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The study of the recreational use of El Bierzo (Spain)

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ABSTRACT

The main idea of this study is to develop various industries that have this area as well as having a vision of global set both politically Bierzo, economically and socially, in order to implant companies in different sectors later cited with an environmental and landscaping protecion for improvement and enjoyment of all residents and visitors to this area and to protect the different ecosystems, vegetation and wildlife threatened by various industries that can destroy large areas of natural interest. All this is justified by the need to advance a direcion to protect the environment and allow a rural development according to environmental protecion implemented by the various European, Spanish and regional policies for their impact as small as possible. At first discussed in which the climate, geology, hydrology of the area, also the historical-social answer was analyzed and an analysis of the forestry sector, finally has developed an inventory of vegetation and wildlife analyzed It exists in this region. The purpose of this analysis and inventory has been developing and publishing the different conclusions and results that can be read later.

KEY: landscape, tourism, rural, ecosystem impact, ecoforestry, environmental, exploitation, species, climate, geology, topographic, bioclimatology, afforestation, hunting, mesozoic, communities, silviculture, heaths, grass.

ABSTRAKT

Cílem této diplomové práce bylo rozvinout různá průmyslová odvětví v oblasti Bierzo z hlediska politického, ekonomického a sociálního, a vytvoření vhodného prostředí pro místní obyvatele i návštěvníky. To vše v souladu se zachováním tradice venkova a ochrany životního prostředí,. Je zohledněn dopad průmyslových odvětvích a teréních úprav na životní prostředí. Dále se práce zabývá ochranou ekosystémů, ochranou divoké zvěře a chráněnné vegetace v této oblasti, kterou by mohl rozvoj průmyslu ohrozit. Za cílem minimalizace negativních vlivů na životní prostředí byly zohledněny různé španělské a evropské politicko regionální metody. V první části práce je uvedena charakteristika podnebí, geologie, hydrologie a historie tohoto regionu. Dále byla provedena analýza lesního hospodářství, soupis vegetace a volně žijících živočichů v oblasti Bierza. Získaná data bylá zpracována a poté vyhodnocena. Získané výsledky jsou uvedené v této diplomové práci.

KLÍČOVÁ SLOVA: krajina, turistika, venkovský, vliv ekosystému, ekologické lesnictví, životní prostředí, vykořisťování, druh, podnebí, geologie, topografie, bioklimatologie, zalesňování, lov, druhohory, komunity, pěstování lesa, vřesoviště, tráva.

1. Introduction

The analysis of the region Bierzo is interesting for his great potencial both tourism and industry.

In tourism this area has a big distribution of elements of great importance, this elements we can distinguish the natural and physical.

Landscape studies is an instrument of energizing and improvement the quality of the territory and a very useful tool to guide future urban development and territorial, preserving the identity of each place and contributing to the functionality of the green infrastructure of the territory. The studies of landscape, also, they establish criteria for zoning undeveloped land and for catalogization and conservation od the structural elements of the territory that define a landscape.

With this it is guaranteed the implementation of uses and activities occurs without undermining environmental, landscape and cultural values of the territory. (Muñoz Criado, 2011)

It is therefore important to develop a landscape, cultural and tourism report of this region, which you have the opportunity to add value his natural, gastronomic and cultural virtues for their economic and social development.

Tourism is the set of travel whose purpose is leisure or business or commercial reasons and others similar, and during which the absence of habitual residence is temporary. Tourism is not a travel for to go to work (Arthur Bormann, 1930). Other definition of turism can be; that tourism is the displacements in the free time of generating socioeconomic phenomena, political and judicial, formed by a group of activities, goods and services which are used, they develop, operate and service to society, for consumption in places outside their home in terms of recreation, health, leisure, family, business, sport and culture. (Cardenas, 1982)

Focusing on the expression, "temporary absence of habitual residence", the region of Bierzo must develop right infrastructure right infrastructure for the relaxing break of your visitors both in the city and in high quality rural tourism and sustainable for long period. which enrich and harmonize with the rich history and landscape of the environment that will study.

Inland tourism or rural tourism or eco-tourism, it is increasing more and more for its enormous possibilities: social and economic.

We will talk about rural tourism when the rural culture is an important element in the composition of the offer; according to the specific activity that will be constitut a priority this offer we can talk about agritourism, green tourism, gastroturismo, nautical, historical, cultural, etc ... On the contrary the tourism activities based on large tourist villages "country", big hotels or inn in the half of natura, or fields of golf, they do not fit the concept of rural tourism. (Calatrava R. And Ruiz A., 2005)

In the region of Bierzo, we can found a high quality tourism oriented to oenology, gastronomy, green tourism and historical tourism, also to the enhancement the natural landscape that it have and its physical means such as castles, churches and convents, as Paleolithic and Neolithic constructions; which are mixed with the environment.

Rural tourism, as part of the total member of tourism gear, It implies a tourist activity. The environment and local communities are the basic elements and therefore they are directly involved in the reception of benefits and costs (Gomez, 1990)

This rural area offers great tourism potential. Above-mentioned the agrotourism, offer whose management is performed by the farmer's family, it is not overcrowded and favors the relationship of individuals from different cultures: offeror (rural) and demanding (urban).

The development of agritourism activities does not constitute diversion of agricultural ground destination or buildings. (Lozano S., 1991)

The region of Bierzo with 3178, 59 Km^2 and a density of population of 41,30 hab/ Km^2 and adding to this geographical position, its artistic and cultural heritage and its natural and rural environment, it is a perfect area for the development of sustainable rural tourism, ecological tourism, gastronomic and wine tourism. This type of tourism can bring wealth to this region affected by a major crisis by the closure in recent years of various industries.

This tourism development could translate into an increase in jobs and a pollution reducing in this area, due to high pollution industries that records the area; mining industry, electrical industry and metallurgical industry; that are highly polluting.

Also an increase in tourism in this area could generate knowledge of agricultural products and handicrafts registered in the denomination of origin Bierzo.

Goal of study

The purpose of this study is to analyze in a quantitative way the different possibilities for this region, both at their forestry management, industrial development and the use that can be given to both at the protected areas and the different ecosystems that form.

Analyzing the different needs and economic sectors provided in this region and seeking to strengthen the depressed areas with different uses and activities. Within these activities, we can highlight ecotourism, rural tourism, wine tourism, ... etc. Thus allowing better management of resources to enhance the landscape and environmental management that guaranteeing economic and social sustainable and quality development in a long time.

2. Definitions

Ecotourism: it is one form of tourism that involves traveling to relatively undisturbed natural areas with the specific object of admiration, enjoy and study the landscape, flora and fauna, as well as cultural manifestations (both past and present) that there may be found. In these terms, ecotourism involves a scientific, aesthetic or philosophical approach, without this meaning that the ecotourist should be a scientist, an artist or a professional philosopher. (Ceballos-Lascuráin, 1987).

UNESCO: is a specialized agency of the United Nations (UN). Its purpose is to contribute to peace and security by promoting international collaboration through education, science, and culture to further universal respect for justice, the rule of law, and human rights along with fundamental freedom proclaimed in the United Nations Charter. It is the heir of the League of Nations' International Committee on Intellectual Cooperation. (UNESCO. Retrieved 23 April 2010.).

Appellation of origin: at international level, we can highlight the agreement of the Paris Union for the protection of industrial property (1883). This is defined as the name of a region, a specific place or, in exceptional cases, from a country, it used to describe an agricultural product or food product originating from that region, specific place or that country, whose the quality or characteristics are essentially attributable or exclusively to the geographical environment with its natural and human factors. (Millán Salas, 2012).

Potential vegetation: Stable plant community that would exist in a given area due to the progressive succession area, especially if the man stop disturbing the natural terrestrial ecosystems. In practice it is considered as synonymous potential vegetation climax, however distinction should also climatophilous potential between vegetation and edafófila (permanent communities), between primitive current natural potential vegetation (yet undisturbed by man) and natural potential vegetation, resulting from a process of secondary succession. It is characteristic of each series of units of vegetation and senior (sigmatáxones) possess a particular potential vegetation as well as a certain stage of substitution. (Rivas-Martínez, 2004).

Bioclimatology: biological science that studies the reciprocity between climate and the distribution of living beings on Earth. This discipline, which could also be called phytoclimatology, he began to be structured on the basis of the numerical values relate climate (temperature and precipitation) with the sand plant and its vegetation, to add further information to the biocenosis; it is recently incorporating knowledge from

dynamic-catenal Phytosociology, this is the sigmetum and geosigmetum (series and geoseries of vegetation). (Rivas-Martínez, 2004).

Landscape: It is meant by any part of the territory landscape as perceived by the population. Whose character is the result of the action and interaction of natural and / or human. By landscaping protecion it will be understood, the implementation of measures to protect and maintain aspects significant or characteristic justified by it is heritage value derived from its natural configuration and / or human action. (J. Busquet F. And A. Cortinas R., 2009).

PAC funds: It is a common policy for all member states of the European Union. It is managed and financed at European level with all the resources of the annual EU budget. It is objectives are: improve agricultural productivity so that consumers have a steady supply of affordable food and ensure that EU farmers reasonable living. (JCYL).

Afforestation: According with SAFnet; is the establishment of a forest or stand of trees in an area where there was no forest. Reforestation is the reestablishment of forest cover, either naturally (by natural seeding, coppice, or root suckers) or artificially (by direct seeding or planting).

Pruning: is a horticultural and silvicultural practice involving the selective removal of parts of a plant, such as branches, buds, or roots. Reasons to prune plants include deadwood removal, shaping (by controlling or directing growth), improving or maintaining health, reducing risk from falling branches, preparing nursery specimens for transplanting, and both harvesting and increasing the yield or quality of flowers and fruits. The practice entails targeted removal of diseased, damaged, dead, non-productive, structurally unsound, or otherwise unwanted tissue from crop and landscape plants (Shigo, A, 1991).

Thinning: Thinning in forestry is the selective removal of trees, primarily undertaken to improve the growth rate or health of the remaining trees. This may be done to make the stand more profitable in an upcoming final felling or to achieve ecological goals such as increasing biodiversity or accelerating the development of desired structural attributes such as large diameter trees with long tree crowns (Smith et al. 1997).

Hunting: is the practice of killing or trapping any animal, or pursuing it with the intent of doing so. Hunting wildlife or feral animals is most commonly done by humans for food, recreation, or trade. In present-day use, lawful hunting is distinguished from

poaching, which is the illegal killing, trapping or capture of the hunted species. The species that are hunted are referred to as game and are usually mammals and birds. Hunting can also be a means of pest control. Hunting advocates state that hunting can be a necessary component of modern wildlife management. (Williams, Ted. 2002).

Ecoforestry: has been defined as selection forestry or restoration forestry. The main idea of Ecoforestry is to maintain or restore the forest to standards where the forest may still be harvested for products on a sustainable basis. Ecoforestry is forestry that emphasizes holistic practices which strive to protect and restore ecosystems rather than maximize economic productivity. (Rastogi J. 2003 and Hammond H. 2003).

Wood: is a porous and fibrous structural tissue found in the stems and roots of trees and other woody plants. It has been used for thousands of years for both fuel and as a construction material. It is an organic material, a natural composite of cellulose fibers (which are strong in tension) embedded in a matrix of lignin which resists compression. Wood is sometimes defined as only the secondary xylem in the stems of trees. (Hickey, M. and King, C. 2001).

Old-growth forest: also termed primary forest, virgin forest, primeval forest, late seral forest, or (in Britain) ancient woodland; is a forest that has attained great age without significant disturbance and thereby exhibits unique ecological features and might be classified as a climax community. (White, David and Lloyd, Thomas 1994).

Climate: is the statistics (usually, mean or variability) of weather, usually over a 30-year interval. It is measured by assessing the patterns of variation in temperature, humidity, atmospheric pressure, wind, precipitation, atmospheric particle count and other meteorological variables in a given region over long periods of time. Climate differs from weather, in that weather only describes the short-term conditions of these variables in a given region. (J. Marshall; Shindell, Drew; O'Carroll, Cynthia M, 2005).

Mesozoic: is an interval of geological time from about 252 to 66 million years ago. It is also called the Age of Reptiles, a phrase introduced by the 19th century paleontologist Gideon Mantell who viewed it as dominated by reptiles such as Iguanodon, Megalosaurus, Plesiosaurus and what are now called Pseudosuchia. (Dennis R., 1999).

Environment: is the biotic and abiotic surrounding of an organism or population, and consequently includes the factors that have an influence in their survival, development and evolution. The biophysical environment can vary in scale from microscopic to

global in extent. It can also be subdivided according to its attributes. Examples include the marine environment, the atmospheric environment and the terrestrial environment. (Kemp, David Walker, 1998).

Population: is a summation of all the organisms of the same group or species, which live in a particular geographical area, and have the capability of interbreeding. In ecology, the population of a certain species in a certain area is estimated using the Lincoln Index. The area that is used to define a sexual population is defined as the area where inter-breeding is potentially possible between any pair within the area. (Hartl, 2007).

SWOT: is a useful technique for understanding your Strengths and Weaknesses, and for identifying both the Opportunities open to you and the Threats you face. (Mindtools, 2016)

Red natura 2000: It is a European ecological network of conservation areas of biodiversity. It consists of Special Areas of Conservation (SACs) established under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive. (Magrama, 2016)

3. Characteristics

3.1 Geographic distribution and limits

The region of Bierzo comprising the administrative area of Ponferrada and represents a transition zone between León, Asturias and Galicia: It is considered one of the most well-defined natural regions within the province of León. The area is 3.178,59 Km^2 (Garcia y Garcia, 1996)

This area of production, preparation and packaging is located north west of the province of Leon and consists of the land located in the municipal integrated into the Region of Bierzo, defined by Law 1/1991 of 14 March, 1991 (BOCy L. No. 55 March 20), comprising the following municipalities: Arganza, Balboa, Barjas, Bembibrege, Benuza, Berlanga Bierzo, Borrenes, Cabañas raras, Cacabelos Camponaraya, Candín, Carracedelo, Carucedo, Castropodame, Congos to, Corullón,Cubillos del Sil, Fabero, Folgoso de la Ribera, Igüeña, MolinasecaNoceda del Bierzo, Oencia, Páramo del Sil, Peranzanes, Ponferrada, Priaranza del Bierzo, Puente de Domingo Florez,Sancedo, Sobrado, Toreno, Torre del Bierzo, Trabadelo, de la Vega, Vega de Valcarce, Villadecanes and Villafranca del Bierzo.

In the appendix 2. Pic 7. Valley view Bierzo from Prada de la Sierra. We can see the all map of Bierzo region.

From the geographical point of view the shape of this region is from Sil river valley with its many tributaries, for this reason this region has abundant water.

Map of Bierzo region.

3.2 Geology, orography, lithology

The Bierzo region comes as a huge amphitheater whose bottom is filled by miopleocenos deposits according to Martín Galindo, 1953. The valley is located in a region of media reliefs with heights above sea level who are between 350 m. to 2117 m. in the Catoute mountain. The mountain formations occupy an important part of the relief, being more than 50% of the total area above 1,000 meters.

Morphologically presents a central depression surrounded by wide, flat ridges by the N, S and W. As for the rocks that form the sheet, leaving aside the igneous rocks, one can distinguish four groups separated by unconformities or discontinuities. These groups correspond to the Precambrian, Paleozoic, Tertiary and a small area on the western side of the road. Lower Paleozoic, meanwhile, is represented by materials characterized from the Middle Cambrian to Devónico. Tertiary materials occupy a large area and form the average pressure of Bierzo, their outcrops are largely covered by alluvial deposits of the river Sil forming the fourth group of materials in the road. As igneous rocks concerns only include Ponferrada granite outcropping in the east.

The terraces bordering crop areas Sands, clays and gravels of Neogene. In the Central Zone and morphologically more depressed these materials are part of the Intermountain Basin Bierzo .

The gravels are composed mainly of quartzite ridges, being less abundant slate. Deposits are found in layers whose power ranges from 10 centimeters to 2 meters.

According to the lithologic map of the Atlas of the Natural Environment of the province of Leon in this area of Bierzo predominantly unconsolidated materials Tertiary marls, clays and conglomerates, accompanied by clay and silt on flood sands and conglomerates that appear in the margins major rivers, and some outcrops of conglomerates, sands and clays of terraces and glacis. In the higher areas, located in the southern town of Castropodame can also find hard shale: fine-grained siliceous lithologies with altered coarse-grained inputs and with sandstone and slate Quartzite: coarse-grained siliceous lithologies. (Porta Casasellas, 2008)

Denominated in numerous brown land, acid brown soils and brown forest soils. In general, are formed or can form any type of rock, both silica and limestone, so they are represented in most regions, but especially in mountainous and hilly. In general, cambisols have physical characteristics arising from its balanced texture. The sand fraction facilitates drainage and curbs the rise of water to the surface, the amount

lowering evaporated by the soil, which together, as are soils of average retention capacity, is better maintained the water reservoir and thus the evapotranspiration may be higher. This results in that the plant needs water is best in soils with sandy texture as arenosols, plants away less than their full development, so it should be performance between sandy and clay soils. Dystric Cambisols are acid soils with low to regulate content in databases. Focuses on the in mountainous ridge in the peneplain on slate, quartzite, gneiss and granite, as are common in the study area. The soils are chromic usually red, reddish brown and yellowish red. They are located on granite and slate, associated with Acrisols, and associated limestone aluvisoles; on terraces may be associated both with Luvisols as acrisols. The differences between the units which enter the association are more prominent with respect to the physical properties of the chemical. (González Ramos, 2001)

The different orography gives the region of Bierzo different levels of vegetation and and a number of valleys, where we can found multitude of flora and fauna; i speak about this in the part of natural conditions where i explain about the potential vegetation.

We can found in appendix 1. Fig 2: Bumpmap map. In accord with the above described.

3.3 Climatology

The Bierzo has a very special microclimate well suited to crops in the area. This is a mild, benign, mild rather governed by some moisture, all this is undoubtedly due to El Bierzo is situated in a valley. The climate is similar to Galicia as far as moisture is concerned and is otherwise dry and Castile, making it very distinctive to keeping a water balance which adds another advantage, low altitude prevents generally frost late which is quite benign for the harvest coming on, usually a month for the rest of Castile and the Rioja. Rainfall reaches a minimum in summer and maximum in the winter months.

The fluctuation of humidity over long periods is very low, from humid to wet or dry sub-humid but never extreme variations are seen as harmful to the vines. Extreme temperatures occur in winter and summer, with a mean of 12.3 ° C, recorded a minimum average of 3.6 ° in the cold months and maximum of 23.6 degrees in the hottest months. Rainfall is the order of 721 mm in an average year. The annual average insolation is estimated at 2,100 to 2,200 hours of sunshine throughout the year.

This differents of the temperature has good effects in the fruits crops and gives diferents qualities to the wine production, for example. I will speak about the certification mark and seal of quality in the paragraph of economy on agriculture and cattle.

You can see in the appendix 3, data 1 about data to climate, data 2 bout the Climogram graph in Ponferrada station, data 3 about Froze days in Ponferrada station and data 4 about Snow days in Ponferrada station.

3.4 Hydrography

The river Sil is the axis of the river network of El Bierzo, with many tributaries that descend from the valleys, many of torrential type. By its left margin its affluents are: Cabrera, Tremor and Boueza. To the right: Selmo, Burbia and Valcarce. Bierzo hydrographic network provides great potential for establishing irrigation and hydroelectric complexes; as it can be the use of hydraulic swamp of Barcena in the Sil river.

The predominant hydrological regime is snow - River, with maximum in winter and spring for the abundance of precipitation as snow in mountain areas. The Sil carries a high flow rate of 100 m3 on average. The waters are used for hydropower generation and irrigation by Canal Alto and Bajo del Bierzo. In some sections the basin presents contamination due to mining activities, such as coal washing and extraction of slate. (Prado Núñez, 2010)

Bierzo rivers have hydropower generating 407,800 kilowatts. Currently, according to the Miño Sil River Basin, CHMS, in the rivers of Bierzo ten hydroelectric power plants in operation, with a maximum installed capacity it is 407,887 kilowatts. Two of them, Cornatel and Quereño have plants in the city of Ourense blonde, but take water in the municipalities of Priaranza and Carucedo, respectively. The impact caused the dams and power plants in the rivers is obvious, but to minimize regulations have also been established. The most important is the need to respect the so-called "ecological flow". That is, the return to the river of sufficient water to allow fish life.

The hydrography of of this region has an important role in the development of different vegetation, where i will speak later in the paragraph of vegetation.

In the appendix 1. Fig 15 about water level in each river basin.

3.5 Historical answer

According to Tomás Mañanes (1981), since ancient times this area has its own individual character and will always have a noble and management based on its geographic boundaries consideration and its strategic importance as a transit

Paleolithic and Neolithic

There is a great lack of prehistory and early history in El Bierzo only remedied in part by specific archaeological work and epigraphy. Up to the Roman times, which have a more precise knowledge. The findings relating to the Bronze Age or earlier have been accidental and not the result of investigations or archaeological excavations. We found numerous pieces on the terraces of river Cua scheduled between 300,000 and 100,000. C. There are several findings related to the Neolithic.

Chalcolithic and Bronze Age

Remains of this period, ceramics in the Cave of the Three Windows (Toral of the Fords) and highlight the cave paintings found in nearby Sesame Librán, possibly belonging to this period are located.

There are various findings relating to the Bronze Age (arrowheads, tools, ceramics, ...), for all its intermediate stages. At this time also are dated, mostly, Idols of Noceda del Bierzo and Villafranca del Bierzo, although there are doubts about such dating.

The characteristics remain those of a subsistence economy very slowly receive outside influences, which will develop in the next epoch.

Iron Age

In El Bierzo, as in the rest of northern peninsular the Castro culture develops. The incipient openness in trade relations, sighted in the previous stage, is released after the Roman invasion of the plateau in the century II a. C.

Many sites and findings concerning this period.

The pre-roman Bierzo

Currently located in the Municipality of Cacabelos; Castro Bergidum, West Wall.

It is difficult to portray the social organization of Roman peoples of northern Spain, since probably the classical authors designed the distinctive social model of the previous Mediterranean to the Greek and Roman states.

The Romans integrated, after its conquest, El Bierzo in the Asturian village, as well collect most researchers and chronicles of the time. Also know what were the gens and their gentilitas, although we know some of these, such as bolgenses, louciocelo, queledini and lougueos found these tracks thanks to grave found in various locations on Bierzo, in accordance with García Alonso, (2001).

Roman Period

According to Mañanes Pérez the insertion of El Bierzo in the Roman world was made quickly, resulting in wealth in gold mines in the area (The Médulas including gold holdings) many changes in both social organization and economic and geographical , shifting population centers and creating new cities.

- Roman gold holdings of Las Médulas.

This process was not continuous but developed in different stages, making El Bierzo in an open quarry, with consequent infrastructure achieve that end without Roman culture to become more than a varnish disappear with the disappearance of the Roman Empire.

Numerous archaeological sites from this period, highlighting the goldfields Médulas, declared World Heritage, Castropodame, y Paradaseca.

High Middle Ages

According to Baldario, 2007 in his article cultural forum province of Bierzo, following the entry of Germanic peoples in the peninsula, the Suevi and Vandals asdingos (who later would move to Andalusia) settled in the province of Gallaecia in which includes El Bierzo. Information on the Swabian period is scarce, it is known that El Bierzo was inside that territory by Parrochiale Suevum and some archaeological finds. The Swabian dominion over El Bierzo ends after a series of events beginning on Aspidius uprising against the Visigoth king Leovigildo. Numismatists findings are important as two coins, one corresponding to the king on the obverse Sisebuto Bergio Pius readable reference to Castro Bergidum where there was a Visigodo tremisse enclave and found in the Castillo de Ponferrada de Recesvinto. Thanks to the Life of San Fructuoso know that the father of this was dux of Gallaecia and that many of its properties are located in a zone of the province.

The highlight of this period is the creation of so-called Thebaid Berciana, a monastic flowering in El Bierzo which led to numerous foundations, its main architect San Fructuoso, beginning with the late Monastery of Compludo, also highlighting the

foundation of the Monastery of San Pedro de Montes. Thanks to the foundation of these monastic centers begin to resurface a cultural fabric that will continue in subsequent centuries.

Muslim domination, after the invasion of the Iberian peninsula in 711, we have little information, it is assumed that after rapid peninsular occupation Muslim side, fittings charge of collecting taxes would be established.

After the Battle of Covadonga in 722, the Asturian kings, after controlling much of Galicia try to do the same in berciano territory. The Asturian monarchs did not get a domain on El Bierzo until the reign of Alfonso II and Ramiro I, having first passed from Muslim to Christian hands, alternatively berciano territory.

It is at this time, reign of Ramiro I (842-850) when El Bierzo begins to be under the dominion of counts, the first of them Don Lorenzo and best known Count Gatón that repopulated many areas east of El Bierzo. In the reign of Alfonso III, the domain of El Bierzo by the Asturian monarchs seems settled in 910 going to be the Kingdom of Leon. The monuments and archaeological remains that we know are very numerous and berciano sacred art is very prominent; as examples Peñalba Cross and Chalice .

The feudal Bierzo

This transition period spanning from the late ninth century to the thirteenth century, inclusive.

Among the medieval period medieval Upper and Lower El Bierzo has been distinguishing usually by historians, a stage called the Feudal Bierzo.

It is a socio-economic, denomination in which some groups possess land and other exploit. Only from XII century progressive economic diversification occurs, expanding mining and processing mineral resources (foundries), fishing and starting to develop trade through fairs and markets and small "entrepreneurs" dedicated to the sale-transporting goods.

The property is concentrated in few hands performing a distinction between properties ecclesiastical character. Conflicts between councils and gentlemen, regardless of whether they are priests or nobiliares. From 1187 the Bierzo becomes manor, from mid-thirteenth century these holdings give way to becoming older merindades they finished later in Overtaking. Numerous artistic examples remain of this period, highlighting the Monastery of Carracedo and Castle Ponferrada.

Late Middle Ages

The Late Middle Ages in El Bierzo is characterized mainly by the crisis of monastic estates and the rise of lay nobles who use the parcel as a tool to usurp many of the goods of monastic estates. Stand out from the dominions lay Bembridge, begun in 1304 by Alfonso de la Cerda (grandson of Alfonso X).

The war ravaging communities throughout the whole territory of the Kingdom of Castile in the sixteenth century has little effect on El Bierzo, although the judges of Ponferrada sides with the Crown. In the art section, the military buildings have a significant importance given the power of the manors.

The Old Regime

The Old Regime ranging from the sixteenth to the early nineteenth. It has been given to call, too, feudalism developed as it retains many medieval features.

In El Bierzo successive demographic changes over this period, periods of growth, stagnation and decline occur due to respective stages of prosperity and economic crises produced are of poor crops and pests is that El Bierzo is still primarily agricultural, with vine its main product, and the livestock mountainous areas. Highlighting the introduction in this period one of the products that have greater fame and quality, pepper.

In the industrial sector include textiles, although numerous times covers only self-sufficiency. They also highlight the many forges some with significant production I've been trying to produce steel and even a weapons factory in 1779 in Villafranca del Bierzo.

The state is organized into three estates: the clergy, nobility and common people or State level.

- The clergy: besides its ideological and cultural, marked influence its rich heritage, are exempt from paying taxes and large proportionate amount, compared to the rest of society, people who are part of this establishment, a 1000 at the end of XVIII century, strengthens its power and influence.

- Nobility fit in this statement from the grandees of Spain to the gentry. Especially significant is the large number of people who were part of the estate of the nobility in this region in the late eighteenth century, it is estimated that in El Bierzo 50% of people included in that establishment, although most of them were simple noblemen. Most of

these small farms malvivía almost subsistence, hiding the situation under the title of "low" nobility.

- State level, the third estate: it formed about 38% of the company. What were farmers, artisans and merchants surviving despite suffering the highest tax burdens.

Divided of Ponferrada

During recent centuries and until the reforms of the nineteenth century, El Bierzo was part of the Municipality of Leon, which brought the Principality of Asturias and León and Ponferrada matches. With regard to the current Bierzo, is included within the Party of Ponferrada which included other areas today are not part of El Bierzo. This party was ruled from Ponferrada.

The Province of Vierzo

After the oath of the Constitution of 1812 by the King on March 9, 1820 Cortes begins in a new process, urgently, administrative organization of the kingdom, appointing a commission.

The creation of the Province of Villafranca raises several issues among which the rivalry between the two main cities of the region: Ponferrada (468 residents) and Villafranca del Bierzo (690 residents). Both cities put all resources and arguments to the service of obtaining the provincial capital, pursuant to García González , 1992.

We can see the old map on this appendix 1. Fig 1. Maps of province of Vierzo.

On January 27, 1822 the Decree which the Bierzo becomes province and in him that their boundaries are fixed is published. Then has 86,365 inhabitants and exercises jurisdiction over the judicial districts of Villafranca del Vierzo.

Overall the limits of the province coincide with the map of 1786 represented here plus the region of Valdeorras.

In the late nineteenth century, phylloxera crisis and the disappearance of the ironworks elicit a strong emigration to America. But in the twentieth century with the arrival of the railroad, the exploitation of coal deposits in the Fabero-Sil basin and electricity production, the necessary conditions are created for creating wealth in the region.

Modern age

Regarding the political terms, we can find a new entity with the name of: Consejo Comarcal, it is a local government body in charge of the government and administration

of the region of Bierzo. His creation is foreseen in the Statute of Autonomy of Castilla y León that Article 43.3 it reads as follows: *Una ley de las Cortes de Castilla y León regulará la comarca del Bierzo, teniendo en cuenta sus singularidades y su trayectoria institucional*. It owes its existence to geographical peculiarities, historical, social and economic in the province of Leon, according to the preamble of the Law that gave rise to his.

