



Food and Agriculture
Organization of the
United Nations

ADRAT

ASSOCIAÇÃO DE DESENVOLVIMENTO
DA REGIÃO DO ALTO TÂMEGA



Barroso Agro-Sylvo-Pastoral System

- Potential GIAHS/FAO site -

March/2018

I. SUMMARY INFORMATION

Name/Title of the Agricultural Heritage System:
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Barroso Agro-Sylvo-Pastoral System

<p>Barroso main activity and source of agricultural income is livestock farming (cattle, goats and sheep). Livestock production is carried out in extensive systems of rough and semi-free grazing (cattle). This type of grazing uses both permanent pastures (lameiros) and poor pastures (shrubs), which cover very significant extensions of the Barroso territory. These pastures may also be found under tree cover (oak or pine forests).</p>
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<p>In addition to permanent pastures, the region has a number of agricultural productions, where annual and forage crops prevail (rye, potatoes, etc.), providing a very important part of human food and animal feed (namely rye, potatoes, gourds, turnips and cabbages).</p>

<p>In arable land, an annual crop rotation system is used, including a fallow period during which the land is used for livestock grazing.</p>

<p>Forest areas not only allow direct animal grazing, but are also a source of plant material (by brush-cutting) to be used as animal bedding and later, after decaying in stalls (already in the form of manure), to be applied to arable land in order to fertilise agricultural crops. These forests are also a source of fuel (firewood) still widely used for home heating by the local population.</p>
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<p>The persistence of community-based systems for practicing agro-sylvo-pastoral activities should also be noted in a significant area of the Barroso territory.</p>
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<p>This interconnection of agriculture, forestry and livestock pastoral production in a harmonious overall complementary system justifies the designation Barroso Agro-Sylvo-Pastoral System</p>
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Requesting Agency/Organization:
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Development Association of the Alto Tâmega Region (ADRAT)

Responsible Ministry (for the Government):

Ministry of Agriculture, Forestry and Rural Development

Location of the Site:

*please annex land use maps and geographical coordinates of the site

The Barroso region is located in Northern Portugal (Fig. 1), bounded to the east by the River Tâmega, to the west by the mountainous regions of the Upper Minho, to the south by Terras de Basto, and to the north by Galicia (Spain). In administrative terms, it covers 2 municipalities: Boticas and Montalegre. It is divided into the Upper Barroso, covering a large part of the municipality of Montalegre, where the Gerês, Larouco and Barroso mountains are located, and the Lower Barroso, covering the municipality of Boticas and part of the municipality of Montalegre, marked by the Tâmega, Terva, Beça and Covas river valleys (Chaves, s/d).

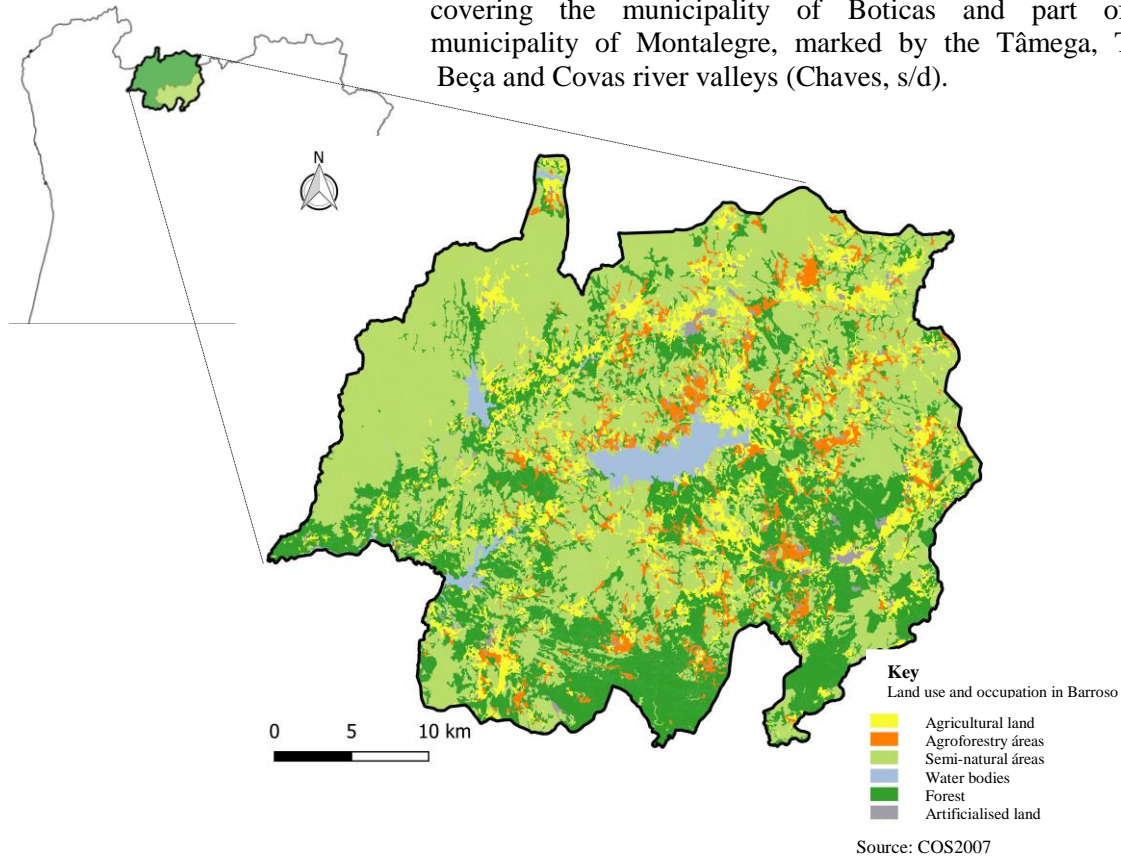


Figure 1 – Geographic environment of the Barroso region and main land uses and cover.

The Land Use and Cover Charter for 2007 (COS2007) shows that the Barroso region is mainly covered by forest and semi-natural areas (scrubland, natural grassland, and open areas or areas with sparse vegetation) representing about 30% and 48% of the region, respectively (Fig. 1). The agroforestry areas (mostly a mosaic of annual crops with trees) and the farming areas (particularly for annual crops) account for 18% of the territory. The remaining area is taken up by artificialised spaces and bodies of water. With regard to municipalities, the semi-natural areas are more represented in Montalegre, taking up 53% of the municipality's total area, followed by forests which take up 23% of the territory. In the Municipality of Boticas, almost half of its area (46%) is taken up by woodland, followed by semi-natural areas, which account for about 33% of the total area.

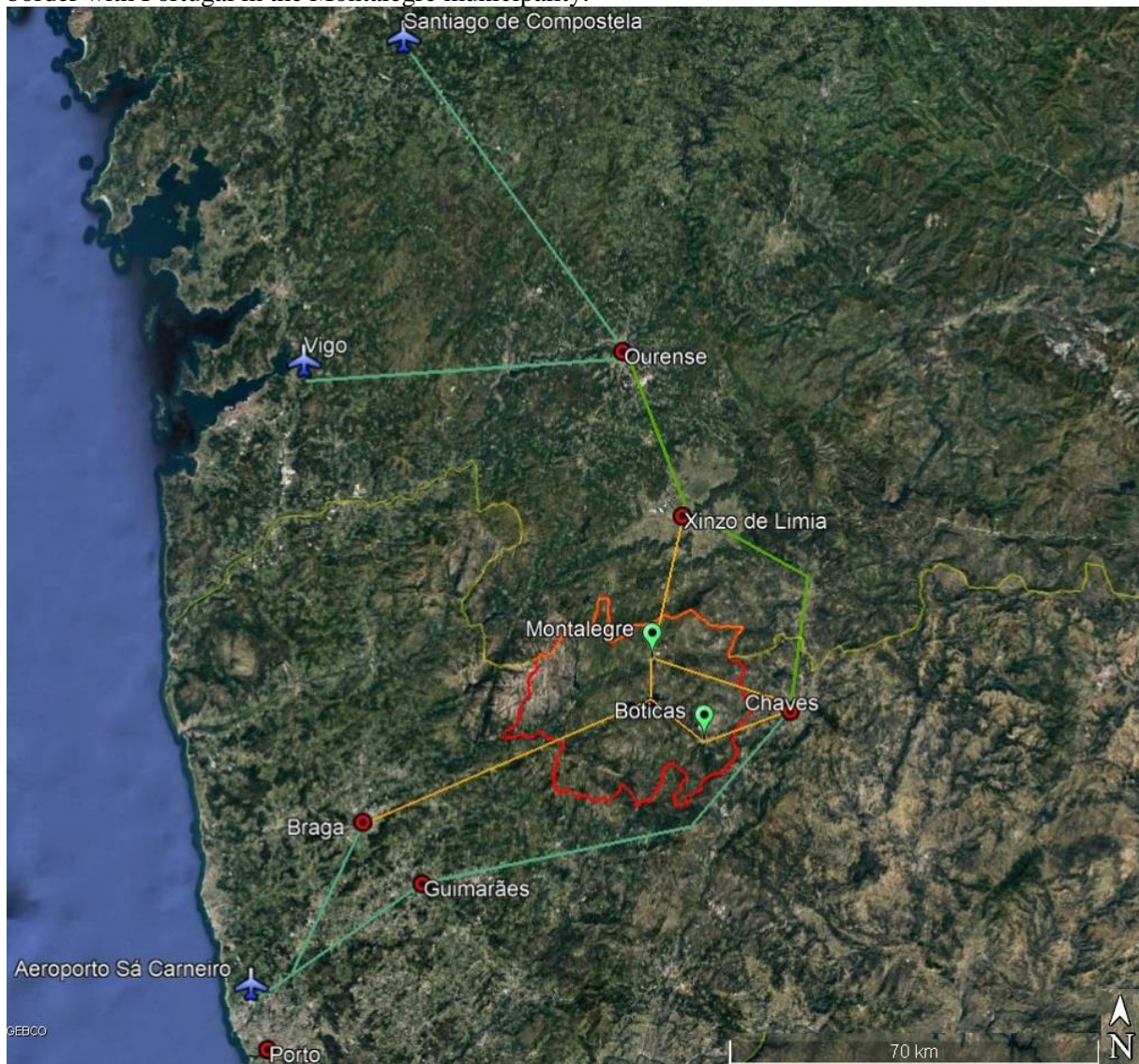
Coordinates: 41.715848; -7.826219

Accessibility of the Site to Capital City or Major Cities:

Access to Barroso can be done from the major cities of Northern Portugal by Motorways A41 (from Sá Carneiro Airport in Oporto), A3 - A7 and A24 connecting to Chaves. From Chaves, one can opt for the main National Road EN103, which connects and crosses both the Boticas and the Montalegre municipalities. Also from Chaves, one can follow the Municipal Roads (EM507 and EM508) connecting Chaves to Montalegre. Any of these routes takes about 02:00h, for an approximate distance of 190km.

Another option from Sá Carneiro Airport (A41) is to follow the A41-A3 to the city of Braga and from there go towards Chaves by the National Road EN103. The route to Montalegre is about 150 km, covered in about 02:15h.

From Spain, access is via A52 and A75 Motorways, next following the A24 to Chaves and then the EM507 to Montalegre. There is also another option: from Xinzo de Límia (province of Ourense, Galicia) choosing the direction of Portugal (Montalegre) by roads OU-504 and OU-1109 until the border with Portugal in the Montalegre municipality.



Area of Coverage: 1.127,40 km² **Legend:** **Barroso area proposed for GIAHS site**

Agro-Ecological Zones¹ (for Agriculture, Forestry and Fisheries):

From a biogeographic perspective, the largest share of the territory of Barroso is part of the Eurosiberian Region, Cantabrian-Atlantic Province. Based on the transition of the Geres Sierran-Queixa Sierran Subsector to a Sector proposed by Rivas-Martinez *et al.* (2002), it can be observed that most of the territory falls within the Geres Sierran-Queixa Sierran Sector and a number of areas in the southern half of the region are included in the Galician-Portuguese Sector (Miniese Subsector). Only a small part in the eastern area of Barroso is biogeographically integrated in the Mediterranean Region, in the Orensanian-Sanabrese Sector (Maragatan-Sanabrese Subsector) (Costa *et al.* 1998, Honrado 2003, ICNB 2008) (Fig. 2).

¹ The agro-ecological zones are defined by FAO as homogenous and contiguous areas with similar soil, land and climate characteristics.

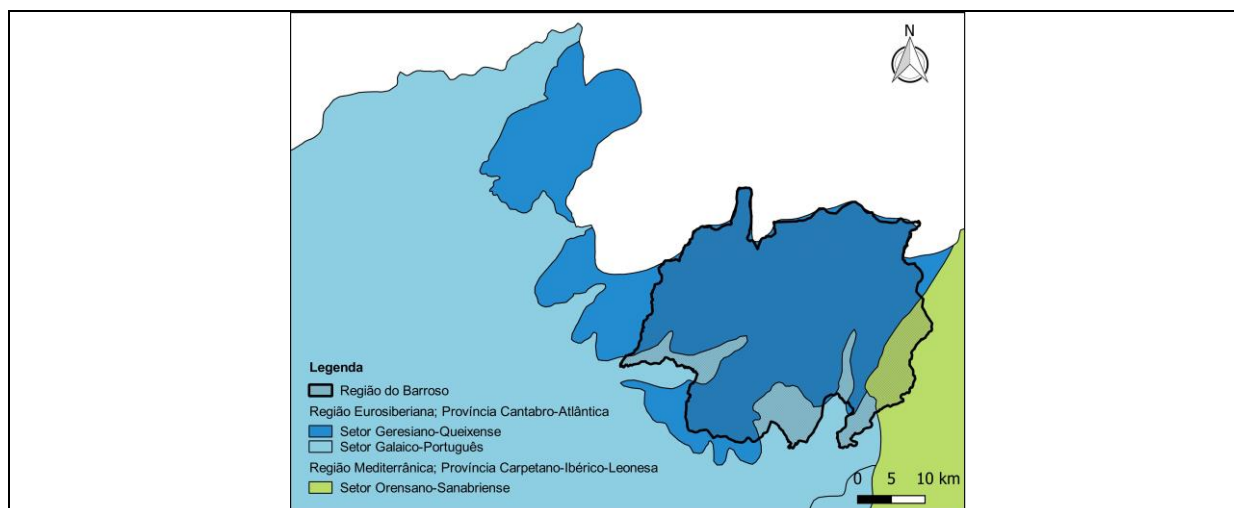


Figure 2 – Biogeographic environment of the Barroso according to Costa et al. (1998), Honrado (2003) and ICNB (2008).

The Barroso territory is mainly a plateau, with a harsh, severe climate: very wide variations in temperature and variable rainfall according to altitude (from valleys below 400m to high mountains above 1,500m of altitude). Snow is frequent, lasting for several days, especially when followed by frosty days.

The poor, thin soils have restricted farming development, and the extensive grazing land (making use of broad areas of brushwood) is more important than agriculture. The dominant cereal is rye, usually grown in two-yearly crop rotation, alternating with fallowing and potato. Closer to water courses, there is a focus on permanent grazing (marshes), which are essential for cattle and sheep farming.

The Barroso forests take up about one third of the region, and are mainly represented by stands of natural woodland of Pyrenean oak (*Quercus pyrenaica*) and maritime pine (*Pinus pinaster*), which occur either on their own or associated with other species. These are spaces with high ecological, economic and cultural value because they provide a large number of valuable ecosystem services which are important at regional, national and international level. These forests play a key role in soil formation and conservation, the regulation of the nutrient cycle and the water cycle, the production of various goods and services (e.g. firewood, timber and wild mushrooms), the creation of aesthetic and landscape value (mostly associated with forest and agrosystem mosaics) and the preservation of biodiversity.

Topographic Features:

The Barroso region is a land of plateaux and mountains, whose overall appearance is that of a dense mass of highlands, consisting of an agglomeration of mountains separated by wide depressions and plateaux and crossed by many permanent water courses, albeit small.

Worthy of note are the Gerês (at 1,546m), the Larouco (at 1,525m) and the Barroso (at 1,279m) mountains. The most important valleys are those of the Tâmega, Cávado, Beça, Terva and Rabagão rivers. On the steepest slopes, land for farming, especially grazing, is established on small terraces supported by granite walls.

Climate Type: Temperate climate, dominated by the Plateau Cold Land type, but also with Mountain, High Mountain and Transition Cold Land types.

Approximate Population (Beneficiary): Resident population (2013): 15,589 inhabitants

Ethnicity/Indigenous population: Not applicable.

Main Source of Livelihoods: Agriculture, livestock breeding and processing of foodstuffs, forestry and grazing and tourist activities.

Executive Summary:

Barroso is a natural landscape composition of Northern Portugal, integrating part of the Peneda Gerês National Park, where the existing agrarian system is strongly influenced by the soil and climate conditions, with a predominance of smallholdings and cattle, sheep and goat pastoral farming in the region's agricultural economy, as well as pig farming, which contributes significantly to household economies and plays an important social role.

This is a system which has remained, virtually to the present day, a rural subsistence economy, typical of mountainous regions, with poor utilisation of inputs, very few surpluses and where the level of consumption of the population is relatively low compared to other regions in the country.

Farms are usually small on average and agro-climatic conditions have fostered collective farming habits whereby everyone benefits from the community effort, and relationships between residents are based on mutual help and solidarity. Isolation and the difficulties faced by large agricultural production have promoted archaic lifestyles, based on a strong sense of the collective in each village, where self-sufficiency and solidarity between residents are very specific cultural features.

Forest areas are dominated by *Quercus pyrenaica* oak woods and *Pinus pinaster* pine woods, and also thickets of various species. In lower areas there are *Quercus robur* oak woods and in the highest mountains (> 800m) there are also *Pinus nigra* and *Pinus sylvestris* pine woods, the latter more adapted to the more frequent adverse wind and snow conditions. Along the water courses, there are riparian woods of alder (*Alnus glutinosa*), ash (*Fraxinus angustifolia*), birch (*Betula celtiberica*) and willow (*Salix atrocinera*).

Crops are mostly rainfed, the most important being rye and potato which are cultivated in rotation with set-aside. Closer to villages and their houses, a belt of irrigated crops is kept (mainly for family vegetable gardens), followed by permanent pastures for the production of hay and cattle grazing. Further removed from populations, are rainfed cereal fields and scrub wasteland (usually common land) where various types of animals (cows, sheep and goats) graze.

The geographic location, the orography, the soils, the climate and Man have led to the development of important plant and animal communities, including endangered species/populations, according to the IUCN system. These are humanised landscapes with a strong cultural identity of their human communities which have been built on a close, intelligent relationship with the natural environment: the system of exploiting resources is sustainable, resulting in high levels of biodiversity and environmental quality (ICNB, 2008). It is no wonder, therefore, that parts of this territory are covered by Portugal's only national park, Peneda Gerês National Park (PNPG), the Gerês-Xurês Crossborder Biosphere Reserve, and the Natura 2000 Network, SPZ Gerês mountain (PTZPE0002) and the Peneda-Gerês site (PTCON0001). Both for the extent of the cover of these species and for their quality, they attest to the huge importance of the region both nationally and internationally as regards the conservation of nature and biodiversity.

From a cultural perspective, the people of Barroso have developed and maintained forms of social organisation, practices and rituals which make them stand out from most populations in the country in terms of habits, language, and values, as a result of both the conditions and geographic isolation, and the limited natural resources which have led them to develop exploitation and usage methods consistent with their sustainability.

One of their differentiating features is the still strong prevalence of a local food system, based on local produce and dishes, made from locally produced smoked meats, bread, potato, cabbage and pulses.

The role played by the different types of landscape, mountains, plateaux and valleys, and the historic role of farming in forming the landscape, have led to the emergence of villages with a local identity which are a driving force behind local subjectivities.

II. DESCRIPTION OF THE AGRICULTURAL HERITAGE SYSTEM

1. Significance of the Proposed GIAHS Site

Explain the global importance of the Proposed GIAHS Site. Given that this is a composite criterion, the overall value of the agricultural² system, as a heritage of humankind, should be described including historical background and contemporary relevance³ of the site. Summarize the features and characteristics of the system in terms of their agricultural and other cultural heritage values, their relevance to global concerns addressing sustainable development, biocultural diversity⁴, including agro-biodiversity and ecosystems management. Explain the totality of the functionalities, goods and services provided by the system. The characteristics of the site should reflect the complex relationships and linkages between the system's elements as an integrative holistic system.

Starting with the Global Significance of Agro-Silvo Pastoral System in Barroso one can say that there are five key aspects contributing for its global importance:

1. Extensive agriculture developed in harmony with the environment

Surrounded by the regions where modern European agriculture are employed, this area has been conserving for many years a pattern of land occupation of extensive animal grazing supported by crop production, maintaining significant and relatively intact environmental areas in the area. This is evidenced by the fact that this area is covered by Portugal's most important national park, Peneda Gerês National Park (PNPG), the Gerês Xurês Crossborder Biosphere Reserve, although agricultural activity, mainly cattle rearing are widely conducted in this whole proposed area. This is the landscape formed with a strong cultural identity of Barroso communities and built on a close, intelligent, relationship with the natural environment and the sustainable resource uses.

2. Remarkable agroecological interactions among grazing, crop production, forestry

The system has rich traditional knowledge that mainly rely on agroecological functions connecting livestock to crops production and forest taking advantage of the ecosystem services as follows: i) the whole system connects livestock to crop production and forest with transfer of manure as fertilizer and soil quality enricher; ii) Crop production and forest provide grazing pastures and food for animals; iii) The agricultural system consists in rotating a cereal with other crops and livestock pasture;

² The term "agriculture" and its derivatives include fisheries, marine products, forestry and primary forestry products (From Paragraph 1, Article I of the FAO Constitution).

³ The systems'/sites' contemporary relevance is established by its present and future capacity to provide food and livelihood security, to contribute to human well-being and quality of life, and to generate other local, national and global economic and environmental goods and services to its community and wider society. This relates to the relevance of an agricultural system/site to global or national policy and sustainable development challenges, most prominently achieving food security, human well-being and environmental goals, such as climate adaptation, carbon sequestration, water, land and biodiversity conservation. It should highlight particular lessons learnt or principles that can be derived from the system/site, which might be applied elsewhere.

⁴ Biocultural diversity results from the combination of historical and on-going environmental and land use processes and cultural heritage. The GIAHS sites are multifunctional landscapes and/or seascapes providing a crucial and effective space for integration of biological and cultural diversity for human wellbeing.

3. Family farmers' knowledge to operate the production

Farmers' knowledge is skillful to maintain the appropriate balance among rearing animals (animal grazing methods), crop production (soil management) and use of forestry and shrubs. For example, richest soils around the villages are dedicated to vegetables production then, agroforestry areas including mosaic of marshes, riparian forest, woodland border and rain-fed cereal fields come. Finally, semi-natural areas and some forest, functioning as poor pastures, where the rough grazing of the various types of cattle in the region takes place.

4. Unique social systems

Due to greater isolation for many years, the communities in this area have organized themselves so as to manage their problems and resources independently, promoting community management methods, even though private ownership and rights never ceased to exist. That is why the social organizations and mutual support are one of the main characteristic of the system despite the challenges brought with agriculture modernization. Sowing, treatment and harvesting operations are usually carried out jointly by the entire household and neighbours. In addition, common lands are shared lands for livestock grazing. It plays an important role in the region's land structure since it accounts for 64% of the region's total UAA.

5. Valuable endemic animal genetic resources

Barroso's agrobiodiversity is also of global importance since this system is at the origin of the domestication and the selection of endemic and local breeds and varieties among which: the native breed Barrosã and Maronesa regarding cattle, the Cabrito do Barroso and Cordeiro do Barroso for goats. These entire traditional products are recognized for their organoleptic qualities and got the certification of Protected Geographical Indication. Barroso food products are famous for the smoked meat produced: meat quality and traditional/agro-ecologic smoking process are of high cultural value for Barroso but also for Portuguese heritage and national identity.

Generally speaking one can argue that Barroso is a complex and singular eco-system where livestock production, forestry and traditional mountainous crops have been developed. With human occupation for thousands of years, this area of Northern Portugal is clearly marked by the historical influence of different people, namely, Celts and Romans. The use of sustainable agriculture (and processing) technologies is linked in to a certain extent with that occupation.

Barroso presents today a pattern of land occupation marked by human activity for agriculture, forestry and grazing, while an expressive and relatively intact environmental areas are still found (mainly associated with oak woods, riparian corridors and the higher rocky regions), amongst which the Peneda-Gerês National Park stands out, also making a relevant contribution to other activities undertaken in the territory (beekeeping, mycology, nature tourism). It should be noted that about 20% of the area of the National Park is located in the municipality of Montalegre.

In this region there are numerous plant and animal species which are extremely important for nature conservation, particularly those considered Priority Species under the European Commission's Birds and Habitats Directives.

The primary sector continues to be the basis of the Barroso economy and society, with about 20% of the active population engaged in it (Census 2011): 18% in the municipality of Boticas

and 22% in the municipality of Montalegre. If we add some of the characteristics of the agricultural holdings (size and number of plots) to this data, it is easy to understand that the economic structure is essentially composed of family-run microbusinesses. Pursuant to the 2009 General Agricultural Census, the Utilised Agricultural Area (UAA), in the municipalities of Boticas and Montalegre together, was 68,913 hectares (689.13km²), which corresponded to 61% of the whole area. The average value of the UAA/holding was 11.7ha in Boticas and 22.8ha in Montalegre. Young farmers account for 8.2% of individual farmers and 4.7% of the UAA. Inversely, however, they account for 14% of the Standard Output and 20% of Livestock Units. It should also be noted that Young Farmers almost double labour productivity when compared to all other farmers. Common land plays an important role in the region's land structure since, while only representing 2.3% of holdings, it accounts for 64% of the region's total UAA.

These communities, which for centuries have lived in greater isolation and been further removed from the country's main urban and decision-making centres, have organised themselves so as to manage their problems and resources independently, promoting community management methods, even though private ownership and rights never ceased to exist. The village has always been an indissoluble unit with a heightened sense of unity and mutual help. These factors have strengthened social and cultural aspects of great resilience, and the populations, despite the social and economic changes Portugal and the world have undergone, have managed to preserve their identity, culture and traditional knowledge throughout the centuries.

The traditional agricultural system consists in rotating a cereal with set-aside, which is then used by the village animals. Potato was introduced into this rotation, which contributed to enriching local gastronomy and diversifying the economy and self-sufficiency of the families, and has become a social and economic focus of the region's agrarian system.

Common land is also part of this production model, with broad areas that allow for extensive grazing and a larger number of animals, notably cattle and goats. In addition to directly providing pasture, the common land provides firewood (the main source of household fuel in the region's villages to this day), timber, mushrooms, water and even a few arable areas for annual crops. For long periods in its history, this has been a cattle farming region, whose key strength lay in driving agricultural work, mostly for coastal regions in the country, where corn was the dominant crop and where the orographic and cultural demands require huge physical and mechanical effort. In other words, the selection of cattle originally met the need for traction, which lessened radically with agricultural mechanisation, particularly from the second half of the 20th century. This mechanisation contributed to improving the quality of life on the farms, and the increase in beef consumption led to the selection and rearing of cattle that were more suitable for producing meat.

The landscape, its sub-units, the land structure and the land use have remained stable over the last few years. As an example, 3 Barroso localities (on an approximately north-central-south axis) were selected, the aerial photographs of which show that the Barroso landscapes maintain a clear differentiation in the use of agrarian spaces, which develop in a kind of spiral from the residential centre (the village), and with reasonable consistency between the two moments recorded (2010 and 2015).



Figures 3 & 4 – Aerial photographs of the area around Padornelos (2010-2015). Source: DRAPN.

The first type of soil occupation is dominated by annual agricultural crops (more intensive vegetable gardens) and agroforestry areas (mosaic of marshes, riparian forest and woodland border and rain-fed cereal fields), occupying valleys and half-slope colluvium land, as well as some plateau depressions, where the accumulation of sediments and water is more favourable.



Figures 5 & 6 – Aerial photographs of the area around Aldeia Nova (2010-2015). Source: DRAPN.

Further away from the villages, as if framing the agricultural spaces, there are common land hills, with a more irregular terrain, thinner and eroded soils, with semi-natural areas and some forest, functioning as poor pastures, where the rough grazing of the various types of cattle in the region takes place.



Figures 7 & 8 - Aerial photographs of the area around Covas de Barroso (2010-2015). Source: DRAPN.

The maintenance of this landscape has been ensured mainly by the extensive grazing (to which practices such as the cutting of weeds for animal beds, fires for the renovation of the shrub pastures and the cutting of firewood for heating the dwellings are associated), and by the maintenance of the marshes, given their importance in the livestock economy.

The agricultural occupation by smallholdings is also characterised by the division of plots by traditional dry stone walls, giving a unique character to the territory (see also photo 60).

This diversity of landscape elements reflects the indispensable multifunctionality of the agrarian systems of regions that have traditionally been deeply isolated. With restricted accessibility and considerable distance between villages, the agricultural system was structured from a perspective of self-supply of the populations.

The mountain landscape is historically related to traditional farming systems, largely based on rearing livestock and the production of cereals. This gave rise to a landscape mosaic in which ancient pastures (marshes and common land), farming areas (rye and potato fields and vegetable gardens), thickets and forests are interwoven, and where the animals (mainly cattle) are a key element in the flow of materials between the system's components. Currently, all this represents a fundamental asset, also in terms of the ability to promote tourism, especially

in its rural and nature modes, which play an increasingly important role in the region's activities.

Since this is an agro-livestock and mixed farming system, each farmer produces different crops and even creates different animal species (e.g. cattle, pigs and poultry). Grazing is extensive, with animals spending much of the time outside (either on grass pastures, lameiros, usually surrounded by stone walls, or on poor shrub pastures, using the more mountainous areas and common land). Often this grazing (especially in the case of cattle) is carried out without the permanent presence of the farmer, who thus has time to do other agricultural work and dedicate time and effort to other agricultural crops.

Agricultural crops are mostly based on annual crops (cereals and vegetables). Sowing, treatment and harvesting operations are usually carried out jointly by the entire household and neighbours. Therefore, during the most labour-demanding periods, when work could not be done either individually or exclusively by the family, this works as a mutual aid system.

It should also be noted that the majority of Barroso's crops are still obtained both for human consumption (self-consumption and sale) and for animal feeding. This is the case of rye, potatoes, cabbage, pumpkins (cabaças), turnips, etc. Potatoes, in particular, are cooked for feeding pigs on the kitchen hearth in a cauldron, to which cabbage leaves and sometimes a portion of bran or rye are usually added.

The data collected from the declarations of farmers in the Integrated Administration and Control System (IACS), in 2015 was used to classify Barroso farms through the EU Farm Accountancy Data Network (FADN) common typology. The IACS is a system for the management and control of payments to farmers made by the Member States, in application of the Common Agricultural Policy (CAP). The FADN is an instrument for evaluating the income of agricultural holdings and the impacts of the CAP by establishing a common typology for agricultural holdings in the EU.

The results obtained show a predominance in the region of agricultural holdings specialised in animal production, accounting for 61% of all holdings. About 29% of the holdings are specialised in crops and only 10% are mixed holdings with crops and animal production. In terms of economic output, 73% of the total standard output of the region is originated in holdings specialised in animal production, 20% in holdings specialised in crop production and 7% in mixed holdings. In terms of area, the predominance of holdings specialised in animal production is more remarkable with 82% of total area in these holdings, whereas just 10% of the area is in holdings specialised in crop production and 8% in mixed holdings.

As regards the different types of holdings specialised in animal production, we have three types: holdings with grazing cattle, holdings with grazing sheep and goats and a third group with diversified types of animal production, most of them with various combinations of grazing livestock, but also a small number of holdings specialised in dairying or in intensive fattening.

The first type (extensive grazing system with cattle) corresponds to only 23% of all holdings in the region, but produces 42% of economic value (measured in standard output) and uses 49% of the agricultural area in the region.

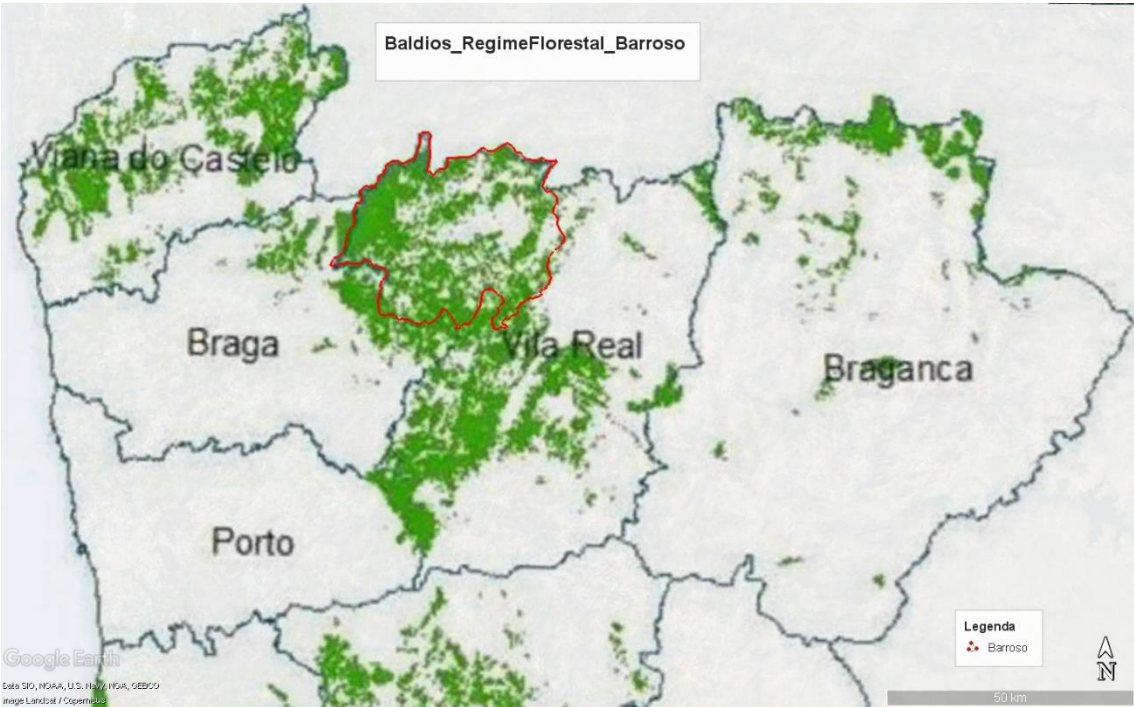
The second type (extensive grazing system with sheep and goats, but mostly goats) corresponds to 18% of the number of holdings, 17% of standard output and 20% of agricultural area.

