shared the same opinion. In particular, these respondents are also the same that defined semi-abandoned land as “abandoned” (**Group B**).

On the contrary, more **optimistic** people show a different attitude. They have more hope for the future of the area, involving nature restoration, agriculture or both. Some locals, especially in Freixo, see the possibility of an agricultural expansion, also involving young people. Being the successful owners of farmland, which produces internationally renowned products, they see land abandonment as something remote that does not regard them in the specific; something far away that only affects others. Consequently, they show a more positive attitude towards the future for agriculture. However, in some cases, they believe that this agricultural expansion is and will continue to happen only thanks to subsidies. When these will stop they believe that agriculture may run into marginalisation. Other locals in the

Faia Brava area, especially young and educated ones, believe that nature restoration and agriculture can coexist and regard this coexistence as a potential source of improvement for the area. Indeed, tourists are interested in the rural life of the village and want to try local products. Consequently, these locals help in shaping this future by putting back into production for family use some fields belonging to people who live in the city. According to these interviewed local inhabitants, from a few years, thanks to the presence of the Faia Brava reserve, a change is starting. Not only have people started to come back more often from the cities during weekend and holidays but also tourists have begun visiting the area. A domino effect has started and always more landowners want to refurbish their houses and manage their fields simply copying and imitating their neighbours. According to these more positive people, tourism related to nature restoration in the future, has the power to make the area more vital from every perspective. Although nature restoration may cause temporary problems (i.e. horses invading fields) the benefits gained from it are still considered higher than the drawbacks. More fields may be used for nature restoration but other fields may be brought back into production; moreover, new people can visit the area and new jobs can be created increasing the vitality from the socio-economic point of view. This group of people sees nature restoration as an opportunity for change in a context where society, economy and agriculture are currently marginalised.

Figure 6.8 summarises the two attitudes discussed above.

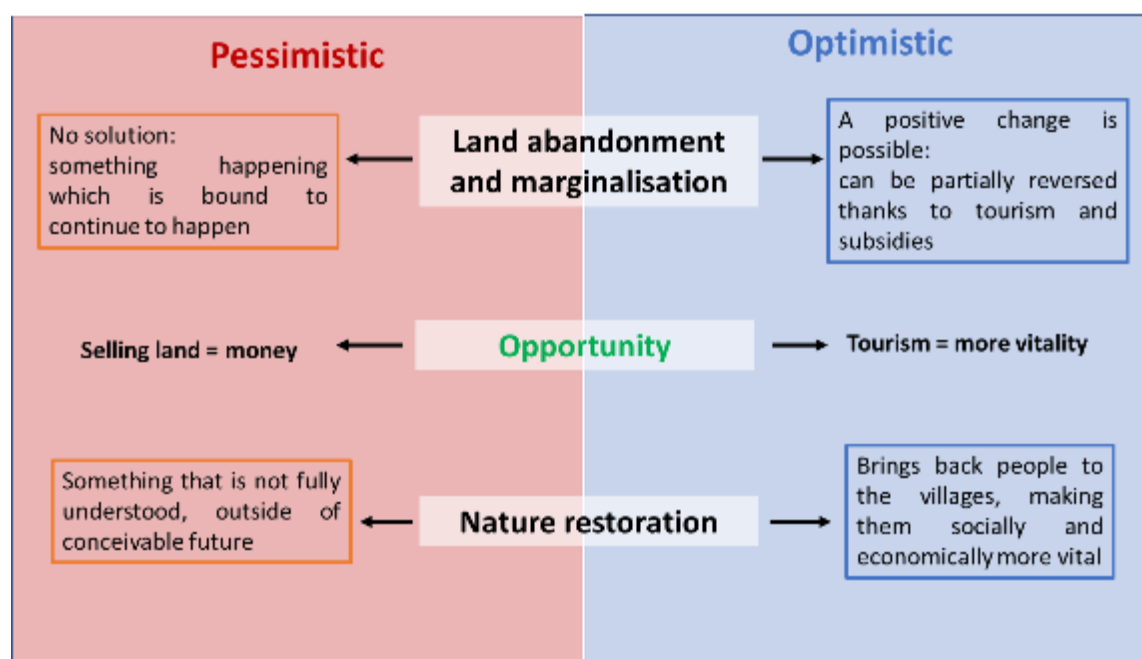


FIGURE 6.8 TWO DIFFERENT ATTITUDES TOWARDS LAND ABANDONMENT AND NATURE RESTORATION ENCOUNTERED IN THE AREA. ALTHOUGH THE OPINIONS OF BOTH GROUPS ARE DIFFERENT, THEY BOTH SEE LAND ABANDONMENT COMBINED WITH NATURE RESTORATION AS AN OPPORTUNITY (TO EITHER SELL LAND OR TO ACQUIRE MORE VITALITY IN THE VILLAGES THROUGH TOURISM)