Años	Hbs.
1900	87.272.-
1910	87.416.-
1920	92.387.-
1930	94.600.-
1940	104.200.-
1950	121.170.-
1960	144.860.-
1970	139.893.-
1981	134.570.-
1991	136.223.-
1996	134.586.-

Fig 16. Evolution of the population of the region. (Estudios Bercianos).
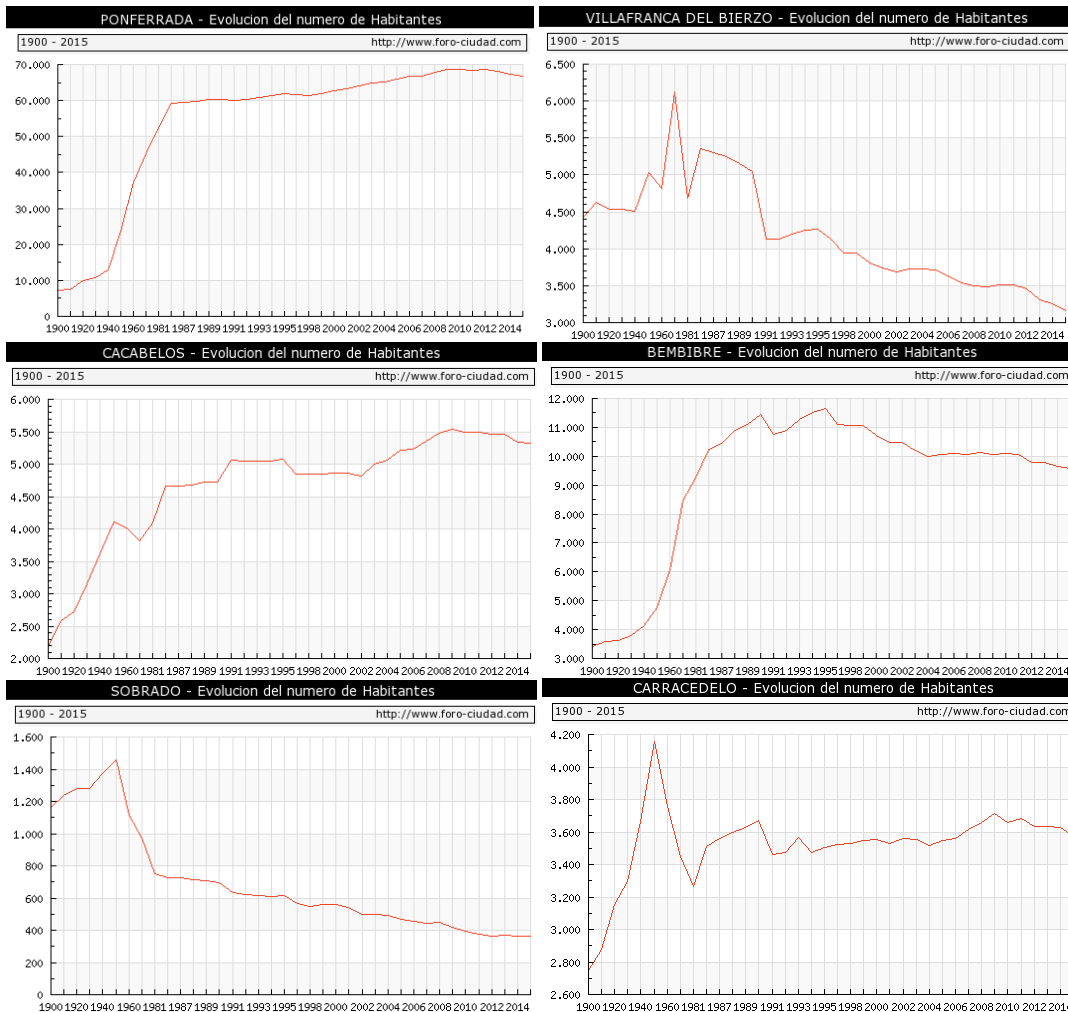
Fig 17. Graphics of the evolution in population number of the municipalities more representative in this region: Ponferrada, Villafranca del Bierzo, Cacabelos, Bembibre, Sobrado, Carracedelo. (http://www.foro-ciudad.com)

3.5 Economy
<u>Agriculture and cattle raising:</u>

According to Montero and Garcia Lorenzo: in principle it should be noted the high percentage of unproductive land (around 30%), far more important in the mountains than in the valley. within the traditional tendency to consumption in the mountain area, its orientation has been especially livestock, while agriculture of the valley has tended to marketing, in principle and already historically, in relation to the vine, and today with horticultural products or industrial products such as snuff time.

We can see the example on the appendix 2. Pic 1. Busmayor, near beech forest.

Structural features:

The agricultural workforce. The primary sector occupies in El Bierzo just over 10% of the workforce. This percentage should be seen in a context such as the agricultural world has been affected by:

a).- Massive rural exodus.

b).- Increase in part-time farming.

c).- Increased agricultural productivity.

d).- A defendant aging of the population engaged in agriculture. More than 1/3 of those who are at the forefront of a farm with more than 65 years (1989) and under 35 years represent less than 5%. In the basin the percentage of young population is higher in the mountains.

Farm size: The under 5 ha in 1989 are 80% of the total; in some municipalities they reach 97% (Camponaraya / Cacabelos). Holdings greater than 50 ha. Are only 2% of the total.

Parcelling of land: There is an excessive number of plots and also dominates the small size thereof; ultimately there is typically smallholder situation, especially in the most productive areas (valleys and mountain basin).

System of ownership and exploitation: The prevailing system is the direct exploitation. Organization agricultural areas: soil / crop types of uses. Keep in mind: It is producing a significant reduction of arable land, especially in the mountains. Mechanization of

agriculture: In recent years there has been clear progress in this regard with a gradual shift from the use of animal traction. The highest density of machinery produced in the basin as it could not be otherwise by the conditions of the relief; Anyway, overall, mechanization in the region is lower than the provincial average.

At this point we will focus on the main agricultural crops (horticultural and cattle producion) of the region and the various products manufactured. Noteworthy in agricultural production yields of apples, pears, cherries and plums. The first three within the certification mark also the grape of mencia to be discussed later at the end of this point .

a).- Pears and apples: we can distinguish the oldest plantations and new plantations. New plantations are located in areas of recent irrigation that start ten years with a rate of 100,000 trees per year. Currently it represents about 800,000 trees. We highlight the following varieties: Golden, Reineta, Conferencia, Limonera … etc. and others that it is not representative.

b).- Cherries: It is a crop of great interest in this region, we are harvested about 2 million kg that 1.3 million are for to export.

C).- Plums: we produced about 100,000 kg annually, the variety are: Claudia, Amarilla and Japonesa.

d).- Chestnuts: It is a highly developed culture in the mountains and rain-fed areas, and their quality is very high. Many of these are exported to European territory and is used elsewhere in the national territory.

e).- Nuts: its production is concentrated in the surroundings of Villa Franca. It is of very good quality although not uniform. only about 50% is exported.

f).- Cattle raising: farmers holding berciana guarantee mark have been lower selling their calves up to 60% on figures from previous years due to the general decline in consumption. This situation has been aggravated by the closure of the municipal slaughterhouse. As a result of the closure, and longer distances of transportation, the cost of the product is expensive, making it less competitive.

As for livestock, has Bierzo with 15,536 Livestock Units, which correspond to 5,253 cattle, 5,051 pigs and 3,129 to a sheep, leaving the rest far away from these (997 horses, 663 birds, 365 78 goats and rabbits breeding females, according to the Agricultural Census 1999).

The manufacture of sausages as botillo; within the denomination of origin bierzo and flagship product, cured ham and loin, cured meat of cow … etc. It is already a traditional industry and consolidated cores as Molinaseca, but also present in many other places (Ponferrada, Vega de Espinadera, Toral de los Vados).

Winemaking

In accordance with Montero and Garcia Lorenzo : the vineyard in the Bierzo is characterized by fragmentation of plots, one smallholder property and sloping terrain, from 450 to 800 meters which slopes oriented to the four cardinal points.

The soil Bierzo vineyard sits on Miocene materials coated with a layer of Quaternary. The texture is silt loam, moderately acidic, its pH is close to 5.5, with no carbonates, typical of humid climates. Hillside soils consist of a mixture of coarse matter, quartzite and slate.

Importantly, the variety Mencia. This crop is within the denomination of origin bierzo; Bierzo Designation of Origin was recognized provisionally, on June 3, 1988 and were appointed provisional Regulatory Council on October 3, 1988. This is the most ordered as a result of the cooperative movement that developed rapidly in the field of viticulture with financial support from the National Colonization intituto sector.

Bierzo wines, especially the reds made with Mencia, have an extraordinary reputation in and out of Spain being acclaimed by the press. Mencia red fruit and possessing an extraordinary burden polyphenolic accompanied by a great freshness.

About the certification mark and stamp of quality; Order 29128 of November 11, 1989 so that the Regulations of the Designation of Origin Bierzo and its regulatory council. Products within this distinction we find: conference pears (Pyrus communis var. Conferencia.), roasted bierzo pepper; where It begins to grow peppers in the middle seventeenth century favored by the mild climate that characterizes the region, after much effort was obtained a quality mark, the November 12, 2002. Also we have the pear Reineta del Bierzo has different characteristics from that produced in other areas of the Spanish geography. Their external features define us an oblate fruit wider than tall, with short petiole and a closed base. The chestnut protected under the stamp seal of Guarantee can be in the following ways: fresh, dried, chestnut flour, chestnut paste or cooked natural; Several companies linked to the chestnut, since the collection and sorting of the fruit, through exporters stores and the companies responsible for the

transformation. And the last product and the most representative in this region is the Botillo, It is since time immemorial the king of gastronomy of Bierzo and main dish at parties and celebrations, especially in winter time; it is a meat product and the stamp ensures a quality product that meets the traditional characteristics that define the Botillo.

Industrial sector of mining

Coal Mining: It has been traditionally the most important sector in the economy of the Bierzo, therefore the wealth generated and the number of workers employed. However the sector is coal mining exploitation in El Bierzo late as until the 20s of our century not the first mining companies, noting especially the Minero Siderurgica de Ponferrada (MSP), which had traditionally exploited appear Laciana deposits, but with clear implications in El Bierzo. This relative delay in the operation was due to two factors:

- The geological complexity of the deposits.

- The difficulty when there is lack of roads.

Overall production has tended to increase, while the workforce has followed a process in reverse. In parallel there are fewer farms and underground the mining exploitations opencast. The importance of coal mining has been such in the industrial sector of the Bierzo that has come to speak of the mining monoculture. However, at present the mining sector has suffered a series of conversions in a process that has not yet been completed.

Slate: very important on the border with the province of Orense and the Cabrera. Their exploitation in areas of the Bierzo is fairly recent and that starts about the 70 employs about 800 workers with an annual output of 85,000 tons., A large part of it with a view to export.

Other rocks: In some areas of El Bierzo has begun extraction of other rock types, highlighting the quartzites and marble (Seo area). Anyway, it is a sector with a very rickety business structure and operations often temporary. In the last decades there was a growing exploitation of tungsten, gold and silver. In recent years there project for the extraction of silver in dibersas areas of the region.

Electricity sector

According to González González: it is closely tied to the subsector of coal mining, although power plants are not the only existing in the Bierzo. Sil entire system must also take into account the passage of this river for the region. It is certainly the National

Electricity Company (ENDESA) the main producer of both energy from hydroelectric sources as thermoelectric, highlighting in this case the Power of Compostilla in Cubillos del Sil. Union Fenosa also the Power of Anllares.

It is important to mention the wind production in this region and the production of wind turbines for the Danish company LM

We can see the example photo on the appendix 2. Pic 5. Reservoir Of Barcena with the thermal power plant of Compostilla II. And appendix 2. Pic 6. Reservoir Of Barcena with the thermal power plant of Compostilla II.

Steel industry

There are many companies because it includes many activities (welding shops, machinery, electrical equipment ..etc.); These companies are often family or small dimensions. Without doubt, the most important company in the sector is ROLDAN SA, located in Sto. Tomás de las Ollas. It exports a major part of their production.

Cement industry

It is very important in the municipality of Toral of the Fords-Villadecanes because that is where the factory Cementos Cosmos SA is that obtained from the cement using a next deposits of limestone. Also within this sector should be included concrete plants, pellets, building materials, glass factories ... etc.

Construction

Cradle of the two main business groups of Castile and Leon. Begar (Begar, UFC, Diario de León, Castilla y Leon TV, Punto Radio and the former company Retecal Cable now ONO acquired by Vodafone), and Martinez Nunez Group (Teconsa, Proinsa, La Estrella, GH, The Chronicle Leon) owned by Jose Martinez Nuñez.

Pharmaceutical Industry and Laboratory

Pharmadus Processes Industrial SL Pharmaceutical (pharmaceutical laboratory), Cofarle (Pharmaceuticals), Laboratory Biosalud: Maricielo SL (food analysis laboratories and water).

3.6 Tourism analysis

According to comments of Montero and G. Lorenzo in their book " Análisis económico de la región del Bierzo " tourism in this region has many possibilities. Everytime we can find ruins and historical memories that come our way. In recent years

this sector has increased and and it has put in value differents places , such as; roman gold mine called "Medulas"; it is world heritage, the castle of Templarios and others important castle (of Villa Franca, Cornatel, etc… i can speak about this in the part rute of castels).

We can see the example photo on the appendix 2. Pic 1. Busmayor, near beech forest, about the thiferent composition of forestry.

Bierzo is a tourist region, both for its landscape and for its architectural monuments and interesting ruins, also offering the tourist the opportunity to practice hunting and fishing. Many of these tourists cross the Bierzo following the way of Santiago, because the Bierzo is considered the gateway to Galicia, and his capital; Ponferrada should be forced segment of the same, for having the best hotel infrastructures as to have enough attraction for tourists; although we can also find shelters for the walkers that go to Santiago de Compostela.

Gil y Carrasco; important literary person wrote " Se asemeja a un monumento levantado por la mano de una raza de gigantes, que sólo ha podido conservar algunos restos dignos de su grandeza en su lucha desesperada con la naturaleza y el tiempo", this means; "It resembles a monument erected by the hand of a race of giants, it has only been able to preserve some remnants worthy of his greatness in his desperate struggle with nature and time".

Some tourist routes in the Bierzo

- **a) Way to Santiago de Compostela**

It begins at the cruise of Ferro (Ferro mean iron in Latin language), It is a cruise that is at the highest point of the French Way. According with institute of Cervantes it consists of a wooden pole about five meters high topped by an iron cross, replica of the original preserved in the Museum of the Ways of Astorga. On the origin of the cross there are several theories: it could be erected in order to point the way when frequent snowfalls hide it from view. Others as López de los Mozos, 2010 say about it is a pile of pebbles, called Mountains of Mercurio, since Celtic times the walkers erected at strategic locations of the roads and then Christianized with crosses. From cruise of Ferro to Ponferrada there are 20 Km approximately and this passing through Foncebadón, Manjarín, El Acebo , Riego de Ambrós; where the people can go for the bridges of "mal paso", they are a series of Roman bridges extending to the next village and we can

found diferent riverside vegetation, and Molinaseca where we can found differents monuments of XI century as hermitage de Ntra. Sra. of the Angustias, of Santa Marina, the Hospital of San Roque. In Ponferrada most importantly that we can find is: castle of Templarios of XII century, basilica of Encina; this is the patron saint and it is an ancient sanctuary and his plant is a Latin cross. And the City Hall af 1692, also we can found the bridge that gives name of town " Pont-Ferrata" or "iron bridge ". The road follows to Camponaraya, Cacabelos where we can thiferents churches and this village is importan for its importance to wine production and its Roman past, later the way continue to Pieros where whe can found the old city of Roman "Bergidum Flavium". 5,7 Km later we are in Villafranca del Bierzo, important city for this way because it is obligatory stop, there we can visit the Colegiata of century XVI, the building of Anunciada, the churches as Santiago, San Francisco, San Nicolas, … etc. We continue to Pereje, Trabadelo, Ambasmestas, Vega de Valcarce, Ruítelan and Herrerias to end in El Cebrero; where we can observe the diversity of vegetation of this reagion and its diferents changes.

According to Rodríguez Álvarez (2015), the place of origin; national and international visitors:
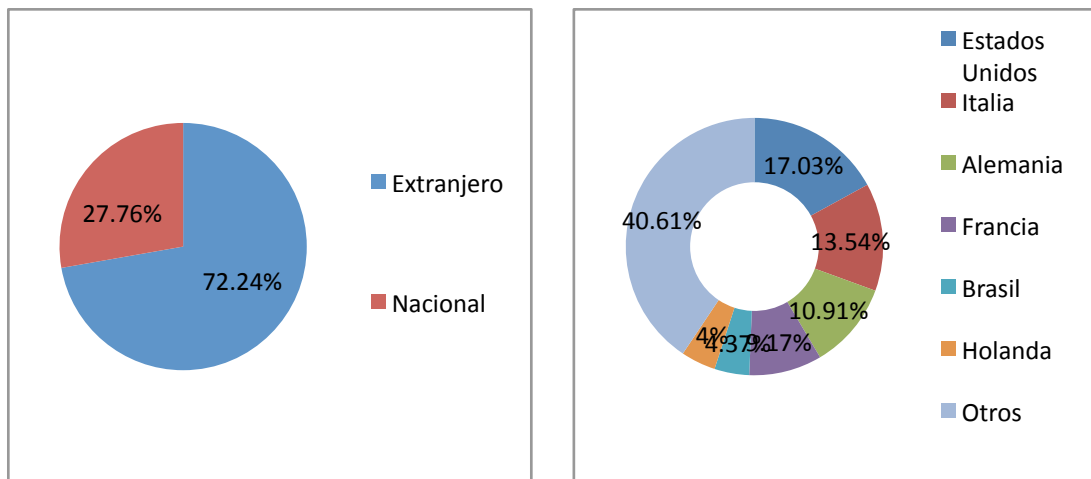
Fig 18. Evaluation of pilgrim tourims. C. Rodríguez Álvarez, 2015.

The pilgrim type passing through Ponferrada Road to Santiago, is a woman (52.36%), between 46 and 55 years (22.40%), college educated (64.98%) and used (55.20%). As for its origin, national pilgrims representing 27.76% from international (72.24%). Internal pilgrims come mostly from Catalonia (15.91%), Madrid (15.91%) and Valencia (14.77%), and outside the United States (17.03%), Italy (13.54%) and Germany (10.91%).

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- **b) Route of medulas**

Accordin to Martín-González, Nemesio Heredia, P. Fernández and R. Bahamonde (2014); old is a highly valued mineral, appreciated by most civilizations.Gold deposits arouse the interest of both the students and the general public. The Roman mine of Las Médulas, declared World Heritage Site by UNESCO, and its surroundings areas are an exceptional site, not only due to the quality of its outcrops, which allow teaching geological lithologies and processes, but also because they are associated with an important archaeological site. Taking advantage of the infrastructure and interest which already exists at this site, we can explain the geology of the region, which has seldom been sufficiently highlighted. This site offers a great educational resource to explain the genesis of the NW Iberian Peninsula Mountains and the alluvial fan sediments. In addition, we can discuss the anthropic impact on the landscape and the importance of the management of natural resources. The mountains and sedimentation that filled the depression of El Bierzo are the result of tectonic activity (since the Oligocene); the erosion led to a large amount of sedimentary material that was transported into the depression by the alluvial fans. Las Médulas are Tertiary in age (Miocene) belonging to the middle and proximal facies of alluvial fans; these facies, especially the proximal ones, are the areas where gold was deposited. Subsequent tectonic activity segmented the alluvial fans. This segmentation and subsequent erosion associated with the Sil River causes the Tertiary outcrops to be scattered over the Variscan basement.

Pic 12. Medulas, Orellan. Pablo F. Arias, July, 2015

- **c) Route to Peñalva and Montes**

This is a circular route through wrought by the Oza River, which originates at the foot of the Montes Aquilianos valley route, also known as "Valley of Silence" and located southeast of the Leonese region of El Bierzo.

This place housed over a thousand years ago a number of monasteries and an active religious life that attracted the presence of numerous Christian hermits in search of silence and prayer. Hence it is taking the name "path of Tebaida Berciana" probably from the similarity to ancient Egyptian temples of Thebes. A simple walk through the valley, we will understand the reason for choosing this place for a life of retreat and meditation.

The route passes through Montes de Valdueza and Peñalba de Santiago, and being a circular path, we can start in any of them. We have chosen the village of Montes de Valdueza as beginning and end of route, which is signposted route under the name "PR LE-14".

- **d) Route to Villafranca**

As it is written by spain.info in his web; Villafranca del Bierzo is a municipality and town located west of the region of El Bierzo, in the province of Leon, autonomous community of Castilla y Leon, Spain. It brings together the rivers Burbia and Valcarce. It is one of the Leonese municipalities in which Galician is spoken. Part of the Camino de Santiago, forming stage and finish at the same time, in the church dedicated to the Apostle, in the village, you can gain the indulgence. Set historical - artistic in 1965.

We can see the example photo on the appendix 2. Pic 10. Monastery of Montes de Valdueza.

The Plaza Mayor, City Hall, Water Street, the arch at which it ends and mansions, among which a Moorish fifteenth century, the convent of the Augustinian Recollect and other palaces, form the tourist hub. At the entrance to the town of Santiago Romanesque church, dating from the twelfth-century stands. In one of its sides is discovered the Door of Forgiveness, where they obtained the jubilee pilgrims, sick, could not continue to Santiago de Compostela. Near this church, Castle Palace of the Marquises of Villafranca is located. Although to look palatial residences nothing better than heading to Water Street: between shields and crests, some emblematic buildings in Villafranca del Bierzo as the Palacio de Torquemada, the Morisca House or the birthplace of writer

Gil y Carrasco appear. To the list of monuments to visit should also add, among others, the Gothic church of Santa Maria, late and original Gothic Gil de Hontañón, the baroque convent of San Nicolas Real, the convents of the Annunciation and St. Joseph , founded in the seventeenth century, or the Church of San Francisco, which has a beautiful coffered ceiling. Also worth a visit the Museum of Natural Sciences.

- **e) Route castles**

According to the writing by Huerta huerta (2001), Durany Castrillo, Fernández García, Redondo Vega (1988) and Mañanes Pérez (1981):

<u>Ponferrada - Castle of the Templars.</u>

The castle is located next to a vertical slope on the Sil River, which serves as a natural defense and encircled by a moat, the part facing the villa.

For enter the castle must cross the moat by a stone bridge fixed, replacing the former drawbridge, and go through the entrance door semicircular, and defended by two cylindrical towers on the sides topped with battlements in batter. Its large polygonal enclosure (over 8,000 square meters) offers double and triple formed defenses gatehouses, towers, farms and large yard.

The first populates near Ponferrada was built in 1196 when Alfonso VIII of Castile attacks the Bierzo. Alfonso IX of León, is then forced to strengthen their positions in the area, and thus begins the "puebla" of the town.

We can see the example photo on the appendix 2. Pic 13. Ponferrada - Castle of the Templars. It is the entrance to the castle.

<u>Vega de Valcarce - Castle Sarracín.</u>

Originally built in the tenth century, although the factory that can be seen today belongs to XIV.

It relates to the Earl Sarracino, son of Count Gatón, whom he succeeded in office of Count of El Bierzo and Astorga. The construction of the fourteenth century it belonged to the Marquis of Villafranca. An arch leads to the masonry enclosure with two towers on either side of square plant.

<u>Corullón - Castle</u>

The XV century castle was appreciably bill, to the point of copying his tower to play in Tuscany (Italy). The tower and the remains of about forming the quadrilateral enclosure

of the town preserved today. The best preserved is the keep, built on the remains of an earlier tower. Above its gate revenue two shields of arms that point, one of them the House of Osorio and the other of Valcarce appear.

Villavieja (Priaranza del Bierzo) – Castle of Cornatel

It is a XIII century castle of enormous beauty, towering high on a cliff, which gives it an air of mystery and lege. Defensive in nature, both in its natural position and the two openings as throwing their perimeter walls, skirting the main entrance between the walls and the rocky cliff.

Balboa - Balboa Castle

Situated on a hill overlooking the valley, at the confluence of the Arroyo Areal Balboa River, possibly built on a Celtic-astur castro, defensive purposes like most bercianos castle. At present there is only standing part of the keep and some remains of its walls. The stately character looming on its ruins, find references in the fourteenth century, when it belonged to D. Garcia Rodriguez.

Villafranca del Bierzo - Castle - Palace of the Marquises of Villafranca

This beautiful castle-palace of the early sixteenth century, is a great ring with round turrets at the corners, arched door with weapons of Toledo and palatial rooms around an interior courtyar. Villafranca was alternately stately royal domain; among these, Osorio (Counts of Lemos), Pimentel (Counts of Benavente and first Marquis of Villafranca). The first daughter of the Marchioness, Maria Osorio Bazan and her husband, Pedro Alvarez de Toledo (second Marquis of Villafranca), were the creators of the present castle. The castle was dismantled by French and English, served jail time and later manor house. Today it is inhabited by home of the Marquises of Villafranca, who dwell in it in his seasons of rest.

- **f) Medical fountains to Noceda**

It is a path where we can find oak, chestnut and beech. These sources are known by the name of medicinal sources, hey are having a high iron, sulfur and magnesium content. It starts in noceda and finish in the waterfall forming the river Noceda.

- **g) Circular route.**

The Sierra de Ancares is located northwest of the province of Leon. It borders the province of Lugo and Asturias, in the Bierzo region, an exceptional natural territory, recognized World Heritage Site and Biosphere Reserve by UNESCO, whose valleys

covered with oaks and chestnut trees are home to a rich and varied fauna, among which include the last grouse in this area and the occasional presence of the brown bear.

- **h) Turism evaluation .**

According to Rodríguez Álvarez (2015), tourism has acquired in recent decades a great dynamic growth and expansion. Tourism stands as a structuring element of social reality of tourist destinations, assuming an important means of economic development and at the same time contributing to the preservation and enhancement of the natural and cultural environment. This results in the achievement of economic and social welfare, if managed sustainably and the negative effects that may arise from such activity are corrected.
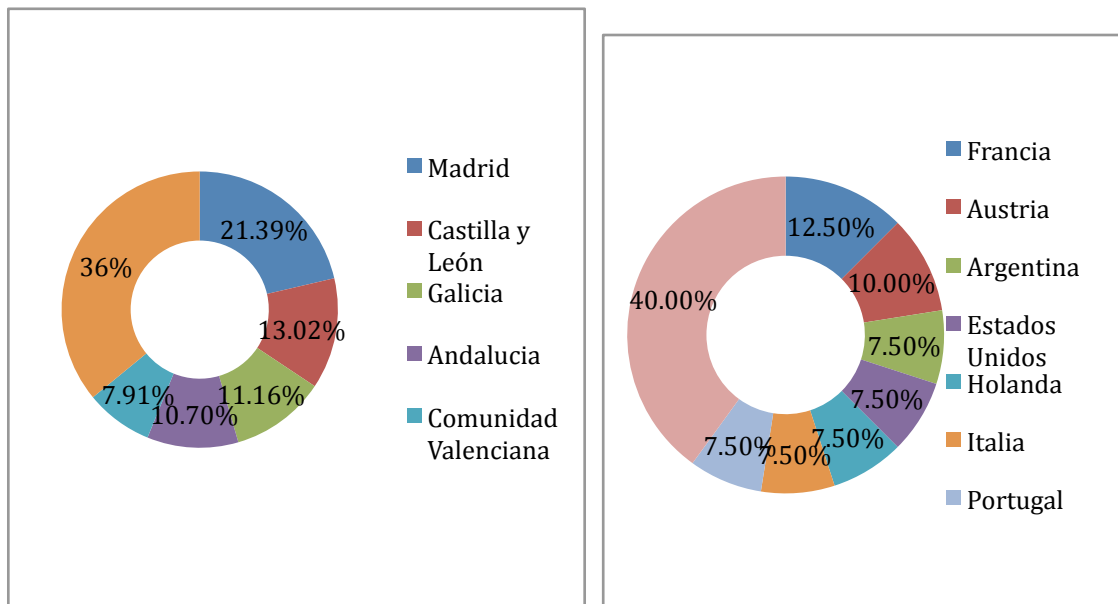
Fig 19. Place of origin; national and international visitors . C. Rodríguez Álvarez, 2015.

The most frequent visitor profile, depending on the highest percentages of the variables analyzed, are female (57.65%), between 46 and 55 years (27.84%), college educated (55.69%) and used (69.02%). Domestic visitors represent 84.31% from international (15.69%). Madrileños coalesce 21.39% of the domestic arrivals, followed by the Leonese Castilian (13.02%) and Galicia (11.16%). Internationally, France (12.50%) and Austria (10%) lead the ranking of source markets. A 58.43% of respondents have visited or planned to visit other towns in the Shire of Bierzo during this trip. Among the destinations of the Bierzo most visited are Las Médulas (30.77%), Villafranca del Bierzo (16.67%) and Molinaseca (10.68%).

The most repeated suggestions by visitors are to improve signage, both urban and intercity (increasing indications of the tourist office, museum Ene., The entry of this Ponferrada, etc.), open daily from Castillo week and redoing some facades of the old town.

3.7 Forestry analysis of Bierzo.

According to Fernández and Ramirez fron Junta de Castilla y León in his book "El alto Bierzo; una apuesta por el desarrollo forestal sostenible":

The Bierzo has an interesting variety of vegetation landscapes, therefore not only the diversity of climate and species, but also of intense transformation that man has exercised over several millennia, and with particular intensity in recent centuries. That is, the interaction between natural component and human activities have shaped the current landscape diversity.

According to the map below on the appendix 1. Pic 14. Montains near Matavenero, example of typical vegetation.

