Extensive grazing and habitats conservation

Analysing the effect of extensive grazing on the conservation of Habitats of Community Interest (HCl, Annex I of the EU Habitats Directive) in Spain
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1. Aim of the report

The aim of this report is to provide scientific-based data on the conservation effect of extensive grazing in European Union natural and semi-natural habitats. As source of information, we analyse official European Commission reports and databases related to the terrestrial natural and semi-natural habitats of European Interest (as included in the Annex I EU Habitats Directive).

The final goal is to provide objective, understandable, concise and summarized information on the topic as a communication tool for general public, media, NGOs, pastoral communities and policy makers. We hope that this information could be useful for approaching extensive grazing as much objectively as possible, and to maximize the role of extensive grazing planning as a major tool for preserving biodiversity. We also hope that this report pay recognition to past and present pastoral communities, for the role they have played and still play in biodiversity conservation, as well as in other many environmental, social and economic challenges that our society is currently facing.

2. Introduction to habitat conservation in the European Union

2.1- The Habitats Directive

Adopted in 1992, the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (also known as Habitats Directive) aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. It forms the cornerstone of Europe’s nature conservation policy with the Birds Directive and establishes the EU wide Natura 2000 ecological network of protected areas.

2.2- Habitats of Community Interest (HCI) and Priority Habitats

In ecology, a habitat is the type of natural environment in which a particular species of organism lives. A species’s habitat is those places where the species can find food, shelter, protection and mates for reproduction. It is characterized by both physical (e.g. geology) and biological features (e.g. plant community).

To better understand and protect habitats, they are usually grouped in types of habitats...
that share some common characteristics. For example, at global level, habitats can be grouped in habitat types as polar, temperate, subtropical and tropical.

The European Union Habitats Directive in its Annex I, includes the natural (including semi-natural) habitat types of community interest, whose conservation requires the designation of special areas of conservation.

According to the Habitats Directive (article 1, c) natural habitat types of Community interest means those which, within the European Union territory:

(i) are in danger of disappearance in their natural range; or

(ii) have a small natural range following their regression or by reason of their intrinsically restricted area; or

(iii) present outstanding examples of typical characteristics of one or more of the nine following biogeographical regions: Alpine, Atlantic, Black Sea, Boreal, Continental, Macaronesian, Mediterranean, Pannonian and Steppic.

So Habitats of Community Interest (HCI) are the most important habitats of the European Union in terms of biodiversity, on the basis of their biodiversity richness, on how much are they endangered, and on our degree of responsibility at EU level for preserving them.

Annex I of the Habitats Directive lists today 233 European natural habitat types for the whole European Union1, of which slightly more than a half (118) are officially recognized as present in Spain (51%).2 In 2005, the then Ministry of the Environment published a basic guide on the types of habitat of community interest in Spain as a first tool to support their knowledge and conservation. It includes individual sheets of the types of habitat present in Spain, with a brief description of each one of them and information about their area of distribution, basic ecological requirements and characteristic species3.

Some of these HCI (Habitats of Community Interest) are even more important, because they are charasteristic EU habitats, and are

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in danger of disappearance. They are called *priority habitats*.

Also according to the Habitats Directive (article 1, d), *priority natural habitat types* means natural habitat types in danger of disappearance, which are present in the EU and for the conservation of which the Community has particular responsibility in view of the proportion of their natural range which falls within the EU; these priority natural habitat types are indicated by an asterisk (*) in Annex I of the Habitats directive.

Currently, 71 of the Habitats of Community Interest are as well priority habitats types in the European Union. In Spain there are 31 priority habitats officially recognized (41% of all EU priority habitats).

### 2.3- European Union Biogeographical regions

Very often, habitats are grouped by biogeographical regions. The challenges to habitats and species vary across the European Union due to differences in climate, topography, soil conditions, etc., but the problems and solutions may be similar between neighbouring countries. Taking into account these common characteristics -and ignoring political boundaries- the European Union can be divided in 9 biogeographical regions. Biogeographical regions are useful geographical reference units for describing habitat types and species which live under similar conditions in different countries.

In the European Union there are 9 biogeographical terrestrial regions described, 4 of
which are officially present in Spain (44%): Alpine (Pyrenees), Mediterranean (South and Central Spain), Atlantic (Northwest Spain) and Macaronesian (Canary Islands).