The figure above, however, represents a simplification of the actual situation since a pessimistic and optimistic attitude can be found even inside the same person. For example, an elderly lady from Algodres (P5) who sold her land to make a small profit explained that her

land was bound to be abandoned as no heirs were interested in continuing agriculture, showing a feeling of discouragement towards the future of the area. On the other hand, when asked on her opinion on nature restoration projects she gave positive responses showing optimism for the future thanks to nature restoration. At the same time, she also said to have regretted to have fully abandoned the land and to have not asked for more money. Moreover, this figure omits the presence of landowners who are optimistic and foresee an agricultural expansion driven by subsidies. These actors do not think that nature restoration is an opportunity for the area and rely more on economic help from the European Union.

6.5 Updated conceptual model

After examining and discussing the results a new version of the conceptual model is proposed. This takes into account all the answers given by the respondents and the previously given interpretations. Figure 6.9 illustrates this. In the study area, agricultural marginalisation, the precursor of land abandonment, is driven by ecological and socio-economic factors. The results confirm the complex relationship between the drivers and their consequence (agricultural marginalisation): in different contexts, the same drivers do not always translate into the same level of abandonment (dashed red lines). Moreover, ecological and socio-economic factors are strongly interlinked (double-point arrow) and often it is not possible to establish which type of driver is the triggering one. In the study area agricultural marginalisation is also associated with the marginalisation of society and economy. (see Chapter 6.2). Agricultural marginalisation does not necessarily entail a linear process that leads to the total abandonment of land. In a context where agriculture is generally marginalised not every single field is abandoned. Farmers can also take other measures to withstand this marginalisation, for example by buying land from neighbours to make their activity more viable. In some cases, however, they abandon their agricultural activity causing “hidden abandonment”. This is difficult to spot since maintenance is still carried out occasionally by old farmers, by farmers remaining in the area or by shepherds who use the land of people who are away. This keeps the development of natural successions under control. This often causes a rupture in agriculture practices from an already extensive use to an even less intensive one. Some locals consider this stage as abandonment (Group B) while others do not (Group A) (see Chapter 6.2.1). If hidden abandonment goes on for too long and if occasional management and grazing are not happening, “total land abandonment” occurs. Spontaneous vegetation grows without control and structures deteriorate making it very costly to bring the land into production again. Some locals stated that they started to use again land that once was considered abandoned in the past. However, the stage of abandonment it was in is not clear (see Chapter 6.2). The red line from total abandonment to active agriculture shows how the loop of abandoned land would look like if the land was totally abandoned before being brought back into production. It is also possible that this land that returned into production was not totally abandoned, confirming previous studies.

According to the interviewees, land acquisition for nature restoration did not take place on land that was fully agriculturally active. Although some was partially used, the previous owners stated that they were planning to fully abandon it anyway in the future. Other land acquired for nature restoration instead was totally abandoned before the project started (see Chapter 6.3). Therefore, it can be said that nature restoration projects in the area softly push towards making the process of land abandonment faster.