The third type (extensive grazing with sheep, goats and cattle combined, cattle dairying and cattle fattening) corresponds to 20% of holdings, 13% of standard output and 13% of agricultural area. The extensive grazing system with goats is predominant in a zone east of Barroso, which corresponds to about 17% (about 190 km²) of the entire region.

The extensive grazing system with cattle is the main system in the remaining Barroso region but we can distinguish two zones: the main one at the centre and the northwest zone, inside the Peneda-Gerês National Park. The latter comprises 18.8% of the Barroso area (212 km²) and it has a larger predominance of this system with close to 80% of standard output and 80% of agricultural area. In the central zone of Barroso this is also the most relevant system although with a smaller importance and with a significant presence of cropland.

The aforementioned common land (baldios) occupies the majority of the Barroso area. As an example, only for the area included in the National Park of Peneda-Gerês (PNPG), common land represents 90.9% of the area (about 20,000 hectares out of a total of 22,000 hectares of the PNPG included in Barroso).

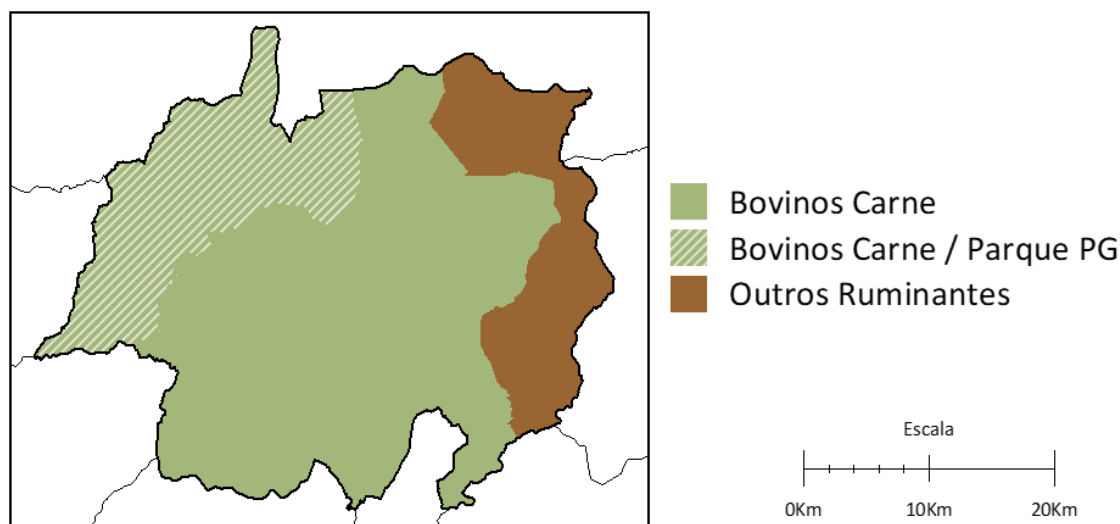
In addition, common land is mostly subject to the so-called Forest Regime, under which management is participated by the Portuguese State, through the Institute of Conservation of Nature and Forests (ICNF). The following picture maps common land areas subject to the Forest Regime in the entire Barroso region. Common land clearly dominates the regime of property in this region, and if we add some other common land not subject to the Forest Regime, the enormous territorial, economic, social and environmental relevance that this type of property has in Barroso becomes immediately obvious.



Legend: Barroso area proposed for GIAHS site
 Areas of common lands (“baldios”)

The following map shows the three previously mentioned main zones: green with white strips showing the zone inside the National Park with a very strong predominance of extensive grazing system with cattle; green for the central zone with the extensive grazing system with cattle as the first system, but with relevant presence of mixed systems and crop production

based systems, and the zone in brown with the predominance of systems of extensive grazing with goats (but also with mixed and cattle systems).



The next table shows in more detail land use in the Barroso territory proposed for GIAHS site.

Ocupação do solo	Land use	Area (ha)	Area (%)
Áreas urbanas	Urban areas	1 871,50	1,40%
Área agrícola excl/ pastagens permanentes	Cropland	19 563,86	14,63%
Pastagens permanentes	Permanent Pastures	1 631,15	1,22%
Florestas e meios naturais	Forest	52 663,57	39,38%
Matos	Scrubland	54 276,27	40,58%
Corpos de água	Water bodies	3 732,42	2,79%
Total	Total area	133 738,76	100,00%

The two main land uses are forest and scrubland. Most of the scrubland and an important part of the forest are in common land. Scrubland is usually used for grazing cattle, sheep and goats in low intensity farming systems, based in semi-natural vegetation.

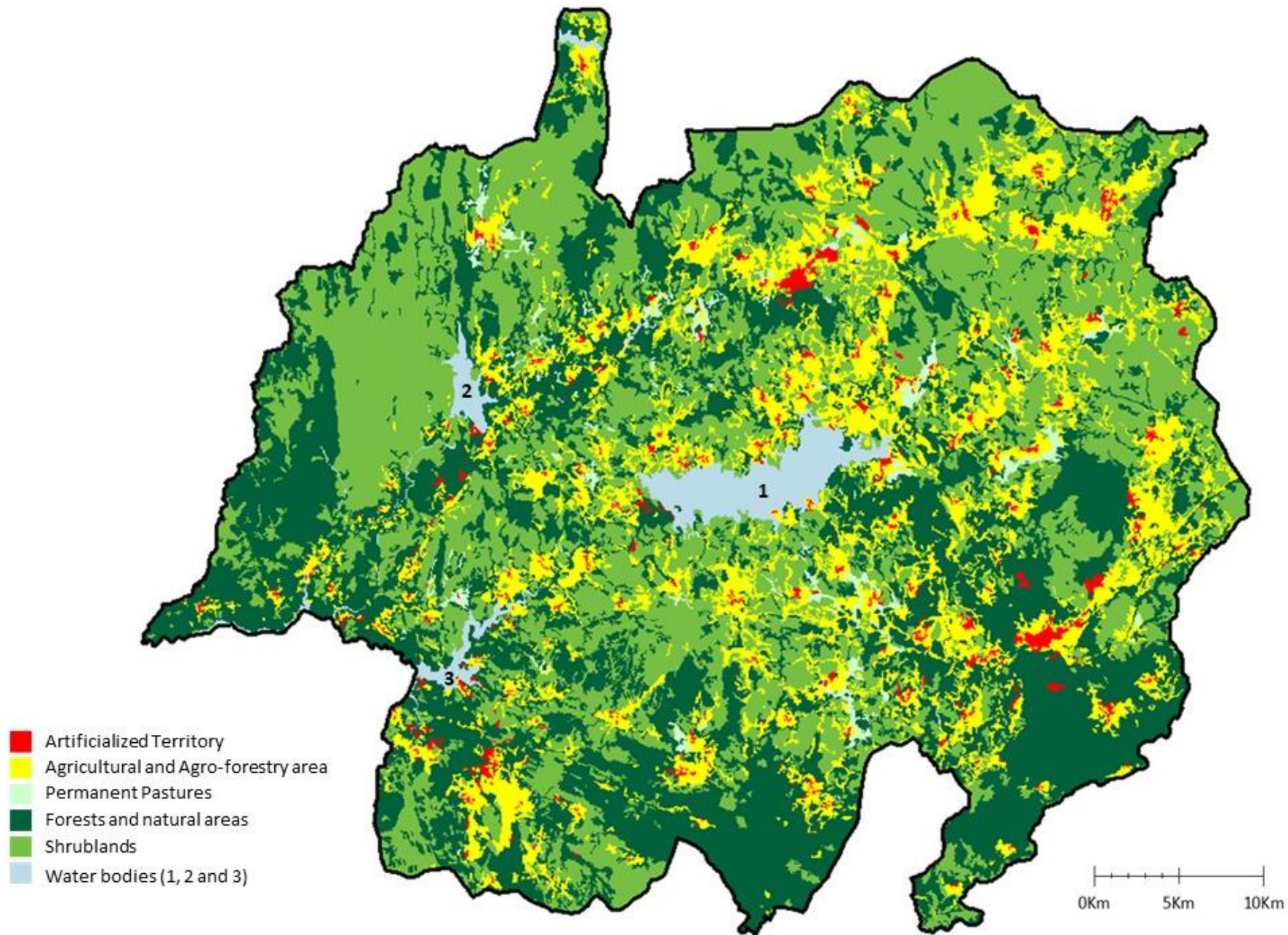
Traditional permanent pastures (“*lameiros*”) occupy a small percentage of total land in the region but they are very important not only because of their very high productivity but also because they are of High Nature Value per se. They are usually irrigated with traditional gravity irrigation systems.

Cropland is very diverse with a mosaic of different crops: small plots of permanent crops (only 0.2% of the region area), very small vegetable plots, plots with irrigated and non-irrigated cereals, potatoes, etc.

Forest occupies more than a third of the Barroso area, and *Pinus pinaster* is the most important species with about 14% of total forest area, whereas oaks account for about 7%. The area with sparse vegetation is 6.6%, burnt areas 2.9% (previously occupied with pine trees, oaks or shrubs) and mixed forests, about 8%.

With reference to the map showed below, it must be added that Artificialized Territory corresponds to Urban Areas (towns and villages) of the site and Water Bodies correspond to water masses of hydroelectric dams.

Land cover of Barroso area proposed for GIAHS site (COS 2010)



2 Characteristics of the Proposed GIAHS Site

i. Food and Livelihood Security

Describe how the proposed agricultural system contributes to food and/or livelihood security of local communities. This includes a wide variety of agricultural types such as self-sufficient and semi-subsistence agriculture where provisioning and exchanges take place among local communities, which contributes to rural economy.

Barroso is typically an area of private smallholdings. There are also farms of over 50 hectares in size (about 1%) and large tracts of common land which, in some cases, amount to thousands of hectares (mostly taken up by scrubland and forest stands). These circumstances have decisively contributed over the years to the dominance of animal production over agricultural crop production.

Despite productivity and competitiveness weaknesses, Barroso has various differentiating agricultural products which are recognised for their authenticity and quality and are now well established in a number of regional, national and even European markets.

The morphological diversity and the climate of this Portuguese region, together with human intervention, have enabled the development of a very significant flora diversity which sustains the various agricultural activities of this territory. This encompasses pasture for the various domestic breeds reared and the diversified existing wildlife, both in the purely agricultural and the forest environments. Thus, farming and food and economic subsistence are based on the following pillars:

- Animal Production (cattle, goats, pigs, sheep);
- Fodder and Cereal Production (marshes and cereals);
- Vegetable Production (potatoes);
- Beekeeping Production (honey);
- Processing of Food Products (smoked meats).

The importance of keeping the existing indigenous breeds is strongly associated with their role in the region's agricultural systems, allowing an efficient use of resources, both genetic and material, and contributing to the maintenance of sustainable production systems (for example, they use by-products and even agricultural waste that would hardly be used otherwise) and the settlement of rural populations.

Indeed, the eating habits of the populations have been strongly associated for centuries with the need for subsistence, and have evolved with the processing of various products (the production of smoked pork, the making of various types of bread, etc.) and the selection of animal breeds and plant varieties to better meet the needs of each local civilisational period.

Barroso farmers, although their activity is based on livestock production, manage and ensure the existence of a mixed farming system, with grass meadows (lameiros), poor pastures (shrubland, especially in fallow areas), arable land and some forest areas (mainly for domestic heating and timber) (more detailed crop data and key indicators are given in item 8).

The wide array of productions and associated techniques has developed over time a set of plant varieties and has improved management of both food and feed crops and animal breeding (cattle, sheep, goats, pigs and poultry). This has led to a reasonable degree of food

self-sufficiency, the composition of which varies throughout the year, depending on animal breeding cycles and plant cycles. At the same time, with the support of sector and public organisations, there is (at least for native breeds) high food sovereignty and capacity for intervention in the management of such breeds and for ensuring their economic sustainability.

In fact, the territory’s agricultural system plays a key role in the economic and social autonomy of the population, even for those people who do not have their main activity in agriculture, because even for them, an important part of their food is provided by local productions. This is due both to existing family relations and social proximity and to the direct purchase of these products from farmers.

Under the Common Agricultural Policy, 2015 Direct Aid (Single Application) data included 3,520 farms accounting for a total of EUR 9,119,066.00 (Source: IFAP – the Paying Agency, GPP). These farms, each representing 1 agricultural producer, are equivalent to 22% of the population living in the Barroso region (15,589 inhabitants in 2013). If we add the farm households, we can clearly see the enormous social and economic importance of agricultural activity in the territory.

These farms covered 43,529 hectares of Utilised Agricultural Area (UAA), of which 37,635 hectares (86.5%) corresponded to Permanent Grassland and 1,723 hectares (4%) to Temporary Forage Area, which also shows the territorial importance of pasture areas. The herbivore herd associated with these farms consisted of 18,150 livestock units (LU).

Animal Production

Animal production is the basis the region’s agrarian economy, and is dominated by extensive breeding of cattle for beef. It can be seen that production on the farms in most Barroso parishes is predominantly geared towards the extensive production of beef cattle, with other ruminants usually emerging as a minor production, with the exception of some parishes in the east, where they dominate.

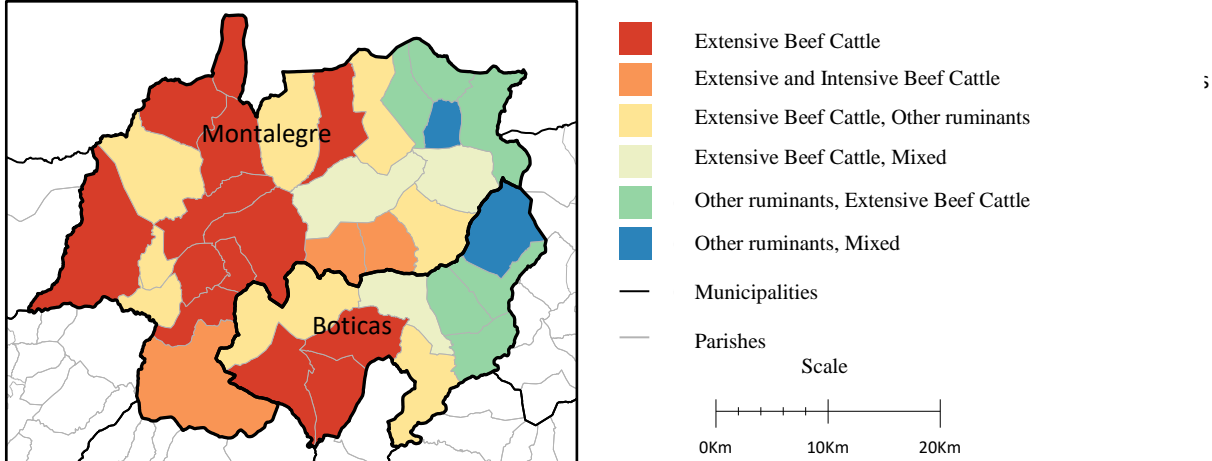


Figure 9 – Characterisation of parishes in terms of the Productive Orientation of farms (based on data from the 2015 Single Application). Source: GPP, based on IFAP – PU 2015 data.

The productive orientation shown in the figure was determined bearing in mind the importance of the farming area, with the predominant productive orientations for each parish totalling at least 50% of the parish total farming area.

Bovines (*Bos taurus*)

Barroso was traditionally a land of herdsmen where the main economic activity was cattle breeding whose trade, despite the isolation and weak market integration, was already well established in Barroso, since it relied less on the existence of a road network in the region, and it was the only surplus production until the introduction of seed potatoes. In fact, cattle was the only agricultural product that could be transported on its own and could, therefore, travel on almost impassible roads and tracks to get to markets and consumption sites with little cost.

The importance of cattle breeding also lies in the transfer of fertility from grazing common land to farmland, through animal beds and manure, and in the supply of animal traction, while the production of meat for consumption in farms is not a primary goal. Animal protein in the Barrosã diet at that time had its origin in pork production, with pigs being fed from products from the farm.

At present, the existing breeds of cattle are raised in an extensive regime perfectly adapted to the climate, topography and availability of food (quality and quantity). Their feeding is almost exclusively in the natural pastures (scrubland) and in the permanent meadows (marshes) from which hay is also obtained for their cowshed fodder. Note that in some parishes, the animals remain outside semi-free for most of the year, only returning to the cowshed at night in the colder winter months, and also in the case of suckling cows and their offspring. The majority of livestock farms have a herd of between 5 and 25 heads/farm, those that exceed 25 heads being a minority. The 2009 average was 11.2 heads/farm in Boticas and 13 heads/farm in Montalegre.

In livestock production, the native breed Barrosã is the most important, with its high capacity for producing meat of recognised organoleptic quality, which has led to the assignment of a Protection Order and recognition with Protected Designation of Origin (PDO), and whose geographical area includes the whole of the municipalities of Boticas and Montalegre. It is an endangered breed because there are only about 7,500 breeding females remaining in the country (in 2016). Amongst the ancestral breeds from the northern highlands of Portugal, these are animals with a unique genetic heritage, and are an emblematic reference of Portuguese bovine farming. Morphologically it is distinguished from all the others by its short, broad head, horns in the form of a tall lyre and a sharply concave profile.



Photo 1. Barrosã cows in a marsh, municipality of Boticas.

Originally widely used as a beast of labour and for the production of excellent quality meat, the progressive mechanisation of agriculture has led to it being bred exclusively for its meat. This trend has been driven by a number of factors, including an increase in the demand for meat from these cattle (aided by their promotion in regional and national gastronomic events), and of course the production aid granted to indigenous breeds under the Common Agricultural Policy (CAP).

There are also cattle of other breeds, such as the indigenous breed Maronesa, also with PDO, whose geographical area of production includes only a few parishes in Boticas, particularly those in the south and east of the municipality. This is a breed of extraordinary rusticity and an ability to adapt to rougher, more rugged terrain, where there is no mechanisation, which makes it indispensable even today for the different labour tasks on the local farms. Reference



should also be made to cross-bred cattle whose meat is also recognised by official bodies with a Protected Geographical Indication (PGI): Carne de Bovino Cruzado dos Lameiros do Barroso (cross-bred beef from the Barroso marshes) whose area covers the municipalities of Boticas and Montalegre and whose method of production is similar to those referred to above.

Photo 2. Cross-bred cattle from Barroso, Montalegre municipality.

Small Ruminants (*Ovis aries* and *Capra aegagrus hircus*)

There is also a long tradition in this area of breeding small ruminants - sheep (genus *Ovis*) and goats (genus *Capra*). The most common indigenous breeds are Churra do Minho sheep and Cabra Bravia and Cabra Serrana goats, all of them perfectly adapted to the biophysical and climatic conditions of Barroso, and bred under extensive grazing (rough grazing), the main purpose being meat production (lambs and kids). The origin of these breeds of goat is difficult to determine, but seems to be associated with the wild goats of the Quaternary period.



In recent years there has been a decrease in the number of sheep, and grazing is a type of activity whose demand has not interested new producers in sufficient numbers to compensate for those discontinuing. This is despite the fact that market prices for the sale of animals are considered to be satisfactory (in particular for goats) and the cash support paid per head.

Photo 3. Herd of goats grazing in scrubland.

Goats are highly efficient milk producers and, combined with the high nutritional and dietary value of their milk and cheese, the intensification of goat farming has been encouraged. It is also worth noting their interest, not only because they occupy land of scant agricultural production, but also because they are animals that use plant fibre more efficiently than other domestic animals.

Their breed differentiation (both sheep and goats) has also allowed for their approval in terms of quality products, and the Protected Geographical Indication (PGI) has been assigned to *Cabrito do Barroso* and *Cordeiro do Barroso*, covering the municipalities of Boticas and Montalegre.



Photo 4. Sheep grazing with goats in a rotation system (*vezeira*) in Gralhas, Montalegre.

There is also the possibility of obtaining wool from sheep for the traditional weaving of clothes and other fabrics, particularly with its transformation into *burel* (Kersey), using the fulling (*pisão*) technology (see criterion iii. Local and Traditional Knowledge Systems). Prior to the introduction of the potato crop, which made it possible to increase the monetary income of the populations, including for the acquisition of clothing, sheep wool was almost exclusively used to make the clothes of the people of Barroso.

Swine (*Sus domesticus*)

Pig breeding has always been associated with the presence of humans in the northern territories of Portugal, and their meat and other processed products have for centuries been the main and almost exclusive source of animal protein in the populations. Even today, the gastronomy of Barroso relies heavily on dishes made with pork and its derivatives.

In this zone, the indigenous breed is the Bísaro pig, a long-bodied, long-legged animal with drooping ears. Its Celtic name was used to express the antiquity of this type of pig, the only one that existed among the Celtic peoples of ancient Gaul. This breed could only survive the progress of agriculture and pig farming due to the continuation of traditional, subsistence farming, which still occurs in some regions of the country such as Barroso. The ability to adapt to this agricultural system, the docility and prolific nature of the animals, the ease of raising piglets and the excellent meat that they produce, were preponderant factors in the maintenance of the breed.



Photo 5. Bísaro pigs.

They are large animals, reaching more than one metre high and 1.5 meters from the nape of the neck to the root of the tail, black or white or spotted, with thick skin and long, dense, abundant bristles. The carcass of the Bísaro pig has a greater proportion of muscle than fat, giving a not very lardy but very streaky meat, whose flavour is improved with the rich, varied food on which these animals are raised.

Traditionally, until the mid-20th century, the animals roamed large tracts of fields, taking advantage of the acorns from the oaks, the roots and the herbs they encountered. Nowadays, also due to the need to comply with the rules of health and hygiene, they are bred in semi-extensive systems, in which the breeders have licensed pigsties, with conditions for the well-being of the animals. These sties are also characterised by the use of open areas sufficient for the animals to roam.

The breed is farmed in four different strands simultaneously: breeding sows, boars, piglets and fattening pigs. Their food has always been dependent on the resources available from local agriculture, but they are mainly fed on own farm crops: vegetables (potatoes, cabbages, gourds) and cereals.

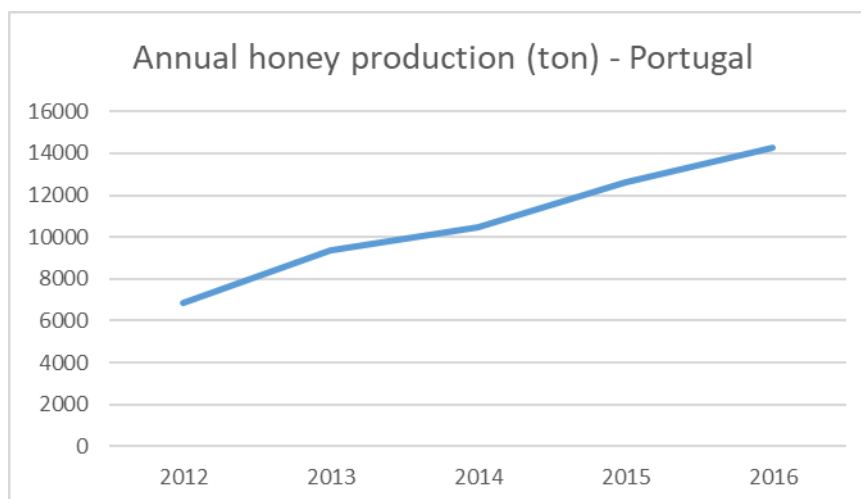
The number of animals of the breed has been increasing over the last decade, with 167 females in the municipality of Montalegre and 63 females in the municipality of Boticas (data from 2015). This growth is naturally associated with a greater appreciation of the meat as a raw material for the production of certified regional smoked products, as is the case of the products described in the section on Processing of Food Products.

Beekeeping

Honey

Honey is produced by the Iberian honeybee (*Apis mellifera iberiensis*), which is a honey-producing subspecies that does not benefit from any legal protection. In this region, it mainly takes advantage of the thickets and forests at the highest levels, where several heather species (genus *Erica*) of shrubs predominate, obtaining characteristically dark honey. It is thus a monofloral honey, with regard to its floral and pollen origin, whose reductive sugars (fructose/glucose) exceed 65%.

Honey is one of the productions in an upward trend. In the municipalities of Boticas and Montalegre, there are 183 beekeepers registered in the Barroso Honey Controlled Area, corresponding to about 1.2% of the total population and about 5.9% of the agricultural population. However, the number of existing beekeepers may be higher, since in recent years new apiaries and beekeepers have been set up and not all of them are registered in the managing entity of the Controlled Area. At the national level, between 2013 and 2015, the number of professional beekeepers (1,073 in September 2016) increased from 4% to 10%. These beekeepers account for 61% of the national bee population (as declared in June 2015). This has enabled to maintain the national trend of honey production, with significant growth since 2012.



Source: Statistics Portugal (13 July 2017)

In 1995, the Protected Denomination of Origin (PDO) was awarded to Barroso Honey, which reinforces the recognition of its quality and importance as an endogenous resource for mountain regions, an important complement to the agricultural family economy.

The demand for this type of honey is high, since it has many uses, both in the regional cuisine and in therapeutic action, since it contains a multitude of substances beneficial to the human organism (antioxidants, vitamins, amino acids, proteins, etc.), making it a natural source of well-being and promotion of health.

In recent years, there has been an increasing demand for honey production, namely in Organic Production Mode (OPM), demonstrating that beekeeping can be an economically viable activity, attractive enough to induce new producers. Barroso's PDO Honey has also seen an increase in the quantity produced from around 8,800kg in 2010 to more than 10,600kg in 2012.



Photos 6 and 7. Jars of Barroso Honey.

Beekeeping is an activity with an important role in the integrated and economically sustainable use of the rural environment, the linking of man to environment and the linkage between rural and urban environments. It should therefore be considered not only on the basis of the production factors involved and the value of the direct products of the activity (honey, wax, pollen, propolis, royal jelly and bees), but also other factors of human interaction with the environment in which it is produced.

Vegetable Production

Potato (*Solanum tuberosum*)

Potatoes are grown in the mountains and submontane valleys, traditionally using a number of cultivars (e.g. Valencian, Kennebec, Atlantic, Jaerla) that are well suited to the soil and climates of the region. The mode of production has not changed significantly over time, and it is uncommon for cultivation to be on the same plot for more than 3 consecutive years, rotating between rainfed cereals (mainly rye) or other annual crops and set-aside. The most intensive model found is the production in small vegetable gardens, in rotation with horticultural crops or maize.

Organic matter (manure or slurry) obtained from the animal beds (mainly cattle and horses) is used for their production. In many situations potato cultivation is not irrigated (rainfed potato), and in the most fertile and hot places, where water is available, the crops are irrigated (irrigated potatoes), traditionally by gravity and furrow (irrigation channel).

The potatoes produced in the region have a pleasant, slightly sweet taste with a high starch content (about 80% of the dry matter), which is unusual in other varieties of potato produced in other regions of Portugal or Europe. Its properties, namely an ideal texture for adsorbing sauces, make it ideal for culinary use to accompany dishes with fatty meats (like pork), which is the basis of the gastronomy of the region. Qualified experts have written about the Potatoes from Trás-os-Montes (which includes Boticas and Montalegre) since the end of the 18th century, which testifies to the socio-cultural and economic importance, the antiquity and the reputation of the product. This reputation and value are also expressed in the attribution of the geographical name Protected Geographical Indication (PGI) "Batata de Trás-os-Montes", making it the first seed potato in Portugal to be so certified.

In the late 1930s, seed potato cultivation began to be prominent in the region, with sales taking place outside the region, and it was considered the most valuable asset for the wealth of farmers in this region. This crop became, in those years, the region's "white gold", allowing many families to replace the roofing of houses with tiles and buy better clothing, and it contributed decisively to the improvement of living conditions for the people of the region.

Fodder and Cereal Production

Marshes

The marshes (*lameiros*) are semi-natural permanent pastures which play a central role in



Barroso's agricultural production systems, in that they essentially feed the cattle. They are rarely or never subjected to soil tillage or sowing, and are found in the mountain and submontane valley regions.

They are very much related to the hydrographic network, being located along water courses and infiltration zones, in deeper and wet alluvial soils.

Photo 8. Water meadows with vegetation at the edges, Salto, municipality of Montalegre.

In these cases, there is a process of irrigation - whose cultural technique comes from age-old traditional know-how - in the period from autumn to spring, not to supply the water plants, but to avoid the formation of frosts that damage the vegetation cover: the so-called water meadows.

There is another type of pasture, where water availability is less, generally in flatter, less productive and higher altitude terrain, where this irrigation is not done, and these are therefore called dry marshes. The latter traditionally sustain the herds of livestock during the spring and early summer while the irrigated marshes (water meadows) are protected for hay production.

This is a type of land occupation that well reflects the way of life and the adaptation of Man to the environment, and is a good example of the sustainable use of natural resources for agricultural purposes. Its origins are very old, at least from mediaeval times. The marshes formed with the cutting of the typical vegetation of wetlands and riparian forests, the removal of stones, followed by grazing and haymaking, which over the years favoured a flora diversity of great environmental value, food quality and productivity.

The diversity of the marshes, due to the great differences in soil morphology, soil type and water availability, makes them fundamental elements of the Barroso landscape and areas with enormous, complex flora richness. Among the most common species are common velvet grass (*Holcus lanatus*), fennel (*Anthoxanthum odoratum*), festuca (*Festuca* spp.), bent grass (*Agrostis* spp.) and red clover (*Trifolium pratensis*).

The form of exploitation has two seasonal and usage components, one for the production of hay (which is used during the winter to feed the animals in the stable), and the other for direct grazing of the herds (especially cattle). They are areas rich in plant and animal biodiversity, since they are usually identified as property by dry stone walls, with border vegetation (trees and shrubs, such as *Fraxinus angustifolia*, *Alnus glutinosa*, *Salix nigra*, *Betula celtiberica*). These walls are important places of refuge and reproduction for species of wild animals of various orders (from reptiles to birds, through amphibians and small mammals).

Rainfed cereals

The predominant cereal in Barroso is rye (*Secale cereale*), more rustic than other cultivars, grown on land with poorer soil conditions, in a region with a rigorous winter climate (low temperatures and wind). This crop involves a system of rotation with the other crops present in the region, such as potato and turnip, and fallow periods (known regionally as poulo).



Photo 9. Landscape mosaic with rye fields, pastures and scrubland, Mourela Plateau, Montalegre.

The purpose of its cultivation is to obtain grain, used both in human food (bakery) and animal feed. The straw is also properly harvested, and used for the beds of domestic cattle (more rarely as fodder). Until a few decades ago, straw was also used to build the roofs of houses and other rural buildings with the traditional thatched roof, and also some clothing for the

herdsmen, such as the typical *croças* (see point iv. Cultures, Value Systems and Social Organisations).



The arable land used, like the marshes, is often divided by stone walls, which gives a unique environmental and landscape value. Sometimes there are isolated fruit trees, especially with species better adapted to these soil and climatic conditions, such as the chestnut (*Castanea sativa*) and more rarely the walnut (*Junglas regia*).

Photo 10. Agricultural field with ears of cereal and chestnut trees, Ardãos, Boticas municipality.

The different activities necessary for the production of the cereal were completely manual until the middle of the 20th century, which gave rise to a series of rituals and community structures (the communal threshing floors, mowing, threshing).

Water mills were used for producing flour, taking advantage of the hydraulic power available, and used until the second half of the 20th century, when they were mostly abandoned and replaced by mills. This technology is described in section iii. Local and Traditional Knowledge Systems.

Due to social, economic and technological progress, rye now has less economic importance, and its cultivation has remained as a complementary crop for raising cattle, for its straw and the grain value in livestock farming. Its ecological importance remains, however, given its extensive production and contribution to the landscape mosaic.

Processing of Food Products

The diet is one of this region's specificities, mainly because of the quality of the products used which are mostly produced and processed locally. Among the various products used for cooking, bread (rye or a mixture of rye and wheat or maize) and smoked meats or traditional sausages (extremely varied and based on pork) stand out.

The most typical dishes are based on pork and smoked meats, accompanied by potatoes, cabbage and carrots, with the Cozido Barrosão (a mix of different meats and vegetables) being chief among them.

Smoked meats comprise various hand-made products, based on pork, bread and other condiments, such as gourd (pumpkin). The unique character of these products led to their recognition by the European Commission in 2007, expressed in the attribution of Protected Geographical Indication (PGI) to some of them (*chouriça de carne*, *chouriça de abóbora*, *sangureira* and *salpicão*). The Barroso dry-cured ham, obtained from the pig's whole legs, is recognised as PGI.



Photo 11. Traditional cuisine with the dry-curing of sausages and hams.

The production of smoked meats, closely linked to domestic pig farming, has become an important economic activity over the last decades, and is the main economic activity for a number of families. Their production, albeit properly compliant with Portuguese and European health requirements, is done traditionally, with home-made products sourced locally. The dry-curing of the meats is made in specific kitchens, with oak wood or wood from other woody shrub species, in a slow, careful manner. These units are usually licensed as Regional Kitchens (Decree-Law No. 57/99).



Photo 12. Veal chunk dish

The organisation of specific events in the district capitals (gastronomic and smoked meat fairs) and the participation in events in coastal areas or in large consumption centres has been a good promotional and marketing vehicle for these products, which feed market niches willing to pay a higher price for products with a specific and differentiated identity.

Among fish dishes, only dishes associated with river fishes (more specifically, trout, *Salmo trutta fario*) and cod are traditionally present, in the latter case based on imported salted cod, subsequently soaked for cooking.

ii. Agro-biodiversity

Describe the agro-biodiversity⁵ of the site, according to FAO definition (the variety of animals, plants and micro-organisms that are used directly or indirectly for food and agriculture, including crops, livestock, forestry and fisheries). The system should be endowed with globally significant biodiversity and genetic resources for food and agriculture (e.g. endemic, domesticated, rare, endangered species of crops and animals). A list of agro-biodiversity and related diversity elements should be included.

Located in an area of great ecological value, Barroso presents a wide diversity of ecosystems which include farming areas, riparian corridors, conifer forests, natural deciduous woodlands and scrubland. This vegetation mosaic, shaped by Man over time, has created favourable conditions for a large number of animal and plant species, which make Barroso a unique region in terms of its wealth of flora and fauna.