You may find out more about its characteristic features, and its Habitats of Community Interest in the following links:

- **Alpine**
- **Boreal**
- **Mediterranean**
- **Atlantic**
- **Continental**
- **Pannonian**
- **Black Sea**
- **Macaronesian**
- **Steppic**

3. **Grazing and habitat conservation**

3.1- **Source of information**

On the basis of the article 17 of the Habitats Directive, all Member States (e.g. Spain) must report every six years to the European Commission on the measures taken under this Directive. Among other information, the report includes the most important pressures negatively affecting each of the HCI, as well as an assessment of its conservation status (e.g. favourable, unfavourable, bad, unkown) and the conservation measures recommended for each of those habitats. This assessment is done by biogeographical region and the resulting information is available at Member State level as well as at EU level here, and the full list of Spanish habitats, including the habitats report for each of them, is available here. The aforementioned reports are based in the former 28 EU Member States, including United Kingdom and Croatia.

The latest reporting period covers 2013 - 2018, and we base the following analysis on that report.
3.2- Results on pressures

From the 233 European habitat types of community interest listed for the whole European Union, 118 are officially recognized as present in Spain. Excluding marine habitats from this 118 habitats, we have 109 terrestrial habitat types.

Pressures are defined, by the habitat assessment official guidelines, as factors that have acted within the current reporting period (2013-2018) and they have an impact on the long-term viability of the habitat assessed.

Out of the 109 terrestrial habitat types listed in Spain, 15 (3 of which priority habitats) are suffering a high or medium “pressure” caused by, literally quoting “Abandonment of grassland management (e.g. cessation of grazing or mowing). Abandonment of traditional agricultural practices in grasslands such as cessation of mowing or abandonment of traditional pastoral systems like itinerant grazing in mountain areas.”

Out of the 109 terrestrial habitat types listed in Spain, 58 (18 of which priority habitats) are suffering a high or medium “pressure” caused by “Intensive grazing or overgrazing by livestock. Intensive grazing or overgrazing by livestock in agricultural and agroforestry habitats (e.g. pastures, meadows, pastured forests) where grazing causes damage to vegetation or soil (e.g. trampling, nitrogen input) or where livestock presents a disturbance or a competitor for species targeted by the nature directives. Includes intensive grazing in other habitats in agricultural landscapes (riparian areas, bogs, scrubs and forests) where grazing causes damage to vegetation or habitats.”

Out of the 109 terrestrial habitat types listed in Spain, 33 (10 of which priority habitats) are suffering a high or medium “pressure” caused by “Extensive grazing or undergrazing by livestock. Insufficient grazing or undergrazing that causes, for example, changes in species composition, or extensive grazing in inappropriate habitats like meadows or bogs.”


3.3- Results on conservation status

The conservation status of a given habitat is a measure of its health, taking into account the factors that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species.

Progress towards the target of improving the conservation status of habitats covered by the EU Habitats Directive has not been substantial since 2010. This indicates that significant additional conservation efforts need to be implemented to revert current trends.

At the EU level, only 16% of the assessments of habitats protected under the Habitats Directive have a favourable conservation status.

Looking at the conservation status trends by habitat group, bogs, mires and fens have the highest proportion of unfavourable assessments. Almost half of these habitats are deteriorating, followed closely by grasslands (40%).

Abandonment of extensive traditional farming practices is the most important pressure on key farmland habitats and species of Community interest and, by contrast, the second most important pressure on key farmland habitats and species is the intensification of management.

3.4- Results on conservation measures proposed

Going back to the 33 HCI for which “extensive grazing or undergrazing by livestock” was identified as a high or medium pressure, in this section we have a look to the conservation measures proposed in the report, in order to be able to differentiate for which habitats the problem is “extensive grazing” activity and for which ones the problem is “undergrazing by livestock”.

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Chart 1: Comparison of the conservation status of two groups of habitats of community interest (HCI):

- **All terrestrial (ES):** Conservation status of all the terrestrial HCI present in Spain. Data source: MMA 2019, Informe art. 17 Directiva Hábitats 2013-2018. Resumen de resultados sobre el estado de conservación general de los tipos de hábitat y comparación con los resultados del sexenio anterior
- **Extensive grazing (ES):** Conservation status of the terrestrial HCI present in Spain for which “extensive grazing or undergrazing by livestock” is a high or medium pressure, at least in one of its biogeographical regions. Own elaboration. Data source: Article 17 web tool on biogeographical assessments of conservation status of species and habitats under Article 17 of the Habitats Directive
For only one of these 33 habitats the conservation measure recommended is: “Stop mowing, grazing and other equivalent agricultural activities. Stopping (or avoiding) the mowing or cutting of grasslands or grazing by livestock in order to restore habitats or to avoid damage to species (e.g. nesting birds); stopping (or avoiding) other equivalent activities”.