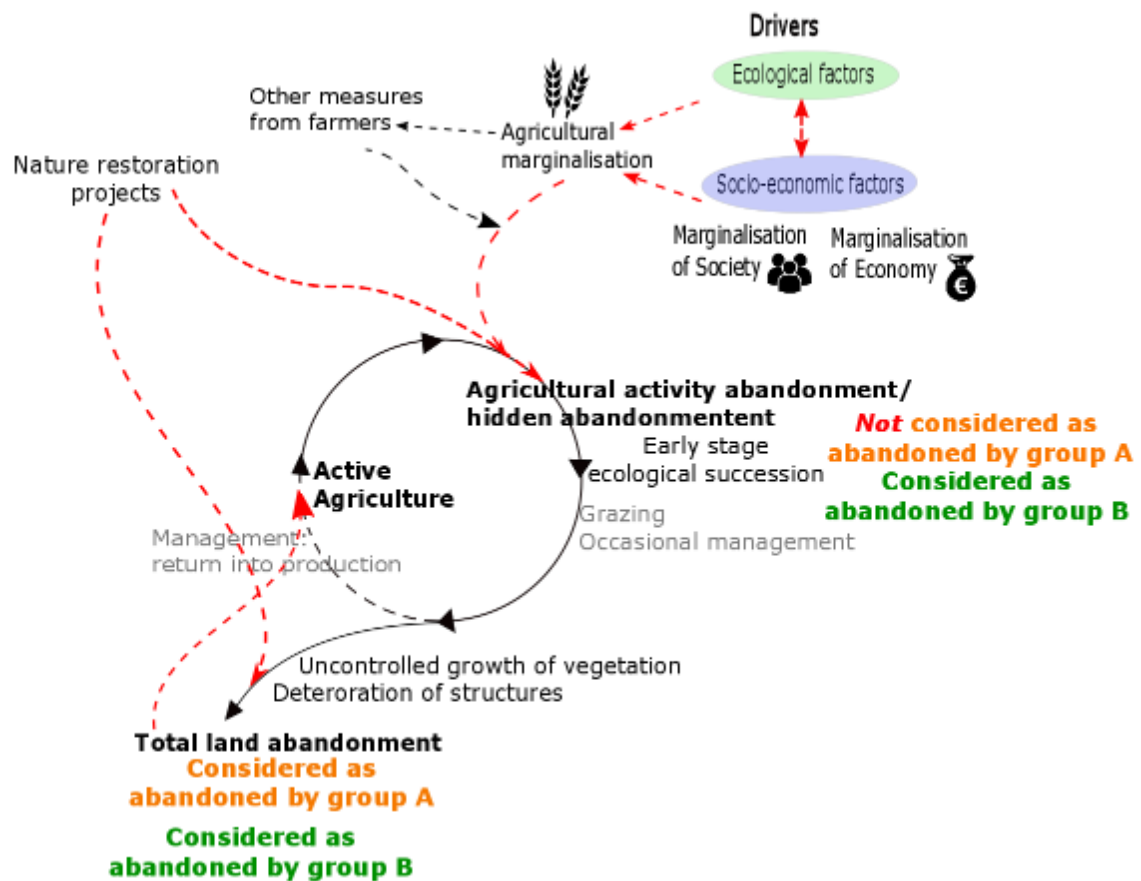


FIGURE 6.9 CONCEPTUAL MODEL UPDATED CONSIDERING THE FINDINGS OF THIS RESEARCH SHOWN WITH A RED ARROW (MODIFIED FROM MUNROE ET AL. (2013)). THE COMPLETE EXPLANATION OF THE GRAPH IS IN THE TEXT ABOVE.

6.6 Research limitations

In carrying out this research there were some unavoidable and some more avoidable limitations which need to be addressed in order to evaluate the validity of the findings. The main ones are listed below:

Sample size-- Although more than twenty people were interviewed, the sample size of this research remains small. The study population was scattered over a large territory, in two different states. This led to only a few people being interviewed per sub-area. The selected interviewees do not reflect the overall farmer/ landowner population. This happened because some interviewees were more easily accessible than others. Older farmers were more difficult to interview due to a language barrier and trust issues. Some people who left the villages and moved to the city or abroad were contacted but did not reply or they were not present in the villages in order to be interviewed. Moreover, from the interviews, it emerged that most of the inhabitants around Faia Brava sold land but only a few were interviewed. Also, no one that refused to stipulate a management deal and only one person who refused to sell were part of this research. A small study population is good for a first explorative study to pinpoint what needs to be studied more in depth and to get an approximate overview. However, in order to generalise the results to a broader population a bigger study population is needed.

In order to solve this problem on the spot, interviewees were asked about their relatives and acquaintances. However, they might not have been fully aware of what had really happened since they were not involved in first person or they only know a partial version of the story.

Interviewing farmers-- Obtaining clear and direct answers from farmers regarding their agricultural practices and choices was a challenging task. Farmers stated that they were already planning to fully abandon the land they sold to environmental NGOs. However, this decision might have been influenced by the possibility to sell that appeared. The question that is still open is: would have they really totally abandoned the land, as they said, in the absence of a nature restoration project?

Moreover, some farmers' attitudes and characters made it difficult to follow the list of interview questions. Some locals were even too talkative and difficult to keep on track, others were too reluctant to give full answers. This resulted in partial results of some interviews.