This section will examine carefully each forest formations Bierzo explaining how you can get in the future respond to the needs economic, environmental and social aspects of the region.
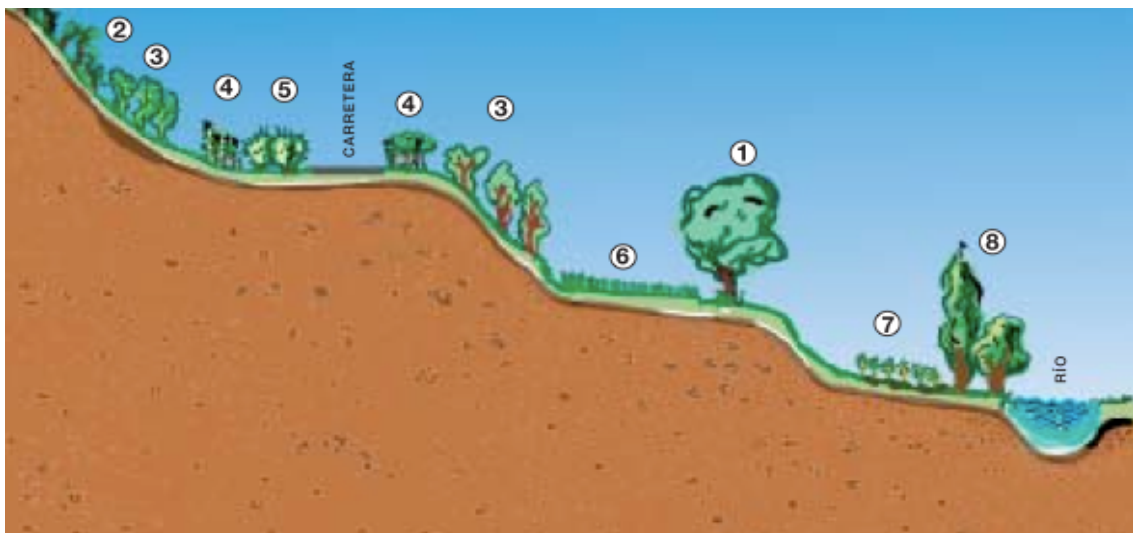
Fig. 23. 1: *Quercus pyrenaica*, 2: *Vitis vinifera*, 3: *Cytisus multiflorus*, *Cytisus scoparius*, *Adenocarpus complicatus*, 4: *Foresniculum vulgare*, Verbascum *pulverulentum*, *Eryngium campestre*, 5: *Robus Ulmifolius* … , 6: Pasture dry , 7: Grass, 8: *Populus nigra*, *Alnus glutinosa*, *Salix atrocinerea*. JCYL

3.7.1 Thicket of oak saplings

Quercus pyrenaica is the most common tree species in the Bierzo Because your requirements moisture and soil acidity its most important mass. They are located in shady guidelines below 1,200 m, although able to live at higher altitudes as it supports in tense cold and even late frosts. The current state of the masses of oak is the result of prolonged human exploitation, as well as the frequent presence of fire. However you can find rebollares in very good condition with other vegetation as species of the genus

Sorbus, *Crataegus monogyna*, *Prunus avium*, *Malus domestica* and other species, with ecological, scenic value and very important refuge for wildlife. The vegetative mass evolves into feet tall, thinner and with a very low cup, where if no silvicultural operation is performed stagnant growth of the mass occurs and a structure which favors the spread of forest fires.

According to the map below on the Appendix 1. Fig 14. Map of frequency of forest fires. Map on the frequency of forest fires in the region.

The use has been made until a few years It consisted of clear felling oak coppice to obtain firewood in shifts of about 20 years. Loss of interest in the use of wood requires the abandonment of this type harvesting, giving as a result mass with excessive thickness which leads to the problems cited above. This treatment was replaced by another known as "selective removal of shoots conversion" which it has been performing in the mountains of Bierzo by the Ministry of Environment. The primary objective is to obtain large trees, To find the mass regeneration by seed from these trees. This approach is intended to achieve mass structure with lower fire hazardwhich also provide large wood for use as sawn timber.

Pic 14. Oak route Matavenero. Pablo F. Arias. 2014.

3.7.2 Copse of chestnut

Castanea sativa is a species that grows well in acidic soils not flooded, under temperate climates. It is very sensitive to late frosts, especially on the slopes of sunshine due to earlier flowering. Need some moisture in summer, therefore in areas with marked summer drought is usually found on fresh soil. Treatments that have been carried out to encourage the production of chestnuts. They consist mainly in pruning on trees, forming a broad crown, and the ground clearings to avoid competing vegetation over the tree, reduce the risk of fire and facilitate the work of harvesting the fruit. Fungal diseases that are attacking alarmingly to the species: *Phytophthora cinnamomi* or *Cryphonectria parasitica*. Attached to the depopulation of villages, many copse of chestnut, especially those farthest from urban centers, they were abandoned and are now overgrown with thicket with the treetop very degraded and attacked by *Cryphonectria parasitica*. In this situation fruit production is greatly reduced and the danger of forest fires is very high. An operation that can ensure the recovery of these chestnut, It is to harness the power of regeneration regrowth having chestnut.

Pic 15. Example *Castanea sativa* in Peon de abajo. Pablo F. Arias. 2014.

3.7.3 Cork oak and holm-oak wood

The *Quercus suber* and *Quercus ilex* are two typical Mediterranean species, means that they are able to withstand a major summer drought, therefore in the Bierzo guidelines dealing mainly sunshine and less than 1,000 m altitudes. Relative to the ground, cork oak is more demanding need deepest and free lime soils, meanwhile the holm-oak presents great ecological plasticity that can live in all types of soil. We can find disseminated by the small region masses in perfect condition, that they have been protected from fire and they are typical of what is the Mediterranean forest sclerophyll in the Bierzo, with a variety of vegetal species. Silvicultural treatments are applied to these things must have a preventive purpose against the risk of forest fires. Should consist essentially to clear of scrub and selective elimination of outbreaks of the stump; for a more open structure. The silvicultural treatments should aim to recover these cork oak allowing expansion in areas where regeneration thereof is observed. For achieve natural regeneration is essential to limit the cattle for allow the development of the young trees. You can also use the ability of regrowth cutting the branch to favor a more vigorous. Another viable alternative is restocking with cork oak in areas with not very degraded soils.

According to the map below on the appendix 2. Pic 4. Output peñalba de santiago direction to the cave San Genadio. Typical rural road with *Quercus*.

Pic 16. Example montains in Castrin. Pablo F. Arias. 2014.

3.7.4 The crop of black poplar

Weather conditions in the area make the black poplar present high productivity. They need deep soil moist but not cover with water, it is very sensitive to lack of water in the ground in summer. The summer water needs are secured with plantations deep root, that is introducing the plant to the ground water table. In the case of plantations root surface irrigation they are inevitable throughout the summer. The clone traditionally used in the region is the I-214.

The large plantation frame attached to a plain orography allows machining operations removal of competing vegetation, which, due to the fertility of the soil, usually herbaceous and produces great competition in the early years. It is convenient to carry out one or two annual cleaning in order to eliminate that competition. Age short of the poplars, it is determined by the quality of the station. Between 12 and 15 are required to obtain appropriate products dimesiones industry.

3.7.5 Pine forest of Pinus radiata

The characteristics of the physical environment influence the possibility of reforestation with this species.They are found in areas with an altitude lower than 900 m, with rainfall distributed moderately uniform manner, preferably in sunny areas. Despite being able to live in poor soils, as the main objective the production of wood, deep soils are required, relatively fertile, slightly acidic and well drained.

The first plantations have an outline characterized by the use of very high initial densities and lack of care the tree is cut between 15 and 20 years. Currently, they are beginning to implement silvicultural models for production optimization of these plantations by performing enhancement treatments, clearing, pruning and cleaning intermediate and adaptation of the time to 30-35 years. It is intended to saw obtain timber and plates with a higher market value than Maximize investment. After reforestation, it is convenient to carry out clearing, especially in the early years to reduce the risk of fire and prevent competition from herbaceous and shrub vegetation. The pruning are necessary to achieve quality wood free knot. The number of thin out is a function to perform the initial density and quality of the station. Usually you can recommend performing two thin out, the first about 8-10 years, cutting about 30-40% of the trees and another 20-25 years, leaving about 300-350 feet/ha for the final cut.

3.7.6 Pine forest of slow growth

The pine forests of the region are artificial plantations created by the repopulation policy in most of the twentieth century, mainly at the end of the 50s, or in recent years by the emergence of funds MINER and PAC. The most commonly used species is *Pinus sylvestris*, other species at lower altitudes are *Pinus nigra* and *Pinus uncinata*. This type of reforestation are suitable for degraded due to forest fires and overgrazing land. Therefore it is shallow soils, poor, very acidic and, in many cases, in areas of steep slopes. Currently they have a cover scrub as *Ulex euro- paeus*, *Genista tridentata*, *Cistus ladanifer L.* and *Halimium sp.*. Once the repopulation, performing maintenance work is considered essential to the proper state and development of plants. Some pine forests of the Bierzo currently have coming ages 35 years in which they are beginning to make the first forest clearing. Also being done pruning height of the best feet form the dough which is reserved for the final cut at an age not less than 80 years.

Pic 17. Example forestry of pine in Cueto. Pablo F. Arias. 2015.

3.7.7 Repopulation with leafy

Recently they have started using other species with the objective of obtaining quality wood for use as a wood saw or a wood plate. The species most used are *Prunus avium* and *Quercus rubra* or others similar *Latanus hispanica* and *Alnus glutinosa*. Suitable for this type of reforestation land must ensure high production therefore must be deep and relatively fertile land, in areas not exceeding 900 m. The silvicultural model should apply from a low initial stocking densities on the order of 400-600 plants/ha. Therefore silvicultural treatments needed are clear and pruning to allow proper development of trees. A major problem is the incidence of wildlife in the early years, especially roe deer, whose populations are currently experiencing a significant increase in the Bierzo.

3.7.8 Hunting and fishing

According with A. Fernández and J. Ramirez, the cynegetic exploitations have a great social importance and a promising future for the economy of Alto Bierzo. The abundant populations of huntable species have resulted in a remarkable involvement of hunting in the culture of the region, which has resulted in hunting activities that are the sole source of forest income of many newspapers Neighborhood Councils.

With regard to small game, the presence of species such as partridge *Alectoris rufa*, quail *Coturnix coturnix*, the turtle dove *European Turtle Dove*, rabbit *Oryctolagus cuniculus* or hares *Lepus CA- Pensis* . The big game also becomes relevant mainly for the population of wild boar *Sus scrofa*, but also roe deer *Capreolus capreolus*. As for the situation of stocks, the big game is in full expansion against small game that is in a delicate situation due to the abandonment of traditional agricultural activities. More than 90% of the area of Alto Bierzo is included in any of the 50 existing hunting preserves. They are preserves large area (on average over 1,000 ha), with a predominant character of big game (nearly 25,000 ha), but also given the mixed character (big and small game) occupying these measuring around to 30,000 ha. The only small game as present minimal relevance (less than 5,000 ha).

If you want to bet on the future, this activity must be harmonized with agricultural and forestry interests, farmers while improving the environmental quality of the territory and aumentan do it the capacity to host the hunt. So, we must improve the hunting habitat by the appropriate measures on the vegetation, conducting repopulations and control populations predators. Other measures necessary be increased vigilance against the significant level existing poaching in the area, improved signaling and reduction of damages hunting It is producing greater.

Fishing has also been a traditional source of income during the time of Fishing has also been a traditional source of income during the time of autoabasteciemiento, but its economic involvement has not been so marked. All this has resulted in a low level of management by the Administration, there being at present no fishing preserve, and all in a warren Sticking or water in some areas of special regime. Noceda del Bierzo is the only company related to river resources: a fish farm for breeding trout. They must conserve, restore and enhance aquatic ecosystems, and particularly the indigenous populations of brown trout *Trutta fario* promoting their sustainable use as a natural

resource. At the same time, it must revalue recreational fishing as a tourist activity and economic interest.

Pic 18. Example river vegetation Toral de los Vados. Pablo F. Arias. 2015.

To achieve an improvement of fishing, in terms of quality and quantity, it is necessary to ask: improved access to the network of river channels in order to facilitate the exercise of this activity by facility means measures to promote the protection of riparian vegetation and channels, especially with regard to the control of ac- tivities as coal mining potential aggression sora to aquatic ecosystems. With actions directed to give hunting and river improved economic and environmental quality through proper assessment of Development-and hunting and fishing resources will be improved.

3.8 Vegetation

Agree with what written by Nieto Filiner 1985, It is interesting to make a classification depending on substrate acid or basic.

According to the map below on the appendix 1. Fig 5. Species richness map. And appendix 1. Fig 7. Map of national inventory protected natural areas. We can see the diferents inventori of species in the region.

- Vegetation on poor substrate bases. It occupies most of the surface. the materials on which they settle are mainly slate and quartzite. They can be distinguished the following communities:

1).- Communities of *Quercus pyrenaica*: although they constitute the potential vegetation of the area does not become boques. because of the systematic burning practiced by man and soil degradation. Despite this, because of its regenerative capacity from the underground stolons, they are not rare forests small size reaching up to 1700 meters. with oaks other vegetation is developed further as*: Genista florida, Pteridium aquilium, Arenaria montana, Luzula forsteri, Physospermum cornubiense, Melampyrum pratense, Stellaria holostea, Holcus mollis.*

2).- *Cytisus scoparius*: They form the first stage of substitution of the oaks. the most representative in the study area are those of *Genista florida* (gemistion floridae Rivas-Martinez 1974) and *Cytisus scoparius* (Cytision scoparii R. Txapud Prsg. 1949).

3).- Heaths: cover most of the territory are also burned by man, but recover with ease. scrubland most widespread in not too wet sites, it is composed of Erica australis and Chamaespartium tridentatum . They are closed formations, from the 1600 or 1700 meters, they are giving way to the altitudinal heathland. these communities belong to the association Genistello tridentae and Ericetum aragonense (Rothm 1954 and Rivas-Martinez 1979), these formations are composed to others by*: Erica australis , Erica Umbellata, Vaccinium myrtillus, Festuca paniculata, Polygala microphylla, jasione laevis, phalacrocarpum oppositifolium, Var. Anomalum, Chamaespartium tridentatum, Halimium alyssoides, Luzula lactea, Festuca rubra, Subsp. Asperifolia, Avenula sulcata, Physospermum cornubiense.*

a).- *Erica arborea* formations: facies are wet heathland which develop in particular topographic and soil conditions in places facing north. They found in these formations: Erica arborea, Anthoxanthum odoratum, Ranunculus bulbosus subsp, castellanus,

Luzula nutans, Sorbus aucuparia, Festuca iberica, Polygala serpyllifolia , Vaccinium myrtillus , Rumex acetosa, Hypericum richeri subsp, burseri , Calluna vulgaris , Lathyrus montanus , Narcissus pseudonarcissus var. Primigenius .

b).- *Genista sanabrensis* formations: as we ascend, between 1600 to 1700 m, *Genista sanabrensis* becomes part of the heath, leading progressively to a very characteristic facies altitudinal throughout the area and exclusive of it (including Sierra Segundera and Massif trevinca). Physiognomically are dwarf bushes that become clearer as we head into the mountains to psicroxerófilos contact with indigestible *Festuca grasses* .

These communities have been described as *Erico umbellatae – Genistetum sanabrensis* Rivas-Martinez 1979 and as Genisto sanabrensis-Juniperetum nanae Fdez Prieto 1983. The first association takes as its basis inventories conducted between 1700 and 1750 m, halfway between the typical heathland facies and facies high; the second is described on an inventory of Teleno to 2080 m and in it or heathers or Carqueixa no longer appear. Both refer to the same formation, which is implanted, as we have said, gradually; the second, being more tudinal altitudes, is floristically, more typical. With this vegetation, we can found: *Phalacrocarpum oppositifolium* var. Anomalum, *Erica australis, Calluna vulgaris , Agrostis tileni , Luzula lactea , Vaccinium myrtillus , Deschampsia flexuosa, Rumex acetosella, Cytisus balansae var. Europaeus, Juniperus communis subsp, alpina, Agrostis truncatula subsp commista, Sedum brevifolium, Solidago virgaurea.*

Within the domain of heathland, but without being able to talk about heaths, there are permanent communities, which remain due to topographic and microclimatic particular conditions, Genista hystrix formations: thermophilic bushes implanted on poor soils developed but something not very high altitudes. Are countable in Lavandulo-Genistetum hystricis Rivas-Martinez association 1979. They are usually found in these formations: *Genista hystrix, Santolina rosmarinifolia, Erysimum linifolium subsp. Semidentata, Silene scabriflora* and *Anarrhinum bellidifolium.*
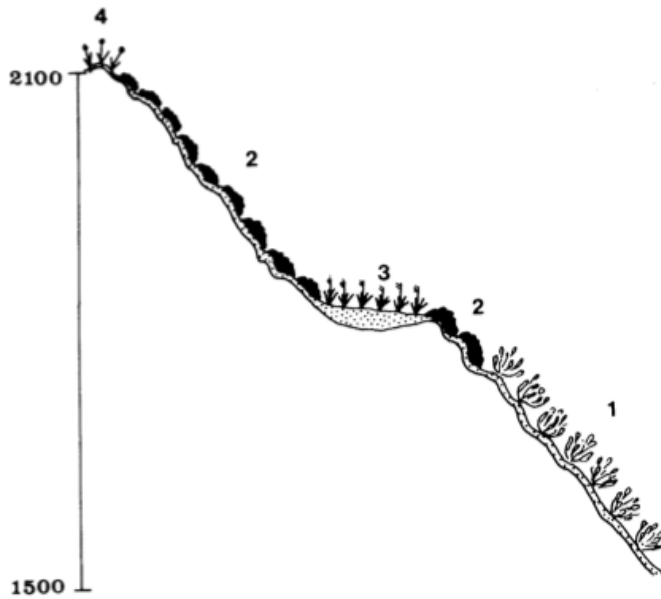
Fig 20. Mountains vegetation scheme: 1) Heath, 2) *Genista sanabrensis* formations, 3) High mountain grass, 4) Psicroxeróphilos grass of *Festuca indigesta*.

c).- *Barnadesii Echinospartum subsp. dorsisericeum* formations: More thermophilic than previous ones and located in the slate outcrops facing south. The transition from previous training this is gradual. They comprise, among other plants, of: *Echinospartum barnadesii subsp, dorsisericeum, Jasionemontana, Festuca indigesta, Linaria saxatilis, Dianthus langeanus, Rumex acetosella, Conopodium majus subsp. ramosum.* Corresponds to what Rivas-Martínez 1974 call *Echinospartetum lusitanici*.

4).- Grass of psicroxerófilos: This includes tall grasses that grow on shallow soils on the tops and are subject to cryoturbation processes. In the study area, they are mosaic with creeping bushes *Genista sanabrensis,* as stated Fernández Prieto 1983. This author has described the partnership with these communities *Teesdaliopsido confertae* and *Festucetum indigestae* Fdez. Prieto 1983, own the sanabriense Orensano sector. The most representative species are: *Festuca indigesta, Deschampsiaflexuosa, Silene ciliata, Sedum brevifolium, Juncus trifidus, Antennaria dioica, Luzula caespitosa, Teesdaliopsis conferta, Jurinea humilis, Agrostis tileni, Agrostis truncatula subsp, commista, Jasione crispa subsp, brevisepala.*

There are also, in some areas with deeper soils, communities psicroxerófilos transit between pastures and Nardus stricta. In one of these communities we note the following taxa: *Festuca indigesta, Festuca iberica, Avenula sulcata, Lotus corniculatus, Linaria supina, Leontodon carpetanus, Jurinea humilis, Calluna vulgaris, Valeriana tuberosa, Nardus stricta, Agrostis truncatula subsp, commista, Anthoxanthum odoratum, Jasione*

laevis, Leucanthemopsis flaveola, Genista carpetana, Silene ciliata, Plantago alpina, Galium harcynicum subsp, vivianum.

5).- Comunities of *Nardus stricta* and peatbog: We include in this section a number of diseases characterized by soil moisture communities, and among which are frequent transits. alpine pastures, dominated by *Nardus stricta*, which develop on deep soil and permanently wet. They are frequent between 1400 and 1800 m. Among the phytosociologists there is some controversy about the autonomy of two alliances: Nardo-Galion saxatilis by Prsg. (1949) - Atlantic and Subatlantic and Campanulo-Nardion Rivas-Martinez (1959). The taxa found in these communities, within the area are: *Nardus stricta, Festuca violacea, Galium harcynicum subsp, vivianum, Carex caryophyllea, Plantago alpina, Luzula campestris, Lotus corniculatus, Viola riviniana, Campanula herminii, Ranunculus bulbosus subsp. castellanus, Pedicularis sylvatica subsp. lusitanica, Jasione laevis, Poa legionensis, Anthoxanthum odoratum, Crocus carpetanus, Narcissus bulbocodium subsp, bulbocodium.*

In the Cabrera mountains, Segundera and Trevinca massif, between 1600 and 1800 m, there is a formation that Rivas-Martinez 1979. He described as Thymelaeo dendrobryi and Genistetum carpetanae and defining as "landa semi hygrophytic" of short stature in which certain thorny chamaephytes sufrutescentes and amacolladas decumbentes well as some herbs abound. According to him, it is in deeper than those for the heaths of *Erica Arago* and somewhat drier biotopes that are heaths of *Erica tetralix* soils. In our opinion, they replace Genista sanabrensis communities because, like them, are altitudinal. These formations consist mainly: *Thymelaea coridifolia subsp, dendrobryum, Genista anglica, Calluna vulgaris, Erica tetraliz, Genista carpetana, Genista micrantha.*
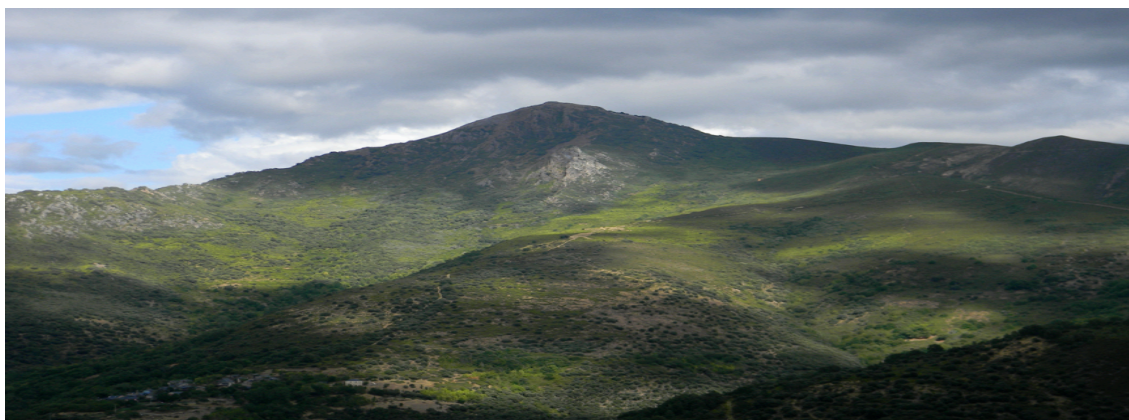
Pic 19. Montain La Quiana from Orellan. Pablo F. Arias. 2015.

Peatlands: located on the slope of the Cabrera between 1600 and 1700 m. They are flat bogs formed by gender *Sphagnum mosses* and covered with heather Erica tetralix. They would, therefore, included in the alliance (*Ericion tetralicis* Schwickerath 1933). Apart, there are: *Erica tetralix, Carex nigra, Juncus squarrosus, Drosera rotundifolia, Molinia caerulea.*

At the edges of peatlands and supporting a minor ponding, not permanent, some communities composed installed: *Sirpus cespitosus subsp, germanicus, Pedicularis sylvatica subsp, lusitanica, Potentilla erecta, Viola palustris, Callana vulgaris, Galium harcynicum subsp, vivianum, Dactylorhiza maculata subsp, maculata, Festuca rivularis, Erica tetralix, Carex nigra, Ranunculus bulbosus subsp, castellanus, Narcissus bulbocodium subsp, bulbocodium, Luzula multiflora.*

This section includes both plants that live in cracks in rocks, such as those that are installed on substrates characterized by their mobility.These communities colonize the cracks of rocky outcrops of slate and quartzite. In the peaks of these mountains, where rocky outcrops are common, the most representative species of these communities are: *Murbeckiella boryi, Alchemilla saxatilis, Veronica fruticans subsp, cantabrica, Polypodium vulgare, Campanula hispanica, Festuca indigesta, Dianthus langeanus, Sedum brevifolium, Hieracium pallidum subsp, graniticum, Plantago alpina, Asplenium septentrionale.*

Gravel pit communities: are installed on gravel or loose stones at various altitudes. There are some variations. In shale exposed places in the subalpine, on quite inclined substrates are composed of communities: *Rumex suffruticosus, Silene herminii, Hieracium lactucella subsp, bergidense, Sesamoides minor, Rumex acetosella, Paronychia Polygonifolia, Linaria alpina, Leucanthemopsis flaveola.*

6).- Communities of sources and streams: are given at higher altitudes (above 1500 m), at the edges of streams whose waters have an almost constant temperature throughout the year. Those who live in acidic rocks such as these are countable in order Cardamino-Montion Br. Bl. 1925. They consist mainly of: *Caltha palustris, Cardamine raphanifolia subsp, gallaecica, Chaerophyllum hirsutum, Myosotis secunda, Veronica serpyllifolia, Saxifraga stellaris subsp, alpigena, Anthoxanthum odoratum, Chrysosplenium oppositifolium, Myosotis stolonifera.*

In certain high humid enclaves with rich in nitrates and neutral humus soil formations characterized by the presence of herbs they grow great development, such as: *Adenostyles alliariae, Veratrum album subsp, pyrenaica, Gentiana lutea* .

Streambed communities: In the riverbanks, reaching up to 1500 m, some communities characterized by having developed in the shelter of willow and birch species nemoral character. In these communities can be found: *Salix atrocinerea, Sorbus aucuparia, Erica arborea, Luzula sylvatica, Stellaria holostea, Athyrium filix-femina, Allium victorialis, Dryopteris dilatata, Betula pubescens subsp, celtiberica, Taxus baccata, Genista florida, Angelica major, Lamium maculatum, Veratrum album, Ceratocapnos claviculata.*

- Vegetacion on rich substrates bases. They are located exclusively in the stratigraphic outcrops formation of "limestones Aquiana" along the northern slope of the Aquilianos. The verticality of the layers, hovering at various points in the form of high walls, steep slopes causes that limit the introduction of more advanced than those communities listed below. However, on the walls facing south, relict oaks communities amounting to 1200 m, and which give an idea of what should be the potential vegetation in these areas are located.
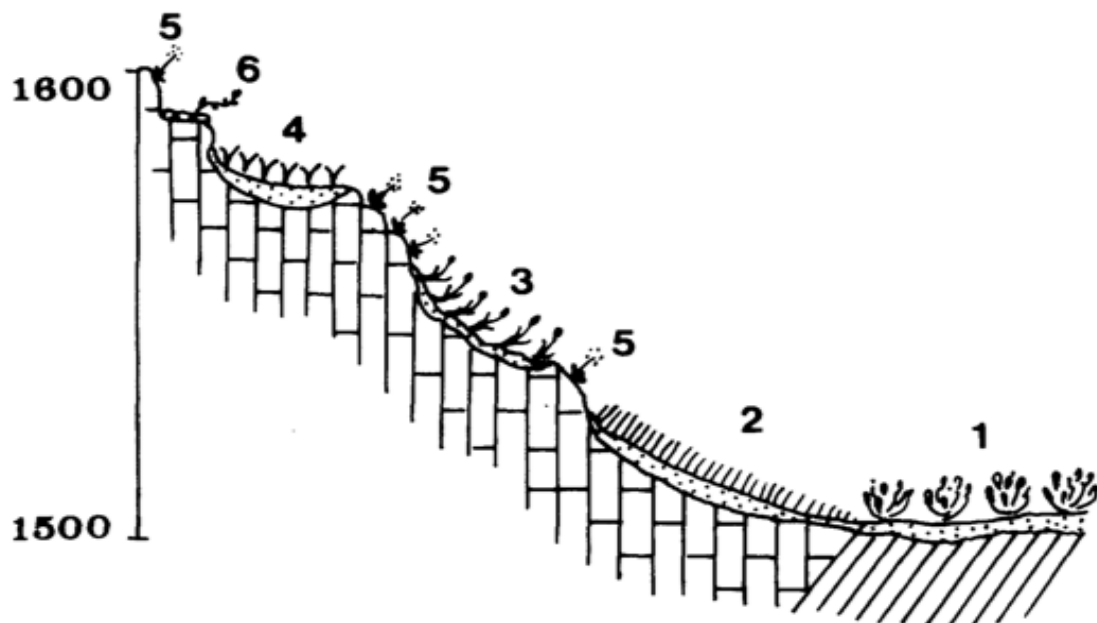
Fig 21. Vegetation scheme in outcrops. 1) Heath, 2) Grass of Bromus Erectus, 3) Grass of *Festuca Burnatii*, 4) Grass of *Avenula pubescens*, 5) Crevices communities.

1).- Vegetation that live in rocks: They colonize crevices of limestone rocks, between 1200 and 1700 m. They are countable in the alliance Saxifragion trifurcato-canaliculatae (Rivas-Martinez 1969 and Rivas-Martínez & al. 1971). They comprise, among other plants, of: *Campanula arbatica subsp, adsurgens, Asplenium trichomanes, Sedum dasyphyllum, Erinus alpinus, Hieracium mixtum subsp, bombycinum, Festuca burnatii, Hutchinsia alpina subsp, auerswaldii, Saxifraga trifurcata, Campanula gr. Rotundifolia, Rhamnus pumila, Erodium petraeum subsp, glandulosum.*

According to the map below on the appendix 1. Fig 13. Map of erosion potential. We can distinguish the erosion potential of the area.

One of the differences between the eastern and western limestone is the presence of two plants grandiflora subsp -Arenaria, grandiflora and Armeria cantabrica- in Pobladura de la Sierra and Peñalba de Santiago, which, in the Apostles and Ferradillo, are replaced by *A. grandiflora subsp, incrassata* and *A. langei subsp. daveaui.*

2).- Communities of grass: Southeast of Peñalba de Santiago, can be distinguished, according to ascend the limestone hillside, from contact with the heathland, pastures several formations: Pastures mesophilic countable in order Brometalia erecti (W. Koch 1926 and Br Bl.. 1936), formed mainly by*: Bromus erectus, Avenula bromoides, Anthyllis vulneraria, Poa ligulata, Erodium petraeum subsp. Glandulosum, Linaria supina, Koeleria vallesiana var. Abbreviata, Festuca gr. Durissima, Galium pinetorum, Acirios alpinus, Arenaria grandiflora subsp. Grandiflora, Minurtia hybrida, Saxifraga conifera, Potentilla tabernaemontani, Veronica javalambrensis, Thymus praecox, Sideritis hyssopifolia, Arrneria cantabrica, Paronychia kapela subsp, kapela, Scabiosa columbaria, Medicago lupulina, Ranunculus ollissiponensis.*

We can see the example photo on the appendix 2. Pic 3. Galician massif mountains, an example of vegetation.