For 17 (52%, around half of them) of these 33 habitats the conservation measure recommended is: “Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures. Reinstating agricultural practices to stop or slow down natural succession caused by the abandonment of agricultural land and/or insufficient land use. These practices can be of an agricultural nature, such as the re-introduction of grazing, or a substitute of those (e.g. use machinery to keep open habitats). This can also include conservation grazing (i.e. ecological management using agricultural practices such as grazing by domestic animals – goats, sheep, cattle, horses – without a farming purpose)”. Four of these 17 habitats are priority habitats.

For 28 (85%) of these 33 habitats the conservation measure recommended is: “Adapt mowing, grazing and other equivalent agricultural activities. Adapting the
frequency, methods used and/or the timing of mowing/cutting of grasslands or of grazing by livestock in order to maintain/restore habitats or to avoid damage to species (e.g. nesting birds). This also includes the adaption and management of other equivalent activities (e.g. burning). Includes, for example, converting from intensively managed grassland to more extensive or reducing trampling by livestock”.

Nine of these habitats are priority habitats.

4. Discussion

4.1- The impact of extensive grazing on terrestrial HCI in Spain: 30% (33 of 109) of Spain’s land-based HCl’s have “extensive grazing or undergrazing by livestock” among their pressures. Confusingly this category includes both “extensive grazing” and “lack of grazing” as a pressure that negatively affects almost a third of all land-based HCl’s in Spain. Fortunately, we can infer which of these two types of pressures affects each of the 33 habitats, by taking into account the conservation measures proposed for each of these 33 habitats. For 85% (28) of these 33 habitats, the conservation measure recommended is “Adapt mowing, grazing and other equivalent agricultural activities”, for 52% (17) is to “Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures”, and only in one case out of these 33 HIC “Stop mowing, grazing and other equivalent agricultural activities” were recommended. So, except for one particular habitat, the pressure identified as “extensive grazing or undergrazing by livestock” really means to adapt current livestock grazing practices or reinstate them (see Chart 2).

Another clear conclusion, is that -in order to improve the state of conservation of HCl’s in Spain- there is an urgent need for adapting the management of extensive grazing at local level, guaranteeing both a good conservation status of grazed HCl as well as the sustainability of the grazing activity in the long term. To
achieve this is paramount to design Integrated Management Plans integrating grazing with hunting, forestry, leisure, etc. recovering and optimising the environmental, social and economic values of extensive livestock farming, while promoting the multifunctionality of grazing areas. This would largely avoid problems such as excessive trampling or herbivory at particularly critical times for some sensitive habitats, while better distributing grazing pressure at a temporal and spatial level to prevent abandonment and undergrazing. WWF Spain and Trashumancia y Naturaleza are currently working on a proposal of a National Plan for Extensive Livestock Farming (Plan Nacional de Ganadería Extensiva) that will be published in 2021 and presented as a work document to the Spanish Administration authorities.

4.2- Extensive grazing vs intensive grazing: In general terms, there is clear evidence of the very different impact of extensive and intensive grazing on the conservation status of ICHs in Spain.

For example, for 58 of the 109 land-based HCIs in Spain (53%, more than half) “intensive grazing or overgrazing of livestock” is a high or medium pressure. We found here again a confusing categorisation with includes “intensive livestock farming” and “overgrazing” in the same category of pressure (as in the aforementioned case of “extensive grazing” and “lack of grazing”).

The negative impact of intensive grazing and overgazing in Spanish HCI, is fully consistent with the general EU HCI scenario. As mentioned before, abandonment of extensive traditional farming practices is the most important pressure on key farmland habitats and species of community interest and, by contrast, the second most important pressure on key farmland habitats and species is the intensification of management.

On this basis, it is urgent to clearly describe and distinguish extensive and intensive grazing features, not only to identify and describe different farming systems, but also to recognise and better understand their different (often opposite) impact on habitats conservation. This difference should be taken also into account at legal and administrative levels, with
the aim of support and encourage sustainable uses of natural resources, while addressing conservation problems caused by grazing intensification.

Very recently, WWF Spain, Trashumancia y Naturaleza, the Sociedad Española de Pastos and the Plataforma por la Ganadería Extensiva y el Pastoralismo, has published a proposal for and extensive livestock farming characterization (Propuesta de caracterización de la ganadería extensiva) in which more than 40 experts and entities related to extensive livestock farming and Spanish pastoral systems, aims to promote the necessary process of characterization of extensive livestock farming; in particular in the determination of objective criteria that make possible the differentiation between various livestock systems and establish a gradation of their level of extensiveness.