Language and location of interviews-- Since the interviewer did not speak Portuguese some useful interviewees could not be interviewed; for example, older farmers and some inhabitants of Algodres who sold land to ATN. Moreover, since the participants spoke a mixture of Spanish and Portuguese some words and concepts were not understood and therefore left out of the interview transcripts. The interviewees who spoke better Spanish or English proved to be friendlier and gave more complete answers. The answers of less educated and older people might result in being less complete due to this language barrier. Therefore, the interview transcripts and consequently the results may overlook some details which were not mentioned by respondents or not grasped by the interviewer. Furthermore, interviews were carried out in different contexts: from bars to houses, including cars. For this reason, some interviews ended up being group interviews. Answers given in a group may have been influenced by other respondents' answers or presence.

Respondent bias due to connection with ATN -- Some interviewees were introduced by ATN and some interviews in Algodres were translated by an intern of ATN. This may have led to some bias answers since the respondents might have been scared or unwilling to let ATN know about their real opinion.

Coding, connecting and summarising -- Being a qualitative research, the objective of this study was not to generalise the finding in an analytical manner having a statistically sound result. Trying to have a full picture of the entire results available was a challenging task although interview transcripts were coded beforehand. Although the researcher tried to show all the differences in opinions that came up

during the interviews, the results still show a simplified version of the total complexity. It was not possible to list every single point made during each interview without making the Result chapter too long. Each participant had his or her own story which is not described in every single detail in the results.

6.7 Recommendations for further research

Some recommendations for further research are here provided considering the findings and the limitations of this study. This way, if other researchers plan to carry out a similar study they will have some suggestions to take into account to improve the method, a list of pitfalls to avoid and some details on what needs further specific research.

Recommendations regarding the method

- Since the study population resulted in being small, more time before and on the field should be addressed to solve this problem. Spending more days in the area would allow to find contacts of people who left the area, to gain more trust from older farmers and to interview specific respondents once interesting results show up;
- Due to the language barrier problems encountered, the researcher should speak Portuguese and Spanish fluently. Otherwise, an interpreter should be found in advance.
- To avoid interview bias due to connections with ATN, it would be useful to arrive in the area independently. Since the villages are small, news on the connection a person has spread quickly.

Recommendations regarding the content

- Since one interviewee in Algodres mentioned that she was pushed to sell earlier than she wanted, more similar cases may be present. In a follow-up research, it would be interesting to focus on people around the Faia Brava area, especially in Algodres and Cidadelhe were most inhabitants sold land. This way, if more similar episodes occur they will be grasped by the new research.
- In this research, no landowner that refused to stipulate a management deal and only one person who refused to sell were interviewed. Consequently, to have a broader view on the role that nature restoration has on land abandonment, a new researcher should verify if more people that refused to make an agreement and to sell exist and, if they do, interview them.
- The results mentioned that some land which was defined as abandoned in the past was recently brought back to production. However, its original state of abandonment is not known: it might have been semi or totally abandoned. Further research should analyse at what stage of abandonment the land was in order to better draw the line between what has no chances to return to production and what is only temporarily abandoned.
- Another interesting topic to address is comparing the static and the dynamic approach on the ground to verify if the static approach, which looks at changes in UAA, takes into account hidden abandonment and other dynamics which emerged during interviews.

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7. Conclusion

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7 Conclusion

In this chapter concluding remarks are presented and the main research question is answered. Moreover, recommendations for policy makers are provided.

Land use changes connected to the variation in pace and intensity of human activities have affected landscapes for centuries (Prishchepov et al., 2012). Since agriculture represents a big share of total land use, changes in agricultural practices lead to major global changes (Vacquie et al., 2015, Brouwer, 2006). Among these changes in land use, agricultural land abandonment is one of the most mentioned and debated in literature. Different definitions describe the phenomenon: for some academics, it is considered as a gradual process (Keenleyside and Tucker, 2010) while other studies consider it as a static event.

This variety in definitions among previous studies may cause difficulties in drawing the boundary between what is abandoned and what is not. Regardless, environmental NGOs have determined remote locations where, according to policy documents and models, abandonment has struck and use these sites for acquiring land and stipulating deals with farmers for their nature restoration projects. As it was proved by the literature review, land abandonment is a complex process; therefore, agricultural activities can still be active in the areas designed for nature restoration. Environmental NGOs can contribute to the process of land abandonment by acquiring land that is still being used for agriculture. This created the need to address the phenomenon by analysing local perspectives instead of documents from policymakers and models which may overlook the complexities present on the ground. In this study, this was done by conducting twenty interviews and making observations in the field in the area of Western Iberia, where nature restoration and rewilding activities are taking place.

The objective of this research was to contribute to the literature debate on land abandonment collecting participants' experiences and accounts, especially regarding the definitions, the drivers and the attitudes of locals in relation to land abandonment. Among these drivers, a special attention was given to nature restoration which may lead to what it is here referred to as "pushed abandonment", a new form of abandonment in which particular interests may cause the forced abandonment of land.