Grasses *Festuca burnatii* on underdeveloped and somewhat drier soils. They live in these formations: *Festuca burnatii, Erodium petraeum subsp, glandulosum, Sideritis hyssopifolia, Erysimum linifolium, Matthiola perennis, Koeleria vallesiana var. abbreviata, Paronychia kapela subsp, kapela, Scabiosa columbaria.*
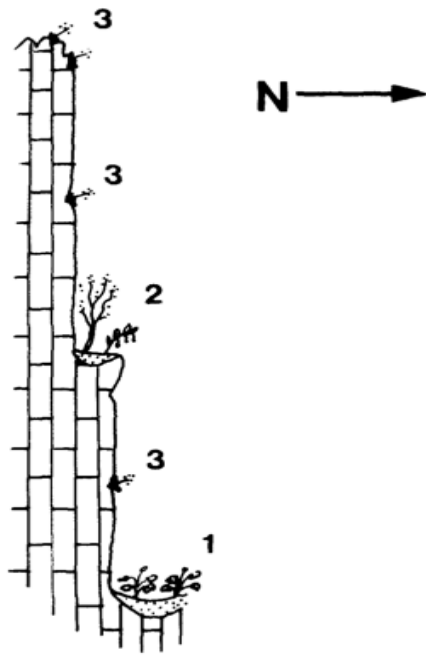
Fig 22. Crevices communities. 1) *Geranium dolomiticum* communities, 2) Nemorales communities, 3) Rupicola communities

We can see the example photo on the appendix 2. Pic 9. Waterfalls of Gualton.

Grasses on deeper soils in landings and more sheltered exhibitions, where they live: *Avenula pubescens, Festuca gr. durissima, Botrychium lunaria, Gentiana verna, Erodium petraeum subsp, glandulosum, Galium pinetorum, Saxifraga granulata, Valeriana tuberosa, Vitaliana primuliflora subsp. assoana, Scabiosa columbaria, Koeleria vallesiana var. abbreviata, Biscutella intermedia, Potentilla crantzii, Sedum forsteranum, Arenaria grandiflora subsp. grandiflora, Ranunculus ollissiponensis, Arabis ciliata, Geum sylvaticum, Hutchinsia alpina subsp, auerswaldii, Poa pratensis.*

3).- Communities living in gravel and rocks: Communities of debris that form at the foot of the rocks. Often interspersed with grasses and plants that live in and fissures. In these places they are: *Linaria supina, Hutchinsia alpina subsp, auerswaldii, Paronychia kapelacsubsp, kapela, Saxifraga conifera, Cerastium arvense, Erodium petraeumc sbsp, glandulosum, Poa ligulata, Erinus alpinus, Matthiola perennis.*

We can see the example photo on the appendix 2. Pic 2. Waterfalls of Busmayor.

Also at the foot of the vertical walls or in small landings thereof, in the same locations that the Geranium dolomiticum but more warm and damp areas (north facing) are found billeted nemorales a number of plants that make pensaren a potential beech forest. Among other plants live in these areas: *Sorbus aria, Mercurialis perennis, Polygonatum*

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odoratum, Ranunculus platanifolius, Berberis vulgaris, Corylus avellana, Poa nemoralis, Meconopsis cambrica, Polystichum aculeatum, Lilium martagon, Allium victorialis.

- Riparian forests.

A very characteristic tree vegetation of these ecosystems is limiting factor which determines the presence of this vegetation is the concentration of water to be very abundant having to come often to waterlogging of roots. Depending on the distance to the river are different bands of vegetation.

The first band of vegetation closest to the river channel corresponds to the shrubby willow, shrubby species dominated by medium-sized willow *Salix sp.*, Which are accompanied by plant communities living with a submerged part; rushes *Juncus squarrosus sp.*.

The willow populus trees seen in the second band of vegetation from the river. They are named riparian deciduous forest dominated by poplars, with two species according to the tone of bark and shape of the leaves *Populus nigra*, darker and / or white poplar Populus alba, clearer. For some years this being displaced by the so called Canadian poplar *Populus Euro-American*, which is well suited for favorable environmental conditions. In addition to the poplars are found in these forests riparian arboreal willow Salix neotricha or *Salix fragilis*, alder *Alnus glutinosa*, a tree very confused with the poplar for a little curious observer, the only detail that distinguishes the female flowers alder, as the poplars lack them, the elm *Ulmus minor* and willow *Salix atrocinerea.*

We can see the example photo on the appendix 2. Pic 8. Lake of Carucedo.

The vegetation in these areas regarding the potential vegetation of the territory presents highly processed, since trees are felled and the soils cleared of las vegas are used for crops and pastures.

In areas that maintains a high water table, water near the surface, are frequent reeds *Phragmites australis*, rushes *Scirpus lacustris*, and sedges *Carex acuta sp.*. It is also different species of aquatic plants such as duckweed Lemna minor, the smartweed *Veronica persica* or buttercups *Ranunculus sp.*.

According to the map below on the appendix 1. Fig 3. Map owned by forests, appendix 1. Fig 4. Catalog forests of public utility and appendix 1. Fig 8. Biosphere reserve map. We can found same example of vegetation.

Pic 20. River Sil. Pablo F. Arias. 2014.

3.9 Wildlife

According to what is written in the environmental report Vianova; The fact that the region of Bierzo comes characterized by a marked heterogeneity of its bio-ecological parameters allow you to have potentially necessary area to accommodate a wide variety of species. This faunal wealth depends on three elements; geographical location, variety of environments and degree of human exploitation. The fauna of the municipality is conditioned at first by vegetation, which in Carracedelo is characterized by the presence of scrub-statured, riparian forests and a forest of small extension of chestnut and oak woods, and influenced by the three elements plus of by climatic variables and the type of terrain.

According to the map below on the appendix 1. Fig 6. Map of protected natural areas and appendix 1. Fig 7. Map of national inventory protected natural areas, we can have a simpler vision of evaluating this section.

At first we discuss the most established vegetation, forests, which are characterized by a high tree cover, changing climatic conditions on which sit and have a generally dense underbrush.

According to the map below on the appendix 1. Fig 12. Region of origin genetic resources.

These conditions make forests places where they live and lots of animal species seek refuge due to the contribution of nutrients it provides. In the riverside forests we find one group of animals most threatened by pollution, excessive consumption and invasion of its habitat by man and by non-native species, we can find amphibians such as the newt *Triturus marmoratus* and the frog Iberian *Rana perezi*, reptiles like the green lizard *Lacerta schreiberi*, the common lizard *Lacerta vivipara*, several species of snakes, the mole river Pyrenean Desman, *Plecotus austriacus*, water rat *Arvicola sapidus* and even the otter *Lutra Lutra;* and countless birds; These include the coot *Fulica atra, the dipper Cinclus cinclus, the gray wagtail Motacilla solitarius, Charadrius cubius, Gallinago gallinago, Alcedo athis, Otus scops* and *Emberiza schoeniclus*.

Chestnut formations are due to its size and coverage of its rich food supply, as well as the shrub layer that accompanies true wildlife havens, primarily for birds. *Athene noctua, Otus scops, Jynx torquilla, Parus major* and *Certhia bradydactyla*, real redstart *Phoenicurus phoenicurus*, hoopoe *Upupa epops* and pied flycatcher *Ficedula*

hypoleuca; apart from black starling *Sturnus unicolor,* winged form a complex community in the chestnut safe place to bring up their offspring. As for mammals, the scrubland that accompanies the chestnut is a place of foxes *Vulpes vulpes* and weasel *Mustela nivalis*.

Animals in the oak forests are not unique to this particular type of forest formation, but are representatives of Mediterranean forest and it is not difficult to find in other biotopes. They provide shelter and pantry for plenty of wildlife, especially in winter when some mammals consume acorns falling from the trees.

In the oak forests of the area abound reptiles like the mountain lizard *Lacerta monticola*. Amphibians such as salamanders *Salamandra salamander* in wetlands; birds like common buzzards *Buteo buteo*, falcons Falco peregrinus, *Milvus milvus*, pigeons *Columba sp.* and turtledoves Streptopelia turtur, *Muscicapa striata*, *Clamator glandarius*, *Sylvia sp., Emberiza sp., Garrulus glandarius* and etc .; and typical mammals of forested areas like the hedgehog *Erinaceus europaeus*, the dormouse *Elyomis quercinus*, *Martes martes*, badger *Meles Meles, Genetta Genetta* and in some areas even as wild cats *Felis sylvestris* and roe deer *Capreolus capreolus*.

The scrub, made up of perennial woody plants, is an ecosystem of singular importance especially for autumn, when the variety of fruits offering is used by many animals. Among the birds stand *Saxicola torcuata*, *Troglodytes troglodytes*, *Phylloscopus brehmii* and *Prunella modularis*. As for mammals, thickets provide cover to the wanderings of wolves *Canis lupus* feeding on rodents, birds and various fruits but can attack the herds of domestic animals, foxes *Vulpes vulpes* looking for food eats rodents , birds and invertebrates large, although it also eats fruits and berries, and even the wildcat *Felis sylvestris*, although the most common vertebrates in this biotope are the hare *Lepus capensis* and wild boar *Sus scrofa*.

In the hillside pastures and hayfields inhabit, within amphibians, *Bufo bufo*, reptiles like *Podarcis bocagei*, *Anguis fragilis*, also common in the low scrub *Chalcides striatus*; birds such as wheatear *Oenanthe oenanthe*, *Anthus sp.* or *Motacilla sp.* and mammals like the mole (Talpa europaea), the shrew (Crocidura russula), *Microtus agrestis* the hedgehog *Erinaceus europaeus* seeks food fall day and consume large amounts of food, especially of insects, worms, mollusks and small vertebrates and the hare *Lepus capensis*.

According to the map below on the appendix 1. Fig 10. Map of protection zones for birds.

Growing areas usually located in valleys and slopes slightly sloping and commonly found delimited hedgerows are of great importance for bird life in the area, getting itself to verify that the abundance of such hedges is in direct proportion to the number of breeding pairs, and therefore the density of bird populations. The typical fauna of these areas consists of *Milanus sp., eagles Hieraaetus fasciatus, Circus pygargus, Falco tinnunculus, Coturnix coturnix*, partridges *Alectoris rufa, Vanellus vanellus, Phylloscopus collybita, Lanius excubitor, Carduelis carduelis, Emberiza sp., Turdus morula, Sturnus unicolor, Pica pica* and etc. Within the group of reptiles, include the presence of *Lacerta schreiberi* and *Natrix Natrix* and lizards *Podarcis muralis* on the walls. The mammals that prefer agricultural areas are usually voles *Microtus duodecimcostatus*, moles, shrews, hedgehogs, hares and weasels *Mustela nivalis*, but can also be passageways fox and bobcat.

Urban centers and their buildings have been chosen as home for a large number of anthropophilic birds, able to take advantage of our unique way of life. It is not difficult to observe storks *Ciconia ciconia*, doves, owls *Tyto alba*, swifts *Apus apus, Delichon urbica*, swallows *Hirundo rustica*, sparrows *Paser domesticus*, black starlings, rats Rattus sp. black and gray house mouse *Mus musculus*, big-eared bat *Plecotus sp.* and common bat *Pipistrelus pipistrelus*, along with numerous accompanying pets.

Amphibians are the most common group in areas still pools of waters (ponds, fountains and water troughs) and wetlands, highlighting the presence of toads, frogs and sometimes, newts *Triturus marmoratus*.

The fish fauna of the area is composed of trout *Salmo trutta* as the preferred species, accompanied by *Boops boops*, and *Lenciscus pyrenaicus*. It is also possible to find *Rutilus arcasi*, widely distributed in this region. In these areas also live amphibians, toads and frogs, as the common frog *Rana pereci* and *Bufo calamita* and reptiles, viper snakes *Natrix maura* and dark green lizards *Lacerta scheiberi*, along with birds and mammals of riparian forests.

According to the map below on the appendix 1. Fig 11. Map of Nature Network 2000.

Waterfowl such as *Anas platyrhynchos*, the *Tachybaptus ruficollis* and *Fulica atra*, are common inhabitants of the rivers in the area.

4. Methodology

With this methodological proposal to landscape assessment is intended to describe qualitatively and, as far as possible, also quantitatively, the visual components of the landscape, understood as "heterogeneous area consisting of a set of interconnected ecosystems that are repeated similarly" (Forman & Godron, 1986) without forgetting the relationship between the visual and ecological.

The development process of this study has been carried out in different stages and a personal method, focused on developing an inventory of the study area for later analyze the different problems and possibilities of this area that has been studied.

The external analysis is to describe and characterize from the point of view of the visual and aesthetic scene that encompasses the area and unity of action, in order to obtain guidelines for the design of forest actions proposed features. This analysis is performed from the observation points previously selected.

The collection of information has been cast in different sections: in the first part it has toured the area and cataloged the different plant and animal species, It has traveled different routes and different ecosystems in order to understand the diversity that exists in this area. In the second place, I had kept and read information of different authors who have written about this area and demand information to different regional bodies such as the Regional Council or the University of León.

At first has collected information from different studies both local, regional, provincial or state. Such as the Consejo comarcal del Bierzo, town hall of Ponferrada, the Junta de Castilla y León and various entities of the Spanish state, as well as the University of Leon on campus Ponferrada.

County Council Bierzo thanks to the help of his staff especially Ana Laura Fernández Marques which it provides different studies analyzed area and suggested different websites to further study the issue and recommended various studies conducted by the association studies bercianos. City Council of Ponferrada with its various websites provided information and data of the city of Ponferrada and surroundings. The council of Castilla and Leon collaborated with different information related to the boundaries, institutions, definitions and laws. The different institutions of the Spanish state provided geo-referenced maps, climatic data, data on population, pollution of areas, fires, vegetation and wildlife, … , etc. The various different books campus extracted

Ponferrada as "El alto bierzo; una apuesta por el desarrollo forestal sostenible" or "Análisis económico de la región del Bierzo" among others, They were scanned and printed using the gneral library staff as well as various maps during Christmas 2015.

On the survey conducted by C. R. Alvarez, 2015, on tourism in the region, chose different tourist spots to try to make it more open study possible.

For information processing has been used Microsoft word 2007 and Microsoft excel 2007, in a Mac computer 2008 Late, with 4 Gb 1067 MHz DD3 of RAM and a processor of 2 GHz Intel Core 2 DUO.

Different images have been made durantes different years and in different seasons. It has been used a camera NIKON of 12,1 megapixels, 15 of zoom and the camera lens 5,0-75,0 mm 1:3,5-5,4. This camera has done most of the Fortos that can be found in annex called photos.

To highlight the different articles that I read, BIC yellow highlighter is used.

5. Results

5.1 SWOT análisis

Strengths

- Historical area cultural tourism.

- Good hotel facilities.

- Good connectivity to major cities and airport to 120km.

- Good security, good hospitals, low crime.

- Possibility to use bicycle in the capital of the region and many pedestrian areas, parks, promenades and wide avenues.

- The water pools with barbecue areas and sports.

- Wide variety in its cuisine and wines of the region.

- Gastronomitas and craft shows frequently.

- Concern from the public about the environment and deterioration

High environmental quality of resources

- Winter sports.

- Depreciation rate for shops in the capital of the region and plans for rural development.

- New forestry companies which promotes the cleaning and care of forests.

- Old railway network but can be used to give value areas depressed by the closure of mining companies.

- New forest routes that allow better understanding of the wildlife and vegetation of the study area. For example: route of "Canteros".

- Good infrastructure of water service and garbage collection.

Thanks to the different possibilities that already possesses this region we can begin to revive and promote this region, giving information to people who visit this area and conducting environmental awareness campaigns.

Weaknesses

-        Repopulation with species and inadequate methods

-        Thermal power station coal to 20 km of Ponferrada.

-        Impacts on ecosystems for activities related to tourism.

-        Contamination of some river by mining activity.

-        Bad connection with Portugal.

-        Levels of O3 above normal in summer because of the activity of the thermal plant.

-        No sporting activities are recommended during major hours a day when the O3 percentage is high.

-        High price of museums.

-        Difficulty in mobility in small areas, namely; between small towns.

-        Problems in wastewater collection in certain areas.

-        Forest fires between spring and autumn.

-        Aquifer depletion due to overexploitation

-        Few funds for forest protection.

-        Unconcern for the image of the anthropic and industrial landscape by the administration.

These are the points that should be put in care for improvement and possible repair the environmental damage caused by bad practices and exert pressure to different administrations to support their development.

Opportunities

- New companies based in the field of enology and / or gastronomy.

- Use of large infrastructure of waste and wastewater (CTR, EDAR, ..)

- Availability of financial funds from other administrations for environmental improvement initiatives.

- Increase of rural tourism.

- Heyday activities related to environmental conservation activities.

- Restoration of depressed areas (palaces, great houses, etc ..), lots of old structures of high quality, which can be repaired for reuse as hotels or inns.

- Hunting tourism; big game, small game, cinegetic photography, fishing.

- Scientific Tourism: CIUDEN.

- Use of alternative and renewable energies

- Landscape tourism: ornithological, mycotourism, horse riding and cycling.

- New winter sports areas.

- Increase public information activities, projects, grants ...

- Restoration of disused railway lines.

- Tax breaks for new businesses.

- Good grass for the production of farm animals.

- New sector in agriculture: organic farming.

- Concentration plots; It is good for the development of good agricultural industry.

We must build on the opportunities that gives this area for economic, social and political development, It is vital to develop new guidelines for operation and lapoyo of public administrations and the private sector.

Threats

-		Depopulation of rural areas.

-		Protected wolf but threatens farms and in some cases isolated people.

-		De-industrialization of the area.

-		Mining activities detrimental to the area.

-		Climate change: It affects winter sports and the producion horti-fructicola.

-		Low public investment in infrastructure.

-		Good service in telecommunications, although there are mountain areas where there is no network.

-		Visual fragility in certain landscapes by the mining industry.

-		The problem for the soils of the study area are illegal landfills that exist and everything related to their presence as seepage, lixiviates, etc.

-		In some places you can not access the rivers due to the existing vegetation.

-		High pollution of waterways.

-		 Environmental degradation by visual pollution caused by human and industrial activity

-		Native species such as poplar or crab are at some risk due to the incursion of foreign species that are better adapted to the conditions.

-		Decreased huntable species and fish.

-		 Little information and civic education on the primary sector.

-		Lack of staff to coordinate specific grants and mechanisms of opinion and citizen participation.

Threats that owns this area should be minimized and eliminate measure as they give bad reputation to this region, in addition to seriously threaten the environment and health of people living in this area.

5.2 Proposed and measures

For different proposals and measures used as reference cited SWOT analysis; in the previous section:

- As it is a historically important area, we should mention rural tourism accompanied by an ecological tourism and that most of those monuments are surrounded by different natural spaces so it would be vital to preserve these spaces that provide a niche to many protected species.

- On the movement of the rural population to larger urban centers, it should be noted that the increasing decline in the number of population in these nuclei is due to low opportunities that people living in such a way to preserve and increase the population of these areas would be management by these municipalities of their forest resources, allowing better management of forests and preventing fires and diseases that can affect the forest mismanagement.

- All communities and individuals must assume that the ecological heritage of the Bierzo is a collective good and for that the implementation of educational programs for the population is suggested.

- Promote the creation of a forestry fund that allows granting loans at preferential rates to different projects forestry projects. Private entities, meanwhile, can also finance projects of forest plantations. Forest plantations offer different benefits and ecosystem services, as standing forests on degraded land and deforested allow to develop a productive activity that reduces pressure on natural forests. These spaces, by providing legally obtained wood, help reduce illegal logging of natural forests.

- On transport and connectivity it is important to mention the new building area of the A-76 which communicate Ponferrada with Orense by highway and promote the use of the train to connect with the capital of the province in a reasonable time.

- The possibility of uses water for the enjoyment of tourists and is living citizens is living on this region, boosting its maintenance and proper use, personal security as implemented by lifeguards example or civil protecion agents.

- As for the possibility of winter sports, the little vialvilidad include the ski resort of Morredero, for lack of snow. important would be a better connection with the different ski resorts surrounding the region, feasibility studies and in the case of a good result in the repair of the existing station.

- Would be a good measure of depreciation rates for commercial and hotel also boost consumption both exterior and interior.

- Better manage forest routes for efficient use and deploy different collection points for garbage collection. It would also be a good idea the placement of public toilets easy to transport in different parts of the Camino de Santiago as for example at the point of the cross of Ferro where you can usually see the environmental degradation for this reason. An idea of these public toilets would be placed in all entrances to the peoples of the Camino de Santiago as well as in the middle of each stage and spice on the cross of Ferro

- On the repopulation of areas burned in forest fires initiatives reforestation with species of the area for adequate staffing would be needed to repeal the new law on management of areas burned by another that does not allow building area to last 20 years as I said the old law of protecion forest and, as well as promote in schools, colleges and universities repopulation courses, helping to understand forest dynamics and assess the forest area. For stocking density these references apply to the most common species: *Eucalytus spp.* from 1600 to 625 feet / ha, according to site quality. *Pseudotsuga mensiesii* from 1500 to 2000 feet / ha., Pinus radiata from 2000 to 2200 feet / ha., *Pupulus spp.*- From 278 to 400 feet / ha. *Castanea sativa.*- from 625 to 1000 feet / ha, lower values for fruit production. *Fagus sylvatica* and *Quercus spp* about 1000 feet / ha., *Pinus sylvestris* and *nigra*, the order of 2000 feet / ha., *Pinus pinaster* and *pinea* between 1000 and 2000 feet / ha, depending on the shift and preferential production, lower values for resin production and sprocket. Pinus haleplensis about 1600 feet / ha.

- The safety of both police and fire area could be improved by increasing a small percentage and promoting a new park for the best regional fire management in the wildland fires and cleani of this by the forestry staff. Investing in sustainable forest management is beneficial to the forest, for society and for the economy. Invest only in firefighting is helpful but does not solve our problem.

- The level of O_3 and NO_2 begins to decrease in this region has been an area with very high levels of these contaminants, it would be of great interest its total decline putting filters to different companies that spew these polluting gases. according to an article published the day 4/4/2016 by NASA it confirms that there is a strong reducing job level of these chemicals in the area studied.

- The problems of wastewater collection are damped be got under way the various European directives on water treatment, thereby jobs would be created high qualification.

- About the difficulties of movement in small urban and rural communities, it is advisable to use all available means of transport, increasing as the number of buses that serve these populations, a serious proposal is necessary the removal of large buses as buses that are not used and replace microbuses for better management, profitability and dynamism.

- On hunting tourism and serious fishing a good initiative the reduction of the price of licenses, create a new license for short periods of time (weekend) for those who are tourists and queire participate in this in the area described during your visit or simply strengthen this sector to its best use, through different administrations both local and state (Spanish ministry of environment, rural and marine).

- The "scientific or museums" tourism could promote doing a route by the different museums available to the region, such as natural science museum of Villafranca del Bierzo, the Archaeological Museum of Cacabelos, or the Museum of CIUDEN (on renewable) energy sources, also include other museums such as the radio, or rail. To promote this would be advisable to downgrade tickets and the implementation of one day of free entry to people with low economic level can also visit and get it personally culture linked to the observation and explanation of these museums, also if the price decreases in these areas which belong to different administrations, we could talk about a small increase in the money people spend on restaurants and / or businesses, with the economic impact that would for the study area.

- All limited fields must be well marked, this will be made with signs, distinguishing marks and signs on rocks, walls, walls, along its entire outer perimeter inside and even where they exist locked. The placement of these posters and signs will so that his legend or logo is visible from outside the marked area. And they must be perfectly placed, both height and distance. All signs must be placed so that an observer at one of the posters or signs have at your sight to the two most immediate. About Decreto 506/1971, de 25 marzo, Reglamento para la ejecución de la Ley 1/1970, de Caza (BOE nº 76 y 77, de 30 y 31 de marzo de 1971), signaling the hunting grounds, fulfilling the provisions of Article 10.4 of this Regulation shall be made in a special way at different entrances, in order to highlight these points on condition inherent to the lands included in the same limited.

- Signaling pathways is approved, it serves a European standard and consists of two parallel strips of different color, always white top and bottom different colors, which will identify the path.

Red, for Long distance walks (GR). They are over 50 km and often require travel for two or more days. Usually cross regions or countries having a number when connecting several European nations). Yellow, for short distance trails (POR). The most common are those between 10 and 50 km and can be performed in one or two days. Green, for the local trails (SL), less than 10 km, and are usually circular, playing botanical, cultural, geological ... Blue trails for riding, mountain biking or off-road tracks.

SENDEROS DE GRAN RECORRIDO (GR)

Continuidad de sendero · Cambio de dirección · Dirección equivocada

SENDEROS DE PEQUEÑO RECORRIDO (PR)

Continuidad de sendero · Cambio de dirección · Dirección equivocada

SENDEROS LOCALES (SL)

Continuidad de sendero · Cambio de dirección · Dirección equivocada

Fig 23, Table of meaning forest indications. http://acivro.blogspot.cz

- Display Panels: at the start of the marked routes display panels is usually where the duration, distance, itinerary and ethnographic aspects concerning nature and the same detailed profile.

- It is fundamental clean of different forest for your best getion and use. This was carried out by the different administrations in the event that the ownership of the mount is Publia or otherwise by the owner; which is required by law to clean and maintain in good condition

5.3 Financing and Costing

To finance all this, at first it will be with the funds called "miner" plan funds of the European Union for comversion of mining areas, which is promoting a new economic model for these mining areas, from the exploitation of mineral coal to other sectors such as agriculture, livestock, manufactured goods and quality tourism (rural, ecological, social, oenologic, ... etc.).

 The different administrations such as the Spanish government would be the main financial sources for comonicacion roads, either by road, rail or other means of communication, ... etc. An example of this financing is the A-76 highway to be financed with the money the ministry building and boards of Castilla and Leon with the Xunta de Galicia. The roads and rural roads are repaired and maintained in good condition by the local financing of the city councils of each municipality as well as with the help of the Bierzo district council and the deputation of leon.

As for the private sector in the different administrations will have to discuss and handle the assignment of different areas for private exploitation, either getion forest areas, monuments or museums, ... etc, for getion and value over the years the administration sees fit. the various agreements that can be treated be of great importance in the economic and social impact of the region. An example of this is the coexistence of public and private shelters for people who travel the way to Santiago. Another example is the implanted menu pilgrim (about 8-7 euros) in different restaurants near the road, allowing pilgrims to approach the typical cuisine of the area. on the food promotes the public sector with the private sector, the gastronomic days of Bierzo; which allow both visitors and natives, pipica taste local food at a reasonable price normally.

Some example of investment:

- According to the company SoloStocks offers the rental of toilet for 120 €/month and It includes ecological portable toilet or have red. Also Wc for the disabled. Wc and include cleanings for delivery and collection service. This wil be finance by the township city government with the help of district council.
- At this point give you an insight to know the systems construction, maintenance or repair of rural or forest roads, dirt roads, providing a price comparison that is ultimately a decisive element in choosing a solution. Normally, dirt roads, whether foresters, rural or access to private farms, are basically the case with these finishes. Road with motor grader and compaction irrigation and water: 1.75 Euros / m2, Road with gravel and

compacting addition of water: 5.95 Euros / m2, Road with concrete slab edge 20, mesh and fine finish: 18,50Euros / m2, Road with asphalt irrigation: 9.87 Euros / m2. These roads will subencionados by public funds of the board of Castile and Leon and the province of leon, as well if possible by European funds for rural development.

- The price of road traffic signs and hunting grounds will be financed by the public administration or in the case of private property by the owner of this. As discussed in the previous section on the marking of the hunting grounds, according to Law 1/1970, of April 4, Hunting. The obligation to mark the land comprising the private reserves corresponds to their holders, who must do so in accordance with the conditions set out in Articles 10.4 and 17.6 of this Regulation.

- On the financing of the indications of forest roads pordrá made by associations of hikers this region, subencionadas by public administration or private dependendo the moment. The average price of a poster is about 100-150 €.

- According to Mowing herbaceous to promote encespedamiento, made with rotary mower working width of 1.9 m. and driven by a tractor of between 71 and 100 hp. 58,17 €/ha. Selective manual clearance, respecting feet to conserve, by slashing fact, the diameter standing at the base of 3 to 6 cm, on slopes less than 100% and fraction fitted cover (vegetation) less than 35%. 285,76 €/ha. It is financed by the government or in the case of private property by the owner of this.

- The construction of various water purifiers for cleaning of rivers and wastewater management is carried out by the various public authorities such as the ministry of environment, rural and marine. Funding for this will be done by fees collected by the Spanish govierno from different companies and users of the water network. It comes to projects cofinanced by the European Union and will involve a total investment of 6.7 million euros, according to the regional government.

- Nursery Pobladura de la Reguera will be responsible for providing seedlings for forest recovery. This nursery belongs to the CIUDEN which is a public agency that is responsible for renewable energy research as public forest management. This nursery has directly created sixty jobs. the price of each tree is about 0.50 - 2 € depending on the species, according direntes articles and tables of this nursery.

- The price of clean points for garbage collection is on 150 – 200 €. We need around 30 or 40 units so if I do the calculation this is aroud 4500 € - 6000 € if it is 30 units or 6000 € - 8000 € if it is 40 units.

5.4 Promotion

-       The Department of Tourism, with the aim of promoting tourist services provided to visitors, has enabled a circuit that will run through the most emblematic areas of the city, without traversing the Historic Center.

-       Promoting hunting, fishing and other activities related to the forest to help this is stored in an environmentally sustainable manner.

-       To optimize tourism castles in this region would be wise to try to repair existing castles and carry out further excavations to recover the artistic heritage that may have be affected by landslides or other natural phenomena.

-       So it would be helpful information from these sites through the Bierzo district council and the city of Ponferrada to be large entities and be the center of tourism in this area, including the towns of Villafranca del Bierzo and Cacabelos.

Moreover, this area could benefit from passage of the camino de santiago creating new natural routes for the passage of these pilgrims the areas where these strengths, which largely were built to protect pilgrims by step of this great region. That is, could develop techniques for clearing paths, gazebos, and other areas to enjoy the good weather and free time both salt and other users and even encourage access to the inhabitants of the villages near these fortifications, making them feel part of history and landscape.

-       The Wine Routes of Spain project is now the national benchmark in wine or wine tourism.