The uniqueness and importance of Barroso are indeed confirmed by its high status with regard to the conservation of nature and biodiversity in most of its territory: about 70% of the Barroso region is classified under the National System of Classified Areas. Specifically, almost 20% of the area is covered by the Peneda-Gerês National Park and the Peneda-Gerês Site of Community Importance PTCON0001; about 14% of the territory is part of the Serra do Gerês Special Protection Zone PTZPE0002; 70% of the area is integrated into the Gerês-Xurê Crossborder Biosphere Reserve.

Fauna

The biodiversity of the Barroso agrarian system is patent in the variety of indigenous livestock breeds. This region comprises a huge variety of habitats, with different conditions in terms of orography, soil and climate, land structure and management, and with numerous social and cultural traditions, creating multiple spaces for livestock species to be bred and enhanced. This has led to the emergence of a great number of perfectly differentiated breeds, adapted to their environment, empirically selected over time by the populations, so as to meet their eating, working and clothing needs. The most notable breeds include the Barrosã and Maronesa breeds (beef cattle), the Churra do Minho breed (sheep), the Cabra Serrana and Cabra Bravia breeds (goats), the Bísara breed (pigs) and the Garrana breed (horses). These local genotypes constitute a cultural and biological heritage and a guarantee of sustainable productive use of marginal areas and resources which otherwise would be neglected because of their high rusticity and the ability of these animals to adapt to different production systems and environmental constraints.

These breeds are also important from a genetic diversity conservation perspective, since about half of the genetic differences are unique to each breed and the other half is shared by all breeds of the same species.

The key role of bees in agriculture should be highlighted, specifically in terms of pollination and contribution to the preservation of biodiversity, since they maintain the genetic diversity of plants and the ecological balance. Indirect benefits for agricultural production, resulting

⁵ FAO defines agro-biodiversity as follows: The variety and variability of animals, plants and micro-organisms that are used directly or indirectly for food and agriculture, including crops, livestock, forestry and fisheries. It comprises the diversity of genetic resources (varieties, breeds) and species used for food, fodder, fibre, fuel and pharmaceuticals. It also includes the diversity of non-harvested species that support production (soil micro-organisms, predators, pollinators), and those in the wider environment that support agro-ecosystems (agricultural, pastoral, forest and aquatic) as well as the diversity of the agro-ecosystems.”

from the activity of bees in pollination and fertilisation of entomophilous plants, largely exceed the specific value of those products.

With regard to horses, the Garrana breed is worth mentioning in Barroso (*Equus caballus celticus*). This dark-coloured horse, with abundant, thick hair and a small stature (1.35m height at the withers) is an iconic figure of the fauna of Portugal's North-eastern mountains,



and has been indigenous since the Quaternary period. Over the last decades, the Garrana breed has declined, and they are currently confined to the mountains of the Peneda-Gerês National Park (PNPG) and the Cabreira mountain, where they live in semi-wild conditions. This is an extensive breeding regime: the animals spend all their life in total freedom on the mountains, though a small number is stabled, still working as saddled horses and in farming activities.

Photo 13. Garrana horses at pasture, Salto, municipality of Montalegre.

The herd-breeding record was defined in 1993, and in 2010 there were only a total of 1,800 animals of the Garrana Breed, which is classified as *Endangered* due to the decrease in its effective population size (estimated in 1948 at around 40,000 animals) and the shrinkage of the land occupied.



Photo 14. Herd of horses on the Mourela Plateau, PNPG, municipality of Montalegre.

This breed of horses also has high ecological value because, as it is bred in semi-wild conditions, it is one of the quarries of the Iberian wolf (*Canis lupus signatus*), some of whose existing packs in Portugal roam the Peneda-Gerês National Park and the bordering, mountainous lands of Barroso (in the Barroso region alone, there are some 6 packs from a total of 60 nationally (2003)). Despite the wolf preying on the Garrano, their coexistence is perfectly possible, given the horse herds' ability to adapt and defend themselves from the wolves' predation.

The wolf is the greatest predator in Portugal, and an ultimate symbol of the Barroso biodiversity, and the species is classified as:

- *Endangered* since 1990 by the Red Book of Portuguese Vertebrates, covered by specific national legislation (Law No. 90/88, of 13 August and Decree-Law No. 139/90, of 27 April), which assigns it the status of Protected Species;
- *Vulnerable* by the International Union for the Conservation of Nature (IUCN);
- *Priority Species* by the Directive "Habitats" (annexes II and IV of Directive 92/43/EEC);
- Included in Annex II to the Berne Convention;

- Included in Annex C-II to CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), and
- Included in the list of species of the Convention on Biological Diversity.

Today, the presence of the wolf in Barroso is strongly linked to human occupation and activity, since part of its feeding in this region is obtained from predation on domestic animals (mainly sheep and cows), even if their coexistence is possible, notably as a result of preventative measures in cattle management (such as the use of sheepdogs and the stabling or enclosing of animals over night).



Photo 15. Iberian wolf (*Canis lupus signatus*).

Another iconic species of the Barroso biodiversity is the mountain goat: in the 19th century there was a sub-species of the mountain goat, *Capra pyrenaica lusitanica*, which disappeared, most likely as a result of excessive hunting. In the late 1990s, the species *Capra pyrenaica victoriae* was reintroduced into Spain, and quickly colonised the peaks of the Gerês mountain in the municipality of Montalegre. At present, the population of mountain goats is close to some hundred animals, and their status is *Critically endangered* (CR).



It is a key species in maintaining food chains (the main predators are the Iberian wolf and the golden eagle) and reducing the predatory pressure of the wolf over domestic cattle, thus minimising conflict with human residents. Threatening factors also include their low genetic viability and poaching, as well as competition with other ungulate species, e.g. domestic goats. The diseases that affect domestic cattle (brucellosis and scabies) are also threatening factors for the mountain goat.

Photo 16. Mountain goat (*Capra pyrenaica victoriae*).

The territory of Barroso corresponds to the southern boundary for the European distribution of some species with a reduced population in Portugal: whinchat (*Saxicola rubetra*), yellowhammer (*Emberiza citrinella*). The red-backed shrike (*Lanius collurio*) and the common snipe (*Gallinago gallinago*) should also be noted: This SPA is the only known nesting ground for the common snipe in mainland Portugal.

Also found (both in the SPA and in other areas of Barroso) are the red-billed chough (*Pyrrhocorax pyrrhocorax*) and species of birds of prey strongly associated with farming environments, such as the hen harrier (*Circus cyaneus*), the European honey buzzard (*Pernis apivorus*) and the golden eagle (*Aquila chrysaetos*), which are quite rare in the rest of Portugal, all of which are birds of community interest (included in the A-I of Decree-Law No. 140/99, of 24 April, in its current version).

The close relationship between the populations of red-billed chough and farming and grazing activities should be noted. This species, which saw a population decline of over 50% in the

last two decades, has just over 12% of the Portuguese population in this region (under 1,000 individuals), and is classified in Portugal as *Endangered* and as *Declining* at European level.



Photo 17. Red-billed chough (*Pyrrhocorax pyrrhocorax*).

For its main feeding grounds, it searches for extensive farming systems, areas traditionally used for grazing, and other seminatural habitats with many open spaces. The main threatening factors to its survival include the abandonment of farming or its intensification, with the disappearance of the landscape mosaic and the cessation of extensive grazing. This causes changes in dense, high brushwood, deteriorating the habitats available for its feeding.

Barroso is also very important for certain species of fauna associated with water courses, e.g. mammal species such as the Pyrenean desman (*Galemys pyrenaicus*) and the European otter (*Lutra lutra*). Also significant is the herpetofauna, in particular the gold-striped salamander (*Chioglossa lusitanica*), which is an Iberian endemism, and one of the iconic species of Portuguese biodiversity, e.g. the Iberian emerald lizard (*Lacerta schreiberi*). All of these species are listed in the Annexes to the Directive “Habitats”.

With regard to invertebrates, we should mention a species of butterfly (lepidopteron), *Callimorpha quadripunctaria*, which, although widely distributed across the Mediterranean region of the Iberian Peninsula, is classified as a priority species by the Directive “Habitats”. Its occurrence is confirmed in the Peneda-Gerês Site, but there is not enough data on its numbers. It occurs in humid habitats, associated with water courses with dense bushy and arboreal vegetation.

Also, the stage beetle (*Lucanus cervus*), the largest species of insect amongst the Iberian fauna and one of the largest in Europe, is associated with deciduous woods and forests, mainly of quercus (oak), and can also occur



Photo 18. Stag beetle (*Lucanus cervus*).

in other hardwoods, such as riparian corridors dominated by alders (*Alnus glutinosa*). This reveals the importance of the native forests and the border corridors of the existing farms in the Barroso area. The lack of knowledge of their numbers does not yet enable their conservation status to be determined but they are included in the list of Priority Species of the Directive “Habitats” (Annex B-II) and the Berne Convention (Annex III).

We can also mention the presence of a number of other bird species closely associated with the forest habitats and areas surrounding the agricultural land, namely passerines such as the great tit (*Parus major*), the coal tit (*Periparus ater*), the blue tit (*Cyanistes caeruleus*), the crested tit (*Parus cristatus*) and the long-tailed tit (*Aegithalus caudatus*), the green woodpecker (*Picus viridis*) and the wood pigeon (*Columba palumbus*). Among the birds of prey, the most common species are the buzzard (*Buteo buteo*) and the tawny owl (*Strix aluco*).

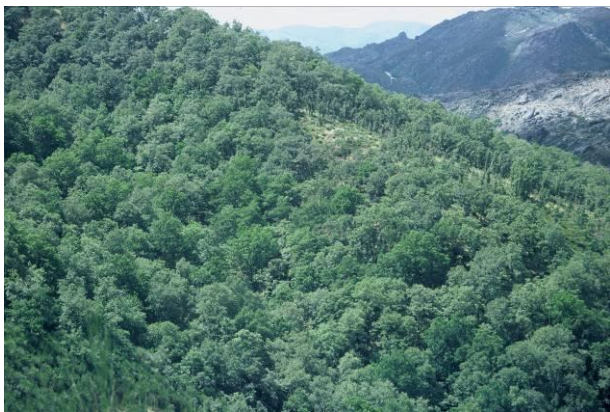
Also associated with pine forests is the red crossbill (*Loxia curvirostra*), a species with a more restricted occurrence in this region, and the long-eared owl (*Asio otus*).

Mammalian species include the roe deer (*Capreolus capreolus*), included in Annex III to the Berne Convention and reasonably well distributed in the region. There is also the genet (*Genetta genetta*), which is equally included in Annex B-V of the Directive “Habitats” and Annex III of the Berne Convention.

The most important of the reptiles are the Montpellier snake (*Malpolon monspessulanus*), the ladder snake (*Rhinechis scalaris*), the large psammodromus (*Psammodromus algerus*) and the Iberian grass snake (*Natrix astreptophora*), all of which are included in Annex III of the Berne Convention.

Flora, Vegetation and Natural Habitats

Human occupation has indelibly marked the Barroso territory and contributed to maintaining the habitats in different levels of ecological succession, creating a complex of diverse plant formations rich in flora peculiarities. Many of these plant formations are natural habitats with high value in terms of nature conservation and biodiversity at national and European levels and are therefore classified and protected under Community Directives (Directive “Habitats”). Most of them contain species of flora (biological and vascular) of great conservation interest, including several rare, endemic, localised and/or protected species.



The Portuguese-Galician oaks are among the natural arboreal vegetation, which in Barroso are dominated by the Pyrenean oak (*Quercus pyrenaica*) and, occasionally, in the lower reaches and subject to greater Atlantic influence, the pedunculate or English oak (*Quercus robur*). Oak woods are a natural habitat protected under the Directive “Habitats” (Habitat 9230 - Galician-Portuguese oaks of *Quercus robur* and *Quercus pyrenaica*).

Photo 19. Oak wood of *Quercus pyrenaica* and *Quercus robur*, Pitões das Júnias, Peneda-Gerês National Park, Montalegre.

Sometimes oak forests are enriched with yew (*Taxus baccata*), a very rare species of tree in Portugal that enhances these forests and makes them unique nationally (ICNB 2008). At the borders and in the clearings of the oak woods there are numerous plants of great value in terms of conservation, some of them protected, rare and/or endemic. Of note are the victory onion (*Allium victorialis*), a relic of the boreal flora that found refuge in the moist corners of high mountain forests, the climbing corydalis (*Ceratocarpus claviculata*) whose subspecies *Picta* is endemic to Portugal and only occurs in this region and in Beira Alta, and the beautiful Martagon lily (*Lilium martagon*), a rare species in Portugal (ICNB 2008, Flora-on 2014).

The riverside ecosystems are elements of great importance in the Barroso landscape. In the upper sections of the water courses, flanked by more or less steep slopes, the riparian forests are dominated by birch (*Betula celtiberica*) and grey willow (*Salix atrocinerea*), enriched, in the higher heights with holly (*Ilex aquifolium*) and yew or, at the lower levels, with laurel (*Laurus nobilis*) and wild cherry (*Prunus avium*) (ICNB 2008). In the lower reaches of the

water courses, the arboreal canopy is dominated by alder (*Alnus glutinosa*) and ash (*Fraxinus angustifolia*), accompanied by a large list of rare species such as *Veronica micrantha*, reed grass (*Calamagrostis arundinacea*) and chain fern (*Woodwardia radicans*), a subtropical relic that finds refuge in the humid and shadowy forests of this region (ICNB 2008, Flora-on 2014). These forests fall into the priority habitat 91E0 * Alluvial forests of *Alnus glutinosa* and *Fraxinus excelsior*, and may belong to the subtype 91E0pt1 Riparian alder groves or to subtype 91E0pt2 Riparian white birch groves.

Worthy of note are the small remaining nuclei of Scots pine (*Pinus sylvestris*) nestled in some valleys of the Gerês mountain, in the western part of Barroso. They are the only indigenous populations of this species known in Portugal and therefore have a great biogeographical and biogenetic interest (Fernandes *et al.* 2015). The survival of these small nuclei will have been possible due to the frugality and dynamics of the species, able to colonise relatively poor or poorly evolved soils, the xerophytic and subcontinental character of the southeastern slope of the Gerês mountain and the morphology of the biotopes occupied by the species - bottom of deep valleys, which allowed them to survive the fires (Honrado 2003).



Photo 20. An ancient example of the indigenous *Pinus sylvestris*, in the Gerês Mountain.

Most probably, these relict specimens of *Pinus sylvestris* (some of them over 200 years old) are the last representatives in Portugal of ancient natural forests of this species, once abundant, but extinct due to the paleoenvironmental conditions of the Pliocene and the Holocene (Fernandes *et al.* 2015). The situation of this population in the extreme west of the natural distribution area of the species gives it a phytogeographic reputation, which is urgent to preserve and to guarantee the reproduction of its genetic heritage.

The moorland - of heather, gorse, broom and ground broom - dominate the Barroso landscape and occupy broad territories across the region. These areas are of great importance in maintaining the farming, forestry and grazing activity of the region, as they are preferred pasture areas for livestock, places where plant material is used to produce "cattle beds" and manure, and areas essential for beekeeping, heather (*Erica sp.*) being one of the main sources of food for bees.

In the higher reaches of Barroso, soils with rocky outcrops are dominated by red heather or matweed (*Erica australis subsp. Aragonensis*), accompanied by *Erica umbellata*, carqueja (*Pteropartum tridentatum subsp. Cantabricum*), dwarf gorse (*Ulex minor*) and sargasso (*Halimium alyssoides*). In the deepest soils and without large rocky outcrops, yellow-flowered ground broom (*Cytisus scoparius* and *Cytisus striatus*) and white-flowered broom (*Cytisus multiflorus*) prevail. On the lower slopes gorse and heather occur dominated by furze (*Ulex europaeus subsp. Latebracteatus*), *Daboecia cantabrica* and *Erica cinerea*. Heather, gorse, broom are included in the European dry heaths Protected Habitat 4030 (ALFA 2004). In the highest areas, rocky outcrops situated in windy areas have a very rare type of weed dominated by caldoneira (*Echinopartum ibericum*), which corresponds to Habitat 4090 - Endomorphico-Mediterranean heaths with gorse.

In the moorland clearings, rocky outcrops and/or cracks of outcrops, several other plant communities occur that enrich the vegetation mosaic of these areas: xerophytic or mesophytic formations dominated by tall grasses (Habitat 6220pt4 - Perennial siliceous grasslands of high grasses), oro-Iberian meadows of *Festuca indigesta* (Habitat 6160pt2), rocky vegetation (Habitat 8220pt1 - Siliceous rock outcrops with chasmophytic communities) and *Thymus caespititius* thyme (Habitat 8230pt1 - Galician-Portuguese thymes) (ALFA 2004, ICNB 2008). Rare and/or protected plants such as Gerês lily (*Iris boissieri*), *Armeria humilis subsp. Humilis*, *Armeria sampaioi* and *Thymelaea broterana* complement the valuable flora list of the scrubland areas of Barroso.

In the western part of Barroso, the more humid places with oligotrophic soils located in plateau areas above 1000 metres above sea level are occupied by hygroturfous complexes, a unique, important mosaic of plant communities given their rarity in the Mediterranean region. At the centre of these complexes there are usually small ponds or pools of still water where amphibian plants thrive. In the zone adjacent to the pond or in zones with permanent water runoff, there are pioneer turficolous communities dominated by cyperaceae, juncaceae and the rare *Drosera intermedia* and *Lycopodiella inundata* (ALFA 2004, ICNB 2008). This type of pioneer peat bog fits into Habitat 7150 - Depressions on peaty substrates of the *Rhynchosporion*. As Habitat 7150 evolves and accumulates organic matter, the plant community becomes dominated by peat moss (*Sphagnum sp.*), accompanied by various cyperaceae and rare plants such as *Arnica montana subsp. atlantica*. All bryophytes of the genus *Sphagnum* are protected by the Directive “Habitats” as well as the natural habitat they constitute (Habitat 7140pt2 - Atlantic Northwest Mountain Peatlands). These peatlands, due to their nature (they are at their natural distribution limit), are of considerable interest for conservation (ALFA 2004).

The evolution of peat bogs leads to the appearance of turficolous heaths dominated by *Erica tetralix* and *Calluna vulgaris* that settle on dense carpets of *Sphagnum* and other mosses. This vegetation corresponds to Habitat 4010 - North Atlantic wet heaths with *Erica tetralix* (ALFA 2004, ICNB 2008).



Photo 21. *Erica tetralix* in bloom, Mourela Plateau, Montalegre.

In the periphery of turficolous heather, in less wetted areas and without the accumulation of peat, there are hygrophilous heathers and gorses that are distinguished from the previous ones by the presence of *Ulex minor* and the (almost) absence of mosses (ICNB 2008). The hygrophilous heaths correspond to Priority Habitat 4020* Temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix*, particularly subtype 4020pt1 - Orophyllous heathers-gorses.

The degradation of the hygrophilous heather gives rise to the cervunals, a type of plant formation that occupies the outermost belt of the hygroturfous complex. The cervunals are dominated by the grass *Nardus stricta* accompanied by a variable number of steno-endemic species (e.g. *Agrostis hesperica*, *Festuca henriquesii* and *Ranunculus abnormis*) and rare species such as *Euphrasia hirtella*, *Arnica montana subsp. Atlantica* and *Gentiana lutea* (ALFA 2004, ICNB 2008). The cervunals correspond to Habitat priority 6230* - Species-rich *Nardus* herbaceous formations, on siliceous substrates of the mountain areas. Also, worth mentioning is the occurrence of *Festuca elegans* considered an Iberian endemism.

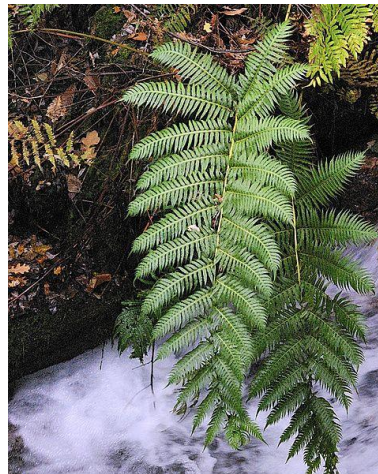


Another plant closely associated with the rocky or cervunal pastures is the daffodil (*Narcissus asturiensis*), included in the Directive “Habitats” list and that at the moment has the conservation status of *Vulnerable* and *Restricted Occurrence*. It is an Iberian endemism, which in Portugal is restricted to the higher regions of certain mountain ranges, namely in the Peneda-Gerês National Park, on the eastern slope of the Gerês mountain range.

Photo 22. Daffodil (*Narcissus asturiensis*), Peneda-Gerês National Park, Montalegre.

Lastly, the marshes or hay meadows should be noted, whose flora composition varies according to the intensity of grazing. The meadows regularly mown for hay and rarely grazed are dominated by the grasses *Arrhenatherum elatius* subsp. *bulbosum*, *Agrostis castellana*, *A. capillaris*, *Holcus lanatus*, *Festuca nigrescens*, *F. rothmaleri*, along with many other plants and are part of Habitat 6510 – Poor lowland hay meadows (ALFA 2004, ICNB 2008). The meadows subject to frequent hay drying and grazing, although subjected to a more intensive exploitation regime than the previous type, present a high phytodiversity, with a particular note to protected and important species for conservation, such as *Narcissus pseudonarcissus* subsp. *nobilis*, *Serapias lingua* and *Paradisea lusitanica*.

The importance of the flora in the Barroso region should also be highlighted in terms of aromatic and/or medicinal use. Like in many other mountain areas, wild plants in Barroso have been used by Man since time immemorial. Of particular note for their current economic significance are such plants as *Hypericum androsaemum* (sweet amber), *Melittis melissophyllum* (bastard balm), *Vaccinium myrtillus* (whortleberry), *Pterospartum tridentatum* (carqueja) and *Geranium robertium* (Robert geranium) (ICNB 2008).



Photos 23, 24 and 25. Rare flora from the Barroso region: *Iris boissieri* (Gerês lily), *Woodwardia radicans* (chain fern) and *Lilium matagon* (Turk’s cap lily).

Barroso's agricultural sector has been covered by the application and support of Agro-Environmental Measures (within the framework of the support of the EU Common Agricultural Policy), relevant in their contribution to the sustainable management of resources and the maintenance of biodiversity associated with agro-pastoral activity.

In this context, the most significant have been the measures that support the management of grazing in common land (with a higher incidence in the parishes to the north of Montalegre) and the maintenance of the marshes (with a higher incidence in the southern half of Montalegre and the northern part of Boticas). They have also benefited from the application of measures supporting terraces (mainly in the area of influence of the Peneda-Gerês National Park), protection of the Iberian wolf, maintenance of indigenous breeds and support for beekeeping.

iii. Local and Traditional Knowledge Systems

Describe the current status of invaluable local and traditional knowledge, ingenious adaptive technology and management systems of natural resources, including biota, land and water, which have supported agricultural, forestry and/or fishery activities.

Due to the terrain, soil and climate characteristics of Barroso, over time the populations had to look for technical solutions to adapt to the environment in order to survive and thrive, from the search for, availability and improvement of soils to produce food and breed animals (the maintenance of marshes, terraced vegetable gardens, fertilisation with manure from domestic cattle, bonfires to renew shrubby pastures, etc.) to the capture and use of other vital natural resources, such as water, drilling of wells, irrigation channels, use of water energy, etc.).

Another important factor for the development and management of resources was the model of settlement and development of the villages themselves, in a concentrated form, usually in locations close to more fertile soil for subsistence farming and with availability of water that could be harnessed and used. The landscape and the techniques that sustain it reflect human and technical adaptation to natural constraints as a way to respond to the populations' needs.

We will describe below in more detail the management systems of the natural resources, the technologies and the management models of the agro-systems predominating in this territory.

Management of the Marshes or Water Meadows

In the mountainous regions of Northern Portugal, where rainfall is relatively abundant and valleys are made of alluvial, generally clayey or loamy soils, with low vertical drainage, perennial cut forage has been made use of for centuries.

These are called marshes because these soils, if soaked and deprived of vegetation cover, would abound in mud.

While the abundance of superficial runoff can cause adverse damp conditions in winter, this same dampness creates favourable conditions for production in spring and summer.



Photo 26. Marshes at the bottom of a small mountain valley, Bostofrio, municipality of Boticas

It is generally accepted that the marshes, such as we know them now, would have emerged in the Early Middle Ages, forming collective pastures in accordance with the community and social organisation of the time. Despite their age-old origin in Portugal, their improvement from sowing was only undertaken in the 1960s.

Their management and production system takes advantage of the natural topographical conditions and the phenological cycles of their vegetation. The water concentrated in water courses (particularly the permanent ones) is diverted by means of a small weir or impoundment into small channels along the slope (furrows or water channels), roughly respecting the contours, from where they drain into the permanent winter pastures, ending at another gully located at a lower height and returning the non-infiltrated water to the water course from which it was originally captured.

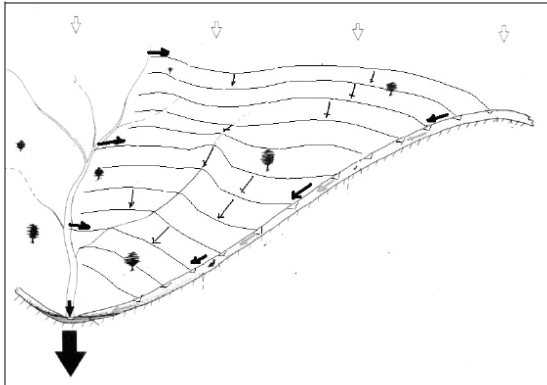


Figure 10. Irrigation schematic of the marshes (taken from Pereira & Sousa, 2005).

In winter, this process allows the effects of ice on the pasture to be controlled, since the temperature of running water is always above zero. Through this thermal regulation, the development of vegetation is fostered at a time when this growth would have been rather limited by the temperature of the atmosphere. Because the water runs like a sheet over the meadow (in a kind of filing movement), these meadows are called *prados de lima* (filed meadows).

This type of irrigation is more effective when it is practised during the colder period and extends until the risk of frost is gone. If sufficient water is not available to irrigate for long periods, it is preferable not to water, especially on the eve of very cold nights.

Grazing in these areas does not take place from spring to summer so that hay can be produced and cut in early summer, then reserved for animal consumption in the following winter.

Grazing

The role of domestic herds in maintaining the ecosystems is significant since rough grazing by sheep and goats contributes directly to the control of shrubby and herbaceous vegetation, reducing the risk of fire, one of the main threats to agro-forestry production and regional biodiversity.

Furthermore, herds of small ruminants often graze on farmland as well (at the request or not of the landowners) after harvesting or at fallow. The animal excrement deposited there increases the fertility of these soils which will be tilled later for vegetable cultivation, notably cereals and vegetable crops, which shows the importance of set-aside for the production process and its linkage to sheep and goat grazing.



Photo 27. Goat herd on farmland in winter, Alturas de Barroso, municipality of Boticas.

This grazing activity, therefore, contributes, directly and indirectly, to the maintenance of the crop rotation system, and the landscape mosaic that characterises the region.

One of the grazing management models is the rotation system called *vezeira* (see point v. Landscapes and Seascapes Features), which is more common in more mountainous areas where the terrain is rough. This cattle grazing practice in a shared form, in which the various animal owners participate, is based on a set of rules, which vary according to the village: there are *vezeiras* where the cattle is kept on the common land in rotation, the number of days for each herdsman being calculated according to the number of heads of cattle they own. For instance, in the village of Fafião (one of last villages where the *vezeira* is still practised), the rule is: a herdsman who own 2 animals, must keep the herd for 1 day, under a rotation system; if he owns 3 cows, he should keep them once and at the next cycle twice.

A number of structures were built, associated with grazing and the movement of the herdsmen and the animals on the mountains, which somehow support their activity: the *cabanas* (huts) and the *mariolas* (cone-shaped cairns). The *cabanas* are small shelters built with granite stones that allowed the farmers to spend the night protected against the cold, and they sometimes have a low protective wall or back onto a larger rock.

The *mariolas* are heaps of stones forming a kind of pyramid, placed along the slopes, to provide an orientation system to signal the “*vezeira* trails”.



Photos 28, 29 and 30. Shepherd's shelter (28) and *mariolas* (29 and 30), Gerês Mountain, municipality of Montalegre.

Common Land

One of the land uses and forms of land management is the common land. The **common land** is a type of collective property, owned and managed by local communities, which is very typical of Portuguese mountainous regions. Common land has, for many centuries, played a very important role in the life and activity of the population of this region, which is highly dependant on farming and grazing,



because the common land usually extends over wide areas (often for more than 1,000 hectares), and its use allows for the simultaneous existence of grazing areas for sheep, goats and cattle, an area for woodcutting (domestic fuel widely used in the region's villages) and an area for clearing scrub (for later use in cattle beds to produce manure).

Photo 31. Cow feeding its young on a common land pasture, municipality of Montalegre.

Some common land plots, better suited for agriculture, called *cavadas*, are designed for vegetable crops, and traditionally assigned to families with less land resources for their subsistence.

The boundaries of common land are not necessarily the same boundaries as administrative units (e.g. parishes) since these boundaries are ruled by much earlier uses and customs. Usually there are old landmarks, official records, by-laws, crosses etched on the rocks or old deeds defining the boundaries of each tract of common land. Others are defined by usage and customs, bounded by flowing waters (ridges).



Photo 32. Common land in Sapelos, municipality of Boticas.

Water Mills

Water is one of the most abundant natural resources in the region, often accessible from small mountain water courses, and Man has long attempted to use its kinetic energy to operate the equipment and structures needed for his subsistence.

The most obvious example are the water mills built for cereal milling (initially rye and later maize), which are the earliest structures for harnessing kinetic energy from the water of rivers and other water courses. There are documentary references to the existence of mills in the region since the 18th century; however, the presence of water mills and fulling mills goes further back in time, as this technology was quite widespread in Portugal in the Middle Ages.

There are various types of mills, but basically the water, as it passes, causes wooden (the oldest) or iron wheels to turn, which are connected to a grindstone (very heavy round stone of variable size). The grindstone crushes the cereal, making it into flour.

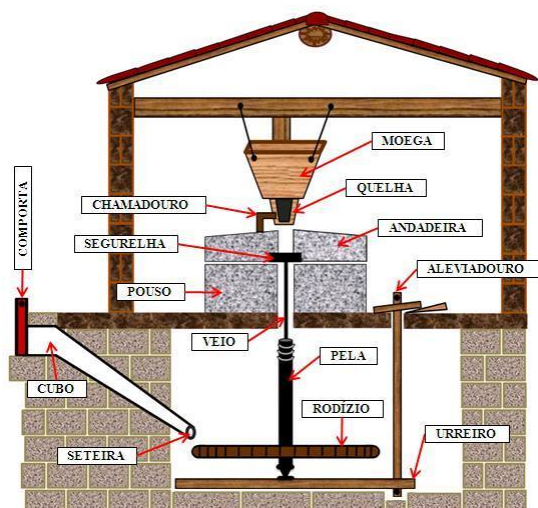


Figure 11. Diagram of operation of a water mill. Source: <http://museuvirtual.activa-manteigas.com/index.php/places/moinhos-1/tipologia-dos-moinhos-caraterizacao-arquitetonica>

In this region, the mill has always been a part of the independent means of production of rural houses, geared towards family self-consumption, and never played a truly industrial or pre-industrial role. Its operation uses the water conducted through the irrigation systems (*levadas*) for agricultural purposes (to the mills, usually built in stone) and has always been seasonal, ceasing its activity when the scarcity of water in summer made it fully necessary for irrigation.



Photo 33. Water mill on the River Beça, municipality of Boticas.

The system of ownership of these mills is varied: Individual ownership (in the case of richer farmers), collective ownership (collective mills) or community ownership, with some mills being known by the name of the village to which they belong.

In the Barroso region, there are many water mills (several hundred, certainly), most of which are unfortunately out of use, which represent for the architectural quality of a number of examples and their typological diversity, a unique heritage that demonstrates the ability to adapt to the environment and their sustainable use. Some have been restored over the last few decades, keeping their original function, while others were designed for other uses and later also integrated into tourist routes, particularly walking trails.

Traditional Irrigation Systems

In the summer months, the absence of rain and the consequent stagnation of the waterways that rely on rainwater, associated with runoff from slopes, result in a water deficit. In order to overcome this lack of water, which is essential to food crops, irrigation systems have been built for harnessing water both in permanent water courses and in the water springs themselves, thus conducting the water harnessed on the highest mountain reaches, sometimes for a few kilometres, to farmlands.

These gravity irrigation systems are key in this region and, in every village, all households (or most of them today) are entitled to this water: in winter to water the grazing and hay marshes, and in summer to water such crops as potatoes, maize and other vegetables. To enjoy this right, all the farmers are also obliged to share in the maintenance of furrows and water channels. The rotation system is such that no water is wasted, following the order of the plots and passed down the generations orally.

The water is primarily harnessed in small weirs, often taking advantage of natural obstacles that create differences in level on the beds of the water courses. Water channels originate from these weirs with a less pronounced gradient than the bed of the waterways, which after a few dozen metres enable differences in level to be created in relation to the waterway, which are compatible with the irrigation of the marshes or the operation of the water mills.

The water channels might be made in stone, wood or earth. The weirs used are essentially designed to raise the water level in order to provide for increased availability of potential power or simply to conduct the water to the mouth of the water channel.



Photos 34, 35 and 36. Furrow system in marshes (34 and 35) and water channel (36), municipality of Boticas.

It is not always necessary, therefore, to build weirs in order to harness water. As such, there are no structures for water storage, which implies, for instance, that mills can only be used when water abounds. Water being a precious commodity for these rural communities, it is usual to use of the same water for mills in succession or to use water from mills for irrigation purposes. The latter possibility is, however, less common since mills are usually located close to the water course in order to maximise the potential gravity power.

Since irrigation channels are currently for community use, a water management system is required to promote its conduct to the right user. This system is based on flood gates which, in the most recent water channels (usually built with modern construction materials, such as cement) are made in metal with direct drive or simplified manual drive mechanical systems (e.g. the screw and nut system). In traditional systems, the water flow was cut off simply by earth reinforced with stones, by stones alone or by wooden sluice gates.

The Fulling Mill

Another device associated with the use of water and its driving force is the **fulling mill**. This is a device to compress the fabric to make it thicker and stronger, as is the case of burel, a coarse wool-based fabric.

In the Barroso region, the Tabuadela fulling mill is still standing in the parish of Salto, municipality of Montalegre. The fulling mill was used to make *burel* clothing: It produced the raw material for textiles, such as costumes, capes, rugs, etc. In the Salto area, sheep were traditionally sheared twice a year to provide more raw materials to work with. Payment was made on the basis of the amount of cloth pounded, as measured with a rod.