What are locals' perspectives on land abandonment in terms of how it is defined, what causes it and how it is experienced?

The results prove that describing the phenomenon of land abandonment is a challenging task. In Western Iberia, the complex network of actors involved in the process of land abandonment makes it difficult to specify the role each group of actors has. No actor can be said to be more vulnerable to abandoning their land or their agricultural activity. For example, old and young farmers, landowners who live away or in the study area are sometimes abandoning the land and sometimes continuing farming instead.

Moreover, this study confirms that there is no unique definition of land abandonment since locals have different opinions on what they regard as abandoned land. Some respondents already consider as abandoned land which is in literature defined as semi-abandoned or as agricultural activity abandonment (Corbelle Rico and Crescente Maseda, 2008, Keenleyside and Tucker, 2010); while for other locals, land is really abandoned only when there is a total withdrawal of management (Brouwer et al., 1997, Corbelle Rico and Crescente Maseda, 2008, FAO, 2006).

Using the findings of this research, it is possible to state that there is no single cause of abandonment. Land abandonment was said to be caused by the co-occurrence of several factors. Moreover, ecological and socio-economic factors are interlinked and both lead to land abandonment in some areas while allowing for the continuation of agriculture in others. The marginalisation of society and economy contributes to the marginalisation of the agricultural sector but is not considered as the only driver that triggers abandonment, as described by Pinto-Correia et al. (2004). The interconnection between drivers and the fact not all drivers lead to the same effect makes it difficult to spot a precise geographical and social pattern under which land abandonment occurs, as acknowledged by Corbelle Rico and Crescente Maseda (2008). For example, some ecological and socio-economic factors such as steepness and distance from the village lead to agricultural land abandonment in the Faia Brava area and in Spain while do not seem to have the same effect in Freixo.

Among the different drivers that cause land abandonment, nature restoration does not act as the main one. The interests of environmental NGOs softly push towards a faster abandonment of land that is considered to be bound to happen anyway due to ecological and socio-economic drivers. Nature restoration projects make use of land situated at different stages in the process of land abandonment; however, generally, none of this land was characterised by fully active agriculture with plans to continue in the future. In other words, these projects jump into a gap that is already opening. Even in the cases of management deals with landowners when land was still fully used, these environmental initiatives were said not to interfere with agricultural practices.

Furthermore, locals experience land abandonment differently. Some have a pessimistic attitude: they are discouraged and believe that the phenomenon is bound to continue happening in the future. For them, marginalisation will continue to regard not only agriculture but also society and economy and they see no hope of change in the future. Others are more optimistic: thanks to opportunities such as nature restoration and subsidies they believe the area will not be abandoned and will reacquire vitality.

After analysing the results and answering the sub research questions, it is possible to confirm that land abandonment is not an easy subject to tackle. The complexity of the phenomenon that appeared from this research proved to be even greater than the one described in literature. Results suggest that opinions differ at three different levels: between different groups of stakeholders, within each group and even within the same person.

To better depict this complexity a metaphor will be used. Studying land abandonment can be defined as trying to hit a moving target. Different actors have a different idea on what abandoned land actually is. This makes the object of the study not well-defined and, consequently, makes studying it more challenging. Even when looking at the drivers no straightforward connection is present between socio-economic and ecological factors and their consequence, land abandonment. All these undefined and shifting characteristics make it difficult to freeze this concept by framing in text. Consequently, it is not easy to assume that an area is widely affected by land abandonment, as instead it is claimed by environmental organisations that make use of policy documents and models.

7.1 Recommendations for policymakers

Since the results of this research cannot be extended to a broader population they should be used with caution when providing specific recommendations for policymakers.

The process of land abandonment proved to be even more complex than the one described in literature. When starting a new project such as rewilding initiative, it should be considered that, even in an objectively marginalised area, agricultural activities may still be present at smaller scales. Defining a large-scale area as abandoned or marginalised should be done with some wariness since, looking at a smaller scale, more intricate dynamics take place. Agricultural land can be at different stages of the abandonment process. The stage in which agricultural land is in should be studied to establish the prospects of the area. Owners that still use their land in the present may already foresee the likelihood of abandonment in the future, for example, due to the absence of interested heirs. Thus, some locals may have given up on the idea of future agricultural continuation and be open towards new opportunities. On the contrary, other landowners may strongly want to actively continue with agriculture. Consequently, locals' opinions should be considered at every stage of the process of a land use change such as rewilding, even if this means confronting with old farmers or apparently uninterested people. Moreover, policy documents should not only be based on quantitative studies and models but should also take into account locals' opinions and experiences which are overlooked by other studies.