-       Wine Tourism in El Bierzo born in order to encompass all the tourist potential of the region of Bierzo around the wine sector and promote sustainable tourism development based on culture and eno-gastronomic heritage as an innovative element for socio-economic development .

-       Promote El Bierzo in the International Tourism Fair (FITUR), held from Wednesday in Madrid, will focus as in previous years in the tourism of nature, the Camino de Santiago and Las Médulas.

-       For this edition the Board has prepared 10,500 brochures, including guides, maps and posters. In the materials to be distributed 1,700 deployable in the region in English, French, Portuguese and German are included.

- The Board also distribute information provided by municipalities, regulators directors and fifty companies such as rural tourism centers, hotels and wineries, which had previously sent material to the county agency to spread in Fitur.

- Overall visitor Bierzo identifies and links the province to unique landscapes; landscapes that are often linked to road sections and therefore are the accessible. The attractive tourist and landscape value of these roads is evident. These landscapes are a claim and excellent tourist card presentation, and it shows the existence of institutional tourist guides or promotions that include routes or roads with attractive or charming or unique tourist routes.

- Use different social networks as well as creating different web paguinas for the dissemination and knowledge of the region, with the aim of providing an overview that can be found in this.

- The fairs provide a unique opportunity to keep abreast of the latest market and establish new contacts in a fast and convenient way. Throughout the whole year and in different parts of the geography of Bierzo fairs related to tourism, livestock and forestry that besides giving the opportunity to promote the participating companies, allowing them to know the situation of the sector are held and competition.

- Keep The population in rural areas and get well, preservation of identity rural areas of the region of El Bierzo.

- To Improve living conditions in small towns to prevent the rural exodus, and converting them into population centers of attraction.

- Create Employment through specialization and diversification of economic activities, with special attention to innovative opportunities linked to endogenous resources of the territory.

- Promote And generate local services, leisure and training that respond to the needs raised in the rural environment.

- To Promote job creation possibilities of access for girls and women, developing tourism, dependent care, and quality products and handicrafts.

- To take and encourage investment in rural areas.

6. Discussion

The implementation of a new production model is essential for the conservation and landscaping recovery of this region where the lack of structuring of the sector makes it impossible for the professional execution of the management of forestry and thus adequate to the needs of cultural practices are guaranteed the species.

The landscape is not a product of chance. Nor it is defined by the description or aesthetic, emotional or landscape assessments. It represents a social order in the intimate nature-society identity, so landscapes are created and recreated permanently. They are the expression of a space that can be reconstructed. The rich landscape phenomenology refers to a range of existing causalities in the history of the natural-social. They are decanting of history and socio-economic structures ie, culture objectified in space. The process of evolution, transformation and genesis of human landscapes is explained by the use and management that companies established in the valley have given to the physical, biotic and human resources.

In recent years the landscape tourism have tried to innovate in terms of what concerns tourism products, which has led to a greater demand by the demand in terms of diversification of supply. Therefore, it is necessary to add value to products in order to achieve a better positioning of tourist destinations. Rural or ecological international tourism has presented an increasing demand, as this activity brings great development benefits to local communities, because it appears as a favorable economic alternative, new income, developed through its implementation in value.

In researching national experiences were studied from this, it was found that tourist routes of forestry allow energize different sectors of the economy, also showing the potential and the resources with which it has a certain area, also allowing the use of same. An important factor of these products is sustainability and sustainability, in this sense, it was known that the state of the study area; the birthplace that has a wide range of tourism products, with their level of development emerging around this activity.

Regarding social processes must also respect the diversity within the urban system. For example, the alternatives proposed by various public and private sectors in the Bierzo are all useful and necessary to effectively manage the urban forest ecosystem. The complexity of managing urban vegetation can not be the work of a single institution; an isolated on urban ecosystem approach could not accommodate the needs of an extremely heterogeneous population. This diversity is still crucial when differences

result in disagreements about what should be done. Urban areas are spatially and socially dynamic places, and such a conflict - between urban and rural values, groups of high and low income, private entities and state or divergent interests of different genres is inevitable and necessary.

Respect for a healthy environment and favoring the economy of the region is faced with how different governments manage these. It is of vital importance to enhance the environmental protecion and follow lar European standards in reply forest protecion both in the field of flora and fauna, as well as the protecion of depressed urban areas and its value for the one responsabe use.

We can not forget is that many forest farms in this area are privately owned so the public administration must be strong in the demand for thinnings and their protecion as well as require fenced to the hunting grounds to minimize acidentes the impact of these animals can cause roads and rural areas.

It must continue aid by the administration to continue the process of implementing the landscape model. This means that all administrations have competence in the management of this region should support each other to crave consegir consensus on areas such as forest management, water management or use of the mountains.

Analysis and planning of rural areas must take into account two fundamental issues. On the one hand, the rural space is a space mutation, with profound changes in the recent past, probably amplified in the near future. In addition, consider the high heterogeneity of space, accentuated by the recent transformations. In order, economic development on the one hand and environmental improvement in the region on the other, forest planning should include human and environmental needs, when developing programs.

In the region, there is an imbalance between urban and rural areas (rural-urban). The solution can be approached with a plan to develop actions to improve the quality of life of the rural population by creating new economic opportunities, always within a context of sustainable development.

On wildlife and its protection, creating areas-protecting is a good way for people to have a free space of human activities. Roads and Transport routes should be "ecological steps" for these populations to move along the territory, both regional and provincial levels. As reported by the foundation of "brown bear" specify the number of brown bears currently inhabit the bercina geography is an almost impossible job because of

continuous movement l copies made by the known corridor Cantabrico. The current census is more than two hundred copies. Although difficult, the protecion of the brown bear begins to be a fact that also allows Protecon of other animals and plants that live with this. Thus creating not only more actuaria-protecting areas on the vegetation and fauna in pqeligro but it also will act on all exosystem and next to this areas.

Regarding poaching, greater control by the "civil guard" led by the division of seprona, would have a positive impact and would be a aumneto money in public coffers, pudioendo allocate this money for better land management and protecion against different factors that degrade this.

7. Conclusions

It has chosen this area for their high ecological value and great posivilidades that this region emerge. For my part this art is the region where I was born and where he lived so it's easier for my analysis. also for the continuity of this from the thesis of my studies diploma named "Comparison Between the production of Pyrus L. cummunis in the Bierzo region and the production of Czech republic" porvablemente that you can find in the university library Mendel or the computer system of the university of Avila (UCAV).

Forestry and protection this region can give a positive impetus to the search for new forms of economic and social desarroyo. Protecion sensitive areas faces on forest exploitation of a not too distant past but can be balanced within the Natura 2000 network.

This region needed a good analysis to know the different possibilities you have, and to solve the probem unemployment has at present the region by unemployment of the mining industry; both coal mining and farms granite and slate.

From this study, it can be said that there is a close relationship between tourism and local development from the performance and value of the different sectors as well as better management of forest resources of the region, the need diversification of tourism by visitors is a requirement to closer to the different ecosystems that make up the territory, so as searching and value of resources potentially as part of the activity of interpretation and recovery from local development approach.

This being the essence of research, study and analysis of the potential that owns the territory and may determine that it has great biodiversity resources of a high level of achievement was made.

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9. Appendix

Appendix 1

Fig 1. Maps of province of Vierzo.
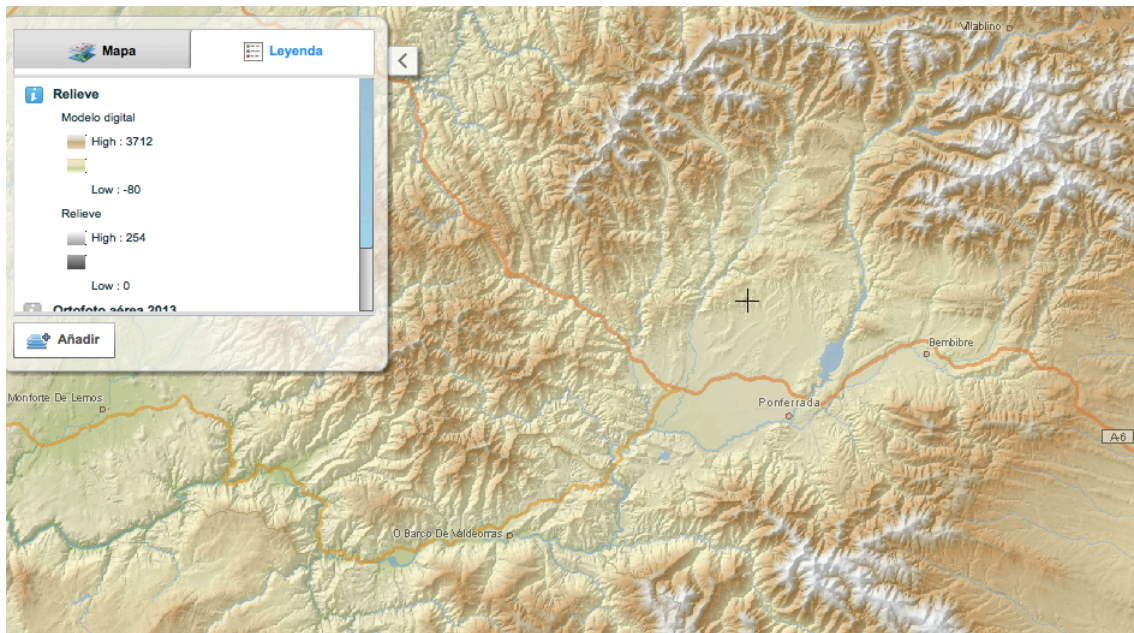
Fig 2. Bumpmap, Magrama 2016.
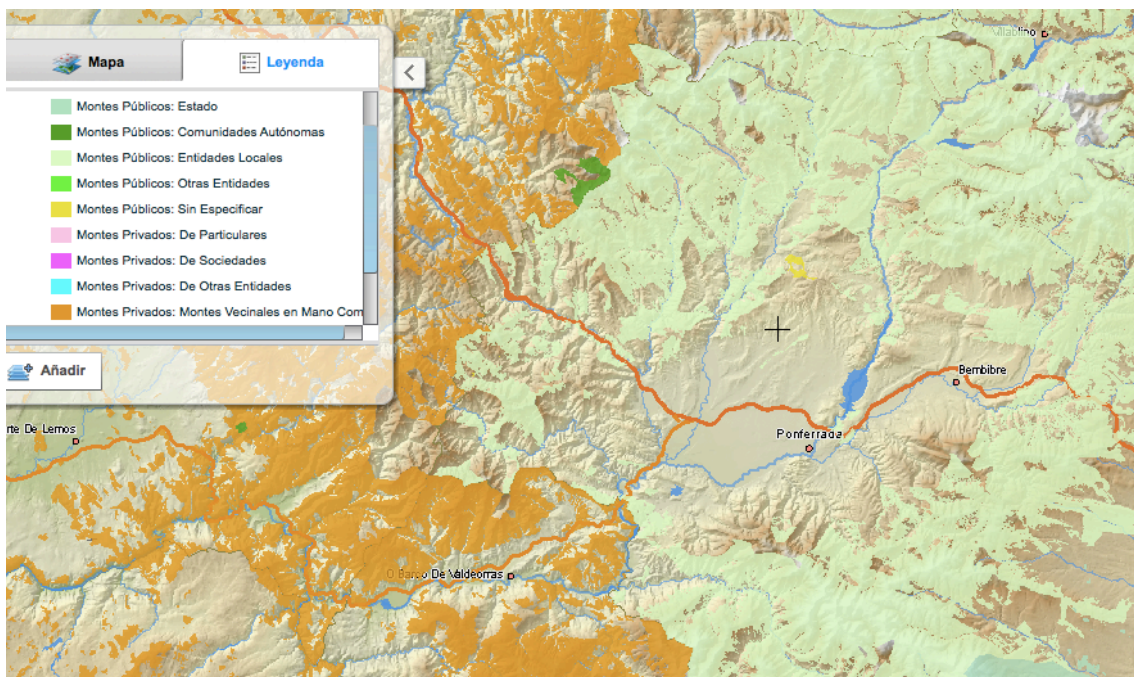
Fig 3. Map owned by forests; Magrama 2016. A).- Public forests: state, B).- Public forests: autonomous communities, C).- Public forests: local entities, D).- Public forests: other entities, E).- Public forests: Unspecified, F).- Private forests: particular, G).- Private Forests: companies, H).- Private forests: other entities, I).- Private forests: neighborhood.
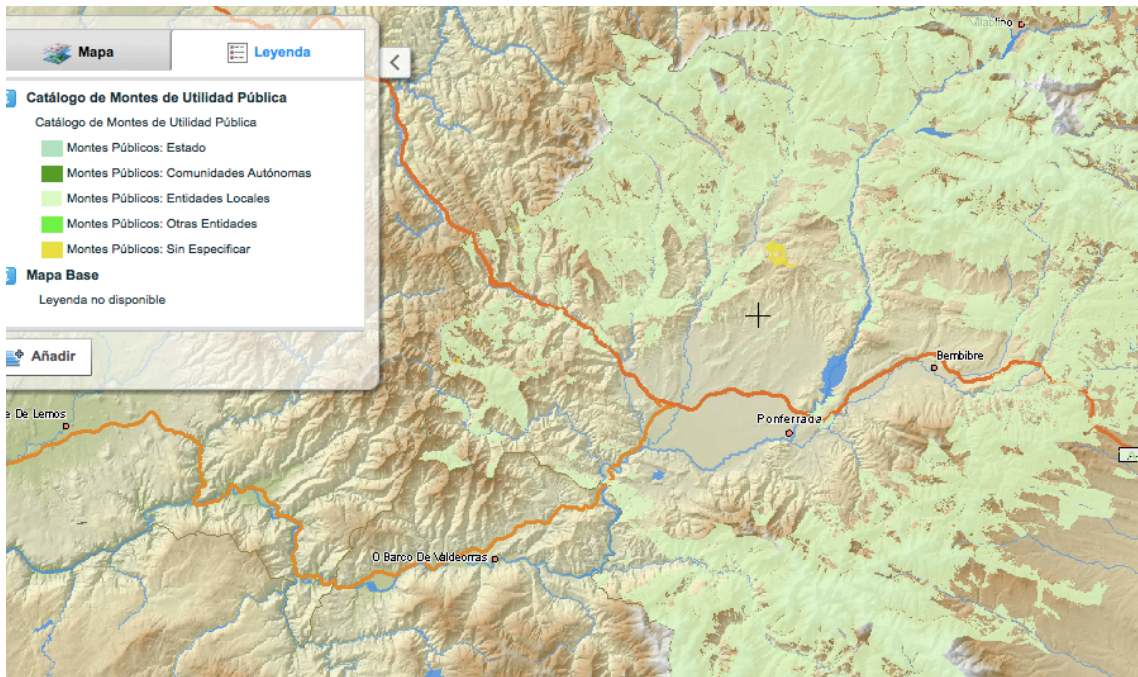
Fig 4. Catalog forests of public utility, Magram 2016.
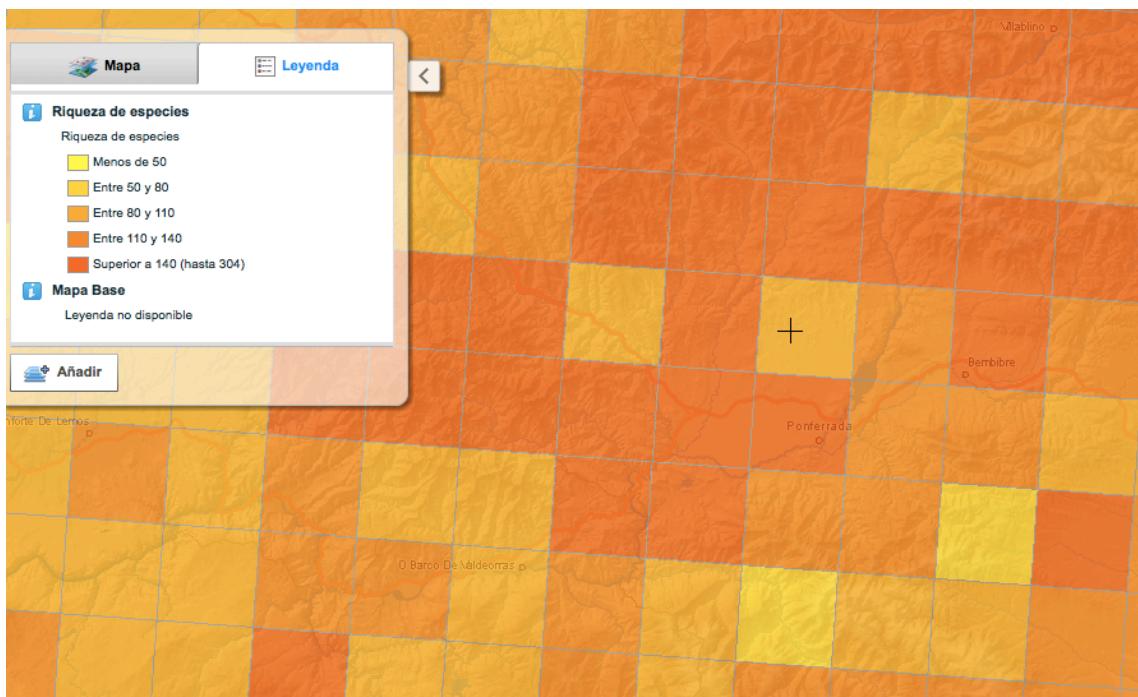
Fig 5. Species richness map, Magrama 2016.
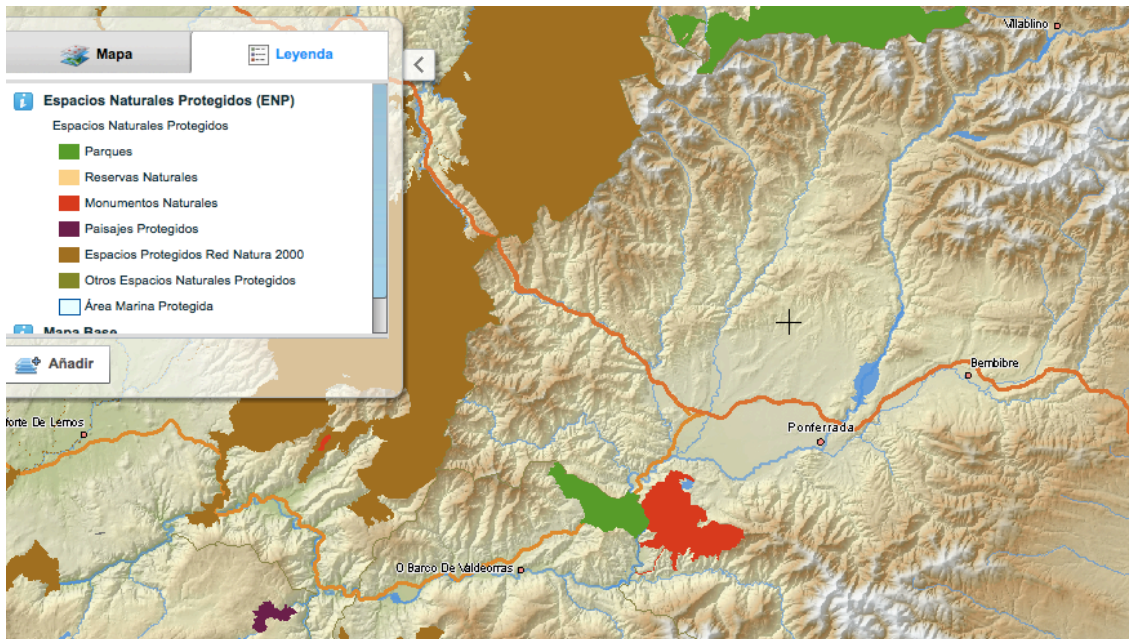
Fig 6. Map of protected natural areas, Magrama 2016. A).- Parks, B).- Natural reserve, C).- Natural monuments, D).- Protected areas, E).- Natura 2000 network, F).- Other protected areas, G).- Marine protected areas.
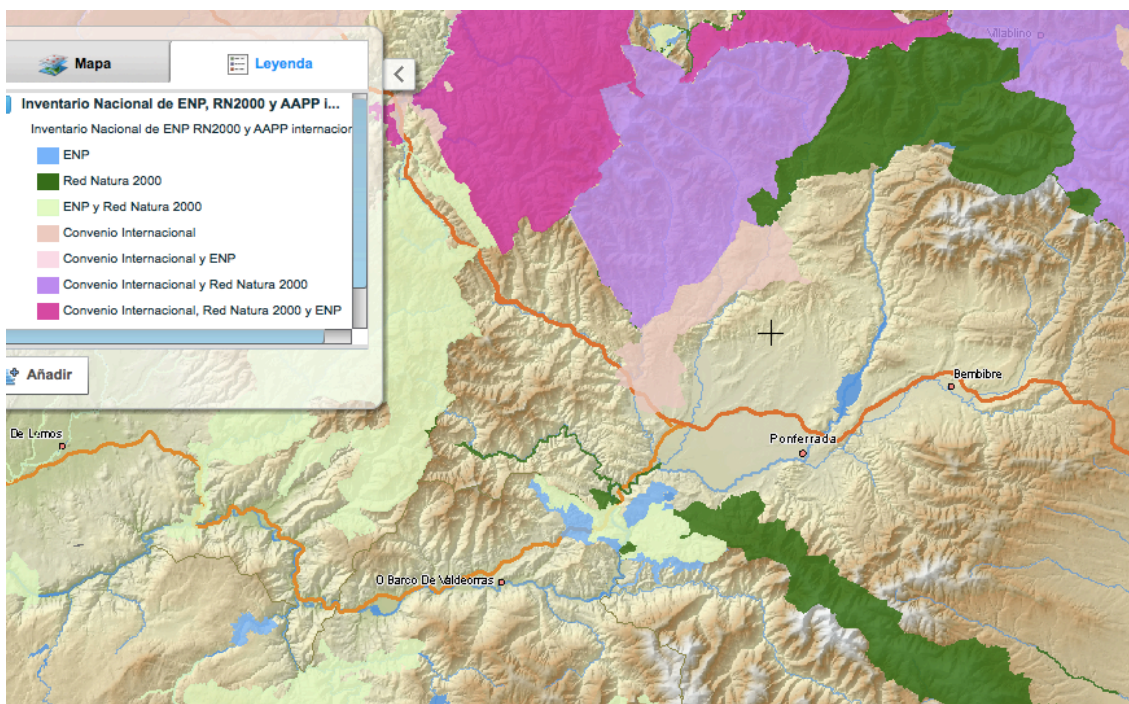
Fig 7. Map of national inventory protected natural areas, Magrama 2016.
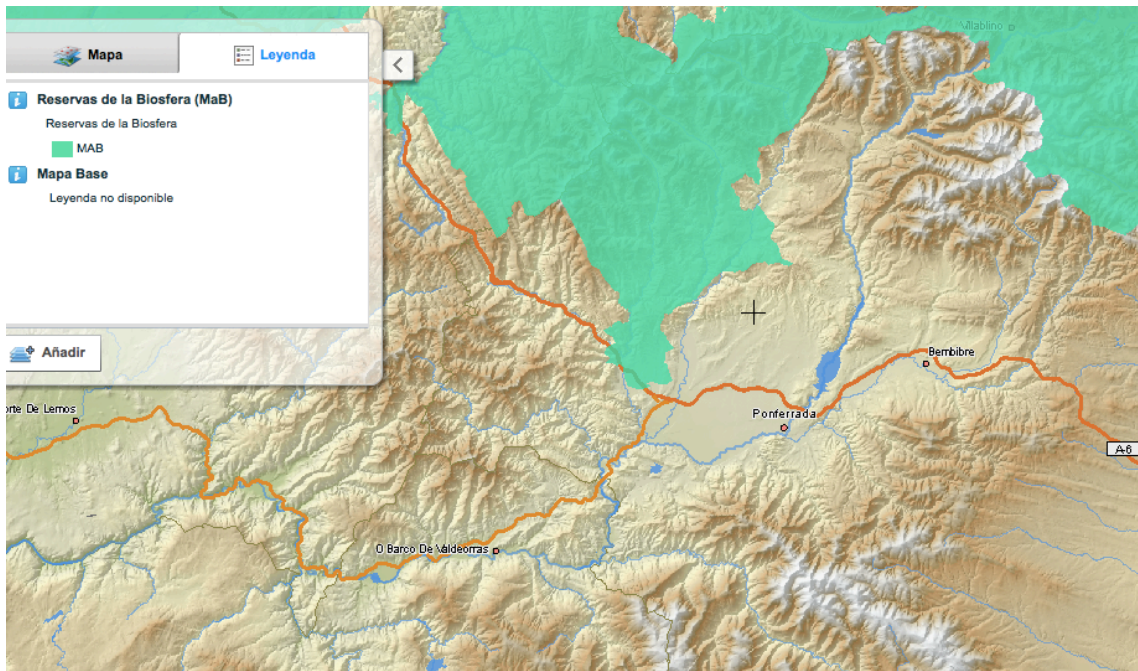
Fig 8. Biosphere reserve map, Magrama 2016.
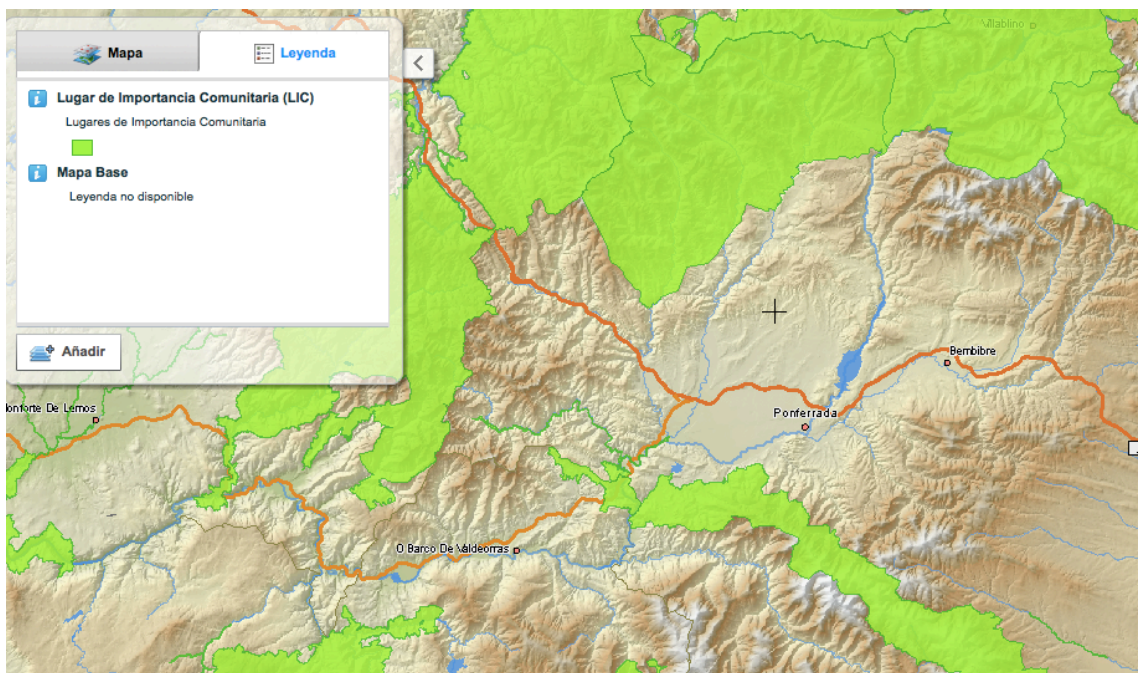
Fig 9. Map of sites of Community importance, Magrama 2016.
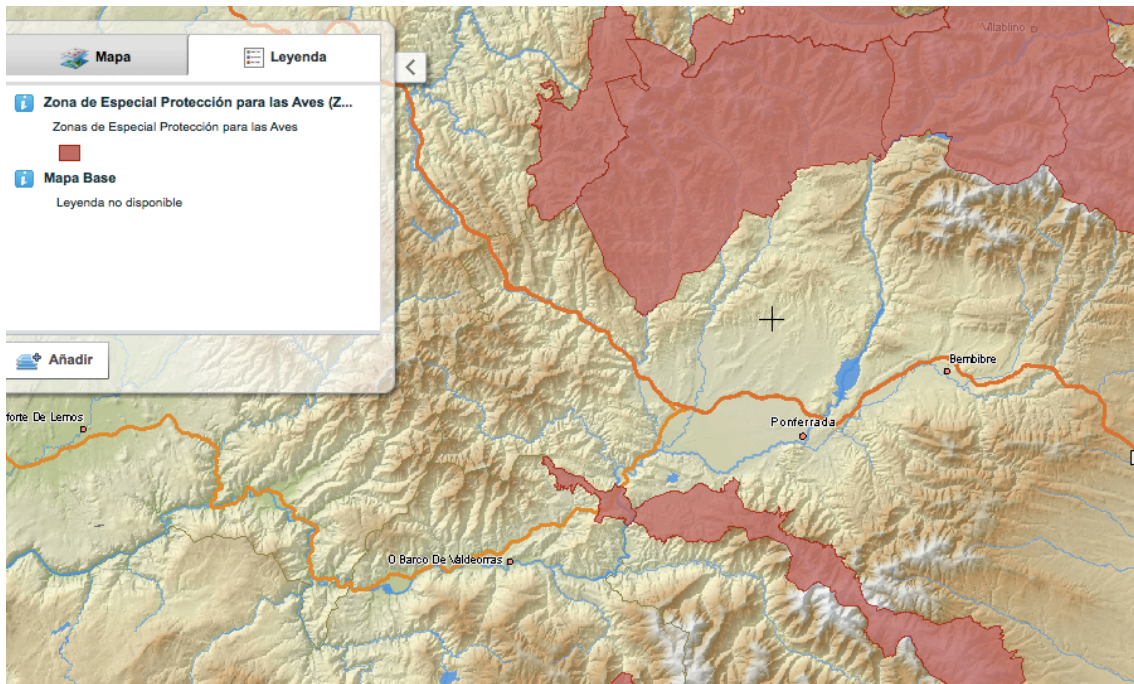
Fig 10. Map of protection zones for birds, Magrama 2016.
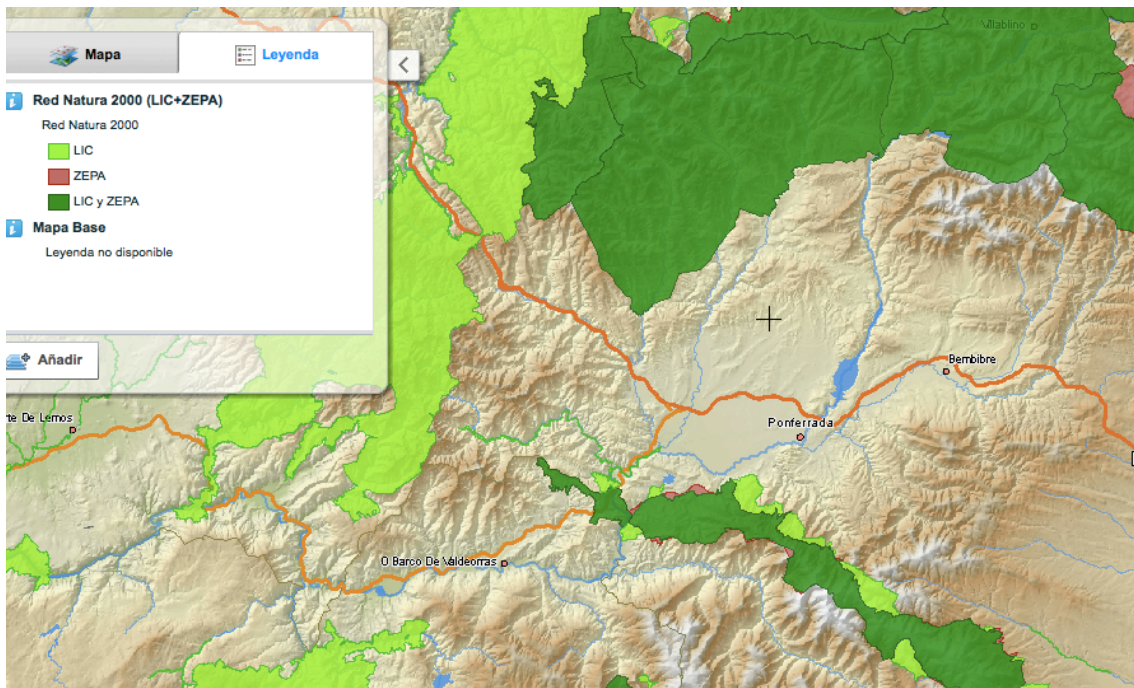
Fig 11. Map of Nature Network 2000, Magrama 2016.
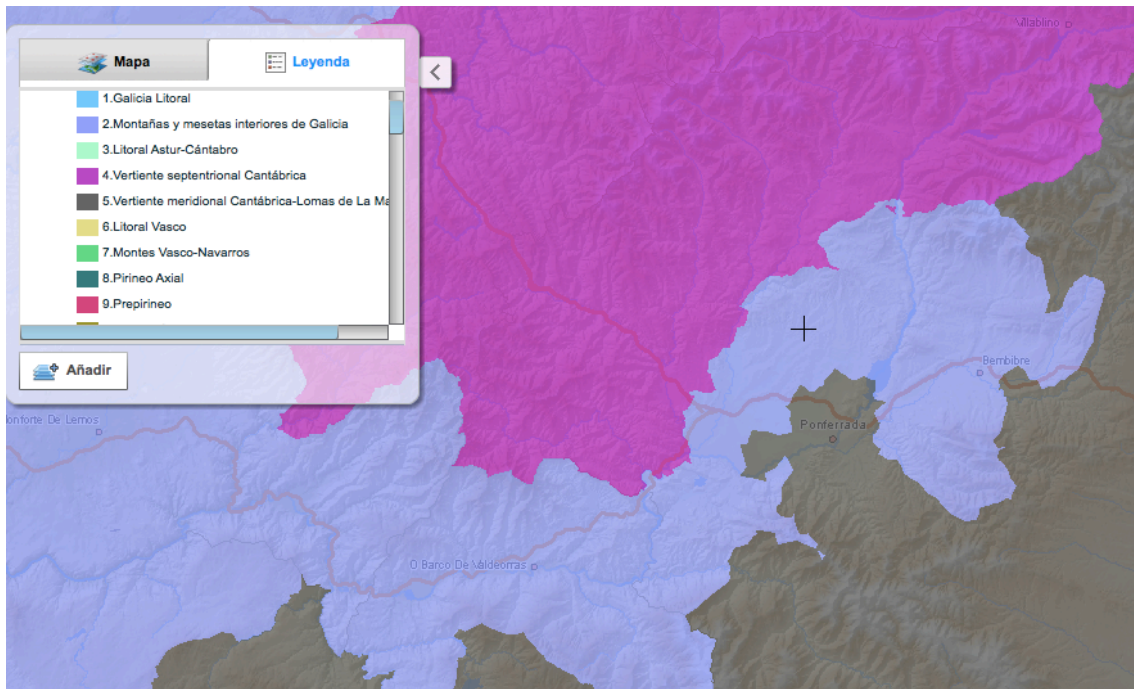
Fig 12. Region of origin genetic resources, Magrama 2016.
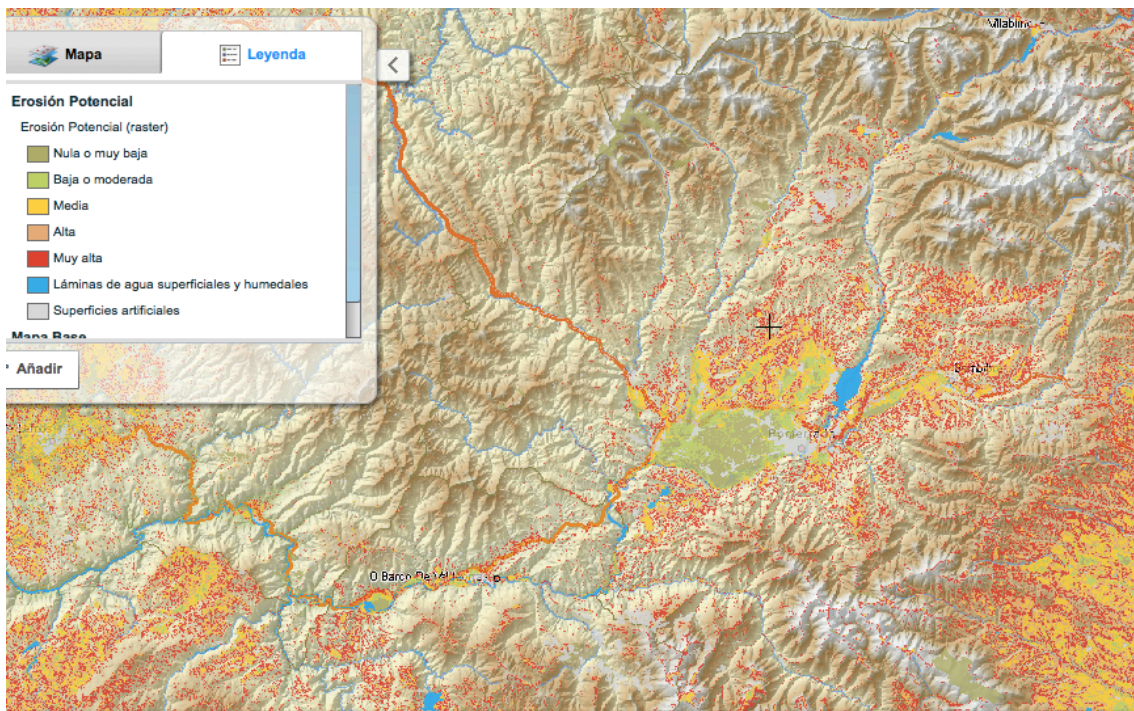
Fig 13. Map of erosion potential, Magrama 2016. A).- Zero or very low, B).- Low or moderate, C).-Half, D).-high, E).-Very high, F).-Surface water and wetlands, G).-Artificial surfaces
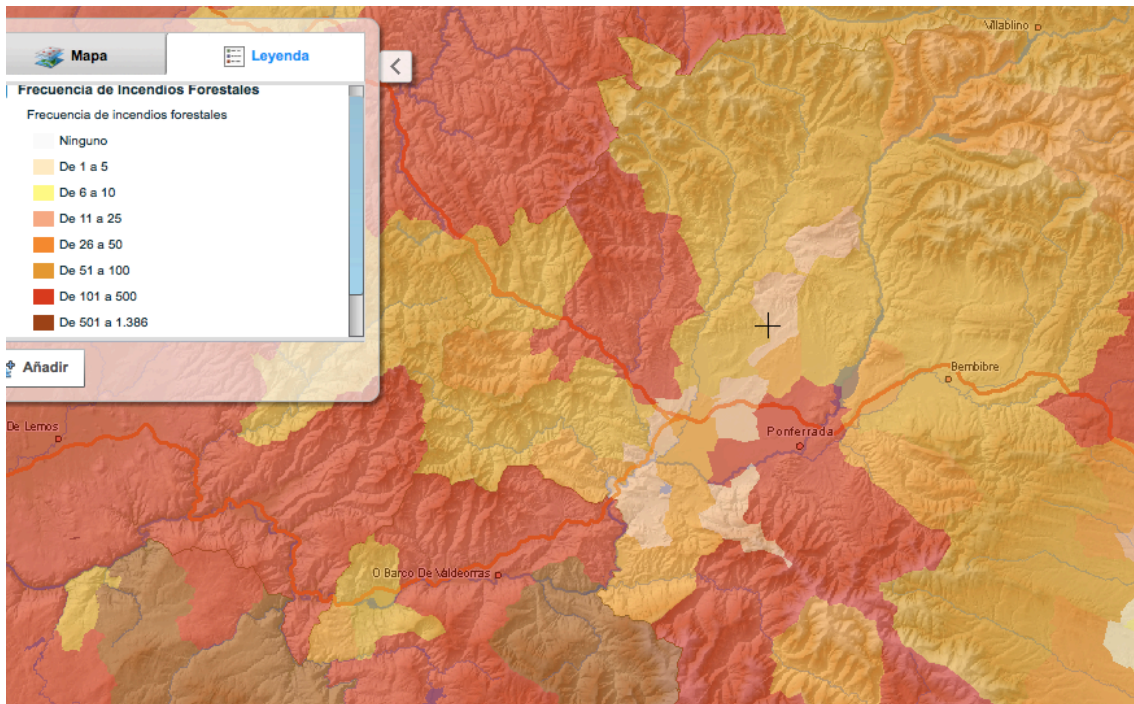
Fig 14. Map of frequency of forest fires, Magrama 2016.
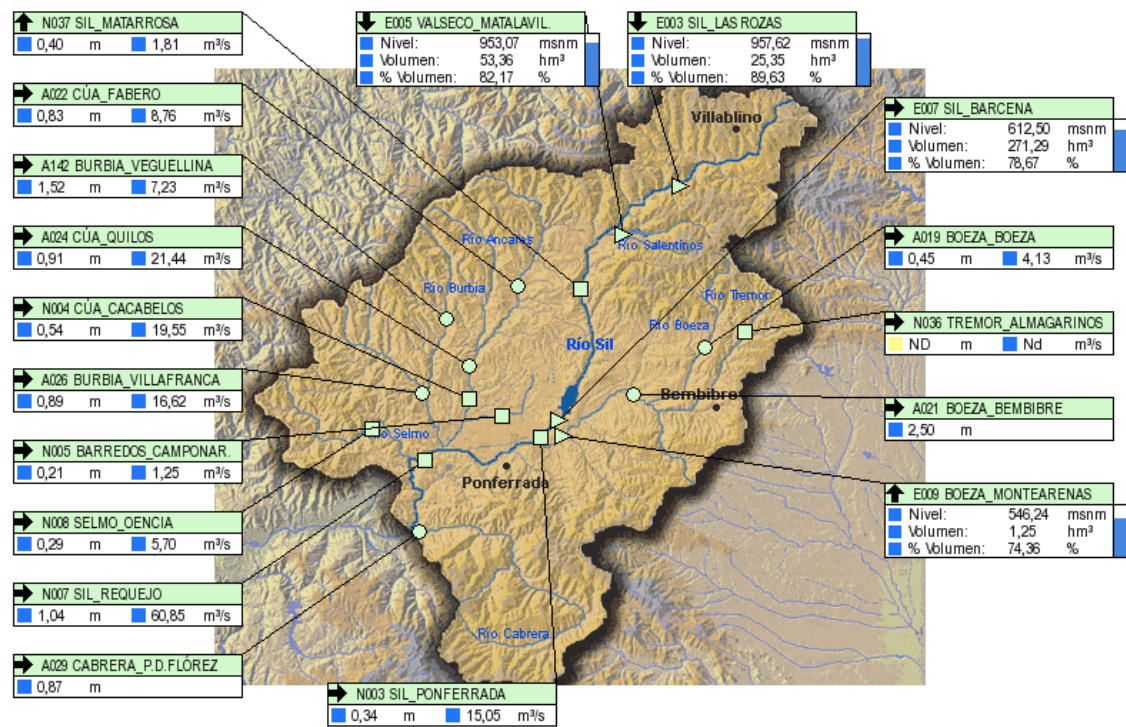
Fig 15. Water level in each river basin, 2016.