There is also a fulling mill in Paredes do Rio: this water device uses the driving force of the channelled water, working as a saw, mill and fuller for woollen cloth. The water powers the hammers that pounded the woollen webs to make *burel*, especially for shepherds' capes. More recently, an electrical generator powered by water was also installed. Also interesting is the thatched roof (rye straw) which was recently restored.



Photo 37. Restored thatched roof of the fulling mill, Paredes do Rio, municipality of Montalegre.

The Olive Oil Mill

Although it is not a typical product of Barroso, olive oil has always played an important role in the region.

In the village of Cabril (municipality of Montalegre) there was an **olive oil mill**, a water device that made it possible to produce olive oil in this region for many years. It is no longer in operation because, besides changes in the local production of olives, related legal and health requirements led to the closure of many of these traditional units across Northern Portugal. There was also an olive oil mill in the village of Covas de Barroso (municipality of Boticas). This underwent recent works to refurbish the building, but the milling mechanisms are no longer fit for use. The future of these structures lies in tourist and cultural promotion.



It should be noted that both are located on the western boundary of the Barroso region, where the mild climate made it possible to produce a certain amount of olives, olive trees being traditionally grown at the edge of farmland.

Photo 38. Interior of the water-powered olive oil mill, Covas de Barroso, municipality of Boticas.

The Raccard

The **raccard** or granary is a construction traditionally made in granite and timber, even though there are some examples built completely in stone. Its origin is linked to the cultivation of corn, as it was used to dry the ears of the corn, a cereal introduced in Europe from the 15th Century. The techniques applied in its construction evolved over time, from the



early thatched roofs to the use of roof tiles. They rest on pillars which support the lintels which are the stays that hold the whole structure and to which the staves or laths are fitted. These are spaced out so as to allow, through the gaps intentionally left open between the wooden elements, for the interior to be aired.

Photo 39. Raccard in Covelo do Monte, municipality of Boticas.

To prevent the entry of ants, a small ditch with water surrounds the shoe supporting the granary's pillars. Similarly, *mousetraps* protect it from rodents, while the access steps are not usually connected to the main structure. In addition to these architectural features, there are some raccards that are topped by ornamental items, mostly a cross. This is associated with the desire to bless the corn that will be processed, in the same way that the baker solemnly utters a litany prior to baking. It is mainly located in sites with greater exposure to sunlight, on flatter ground where the rye was usually threshed and the corn leaves stripped off, i.e. on a threshing floor. In wealthier locations or among affluent families, the threshing floor was often paved.

The various cultural elements mentioned have a variable presence, and some of them are fully operational and still practiced. Therefore, the following elements are fully operational:

- **Management of marshes and meadows:** grass meadows (*lameiros*) represent the most differentiating agricultural crop in Barroso and are one of the dominant elements in its landscape. Their management and maintenance are crucial for hay production and cattle and sheep farming.
- **Grazing:** the region maintains rough grazing and semi-free grazing as a practically exclusive practice for animal breeding. Both shepherds' paths, marked with overlapping stone landmarks (the "mariolas"), and shepherds' huts or shelters in the mountains remain as key elements for grazing and herding in the mountainous areas of the region.
- **Management of common land:** Common land (*baldios*) originated several centuries ago and its division and administration have remained practically unchanged since those times. This has led to the fact that the different administrative delimitations applied to the territory were based on this same common land, its limits and modes of administration. These are not public areas, but they are not considered to be private either (common land cannot be sold, nor can any of its parts, even if used for private purposes, be registered on behalf of any natural person). Each common land is associated with a village and its

management bodies (Copartners – *Compartes* - Assembly Board, Supervisory Board and Board of Directors) are elected by members of the community recognised as copartners for a period of 4 years. Common land has legal and financial autonomy and is one of the most important social and economic features of Barroso.

- **Traditional irrigation systems:** these systems are absolutely necessary for the irrigation of both meadows and annual crops, in particular vegetable crops. In recent years, many of these traditional irrigation systems have been improved (e.g. small gates or pipes in water channels are now made of iron or wood, replacing the use of clods), but the methods for using water and managing time and rights for each farmer (variable from village to village) remain the same.
- **Raccard** (*Canastro* - small stilt barn): one of the oldest equipment of support to agricultural activity in the region, very closely related to the introduction of maize in Europe. Due to its location near the dwellings and places where crops are dried and stored, raccards continue to be fully used by farmers in the region. In fact, there has been a recent trend for their physical recovery.
- **Slaughter of the pig:** pigs have always been and still are the basis of meat supply of the Barroso population, so it is rare for a farmer not to raise one or more pigs, not only for self-supply (mainly smoked meat products), but also for marketing in specialty trade fairs (gastronomic and smoked meat products fairs). Thus, in the coldest months, usually between December and February, the family ritual slaughter of the pig remains a deep rooted tradition.
- **Barrosão dialect:** it continues to be spoken and its conservation and transmission from one generation to another is still guaranteed by oral family tradition. Although in recent years several academic studies have been carried out and even some publications have been published on the Barroso idiom, it currently has no support or teaching in schools.
- **Gastronomic traditions and religiosity:** gastronomy is one of the strongest identity factors of the Barroso culture. Deeply rooted in daily culture, it is closely associated with both the agricultural productive cycles and the religious and pagan festivities (also influenced by plant cycles and animal breeding cycles). In their daily lives, farmers consume vegetables grown in their own vegetable gardens (potatoes, cabbage, carrots, onions, tomatoes) as well as fresh meat from their own animals (pork, veal, chicken, rabbit, lamb) or meat processed as smoked products.
- **Popular costumes and music:** still fully utilised, even in the case of traditional costumes and textiles (wool and linen), with positive developments in terms of production and design. Even today farmers and shepherds use traditional *burel*⁶ garments, especially the more typical ones, associated with the need to stay in the fields, herding or farming, with no shelter and often under adverse weather conditions (cold, wind, rain, ice and snow).

⁶ Burel is a coarse sheep wool-based fabric obtained through a compression process with huge mallets in a fulling mill (*pisão*), making it denser, heavier and stronger. It is used for making costumes, capes and blankets.

Other cultural practices, although still present, are not as strong or important as they were until mid-20th century. Some of these practices involve a subtle bond of material and immaterial heritage. The following cases stand out:

- **Water mill:** due to technological developments, rural exodus and the loss of importance at regional level of dryland cereals (rye) for human consumption, and consequent decrease of their market value, water mills, present in very high numbers in the region (probably more than half a thousand), lost importance and were abandoned. Nowadays, a few dozen are still operating, especially those located closer to villages. Although they no longer operate on a daily basis, they are still used each month throughout the year. Always on the banks of watercourses, many of these cereal milling structures are located at sites with access either exclusively pedestrian or with draught animals, and were the first to be replaced as a productive technology for flour milling.
- **People's oven:** an identity element of the Barroso people, closely linked to the communitarianism of the region, people's ovens continue to be used, both for baking bread and for cooking the main traditional dishes, especially during festive times (roast lamb or kid, baked potatoes). With the rural exodus, emigration, technological evolution and the loss of importance of rye in the local agricultural system, many of the locals stopped baking their own bread, and therefore these ovens are now used more sparingly, also to promote a more rational use (they require firing wood to heat the oven stones and maintaining the desired temperature for longer periods).
- **Vezeira** (rotational grazing): an aging population and some changes in production (fewer farmers, but with more livestock units) led to a reduction in rotational grazing in the region. Currently, there are few villages where this practice is fully maintained, and this is more frequent in the more mountainous areas, belonging to or influenced by the Peneda-Gerês National Park, where cattle continue to be daily gathered and driven to pasture areas. However, today these common herds belong to a smaller number of farmers.

Finally, due to technical developments and legal and environmental requirements, certain cultural and heritage elements have lost the productive utility that kept them active until the last quarter of the 20th century, and therefore their agricultural use. This is the case of:

- **Fulling mill** (*Pisão*): some of these mills can still be found, perfectly equipped and even restored, but they are no longer in operation. Their activation only occurs at scheduled times, with the purpose of demonstrating and recreating their historical and cultural use and their importance.
- **Olive oil mill:** olive oil, due to the climate and soil requirements of olive trees, has always been a minor production in Barroso. The few existing olive oil mills, also due to European environmental requirements (mainly regarding waste water treatment), have been gradually closed. Some of them, traditional and differentiated by the use of water as a driving force, have been restored for educational and tourist purposes.

iv. Cultures, Value Systems and Social Organisations

Describe how the cultural identity and sense of place are embedded in and belong to the proposed site. In addition, illustrate how social organizations, value systems and cultural practices associated with resources management and food production may ensure conservation of and promote equity in the use and access to natural resources. Indicate how local social organizations can play a critical role in balancing environmental and socio-economic objectives, in enhancing resilience and in the reproduction of all elements and processes critical to the functioning of the agricultural system.

This mountain agriculture has a multifunctional outlook, while one of its key tasks (albeit not always properly rewarded) is the maintenance of the quality of natural resources, the landscape and the cultural identity of its inhabitants.

Being a region affected by serious rural exodus and depopulation problems, the future conservation of this agrarian system will depend on the ability to encourage agricultural and livestock products economically in an attractive enough way to ensure the continuity of production and the habits of younger generations, while protecting the natural resources and the landscape which identify this mountainous region so well.



It should be stressed that the traditional know-how of its inhabitants is closely linked to the agrarian and natural cycles, with the potential to ensure a biodynamic agriculture.

Photo 40. Traditional ox cart on the street in the village of Meixide, municipality of Montalegre.

Communitarianism

Communitarianism is one of the most typical values and customs of Barroso, closely associated with the rural practices of collective living and its need to adapt to the environment. It is a form rural organisation, circumscribed to a given territory and based on a deep sense of solidarity and cooperation between neighbours. In Portugal, examples of this community organisation can only be found today in some more remote mountainous areas of the northern region. Among the communitarian activities and customs are the creation of the People's Ox, the People's Mill and Oven, the *Vezeira* (shared cattle grazing), and the clearing of paths and irrigation channels.

Some jobs are planned after Sunday mass in the churchyard and performed in winter when the land is less taken up with crops and cattle. Other mutual assistance services occur frequently, their main feature being that they are free and reciprocated, especially at times when the need for labour is greater for agricultural work (sowing, hay and rye mowing, threshing, potato harvesting...). Besides the exchange of services, there was also the loan of animals, and the granting of favours or food.

Each village works like a self-contained community where matters of justice and topics of collective interest were settled by a council of local good men who met on the village green, where there was sometimes a stand or enclosure specifically designed for the purpose. The flocks grazed together on common land (the *vezeira*), the bread was baked for each family (and still is today in some villages) in the people's oven and the flour was milled in the communitarian mill. Each village had the people's ox, fed by everyone, to service the cows and to fight (*chegas de bois* - ox fighting). The mills, fulling mills, fountains and washers are further examples of subsistence structures for collective use.

The most important cases of communitarian practices in this region are described below.

The People's Oven

Local populations mobilised to build collective amenities, such as the people's oven. The people's oven enabled local populations to bake mainly bread, a very important source of nourishment that was a response to the scarcity of individual resources. These structures were subject to operational rules since every household (family) in the village baked in the people's oven and was obliged to contribute firewood to heat it. The oven was usually made in stone, although some brick ovens can also be found.



Photo 41. People's oven in Travassos da Chã, municipality of Montalegre.

Vezeira

One of the most tangible demonstrations of Barroso communitarianism is the *vezeira*, consisting of bringing the flocks of a village together to graze on common land. It is based on the association of cattle owners under collective working rules, passed down the generations, and varying from village to village.



The main role of the *vezeira* members is to take turns to tend the flock, depending on the number of livestock they own. The *vezeira* applies both to beef cattle and to sheep and goats. Currently, the surviving *vezeiras* no longer bring together the cattle of all the village residents, rather including the livestock of a more restricted number of producers.

Photo 42. Shepherd with a *vezeira* for small ruminants, municipality of Montalegre.

The People's Ox

Farmers from a particular village often got together to buy and feed one or more breeding bulls, which were called the people's ox. Taking care of the ox was done on a rota basis for a period of time proportional to the number of cows that each farmer owned. The animal was even entitled to its own pasture, the *lama do boi* (ox marsh). This animal was a symbol of the community itself, especially when it participated in the traditional ox fighting.



Photos 43 and 44. Specimen of ox of the Barrosã breed and Torre do Boi, Travassos do Rio, Montalegre.

Chegas de Bois

One of the traditional customs of Barroso is the *chegas de bois*, in which two bulls fight, often on common land, as agreed by the ox owners from different villages. The oxen test their strength for a few minutes, then everything ends when the weakest retreats. Often the oxen used for the *chega* were the People's Oxen. Currently this tradition has an annual championship exclusively using animals of the Barrosã breed, as a way of enhancing and promoting its conservation. The winning animals are afterwards much more valued in the marketplace.



Photo 45. *Chega de Bois* with Barrosã bulls.

Agricultural Work

Agricultural work usually takes place in a community spirit of mutual assistance, that is to say, activities such as harvesting, threshing and digging potatoes is carried out by several families or friends, alternately carrying out the work for each other. Usually the period of these works is between June and October.

- **Mowing:** the harvesting of the rye, when it was done manually, lasted about a week and began in the middle of June. It was cut alternately for each family of the village and the harvest for the entire village was completed in about a week. It was usual for reapers to sing while working.

- **Threshing:** this was done in threshing floors shared by the people, where they threshed the rye together. Nowadays it, too, is no longer carried out, as it was progressively replaced by machines that made the work of farmers easier, promoting greater economic efficiency in the activity.

From time to time, in order to keep the know-how for these practices alive, these traditions are still organised, aimed at transmitting to younger generations the customs of their forebears and the difficulties and demands that these works represented.

Management of the Common Land

The common lands are managed by the *compartes* (councils), elected villagers, registered and resident in the communities where the lands are located and where they develop some kind of forestry or grazing activity. The management follows the terms of usages and customs and the members sit in the management bodies (board of directors, general assembly and financial committee) following elections. In places where the councils are not organised along these lines, the administration of the common lands can be done by the local authority (Parish Council).

Religiousness, Beliefs and Paganism

In matters of religion, the population of Barroso is almost exclusively Catholic, although there are still popular beliefs, which the people have always followed and applied since undocumented times. The use of the term beliefs applies in the sense of a popular conviction, a belief that results from individual and collective experience over the years.

Among the most deeply held beliefs is **traditional medicine**. The popular pharmacopoeia, with its healers and medicinal plants, is the precedent of modern medicine locally, originating from the peoples of other cultures who occupied the territory many centuries ago (the case of the Celts), while the prolonged isolation of the region associated with the lack of access to medical care has promoted empirical knowledge about the treatment of illnesses and diseases. For this purpose, local plants are used (herbs, shrubs and trees), as well as animals (e.g. the scorpion), praying, developing remedies (recipes) for the most varied health situations and for the well-being needs of the people and their animals.

Certain beliefs are related to domestic animals, such as *lobagueira*, which is a disease in pigs, whose symptoms include lack of appetite and melancholy, and an apathy that can lead to the death of the animal. The malady is attributed to a wolf that came to drink from the watering hole of the domestic pigs. To avoid the death of the animals, all the food has to go through a wolf's trachea, locally known as the collar, to purify the food. There was usually someone who kept a wolf's trachea which they would lend to anyone who needed it. This practice can still be found in some villages in the region.

Another known disease is the *lobado*, a disease that affects cattle, in which their hoofs swell and they eventually die. This disease was also known as the disease of the mountains, of wolves and of wild animals, that came with the scrub gathered for fodder and to serve as the bed for the domestic animals. In order to heal the people, they used the spatula with which they scraped the leftovers from the bread dough, warming it in the fireplace and placing it on the hooves of the sick cows. It was also common to spread salt over the brushwood used in the animals' beds to ward off evil.

The Catholic religion itself has certain images and meanings associated with domestic animals: the goat corresponds to the demonic image of sin and the sheep represents the good and just person.

Pilgrimages are part of the Barroso culture, with people following the rituals of going to mass and parading, as well as keeping promises so that the harvests are abundant and the animals have healthy offspring. To fulfil these promises, the animals themselves were often taken to the processions and also took part in the ritual of walking around the chapel. The blessing of cattle and offerings to St. Anthony, the protector of animals, is still common.

One of the most picturesque Barroso pilgrimages is that of São João da Fraga, celebrated by the population of the village of Pitões das Júnias, that every year involves the traditional ascent of the Gerês mountain to pray mass in a small chapel in honour of São João da Fraga, which is an hour's walk along mountain tracks.

Also worthy of mention is the Feast of Saint Sebastian, in Couto de Dornelas, in the municipality of Boticas, an important community festivity also known as the Food Feast. There are different versions of its origin, one of them associated with the protection of the animals: there was a great plague that killed many animals in the parish; the people, in their despair, asked the Saint for protection, promising him that every year they would hold a feast in his honour if he were to deliver them from such a terrible evil. The event is a communal meal, prepared by the village stewards, their relatives and friends, which is served on the main street of the village on a table hundreds of metres long. Linen tablecloths cover the wooden trestle tables and maize bread is placed at intervals with 2 wooden dishes, one with meat and the other with rice. The meal is for everyone who is there that day.



Photos 46 and 47. Feast of Saint Sebastian, Dornelas, municipality of Boticas.

Carnival has its origin in the imperial festivals of antiquity, and the Portuguese word "*entrudo*" (much used in Northern Portugal, mainly in rural areas), derives from the Latin *introitus*, which means to introduce, to enter, to begin or announce the approach of Lent. In Portugal, one of the earliest references to the Entrudo is dated 1252, in the reign of King Afonso III, although not actually related to carnival festivities, but rather with the religious calendar. It is celebrated in February, and men and women, young and old, take to the streets

in masks so that nobody knows them (the caretos). Carts and animals (horses, donkeys and goats) are bedecked and also participate in the carnival parades.

Gastronomic customs and habits

There are innumerable cultural and eating habits linked to farming and animal husbandry activities, from snacks associated with agricultural work (“mata-bicho”) to the slaughter of animals for consumption (“matança”).



At the beginning of the 19th century, at the time of the 1st French Invasion, *Vinho dos Mortos* (Wine of the Dead) came about in Boticas, when the villagers, in a bid for survival and to safeguard their most precious belongings from looting by the soldiers, hid their wine by burying the bottles in the gravel of the cellars, under the barrels and wine presses.

Photo 48. Bottles of wine buried in gravel.

It was only much later, after the French were expelled, and when the inhabitants were able to recover the wine, that they found that instead of being spoiled, the wine was actually better, having acquired new properties in the time it had been buried. It had gained some natural gas, which resulted from the fact that fermentation had taken place in the dark and at a constant temperature. Because it had been buried in the ground, it was called the Wine of the Dead. They then started to bury all the wine, at least for 1 year, in order to improve its quality.

Raising one or more pigs in the Barroso farmhouse has always been a way of coping with the difficulties of obtaining fresh meat and animal protein. So after breeding the animal, the families **slaughter it**, after which they dismember it and use every part of the carcass. The meat is cured through traditional processes still used today (cold and smoke) and used to produce traditional sausages. As well as lean meats for consumption, the pork fat is also used in different ways in food preparation, replacing olive oil or oil. The killing of the pig is a time for celebration, in which all the family and neighbours join.

Costumes

There are considered to be two types of traditional dress: winter and summer. In winter, men wore trousers and a jacket of cloth or *burel* over trousers and a linen or tow shirt (under a waistcoat where a silver or gold chain hung), with a hat or cap and oiled boots or hobnailed clogs (according to how wealthy they were - farmers or labourers). These also used a reed or straw cape, hood and gaiters over woollen socks and covered clogs.



Photo 49. Burel cape worn by a herdsman, Pitões das Júnias, municipality of Montalegre.

The footwear, the clogs, were usually made of light, sturdy wood, such as birch. The outerwear was usually dark.

In summer, the clothes were light or even white, and the use of linen and coarse wool was common. The workers themselves, for the harvesting and threshing, wore breeches, long johns, shirts and dedeiras (a kind of glove) all in linen.

The women's outfits (other than young girls and ladies from better off houses who were really spectacular due to the profusion of ornaments) wore similar fabrics to the men. A dark



headscarf (used in different ways, like the hair), blouse, petticoat with pouch, skirt, apron, socks and clogs or slippers. It was very rare for a woman not to wear a pair of earrings and a ring. Essential wear for the winter was the Barroso hood, made of burel, coarse wool or even black velvet.

Photo 50. Lady spinning wool, Pitões das Júnias, municipality of Montalegre.

Popular Games

Of the various popular games in the rural area, the **Jogo do Pau** (Game of Sticks) stands out. With some similarity to fencing, albeit using a wooden stick, it has developed as a martial art of self-defence. This practice arose in the Barroso region, especially in the area of Salto, as a result of the shepherds' need to protect themselves, and the skill with the stick was passed from generation to generation. Currently Jogo do Pau is for display purposes only.

Popular Music

There is a popular musical tradition right across the region, from the songs used during agricultural works to the typical songs of certain times of the year (particularly associated with religious events). In musical terms there are also elements that we can consider to have a distinctive regional identity.

One of these is associated with musical instruments built of raw materials from agricultural and pastoral activities. The **bagpipes** are particularly important, a tradition in Portugal at least since the 12th century, but their origin in this region is uncertain, though since Barroso was a region of Spain, there must have been some kind of exchange with Galicia, both in terms of instruments and repertoire.



Photo 51. Group of pipers from Pitões das Júnias, municipality of Montalegre.

The “Gaita-transmontana” is a type of handcrafted bagpipe, with a wide chanter with open finger holes, attached to the neck of a kidskin bellows, with a solid, heavy drone, gripped in the right hand and the blowpipe caught in the left hand.

In Pitões das Júnias (Montalegre) there is still a tradition of using bagpipes and there is even a “gaiteiros” group, formed in 1998.

The Barroso Dialect

In 1929, Leite de Vasconcelos, identified the "Boticas variety" in Barroso, as part of the Trás-os-Montes dialect. Subsequently, other authors place the "Barroso Region" within what they call "transmontano talk".

In fact, linguistic studies undertaken point to a dialectal description alluding to Barroso. This popular language, used on an everyday basis, has characteristic phonetic-phonological aspects and lexicon, probably with roots in a variety of Trás-os-Montes and upper-Minho Portuguese of the 14th century, and its survival to the present time is of particular importance for the knowledge of the Portuguese Language.

This language, which can be called Barrosão, is a significant topic that constitutes a source of enrichment for language sciences, and is considered one of the matrices of Portuguese. It differs in its specificities, such as the maintenance of traits common to Galician and Leonese varieties in Portugal.

This linguistic data (phonetic, lexical, phonological) enable the sociocultural status of speakers with Barroso dialectal characteristics to be identified. According to some authors, terms can be classified as "Barrosisms", whose origin is associated with the more rudimentary speech of illiterate shepherds passed down from generation to generation.

The State of Couto Misto

Couto Misto corresponded to a small independent territory of the neighbouring kingdoms of Portugal and Spain. It was about 27km² in area, corresponding to three villages currently in Spain (Santiago, Rubiás and Meaus) and lasted from the 10th century to the 2nd half of the 19th century, bordering the present municipality of Montalegre. Power was exercised by three judges, elected directly by the respective inhabitants (one for each village).

Couto Misto was a prosperous land, as a result of the contraband that was smuggled along the path connecting the two important Iberian kingdoms.



Figure 12. Map showing the boundaries of Couto Misto.

Among the privileges enjoyed by its inhabitants, it is worth mentioning the option for Portuguese, Spanish, or mixed nationality; exemption from taxes, duties or tributes; the licence to carry a weapon; the right to establish their own government and to make their own

laws; the granting of asylum to Portuguese and Spanish offenders, if the crime committed had not involved bloodshed; they could grow tobacco; they were not subject to military service, either in Portugal or Spain; the road that crossed the Couto Misto territory was not subject to the payment of any toll or other type of tax, it was totally free for the passage of people and transportation of any merchandise.

The church of the single existing parish, the Santiago chapel, kept the "ark of the law" in its crypt. This oak chest required three keys (one for each representative elected by the villages) to be opened. This was where the "law" was kept. All the records were kept in it, along with the deliberations of the three judges.

The Portuguese archives on the foundation of Couto Misto were destroyed by the Lisbon earthquake of 1755, so the first written documents filed in the Tower of Tombo in Lisbon date only from the 13th century. This exceptional administrative situation came to an end with the Treaty of Lisbon on boundaries, negotiated between the two Iberian Crowns in 1864, which would permanently eliminate the "State" of Couto Misto, whose formal annexation to Spanish territory (for the most part) took place in 1868.

Since this period of existence, social and economic relations between the populations of both countries have been strengthened, lasting to this day, as well as the practice of the cattle of the populations of that part of the territory of crossing the administrative space they shared while Couto Misto existed.

v. Landscapes and Seascapes Features

Describe the characteristics of landscapes and/or seascapes that have been developed over time through the interaction between humans and the environment, and appear to have stabilized or to evolve very slowly. Identify their form, shape and interlinkages characterized by long historical persistence and a strong connection with the local socio-economic systems that produced them.

The landscape of this land is clearly the result of man's interaction with the natural elements, and, as defined in the European Landscape Convention (Council of Europe, 2000), it forms the background to the quality of life of the populations and reflects the diversity of their cultural, ecological and socio-economic heritage. It is therefore one of the foundations of local and regional identity.



Photo 52. Forestry-farming landscape, Carvalhelhos, municipality of Boticas.

Human intervention, with the cutting of scrubland for the beds of the animals, the maintenance of gall oaks and heathers for firewood, the conservation of the marshes, the fires for renewing the pastures, the agriculture done in small gardens with stone wall boundaries, etc., has imprinted on

the landscape a set of humanised and seminatural elements of great scenic and biophysical value.

The maintenance of this cultural landscape requires a permanent human presence and action, but in balance with the environmental conditions and the needs for regeneration and conservation of its own natural resources.

A description is provided below of some of these elements that are explicitly dependent on human intervention, and guarantee certain landscape peculiarities of the region and represent an important factor in the management of natural resources and in the maintenance of the existing cultural landscape mosaic.

Dry Stone Walls

Dry stone constructions are often found in the Barroso territory. The use of dry stone consists of building the walls by piling up the stones without the need to use any product to bind them (clay or cement).

The stones are fitted according to their size and shape and smaller stones are used to fill the spaces left by the larger stones, thus obtaining a rigid structure. It is a built heritage endowed with a great typological and functional variety (dividing walls, dwellings and animal shelters, terraces, rainwater channels, roads...) and has created a great landscape wealth.



.This heritage adds to environmental values that surpass the local or regional scale, since this type of construction contributes to the maintenance of biodiversity and the conservation of animal and plant species of considerable value, some of them with an important role in preventing soil erosion, the movement of the slopes and fires.

Photo 53. Property with dry stone wall boundary, municipality of Montalegre

In the case of terrace walls, for example, they increase the water infiltration capacity and the refilling of the aquifers, guarantee the stability of the slopes and avoid erosive processes. Moreover, their agricultural use corresponds to areas of low vegetation, with a marked horizontal discontinuity of fuel, which reduces the risk of fire and its propagation, while facilitating firefighting efforts.

Marshes and the Landscape

The marshes are cultivated wetlands that create landscapes of great visual and ecological value. These pastures are often surrounded by forests with native species, either riverside vegetation with ash, birch, willow or alder, or with oak or pine forests, whose subdivision

provides an even greater diversity and complexity of this agroforestry system. However, their conservation is difficult because they require labour-intensive maintenance work throughout the year (irrigation of water meadows, as described in point iii). The permanent soil cover provided by the marshes contributes to a reduction in the risk of erosion, promotes water infiltration and thus reduces runoff and increases underground water sources. After intense rains, the surface runoff water is successively intercepted by the existing furrows in the meadows and the water flowing in the water courses is also successively diverted towards them, increasing the concentration time and providing greater opportunity for infiltration. This results in increased concentration time of water in the soils and a decrease in peak flows of the water courses, albeit with little change in the volumes drained as a response to intense rains.



Photo 54. Marshes close to a stream, surrounded by forest and dry-stone walls, Salto, municipality of Montalegre



Furthermore, the yield from pastures is relatively low and these Barroso mountain areas face serious depopulation with the consequent ageing of the resident populations. This has led to the marshes being gradually abandoned.

The recognition of the landscape value of the marshes is fairly recent, but they have been included for some years now in rural landscape routes and justify the enhancement of the regions in which they are located.

Photo 55. Signposts for routes and walking trails close to the marshes in Tourém, municipality of Montalegre.

The Village

A village is a small rural place, characterised by its low number of inhabitants and small housing nucleus where traditionally people and their domestic animals lived and, in addition to the houses, there are other buildings and structures related to economic and social activities: the cattle pen and the stable, the threshing floor, the raccard, the oven, the fountain, the tank, the chapel and the storehouse.



The village worked for many years as a closed system, i.e. its residents consumed what they produced, with minimum contact with the outside world, and a social, agricultural and pastoral organisation that was self-sufficient. As such, the village developed a deep relationship with the surrounding nature, using natural resources from a sustainability perspective, and producing some of the raw materials it needed, in accordance with local geomorphological conditions (availability of headwater and soils for growing crops).



The whole productive and pastoral system is developed from the village, within a spiral growth pattern: closer to the houses are the vegetable gardens, for the production of food for daily consumption, and the marshes for the production of hay and cattle grazing; further away are the arable fields, usually rain-fed, for winter cereal and potato crops; lastly, in the outskirts of the village, the mountain plots, usually common land, taken

up by scrubland, cut for cattle beds, and poorer pastures for rough or free-range grazing of certain flocks.

Popular architectural models took advantage of the materials available nearby, using building technologies available at the time and mostly focused on meeting the most elementary needs, rather than on personal wishes or tastes.

Houses were built in granite and had, until a few decades ago, thatched roofs which were later replaced with tiles. In the rural house, the ground floor was usually devoted to animals, mainly beef cattle, whose beds gave off heat through fermentation which also worked as a means of heating the flooring on the level where the people lived.

Although, in the course of last century, a gradual exodus of the population has occurred, there has been a convergence of efforts, over the last few decades, to preserve the rural heritage and its architectural and cultural enhancement.



Photos 56, 57, 58, 59 and 60. Architectural (56), cultural (57, 58 e 59) and landscape (60) features in some typical villages in the Barroso region.

III. Action Plan for the Proposed GIAHS Site

An Action Plan for a dynamic conservation of the proposed GIAHS site must be developed with the proposal. The recommended items to be included in the Action Plan are an analysis of threats and challenges and detailed descriptions of the policies, strategies, actions and outcomes which are already under implementation and/or will be implemented in the area by various relevant stakeholders to promote dynamic conservation of the system with the following supplementary information:

- *Identify and analyze threats and challenges, including socio-economic pressures and environmental changes to the continuity of the existence, sustainability and viability of the system;*

This Plan of Action intends to be a participatory and live document. The objective is therefore to be able to revise it frequently having in mind the lessons learnt in its implementation. That said its important to mention that this first version would be further discussed during the next two years with the diferent stakeholders involved. In order to learn with other experiences being implemented, knowledge exchanges with other GIAHS sites in CPLP and European member countries are going to be promoted. The justification for the initial plan is presented below.

One of the downsides of this region is the high **rate of ageing population**, and a low level of education. This, associated with the **absence of jobs**, feeds the **exodus of the population** to coastal areas or abroad in search of a better life. The disappearance of the older generations could also result in the loss of knowledge and practices which failed to be passed down and sufficiently assimilated by the younger generations. Familay farmers are particularly affected.

It is fair to say that the external threats to the region mainly involve the **current economic situation which acts as a strong disincentive to investment** (increased tax burden, low employment generation...). The bureaucratic and organisational requirements for accessing financial support also appear to be inadequate for the size and capacity of local businesses, which are, in the main, family farmers or food processors. There is thus **to less adjusted public (local and national) policies, remoteness and a weak entrepreneurial spirit**, lacking in innovation (especially in terms of manufacturing) and R&D&I.

Globalisation also implies the threat of a **change in diets and food patterns** that define the regional identity. One of the most recent problems is the perception of the possible harmful effects of smoked products that may cause **loss of value in certain regional products** and the discontinuation of their production. Its important therefore to promote the differentiated quality (agro-ecological) of Barroso smoked products.

In view of the demographic losses and socio-economic changes in recent decades, it seems that the continuation of agricultural undertakings and certain production systems, with producers also engaged in activities other than agriculture, may in the future largely depend on the conditions to access to agri-environmental subsidies and support, still common in the most disadvantaged and mountain regions. Some measures related to forestry reform (access to vacant land, land register, incentive for afforestation, etc.), as well as the promotional dynamics of the territory, in particular those associated with the appreciation of agricultural products, may also be included in this perspective.

The evolution of the multi-annual financial framework as well as the different Community support instruments in the post-2020 period and the increased requirement for their effectiveness will certainly require greater coordination and inter-institutional articulation for

the implementation of local and regional development strategies in a **context of scarce public resources**. Associated with this, there may be some future lack of public measures to support economic activities in this area, as well as certain essential cross-cutting services (health, education and social support). Territorial governance will be become, therefore, an extremely important issue.

It should be noted that the maintenance of indigenous breeds has been largely possible thanks to European Community support and, in its absence or significant reduction, the survival of these breeds could be jeopardised and foreign breeds introduced (many of them more productive and economically more profitable in the short term). This threat of a reduction in the numbers of native breeds is real, as in the case of the Barrosã breed: the number of PDO holdings decreased slightly between 2014 (with 304 farms) and 2015 (with 293 farms), as did the sale price of carcasses (around -20% between 2013 and 2015) (DGADR data, not yet published). Adjustments in the current public policies, particularly in the level of support for such productions should be evaluated.

Another threat to both the agrarian system and nature conservation is **forest fires**, which periodically assume extraordinary proportions, with major fires causing both the loss of habitat for wild flora and fauna and the loss of agricultural production and production factors for cattle breeding.

Climate change, with all the uncertainties still associated with its magnitude and impact, is also a threat to the conservation of this agrarian system, whether due to **changes in vegetation cover or the appearance of pests and/or diseases of the present crops**, or to **climate instability, randomness and unpredictability** that will influence both the water regime and the vegetative cycles of existing crops. In fact, changes in the vegetation cover are already visible in some parishes, where the abandonment of arable land has favoured the increase of the area dedicated to permanent crops, mainly orchards, and among these, especially the chestnut tree.