Finally, due to the observed complexity regarding its drivers, measures which try to tackle land abandonment should not address one single driver but more of them at the same time. For example, addressing rural depopulation and socio-economic marginalisation would be of help but not alone. Improving accessibility and paying subsidies at the same time would make the previous measure stronger.

8 References

- ATN. 2018. *Associação Transumância e Natureza (ATN)* [Online]. Available: <http://atnatureza.blogspot.com> [Accessed March 2018].
- ATN n.a. Plano de gestão área protegida privada Faia Brava 2009-2019.
- BAKKER, M. M. & VAN DOORN, A. M. 2009. Farmer-specific relationships between land use change and landscape factors: Introducing agents in empirical land use modelling. *Land Use Policy*, 26, 809–817.
- BAUDRY, J. 1991. Ecological consequences of grazing extensification and farmland abandonment: Role of interactions between environment, society and techniques. In: BAUDRY, J. & BUNCE, R. G. H. (eds.) *Options méditerranéennes* Zaragoza: CIHEAM.
- BETHE, F. & BOLSIUS, E. 1995. *Marginalisation of Agricultural Land in Europe: Essay and Country Studies*.
- BORRAS, S. M. & FRANCO, J. C. 2012. Global Land Grabbing and Trajectories of Agrarian Change: A Preliminary Analysis. *Journal of Agrarian Change*, 12, 34-59.
- BROUWER, F. 2006. Main trends in agriculture *Policy Brief 1 (D14)* LEI Agricultural Economics Research Institute.
- BROUWER, F., BALDOCK, D., GODESCHALK, F. & BEAUFOY, G. 1997. Marginalisation of agricultural land in Europe. *Nafplio*. Greece.
- CARROCCIO, A., CRESCIMANNO, M., GALATI, A. & TULONE, A. 2016. The land grabbing in the international scenario: the role of the EU in land grabbing. *Agricultural and Food Economics*, 4.
- CORBELLE RICO, E. & CRESCENTE MASEDA, R. 2008. Land abandonment: Concept and consequences. *Revista Galega de Economía*, 17.
- CRESWELL, J. W. 2009. *Research design: Qualitative, quantitative, and mixed methods approaches*, SAGE Publications.
- EUROPEAN UNION 2014. Addressing The Human Rights Impacts Of ‘Land Grabbing’. Brussels: Directorate-General for External Policies of the Union.
- EUROSTAT. 2017. *Eurostat Statistics Explained* [Online]. Available: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Utilised_agricultural_area_\(UAA\)](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Utilised_agricultural_area_(UAA)) [Accessed November 2017].
- FAIRHEAD, J., LEACH, M. & SCOONES, I. 2012. Green Grabbing: a new appropriation of nature? *Journal of Peasant Studies*, 39, 237-261.
- FAO 2006. The Role of Agriculture and Rural Development in Revitalizing Abandoned/Depopulated Areas. Rome: Food and Agriculture Organization of the United Nations.
- FAO. 2015. *FAOSTAT- Food and agriculture data* [Online]. Available: <http://www.fao.org/faostat/en/#data/EL> [Accessed April 2018].
- HATNA, E. & BAKKER, M. M. 2011. Abandonment and Expansion of Arable Land in Europe. *Ecosystems*, 14, 720-731.