Appendix 2.

Pic 1. Busmayor, near beech forest. Pablo F. Arias 2015.

Pic 2. Waterfalls of Busmayor. Pablo F. Arias 2015.

Pic 3. Galician massif mountains. Pablo F. Arias, 2014.

Pic 4. Output peñalba de santiago direction to the cave San Genadio. Pablo F. Arias, 2013.

Pic 5. Reservoir Of Barcena with the thermal power plant of Compostilla II. Pablo F. Arias

Pic 6. Reservoir Of Barcena with the thermal power plant of Compostilla II. Pablo F. Arias 2014.

Pic 7. Valley view Bierzo from Prada de la Sierra. Pablo F. Arias 2014

Pic 8. Lake of Carucedo. Pablo F. Arias, 2013.

Pic 9. Waterfalls of Gualton. Pablo F. Arias. 2013.

Pic 10. Monastery of Montes de Valdueza. Pablo F. Arias. 2012.

Pic 11. Ponferrada views from Riego de Ambrós. Pablo F. Arias. 2014.

Pic 13. Ponferrada - Castle of the Templars. Pablo F. Arias 2015

Pic 14. Montains near Matavenero. Pablo F. Arias 2014.

Appendix 3

Climatic data.

Province	Altitude	Year	Month	T.Avarage	T.Max.Avarage	T.Min.Avarage	Froze days	Total rainfall	Rainfalldays	Snow days	Hail days	Wind avarage	Insolation ava	%Insol	Pressure	Pressure A. level of see
LEON	534	1979	1	5,4	8,2	2,6	6	156,6				1,9	1,7	18	949,6	1015,1
LEON	534	1979	2	7,2	10,7	3,6	8	208,9				1,9	3,2	29	949,3	1014,4
LEON	534	1979	3	7	11	3,1	1	102,2				2,8	3,6	31	952,2	1017,6
LEON	534	1979	4	9,8	14,9	4,8	2	50,1				3,9	6	44	954,4	1019,2
LEON	534	1979	5	13,9	19,8	7,9	0	55,2				2,5	7,1	49	954,5	1018,2
LEON	534	1979	6	19,4	26,6	12,1	0	21,9				2,2	10	66	955,8	1018,1
LEON	534	1979	7	22,6	30,2	15	0	32				2,2	10,5	70	956,8	1018,5
LEON	534	1979	8	20,8	28,3	13,2	0	0,8				3,3	10,5	75	955,4	1017,5
LEON	534	1979	9	18,9	26	11,8	0	1,6				1,7	6,8	55	957,2	1019,9
LEON	534	1979	10	12,3	16,4	8,2	0	112,9				1,4	3,2	30	948,3	1012
LEON	534	1979	11	7,4	12,1	2,8	9	72,4	9	0	0	0,8	5,5	57	959,4	1025,2
LEON	534	1979	12	6,7	9,9	3,4	4	65				1,7	2,2	24	958,9	1024,7
LEON	534	1980	1	5,3	8,8	1,8	11	84,1				1,4	3	32	954,1	1020,1
LEON	534	1980	2	7,7	12,1	3,3	4	57,4				1,4	4,5	42	957,9	1023,4
LEON	534	1980	3	8,7	13,4	4	2	61				2,8	4,8	40	951,5	1016,4
LEON	534	1980	4	11,5	18,3	4,7	0	37,2				2,2	7,9	59	954,1	1018,4
LEON	534	1980	5	13	18,1	7,8	0	83,7				2,8	6,6	45	951,3	1015,1
LEON	534	1980	6	16,9	22,8	11	0	47,5				3,1	8,4	55	954,8	1017,8
LEON	534	1980	7	19,4	26,9	11,8	0	6,6				3,1	10	67	955,2	1017,6
LEON	534	1980	8	21,8	29,3	14,3	0	13,6				3,1	9,8	70	956,1	1018
LEON	534	1980	9	19,1	26,3	11,9	0	29,1				1,7	7,7	61	956,8	1019,5
LEON	534	1980	10	12,8	17,4	8,2	0	51,2				2,2	4,9	45	954,9	1019
LEON	534	1980	11	7,1	11,2	3	5	73,8				0,8	4,2	43	954,8	1020,3
LEON	534	1980	12	3,1	7,2	-0,9	22	52,3				1,4	4,1	45	963,8	1030,9
LEON	534	1981	1	3,1	7	-0,8	20	10,1				1,1	3,9	40	965,3	1032,5
LEON	534	1981	2	5,5	10,8	0,2	16	40,9				1,9	5,5	53	956,7	1022,7
LEON	534	1981	3	10,4	14,8	6	2	55,1				1,9	3,7	30	951,6	1016,1
LEON	534	1981	4	10,6	16,1	5,1	0	40,3				2,2	5,5	40	951,8	1016,2
LEON	534	1981	5	12,6	17,4	7,7	0	62,6				2,8	5,2	36	951	1014,9
LEON	534	1981	6	19,7	27	12,3	0	5,5				1,7	9,8	64	955,1	1017,6
LEON	534	1981	7	20,8	28,7	12,9	0	0,2				2,5	10,5	70	957,1	1019,3
LEON	534	1981	8	21,9	29,5	14,3	0	33,3				1,7	8,6	62	955,1	1017
LEON	534	1981	9	18,1	24,2	12	0	92,5				1,9	6,1	49	954,7	1017,6
LEON	534	1981	10	12,7	16,5	8,9	0	104				1,4	3,9	36	956,1	1020,3
LEON	534	1981	11	8,5	13,6	3,4	2	2,6				0,3	5,3	53	963,3	1029
LEON	534	1981	12	6,5	9,1	3,9	6	209,4				2,5	0,9	10	947,6	1012,8
LEON	534	1982	1	6.3	9.5	3	7	35.1				0,8	2,7	28	957.4	1023.3

Province		Altitude	Year	Month	T.Avarage	T.Max.Avarage	T.Min.Avarage	Froze days	Total rainfall	Rainfalldays	Snow days	Hail days	Wind avarage	Insolation ava	%Insol	Pressure	Pressure A. level of see
PONFERRADA	LEON	534	1982	2	7,1	11,4	2,8	4	32,6				1,4	4,4	42	955,2	1020,7
PONFERRADA	LEON	534	1982	3	9	14,8	3,1	3	6,8				2,2	6,9	58	958,1	1023,3
PONFERRADA	LEON	534	1982	4	12,8	20	5,6	0	18,6	7	0	1	1,9	7,8	58	952	1015,8
PONFERRADA	LEON	534	1982	5	14,9	21,4	8,4	1	32	10	0	3	2,8	7,3	50	955,5	1019,1
PONFERRADA	LEON	534	1982	6	18,7	24,7	12,6	0	27,7				2,8	7,8	51	954,4	1017
PONFERRADA	LEON	534	1982	7	21,2	28,2	14,3	0	20,2				3,1	8,7	58	954	1015,9
PONFERRADA	LEON	534	1982	8	21	28,8	13,2	0	1,6	3	0	0	2,5	10	72	955,7	1017,8
PONFERRADA	LEON	534	1982	9	19	25,4	12,7	0	80,5				1,7	6	47	955	1017,6
PONFERRADA	LEON	534	1982	10	12,1	16,1	8,1	0	84,7				2,2	3,8	35	954,9	1019,2
PONFERRADA	LEON	534	1982	11	8,3	11,6	5	1	97,7				1,4	2,9	30	955,3	1020,5
PONFERRADA	LEON	534	1982	12	5,5	7,9	3	7	90,4				2,2	1,1	12	960,1	1026,4
PONFERRADA	LEON	534	1983	1	3,2	7,1	-0,6	21	7,7				0,3	3	32	969,8	1037,4
PONFERRADA	LEON	534	1983	2	5,5	9,2	1,9	13	61,4				1,4	2,8	27	955,1	1021
PONFERRADA	LEON	534	1983	3	10,2	16	4,5	0	25,8					6	51	958,4	1023,2
PONFERRADA	LEON	534	1983	4	9,5	13,9	5	1	105,5					3,6	27	948,6	1013,1
PONFERRADA	LEON	534	1983	5	11,8	16,4	7,3	0	83				2,2	5,2	35	950,3	1014,3
PONFERRADA	LEON	534	1983	6	19,4	27	11,9	0	9,7				1,7	10	65	955,2	1017,6
PONFERRADA	LEON	534	1983	7	20,9	27,5	14,3	0	87				1,1	7,6	50	952,8	1014,7
PONFERRADA	LEON	534	1983	8	19,4	25,7	13,2	0	84,8				1,9	6,7	48	955	1017,4
PONFERRADA	LEON	534	1983	9	19,1	26,2	12	0	4,7				1,7	8	64	956,2	1018,8
PONFERRADA	LEON	534	1983	10	13,8	20,2	7,4	0	25,8				0,8	6,5	59	959,1	1023,2
PONFERRADA	LEON	534	1983	11	11,5	14,9	8	0	53,2				1,4	2,1	21	951,7	1015,9
PONFERRADA	LEON	534	1983	12	4,6	8,6	0,7	13	118,9	13	2	0	0,6	3,4	37	955	1021,2
PONFERRADA	LEON	534	1984	1	5,5	8,4	2,5	7	79,5				1,9	2	21	959,4	1025,6
PONFERRADA	LEON	534	1984	2	5,4	10	0,8	15	35,3				1,7	4,5	43	959,1	1025,3
PONFERRADA	LEON	534	1984	3	6,9	12,5	1,3	15	75,4				2,8	4,4	38	949,8	1015
PONFERRADA	LEON	534	1984	4	15,1	21,3	8,8	0	38,9				2,2	7	52	950,8	1014,1
PONFERRADA	LEON	534	1984	5	10,5	15,4	5,6	0	65,6				3,1	5,4	37	947,4	1011,5
PONFERRADA	LEON	534	1984	6	18,3	24,4	12,1	0	79,2				1,7	8	53	954,1	1016,7
PONFERRADA	LEON	534	1984	7	21,5	29,2	13,7	0	12,2				1,9	11,2	75	955,3	1017,2
PONFERRADA	LEON	534	1984	8	20	27,7	12,2	0	35,6				1,9	9,7	70	955,1	1017,4
PONFERRADA	LEON	534	1984	9	16,8	23,7	9,9	0	37,3				2,2	7,9	63	954,7	1017,7
PONFERRADA	LEON	534	1984	10	12,2	17,3	7,1	0	122,9				1,1	5,6	51	956,4	1020,7
PONFERRADA	LEON	534	1984	11	8,5	11,6	5,5	2	193,3				1,1	2	21	947	1011,7
PONFERRADA	LEON	534	1984	12	6,1	8,9	3,3	3	49,5				1,1	2,1	23	959,3	1025,4
PONFERRADA	LEON	534	1985	1	2,4	5,8	-1	20	90				0,8	3,2	34	950,4	1016,8
PONFERRADA	LEON	534	1985	2	7,8	11,9	3,6	8	179,7				1,4	3,3	31	952,3	1017,4
PONFERRADA	LEON	534	1985	3	7,5	12,3	2,7	5	82				2,2	4,7	39	954,1	1019,4
PONFERRADA	LEON	534	1985	4	12,2	18,2	6,2	0	67,6				2,2	6	44	950,7	1014,6

#	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
78	PONFERRADA	LEON	534	1985	5	13	18,9	7,2	0	57,3				2,2	6,7	46	950,1	1013,7
79	PONFERRADA	LEON	534	1985	6	18,4	25,2	11,7	0	24,7				1,7	8,6	56	953,1	1015,6
80	PONFERRADA	LEON	534	1985	7	22,4	29,7	15	0	26				2,2	9,4	63	954	1015,6
81	PONFERRADA	LEON	534	1985	8	19,7	27,5	11,9	0	0,4				2,2	10,1	72	955,9	1018,3
82	PONFERRADA	LEON	534	1985	9	20,6	28,3	12,9	0	0,6				1,1	6,8	54	956,8	1019,1
83	PONFERRADA	LEON	534	1985	10	14,1	20,9	7,3	0	6,1	4	0	0	0,8	7,3	66	957	1020,9
84	PONFERRADA	LEON	534	1985	11	6,7	10,6	2,8	14	111,9	14	0	0	1,1	3,5	36	951,5	1016,9
85	PONFERRADA	LEON	534	1985	12	4,7	7,5	1,8	12	134,8	16	2	1	0,8	1,2	13	955,4	1021,6
86	PONFERRADA	LEON	534	1986	1	5,2	8,4	2	8	103,5	14	4	0				957,3	1023,5
87	PONFERRADA	LEON	534	1986	2	5,3	8	2,5	6	131,6	21	4	0	1,7	1,8	17	944,4	1009,7
88	PONFERRADA	LEON	534	1986	3	8,5	13	4	2	35,5	15	2	0	2,2	4,2	35	955,4	1020,6
89	PONFERRADA	LEON	534	1986	4	7,9	12,6	3,2	4	42,5	15	2	2	2,8	5,5	41	949	1013,9
90	PONFERRADA	LEON	534	1986	5	15,8	22,4	9,2	0	16,7	10	0	2	2,5	9,4	64	953,9	1017,1
91	PONFERRADA	LEON	534	1986	6	18,9	26,3	11,5	0	10,1	5	0	0	2,2	10	66	952,8	1015,1
92	PONFERRADA	LEON	534	1986	7	23	31,2	14,8	0	0	0	0	0	2,5			954,8	1016,3
93	PONFERRADA	LEON	534	1986	8	19,8	27,1	12,6	0	8,2	7	0	0	2,2			953,5	1015,8
94	PONFERRADA	LEON	534	1986	9	18,6	23,8	13,5	0	146,5	16	0	0	0,8			955,4	1018,1
95	PONFERRADA	LEON	534	1986	10	13,9	18,5	9,3	0	42,8	13	0	0	0,8			957,4	1021,3
96	PONFERRADA	LEON	534	1986	11	7,4	11,6	3,1	5	47,5	13	0	0	0,6			959,2	1024,9
97	PONFERRADA	LEON	534	1986	12	4,7	8,3	1,1	11	41,5	15	0	0	1,1			963,2	1029,8
98	PONFERRADA	LEON	534	1987	1	3,7	7,3	0,2	17	64	9	5	0	1,4			953,7	1020
99	PONFERRADA	LEON	534	1987	2	6	10,1	1,9	10	98,5	12	2	0	1,7			953	1018,6
100	PONFERRADA	LEON	534	1987	3	10,2	15,5	4,8	3	36	15	0	0	2,5			954,8	1019,5
101	PONFERRADA	LEON	534	1987	4	12,7	17,9	7,5	0	65,8	14	0	3	3,1			951,8	1015,7
102	PONFERRADA	LEON	534	1987	5	15,5	22,7	8,2	0	5,1	3	0	0	3,1			953,3	1016,5
103	PONFERRADA	LEON	534	1987	6	18,4	25,3	11,6	0	27,3	11	0	0	3,3			955	1017,7
104	PONFERRADA	LEON	534	1987	7	21,9	29,3	14,5	0	14,3	12	0	0	3,1			953,4	1015
105	PONFERRADA	LEON	534	1987	8	22,8	30,7	14,9	0	10,5	7	0	0	2,5			952,8	1014,3
106	PONFERRADA	LEON	534	1987	9	20,3	26,7	13,9	0	89,4	8	0	2	1,7			954,6	1016,8
107	PONFERRADA	LEON	534	1987	10	11,5	14,9	8,2	0	182	27	0	1	2,2			949,4	1013,5
108	PONFERRADA	LEON	534	1987	11	8,8	12,3	5,3	3	39,1	9	2	0	1,4			955,9	1021,1
109	PONFERRADA	LEON	534	1987	12	6,5	9,3	3,7	6	77,7	19	1	0	1,1			953,5	1019,1
110	PONFERRADA	LEON	534	1988	1	7,2	10	4,3	1	115,3	25	2	0	2,5			952,5	1017,8
111	PONFERRADA	LEON	534	1988	2	7,1	11,7	2,6	7	55,1	13	2	0	3,1			955,2	1020,7
112	PONFERRADA	LEON	534	1988	3	9	15,2	2,9	9	11,9	10	0	0	2,5			957,6	1022,7
113	PONFERRADA	LEON	534	1988	4	10,7	15,2	6,2	0	84,1	27	0	0	2,2			949,7	1013,7
114	PONFERRADA	LEON	534	1988	5	14,2	19	9,5	0	77,8	22	0	0	2,8			949,6	1013
115	PONFERRADA	LEON	534	1988	6	17,5	23,3	11,6	0	66,7	17	0	0	1,9			950,6	1013,2
116	PONFERRADA	LEON	534	1988	7	19,8	26,6	13	0	38,3	10	0	0	3,1			954,6	1016,8
117	PONFERRADA	LEON	534	1988	8	20,7	28,4	13	0	0,8	1	0	0	3,1			953,5	1015,5
118	PONFERRADA	LEON	534	1988	9	17,8	25,5	10,1	0	5,8	2	0	0	2,5			957,3	1020,2
119	PONFERRADA	LEON	534	1988	10	13,6	18,9	8,3	0	71,1	15	0	0	2,5			951,5	1015,1
120	PONFERRADA	LEON	534	1988	11	8,9	13	4,7	8	41,9	8	0	0	1,9			954,9	1020
121	PONFERRADA	LEON	534	1988	12	1,8	5,2	-1,6	23	5,3	5	0	0	0,6			964,3	1031,9
122	PONFERRADA	LEON	534	1989	1	2,1	6,5	-2,2	25	16,4	5	0	0	0,6			965,3	1032,9
123	PONFERRADA	LEON	534	1989	2	6,5	11,9	1,2	10	70,8	7	2	1	1,7			958,7	1024,6
124	PONFERRADA	LEON	534	1989	3	10,6	17	4,3	3	43	12	0	0	2,2			954,7	1019,3
125	PONFERRADA	LEON	534	1989	4	9,2	13,8	4,7	0	90,2	21	1	1	3,1			948,5	1013
126	PONFERRADA	LEON	534	1989	5	17,4	24,1	10,7	0	67,1	17	0	1	1,9			952,8	1015,5
127	PONFERRADA	LEON	534	1989	6	19,6	26,6	12,6	0	46,3	6	0	0	2,2			954,1	1016,4
128	PONFERRADA	LEON	534	1989	7	24,1	32,2	16	0	24,9	6	0	0	2,2			955	1016,3
129	PONFERRADA	LEON	534	1989	8	22,1	29,4	14,9	0	42,4	8	0	0	2,5			952,7	1014,4
130	PONFERRADA	LEON	534	1989	9	17,7	24,8	10,6	0	29,5	3	0	0	1,9			953,8	1016,6
131	PONFERRADA	LEON	534	1989	10	14,9	21,2	8,7	0	69,9	11	0	0	1,7			956,2	1019,8
132	PONFERRADA	LEON	534	1989	11	10,4	13,3	7,5	0	88,3	25	0	0	2,2				
133	PONFERRADA	LEON	534	1989	12	10,1	12,6	7,5	0	159,3	28	0	0	3,6			947,1	1011,4
134	PONFERRADA	LEON	534	1990	1	4,4	7,6	1,2	12	65,3	12	1	0	1,1			960,1	1026,7
135	PONFERRADA	LEON	534	1990	2	9,9	14,1	5,6	1	21,1	14	0	0	1,9			959,1	1024,1
136	PONFERRADA	LEON	534	1990	3	11,1	17,4	4,8	0	10,9	6	0	0	2,5			962,4	1027,4
137	PONFERRADA	LEON	534	1990	4	10,5	15,6	5,4	0	23,6	18	0	0	3,3			952,9	1017,3
138	PONFERRADA	LEON	534	1990	5	17	23,6	10,3	0	46,1	13	0	0	1,9			953,5	1016,4
139	PONFERRADA	LEON	534	1990	6	19,3	25,8	12,8	0	26,9	8	0	0	2,8			952,7	1015
140	PONFERRADA	LEON	534	1990	7	23,5	31,3	15,6	0	12,9	6	0	0	2,8			955,1	1016,6
141	PONFERRADA	LEON	534	1990	8	23	30,7	15,2	0	46,2	7	0	0	2,5			955,7	1017,4
142	PONFERRADA	LEON	534	1990	9	19,6	26	13,3	0	16,8	8	0	0	2,2			953,7	1016
143	PONFERRADA	LEON	534	1990	10	13,5	17,8	9,2	0	92,8	20	0	0	2,8			949,5	1013
144	PONFERRADA	LEON	534	1990	11	7	10,6	3,3	5	57,3	13	1	0	1,4			954,1	1019,6
145	PONFERRADA	LEON	534	1990	12	3,6	7,7	-0,4	20	59,8	10	2	1	0,8			956,2	1022,7
146	PONFERRADA	LEON	534	1991	1	4,5	8,1	0,9	15	86,8	13	2	1	1,1			959,9	1026,4
147	PONFERRADA	LEON	534	1991	2	5,3	9,3	1,2	7	58,5	11	2	2	1,4			952,9	1018,7
148	PONFERRADA	LEON	534	1991	3	9,5	13,7	5,4	0	88,1	19	1	0	1,9			947,4	1011,8
149	PONFERRADA	LEON	534	1991	4	10,6	16,5	4,7	1	25,8	12	0	0	3,1			953,5	1017,9
150	PONFERRADA	LEON	534	1991	5	15,2	22,4	8	0	5,8	5	0	0	2,5			956,1	1019,6
151	PONFERRADA	LEON	534	1991	6	18,6	25,9	11,2	0	18,8	5	0	1	2,8			954,8	1017,3
152	PONFERRADA	LEON	534	1991	7	21,9	29,1	14,8	0	26,1	8	0	1	1,9			953,8	1015,5
153	PONFERRADA	LEON	534	1991	8	23,5	31,5	15,5	0	12,9	6	0	0	1,9			954,2	1015,6
154	PONFERRADA	LEON	534	1991	9	19	24,8	13,3	0	78,6	16	0	0	1,4			953,5	1015,9
155	PONFERRADA	LEON	534	1991	10	11,3	15,9	6,8	0	35,4	13	0	0	1,4			953	1017,3