- *What are the proposed policies, strategies and actions and how will they respond to the threats as described;*

Barroso's agricultural system is a dynamic one in which the different natural and cultural factors influence each other, determining a global structure characterised by the relief and respective vegetation cover, the agricultural use of the soil and the type of settlement, which gives it a certain spatial and temporal coherence.

The process of land abandonment also entails the risk of degradation of the natural, cultural and built heritage, given the characteristics described in the previous points of this proposal. In order for the uniqueness of this agrarian system and consequently regional identity to be preserved, there must be a **dynamic governance multi-stakeholders system that takes into account the new concerns and needs of local society**, because the landscapes, as they are now understood, are no longer exclusively relevant to the resident communities, but are also so for their various users and those related to them (visitors, tourists, etc.)

Changes in territorial dynamics must also be based on conscious choices, allowing specific characteristics to be maintained, mindful that this evolution results both from the heritage of the past and from transformations motivated by functions that disappear and others that arise and consolidate. Different types of actions are identified, which will try to respond to the various dimensions of the problems and critical factors of the sustainability of the current territory.

This initial Action Plan for the GIAHS site is a result of a participatory process since it involved the main public, non profit and private organisations operating in the territory, which approved and validated the contents of the application document (specifically in the meeting held on 22 May 2017 (minutes attached)), subsequently ratified by various entities and citizens, who endorsed it in meetings held for the purpose (19 June 2017).

The actions to be developed were grouped in 4 thematic axes, as described below. The initial timeframe chosen was only 2 years. As already said the plan will be revised during its participatory implementation and lessons learnt with other territories involved in GIAHS. A revised plan will be therefore submitted in two years time. Therefore some of the measures in the thematic axes were not introduced in the matrix, since they will be probably executed after the 3rd year (post-2019 period). The whole provisional work plan is however for 5 years.

Actions seek to respond to the difficulties and needs already identified in the territory (aging population, emigration and abandonment of agro-pastoral activity, depopulation, loss of proximity public services, etc.) that threaten and even endanger some of the variables that differentiate it (agro-silvo-pastoral system, mixed farming, presence of native breeds and regional crop varieties), which together adequately meet the GIAHS classification criteria.

On the other hand, it is sought that the combination of the various actions, namely those related to the promotion and valorisation of the GIAHS classification, may contribute to improve and enhance the territory and its activities.

Axis 1 - Promoting Barroso as GIAHS territory:

- **Organisation of a congress on regional development and nature conservation where knowledge exchanges and lessons learnt will be systematized;**
- Training and education actions involving primary and secondary schools for teachers and students focusing on the creative enhancement of the region's resources;
- Environmental education actions for residents;
- Conducting a promotional campaign about Barroso as a GIAHS territory, in other regions of Portugal and Europe;
- Participation in tourism and cultural promotion events, particularly in the regions most representative of the origin of tourists and visitors to Barroso;
- Participation in territorial and agri-food promotion events, organised in other Portuguese regions and abroad.

Axis 2 - Improving the skills of agricultural producers and enterprises:

- Survey of young family farmers in the last Community Support Frameworks;
- Identification of farms in OPM (Organic Production Mode), traditional (agro-ecological) or Integrated Production;
- Conducting training and capacity building targeting agricultural entrepreneurs and other economic/ social stakeholders;
- Conducting training and demonstration activities to promote the transfer of traditional inter-generational knowledge (e.g. the culture and production of linen);
- Support for the improvement of traditional farming practices in terms of efficiency and environmental sustainability, both by training farmers and by supporting technical and scientific research;
- Promotion of the National Land Exchange to foster the agricultural and forestry use of properties abandoned or at risk of abandonment;

- Promotion of agricultural land parcelling at the local level, as a means of qualifying and re-dimensioning farms, with respect for the current landscape;
- Investment support for the maintenance of traditional collective irrigation systems (irrigation of water meadows);
- Establishing an agricultural monitoring/extension system, based on existing services in Producer Organisations and in liaison with local authority services and agricultural and forestry advisory services.

Axis 3 - Economic and social promotion of agroforestry and livestock farming in Barroso:

- Locally organised Events/Fairs for gastronomic promotion;
- Expansion of collaborative networks, especially involving companies (e.g. Network of Upper Tâmega Taverns, Rede + Turismo + Sabor);
- Promotion of Barroso's economic opportunities amongst university students (particularly those from the municipalities of Boticas and Montalegre);
- Raising awareness about agricultural activity as an equally worthy, socially valuable and sound profession with financial stability for the future;
- Monitoring of current marketing models and identification of new opportunities, taking into account possible disturbances in the agro-system;
- Promotional activities, in liaison with various agents, aimed at reducing the marketing circuit between the producer and the consumer;
- Support for extensive grazing activity, in particular given its contribution to reducing the risk of rural fires;
- Training actions for chefs, based on the natural and processed products from Barroso.

Axis 4 - Enhancing the cultural and natural heritage:

- Census of the cultural heritage of the traditional dry stone construction technique;
- Support for the work of ethnographic collection (language, customs, costumes, traditional culinary recipes, etc.) carried out by the Barroso Ecomuseum;
- Implementation of European cooperation projects with a view to the enhancement and conservation of historic and cultural heritage (tangible and intangible);
- Bio-monitoring activities (both food products and biodiversity values);
- Census of priority wild species (Annexes to the Directive “Birds” and “Habitats”), on a multi-annual basis, to assess the conservation status of habitats and wildlife populations;
- Survey of Barroso's ancient trees and recording of dendrometric schedules, as a method of improving the analysis of the evolution of the landscape and the agro-pastoral and forestry practices of the region;
- Monitoring of the evolution of the tree cover, taking into account the demand for new production options (e.g. chestnut production) and nature conservation (e.g. maintenance of oak plantations);
- Signposting and definition of sampling areas (villages with traditional architecture, natural and semi-natural forests, areas of traditional agriculture, etc.), which for their representativeness reflect the evolution of land use, focusing on agrarian and environmental activities.
- Implementation of regional tourist certification, associated with the sustainability of the GIAHS site.

- *How these policies, strategies and actions will contribute to the dynamic conservation of the proposed GIAHS sites;*

The **enhancement of the indigenous breeds** is the basis for improving the quality and diversity of the regional agricultural production, as a competitive advantage for the local producers. Maintaining the genuineness of the products obtained will facilitate both the stimulation of the markets in which they compete and the establishment of active populations in the primary sector with a decent pay. In fact, one of the characteristics of this agrarian system is its sustainability in the three environmental, economic and social aspects.

For the dynamic maintenance of Barroso's agrarian system in the coming decades, it will be important to **encourage certification and differentiation systems**, which demonstrate the quality and diversity of products to consumers, thus strengthening their confidence and the transmission of a message associated with cultural values specific to the region, but also associated with respect for the values and demands of the consumers themselves (such as nature protection and animal welfare). In order to strengthen family farmers, participatory certification schemes will be tested.

The existence of **local markets and outreach events**, such as fairs and gastronomic events, clearly benefit small producers and companies of a smaller productive and economic scale, which account for the majority of Barroso producers.

The notion that **cooperation in the development of innovation**, where research is more geared to solving problems of production with greater sharing and transfer of knowledge, is a key factor in improving the primary sector's capacity for innovation as well as providing work and planning tools for local and regional leaders.

The **support and monitoring of young farmers** is also fundamental for the rejuvenation of the agricultural sector, not only as producers *per se*, but also as agents with greater innovative and entrepreneurial potential.

- *How multi-stakeholders are involved, including local communities, and support at local, national and international levels;*

Stakeholders are involved in this process from the preparation stage of the application itself to the GIAHS Programme, by attending and participating in working meetings where their concerns and suggestions on the future of the territory will be heard. Each stakeholder is somehow a representative of practical knowledge, in its various forms, so the establishment of an institutional framework in which they participate will help in the future management, dissemination and transfer of this accumulated know-how.

The institutional framework proposed for the management of the GIAHS classification will be based on the main public and private entities that operate in the region. Consideration should be given to the creation of an **Executive Committee**, whose operating model or regulation should also be formally defined, composed of the following entities:

- Ministry of Agriculture, Forestry and Rural Development (MAFDR) or designated representative body,
- Boticas Town Council,
- Montalegre Town Council,
- Alto Tâmega Intermunicipal Community (CIMAT),
- Barroso Ecomuseum Association,
- Development Association of the Alto Tâmega Region (ADRAT).

-Family farmers organizations;

This Executive Committee should meet quarterly in order to ensure compliance with the provisions of the application and the approved measures.

The Executive Committee will take on the responsibility for carrying out the actions set forth in the Plan of Action for the Barroso GIAHS site. It will also be responsible for managing the implementation and promotion of the GIAHS brand within the territory, and it will be in charge of its agents. We could say that it will be the GIAHS site “operational team”.

It is also suggested that a *Monitoring Committee* is set up, with a broader scope, both in the type and number of participating entities. For its constitution, in addition to the members of the Executive Committee, the following entities are proposed:

- FAO
- Planning and Policy Office (GPP),
- Institute for Conservation of Nature and Forests (ICNF),
- North Region Coordination and Development Commission (CCDR-N),
- Northern Regional Directorate of Agriculture (DRAP-N),
- 2 Universities,
- 1 School Grouping,
- 1 Organisation of Agricultural and Livestock Producers, and
- 1 Organisation of Forest Producers, Common Land and/or Environmental Protection.

The Monitoring Committee will have responsibilities in the specific actions to monitor the Plan of Action, with a contribution to monitoring and measuring performance indicators in accordance with that proposed in the Plan of Action. Its duties include evaluation functions, mainly accomplished through the participation of public and private bodies with public utility. The composition of the Monitoring Committee shall be approved by the Barroso Platform. The Monitoring Committee should meet once a year.

The Barroso Platform is an organisational structure, aiming to bring together all active organisations within the territory (associations, cooperatives, schools, public entities, companies, etc.), with expertise in the various dimensions that underpin the GIAHS classification. Joining this structure, which will operate as a kind of general meeting, is voluntary but it will always involve adherence to and agreement with both the principles inherent to the GIAHS Program and the proposed Dynamic Conservation Plan for the management and conservation of the territory. The adherence to the Platform shall be formalised by means of a Pact/Agreement with the Dynamic Conservation Plan to be signed by the various organisations involved.

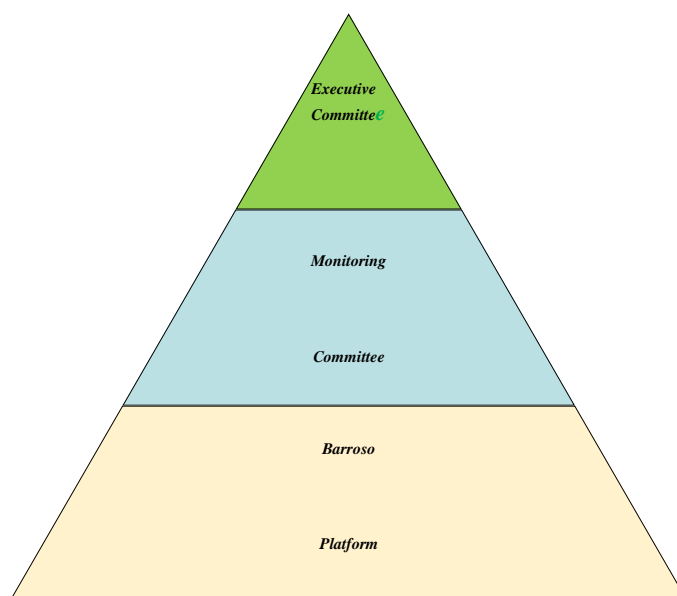


Figure 13 – Governance structure chart for the future GIAHS territory of Barroso.

- *How policies, strategies and actions can be used to leverage funding and/or mobilize resources at the local, national and/or international level;*

In terms of funding, this is expected to be obtained at different levels, either by direct support for concrete actions (e.g. gastronomic fairs) or by the opportunity to finance more transversal actions (e.g. training and environmental awareness actions).

To this end, in addition to the budgets of the main local entities directly involved in this process (Local Government, Development Associations, Universities, Ministry of Agriculture), we will seek at all times to implement projects supported by different mechanisms, namely:

- Rural Development Programme, through the implementation of Community Based Local Development (DLBC) of Upper Tâmega and the programme or strategies which will follow in 2020;
- Regional Operational Programmes, through the Strategic Compact for Upper Tâmega or the subsequent 2020 programme;
- Environment Fund;
- European Commission Programmes or Initiatives (e.g. LIFE+ Programme);
- European Regional or Sectoral Cooperation Programmes (INTERREG, ERASMUS+, EEA Grants, COSME, HORIZONTE 2020, etc.);
- FAO support programmes;
- Cooperation for Development through the Community of Portuguese-Speaking Countries (CPLP).

Access to financing for the development of actions and projects should occur either through the individual participation of organisations (in individual projects or in cooperation projects, e.g. of a transnational nature) or through joint participation of one or more local or regional institutions in this kind of programmes and projects.

- *How monitoring and evaluation of implementation and the effect of the Action Plan will be undertaken.*

In terms of monitoring and evaluation of the Action Plan, several indicators should be further developed monitored, associated with the main aspects of land sustainability, as currently proposed (social and economic indicators, environmental and landscape indicators and context indicators - institutional dynamics, intra- and interregional cooperation, etc.) associated with the management of the GIAHS classification. Among other measures, the following are proposed:

- The creation, by the Executive Committee, of a grid of indicators to monitor the dynamics of the development of the territory, in the different aspects associated with its agricultural and rural specifics, for the periodic collection of information;
- Meetings of the Executive Committee, to define monthly actions and their achievement indicators, and to analyse the targets achieved;
- Meeting of the Monitoring Committee of the GIAHS Barroso classification, which will meet twice a year, to evaluate the actions carried out, their results and impacts;
- Performance of a "satisfaction assessment" questionnaire amongst organisations and producers, in order to understand the progress made as a result of the GIAHS classification (every 2 years);
- Preparation of a bi-annual qualitative and quantitative monitoring report;
- Communication with the GIAHS Programme on an annual basis, showing results and conclusions, thus promoting the permanent monitoring and guidance by the certification body of the GIAHS territory.

With regard to governance, in addition to the multilevel organisation structure presented, which proposes the management of the project implementation based on a platform bringing together all local actors directly related to the territory (the Barroso Platform), it is also proposed an Executive Committee and a Monitoring Committee. From this moment on, mechanisms will be created to promote a greater active participation of the local agricultural communities and a certain autonomy, enabling the preservation and maintenance of the Barroso specificity.

It should be emphasised that the participation of local actors related to the specificities of this GIAHS process is already ensured through the inter-institutional platform that constitutes ADRAT (Development Association of the Alto Tâmega Region, the entity that promotes and coordinates the GIAHS application). In fact, this participation has been ensured from the very outset.

ADRAT is a private non-profit association founded in 1990, which has now 11 full-time workers and 38 associates⁷. These associates are municipalities, agricultural associations and cooperatives, forestry and environmental associations and cultural associations. Its intervention area is the Alto Tâmega region (NUTIII) that already comprises all the Barroso area.

For managing the GIAHS site of Barroso, the entities that will be participating in the several structures proposed (Executive Committee, Monitoring Committee and Barroso Platform) will be the ones whose intervention corresponds to or includes this territory.

Besides the European Programmes through which various projects are implemented (LLP, ERASMUS+, INTERREG IV-C, INTERREG SUDOE, INTERREG ATLANTIC, POCTEP), ADRAT is also a Local Action Group (LAG), managing the Rural Development Programme for Alto Tâmega. It works closely with both its associates and other organisations, such as SME, schools and associations, by involving them in seminars, workshops or conferences. It also works closely with the Intermunicipal Community of Alto Tâmega (CIMAT), that is, the regional authority of NUT-III level. In recent years, ADRAT implemented several projects and training actions to promote sustainable development in the region.

ADRAT is a certified training entity (Certificate No. 0924/2014 issued by DGERT - Directorate-General for Employment and Labour Relations) and has implemented a Quality Management System, under ISO 9001.

⁷ List of Associates: Adegas Cooperativas de Valpaços; AMAT - Associação de Municípios do Alto Tâmega; Câmara Municipal de Valpaços; Câmara Municipal de Vila Pouca de Aguiar; Câmara Municipal de Boticas; Câmara Municipal de Chaves; Câmara Municipal de Montalegre; Câmara Municipal de Ribeira de Pena; Cooperativa Agrícola de Boticas, CRL – CAPOLIB; Cooperativa Agrícola de Chaves; Cooperativa Agrícola do Norte Transmontano; Santa Casa da Misericórdia de Chaves; TEF - Teatro Experimental Flaviense; MONTIMEL – Cooperativa de Apicultores do Alto Tâmega; ANCABRA – Associação Nacional de Criadores de Cabra Bravia; ARATM – Associação Regional dos Agricultores das Terras de Montenegro; Cooperativa de Olivicultores de Valpaços; COOPAGUIARENSE – Cooperativa Agrícola de Vila Pouca de Aguiar; CVRTM – Comissão Vitivinícola Regional de Trás-os-Montes; AVITRA – Associação de Viticultores Transmontanos; Casa do Povo de Vilarandelo; INVENSONS – Associação Cultural; AATBAT – Associação Agricultores Terras Barroso e Alto Tâmega; Centro de Gestão Agrícola de Valpaços; ADIRBA - Associação para o Desenvolvimento Integrado da Região do Barroso; AGUIARFLORESTA; Santa Casa da Misericórdia de Vila Pouca de Aguiar; Santa Casa da Misericórdia de Boticas; NaturBarroso – Promoção Organização de Eventos, Lda.; AFACC – Associação Florestal e Ambiental do Concelho de Chaves; TRASVINIS – Associação Regional de Produtores Engarrafadores de Trás-os-Montes; Ecomuseu do Barroso; Pena Aventura Organização de Atividades Desportivas, Lda.; Centro Social Nossa Senhora do Extremo; Bons e Valentés – Associação Criadores de Gado; Associação Promotora de Ensino Profissional para o Alto Tâmega; Associação Cultural, Desportiva, Recreativa de Balteiro; ADRIPOIO – Associação de Desenvolvimento Integrado do Vale do Poio

It is recognised as an Authorised Entity (Entidade Autorizada - GeOp) for the National Land Bank (Bolsa Nacional de Terras), whose managing entity is the Ministry of Agriculture, through its Directorate-General of Agriculture and Rural Development (DGADR).

It is a member of some European networks and associations, such as ERIAFF (European Network for Agriculture, Food and Forestry Innovation), EARN (European Rural Network), Euro-Mediterranean Foundation Anna Lindh (FAL) and Euromontana. At national level, it is a member of several networks, namely Minha Terra (National Federation of Local Action Groups) and RNI (National Network of Incubators and Accelerators).

Since 2016, in coordination with the Ministry of Agriculture, ADRAT has been responsible for drafting the technical dossier for the GIAHS Programme/FAO, regarding the Barroso region, formally submitted by the Ministry to FAO in 2017.

In fact, since a territory is always a complex area, with several interacting hubs (either community, administrative, social, sectoral or environmental hubs), it is necessary to have a thorough knowledge of everything that happens within it and that characterises it, when launching an approach and an intervention process. Therefore, ADRAT emerges as the entity that, admittedly, is most familiar and able to deal with all these issues in a cross-cutting and integrated way.

From the outset, there has been a concern to launch and promote a GIAHS process in the Barroso region that was strongly ‘territorialized’, that is to say: that was permanently connected to the specificities of the whole territory; that was built from bottom up in that everything was done starting from the territory and its dynamics, always with a high level of participation of the agricultural sector; that was integrated and sustained by a great involvement of the local communities; and that tried to be innovative through differentiation.

In the end, through this process a functional matrix was established in the territory covered, based on the characteristics of the Barroso agro-sylvo-pastoral system and related dynamics.

The GIAHS project will be based on a well-defined and already thoroughly explained territorial focus and on an autonomous participative management guaranteed by the different levels of responsibility, namely the Barroso Platform, the Monitoring Committee and the Executive Committee, which through their members will play the roles of negotiating, organising and planning interventions; promoting active participation through capacity and skill building; ensuring constant evaluation mechanisms; and, consequently, boosting all resources, assets and mechanisms related with this process.

ACTION PLAN OF THE BARROSO AGRO-SYLVO-PASTORAL SYSTEM

Table 1

		Main threats and challenges																	
Axis		rate of ageing population	low level of education	absence of jobs	exodus of the population	loss of knowledge and practices	disincentive to investment	bureaucratic requirements for accessing financial support	isolation of business and a weak entrepreneurial spirit	lack of innovation (especially in terms of manufacturing) and R&D&I	change in distinctive cultural habits that define regional identity	loss of value in certain regional products and the discontinuation of their production.	dependence on the access to agricultural subsidies	future lack of public measures to support agricultural activities	lack of essential public services (health, education and social support)	reduction in the numbers of native breeds	major forest wildfires	Climate change/climate instability and unpredictability	land and agro-pastoral activity abandonment
1	Training and education actions, involving primary and secondary schools, aimed at the teaching and student class, with a focus on the creative valorization of the territory's resources																		
	Promotion of the territory in Tourism Fair in Portugal (BTL)																		
	Regional promotion in a national event promotion (Portugal AGRO)																		
	Promotion at a local / regional cultural event (Galaico-Portuguesa and Meetings of Accountants, Pitões das Júnias)																		
	Promotion of the region agri-food products, in an international gastronomic event (Nanterre Fair, France)																		
	Congress on regional development and preservation of natural resources																		
	Environmental education actions aiming the resident population																		
	Promotional campaign of a Barroso's as GIAHS site																		
2	Survey of young farmers installed with the last the EU Community Support Frameworks																		
	Survey of farms in Organic Production or Integrated Production Mode																		
	Promotion of the National Land Bourse, to stimulate the agricultural and forestry use of properties abandoned or at risk of abandonment																		
	Carrying out training actions for agricultural entrepreneurs																		
	Training actions for knowledge transfer (inter-generational included)																		
	Support to improve the traditional agricultural practices																		
	Promotion of agricultural reparcelling at the local level																		
	Investment support for maintenance of traditional irrigation systems																		
3	Create an agricultural and forestry monitoring and extension system																		
	Promotion of Gastronomic Events and Fairs (Fumeiro Fairs)																		
	Valuation of collaborative networks involving companies (eg Alto Tâmega Tavern Network)																		
	Promotion of Barroso's economic opportunities and measures to support investment in agri-food and tourism																		
	Raising awareness about agricultural activity as a valuable and financially stable activity																		
	Follow-up of current marketing models																		
	Promotional actions to reduce the marketing circuit between the producer and the consumer																		
	Support extensive pastoral activity as a way to reduce fires																		
4	Training actions for chefs, based on local products																		
	Census of cultural heritage of traditional stone construction technique																		
	Implementation of European cooperation projects aimed at enhancing and preserving the historical and cultural heritage																		
	Signaling and definition of sampling areas																		
	Support for the ethnographic collection work of the Barroso Ecomuseum																		
	Actions of bio-monitoring																		
	Census of priority wild species																		
	Survey of Barroso's secular trees and their characterization																		
Follow-up of the evolution of the arboreal plant cover																			
Implementation of regional tourist certification, associated with the GIAHS site																			

ACTION PLAN OF THE BARROSO AGRO-SYLVO-PASTORAL SYSTEM

Table 2

AD RAT ASSOCIAÇÃO DE DESENVOLVIMENTO DA REGIÃO DO ALTO TÂMEGA		Timeline						Stakeholder in charge of the action	Means of verification
		Year 1			Year 2				
Item	Action								
1	Training and education actions, involving primary and secondary schools, aimed at the teaching and student class, with a focus on the creative valorisation of the territory's resources			←————→			Ex: AD RAT	Lesson plan for each class Presentations delivered in two different middle schools per year	
	Promotion of the territory in Tourism Fair in Portugal (BTL)			←————→			Ex: AD RAT	GIAHS Barroso website created with content periodically shared Organisation of national event with the participation of relevant stakeholders	
	Regional promotion in a national event promotion (Portugal AGRO)			←————→			Ex: AD RAT	GIAHS Barroso website created with content periodically shared Organisation of regional event with the participation of relevant stakeholders	
	Promotion at a local / regional cultural event (Galico-Portuguesa and Meetings of Accountants, Piões das Jónias)				←————→			Ex: AD RAT	GIAHS Barroso website created with content periodically shared Number of specific stakeholders that attended both cultural events
	Promotion of the region agri-food products, in an international gastronomic event			←————→			Ex: AD RAT	Number of specific stakeholders that attended both cultural events	
	Congress on regional development and preservation of natural resources (including knowledge exchanges and lessons learnt with other GIAHS sites)			←————→			Ex: AD RAT	The referred stakeholders, coordinated between themselves, will organize and participate in the event	
	Environmental education actions aiming the resident population				←————→			Ex: AD RAT	Support communication created targeting the resident population Two workshops with residents organized in each municipality per year
	Promotional campaign of a Barroso's as GIAHS site			←————→			Ex: AD RAT	A communication plan about GIAHS Barroso will be created (including a webpage and an online newsletter) Regional mass media will be involved in the GIAHS Programme and GIAHS Barroso site dissemination	
2	Survey of young farmers set up under the latest EU Community Support Frameworks			←————→			Ex: AD RAT	A minimum of 50% of young family farmers are interviewed A report is produced describing the state of young family farmers (their current needs, actual investments, etc.)	
	Survey of farms in Organic Production or Integrated Production Mode			←————→			Ex: AD RAT	A minimum of 50% of young family farmers interviewed Production of a report describing the state of organic farming and practices	
	Promotion of the National Land Bank to stimulate agricultural and forest use of land either abandoned or at risk of abandonment						Ex: AD RAT	Report - Promotion of land bank as a tool to preserve agriculture activity Increased offer of land using the land bank Reduced abandonment of lands under risk	
	Training actions for farmers				←————→		Ex: AD RAT	A description of the needs of the family farmers described in the report on young and organic family farmers (above) Organisation of training courses addressing family farmers' needs, considering the GIAHS Programme criteria	
	Training actions for knowledge transfer (inter-generational included)				←————→		Ex: AD RAT	Organisation of intergeneration workshop and the production of documents regarding knowledge exchanged	
	Support for improving traditional agricultural practices						Ex: AD RAT	Organisation of workshop to identify the needs and limits of traditional agricultural practices. Report produced	
	Promotion of agricultural reappreciating at the local level						Ex: AD RAT	Number of workshops organized within the villages	
	Investment support for maintenance of traditional irrigation systems						Ex: AD RAT	Financial instruments addressed to support traditional irrigation Irrigation needs identified with family farmers: number of channels to be rebuilt, extension and characteristics, etc. Number of irrigation systems supported accordingly	
	Creating an agricultural and forestry monitoring and extension system						Ex: AD RAT	A methodology with indicators and timeframe for monitoring is established Means of measurement started and followed up	
	3	Promotion of Gastronomic Events and Fairs ("Fumeiro" Fairs)			←————→			Ex: AD RAT	GIAHS Barroso website created with content periodically shared Organisation of 1 Gastronomic event per year
Valorisation of collaborative networks involving companies (e.g. Alto Tâmega Taxera)							Ex: AD RAT	Report - Communication established with new companies Barroso GIAHS products available in new market opportunities with local networks	
Promotion of Barroso's economic opportunities and measures to support investment in agri-food and tourism							Ex: AD RAT	A methodology is established to measure the needs to develop agri food and tourism in a sustainable way (including data about the economic value of agriculture production and its social impact)	
Raising awareness about agricultural activity as a valuable and financially stable activity							Ex: AD RAT	Report - Media content produced and shared TBD	
Follow-up of current marketing models							Ex: AD RAT	Report - Reflection on weakness and opportunities of the current marketing models of Barroso products - policy recommendations made A study of other GIAHS sites marketing models Number of Marketing products adapted	
Promotional actions to reduce market circuits between producers and Supporting extensive pastoral activity as a way to reduce fires							Ex: AD RAT	Communication support is made and shared. Grazing activities are included in forests management plans and their ecological services are recognized	
Training actions for chefs based on local products				←————→			Ex: AD RAT	Workshop organized to provide trainings	
4	Census of cultural heritage of traditional stone construction technique						Ex: AD RAT	Organisation of workshop knowledge holders TBD	
	Implementation of European cooperation projects aimed at enhancing and preserving the historical and cultural heritage						Ex: AD RAT	Report - Identification of potential European partners and European Programmes to apply	
	Signaling and defining sampling areas						Ex: AD RAT	Areas and relevant sites are defined	
	Support for the ethnographic collection work of the Barroso Ecomuseum						Ex: AD RAT	The Barroso Ecomuseum is promoted in the communication support of the GIAHS site New information collected, analysed, shared and promoted in the museum and its delegations	
	Biomonitoring actions						Ex: AD RAT	Monitoring related with the farming-nature interaction. Specific indicators to be defined.	
	Census of priority wild species						Ex: AD RAT	Census led in the field. Specific indicators to be defined accordingly.	
	Survey of Barroso's secular trees and their characterisation						Ex: AD RAT	Report produced. Signaling recommended.	
	Follow-up of the evolution of the tree cover						Ex: AD RAT	Report produced	
Implementation of regional tourist certification, associated with the GIAHS						Ex: AD RAT	Marketing of products revised and GIAHS promotion enhanced		

Attachments:

Attach other relevant information, photos, videos, documents, scientific references and studies about the proposed GIAHS site.