- INE. 2017. *Recenseamentos Gerais da População* [Online]. Instituto Nacional de Estatística. [Accessed September 2017].
- INTERNATIONAL LAND COALITION. 2011. *Tirana Declaration: Securing land access for the poor in times of intensified natural resources competition* [Online]. Available: <http://www.landcoalition.org/about-us/aom2011/tirana-declaration> [Accessed September 2017].
- KEENLEYSIDE, C. & TUCKER, G. M. 2010. Farmland Abandonment in the EU: an Assessment of Trends and Prospects. Report prepared for WWF. London: Institute for European Environmental Policy
- KUMAR, R. 2014. *Research Methodology*, Sage.
- LEAL FILHO, W., MANDEL, M., AL-AMIN, A. Q., FEHER, A. & CHIAPPETTA JABBOUR, C. J. 2016. An assessment of the causes and consequences of agricultural land abandonment in Europe. *International Journal of Sustainable Development & World Ecology*, 24, 554-560.
- LIFE 2014. Egyptian Vulture and Bonelli's Eagle Conservation in Douro/Douro Canyon. *LIFE Nature and Biodiversity- Technical application forms*.
- MACDONALD, D., CRABTREE, J. R., WIESINGER, G., DAX, T., STAMOU, N., FLEURY, P., GUTIERREZ LAZPITA, J. & GIBON, A. 2000. Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response. *Journal of Environmental Management*, 59, 47-69.
- MILES AWAY. 2017. *Douro & Coa* [Online]. Available: <http://milesaway.pt/douro-coa-valley/?lang=en> [Accessed September 2017].
- MINISTÉRIO DA AGRICULTURA 2003. Portugal Rural: territorios e dinâmicas. Gabinete de Planeamento e Política Agro-Alimentar.
- MUNROE, D. K., VAN BERKEL, D. B., VERBURG, P. H. & OLSON, J. L. 2013. Alternative trajectories of land abandonment: causes, consequences and research challenges. *Current Opinion in Environmental Sustainability*, 5, 471-476.
- NAVARRO, L. & PEREIRA, H. 2012. Rewilding abandoned landscapes in Europe. *Ecosystems*, 15, 900-912.
- NIEPOORT. 2017. *Douro Region* [Online]. Available: <https://www.niepoort-vinhos.com/en/douro/> [Accessed October 2017].
- OGADA, D. L., KEESING, F. & VIRANI, M. 2012. Dropping dead: causes and consequences of vulture population declines worldwide. *Annals of the New York Academy of Sciences* 1249, 57-71.
- PELLIS, A. & DE JONG, R. 2016. Rewilding Europe as a new agent of change? Exploring the governance of an experimental discourse and practice in European nature conservation. *Final Report*. Wageningen University.
- PINTO-CORREIA, T., BREMAN, B., LOUPE RAMOS, I. & VAN DOORN, A. 2004. Dealing with land abandonment: The challenge of policy intervention in marginal rural areas. Examples from a municipality in south-eastern Portugal. *Colloque International. De la connaissance des paysages à l'action paysagère*. Bordeaux.

- PINTO CORREIA, T. 1993. Land abandonment: Changes in the land use patterns around the Mediterranean basin. *Cahiers Options Méditerranéennes*, 2, 97-112.
- POINTEREAU, P., COULON, F., GIRARD, P., LAMBOTTE, M., STUCZYNSKI, T., SÁNCHEZ ORTEGA, V. & DEL RIO, A. 2008. Analysis of Farmland Abandonment and the Extent and Location of Agricultural Areas that are Actually Abandoned or are in Risk to be Abandoned. *In: ANGUIANO, E., BAMPS, C. & TERRES, J. M. (eds.) JRC Scientific and Technical Reports*.
- PRISHCHEPOV, A. V., RADELOFF, V. C., BAUMANN, M., KUEMMERLE, T. & MÜLLER, D. 2012. Effects of institutional changes on land use: agricultural land abandonment during the transition from state-command to market-driven economies in post-Soviet Eastern Europe. *Environmental Research Letters*, 7, 024021.
- REWILDING EUROPE 2016. 2015 Annual Review. Nijmegen.
- REWILDING EUROPE. 2017. *Rewilding Europe* [Online]. Available: <https://rewildingeurope.com/> [Accessed November 2017].
- REY BENAYAS, J., NICOLAU, J. & SCHULZ, J. 2007. Abandonment of agricultural land: an overview of drivers and consequences. *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources*, 2.
- RUSSO, D. 2003. *Land abandonment and animal communities: winners and losers*. Università degli studi di Napoli Federico II.
- TERRES, J., NISINI, L. & ANGUIANO, E. 2013. Assessing the risk of farmland abandonment in the EU. *JRC Scientific and Policy Reports*. Luxembourg: European Commission JRC- Institute for Environment and Sustainability.
- TOMÉ, R. & CATRY, P. 2008. *Atlas da fauna do Vale do Côa*, Pinhel.
- VACQUIE, L. A., HOUET, T., SOHL, T. L., REKER, R. & SAYLER, K. L. 2015. Modelling regional land change scenarios to assess land abandonment and reforestation dynamics in the Pyrenees (France). *Journal of Mountain Science*, 12, 905-920.
- VAN DER PLOEG, J. D., FRANCO, J. C. & BORRAS, S. M. 2015. Land concentration and land grabbing in Europe: a preliminary analysis. *Canadian Journal of Development Studies / Revue canadienne d'études du développement*, 36, 147-162.
- VAN DER SLUIS, T., PEDROLI, B., KRISTENSEN, S. B. P., LAVINIA COSOR, G. & PAVLIS, E. 2016. Changing land use intensity in Europe – Recent processes in selected case studies. *Land Use Policy*, 57, 777-785.