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
156	PONFERRADA	LEON	534	1991	11	8,4	11,8	5,1	3	88	16	0	0	1,7			955,3	1020,5
157	PONFERRADA	LEON	534	1991	12	5,8	9,6	2	11	4,7	5	0	0	0,8			962,8	1029,2
158	PONFERRADA	LEON	534	1992	1	2,6	7,3	-2	24	24,9	4	0	0	0,8			961,4	1028,6
159	PONFERRADA	LEON	534	1992	2	6,3	12,2	0,3	11	10,6	3	1	0	0,8			960,7	1026,8
160	PONFERRADA	LEON	534	1992	3	10	16,4	3,6	0	54,8	7	2	0	2,2			957,5	1022,5
161	PONFERRADA	LEON	534	1992	4	11,8	18,2	5,4	0	47,5	8	0	0	2,8			953,2	1017,3
162	PONFERRADA	LEON	534	1992	5	16,9	23,9	9,9	0	38,6	14	0	0	2,8			952,6	1015,5
163	PONFERRADA	LEON	534	1992	6	16,1	22,1	10,1	0	49,5	18	0	0	2,5			952	1015,2
164	PONFERRADA	LEON	534	1992	7	23	30,9	15	0	14	5	0	1	2,8			955,1	1016,7
165	PONFERRADA	LEON	534	1992	8	21	27,8	14,2	0	69,8	10	0	1	3,3			953,8	1015,9
166	PONFERRADA	LEON	534	1992	9	16,8	23,1	10,5	0	24,9	8	0	0	1,9			955,4	1018,5
167	PONFERRADA	LEON	534	1992	10	11,4	15,4	7,5	0	61	17	0	0	1,9			950,7	1014,9
168	PONFERRADA	LEON	534	1992	11	10,4	14	6,8	3	26,9	9	0	0	1,7			959,8	1024,7
169	PONFERRADA	LEON	534	1992	12	6,2	9,3	3	7	103,7	14	0	0	1,7			954,4	1020,2
170	PONFERRADA	LEON	534	1993	1	4,8	8,9	0,7	19	3,8	3	0	0	1,1			963,6	1030,2
171	PONFERRADA	LEON	534	1993	2	7,1	12,9	1,2	7	19,5	2	3	0	1,9			960,1	1025,8
172	PONFERRADA	LEON	534	1993	3	9,5	15,7	3,4	9	20	8	0	0	1,7			954,6	1019,4
173	PONFERRADA	LEON	534	1993	4	10,2	15,4	5,1	0	58,4	18	0	0	1,9			949,3	1013,7
174	PONFERRADA	LEON	534	1993	5	13,8	18,9	8,7	0	100,2	22	0	1	2,5			948,4	1011,8
175	PONFERRADA	LEON	534	1993	6	19,2	25,8	12,6	0	63,7	15	0	2	2,2			953,9	1016,4
176	PONFERRADA	LEON	534	1993	7	20,7	28,6	12,7	0	14,7	3	0	0	2,2			956,4	1018,6
177	PONFERRADA	LEON	534	1993	8	20,9	28,5	13,4	0	31	5	0	0	2,8			954,7	1016,7
178	PONFERRADA	LEON	534	1993	9	14,8	19,8	9,7	0	56	19	0	0	2,2			951,5	1014,9
179	PONFERRADA	LEON	534	1993	10	10,5	14,5	6,5	0	156,9	17	0	0	2,2			948,5	1012,7
180	PONFERRADA	LEON	534	1993	11	7	11,1	2,9	10	75,6	14	0	0	1,4			953,4	1018,9
181	PONFERRADA	LEON	534	1993	12	7,5	10,5	4,6	3	28,8	23	0	0	2,2			959,9	1025,6
182	PONFERRADA	LEON	534	1994	1	5,4	9,2	1,6	10	109	15	2	0	1,9			958,3	1024,4
183	PONFERRADA	LEON	534	1994	2	5,6	10,4	0,9	11	60,3	14	1	3	2,2			951,5	1017,1
184	PONFERRADA	LEON	534	1994	3	12	18,7	5,2	0	11,3	5	0	0	2,2			959	1023,4
185	PONFERRADA	LEON	534	1994	4	10,7	16,5	4,8	3	9,9	9	0	2	4,2			954,4	1019
186	PONFERRADA	LEON	534	1994	5	14	19,7	8,3	0	90,7	15	0	0	3,6			948,8	1012,1
187	PONFERRADA	LEON	534	1994	6	19,6	27,2	12	0	9,7	6	0	0	3,6			956,4	1018,7
188	PONFERRADA	LEON	534	1994	7	22,9	30,8	15	0	11,4	2	0	1	3,3			953,8	1015,2
189	PONFERRADA	LEON	534	1994	8	21,6	29	14,2	0	26,5	5	0	0	3,1			952,8	1014,6
190	PONFERRADA	LEON	534	1994	9	15,5	21	9,9	0	34,2	16	0	0	3,1			953,6	1016,9
191	PONFERRADA	LEON	534	1994	10	13,9	18,9	9	0	59	15	0	0	1,7			952,1	1015,6
192	PONFERRADA	LEON	534	1994	11	9,2	13,2	5,2	1	61,7	12	0	0	1,4			956,3	1021,4
193	PONFERRADA	LEON	534	1994	12	6,7	10,1	3,3	7	116,8				1,7			960,6	1026,6
194	PONFERRADA	LEON	534	1995	1	6,3	10,1	2,4	8	79,2	18	1	0	1,4			961	1027,1

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
195	PONFERRADA	LEON	534	1995	2	7,7	12,5	3	6	75	15	1	0	1,7			958,1	1023,6
196	PONFERRADA	LEON	534	1995	3	10	16,1	3,9	3	34,6	10	0	0	1,7			955,6	1020,3
197	PONFERRADA	LEON	534	1995	4	13,6	21,6	5,6	4	9,7	5	1	1	1,7			952,3	1016
198	PONFERRADA	LEON	534	1995	5	16,5	22,6	10,4	0	55,2	15	0	1	2,2			952,9	1015,9
199	PONFERRADA	LEON	534	1995	6	20,1	27,8	12,4	0	40,3	9	0	0	2,2			951,8	1013,8
200	PONFERRADA	LEON	534	1995	7	21,9	28,9	14,9	0	48,9	8	0	0				952,5	1014,1
201	PONFERRADA	LEON	534	1995	8	22	29,5	14,5	0	3,3	3	0	0	1,7			953,7	1015,4
202	PONFERRADA	LEON	534	1995	9	15,9	20,9	11	0	56,5	15	0	0	1,7			953,5	1016,8
203	PONFERRADA	LEON	534	1995	10	15,6	21,4	9,8	0	62,4	11	0	0	1,1			955,2	1018,6
204	PONFERRADA	LEON	534	1995	11	9,7	13,3	6,1	0	163,9	20	0	1	0,6			951,8	1016,4
205	PONFERRADA	LEON	534	1995	12	7,3	10,4	4,3	5	245,2	18	0	0	1,4			948,6	1013,7
206	PONFERRADA	LEON	534	1996	1	7,3	10,3	4,3	0	152,4	25	0	0				941,9	1006,6
207	PONFERRADA	LEON	534	1996	2	5,8	9,8	1,8	8	40,3	17	2	0				953,3	1019
208	PONFERRADA	LEON	534	1996	3	9,4	15,1	3,7	7	79,3	15	1	0	1,7			948,8	1013,3
209	PONFERRADA	LEON	534	1996	4	12,6	18,9	6,2	1	11,9	9	0	0	1,9			950,7	1014,5
210	PONFERRADA	LEON	534	1996	5	14,1	20,1	8,1	0	85	13	0	1	1,9			949,7	1013,1
211	PONFERRADA	LEON	534	1996	6	20,9	28,8	13	0	3,2	5	0	0	1,9			955,9	1018
212	PONFERRADA	LEON	534	1996	7	22,6	30,6	14,5	0	9,9	5	0	0	2,2			954,7	1016,4
213	PONFERRADA	LEON	534	1996	8	19,8	26,1	13,6	0	44	10	0	0	2,2			953,6	1015,6
214	PONFERRADA	LEON	534	1996	9	16,4	22,8	10	0	75,5	11	0	0	1,7			951,8	1014,8
215	PONFERRADA	LEON	534	1996	10	12,5	17,7	7,2	0	26,4	10	0	0	1,4			956,9	1021,2
216	PONFERRADA	LEON	534	1996	11	8,6	12,6	4,6	4	112,7	13	0	0	1,7			954,8	1019,8
217	PONFERRADA	LEON	534	1996	12	5,6	8,1	3,1	8	64,7	16	0	0	1,4			945,1	1010,3
218	PONFERRADA	LEON	534	1997	1	4,1	7,3	0,9	13	96,6	11	5	0	1,1			951,7	1017,7
219	PONFERRADA	LEON	534	1997	2	9,1	14	4,3	0	12,1	9	0	0	1,4			962,9	1028,4
220	PONFERRADA	LEON	534	1997	3	13,1	21,8	4,4	0	0	0	0	0	1,1			959,9	1024,2
221	PONFERRADA	LEON	534	1997	4	15,1	22,2	8	0	24	10	0	0	1,7			952,5	1015,7
222	PONFERRADA	LEON	534	1997	5	14,9	20,2	9,6	0	86,7	25	0	0	2,2			949,9	1013,1
223	PONFERRADA	LEON	534	1997	6	16,2	21,2	11,1	0	39,6	17	0	0	1,9			949,5	1012,3
224	PONFERRADA	LEON	534	1997	7	21	28,4	13,6	0	56,4	10	0	0	1,9			954,8	1016,8
225	PONFERRADA	LEON	534	1997	8	21,7	28,7	14,8	0	30	5	0	0	1,9			952,8	1014,6
226	PONFERRADA	LEON	534	1997	9	19,7	26,5	13	0	13,5	5	0	0	1,4			954,9	1017,3
227	PONFERRADA	LEON	534	1997	10	15,7	20,8	10,6	0	87,6	13	0	0	1,7			952,6	1015,6
228	PONFERRADA	LEON	534	1997	11	9,4	12,4	6,4	0	186,5	26	0	0	1,9			946	1010,3
229	PONFERRADA	LEON	534	1997	12	6,1	9	3,3	6	115,7	19	2	0	1,1			952,1	1017,6
230	PONFERRADA	LEON	534	1998	1	7,4	11	3,9	6	25,3	17	2	0	2,2			954,3	1019,7
231	PONFERRADA	LEON	534	1998	2	9,1	15,4	2,7	5	19,3	3	0	0	1,1			959,8	1025,1
232	PONFERRADA	LEON	534	1998	3	11,9	19	4,8	2	28,8	9	0	0	1,7			958,6	1023,1
233	PONFERRADA	LEON	534	1998	4	9,5	13,3	5,6	0	160,5	26	1	2	2,8			947,6	1012

#	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
224	PONFERRADA	LEON	534	1997	7	21	28,4	13,6	0	56,4	10	0	0	1,9			954,8	1016,8
225	PONFERRADA	LEON	534	1997	8	21,7	28,7	14,8	0	30	5	0	0	1,9			952,8	1014,6
226	PONFERRADA	LEON	534	1997	9	19,7	26,5	13	0	13,5	5	0	0	1,4			954,9	1017,3
227	PONFERRADA	LEON	534	1997	10	15,7	20,8	10,6	0	87,6	13	0	0	1,7			952,6	1015,8
228	PONFERRADA	LEON	534	1997	11	9,4	12,4	6,4	0	186,5	26	0	0	1,9			946	1010,3
229	PONFERRADA	LEON	534	1997	12	6,1	9	3,3	6	115,7	19	2	0	1,1			952,1	1017,6
230	PONFERRADA	LEON	534	1998	1	7,4	11	3,9	6	25,3	17	2	0	2,2			954,3	1019,7
231	PONFERRADA	LEON	534	1998	2	9,1	15,4	2,7	5	19,3	3	0	0	1,1			959,8	1025,1
232	PONFERRADA	LEON	534	1998	3	11,9	19	4,8	2	28,8	9	0	0	1,7			958,6	1023,1
233	PONFERRADA	LEON	534	1998	4	9,5	13,3	5,6	0	160,5	26	1	2	2,8			947,6	1012
234	PONFERRADA	LEON	534	1998	5	15,1	21,3	8,9	0	64,4	17	0	0	1,7			950,8	1014
235	PONFERRADA	LEON	534	1998	6	18,9	25,8	12,1	0	9,6	4	0	0	1,9			954,6	1017,1
236	PONFERRADA	LEON	534	1998	7	21,5	29,1	13,8	0	5,9	4	0	0	2,2			953,6	1015,4
237	PONFERRADA	LEON	534	1998	8	23,6	32	15,3	0	6,4	7	0	0	1,7			955	1016,5
238	PONFERRADA	LEON	534	1998	9	17,9	23,3	12,6	0	71,8	18	0	0				951,3	1013,9
239	PONFERRADA	LEON	534	1998	10	12,5	17,4	7,5	0	21,5	10	0	0	1,4			958,5	1022,9
240	PONFERRADA	LEON	534	1998	11	8,6	13	4,1	6	25	10	0	0	1,4			958,4	1023,7
241	PONFERRADA	LEON	534	1998	12	2,9	6,9	-1	22	52,3	9	2	0	1,1			959,3	1026,3
242	PONFERRADA	LEON	534	1999	1	5,2	9,1	1,3	9	51,8	10	0	0	1,1			957,4	1023,6
243	PONFERRADA	LEON	534	1999	2	6,5	12,3	0,7	17	37,1	7	0	0	1,4			961,1	1027,2
244	PONFERRADA	LEON	534	1999	3	9,9	15,7	4	1	44,8	11	2	0	1,9			950,8	1015,3
245	PONFERRADA	LEON	534	1999	4	11,9	17,5	6,4	0	70	13	2	0	2,2			954,1	1018,3
246	PONFERRADA	LEON	534	1999	5	15,4	21,4	9,5	0	81,4	14	0	2	1,4			951,9	1015,1
247	PONFERRADA	LEON	534	1999	6	19,1	26,4	11,9	0	11,2	4	0	0	1,9			955,4	1017,8
248	PONFERRADA	LEON	534	1999	7	22,8	30,4	15,2	0	12,4	5	0	0	1,9			952,9	1014,4
249	PONFERRADA	LEON	534	1999	8	20,9	27,6	14,3	0	45,1	9	0	0	2,2			951,3	1013,1
250	PONFERRADA	LEON	534	1999	9	17,4	22,8	11,9	0	160,7	11	0	0	1,7			950,7	1013,4
251	PONFERRADA	LEON	534	1999	10	12,9	16,8	9	0	162	19	0	0	1,1			951,9	1015,7
252	PONFERRADA	LEON	534	1999	11	6,8	11,1	2,6	7	22,8	10	0	0	1,1			958,8	1024,6
253	PONFERRADA	LEON	534	1999	12	5,5	8,8	2,2	11	78,2	17	1	0	1,7			959,3	1025,4
254	PONFERRADA	LEON	534	2000	1	2,7	7,3	-1,9	21	16,4	4	1	0	1,1			961,1	1028,2
255	PONFERRADA	LEON	534	2000	2	8,7	13,4	4	2	12,8	8	0	0	1,1			964,7	1030,5
256	PONFERRADA	LEON	534	2000	3	10,6	17,6	3,7	3	7,5	7	0	0	1,7			957,3	1022,1
257	PONFERRADA	LEON	534	2000	4	9,6	13,5	5,7	2	116,2	27	0	0	2,2			944,5	1008,7
258	PONFERRADA	LEON	534	2000	5	16,5	22,5	10,6	0	59,1	18	0	0	1,9			952,2	1015,2
259	PONFERRADA	LEON	534	2000	6	20,6	28,2	13	0	2,8	3	0	0	2,2			955,9	1018
260	PONFERRADA	LEON	534	2000	7	20,6	27,5	13,7	0	21,6	6	0	0	2,5			952,9	1014,9
261	PONFERRADA	LEON	534	2000	8	20,6	28,1	13	0	2,8	3	0	0	2,2			955,1	1017,3
262	PONFERRADA	LEON	534	2000	9	18,3	25,3	11,3	0	60	9	0	1	1,7			953	1015,6
263	PONFERRADA	LEON	534	2000	10	12,7	17,8	7,7	0	65,7	13	0	0	1,4			954,9	1019
264	PONFERRADA	LEON	534	2000	11	7,7	10,8	4,7	3	260,3	25	0	0	1,9			950	1015
265	PONFERRADA	LEON	534	2000	12	8,1	11	5,2	0	183,9	27	0	0	1,9			947,5	1012,3
266	PONFERRADA	LEON	534	2001	1	7,1	9,8	4,3	1	195,9	24	0	0	1,9			950,4	1015,6
267	PONFERRADA	LEON	534	2001	2	7,2	12,3	2	8	91,9	8	2	0	1,1			957,1	1022,7
268	PONFERRADA	LEON	534	2001	3	10,6	14,2	7,1	0	247,7	28	0	0	1,9			946,6	1010,7
269	PONFERRADA	LEON	534	2001	4	11,8	18	5,6	0	24,7	13	0	0	2,2			955	1019,3
270	PONFERRADA	LEON	534	2001	5	15,9	22,6	9,2	0	45,2	10	0	0	1,9			952,5	1015,6
271	PONFERRADA	LEON	534	2001	6	20,4	28	12,8	0	4,4	3	0	0	2,2			955,1	1017,3
272	PONFERRADA	LEON	534	2001	7	20,5	27,6	13,3	0	22,3	7	0	0	2,2			954	1016,1
273	PONFERRADA	LEON	534	2001	8	21,5	29,3	13,8	0	11,6	9	0	0	2,2			954,4	1016,3
274	PONFERRADA	LEON	534	2001	9	17,9	25,9	10	0	28,3	6	0	0	1,4			952,8	1015,4
275	PONFERRADA	LEON	534	2001	10	14,9	19,7	10,1	0	81	16	0	0	1,4			953,9	1017,3
276	PONFERRADA	LEON	534	2001	11	6,6	12,5	0,7	11	4	4	0	1	1,4			960,3	1026,4
277	PONFERRADA	LEON	534	2001	12	1,7	6,9	-3,5	25	20,2	5	2	0	1,1			958,3	1025,5
278	PONFERRADA	LEON	534	2002	1	5,7	10,1	1,3	11	59,2	15	0	0	1,4			962	1028,3
279	PONFERRADA	LEON	534	2002	2	7,7	13,6	1,7	7	42,8	9	0	0	2,2	5,6	53	959,9	1025,5
280	PONFERRADA	LEON	534	2002	3	10,6	17	4,3	3	27,7	12	0	0	2,2	6,5	54	952,4	1016,8
281	PONFERRADA	LEON	534	2002	4	12,1	19,4	4,8	1	10,7	8	0	0	2,5	7,6	56	951	1014,8
282	PONFERRADA	LEON	534	2002	5	13	18,7	7,3	0	56,5	21	0	0	2,8	5,2	35	952,9	1016,6
283	PONFERRADA	LEON	534	2002	6	19,3	26	12,6	0	29,6	10	0	0	2,8	7,8	51	954,5	1016,8
284	PONFERRADA	LEON	534	2002	7	21	28,9	13,1	0	9,5	4	0	0	2,8	10,4	70	955	1016,9
285	PONFERRADA	LEON	534	2002	8	20,3	28	12,5	0	9,1	4	0	0	2,5	9,8	70	954,1	1016,1
286	PONFERRADA	LEON	534	2002	9	17,9	24	11,7	0	87,9	12	0	0	1,9	6,3	50	952,8	1015,5
287	PONFERRADA	LEON	534	2002	10	14	18,6	9,4	0	76,2	16	0	0	1,9	4,3	39	952,7	1016,4
288	PONFERRADA	LEON	534	2002	11	8,9	12,3	5,5	0	152,6	22	0	0	1,7	2	21	950,5	1015,2
289	PONFERRADA	LEON	534	2002	12	8,1	11,3	5	3	122,2	22	0	0	2,2	1,8	20	952,7	1017,8
290	PONFERRADA	LEON	534	2003	1	4,8	9,1	0,5	14	135,8	15	2	0	1,9	4,3	45	957,9	1024,3
291	PONFERRADA	LEON	534	2003	2	6,4	10,7	2	10	37,1	14	1	0	2,2	3,6	34	954,6	1020,3
292	PONFERRADA	LEON	534	2003	3	11,5	17,4	5,6	3	36,8	12	0	0	2,2	5,2	44	955,8	1020,2
293	PONFERRADA	LEON	534	2003	4	12,2	18,3	6,1	0	81,2	17	0	0	2,5	5,6	42	949,9	1013,7
294	PONFERRADA	LEON	534	2003	5	15,8	23,8	7,7	0	3,8	6	0	0	2,5	9	61	956,1	1019,2
295	PONFERRADA	LEON	534	2003	6	21,6	29,3	13,9	0	55,5	7	0	0				952,6	1014,3
296	PONFERRADA	LEON	534	2003	7	21	28,7	13,2	0	40,2	6	0	0				954,8	1016,7
297	PONFERRADA	LEON	534	2003	8	23,7	31,9	15,4	0	22,2	8	0	0				954,3	1015,7
298	PONFERRADA	LEON	534	2003	9	19,1	26,7	11,5	0	30,9	8	0	0				956,2	1018,7
299	PONFERRADA	LEON	534	2003	10	12,2	16,9	7,4	0	112,1	16	0	1				950	1013,9
300	PONFERRADA	LEON	534	2003	11	9,1	13,4	4,8	4	82,3	17	0	0				952,5	1017,4
301	PONFERRADA	LEON	534	2003	12	5,8	9	2,6	8	33,7	15	0	0				956,3	1022,2