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Photographs:

ADRAT (photos 8, 13, 26, 49, 52, 54 and 55)

ADERE - Peneda Gerês (photos 15 and 16)

Boticas Town Council (photos 1, 3, 5, 6, 7, 27, 33, 34, 35, 36, 38, 39, 45, 46, 47 and 48)

Montalegre Town Council (photos 2, 4, 11, 12, 30, 37, 41, 42, 43, 44, 51, 53, 56, 57, 58, 59 and 60)

Rotas da Terra (photos 40 and 50)

António Rodrigues (photos 28 and 29)

Diogo Carvalho (photo 17)

Luís Almeida (photo 20)

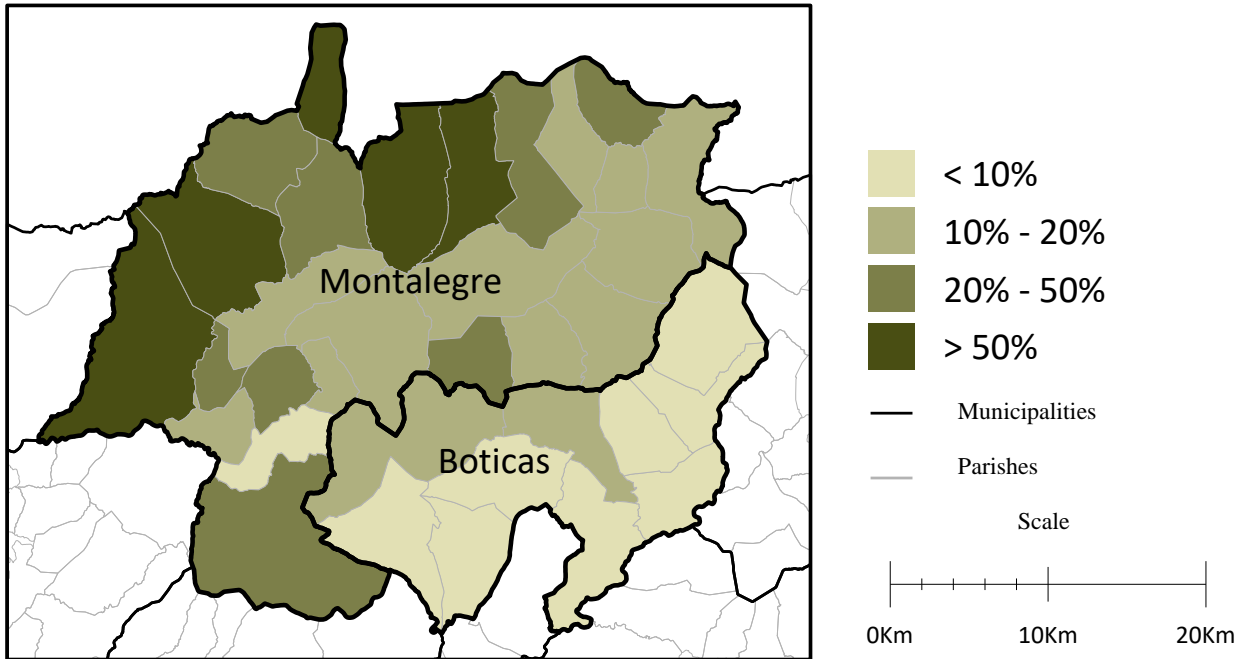
Marco Fachada (photos 9, 10, 14, 19, 21, 31 and 32)

Manuel Fernandes (photos 18 and 22)

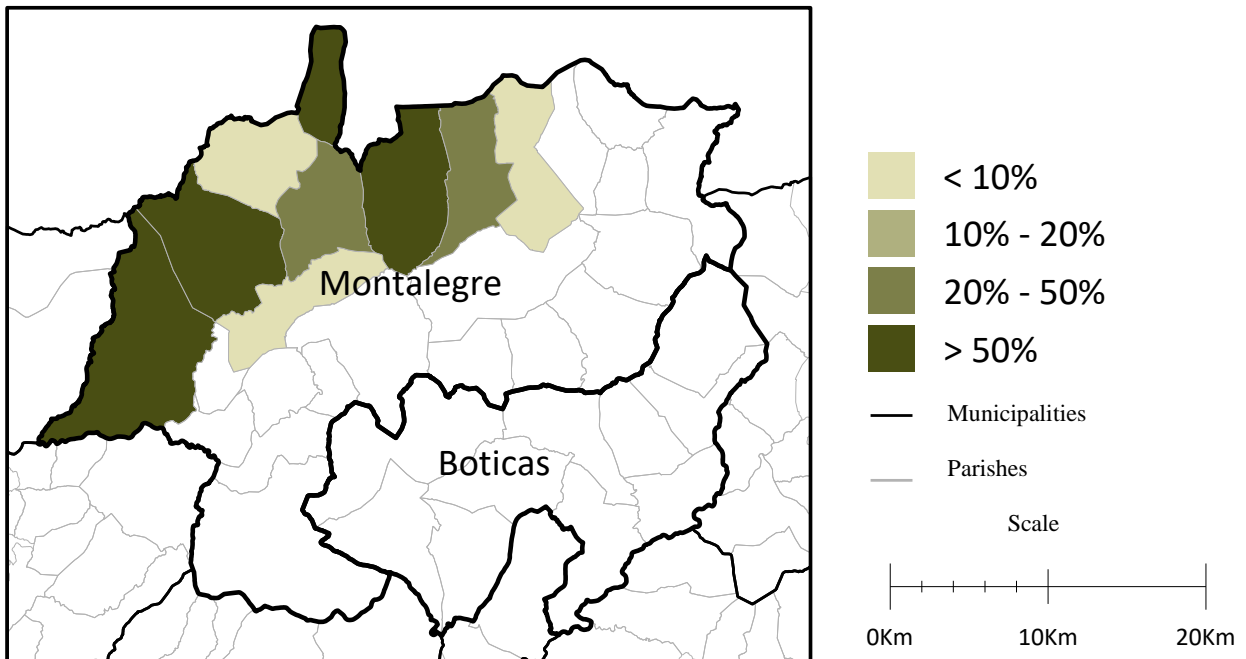
PV Araújo (Flora-on 2014) (photos 23, 24 and 25)

Agro-environmental measures in the Barroso region (2016)

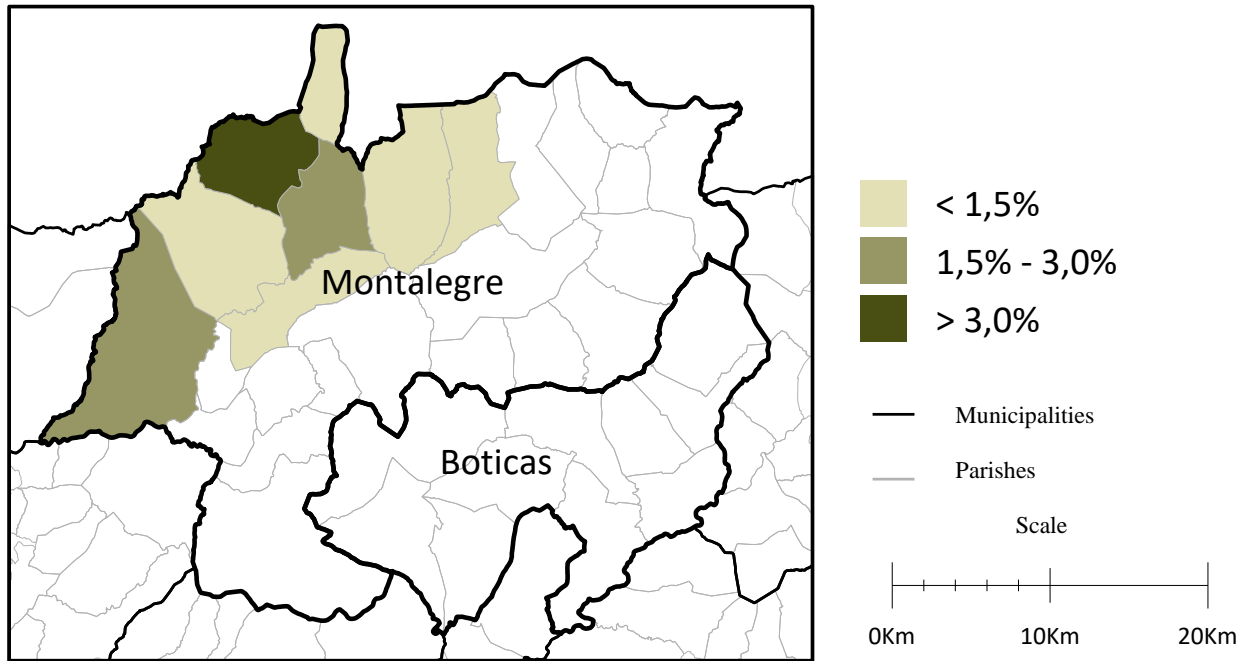
Set of Measures 7.3.2.1 Management of Grazing in Common Land Areas; 7.3.2.2 Maintenance of Terraces; 7.7.1 Maintenance of Marshes and 7.7.3 Protection of the Iberian Wolf (% of UAA area)



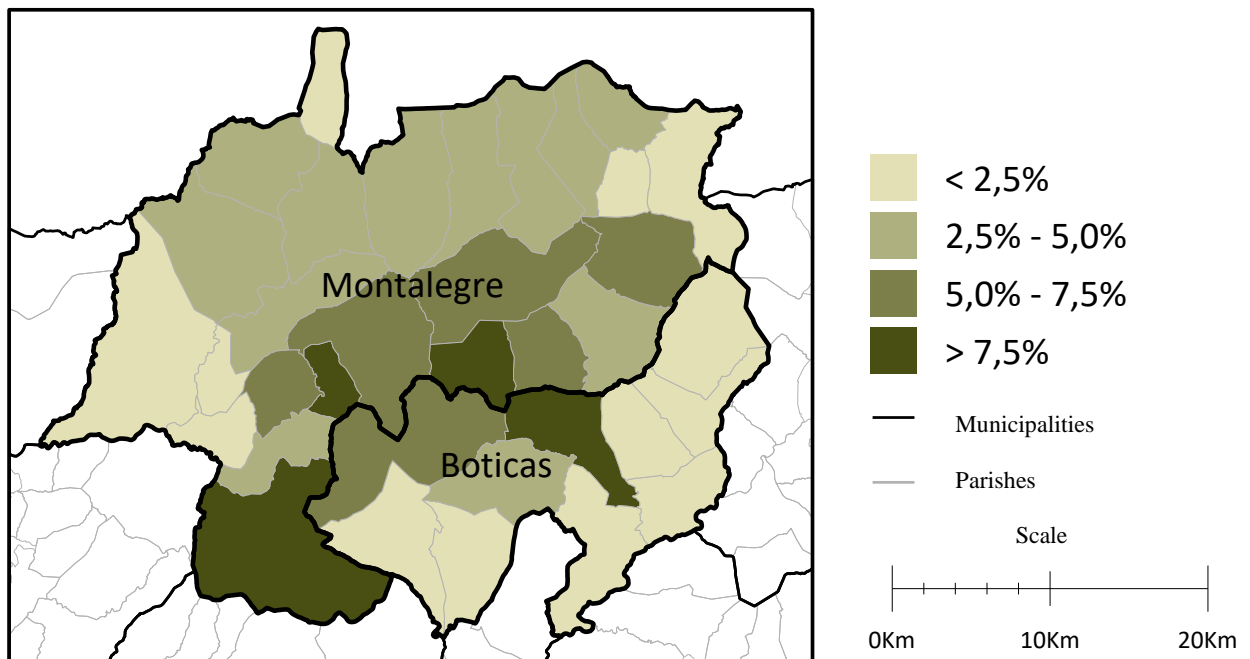
Measure 7.3.2.1 Grazing Management in Common Land Areas (% of UAA area)



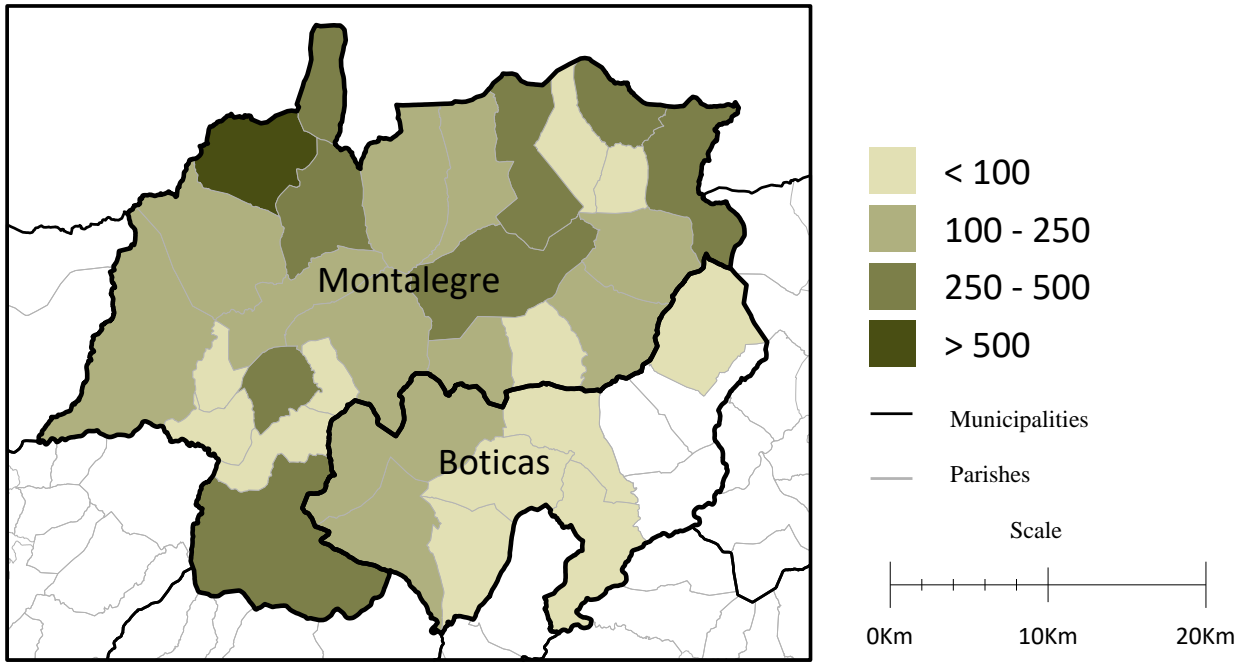
Measure 7.3.2.2. Terrace Maintenance (% of UAA area)



Measure 7.7.1. Maintenance of Marshes (Irrigation + Rain-fed) (% of UAA area)



Measure 7.7.3 - Protection of the Iberian Wolf (UAA Area)



List of Plant species of Barroso region and its conservation status

	Family	Taxon	Common name (Portuguese)	Endemism	Conservation Status		
					IUCN Red List (Europe)	Habitats Directive (annex n.º)	Bern Convention (annex n.º)
1	Adoxaceae	<i>Sambucus nigra</i> L.	Sabugueiro				
2	Alismataceae	<i>Alisma plantago-aquatica</i> L.	Orelha-de-mula				
3	Alismataceae	<i>Baldellia alpestris</i> (Cosson) Vasc.		Iberian			
4	Amaranthaceae	<i>Amaranthus albus</i> L.	Bredo-branco				
5	Amaranthaceae	<i>Chenopodium album</i> L.					
6	Amaryllidaceae	<i>Allium ericetorum</i> Thore					
7	Amaryllidaceae	<i>Allium sphaerocephalon</i> L.	Alho-bravo				
8	Amaryllidaceae	<i>Allium victorialis</i> L.					
9	Amaryllidaceae	<i>Narcissus asturiensis</i> (Jord.) Pugsley		Iberian	VU	II, IV	
10	Amaryllidaceae	<i>Narcissus bulbocodium</i> L. subsp. <i>bulbocodium</i>	Cucos			V	
11	Amaryllidaceae	<i>Narcissus pseudonarcissus</i> L. subsp. <i>portensis</i> (Pugsley) A. Fernandes.		Iberian			
12	Amaryllidaceae	<i>Narcissus triandrus</i> L. subsp. <i>triandrus</i>	Narciso-bravo	Iberian		IV	I
13	Apiaceae	<i>Angelica sylvestris</i> L.					
14	Apiaceae	<i>Apium nodiflorum</i> (L.) Lag.	Salsa-brava				
15	Apiaceae	<i>Carum verticillatum</i> (L.) Koch	Cominho-dos-prados				
16	Apiaceae	<i>Chaerophyllum temulum</i> L.	Cerefólio-bravo				
17	Apiaceae	<i>Daucus carota</i> L.					
18	Apiaceae	<i>Eryngium duriaei</i> subsp. <i>juresianum</i> (Lainz) Lainz		Iberian			
19	Apiaceae	<i>Eryngium tenue</i> Lam.	Cardete	Iberian			
20	Apiaceae	<i>Foeniculum vulgare</i> Miller subsp. <i>piperitum</i> (Ucria) Coutinho	Fiolho				
21	Apiaceae	<i>Heracleum sphondylium</i> L.					
22	Apiaceae	<i>Oenanthe crocata</i> L.					
23	Apiaceae	<i>Peucedanum gallicum</i> Latourr					
24	Apiaceae	<i>Peucedanum lancifolium</i> Lange					
25	Apiaceae	<i>Physospermum cornubiense</i> (L.) DC.					
26	Apiaceae	<i>Sanicula europaea</i> L.					
27	Apiaceae	<i>Selinum broteri</i> Hoffmanns. & Link					
28	Apiaceae	<i>Thapsia minor</i> Hoffmanns. & Link		Iberian			
29	Apiaceae	<i>Thapsia villosa</i> L.					
30	Apiaceae	<i>Torilis arvensis</i> (Hudson) Link subsp. <i>purpurea</i> (Ten.) Hayek					
31	Aquifoliaceae	<i>Ilex aquifolium</i> L.				I	
32	Araceae	<i>Arisarum simorrhinum</i> Durieu					
33	Araceae	<i>Arum italicum</i> Miller subsp. <i>italicum</i>					
34	Araceae	<i>Lemna minor</i> L.	Lentilha-de-água				
35	Araliaceae	<i>Hedera hibernica</i> (G. Kirchn.) Bean	Hera				
36	Aristolochiaceae	<i>Aristolochia paucinervis</i> Pomel	Erva-bicha				
37	Asclepiadaceae	<i>Vincetoxicum hirundinaria</i> Medicus subsp. <i>lusitanicum</i> Markgraf		Iberian			
38	Asparagaceae	<i>Hyacinthoides non-scripta</i> (L.) Rothm.					
39	Asparagaceae	<i>Hyacinthoides paivae</i> S. Ortiz & Rodr.-Oubiña	Jacinto-bravo	Iberian			
40	Asparagaceae	<i>Ornithogalum concinnum</i> (Salisb.) Coutinho	Leite-de-galinha	Iberian			
41	Asparagaceae	<i>Ornithogalum pyrenaicum</i> L.					
42	Asparagaceae	<i>Paradisea lusitanica</i> (Coutinho) Samp.	Lírio-de-são-Bruno	Iberian			

43	Asparagaceae	<i>Polygonatum odoratum</i> (Miller) Druce					
44	Asparagaceae	<i>Ruscus aculeatus</i> L.				V	
45	Asparagaceae	<i>Scilla monophyllos</i> Link					
46	Aspidiaceae	<i>Dryopteris affinis</i> (Lowe) Fraser-Jenkins subsp. <i>affinis</i>					
47	Aspidiaceae	<i>Dryopteris dilatata</i> (Hoffm.) A. Gray					
48	Aspidiaceae	<i>Dryopteris filix-mas</i> (L.) Schott					
49	Aspidiaceae	<i>Polystichum setiferum</i> (Forsk.) Woynar					
50	Aspleniaceae	<i>Asplenium adiantum-nigrum</i> L. var. <i>adiantum-nigrum</i>	Feto-negro				
51	Aspleniaceae	<i>Asplenium billotii</i> F.W. Schultz					
52	Aspleniaceae	<i>Asplenium onopteris</i> L.					
53	Aspleniaceae	<i>Asplenium trichomanes</i> L. subsp. <i>quadrivalens</i> D.E. Meyer					
54	Aspleniaceae	<i>Phyllitis scolopendrium</i> (L.) Newman subsp. <i>scolopendrium</i>					
55	Asteraceae	<i>Achillea millefolium</i> L. subsp. <i>millefolium</i>	Milefólio				
56	Asteraceae	<i>Andryala integrifolia</i> L.					
57	Asteraceae	<i>Anthemis arvensis</i> L. subsp. <i>arvensis</i>	Marçagão				
58	Asteraceae	<i>Arctium minus</i> Bernh.					
59	Asteraceae	<i>Arnica montana</i> L. subsp. <i>atlantica</i> A. Bolós	Arnica			V	
60	Asteraceae	<i>Arnoseris minima</i> (L.) Schweigger & Koerte					
61	Asteraceae	<i>Bellis perennis</i> L.	Margarida				
62	Asteraceae	<i>Bellis sylvestris</i> Cyr.	Margarida-do-monte				
63	Asteraceae	<i>Bidens tripartita</i> L.					
64	Asteraceae	<i>Carduus asturicus</i> Franco	Cardo	Iberian			
65	Asteraceae	<i>Carduus carpetanus</i> Boiss. & Reut.					
66	Asteraceae	<i>Carduus pycnocephalus</i> L.					
67	Asteraceae	<i>Carduus tenuiflorus</i> Curtis					
68	Asteraceae	<i>Centaurea langei</i> Nymam (sin. <i>C. aristata</i> spp. <i>langeana</i>)		Iberian			
69	Asteraceae	<i>Centaurea nigra</i> L. subsp. <i>rivularis</i> (Brot.) Coutinho		Iberian			
70	Asteraceae	<i>Centaurea paniculata</i> subsp. <i>geresensis</i> (Arènes) E. López	Centaurea	Iberian			
71	Asteraceae	<i>Chamaemelum mixtum</i> (L.) All.					
72	Asteraceae	<i>Chamaemelum nobile</i> (L.) All.					
73	Asteraceae	<i>Chamomilla suaveolens</i> (Pursh) Rydb.					
74	Asteraceae	<i>Chondrilla juncea</i> L.					
75	Asteraceae	<i>Cirsium filipendulum</i> Lange					
76	Asteraceae	<i>Cirsium palustre</i> (L.) Scop.					
77	Asteraceae	<i>Cirsium vulgare</i> (Savi) Ten.					
78	Asteraceae	<i>Coleostephus myconis</i> (L.) Reichenb. fil.	Olhos-de-boi				
79	Asteraceae	<i>Crepis capillaris</i> (L.) Wallr.					
80	Asteraceae	<i>Crepis lampsanoides</i> (Gouan) Tausch					
81	Asteraceae	<i>Eupatorium cannabinum</i> L. subsp. <i>cannabinum</i>	Trevo-cervino				
82	Asteraceae	<i>Galactites tomentosa</i> Moench	Cardo				
83	Asteraceae	<i>Helichrysum stoechas</i> (L.) Moench subsp. <i>stoechas</i>					
84	Asteraceae	<i>Hieracium acuminatum</i> Jordan					
85	Asteraceae	<i>Hieracium amplexicaule</i> L. subsp. <i>amplexicaule</i>					
86	Asteraceae	<i>Hieracium dumosum</i> Jordan					
87	Asteraceae	<i>Hieracium laevigatum</i> Willd.					
88	Asteraceae	<i>Hieracium lusitanicum</i> Arv.-Touv.					
89	Asteraceae	<i>Hieracium pilosella</i> L. subsp. <i>pilosella</i>					

90	Asteraceae	<i>Hieracium pilosella</i> subsp. <i>tricholepium</i> Naegeli & Peter				
91	Asteraceae	<i>Hieracium schmidtii</i> Tausch				
92	Asteraceae	<i>Hieracium virescens</i> Koch				
93	Asteraceae	<i>Hieracium vulgatum</i> Fries				
94	Asteraceae	<i>Hispidella hispanica</i> Lam.		Iberian		
95	Asteraceae	<i>Hypochoeris glabra</i> L.				
96	Asteraceae	<i>Hypochoeris radicata</i> L.	Leituga			
97	Asteraceae	<i>Lactuca serriola</i> L.				
98	Asteraceae	<i>Lactuca viminea</i> (L.) J. & C. Presl				
99	Asteraceae	<i>Lactuca virosa</i> L.				
100	Asteraceae	<i>Lapsana communis</i> L. subsp. <i>communis</i>				
101	Asteraceae	<i>Leontodon hispidus</i> L. subsp. <i>hispidus</i>				
102	Asteraceae	<i>Leontodon saxatilis</i> Lam.				
103	Asteraceae	<i>Leucanthemum sylvaticum</i> (Hoffmanns. & Link) Nyman		Iberian		
104	Asteraceae	<i>Logfia gallica</i> (L.) Cosson & Germ.				
105	Asteraceae	<i>Logfia minima</i> (Sm.) Dumort.				
106	Asteraceae	<i>Picris hieracioides</i> L. subsp. <i>longifolia</i> (Boiss. & Reuter) P.D. Sell		Iberian		
107	Asteraceae	<i>Pseudognaphalium luteo-album</i> (L.) Hilliard & B.L. Burt				
108	Asteraceae	<i>Senecio jacobaea</i> L.	Tasna			
109	Asteraceae	<i>Senecio lividus</i> L.				
110	Asteraceae	<i>Senecio sylvaticus</i> L.				
111	Asteraceae	<i>Serratula tinctoria</i> L. subsp. <i>seoanei</i> (Willk.) Laínz	Serratula-dos-tintureiros	Iberian		
112	Asteraceae	<i>Solidago virgaurea</i> L.				
113	Asteraceae	<i>Sonchus asper</i> (L.) Hill				
114	Asteraceae	<i>Sonchus oleraceus</i> L.				
115	Asteraceae	<i>Tanacetum corymbosum</i> (L.) Schultz Bip.				
116	Asteraceae	<i>Taraxacum hispanicum</i> H. Lindb.	Dente-de-leão	Iberian		
117	Asteraceae	<i>Taraxacum panalpinum</i> van Soest				
118	Athyriaceae	<i>Athyrium filix-femina</i> (L.) Roth				
119	Athyriaceae	<i>Cystopteris viridula</i> (Desv.) Desv.				
120	Betulaceae	<i>Alnus glutinosa</i> (L.) Gaertner	Amieiro		I	
121	Betulaceae	<i>Betula pubescens</i> subsp. <i>celtibérica</i> (Rothm. & Vasc.) Rivas Mart.	Vidoeiro	Iberian		
122	Betulaceae	<i>Corylus avellana</i> L.	Aveleira			
123	Blechnaceae	<i>Blechnum spicant</i> (L.) Roth subsp. <i>spicant</i>	Feto-pente			
124	Blechnaceae	<i>Woodwardia radicans</i> (L.) Sm.	Feto-do-gerês		II, IV	I
125	Boraginaceae	<i>Echium lusitanicum</i> L.	Soajo	Iberian		
126	Boraginaceae	<i>Echium plantagineum</i> L.	Soagem			
127	Boraginaceae	<i>Echium rosulatum</i> Lange subsp. <i>rosulatum</i>		Iberian		
128	Boraginaceae	<i>Echium vulgare</i> L.	Erva-viperina			
129	Boraginaceae	<i>Lithodora prostrata</i> (Loisel.) Griseb. subsp. <i>prostrata</i>	Erva-das-sete-sangrias			
130	Boraginaceae	<i>Myosotis balbisiana</i> Jordan	Miosótis			
131	Boraginaceae	<i>Myosotis secunda</i> A. Murray	Miosótis			
132	Boraginaceae	<i>Myosotis stolonifera</i> (DC.) Leresche & Levier	Miosótis	Iberian		
133	Boraginaceae	<i>Omphalodes nitida</i> Hoffmanns. & Link		Iberian		
134	Boraginaceae	<i>Pentaglotis sempervirens</i> (L.) Tausch ex L.H. Bailey				
135	Brassicaceae	<i>Arabis juressi</i> Rothm.		Iberian		
136	Brassicaceae	<i>Brassica barrelieri</i> (L.) Janka	Labrêsto			
137	Brassicaceae	<i>Capsella bursa-pastoris</i> (L.) Medicus				
138	Brassicaceae	<i>Cardamine hirsuta</i> L.				
139	Brassicaceae	<i>Cardamine pratensis</i> L. subsp. <i>pratensis</i>				

140	Brassicaceae	<i>Coincya monensis</i> subsp. <i>puberula</i> (Pau) Leadlay	Saramago	Iberian			
141	Brassicaceae	<i>Lepidium heterophyllum</i> Bentham					
142	Brassicaceae	<i>Raphanus raphanistrum</i> L. subsp. <i>raphanistrum</i>	Rábano-silvestre				
143	Brassicaceae	<i>Sisymbrium officinale</i> (L.) Scop.					
144	Brassicaceae	<i>Teesdalia nudicaulis</i> (L.) R. Br.					
145	Callitricaceae	<i>Callitriche stagnalis</i> Scop.					
146	Campanulaceae	<i>Campanula erinus</i> L.					
147	Campanulaceae	<i>Campanula lusitanica</i> L. subsp. <i>lusitanica</i>	Campainhas				
148	Campanulaceae	<i>Campanula rapunculus</i> L.	Campainhas-rabanete				
149	Campanulaceae	<i>Jasione montana</i> L.	Botão-azul				
150	Campanulaceae	<i>Lobelia urens</i> L.	Queima-língua				
151	Campanulaceae	<i>Trachelium caeruleum</i> L. subsp. <i>caeruleum</i>					
152	Campanulaceae	<i>Wahlenbergia hederacea</i> (L.) Reichenb.					
153	Cannabaceae	<i>Humulus lupulus</i> L.					
154	Caprifoliaceae	<i>Lonicera periclymenum</i> L. subsp. <i>periclymenum</i>	Madressilva				
155	Caryophyllaceae	<i>Arenaria montana</i> L. subsp. <i>montana</i>					
156	Caryophyllaceae	<i>Arenaria querioides</i> Willk. subsp. <i>querioides</i>		Iberian			
157	Caryophyllaceae	<i>Cerastium fontanum</i> L. subsp. <i>vulgare</i> (Hartman) Greuter & Burdet					
158	Caryophyllaceae	<i>Cerastium glomeratum</i> Thuill.					
159	Caryophyllaceae	<i>Cerastium pumilum</i> Curtis					
160	Caryophyllaceae	<i>Cerastium ramosissimum</i> Boiss.					
161	Caryophyllaceae	<i>Corrigiola litoralis</i> L.					
162	Caryophyllaceae	<i>Corrigiola telephiiifolia</i> Pourret					
163	Caryophyllaceae	<i>Dianthus langeanus</i> Willk.	Cravinho	Iberian			
164	Caryophyllaceae	<i>Herniaria scabrida</i> Boiss. subsp. <i>scabrida</i>		Iberian			
165	Caryophyllaceae	<i>Illecebrum verticillatum</i> L.					
166	Caryophyllaceae	<i>Minuartia recurva</i> (All.) Schinz & Thell.					
167	Caryophyllaceae	<i>Moenchia erecta</i> (L.) P. Gaertner subsp. <i>erecta</i>					
168	Caryophyllaceae	<i>Petrorhagia nanteuillii</i> (Burnat) P.W. Ball & Heywood					
169	Caryophyllaceae	<i>Polycarpon tetraphyllum</i> (L.) L. subsp. <i>tetraphyllum</i>					
170	Caryophyllaceae	<i>Sagina apetala</i> Ard.					
171	Caryophyllaceae	<i>Saponaria officinalis</i> L.	Erva-saboeira				
172	Caryophyllaceae	<i>Scleranthus annuus</i> L.					
173	Caryophyllaceae	<i>Scleranthus polycarpus</i> L.					
174	Caryophyllaceae	<i>Silene acutifolia</i> Rohrb.		Iberian			
175	Caryophyllaceae	<i>Silene dioica</i> (L.) Clairv.					
176	Caryophyllaceae	<i>Silene foetida</i> L.	Silene				
177	Caryophyllaceae	<i>Silene gallica</i> L.	Erva-cabaceira				
178	Caryophyllaceae	<i>Silene latifolia</i> Poiret					
179	Caryophyllaceae	<i>Silene marizii</i> Samp.		Iberian			
180	Caryophyllaceae	<i>Silene nutans</i> L. subsp. <i>nutans</i>					
181	Caryophyllaceae	<i>Silene scabriflora</i> Brot. subsp. <i>scabriflora</i>		Iberian			
182	Caryophyllaceae	<i>Silene vulgaris</i> (Moench) Garcke subsp. <i>vulgaris</i>					
183	Caryophyllaceae	<i>Spergula arvensis</i> L.					
184	Caryophyllaceae	<i>Spergula morisonii</i> Boreau					
185	Caryophyllaceae	<i>Spergularia capillacea</i> (Kindb.) Willk.	Erva-aranha	Iberian			
186	Caryophyllaceae	<i>Spergularia purpurea</i> (Pers.) G. Don fil.					
187	Caryophyllaceae	<i>Stellaria alsine</i> Grimm					

188	Caryophyllaceae	<i>Stellaria graminea</i> L.				
189	Caryophyllaceae	<i>Stellaria holostea</i> L.				
190	Caryophyllaceae	<i>Stellaria media</i> (L.) Vill.				
191	Cistaceae	<i>Cistus ladanifer</i> L.	Esteva			
192	Cistaceae	<i>Cistus psilosepalus</i> Sweet				
193	Cistaceae	<i>Halimium lasianthum</i> subsp. <i>alyssoides</i> (Lam.) Greuter	Sargaço			
194	Cistaceae	<i>Halimium umbellatum</i> (L.) Spach subsp. <i>umbellatum</i>				
195	Cistaceae	<i>Helianthemum nummularium</i> (L.) Miller				
196	Cistaceae	<i>Tuberaria globulariifolia</i> (Lam.) Willk. var. <i>globulariifolia</i>		Iberian		
197	Cistaceae	<i>Tuberaria guttata</i> (L.) Fourr.				
198	Colchicaceae	<i>Merendera montana</i> (L.) Lange	Quita-merendas			
199	Convolvulaceae	<i>Cuscuta epithimum</i> (L.) L.				
200	Crassulaceae	<i>Crassula tillaea</i> Lest.-Garl.				
201	Crassulaceae	<i>Sedum anglicum</i> Hudson subsp. <i>pyrenaicum</i> (Lange) M. Laínz				
202	Crassulaceae	<i>Sedum arenarium</i> Brot.		Iberian		
203	Crassulaceae	<i>Sedum brevifolium</i> DC.				
204	Crassulaceae	<i>Sedum forsteranum</i> Sm.				
205	Crassulaceae	<i>Sedum hirsutum</i> All. subsp. <i>hirsutum</i>				
206	Crassulaceae	<i>Sedum pruinaum</i> Link ex Brot.		Iberian		
207	Crassulaceae	<i>Umbilicus rupestris</i> (Salisb.) Dandy	Umbigo-de-vénus			
208	Cucurbitaceae	<i>Bryonia dioica</i> Jacq.				
209	Cyperaceae	<i>Carex asturica</i> Boiss.		Iberian		
210	Cyperaceae	<i>Carex binervis</i> Sm.				
211	Cyperaceae	<i>Carex cuprina</i> (I. Sándor ex Heuff.) Nendtv. ex A. Kern.				
212	Cyperaceae	<i>Carex echinata</i> Murray				
213	Cyperaceae	<i>Carex elata</i> All. subsp. <i>reuteriana</i> (Boiss.) Luceño & Aedo		Iberian		
214	Cyperaceae	<i>Carex leporina</i> L.				
215	Cyperaceae	<i>Carex paniculata</i> subsp. <i>lusitanica</i> (Schkuhr ex Willd.) Maire				
216	Cyperaceae	<i>Carex pilulifera</i> L.				
217	Cyperaceae	<i>Cyperus longus</i> L.				
218	Cyperaceae	<i>Eleocharis palustris</i> (L.) Roem. & Sxhult.	Junco-de-água			
219	Cyperaceae	<i>Eriophorum angustifolium</i> Honckeny	Bolos-de-algodão			
220	Cyperaceae	<i>Isolepis setacea</i> (L.) R. Br.				
221	Cytinaceae	<i>Cytinus hypocistis</i> (L.) L.				
222	Dennstaedtiaceae	<i>Pteridium aquilinum</i> (L.) Kuhn subsp. <i>aquilinum</i>	Feto-comum			
223	Dioscoreaceae	<i>Tamus communis</i> L.	Norça-preta			
224	Dipsacaceae	<i>Knautia nevadensis</i> (Winkler ex Szabó) Szabó		Iberian		
225	Dipsacaceae	<i>Scabiosa columbaria</i> L. subsp. <i>columbaria</i>				
226	Dipsacaceae	<i>Succisa pratensis</i> Moench				
227	Droseraceae	<i>Drosera intermedia</i> Hayne				
228	Droseraceae	<i>Drosera rotundifolia</i> L.				
229	Dryopteridaceae	<i>Dryopteris affinis</i> subsp. <i>affinis</i> (Lowe) Fraser-Jenkins	Falso-feto-macho			
230	Dryopteridaceae	<i>Polystichum setiferum</i> (Forssk.) Moore ex Woynar				
231	Ericaceae	<i>Arbutus unedo</i> L.	Medronheiro			
232	Ericaceae	<i>Calluna vulgaris</i> (L.) Hull	Chamiça			
233	Ericaceae	<i>Daboecia cantabrica</i> (Hudson) C. Koch				