Annex I

The following table shows the list of codes used to refer to each interview and the location they were conducted. Usually this refers also to where the mentioned land is located.

TABLE 9 INTERVIEW CODES AND LOCATIONS

Interview code	Location
P1	Algodres, local inhabitant, Portugal
P2	Algodres, local inhabitant, Portugal
P3	Algodres, local inhabitant, Portugal
P4	Almofala, Portugal
P5	Algodres, Portugal
P6	Freixo, Portugal
P7	Barca d'Alva/Freixo, Portugal
P8	Hinojosa del Duero, Spain (3 farmers)
P9	Cidadelhe, Portugal
P10	Figueira de Castelo Rodrigo, Portugal
P11	Freineda, Portugal
P12	Cidadelhe, Portugal
P13	Figueira de Castelo Rodrigo, Portugal
P14	Vale de Alfonsinho, Portugal
P15	Castelo Rodrigo, Portugal
P16	Freixo, Portugal
P17	Figueira de Castelo Rodrigo, Portugal
P18	Almeida, Portugal
P19	Fuentes De Onoro, Spain
P20	La Fregeneda, Spain (2 farmers)
P21	Figueira de Castelo Rodrigo, Portugal

Interview questions

Explication of I am/what I am doing

- Student of land-use planning in Wageningen University, working on my thesis
- Interview local people, especially land owners and farmers on how they use land, agricultural practices and changes from past to present
- No connections with Associao Transumancia e Natureza or with the municipality/government. Independent student.
- If you'd like you can stay anonymous. Will not use your name anyhow.
- Recording: Spanish not my first language.

Explication of who they are

- Name, age
- Where do you live? City or countryside?
- Family
- Occupation/job? If farmer, do you also have another job?
- Do you have/had a parcel of land here?
- Dimension? Where was it?
- How long have you been the owner? Bought/inherited?
- Land use? Type of agriculture?
- Products→ own use or sold?

Land abandonment (if mentioned/if not mention):

- How would you describe abandoned land?
- What does land abandonment look like?
- Why did you stop using the land?
- What are the causes of abandonment?
- What are you going to do in the future regarding agriculture?
- How do you see the future for agriculture in the area? And in general?

Nature conservation:

- Opinion on nature conservation
- ATN. Opinion on organization.
- How were you approached?
 - How were you informed don the benefits and drawbacks of the project for you?
 - In which stage of the decision process were you consulted/approached?
 - Before starting new projects was your opinion asked? How? When?
 - Was your opinion considered?
- What type of deal was proposed by ATN (purchase, renting)?
- What is the opinion of the inhabitants of the area on these projects?
- What are the impacts/effects of nature conservation on your life? And on your land/agricultural activities?
- What are the positive sides of having a nature reserve close-by? What are the drawbacks?
- What is your opinion on the acquisition of new land by ATN?

- What is your opinion regarding your participation in the project?
 - (Yes) I want to be part of it
 - Internal motivations: Age
 - Migration to the city
 - Geographical situation
 - No income from agricultural land
 - Agricultural land was not used
 - External motivations: Pressure from ATN
 - Pressure from my family/neighbours
 - Social/peer pressure from other farmers
 - I agree with ATN's ideas and values
 - (Perhaps) Depends on conditions
 - Internal motivations: Speculation (depends on the price)
 - Participation
 - Control on land (depends on who is the owner)
 - Change in land use (depends on future land use)
 - Subsidies, possibility to live on land
 - External motivations: Change in landscape
 - Buyer (only want to sell to other famers)
 - Type of deal (purchase, renting)
 - Pressure from ATN
 - Pressure from my family/neighbours
 - Social/peer pressure from other farmers
 - (No) I do not want to be part of it
 - Internal motivations: Age
 - I live in the area
 - Agricultural land is a source of income
 - Agricultural land is used for producing goods
 - Culture/attachment
 - External motivations: Bad relationship/problems with ATN
 - Pressure from ATN
 - Pressure from my family/neighbours
 - Social/peer pressure from other farmers
 - I do not agree with ATN's values/ideas
- How were you using the land when you were asked to take part in the project?
- Would you say the land you sold was abandoned?

Ending questions:

- Contacts of farmers available for interviewing
- With whom can I speak that sold his land in the area?
- Do you know anyone that disagrees with these projects? Name/where to find him