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
302	PONFERRADA	LEON	534	2004	1	6,6	10,3	2,9	8	50,9	15	0	0				956,7	1022,4
303	PONFERRADA	LEON	534	2004	2	6,5	12,6	0,5	15	4,2	3	2	0				956,3	1022,1
304	PONFERRADA	LEON	534	2004	3	8,3	13,6	2,9	7	41	12	0	0				957,4	1022,6
305	PONFERRADA	LEON	534	2004	4	10,8	17,8	3,8	3	11,8	8	0	0				951,4	1015,5
306	PONFERRADA	LEON	534	2004	5	14,7	21,5	7,8	0	29,8	11	0	0				952,5	1015,7
307	PONFERRADA	LEON	534	2004	6	22,1	29,8	14,3	0	71,4	5	0	1				955,9	1017,5
308	PONFERRADA	LEON	534	2004	7	21,4	29,3	13,5	0	7	2	0	0	2,2			955	1016,7
309	PONFERRADA	LEON	534	2004	8	19,9	26,4	13,4	0	90,2	13	0	0	1,9			952,8	1014,8
310	PONFERRADA	LEON	534	2004	9	18,6	26,1	11,1	0	43,8	6	0	0	1,4			956,8	1019,5
311	PONFERRADA	LEON	534	2004	10	13,2	17,7	8,7	0	107,3	23	0	0	1,7			949,2	1012,8
312	PONFERRADA	LEON	534	2004	11	6,6	12	1,1	11	17,9	4	0	0	0,8			959	1025,1
313	PONFERRADA	LEON	534	2004	12	3,7	7,2	0,1	19	45,9	5	2	0	1,7			958,8	1025,6
314	PONFERRADA	LEON	534	2005	1	3,3	8,1	-1,4	23	23,2	4	0	0	1,4			964,4	1031,7
315	PONFERRADA	LEON	534	2005	2	4,2	10,6	-2,1	22	13,3	6	0	1	1,7			957	1023,4
316	PONFERRADA	LEON	534	2005	3	9,7	16,6	2,7	12	27,8	9	0	1	1,9			953,2	1017,8
317	PONFERRADA	LEON	534	2005	4	11,9	17,8	6	2	46,5	14	0	1	2,2			953	1017,1
318	PONFERRADA	LEON	534	2005	5	15,4	22,4	8,4	0	57,1	11	0	0	1,9			953,7	1016,7
319	PONFERRADA	LEON	534	2005	6	21,7	30	13,5	0	3,9	5	0	0	2,2			954	1015,6
320	PONFERRADA	LEON	534	2005	7	22,5	30,5	14,4	0	3	4	0	0	2,2			954,3	1015,8
321	PONFERRADA	LEON	534	2005	8	22,5	31,6	13,4	0	6,3	3	0	0	1,7			954,9	1016,4
322	PONFERRADA	LEON	534	2005	9	18,1	26,3	9,9	0	15,2	5	0	0	1,4			956,1	1018,9
323	PONFERRADA	LEON	534	2005	10	14,2	20,1	8,3	0	95,9	17	0	0	1,1			953	1016,6
324	PONFERRADA	LEON	534	2005	11	8,3	13,1	3,4	7	24,4	9	2	0	1,4			954,7	1020
325	PONFERRADA	LEON	534	2005	12	3,8	8	-0,3	18	60,1	11	0	0	1,1			956,9	1023,5
326	PONFERRADA	LEON	534	2006	1	3,2	7,7	-1,3	23	14,9	5	2	0	1,1	3,8	40	957,4	1024,1
327	PONFERRADA	LEON	534	2006	2	5,2	11,8	-1,4	21	55,5	6	3	1	1,7	6,3	60	952,1	1018,1
328	PONFERRADA	LEON	534	2006	3	10,4	15,3	5,4	4	74,8	21	0	0	2,5	4	34	950,9	1015,2
329	PONFERRADA	LEON	534	2006	4	13,4	20,4	6,4	1	42,8	12	0	0	2,2	8,1	60	951,5	1015
330	PONFERRADA	LEON	534	2006	5	16,7	24,2	9,1	0	32,7	10	0	0	2,2	9,3	64	954,2	1017
331	PONFERRADA	LEON	534	2006	6	20,6	28,5	12,6	0	38,5	5	0	1	2,5	9,6	63	954,1	1015,9
332	PONFERRADA	LEON	534	2006	7	23,4	31,2	15,6	0	59,8	6	0	1	2,2	8,8	59	955,5	1016,8
333	PONFERRADA	LEON	534	2006	8	21,2	29,5	13	0	21,8	4	0	0	2,2	10	72	953,9	1015,6
334	PONFERRADA	LEON	534	2006	9	19,4	26,7	12,2	0	54,8	13	0	0	1,9	6,2	50	952,5	1014,8
335	PONFERRADA	LEON	534	2006	10	14,8	19,7	9,8	0	143,2	20	0	0	1,7	3,3	29	950,5	1013,8
336	PONFERRADA	LEON	534	2006	11	10,9	15,2	6,5	1	103,5	17	0	0	2,2	2,3	24	955,2	1019,8
337	PONFERRADA	LEON	534	2006	12	5,2	10	0,4	16	67,5	14	0	0	1,4	3,6	39	962,3	1029
338	PONFERRADA	LEON	534	2007	1	6,4	11	1,8	10	24,6	16	1	0	1,7	3,4	36	962,2	1028,5
339	PONFERRADA	LEON	534	2007	2	7,9	12,4	3,3	7	101,7	19	0	0	2,2	3,4	32	953	1018,2
340	PONFERRADA	LEON	534	2007	3	9,3	15,8	2,8	7	18,5	10	0	0	2,5	5,8	49	956,6	1021,6
341	PONFERRADA	LEON	534	2007	4	13,5	20,5	6,6	3	36,7	12	0	1	2,5	6,9	52	952,5	1016,2
342	PONFERRADA	LEON	534	2007	5	15,5	22,3	8,8	0	49,1	12	0	1	2,8	7,2	49	952,9	1016
343	PONFERRADA	LEON	534	2007	6	17,7	24,5	10,9	0	58	10	0	0	2,8	8,7	57	951,8	1014,3
344	PONFERRADA	LEON	534	2007	7	20,1	27,7	12,5	0	23,1	3	0	0	2,5	10,9	73	954,7	1016,8
345	PONFERRADA	LEON	534	2007	8	20	27,6	12,5	0	15,5	7	0	0	2,5	9,1	65	953,6	1015,7
346	PONFERRADA	LEON	534	2007	9	18,7	27,4	10	0	21,3	4	0	0	1,9	9,7	78	955,2	1017,7
347	PONFERRADA	LEON	534	2007	10	14	21,5	6,5	0	27,8	5	0	0	1,4	7,7	69	956,7	1020,7
348	PONFERRADA	LEON	534	2007	11	7,4	14,9	0	18	33,3	5	0	0	1,4	6,6	67	956,8	1022,5
349	PONFERRADA	LEON	534	2007	12	4,1	8,6	-0,5	17	18,2	10	0	0	1,7	3	33	961,2	1028
350	PONFERRADA	LEON	534	2008	1	7,2	12,3	2,1	12	62,4	16	0	0	1,7	4,3	45	958,3	1024,1
351	PONFERRADA	LEON	534	2008	2	9,4	15,5	3,3	8	37,6	9	0	0	1,9	5,9	56	958,7	1023,9
352	PONFERRADA	LEON	534	2008	3	9,3	15,3	3,4	5	47,4	12	1	2	2,8	6,4	54	953,8	1018,6
353	PONFERRADA	LEON	534	2008	4	12,1	18,4	5,9	0	84	18	0	0	2,5	6,3	47	948,5	1012,2
354	PONFERRADA	LEON	534	2008	5	14,4	20	8,9	0	86,2	22	0	0	1,9	5,9	40	948,1	1011,3
355	PONFERRADA	LEON	534	2008	6	19,2	26,7	11,6	0	22,5	5	0	0	2,5	10,8	71	954,4	1016,6
356	PONFERRADA	LEON	534	2008	7	20,6	28,2	13,1	0	5,1	3	0	0	2,5	10,7	72	953,7	1015,6
357	PONFERRADA	LEON	534	2008	8	20,7	28,4	13,1	0	16,2	5	0	1	2,5	10	72	953,3	1015,3
358	PONFERRADA	LEON	534	2008	9	17,7	25,1	10,4	0	26,2	7	0	0	1,7	8,5	69	952,8	1015,5
359	PONFERRADA	LEON	534	2008	10	13	19,6	6,4	0	32,6	12	0	0	1,7	6,6	60	955,5	1019,6
360	PONFERRADA	LEON	534	2008	11	6,4	11	1,7	8	57	12	1	1	1,4	2,9	30	955,2	1021
361	PONFERRADA	LEON	534	2008	12	4,3	7,4	1,2	13	82,4	12	3	0	1,9	2,3	25	954,9	1021,2
362	PONFERRADA	LEON	534	2009	1	5,2	8,9	1,6	10	112,4	14	6	0	1,9	2,5	26	951,3	1017
363	PONFERRADA	LEON	534	2009	2	7,6	14,6	0,6	15	31,7	8	1	0	1,9	6,8	64	950,9	1016,1
364	PONFERRADA	LEON	534	2009	3	10,9	19,4	2,5	5	22,1	6	0	0	1,9	9,3	77	953,6	1017,9
365	PONFERRADA	LEON	534	2009	4	10,9	17,6	4,2	1	20	12	0	1	2,5	7	53	951,2	1015,5
366	PONFERRADA	LEON	534	2009	5	16,7	24,6	8,7	0	24,8	9	0	1	2,2	9,1	63	953,7	1016,5
367	PONFERRADA	LEON	534	2009	6	20,6	27,5	13,7	0	53,3	9	0	0	2,2	8,7	57	952,5	1014,4
368	PONFERRADA	LEON	534	2009	7	20,7	28,2	13,3	0	52,6	2	0	0	2,8	11,5	77	954,7	1016,8
369	PONFERRADA	LEON	534	2009	8	22,6	30,7	14,6	0	21,4	2	0	0	2,2	10,8	78	954	1015,6
370	PONFERRADA	LEON	534	2009	9	19,8	28	11,6	0	6,5	5	0	0	1,7	9,8	78	955,1	1017,5
371	PONFERRADA	LEON	534	2009	10	15,9	22,1	9,6	0	88,4	13	0	0	1,1	5,4	49	953,6	1017
372	PONFERRADA	LEON	534	2009	11	10,1	13,5	6,8	0	130,2	25	0	0	2,2	2	21	953,3	1018
373	PONFERRADA	LEON	534	2009	12	5,6	9,3	1,8	12	201,1	12	7	0	1,4	2,9	32	945,9	1011,4
374	PONFERRADA	LEON	534	2010	1	5	8,7	1,2	11	96,5	19	3	0	1,7	3,1	33	950,8	1016,6
375	PONFERRADA	LEON	534	2010	2	6,2	10,9	1,6	11	126,1	15	0	0	2,2	4,3	41	942,1	1007
376	PONFERRADA	LEON	534	2010	3	8,7	14,5	2,8	11	75,5	16	0	1	2,2	5,4	45	951,5	1016,4
377	PONFERRADA	LEON	534	2010	4	13,9	20,8	7	1	23,4	11	0	0	2,2	8,3	62	952,1	1015,7
378	PONFERRADA	LEON	534	2010	5	14,8	21,3	8,3	0	46,9	12	0	0	2,5	8,4	57	952,1	1015,3
379	PONFERRADA	LEON	534	2010	6	19,2	26,1	12,4	0	47,7	6	0	0	1,7	9,7	64	951,9	1014,1
380	PONFERRADA	LEON	534	2010	7	23,8	32,3	15,4	0	8,2	3	0	0	1,9	12,5	84	954,3	1015,5
381	PONFERRADA	LEON	534	2010	8	23	31,8	14,3	0	10,6	2	0	0	1,9	11,9	85	953,9	1015,4
382	PONFERRADA	LEON	534	2010	9	19,3	26,9	11,7	0	17	7	0	0	1,4	8,4	68	953	1015,4
383	PONFERRADA	LEON	534	2010	10	13,3	19,2	7,3	0	137,9	12	0	0	1,1	6	55	949,4	1013
384	PONFERRADA	LEON	534	2010	11	8	12,1	3,9	6	104,6	13	0	0	1,7	3,1	32	949,1	1014
385	PONFERRADA	LEON	534	2010	12	4,8	8,6	0,9	12	86,3	13	1	1	1,4	2,5	27	948,3	1013,9
386	PONFERRADA	LEON	534	2011	1	6	10,2	1,7	9	92,5	14	0	0	1,4	3,1	32	953,8	1019,5
387	PONFERRADA	LEON	534	2011	2	6,9	13	0,8	11	77,7	10	1	0	1,4	5,6	53	956,5	1022,2
388	PONFERRADA	LEON	534	2011	3	9,6	15,5	3,7	6	56,5	14	0	0	2,2	6,1	51	953,8	1018,6
389	PONFERRADA	LEON	534	2011	4	15,8	23,6	8	0	29,5	7	0	0	1,9	9	67	951,5	1014,5
390	PONFERRADA	LEON	534	2011	5	17,9	25,2	10,6	0	23,9	10	0	0	1,9	9,6	66	953,5	1016,1
391	PONFERRADA	LEON	534	2011	6	19,2	26,7	11,6	0	8,3	1	0	0				954,5	1016,8
392	PONFERRADA	LEON	534	2011	7	20	27,4	12,7	0	25,1	4	0	0	2,5			953,4	1015,4
393	PONFERRADA	LEON	534	2011	8	21,7	29,5	14	0	15,2	7	0	0	1,9			952,5	1014,2
394	PONFERRADA	LEON	534	2011	9	19,8	27,7	11,8	0	10,2	3	0	0	1,7			955	1017,3
395	PONFERRADA	LEON	534	2011	10	15,1	23,4	6,8	0	35,7	6	0	0	1,1			956	1019,6
396	PONFERRADA	LEON	534	2011	11	9,5	13,7	5,1	4	57	14	0	0	1,7			952,3	1017,1
397	PONFERRADA	LEON	534	2011	12	5,5	9,2	1,8	9	27,8	10	0	0	1,4	2,5	28	962,8	1029,3

Data 1, Climatic data of Ponferrada station. AEMET, 2011.

Climogram		
Data about climogram		
	Avarage rainfall mm	Avarage Tª Cº
January	70,97272727	4,98787879
February	59,34545455	6,89090909
March	48,2	9,81515152
April	48,77575758	11,7121212
May	53,7969697	14,9333333
June	31,36363636	19,2545455
July	22,78181818	21,6666667
August	23,94242424	21,3848485
September	45,7	18,2909091
October	80,06666667	13,3636364
November	80,88484848	8,42727273
December	85,55454545	5,4
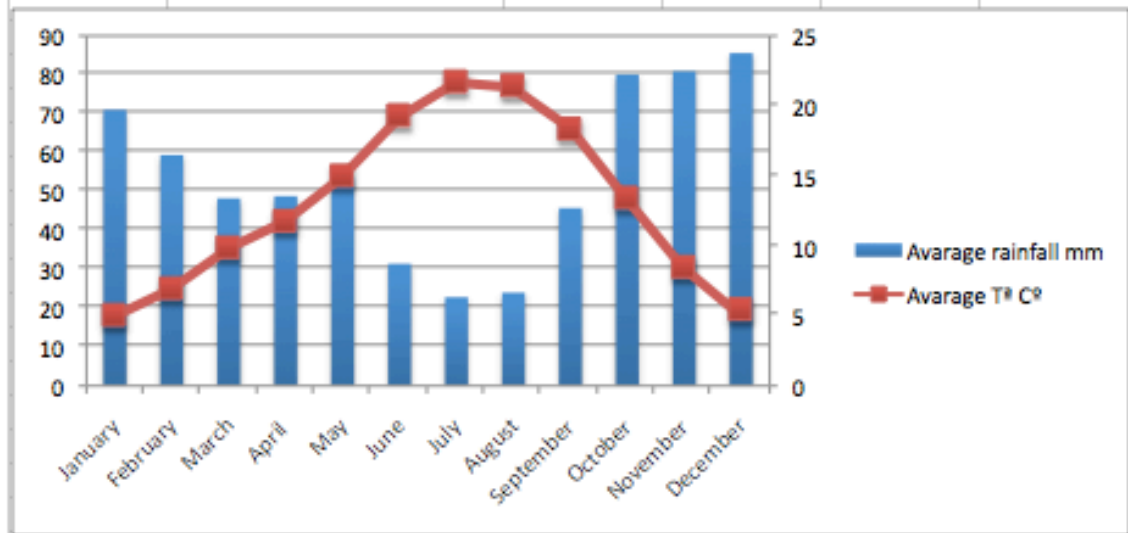
Data 2, Climogram of Ponferrada station. AEMET, 2011.

Year	Froze days in Ponferrada station
1979	30
1980	44
1981	31
1982	65
1983	30
1984	65
1985	30
1986	65
1987	30
1988	65
1989	30
1990	65
1991	44
1992	46
1993	65
1994	21
1995	65
1996	22
1997	65
1998	23
1999	65
2000	23
2001	65
2002	23
2003	46
2004	23
2005	21
2006	46
2007	22
2008	44
2009	23
2010	43
2011	23
2012	23

Froze days in Ponferrada station
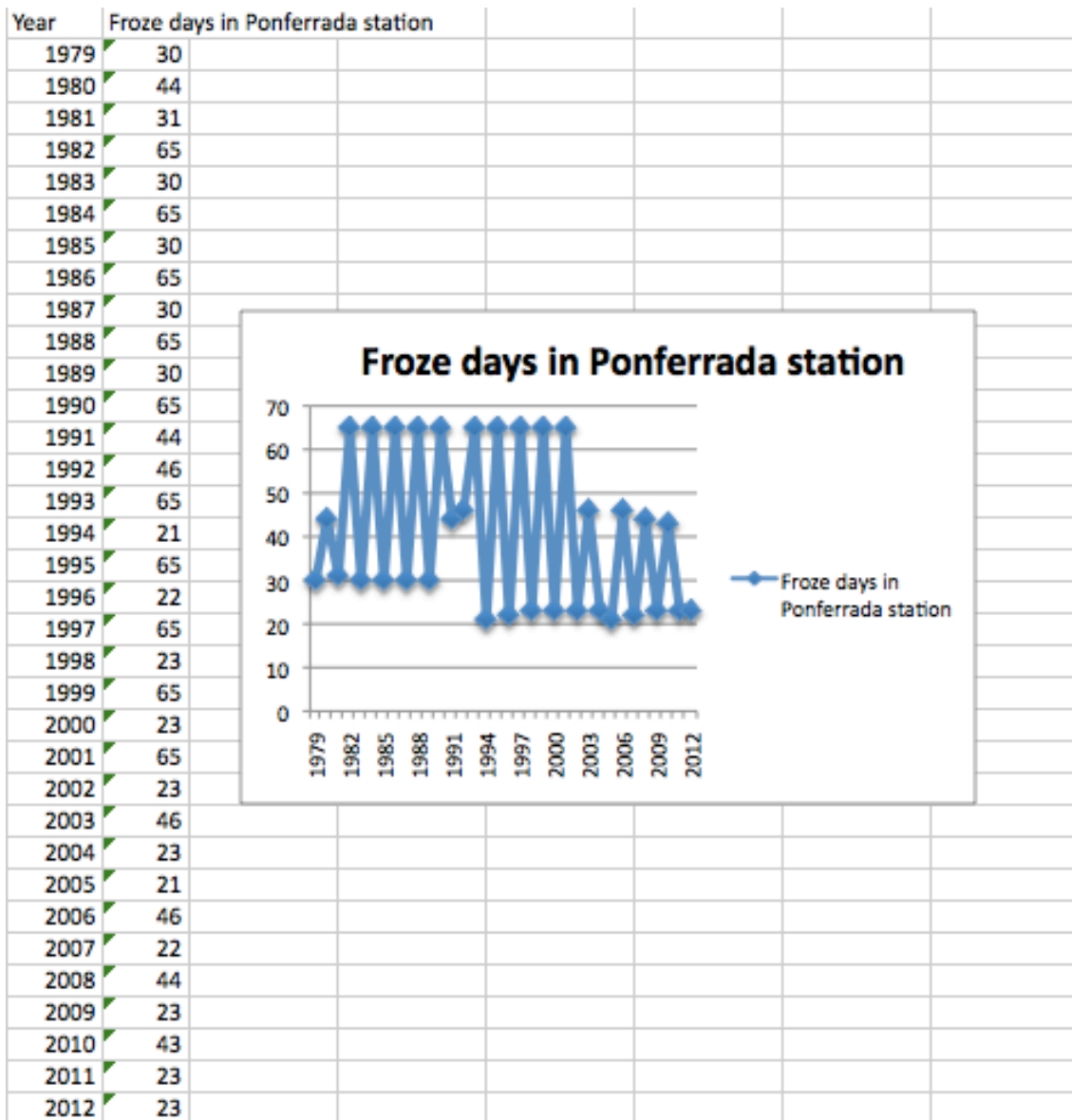
Data 3, Froze days of Ponferrada station. AEMET, 2011.

Year	Days of snow in Ponferrada station
1986	12
1987	10
1988	11
1989	7
1990	7
1991	7
1992	7
1993	7
1994	7
1995	7
1996	7
1997	7
1998	10
1999	4
2000	7
2001	2
2002	7
2003	3
2004	7
2005	3
2006	7
2007	3
2008	7
2009	3
2010	4
2011	3
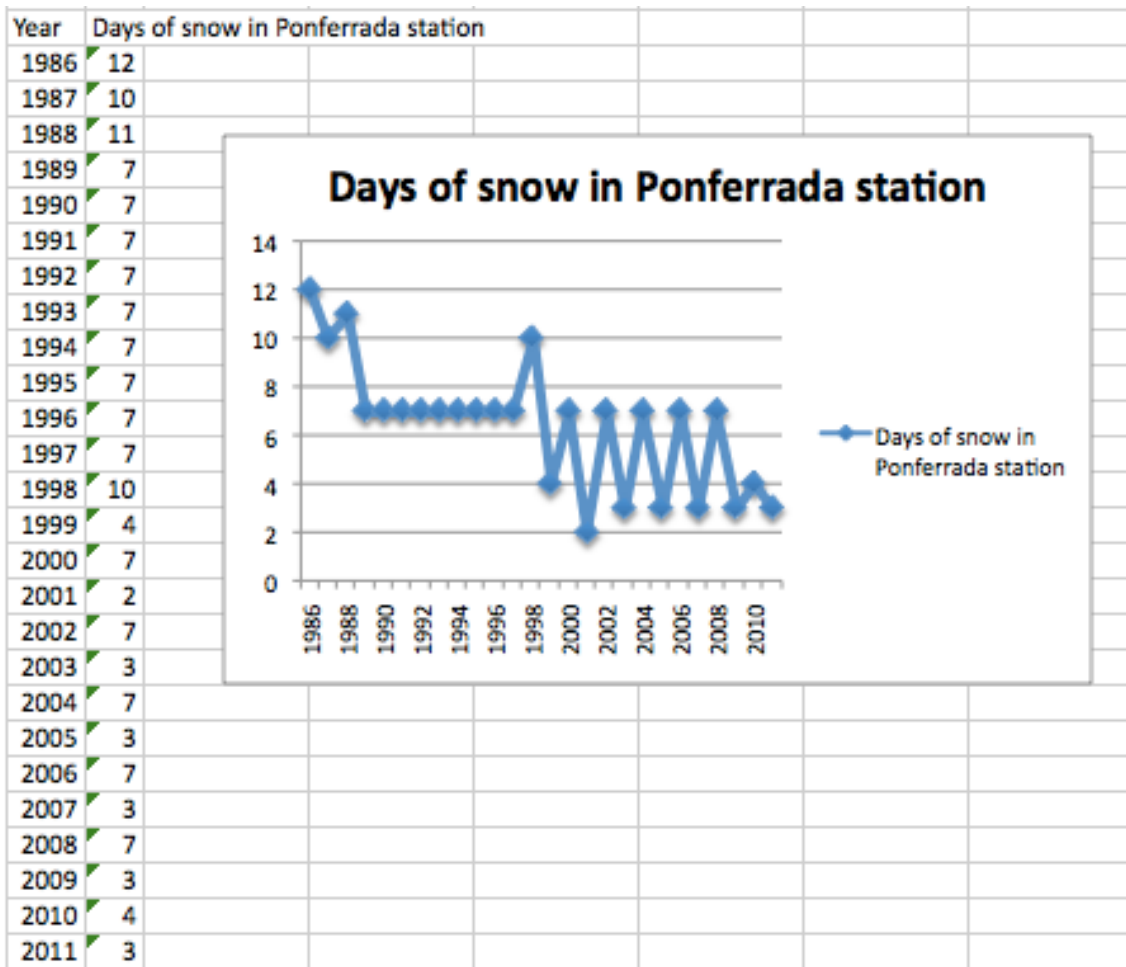
Data 4, Days of snow of Ponferrada station. AEMET, 2011.

Appendix 4

Appendix 5

AYTO. DE PONFERRADA

UNIVERSIDADE DA CORUÑA

MODELO DE CUESTIONARIO PARA LOS PEREGRINOS EN SU PASO POR PONFERRADA

Buenos días/tardes, en el Máster Oficial en Planificación y Gestión de Destinos y Nuevos Productos Turísticos de la Universidad de A Coruña se está realizando un estudio sobre el perfil del peregrino y su satisfacción durante su estancia en Ponferrada. Agradeceríamos su colaboración contestando las preguntas de este cuestionario. La información será tratada en estricto anonimato y confidencialidad.

Nº de encuesta:
Día:
Lugar:

Seleccione con una "X" la respuesta correcta y rellene los espacios señalados con un guión (_____) si procede.

P1. Población de inicio

_____

P2. Medio de transporte

A pie❑	Bicicleta❑	Otros medios❑

P3. Acompañamiento

Solitario❑	Grupo❑

P4. Motivos de su peregrinación (marque las dos respuestas que considera más importantes)

Religión❑	Deporte❑	Vacaciones❑	Cultura❑	Espiritual❑	Otros motivos❑

P5. ¿Realiza el Camino de manera continuada o por etapas, en diferentes épocas del año?

De forma continuada❑	Por etapas❑

P6. Tipo de alojamiento en Ponferrada

Albergue❑	Hostal❑	Hotel❑	Otros ❑	No pernocta en Ponferrada❑

P7. Gasto medio diario por persona

0-15 €	15-30 €	30-45€	45-60 €	Más de 60 €	No sabe/ no contesta
❏	❏	❏	❏	❏	❏

P8. ¿Cómo ha conocido el Camino de Santiago o a partir de que fuentes se ha informado sobre el Camino de Santiago? (Marque las dos respuestas que considera más importantes)

Familia/ amigos/ conocidos❏	Internet ❏	Prensa/ radio/ TV❏	Libros/ guías ❏	Otros ❏

P9. ¿Utiliza Internet durante su recorrido para consultar información sobre el Camino o compartir su experiencia con otras personas?

Si❏	Consultar información❏ ❏	No❏
	Compartir experiencia	
	Ambas (consultar y compartir)	

P10. ¿Ha visitado o tiene pensado visitar algún museo de la ciudad o el Castillo?

Si❏	No❏	No sabe/ no contesta❏

P11. ¿Conoce (ha oído hablar de) la Comarca del Bierzo?

Si❏	No❏

P12. Valore de 1 a 10 los siguientes aspectos del Camino de Santiago en su paso por Ponferrada, siendo 1 "muy malo" y 10 "excelente". Si desconoce alguno marque la casilla "D".

	1	2	3	4	5	6	7	8	9	10	D
Información sobre el camino	1❏	2❏	3❏	4❏	5❏	6❏	7❏	8❏	9❏	10❏	D❏
Señalización	1❏	2❏	3❏	4❏	5❏	6❏	7❏	8❏	9❏	10❏	D❏
Alojamiento	1❏	2❏	3❏	4❏	5❏	6❏	7❏	8❏	9❏	10❏	D❏
Gastronomía	1❏	2❏	3❏	4❏	5❏	6❏	7❏	8❏	9❏	10❏	D❏
Precios	1❏	2❏	3❏	4❏	5❏	6❏	7❏	8❏	9❏	10❏	D❏
Hospitalidad	1❏	2❏	3❏	4❏	5❏	6❏	7❏	8❏	9❏	10❏	D❏
Seguridad	1❏	2❏	3❏	4❏	5❏	6❏	7❏	8❏	9❏	10❏	D❏
Atención en museos-monumentos	1❏	2❏	3❏	4❏	5❏	6❏	7❏	8❏	9❏	10❏	D❏
Valoración global	1❏	2❏	3❏	4❏	5❏	6❏	7❏	8❏	9❏	10❏	D❏

P13. ¿Volvería o a Ponferrada, como turista, o le recomendaría a un amigo/ familiar que viniese?

Si❏	No❏	No sabe/ no contesta❏

P14. Residencia (país y si es España provincia)

País_____	Provincia_____

P15. Sexo

Mujer❏	Hombre❏

P16. Edad

| 18-25❑ | 26-35❑ | 36-45❑ | 46-55❑ | 56-65❑ | Más de 66❑ |

P17. Nivel de estudios

| Sin estudios❑ | Primarios❑ | Secundarios❑ | Universitarios❑ | Otros❑ |

P18. Ocupación

P17. Ocupación					
❑mpleado	❑esempleado	❑tudiante	Jubilado/ ❑ pensionista	Tareas ❑l hogar	Otra ❑tuación

P19. Sugerencias u observaciones

_____
_____
_____

¡Muchas gracias por su colaboración!, ¡buen camino!

AYTO. DE PONFERRADA

UNIVERSIDADE DA CORUÑA

MODELO DE CUESTIONARIO PARA LOS VISITANTES DE PONFERRADA

Buenos días/tardes, en el Máster Oficial en Planificación y Gestión de Destinos y Nuevos Productos Turísticos de la Universidad de Coruña se está realizando un estudio sobre el perfil del visitante de Ponferrada y su satisfacción con el destino turístico. Agradeceríamos su colaboración contestando las preguntas de este cuestionario. La información será tratada en estricto anonimato y confidencialidad.

0. DATOS DE IDENTIFICACIÓN

Nº de encuesta:
Día:
Lugar:

Seleccione con una "X" la respuesta correcta y rellene los espacios señalados con un guión (_____) si procede.

I. ORGANIZACIÓN Y DESARROLLO DEL VIAJE

P1. ¿Es la primera vez que visita Ponferrada?

Si❑	
No❑	¿Cuántas veces ha estado? 2-3❑ 4 o más❑

P2. ¿Ha visitado otros lugares de la zona (del Bierzo) o tiene intención de hacerlo? Indique uno o dos.

Si❑	¿Cuáles?_____
No❑	

P3. ¿Cómo ha conocido la existencia de Ponferrada o se ha informado sobre el destino turístico? (en caso de que se cumplan varias opciones, marque las dos que considere más importantes).

Familia/ amigos/ conocidos❑
Medios de comunicación (prensa, radio, TV)❑

Internet❑
Agencias de viaje❑
Libros/ guías de viaje❑
Otros medios❑

P4. ¿Cuáles han sido los principales motivos de su visita a Ponferrada (en caso de que se cumplan varias opciones, marque las dos que considere más importantes).

Cercanía con otras zonas❑
Ocio y diversión❑
Descanso y relajación❑
Motivaciones culturales❑
Entorno natural❑
Visitas a familiares/ amigos❑
Negocios❑
Otros motivos❑

P5. ¿Con quién ha realizado el viaje?

Sólo❑	
Pareja❑	
Familia/ amigos ❑	¿Viaja con niños/as menores de 12 años? Si❑ No❑
Grupo turístico❑	

P6. ¿Cuántas noches va a estar en Ponferrada?

0 (excursión)❑
1-2❑
3-4❑
5-6❑
Más de 6❑

P7. ¿De qué tipo de alojamiento ha hecho/ se encuentra haciendo uso durante su estancia en Ponferrada? Si se trata de un hotel, indique el número de estrellas.

Hotel **❑ ***❑ ****❑
Hostal❑
Casa rural❑
Casa de familiares/ amigos❑
Otros❑

P8. ¿Cuál es el gasto medio diario realizado durante su estancia (por persona)?

0-30 €❑
30-60 €❑
60-90 € ❑
90-120 €❑
Más de 120 €❑
No sabe/ no contesta❑

P9. ¿Utiliza Internet durante su viaje para consultar información sobre el destino y/o compartir su experiencia con otras personas?

Si❑	Consultar información❑	No❑
	Compartir experiencia	
	Ambas (consultar y compartir)	

P10. ¿Ha visitado o tiene previsto visitar el Castillo o alguno de los museos de la ciudad?

| Si❑❑ | No sabe/ no contesta |
| No | ❑ |

II. SATISFACCIÓN

P1. Valore de 1 a 10 los siguientes aspectos de Ponferrada, siendo 1 "muy malo" y 10 "excelente"). Si desconoce alguno marque la casilla "D".

	1	2	3	4	5	6	7	8	9	10	D
Entorno natural	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
Patrimonio cultural	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
Infraestructuras turísticas	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
Actividades de ocio	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
Gastronomía local	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
Hospitalidad	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
Precios	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
Seguridad	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
Atención en museos/monumentos	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
Valoración global	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑

P2. ¿Volvería o a Ponferrada o le recomendaría a un amigo/ familiar que viniese?

| Si❑❑ | No sabe/ no contesta |
| No | ❑ |

III. VARIABLES SOCIODEMOGRÁFICAS

P1. Residencia (país y si es España provincia)	
País_____	Provincia_____

❑	**P2. Sexo**	❑
Mujer		Hombre

P3. Edad					
18-25❑	26-35❑	36-45❑	46-55❑	56-65❑	Más de 66❑

❑		**P❑. Nivel de estu❑ios**	❑	❑
Sin estudios	Primarios	Secundarios	Universitarios	Otros

P5. Ocupación					
☐ Empleado	☐ Desempleado	☐ Estudiante	Jubilado/ ☐ pensionista	Tareas ☐ del hogar	Otra ☐ situación

IV. SUGERENCIAS U OBSERVACIONES

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¡Muchas gracias por su colaboración!, ¡feliz estancia!