234	Ericaceae	<i>Erica arborea</i> L.	Urze-branca			
235	Ericaceae	<i>Erica australis</i> L.	Urze-roxa			
236	Ericaceae	<i>Erica ciliaris</i> L.				
237	Ericaceae	<i>Erica cinerea</i> L.	Urze-rosa			
238	Ericaceae	<i>Erica scoparia</i> L.	Urze-das-vassouras			
239	Ericaceae	<i>Erica tetralix</i> L.	Urze-peluda			
240	Ericaceae	<i>Erica umbellata</i> L.	Queiró			
241	Ericaceae	<i>Vaccinium myrtillus</i> L.	Uva-do-monte			
242	Euphorbiaceae	<i>Euphorbia amygdaloides</i> L. subsp. <i>amygdaloides</i>				
243	Euphorbiaceae	<i>Euphorbia dulcis</i> L.				
244	Euphorbiaceae	<i>Euphorbia hyberna</i> L. subsp. <i>hyberna</i>				
245	Euphorbiaceae	<i>Euphorbia peplus</i> L.				
246	Euphorbiaceae	<i>Mercurialis ambigua</i> L.				
247	Fabaceae	<i>Adenocarpus complicatus</i> (L.) J. Gay	Codeço			
248	Fabaceae	<i>Adenocarpus lainzii</i> (Castroviejo) Castroviejo		Iberian		
249	Fabaceae	<i>Cytisus multiflorus</i> (L'Hér.) Sweet	Giesta-branca	Iberian		
250	Fabaceae	<i>Cytisus scoparius</i> (L.) Link subsp. <i>scoparius</i>	Giesta-negral			
251	Fabaceae	<i>Cytisus striatus</i> (Hill) Rothm.	Giesta-amarela			
252	Fabaceae	<i>Echinopartum ibericum</i> Rivas Mart., Sánchez Mata & Sancho	Caldoneira	Iberian		
253	Fabaceae	<i>Genista anglica</i> L.				
254	Fabaceae	<i>Genista falcata</i> Brot.	Tojo-gadanho	Iberian		
255	Fabaceae	<i>Genista florida</i> L. subsp. <i>polygaliphylla</i> (Brot.) P. Cout.		Iberian		
256	Fabaceae	<i>Genista micrantha</i> Ortega		Iberian		
257	Fabaceae	<i>Genista triacanthos</i> Brot.		Iberian		
258	Fabaceae	<i>Lathyrus linifolius</i> (Reichard) Bässler				
259	Fabaceae	<i>Lotus corniculatus</i> subsp. <i>carpetanus</i> (Lacaita) Rivas Mart.		Iberian		
260	Fabaceae	<i>Lotus hispidus</i> Desf.	Serradela-da-terra			
261	Fabaceae	<i>Lotus pedunculatus</i> Cav.	Erva-coelheira			
262	Fabaceae	<i>Lupinus gredensis</i> Gand.	Tremoceiro-bravo	Iberian		
263	Fabaceae	<i>Lupinus luteus</i> L.	Tremoceiro-amarelo			
264	Fabaceae	<i>Ornithopus compressus</i> L.	Serradela			
265	Fabaceae	<i>Ornithopus perpusillus</i> L.	Serradela-brava			
266	Fabaceae	<i>Pterospartum tridentatum</i> subsp. <i>cantabricum</i> (Spach) Talavera & P.E. Gibbs	Carqueja			
267	Fabaceae	<i>Trifolium angustifolium</i> L.				
268	Fabaceae	<i>Trifolium arvense</i> L.	Trevo-branco			
269	Fabaceae	<i>Trifolium cernuum</i> Brot.	Trevo			
270	Fabaceae	<i>Trifolium dubium</i> Sibth.	Trevinho			
271	Fabaceae	<i>Trifolium gemellum</i> Pourr. ex Willd.				
272	Fabaceae	<i>Trifolium glomeratum</i> L.				
273	Fabaceae	<i>Trifolium pratense</i> L. subsp. <i>pratense</i>	Trevo-dos-prados			
274	Fabaceae	<i>Trifolium repens</i> L. var. <i>repens</i>	Trevo-rasteiro			
275	Fabaceae	<i>Trifolium subterraneum</i> L.	Trevo-subterrâneo			
276	Fabaceae	<i>Ulex europaeus</i> L. subsp. <i>latebracteatus</i> (Mariz) Rothm.	Tojo	Iberian		
277	Fabaceae	<i>Ulex minor</i> Roth	Tojo-molar			
278	Fabaceae	<i>Vicia angustifolia</i> L.	Ervilhaca-miúda			
279	Fabaceae	<i>Vicia hirsuta</i> (L.) Gray	Unhas-de-gato			

	Fabaceae	<i>Vicia lutea</i> L.	Ervilhaca-amarela				
280	Fabaceae	<i>Vicia sativa</i> L. subsp. <i>sativa</i>					
281	Fagaceae	<i>Castanea sativa</i> Miller	Castanheiro				
282	Fagaceae	<i>Quercus pyrenaica</i> Willd.	Carvalho-negral				
283	Fagaceae	<i>Quercus robur</i> L.	Carvalho-roble				
284	Fagaceae	<i>Quercus rotundifolia</i> Lam.	Azinhaira				
285	Fagaceae	<i>Quercus suber</i> L.	Sobreiro				
286	Gentianaceae	<i>Gentiana pneumonanthe</i> L.	Gentiana				
287	Geraniaceae	<i>Erodium cicutarium</i> (L.) L'Hér.					
288	Geraniaceae	<i>Geranium columbinum</i> L.					
289	Geraniaceae	<i>Geranium dissectum</i> L.	Coentrinho				
290	Geraniaceae	<i>Geranium lucidum</i> L.					
291	Geraniaceae	<i>Geranium molle</i> L.					
292	Geraniaceae	<i>Geranium purpureum</i> Vill.					
293	Geraniaceae	<i>Geranium pyrenaicum</i> Burm. fil. subsp. <i>lusitanicum</i> (Samp.) S. Ortiz		Iberian			
294	Geraniaceae	<i>Geranium robertianum</i> L.	Erva-de-são-roberto				
295	Hypericaceae	<i>Hypericum androsaemum</i> L.	Hipericão-do-Gerês				
296	Hypericaceae	<i>Hypericum elodes</i> L.					
297	Hypericaceae	<i>Hypericum humifusum</i> L.					
298	Hypericaceae	<i>Hypericum linarifolium</i> Vahl	Hipericão-estriado				
299	Hypericaceae	<i>Hypericum perforatum</i> L.	Erva-de-são-João				
300	Hypericaceae	<i>Hypericum pulchrum</i> L.					
301	Hypericaceae	<i>Hypericum undulatum</i> Schousboe ex Willd.	Hipericão-ondulado				
302	Iridaceae	<i>Crocus carpetanus</i> Boiss. & Reuter (Fev.)		Iberian			
303	Iridaceae	<i>Crocus serotinus</i> Salisb. subsp. <i>salzmannii</i> (Gay) Mathew	Açafrão-bravo	Iberian			
304	Iridaceae	<i>Gladiolus illyricus</i> Koch subsp. <i>illyricus</i>	Espadana-dos-montes				
305	Iridaceae	<i>Iris boissieri</i> Henriq.	Lírio-do-Gerês	Iberian	CR	IV	
306	Iridaceae	<i>Iris pseudacorus</i> L.	Lírio-dos-charcos				
307	Iridaceae	<i>Romulea bulbocodium</i> (L.) Sebastiani & Mauri subsp. <i>bulbocodium</i>					
308	Juncaceae	<i>Juncus acutiflorus</i> Ehrh. ex Hoffm.	Junco-bulboso				
309	Juncaceae	<i>Juncus articulatus</i> L. subsp. <i>articulatus</i>					
310	Juncaceae	<i>Juncus bufonius</i> L.					
311	Juncaceae	<i>Juncus bulbosus</i> L.					
312	Juncaceae	<i>Juncus effusus</i> L.	Junco-dos-lameiros				
313	Juncaceae	<i>Juncus heterophyllus</i> Dufour	Junco-de-folhas-variadas				
314	Juncaceae	<i>Juncus squarrosus</i> L.					
315	Juncaceae	<i>Luzula campestris</i> (L.) DC.					
316	Juncaceae	<i>Luzula lactea</i> Link ex E.H.F. Meyer					
317	Lamiaceae	<i>Ajuga reptans</i> L.	Língua-de-boi				
318	Lamiaceae	<i>Ballota nigra</i> L. subsp. <i>foetida</i> Hayek	Erva-das-lamparinas				
319	Lamiaceae	<i>Calamintha baetica</i> Boiss. & Reuter					
320	Lamiaceae	<i>Clinopodium vulgare</i> L. subsp. <i>vulgare</i>					
321	Lamiaceae	<i>Glechoma hederacea</i> L.					
322	Lamiaceae	<i>Lamium amplexicaule</i> L.	Chupapitos				
323	Lamiaceae	<i>Lamium hybridum</i> Vill.	Urtiga-falsa				
324	Lamiaceae	<i>Lamium maculatum</i> L.	Lâmio-maculado				
325	Lamiaceae	<i>Lamium purpureum</i> L.					
326	Lamiaceae	<i>Lamium purpureum</i> L.					

327	Lamiaceae	<i>Lavandula pedunculata</i> (Mill.) Cav. (sin. <i>L. stoechas</i> ssp. <i>sampaiana</i>)	Rosmaninho			
328	Lamiaceae	<i>Lycopus europaeus</i> L.				
329	Lamiaceae	<i>Melissa officinalis</i> L.	Erva-cidreira			
330	Lamiaceae	<i>Melittis melissophyllum</i> L.	Betónica-bastarda			
331	Lamiaceae	<i>Mentha pulegium</i> L.	Poejo			
332	Lamiaceae	<i>Mentha suaveolens</i> Ehrh.	Mentrasito			
333	Lamiaceae	<i>Origanum vulgare</i> subsp. <i>virens</i> (Hoffmanns. & Link) Bonnier & Layens	Oregão			
334	Lamiaceae	<i>Prunella vulgaris</i> L.	Prunela			
335	Lamiaceae	<i>Salvia officinalis</i> L.	Sálvia			
336	Lamiaceae	<i>Scutellaria minor</i> Hudson				
337	Lamiaceae	<i>Teucrium scorodonia</i> L.	Salva-bastarda			
338	Lamiaceae	<i>Thymus caespitosus</i> Brot.	Tormentelo			
339	Lamiaceae	<i>Thymus pulegioides</i> L.				
340	Lentibulariaceae	<i>Pinguicula lusitanica</i> L.				
341	Lentibulariaceae	<i>Pinguicula vulgaris</i> L.				
342	Liliaceae	<i>Erythronium dens-canis</i> L.				
343	Liliaceae	<i>Fritillaria nervosa</i> Willd. subsp. <i>nervosa</i>				
344	Liliaceae	<i>Gagea soleirolii</i> F. W. Schultz				
345	Liliaceae	<i>Lilium martagon</i> L.				
346	Liliaceae	<i>Tulipa sylvestris</i> L. subsp. <i>australis</i> (Link) Pamp.				
347	Lycopodiaceae	<i>Lycopodiella inundata</i> (L.) J. Holub	Licopódio-dos-brejos		V	
348	Lythraceae	<i>Lythrum portula</i> (L.) D.A. Webb				
349	Lythraceae	<i>Lythrum salicaria</i> L.	Salgueirinha			
350	Malvaceae	<i>Alcea rosea</i> L.				
351	Malvaceae	<i>Malva neglecta</i> Wallr.	Malva-redonda			
352	Malvaceae	<i>Malva sylvestris</i> L.	Malva-silvestre			
353	Malvaceae	<i>Malva tournefortiana</i> L.	Malva			
354	Menyanthaceae	<i>Menyanthes trifoliata</i> L.	Fava-de-água			
355	Moraceae	<i>Ficus carica</i> L.				
356	Nartheciaceae	<i>Narthecium ossifragum</i> (L.) Hudson				
357	Oleaceae	<i>Fraxinus angustifolia</i> Vahl subsp. <i>angustifolia</i>	Freixo			
358	Oleaceae	<i>Olea europaea</i> L. var. <i>europaea</i>	Oliveira			
359	Onagraceae	<i>Epilobium lanceolatum</i> Sebastiani & Mauri				
360	Onagraceae	<i>Epilobium obscurum</i> Schreber	Erva-bonita			
361	Orchidaceae	<i>Cephalanthera longifolia</i> (Huds.) Frithsch				
362	Orchidaceae	<i>Dactylorhiza maculata</i> (L.) Soó	Satirião-macho			
363	Orchidaceae	<i>Orchis coriophora</i> L.	Erva-perceveja			
364	Orchidaceae	<i>Orchis mascula</i> (L.) L.				
365	Orchidaceae	<i>Serapias cordigera</i> L.	Serapião-de-flores-grandes			
366	Orchidaceae	<i>Serapias lingua</i> L.	Serapião			
367	Orobanchaceae	<i>Melampyrum pratense</i> L.				
368	Orobanchaceae	<i>Melampyrum pratense</i> subsp. <i>latifolium</i> Schübl. & G. Martens				
369	Orobanchaceae	<i>Odontites vernus</i> (Bellardi) Dumort.				
370	Orobanchaceae	<i>Odontites vernus</i> (Bellardi) Dumort.				
371	Orobanchaceae	<i>Orobanche gracilis</i> Sm.				
372	Orobanchaceae	<i>Orobanche rapum-genistae</i> Thuill.	Rabo-de-raposa			
373	Orobanchaceae	<i>Parentucellia latifolia</i> (L.) Caruel				
374	Orobanchaceae	<i>Parentucellia viscosa</i> (L.) Caruel				
375	Orobanchaceae	<i>Pedicularis sylvatica</i> L. subsp. <i>lusitanica</i> (Hoffmanns. & Link) Cout.				

376	Orobanchaceae	<i>Rhinanthus minor</i> L.					
377	Osmundaceae	<i>Osmunda regalis</i> L.					
378	Oxalidaceae	<i>Oxalis corniculata</i> L.	Erva-azedada				
379	Papaveraceae	<i>Ceratocapnos claviculata</i> (L.) Lidén subsp. <i>claviculata</i>					
380	Papaveraceae	<i>Ceratocapnos claviculata</i> (L.) Lidén subsp. <i>picta</i> (Samp.) Lidén		Lusitanian			
381	Papaveraceae	<i>Chelidonium majus</i> L.	Erva-das-verrugas				
382	Papaveraceae	<i>Fumaria bastardii</i> Boreau					
383	Papaveraceae	<i>Fumaria muralis</i> Sonder ex Koch	Fumo-da-terra				
384	Papaveraceae	<i>Papaver rhoeas</i> L.	Papoila				
385	Pinaceae	<i>Pinus pinaster</i> Aiton					
386	Pinaceae	<i>Pinus sylvestris</i> L.					
387	Plantaginaceae	<i>Anarrhinum bellidifolium</i> (L.) Willd.	Samacalo				
388	Plantaginaceae	<i>Anarrhinum duriminium</i> (Brot.) Pers.	Samacalo-peludo	Iberian			
389	Plantaginaceae	<i>Callitriche brutia</i> Petagna					
390	Plantaginaceae	<i>Callitriche hamulata</i> Kütz. ex W.D.J.Koch					
391	Plantaginaceae	<i>Callitriche stagnalis</i> Scop.	Morugem-de-água				
392	Plantaginaceae	<i>Digitalis purpurea</i> subsp. <i>purpurea</i>	Estourotos				
393	Plantaginaceae	<i>Digitalis thapsi</i> L.	Dedaleira-amarela	Iberian			
394	Plantaginaceae	<i>Linaria elegans</i> Cav.		Iberian			
395	Plantaginaceae	<i>Linaria saxatilis</i> (L.) Chaz.		Iberian			
396	Plantaginaceae	<i>Linaria spartea</i> (L.) Chaz.	Ansarina-dos-campos				
397	Plantaginaceae	<i>Linaria triornithophora</i> (L.) Willd.		Iberian			
398	Plantaginaceae	<i>Misopates orontium</i> (L.) Rafin.					
399	Plantaginaceae	<i>Plantago coronopus</i> L.					
400	Plantaginaceae	<i>Plantago holosteum</i> Scop. (sin. <i>P. radicata</i> Hoffmanns. & Link)					
401	Plantaginaceae	<i>Plantago lanceolata</i> L.	Erva-de-ovelha				
402	Plantaginaceae	<i>Plantago major</i> L.	Tanchagem-maior				
403	Plantaginaceae	<i>Sibthorpia europaea</i> L.					
404	Plantaginaceae	<i>Veronica arvensis</i> L.	Verónica-dos-campos				
405	Plantaginaceae	<i>Veronica chamaedrys</i> L.					
406	Plantaginaceae	<i>Veronica micrantha</i> Hoffmanns & Link	Verónica	Iberian	VU	II, IV	
407	Plantaginaceae	<i>Veronica montana</i> L.					
408	Plantaginaceae	<i>Veronica officinalis</i> L.					
409	Plantaginaceae	<i>Veronica scutellata</i> L.					
410	Plantaginaceae	<i>Veronica serpyllifolia</i> L. subsp. <i>serpyllifolia</i>					
411	Plumbaginaceae	<i>Armeria humilis</i> (Link) Schultes subsp. <i>humilis</i>	Erva-divina	Iberian			
412	Plumbaginaceae	<i>Armeria humilis</i> (Link) Schultes subsp. <i>odorata</i> (Samp.) P. Silva	Erva-divina	Iberian			
413	Plumbaginaceae	<i>Armeria sampaioi</i> (Bernis) Nieto Feliner		Lusitanian		V	
414	Plumbaginaceae	<i>Armeria transmontana</i> (Samp.) Lawrence	Cravo-divino	Iberian			
415	Poaceae	<i>Agrostis capillaris</i> L.	Erva-fina				
416	Poaceae	<i>Agrostis castellana</i> Boiss. & Reuter var. <i>castellana</i>					
417	Poaceae	<i>Agrostis curtisii</i> Kerguelen	Fananco				
418	Poaceae	<i>Agrostis hesperica</i> Romero García, Blanca & Morales Torres					
419	Poaceae	<i>Agrostis truncatula</i> Parl. subsp. <i>commista</i> Castroviejo & Charpin	Barbas-de-raposa	Iberian			
420	Poaceae	<i>Anthoxanthum amarum</i> Brot.		Iberian			

421	Poaceae	<i>Anthoxanthum aristatum</i> Boiss. subsp. <i>aristatum</i>	Feno-de-cheiro			
422	Poaceae	<i>Anthoxanthum odoratum</i> L.				
423	Poaceae	<i>Antinoria agrostidea</i> (DC.) Parl.				
424	Poaceae	<i>Arrhenatherum elatius</i> (L.) J.Presl & C.Presl	Aveia-do-rosário			
425	Poaceae	<i>Avena barbata</i> Pott. ex Link	Rabo-de-gato			
426	Poaceae	<i>Avenula sulcata</i> (Boiss.) Dumort. subsp. <i>sulcata</i>				
427	Poaceae	<i>Brachypodium sylvaticum</i> (Hudson) Beauv. subsp. <i>sylvaticum</i>				
428	Poaceae	<i>Briza maxima</i> L.	Abelhinhas			
429	Poaceae	<i>Briza minor</i> L.				
430	Poaceae	<i>Bromus diandrus</i> Roth	Espigão			
431	Poaceae	<i>Bromus hordeaceus</i> L.				
432	Poaceae	<i>Bromus tectorum</i> L.	Bromo			
433	Poaceae	<i>Calamagrostis arundinacea</i> (L.) Roth				
434	Poaceae	<i>Cynodon dactylon</i> (L.) Pers.	Gramma			
435	Poaceae	<i>Cynosurus cristatus</i> L.				
436	Poaceae	<i>Cynosurus echinatus</i> L.				
437	Poaceae	<i>Dactylis glomerata</i> L. subsp. <i>lusitanica</i> Stebbins & Zohary	Erva-dos-combos			
438	Poaceae	<i>Danthonia decumbens</i> (L.) DC.				
439	Poaceae	<i>Festuca elegans</i> Boiss.		Iberian		II, IV
440	Poaceae	<i>Festuca indigesta</i> Boiss.		Iberian		
441	Poaceae	<i>Festuca rivularis</i> Boiss.				
442	Poaceae	<i>Festuca rothmaleri</i> (Litard.) Markgr.-Dannenb.		Iberian		
443	Poaceae	<i>Festuca summilusitana</i> Franco & Rocha Afonso				II, IV
444	Poaceae	<i>Glyceria declinata</i> Bréb.				
445	Poaceae	<i>Holcus gayanus</i> Boiss.		Iberian		
446	Poaceae	<i>Holcus lanatus</i> L.	Erva-lanar			
447	Poaceae	<i>Holcus mollis</i> L.	Erva-molar			
448	Poaceae	<i>Hordeum murinum</i> L.	Cevada-das-lebres			
449	Poaceae	<i>Lolium multiflorum</i> Lam.	Erva-castalhana, azevão			
450	Poaceae	<i>Lolium perenne</i> L.	Azevém			
451	Poaceae	<i>Lolium rigidum</i> Gaudin	Azevém			
452	Poaceae	<i>Micropyrum patens</i> (Brot.) Pilger		Iberian		
453	Poaceae	<i>Micropyrum tenellum</i> (L.) Link				
454	Poaceae	<i>Molineriella laevis</i> (Brot.) Rouy	Erva-fina-menor	Iberian		
455	Poaceae	<i>Molinia caerulea</i> (L.) Moench				
456	Poaceae	<i>Nardus stricta</i> L.	Cervum			
457	Poaceae	<i>Periballia involucrata</i> (Cav.) Janka	Peneirinha	Iberian		
458	Poaceae	<i>Phalaris arundinacea</i>	Caníço-molhado			
459	Poaceae	<i>Poa annua</i> L.				
460	Poaceae	<i>Poa bulbosa</i> L.				
461	Poaceae	<i>Poa supina</i> Kunth				
462	Poaceae	<i>Poa trivialis</i> L.				
463	Poaceae	<i>Pseudarrhenatherum longifolium</i> (Thore) Rouy				
464	Poaceae	<i>Secale cereale</i> L.	Centeio			
465	Poaceae	<i>Setaria pumila</i> (Poir.) Roemer & Schultes				
466	Poaceae	<i>Stipa gigantea</i> Link	Baracejo			
467	Poaceae	<i>Triticum aestivum</i> L.				
468	Poaceae	<i>Vulpia bromoides</i> (L.) S.F. Gray				

469	Poaceae	<i>Vulpia muralis</i> (Kunth) Nees				
470	Poaceae	<i>Vulpia myuros</i> (L.) C.C. Gmelin				
471	Polygalaceae	<i>Polygala microphylla</i> L.		Iberian		
472	Polygalaceae	<i>Polygala serpyllifolia</i> J.A.C. Hose				
473	Polygalaceae	<i>Polygala vulgaris</i> L.				
474	Polygonaceae	<i>Fallopia convolvulus</i> (L.) Á. Löve				
475	Polygonaceae	<i>Polygonum arenastrum</i> Boreau				
476	Polygonaceae	<i>Polygonum aviculare</i> L.				
477	Polygonaceae	<i>Polygonum hydropiper</i> L.	Pimenta-de- água			
478	Polygonaceae	<i>Polygonum lapathifolium</i> L.	Erva-bastarda			
479	Polygonaceae	<i>Polygonum persicaria</i> L.	Cristas			
480	Polygonaceae	<i>Rumex acetosa</i> L. subsp. <i>acetosa</i>	Azeda			
481	Polygonaceae	<i>Rumex acetosella</i> L. subsp. <i>angiocarpus</i> (Murb.) Murb.	Azeda-dos- noivos			
482	Polygonaceae	<i>Rumex bucephalophorus</i> L. subsp. <i>gallicus</i> (Steinh.) Rech. fil.	Azedinha-de- cão			
483	Polygonaceae	<i>Rumex conglomeratus</i> Murray				
484	Polygonaceae	<i>Rumex crispus</i> L.	Labaga-crespa			
485	Polygonaceae	<i>Rumex induratus</i> Boiss. & Reuter	Azeda-das- paredes			
486	Polygonaceae	<i>Rumex obtusifolius</i> L.				
487	Polygonaceae	<i>Rumex pulcher</i> L. subsp. <i>woodsii</i> (De Not.) Arcangeli				
488	Polypodiaceae	<i>Polypodium cambricum</i> L. subsp. <i>cambricum</i>				
489	Polypodiaceae	<i>Polypodium interjectum</i> Shivas	Polipódio			
490	Polypodiaceae	<i>Polypodium vulgare</i> L.				
491	Portulacaceae	<i>Montia fontana</i> L.	Meruginha			
492	Portulacaceae	<i>Portulaca oleracea</i> L.	Beldroega			
493	Potamogetonaceae	<i>Potamogeton polygonifolius</i> Pourret				
494	Primulaceae	<i>Anagallis tenella</i> (L.) L.				
495	Primulaceae	<i>Asterolinon linum-stellatum</i> (L.) Duby				
496	Primulaceae	<i>Lysimachia nemorum</i> L.				
497	Primulaceae	<i>Primula acaulis</i> (L.) L. subsp. <i>acaulis</i>	Primaveras			
498	Pteridaceae	<i>Anogramma leptophylla</i> (L.) Link				
499	Ranunculaceae	<i>Anemone trifolia</i> L. subsp. <i>albida</i> (Mariz) Ulbr.	Anémoma-dos- bosques	Iberian		
500	Ranunculaceae	<i>Aquilegia vulgaris</i> L. subsp. <i>dichroa</i> (Frey) Díaz (sin. <i>A. dichroa</i>)	Amor-das- viúvas			
501	Ranunculaceae	<i>Caltha palustris</i> L.				
502	Ranunculaceae	<i>Ranunculus bolbosus</i> L.	Ranúnculo- bulboso			
503	Ranunculaceae	<i>Ranunculus bupleuroides</i> Brot.		Iberian		
504	Ranunculaceae	<i>Ranunculus ficaria</i> L. subsp. <i>ficaria</i>	Erva-das- hemorróidas			
505	Ranunculaceae	<i>Ranunculus flammula</i> L.	Ranúnculo- inflamatório			
506	Ranunculaceae	<i>Ranunculus nigrescens</i> Freyn		Iberian		
507	Ranunculaceae	<i>Ranunculus olissiponensis</i> Pers. subsp. <i>olissiponensis</i>		Iberian		
508	Ranunculaceae	<i>Ranunculus omiophyllus</i> Ten.				
509	Ranunculaceae	<i>Ranunculus repens</i> L.				
510	Ranunculaceae	<i>Thalictrum speciosissimum</i> L.	Ruibarbo-dos- pobres			
511	Resedaceae	<i>Reseda media</i> Lag.				
512	Resedaceae	<i>Sesamoides purpurascens</i> (L.) G.López				
513	Resedaceae	<i>Sesamoides suffruticosa</i> (Lange) Kuntze	Reseda-de- fruto-estrelado			
514	Rhamnaceae	<i>Frangula alnus</i> Miller	Sanguinho-de- água			
515	Rosaceae	<i>Amelanchier ovalis</i> Medicus				

516	Rosaceae	<i>Aphanes australis</i> Rydb.				
517	Rosaceae	<i>Crataegus monogyna</i> Jacq.	Espinheiro			
518	Rosaceae	<i>Fragaria vesca</i> L.	Morangueiro-bravo			
519	Rosaceae	<i>Malus sylvestris</i> (L.) Mill.	Macieira-brava			
520	Rosaceae	<i>Potentilla erecta</i> (L.) Rausch.	Sete-em-rama			
521	Rosaceae	<i>Potentilla sterilis</i> (L.) Garcke				
522	Rosaceae	<i>Prunus avium</i> L.	Cerejeira-brava			
523	Rosaceae	<i>Prunus insititia</i> L.	Abrunheiro			
524	Rosaceae	<i>Prunus lusitanica</i> L. subsp. <i>lusitanica</i>				
525	Rosaceae	<i>Prunus spinosa</i> L.	Abrunheiro-bravo			
526	Rosaceae	<i>Pyrus cordata</i> Desvaux	Escalheiro			
527	Rosaceae	<i>Rosa canina</i> L., s. str.	Roseira-brava			
528	Rosaceae	<i>Rosa corymbifera</i> Borkh.	Roseira-brava			
529	Rosaceae	<i>Rosa pouzinii</i> Tratt.	Roseira-brava			
530	Rosaceae	<i>Rosa squarrosa</i> (A. Rau) Boreau				
531	Rosaceae	<i>Rubus brigantinus</i> Samp.		Lusitanian		
532	Rosaceae	<i>Rubus henriquesii</i> Samp.	Silva	Iberian		
533	Rosaceae	<i>Rubus lainzii</i> H.E. Weber	Silva	Iberian		
534	Rosaceae	<i>Rubus praecox</i> Bertol.		Iberian		
535	Rosaceae	<i>Rubus sampaioanus</i> Samp.		Iberian		
536	Rosaceae	<i>Rubus ulmifolius</i> Schott	Silva-das-amoras			
537	Rosaceae	<i>Rubus vagabundus</i> Samp.	Silva	Iberian		
538	Rosaceae	<i>Sanguisorba minor</i> subsp. <i>balearica</i> (Bourg. ex Nyman) Muñoz Garm. & C. Navarro	Pimpinela-menor			
539	Rosaceae	<i>Sanguisorba verrucosa</i> (G. Don) Ces.				
540	Rosaceae	<i>Sorbus aria</i> (L.) Crantz				
541	Rosaceae	<i>Sorbus aucuparia</i> L.	Tramazeira			
542	Rosaceae	<i>Sorbus domestica</i> L.	Sorveira			
543	Rubiaceae	<i>Crucianella angustifolia</i> L.	Amor-de-hortelão			
544	Rubiaceae	<i>Cruciata glabra</i> (L.) Ehrend.	Cruciata			
545	Rubiaceae	<i>Galium aparine</i> L.	Rapa-saias			
546	Rubiaceae	<i>Galium broterianum</i> Boiss. & Reuter		Iberian		
547	Rubiaceae	<i>Galium lucidum</i> All.				
548	Rubiaceae	<i>Galium mollugo</i> L.				
549	Rubiaceae	<i>Galium palustre</i> L.				
550	Rubiaceae	<i>Galium papillosum</i> subsp. <i>helodes</i> (Hoffmanns. & Link) Ortega Oliv.		Iberian		
551	Rubiaceae	<i>Galium parisiense</i> subsp. <i>divaricatum</i> (Pourr. ex Lam.) Rouy & E.G. Camus				
552	Rubiaceae	<i>Galium rivulare</i> Boiss. & Reuter				
553	Rubiaceae	<i>Galium rotundifolium</i> L.				
554	Rubiaceae	<i>Galium saxatile</i> L.				
555	Rubiaceae	<i>Rubia peregrina</i> L.	Raspa-língua			
556	Rubiaceae	<i>Sherardia arvensis</i> L.	Granza-dos-campos			
557	Salicaceae	<i>Populus tremula</i> L.	Choupo-tremedor			
558	Salicaceae	<i>Salix atrocinerea</i> Brot.	Salgueiro-negro			
559	Salicaceae	<i>Salix repens</i> L.				
560	Salicaceae	<i>Salix salvifolia</i> Brot.	Salgueiro-branco	Iberian		
561	Santalaceae	<i>Osyris alba</i> L.	Cássia-branca			
562	Santalaceae	<i>Thesium pyrenaicum</i> Pourr. subsp. <i>pyrenaicum</i>				
563	Saxifragaceae	<i>Chrysosplenium oppositifolium</i> L.				

564	Saxifragaceae	<i>Saxifraga granulata</i> L.	Saxifraga			
565	Saxifragaceae	<i>Saxifraga lepismigena</i> Planellas		Iberian		
566	Saxifragaceae	<i>Saxifraga spathularis</i> Brot.				
567	Scrophulariaceae	<i>Scrophularia auriculata</i> L.	Erva-das-escaldadelas			
568	Scrophulariaceae	<i>Scrophularia herminii</i> Hoffmanns. & Link	Chupadeira	Iberian		V
569	Scrophulariaceae	<i>Scrophularia scorodonia</i> L. var. <i>scorodonia</i>				
570	Scrophulariaceae	<i>Verbascum sinuatum</i> L.				
571	Scrophulariaceae	<i>Verbascum thapsus</i> L.				
572	Scrophulariaceae	<i>Verbascum virgatum</i> Stokes	Verbasco-das-vacas			
573	Solanaceae	<i>Solanum dulcamara</i> L.	Doce-amarga			
574	Solanaceae	<i>Solanum nigrum</i> L.	Erva-moira			
575	Taxaceae	<i>Taxus baccata</i> L.	Teixo		VU	
576	Thymelaeaceae	<i>Daphne gnidium</i> L.	Trovisco			
577	Thymelaeaceae	<i>Thymelaea broterana</i> Coutinho		Iberian		II, IV
578	Typhaceae	<i>Sparganium emersum</i> Rehmman subsp. <i>emersum</i>	Espadana			
579	Typhaceae	<i>Sparganium erectum</i> L.	Espadana-de-água			
580	Typhaceae	<i>Typha latifolia</i> L.	Tábua			
581	Ulmaceae	<i>Ulmus minor</i> Mill.	Negrilho			
582	Urticaceae	<i>Parietaria judaica</i> L.	Alfavaca			
583	Urticaceae	<i>Urtica dioica</i> L.	Urtigão			
584	Urticaceae	<i>Urtica urens</i> L.	Urtiga-menor			
585	Valerianaceae	<i>Centranthus calcitrapae</i> (L.) Dufresne subsp. <i>calcitrapae</i>	Calcitrapa			
586	Valerianaceae	<i>Valeriana montana</i> L.				
587	Valerianaceae	<i>Valeriana officinalis</i> L.	Erva-dos-gatos			
588	Verbenaceae	<i>Verbena officinalis</i> L.	Verbena			
589	Violaceae	<i>Viola canina</i> L.				
590	Violaceae	<i>Viola kitaibeliana</i> Schult.	Erva-da-trindade			
591	Violaceae	<i>Viola lactea</i> Sm.				
592	Violaceae	<i>Viola palustris</i> L. subsp. <i>palustris</i>				
593	Violaceae	<i>Viola riviniana</i> Rchb.				
594	Vitaceae	<i>Vitis vinifera</i> subsp. <i>sylvestris</i> (C.C.Gmel.) Hegi	Vinha			
595	Woodsiaceae	<i>Athyrium filix-femina</i> (L.) Roth	Feto-fêmea			
596	Woodsiaceae	<i>Cystopteris viridula</i> (Desv.) Desv.				
597	Xanthorrhoeaceae	<i>Asphodelus lusitanicus</i> Cout. var. <i>ovoideus</i> Z. Díaz & Valdés		Iberian		
598	Xanthorrhoeaceae	<i>Simethis mattiazzi</i> (Vand.) Sacc.	Craveiro-do-monte			

Conservation categories (IUCN):

CR – *Critically Endangered* (Criticamente em Perigo)

DD – *Unsuufficient Data* (Informação Insuficiente)

EN – *Endangered* (Em Perigo)

LC – *Least Concern* (Pouco Preocupante)

NE – *Not Evaluated* (Não Avaliado)

NT – *Near Threatened* (Quase Ameaçado)

VU – *Vulnerable* (Vulnerável)

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List of Bird species of Barroso region and its conservation status

	Order	Species	Common name (Portuguese)	Conservation status			
				Red Book of Vertebrates of Portugal	Birds Directive (UE) (annex n°)	Bern Convention (annex n°)	Bonn Convention (annex n°)
1	Anseriformes	<i>Anas crecca</i>	Marrequinha	LC	II/1; III/2	III	II
2		<i>Anas penelope</i>	Piadeira		D	III	II
3		<i>Anas platyrhynchos</i>	Pato-real	LC	II/1; III/1	III	II
4	Apodiformes	<i>Apus apus</i>	Andorinhão-preto	LC		III	
5		<i>Apus pallidus</i>	Andorinhão-pálido	LC		II	
6	Caprimulgiformes	<i>Caprimulgus europaeus</i>	Noitibó-cinzento	VU	I	II	
7	Ciconiiformes	<i>Ardea cinerea</i>	Garça-real	LC		III	
8		<i>Ciconia ciconia</i>	Cegonha-branca	LC	I	II	II
9		<i>Egretta alba</i>	Garça-branca-grande	LC	I	II	II
10		<i>Egretta garzetta</i>	Garça-branca-pequena	LC	I	II	
11	Charadriiformes	<i>Actitis hypoleucos</i>	Maçarico-das-rochas	VU		III	II
12		<i>Calidris alpina</i>	Pilrito-de-peito-preto	LC		II	II
13		<i>Calidris minuta</i>	Pilrito-pequeno	LC		II	II
14		<i>Calidris pugnax</i>	Combatente	EN		III	II
15		<i>Calidris subruficollis</i>	Pilrito-acanelado	NT			
16		<i>Charadrius dubius</i>	Borrelho-pequeno-de-coleira	LC		II	II
17		<i>Charadrius hiaticula</i>	Borrelho-grande-de-coleira	LC		II	II
18		<i>Charadrius morinellus</i>	Borrelho-ruivo	LC	I	II	II
19		<i>Chlidonias niger</i>	Gaivina-preta	LC	I	II	
20		<i>Chroicocephalus ridibundus</i>	Guincho-comum	LC	II	III	
21		<i>Gallinago gallinago</i>	Narceja	CR	II/1; III/3	III	II
22		<i>Gelochelidon nilotica</i>	Tagaz	EN	I	II	II
23		<i>Larus michaellis</i>	Gaivota-de-patas-amarelas				
24		<i>Larus fuscus</i>	Gaivota-d'asa-escura	VU			
25		<i>Limosa limosa</i>	Milherango	LC		III	II
26		<i>Lymnocyptes minimus</i>	Narceja-galega	DD	D	III	II
27	<i>Numenius phaeopus</i>	Maçarico-galego	VU	I; II/2	III	II	
28	<i>Pluvialis apricaria</i>	Tambora-dourada	LC	I; D	III	II	
29	<i>Pluvialis squatarola</i>	Tambora-cinzenta	LC		III	II	
30	<i>Tringa nebularia</i>	Perna-verde-comum	VU		III	II	
31	<i>Tringa ochropus</i>	Maçarico-bique-bique	NT		II	II	
32	<i>Vanellus vanellus</i>	Abibe	LC		III	II	
33	Columbiformes	<i>Columba livia</i>	Pombo-das-rochas	DD	II/1	III	
34		<i>Columba oenas</i>	Seixa	DD	II/2	III	
35		<i>Columba palumbus</i>	Pombo-torcaz	LC	II/1; III/1		
36		<i>Streptopelia turtur</i>	Rola-brava	LC	II/2	III	
37		<i>Streptopelia decaocto</i>	Rola-turva	LC			
38	Coraciiformes	<i>Alcedo atthis</i>	Guarda-rios	LC	I	II	
39		<i>Coracias garrulus</i>	Rolieiro	CR	I	II	II
40		<i>Merops apiaster</i>	Abelharuco	LC		II	II
41		<i>Upupa epops</i>	Poupa	LC		II	
42	Cuculiformes	<i>Clamator glandarius</i>	Cuco-rabilongo	VU		II	
43		<i>Cuculus canorus</i>	Cuco-canoro	LC		III	
44	Falconiformes	<i>Accipiter gentilis</i>	Açor	VU		II	II
45		<i>Accipiter nisus</i>	Gavião	LC		II	II
46		<i>Aegypus monachus</i>	Abutre-preto	CR	I	II	II
47		<i>Aquila adalberti</i>	Águia-imperial-ibérica	CR	I	II	II
48		<i>Aquila chrysaetos</i>	Águia-real	EN	I	II	II
49		<i>Aquila fasciata</i>	Águia-perdigueira	EN	I	II	II
50		<i>Buteo buteo</i>	Águia-d'asa-redonda	LC		II	II
51		<i>Buteo rufinus</i>	Buteo-mouro	LC	I	II	II
52		<i>Circus gallicus</i>	Águia-cobreira	NT	I	II	II
53		<i>Circus cyaneus</i>	Tartaranhão-cinzento	VU	I	II	II
54		<i>Circus pygargus</i>	Águia-caçadeira	EN	I	II	II

55		<i>Elanus caeruleus</i>	Peneireiro-cinzento	NT	I	II	II
56		<i>Falco columbarius</i>	Esmerilhão	VU	I	II	II
57		<i>Falco peregrinus</i>	Falcão-peregrino	VU	I	II	II
58		<i>Falco subbuteo</i>	Ógea	VU		II	II
59		<i>Falco tinnunculus</i>	Peneireiro-de-dorso-malhado	LC		II	II
60		<i>Gyps fulvus</i>	Grifo-comum	NT	I	II	II
61		<i>Aquila pennata</i>	Águia-calçada	NT	I		
62		<i>Milvus migrans</i>	Milhafre-preto	LC	I	II	II
63		<i>Milvus milvus</i>	Milhafre-real	CR	I	II	II
64		<i>Pernis apivorus</i>	Bútio-vespeiro-ocidental	VU	I	II	II
65	Galliformes	<i>Alectoris rufa</i>	Perdiz-comum		II/1; III/1	III	
66		<i>Coturnix coturnix</i>	Codorniz	LC	II/2	III	II
67	Gruiformes	<i>Gallinula chloropus</i>	Galinha-de-água	LC	II/2	III	
68		<i>Rallus aquaticus</i>	Frango-d'água	LC		III	
69	Passeriformes	<i>Aegithalos caudatus</i>	Chapim-rabilongo	LC		II	
70		<i>Alauda arvensis</i>	Laverca	LC		III	
71		<i>Anthus campestris</i>	Petinha-dos-campos	LC	I	II	
72		<i>Anthus pratensis</i>	Petinha-dos-prados	LC		II	
73		<i>Anthus spinoletta</i>	Petinha-ribeirinha	EN		II	
74		<i>Anthus trivialis</i>	Petinha-das-árvores	NT		II	
75		<i>Calandrella brachydactyla</i>	Calhandrinha-galucha	LC	I	II	
76		<i>Carduelis cannabina</i>	Pintarroxo-de-bico-escuro	LC		II	
77		<i>Carduelis carduelis</i>	Pintassilgo	LC		II	
78		<i>Cecropis daurica</i>	Andorinha-dáurica	LC		II	
79		<i>Certhia brachydactyla</i>	Trepadeira-do-sul	LC		II	
80		<i>Cettia cetti</i>	Rouxinol-bravo	LC		II	II
81		<i>Chloris chloris</i>	Verdilhão	LC		II	
82		<i>Cinclus cinclus</i>	Melro-d'água	LC		II	
83		<i>Cisticola juncidis</i>	Fuinha-dos-juncos	LC		II	II
84		<i>Coccothraustes coccothraustes</i>	Bico-grossudo	LC		II	
85		<i>Corvus corax</i>	Corvo	NT		III	
86		<i>Corvus corone</i>	Gralha-preta	LC	D		
87		<i>Cyanistes caeruleus</i>	Chapim-azul	LC		II	
88		<i>Delichon urbicum</i>	Andorinha-dos-beirais	LC		II	
89		<i>Emberiza calandra</i>	Trigueirão	LC		III	
90		<i>Emberiza cia</i>	Cia	LC		II	
91		<i>Emberiza cirulus</i>	Escrevedeira	LC		II	
92		<i>Emberiza citrinella</i>	Escrevedeira-amarela	VU		II	
93		<i>Emberiza hortulana</i>	Sombria	DD	I	III	
94		<i>Erithacus rubecula</i>	Pisco-de-peito-ruivo	LC		II	II
95		<i>Ficedula hypoleuca</i>	Papa-moscas-preto	LC		II	I
96		<i>Fringilla coelebs</i>	Tentilhão	LC		III	
97		<i>Fringilla montifringilla</i>	Tentilhão-montês	DD		III	
98		<i>Galerida cristata</i>	Cotovia-de-poupa	LC		III	
99		<i>Garrulus glandarius</i>	Gaio	LC			
100		<i>Hippolais polyglotta</i>	Felosa-poliglota	LC		II	II
101		<i>Hirundo rustica</i>	Andorinha-das-chaminés	LC			
102		<i>Lanius collurio</i>	Picanço-de-dorso-ruivo	NT	I	III	
103		<i>Lanius meridionalis</i>	Picanço-real-meridional	LC		III	
104		<i>Lanius senator</i>	Picanço-barreteiro	NT		III	
105		<i>Lophophanes cristatus</i>	Chapim-de-poupa	LC		II	
106		<i>Loxia curvirostra</i>	Cruza-bico	VU		II	
107		<i>Lullula arborea</i>	Cotovia-das-árvores	LC	I	III	
108		<i>Luscinia megarhynchos</i>	Rouxinol	LC		II	II
109		<i>Monticola saxatilis</i>	Melro-das-rochas	EN		II	II
110		<i>Monticola solitarius</i>	Melro-azul	LC		II	II
111		<i>Motacilla alba</i>	Alvéola-branca	LC		II	
112		<i>Motacilla cinerea</i>	Alvéola-cinzenta	LC		II	
113		<i>Motacilla flava</i>	Alvéola-amarela	LC		II	
114		<i>Muscicapa striata</i>	Taralhão-cinzento	NT		II	II

115		<i>Oenanthe oenanthe</i>	Chasco-cinzentos	LC		II	II
116		<i>Oriolus oriolus</i>	Papa-figos	LC		II	
117		<i>Parus major</i>	Chapim-real	LC		II	
118		<i>Passer domesticus</i>	Pardal-do-telhado	LC			
119		<i>Passer montanus</i>	Pardal-montês	LC		III	
120		<i>Periparus ater</i>	Chapim-carvoeiro	LC		II	
121		<i>Petronia petronia</i>	Pardal-francês	LC		III	
122		<i>Phoenicurus ochruros</i>	Rabirruivo	LC		II	II
123		<i>Phoenicurus phoenicurus</i>	Rabirruivo-de-testa-branca	LC		II	II
124		<i>Phylloscopus bonelli</i>	Felosa-de-papo-branco	LC		II	II
125		<i>Phylloscopus collybita</i>	Felosinha-comum	LC		II	II
126		<i>Phylloscopus ibericus</i>	Felosinha-ibérica	LC		II	II
127		<i>Phylloscopus trochilus</i>	Felosa-musical	LC		II	II
128		<i>Pica pica</i>	Pega-rabuda	LC	II		
129		<i>Plectrophenax nivalis</i>	Escrevedeira-das-neves	LC		II	
130		<i>Prunella collaris</i>	Ferreirinha-serrana	NT		II	
131		<i>Prunella modularis</i>	Ferreirinha	LC		II	
132		<i>Ptyonoprogne rupestris</i>	Andorinha-das-rochas	LC		II	
133		<i>Pyrrhocorax pyrrhocorax</i>	Gralha-de-bico-vermelho	EN	I	II	
134		<i>Pyrrhula pyrrhula</i>	Dom-fafe	LC		III	
135		<i>Regulus ignicapilla</i>	Estrelinha-real	LC		II	II
136		<i>Regulus regulus</i>	Estrelinha-de-poupa	LC		II	II
137		<i>Riparia riparia</i>	Andorinha-das-barreiras	LC		II	
138		<i>Saxicola rubetra</i>	Cartaxo-nortenho	VU		II	II
139		<i>Saxicola rubicola</i>	Cartaxo	LC		II	II
140		<i>Serinus serinus</i>	Milheirinha-europeia	LC		II	
141		<i>Sitta europaea</i>	Trepadeira-azul	LC		II	
142		<i>Spinus spinus</i>	Lugre	LC		II	
143		<i>Streptopelia decaocto</i>	Rola-de-colar	LC			
144		<i>Sturnus unicolor</i>	Estorninho-preto	LC		II	
145		<i>Sturnus vulgaris</i>	Estorninho-malhado	LC	D		
146		<i>Sylvia atricapilla</i>	Toutinegra-de-barrete	LC		II	II
147		<i>Sylvia borin</i>	Toutinegra-das-figueiras	VU		II	II
148		<i>Sylvia cantillans</i>	Toutinegra-de-bigodes	LC		II	II
149		<i>Sylvia communis</i>	Papa-amoras-comum	LC		II	II
150		<i>Sylvia conspicillata</i>	Toutinegra-tomilheira	NT		II	II
151		<i>Sylvia hortensis</i>	Toutinegra-real-ocidental	NT		II	II
152		<i>Sylvia melanocephala</i>	Toutinegra-dos-valados	LC		II	II
153		<i>Sylvia undata</i>	Felosa-do-mato	LC	I	II	II
154		<i>Tichodroma muraria</i>	Trepa-fragas	LC		II	
155		<i>Troglodytes troglodytes</i>	Carriça	LC		II	
156		<i>Turdus iliacus</i>	Tordo-ruivo	LC	II/2	III	II
157		<i>Turdus merula</i>	Melro	LC	II/2	III	II
158		<i>Turdus philomelos</i>	Tordo-pinto	NT	II/2	III	II
159		<i>Turdus pilaris</i>	Tordo-zornal	DD	II/2	III	II
160		<i>Turdus torquatus</i>	Melro-de-colar	DD		II	II
161		<i>Turdus viscivorus</i>	Tordoveia	LC	II/2	III	II
162	Pelecaniformes	<i>Phalacrocorax carbo</i>	Corvo-marinheiro-comum	LC		III	
163		<i>Dendrocopos major</i>	Pica-pau-malhado	LC		II	
164	Piciformes	<i>Dendrocopos minor</i>	Pica-pau-galego	LC		II	
165		<i>Jynx torquilla</i>	Torcicolo	DD		II	
166		<i>Picus viridis</i>	Peto-real	LC		II	
167		<i>Podiceps cristatus</i>	Mergulhão-de-crista	LC		II	
168	Podicipediformes	<i>Podiceps nigricollis</i>	Cagarraz	NT		II	
169		<i>Podilymbus podiceps</i>	Mergulhão-caçador	LC			
170		<i>Tachybaptus ruficollis</i>	Mergulhão-pequeno	LC		III	
171		<i>Asio flammeus</i>	Coruja-do-nabal	EN	I	II	
172		<i>Asio otus</i>	Bufo-pequeno	DD		II	
173	Strigiformes	<i>Athene noctua</i>	Mocho-galego	LC		II	
174		<i>Bubo bubo</i>	Bufo-real	NT	I	II	
175		<i>Otus scops</i>	Mocho-d'orelhas	DD		II	

176		<i>Strix aluco</i>	Coruja-do-mato	LC		II	
177		<i>Tyto alba</i>	Coruja-das-torres	LC		II	

Conservation categories (IUCN):

CR – *Critically Endangered* (Criticamente em Perigo)

DD – *Insufficient Data* (Informação Insuficiente)

EN – *Endangered* (Em Perigo)

LC – *Least Concern* (Pouco Preocupante)

NT – *Near Threatened* (Quase Ameaçado)

VU – *Vulnerable* (Vulnerável)

Sources:

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List of Mammal species of Barroso region and its conservation status

	Order	Species	Common name (Portuguese)	Conservation status			
				Red Book of Vertebrates of Portugal	Habitats Directive (UE) (annex n°)	Bern Convention (annex n°)	Bonn Convention (annex n°)
1	Artiodactyla	<i>Capra pyrenaica</i>	Cabra-montês	CR	V	III	
2		<i>Capreolus capreolus</i>	Corço	LC		III	
3		<i>Sus scrofa</i>	Javali	LC			
4	Carnivora	<i>Canis lupus signatus</i>	Lobo-ibérico	EN	II; IV	II	
5		<i>Felis silvestris</i>	Gato-bravo	VU	IV	II	
6		<i>Genetta genetta</i>	Geneta	LC	V	III	
7		<i>Lutra lutra</i>	Lontra	LC	II; IV	II	
8		<i>Martes foina</i>	Fuinha	LC		III	
9		<i>Martes martes</i>	Marta	DD	V	III	
10		<i>Meles meles</i>	Texugo	LC		III	
11		<i>Mustela erminea</i>	Arminho	DD		III	
12		<i>Mustela nivalis</i>	Doninha	LC		III	
13		<i>Mustela putorius</i>	Toirão	DD		III	
14		<i>Neovison vison</i>	Visão-americano	NE			
15		<i>Vulpes vulpes</i>	Raposa	LC	V		
16	Chiroptera	<i>Barbastella barbastellus</i>	Morcego-negro	DD	II	II	II
17		<i>Eptesicus serotinus</i>	Morcego-hortelão	LC	IV	II	II
18		<i>Hypsugo savii</i>	Morcego-de-Savi	DD	IV	II	II
19		<i>Miniopterus schreibersii</i>	Morcego-de-peluche	VU	II; IV	II	II
20		<i>Myotis daubentonii</i>	Morcego-de-água	LC	IV	II	II
21		<i>Myotis escaleraei</i>	Morcego-de-franja	VU	IV	II	II
22		<i>Myotis mystacinus</i>	Morcego-de-bigodes	DD	IV	II	II
23		<i>Nyctalus lasiopterus</i>	Morcego-arborícola-gigante	DD	IV	II	II
24		<i>Nyctalus leisleri</i>	Morcego-arborícola-pequeno	DD	IV	II	II
25		<i>Pipistrellus kuhlii</i>	Morcego-de-Kuhl	LC	IV	II	II
26		<i>Pipistrellus pipistrellus</i>	Morcego-anão	LC	IV	III	II
27		<i>Pipistrellus pygmaeus</i>	Morcego-pigmeu	LC	IV	III	II
28		<i>Plecotus auritus</i>	Morcego-orelhudo-castanho	DD	IV	II	II
29		<i>Plecotus austriacus</i>	Morcego-orelhudo-cinzento	LC	IV	II	II
30		<i>Rhinolophus ferrumequinum</i>	Morcego-de-ferradura-grande	VU	II; IV	II	II
31		<i>Rhinolophus hipposideros</i>	Morcego-de-ferradura-pequeno	VU	II; IV	II	II
32	<i>Tadarida teniotis</i>	Morcego-rabudo	DD	IV	II	II	
33	Erinaceomorpha	<i>Erinaceus europaeus</i>	Ouriço-cacheiro	LC		III	
34	Lagomorpha	<i>Lepus granatensis</i>	Lebre			III	
35		<i>Oryctolagus cuniculus</i>	Coelho-bravo	NT			
36	Rodentia	<i>Apodemus sylvaticus</i>	Rato-do-campo	LC			
37		<i>Arvicola sapidus</i>	Rato-de-água	LC			
38		<i>Arvicola terrestris</i>	Rato-dos-lameiros	NE			
39		<i>Eliomys quercinus</i>	Leirão	DD		III	
40		<i>Microtus agrestis</i>	Rato-do-campo-de-rabo-curto	LC			
41		<i>Microtus lusitanicus</i>	Rato-cego	LC			
42		<i>Mus musculus</i>	Ratinho-caseiro				
43		<i>Mus spretus</i>	Rato-das-hortas	LC			
44		<i>Rattus norvegicus</i>	Ratazana				
45		<i>Sciurus vulgaris</i>	Esquilo-vermelho	LC		III	
46	Soricomorpha	<i>Crocidura russula</i>	Musaranho-de-dentes-brancos	LC		III	
47		<i>Crocidura suaveolens</i>	Musaranho-de-dentes-brancos-pequeno	NE		III	
48		<i>Galemys pyrenaicus</i>	Toupeira-de-água	VU	II; IV	II	
49		<i>Neomys anomalus</i>	Musaranho-de-água	DD		III	
50		<i>Sorex granarius</i>	Musaranho-de-dentes-	DD		III	

			vermelhos				
51		<i>Sorex minutus</i>	Musaranho-anão-de-dentes-vermelhos	DD		III	
52		<i>Talpa occidentalis</i>	Toupeira	LC			

Conservation categories (IUCN):

CR – *Critically Endangered* (Criticamente em Perigo)

DD – *Insufficient Data* (Informação Insuficiente)

EN – *Endangered* (Em Perigo)

LC – *Least Concern* (Pouco Preocupante)

NE – *Not Evaluated* (Não Avaliado)

NT – *Near Threatened* (Quase Ameaçado)

VU – *Vulnerable* (Vulnerável)

Sources:

Álvares, F. & Fachada, M., 2003. *Património Natural da Região do Alto Tâmega e Barroso*. Região de Turismo do Alto Tâmega e Barroso. Chaves. 116 pp.

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International Union for Conservation of Nature (IUCN) Red List of Threatened Species: <http://www.iucnredlist.org>

List of Amphibians species of Barroso region and its conservation status

	Order	Species	Common name (Portuguese)	Conservation status		
				Red Book of Vertebrates of Portugal	Habitats Directive (UE) (annex nº)	Bern Convention (annex nº)
1	Anura	<i>Alytes obstetricans</i>	Sapo-parteiro-comum	LC	IV	II
2		<i>Bufo spinosus</i>	Sapo-comum	LC		III
3		<i>Epidalea calamita</i>	Sapo-corredor	LC	IV	II
4		<i>Discoglossus galganoi</i>	Rã-de-focinho-pontiagudo	NT	II; IV	II
5		<i>Hyla molleri</i>	Rela	LC	IV	II
6		<i>Pelobates cultripes</i>	Sapo-de-unha-negra	LC	IV	II
7		<i>Rana iberica</i>	Rã-ibérica	LC	IV	II
8		<i>Pelophylax perezi</i>	Rã-verde	LC	V	III
9	Caudata	<i>Chioglossa lusitanica</i>	Salamandra-lusitânica	VU	II; IV	II
10		<i>Salamandra salamandra</i>	Salamandra-de-pintas-amarelas	LC		III
11		<i>Lissotriton boscai</i>	Tritão-de-ventre-laranja	LC		III
12		<i>Lissotriton helveticus</i>	Tritão-de-patas-espalmadas	VU		III
13		<i>Triturus marmoratus</i>	Tritão-marmorado	LC	IV	III

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DD – *Insufficient Data* (Informação Insuficiente)

EN – *Endangered* (Em Perigo)

LC – *Least Concern* (Pouco Preocupante)

NE – *Not Evaluated* (Não Avaliado)

NT – *Near Threatened* (Quase Ameaçado)

VU – *Vulnerable* (Vulnerável)

Sources:

Álvares, F. & Fachada, M., 2003. *Património Natural da Região do Alto Tâmega e Barroso*. Região de Turismo do Alto Tâmega e Barroso. Chaves. 116 pp.

Cabral, MJ (coord.), Almeida, J., Almeida, P.R., Dellinger, T., Ferrand de Almeida, N., Oliveira, M.E., Palmeirim, J.M., Queiroz, A.I., Rogado, L. & Santos-Reis, M. (eds.), 2006. *Livro Vermelho dos Vertebrados de Portugal*. 2ª Edição. Instituto de Conservação da Natureza/Assírio & Alvim. Lisboa. 660 pp.

Directive 92/43/EEC of the Council of 21 May 1992, on the conservation of natural habitats and of wild fauna and flora (Habitats Directive). Official Journal of the European Communities, 22-07-1992.

International Union for Conservation of Nature (IUCN) Red List of Threatened Species: <http://www.iucnredlist.org/>

List of Reptiles species of Barroso region and its conservation status

	Order	Species	Common name (Portuguese)	Conservation status		
				Red Book of Vertebrates of Portugal	Habitats Directive (UE) (annex n ^o)	Bern Convention (annex n ^o)
1	Sauria	<i>Acanthodactylus erythrurus</i>	Lagartixa-da-areia	NT		III
2		<i>Anguis fragilis</i>	Licranço	LC		III
3		<i>Chalcides bedriagai</i>	Cobra-de-pernas-pentadáctila	LC	IV	II
4		<i>Chalcides striatus</i>	Cobra-de-pernas-tridáctila	LC		III
5		<i>Timon lepidus</i>	Sardão	LC		II
6		<i>Lacerta schreiberi</i>	Lagarto-de-água	LC	II; IV	II
7		<i>Podarcis bocagei</i>	Lagartixa-de-Bocage	LC		III
8		<i>Podarcis guadarramae</i>	Lagartixa-ibérica	LC		III
9		<i>Psammotromus algirus</i>	Lagartixa-do-mato	LC		III
10		<i>Psammotromus hispanicus</i>	Lagartixa-do-mato-ibérica	NT		III
11		<i>Tarentola mauritanica</i>	Osga	LC		III
12	Serpentes	<i>Coronella austriaca</i>	Cobra-lisa-europeia	VU	IV	II
13		<i>Coronella girondica</i>	Cobra-lisa-bordalesa	LC		III
14		<i>Rhinechis scalaris</i>	Cobra-de-escada	LC		III
15		<i>Malpolon monspessulanus</i>	Cobra-rateira	LC		III
16		<i>Natrix maura</i>	Cobra-de-água-viperina	LC		III
17		<i>Natrix astreptophora</i>	Cobra-de-água-de-colar	LC		III
18		<i>Vipera latastei</i>	Víbora-cornuda	VU		II
19		<i>Vipera seoanei</i>	Víbora-de-Seoane	EN	IV	III
20	Testudines	<i>Emys orbicularis</i>	Cágado-de-carapaça-estriada	EN	II; IV	II
21		<i>Mauremys leprosa</i>	Cágado-mediterrânico	LC	II; IV	II

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Cabral, MJ (coord.), Almeida, J., Almeida, P.R., Dellinger, T., Ferrand de Almeida, N., Oliveira, M.E., Palmeirim, J.M., Queiroz, A.I., Rogado, L. & Santos-Reis, M. (eds.), 2006. *Livro Vermelho dos Vertebrados de Portugal*. 2ª Edição. Instituto de Conservação da Natureza/Assírio & Alvim. Lisboa. 660 pp.

Directive 92/43/EEC of the Council of 21 May 1992, on the conservation of natural habitats and of wild fauna and flora (Habitats Directive). Official Journal of the European Communities, 22-07-1992.

International Union for Conservation of Nature (IUCN) Red List of Threatened Species: <http://www.iucnredlist.org/>

List of some Invertebrates species of Barroso region and its conservation status

	Order	Species	Common name (Portuguese)	Conservation status		
				European Red List	Habitats Directive (UE) (annex n°)	Bern Convention (annex n°)
1	Araneae	<i>Agelena labyrinthica</i>	Aranha-de-labirinto-europeia			
2		<i>Amaurobius ferox</i>	Aranha-cribelada-feroz			
3		<i>Cyclosa conica</i>	n.a.			
4		<i>Mangora acalypha</i>	n.a.			
5		<i>Nuctenea umbratica</i>	n.a.			
6		<i>Hogna radiata</i>	n.a.			
7		<i>Lycosa tarântula</i>	Tarântula			
8		<i>Uroctea durandi</i>	Aranha-de-pintas-amarelas			
9		<i>Pholcus phalangioides</i>	Aranhão			
10		<i>Phlegra bresnieri</i>	n.a.			
11		<i>Salticus scenius</i>	n.a.			
12		<i>Scytodes velutina</i>	n.a.			
13		<i>Segastria bavarica</i>	n.a.			
14		<i>Latrodectus tredecimguttatus</i>	Viúva-negra			
15		<i>Gyas titunus</i>	n.a.			
16		<i>Buthus ibericus</i>	Lacrau			
17	Coleoptera	<i>Lucanus cervus</i>	Vaca-loura	NT	II	III
18		<i>Timarcha lusitanica</i>	n.a.	LC		
19		<i>Trichodes spp.</i>	n.a.	LC		
20		<i>Oryctes nasicornis</i>	Escaravelho-rinoceronte	LC		
21		<i>Coccinella septempunctata</i>	Joaninha	LC		
22		<i>Coccinula quatuordecimpustulata</i>	n.a.			
23	<i>Scarabaeus laticollis</i>	Escaravelho-do-estrume	LC			
24	Hemiptera	<i>Tettigetta argentata</i>	Cigarra			
25	Hymenoptera	<i>Apis mellifera iberiensis</i>	Abelha-melífera	DD		
26		<i>Andricus quercostozae</i>	Vespa-das-galhas			
27		<i>Colletes gallicus</i>	n.a.	LC		
28		<i>Polistes gallicus</i>	Vespa-comum-europeia			
29	Lepidoptera	<i>Callimorpha quadripunctaria</i>	n.a.	NE	II	
30		<i>Thymelicus lineola</i>	n.a.	LC		
31		<i>Aricia cramera</i>	n.a.	LC		
32		<i>Aglais io</i>	n.a.	LC		
33		<i>Euphydryas aurinia</i>	n.a.	LC	II	II
34		<i>Maniola jurtina</i>	n.a.	LC		
35		<i>Esperia oliviella</i>	n.a.			
36		<i>Oiketicoides febretta</i>	Pastorinha			
37		<i>Pyropteron leucomelaena</i>	n.a.			
38		<i>Zygaena trofolii</i>	Pimpinela			
39		<i>Charaxes jasius</i>	Borboleta-do-medronheiro	LC		
40	Odonata	<i>Boyeria irene</i>	n.a.	LC		
41		<i>Calopteryx virgo</i> spp. <i>meridionalis</i>	n.a.	LC		
42		<i>Calopteryx xanthostoma</i>	n.a.	LC		
43		<i>Ceriagrion tenellum</i>	n.a.	LC		
44		<i>Coenagrion mercuriale</i>	n.a.	NT	II	II
45		<i>Coenagrion puella</i>	n.a.	LC		
46		<i>Cordulegaster boltonii</i>	n.a.	LC		
47		<i>Enallagma cyathigerum</i>	n.a.	LC		
48		<i>Erythromma lindenii</i>	n.a.	LC		
49		<i>Erythromma viridulum</i>	n.a.	LC		
50		<i>Ischnura graellsii</i>	n.a.	LC		
51		<i>Lestes dryas</i>	n.a.	LC		
52		<i>Lestes virens</i>	n.a.	LC		
53		<i>Lestes viridis</i>	n.a.	LC		
54		<i>Libellula quadrimaculata</i>	n.a.	LC		
56		<i>Onychogomphus uncatulus</i>	n.a.	LC		

56		<i>Orthetrum coerulescens</i>	n.a.	LC		
57		<i>Platycnemis latipes</i>	n.a.	LC		
58		<i>Pyrrhosoma nymphula</i>	n.a.	LC		
59		<i>Sympetrum sanguineum</i>	n.a.	LC		
60	Orthoptera	<i>Oedipoda caerulescens</i>	Gafanhoto	LC		
61		<i>Neocallicrania selligera</i>	n.a. (Iberian endemism)	LC		
62		<i>Gryllus campestris</i>	Grilo	LC		
63		<i>Gryllotalpa gryllotalpa</i>	Ralo	LC		
64		<i>Tettigonia viridissima</i>	Gafanhoto-verde	LC		
65	Unionida	<i>Margaritifera margaritifera</i>	Mexilhão-de-rio	CR	II, V	III
66		<i>Unio crassus</i>	Mexilhão-de-rio-pequeno	VU	II; IV	III

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Sources:

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International Union for Conservation of Nature (IUCN) Red List of Threatened Species: <http://www.iucnredlist.org>

Fauna Europaea: <http://www.faunaeur.org>

Natura 2000 Network Sectorial Plan (invertebrates): <http://www.icnf.pt/portal/naturaclas/rn2000/resource/docs/rn-plan-set/inverteb>

Meeting Minutes of approval of the final document (Portuguese)

- Proposal of Barroso region to GIAHS/FAO Programme -

No dia dez de abril de dois mil e dezassete reuniram-se na sede da ADRAT, Associação de Desenvolvimento da Região do Alto Tâmega as seguintes entidades e representantes:

- Ministério da Agricultura, Florestas e Desenvolvimento Rural – António Cerca Miguel;
- ADRAT – António Machado, Marco Fachada e Susan Luzio;
- Município de Boticas – Guilherme Pires e Dorinda Sanches;
- Município de Montalegre – David Teixeira;
- Comunidade Intermunicipal do Alto Tâmega – João Batista;
- Comissão de Coordenação e Desenvolvimento da Região Norte – Helena Teles e Armando Oliveira;
- Universidade de Trás-os-Montes e Alto Douro – Artur Cristóvão;
- Cooperativa Agrícola de Boticas – Albano Álvares;
- Instituto de Conservação da Natureza e das Florestas – Fernando Alves e Paula Duarte;
- Direção-Regional de Agricultura e Pescas do Norte – Isabel Escudeiro;
- Gabinete de Planeamento, Políticas e Administração Geral – Hugo Costa.

As entidades acima referidas têm vindo a reunir regularmente durante o ano dois mil e dezassete com o intuito de apresentar a candidatura do Barroso à FAO/GIAHS “*Globally Important Agricultural Heritage Systems /Food and Agriculture Organization of the United Nations*”. Neste sentido e após as correções do documento de trabalho, sugeridas pelos participantes em reuniões anteriores foi aprovado por unanimidade o teor do documento final a apresentar à FAO, pelo Ministério da Agricultura, Florestas e Desenvolvimento Rural.

Foi ainda aprovado o Plano de Ação e respetivas ações que é parte constituinte da candidatura, bem como a constituição dos seguintes órgãos:

Comissão Executiva – Constituída pelas seguintes entidades: Ministério da Agricultura, Florestas e Desenvolvimento Rural (MAFDR); Município de Boticas; Município de Montalegre; Comunidade Intermunicipal do Alto Tâmega (CIMAT); Associação Ecomuseu do Barroso; Associação de Desenvolvimento da Região do Alto Tâmega (ADRAT). Esta Comissão incorporará as Organizações de Agricultores do território e reunirá com uma periodicidade trimestral de modo a garantir o cumprimento do estabelecido na candidatura e nas medidas aprovadas.

Comissão de Acompanhamento – Constituída pelas seguintes entidades: FAO; Gabinete de Planeamento e Políticas (GPP); Instituto de Conservação da Natureza e Florestas (ICNF); Comissão de Coordenação e Desenvolvimento da Região Norte (CCDR-N); Direção-Regional de Agricultura do Norte (DRAP-N); 2 Universidades; 1 Agrupamento Escolar; 1 Organização de Produtores Agrícolas ou Pecuários e 1 Organização de Produtores Florestais, de Baldios e/ou de Defesa do Ambiente. Esta Comissão reunirá uma vez por ano.

Plataforma do Barroso – Será constituída em dois anos a Plataforma do Barroso que permitirá a participação de todos os agentes que desenvolvem algum tipo de atividade nesta região, que englobará todas as organizações representativas do setor primário, bem como outros agentes existentes no território (associações culturais, de desenvolvimento, de turismo, empresariais, personalidades, etc.), de modo a que a gestão do território classificado como GIAHS seja o mais abrangente possível e um compromisso de todas a partes envolvidas.

Ficou ainda acordado que a folha de presenças da reunião terá também o propósito de validação e aprovação da presente ata e respetivo conteúdo.