4.3- Wild herbivores vs domestic herbivores (livestock): It is important to highlight that -conversely to domestic herbivores-, the role of wild herbivores is not identified in the EU Habitat assessment as a current or foreseen relevant limiting factor explaining the conservation status of any of the HCl of Spain, neither at the level of the Member State, nor at biogeographical region level (Alpine, Atlantic, Macaronesian and Mediterranean). The role of wild and domestic ungulates in conserving habitats is extensively described in the scientific literature, and at local level the effect of wild ungulates can be critical for the conservation of habitats and species -both by lack or excess of grazing. Nonetheless, at the level of Spain as a whole or its biogeographic regions at State level, grazing by wild ungulates is not mentioned as a conservation factor by the experts reporting on threats and pressures of HCl’s, even considering its absense as well as its excess.

Wild ungulates can affect locally HCl, because they are present (not stabled) all year round, although some can migrate seasonally. That is why, at local level, when fresh grass is scarce (winter at high altitudes, and in summer in the

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8 Urivelarrea, P. y Linares, L. 2020. Propuesta de caracterización de la ganadería extensiva. Aproximación a la diferenciación del grado de extensividad. WWF España, Trashumancia y Naturaleza, Sociedad Española de Pastos y Plataforma por la Ganadería Extensiva y el Pastoralismo

9 Article 17 web tool on biogeographical assessments of conservation status of species and habitats under Article 17 of the Habitats Directive
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Lowlands can forage intensively and cause significant damage to woody taxa (shrubs, trees), especially of advanced successional stages -which they like more- and to some rare or threatened species. This damage can be increased when wild ungulates are fenced (e.g., deer in big hunting estates). This is less likely to happen in the case of extensive livestock, basically because they are managed by humans (shepherds and another livestock farmers) and when food is scarce, they are moved or carried by their owners to other grasslands.

On the contrary, wild ungulates are much less gregarious than livestock, and its grazing activity cannot be managed by shepherding. For this reason, in the case of wild free ranging ungulates in Spain the grazing pressure (grazing load) is not sufficient to preserve significant areas of herbaceous communities of some HCl in an adequate conservation status, especially those plant communities that require intense grazing.

Furthermore, and although both the role of wild and domestic ungulates in conserving habitats is extensively described in the scientific literature, as a tool in itself, the potential of extensive grazing for improving the current conservation status of Spanish (and EU) HCl is much higher, due to our understanding and capacity for managing its density, timing and spacial distribution at huge scale by affordable and profitable pastoral activity.

4.4- Grazing as fire prevention tool for the conservation of HCl: Fires are a very important pressure for many Habitats of Community Interest. The European Commission report on forest fires in 2019 indicates that over 400,000 ha of the EU natural land were burnt, from which 48% were affecting Natura2000 Network. In 2019 Spain was the most affected EU member by fires, only after Romania, but in any case forest fires are a threat at EU level.

Several wildfire prevention programs in southern Europe are currently incorporating extensive livestock grazers in fire prevention activities to reduce the high costs of mechanical clearance. Among these the Andalusian network of grazed fire breaks, the so-called RAPCA program, stands out for its dimension and stability over time, dating back to 2003-2005. RAPCA currently works with 220 local shepherds who, with their guided flocks

maintain low biomass levels in almost 6000 ha of fire breaks in public forests to meet fire prevention standards\textsuperscript{11}.

Some Spanish regions (Comunidades Autónomas) are also gradually introducing specific support for the use of extensive grazing as a fire prevention tool. At least, this is happening in Comunidad Valenciana, Extremadura, Andalucía, Castilla-La Mancha, Castilla y León and Comunidad de Madrid.

Despite the increasingly recognition of extensive livestock grazing as a conservation tool against forest fires, its implementation is still patchy and far from being widespread in Spain. For example, in the national reports on forest fires in Spain\textsuperscript{12,13}, although a section on fire prevention is included, it does not mention at all extensive grazing, or the aforementioned currently operative prevention experiences.

The cost-efficiency of the current mainstream prevention measures at EU level has been already questioned by the European Court of Auditors: In the 2007–13 programming period, the European Agricultural Fund for Rural Development (EAFRD) provided support for restoring forestry potential in forests damaged by natural disasters and fire, as well as for preventive actions. The Court’s audit concludes that preventive actions were not sufficiently targeted. The audit report found actions which were not appropriate to achieve the objectives of the measure. The cost-effectiveness of the actions financed was not adequately ensured. Finally, the monitoring tools in place did not allow the Commission and the Member States to adequately assess the efficiency and effectiveness of the measure\textsuperscript{14}.

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4.5- Lack of adequate recognition of the conservation role of extensive grazing: Despite a clear increase in the recognition of the role of extensive livestock farming in the conservation of biodiversity in Spain and elsewhere, there is still a striking absence of planned and coordinated use and participation of this management and conservation tool in conservation strategies and plans.

A good example of this is the insufficient use of extensive grazing as fire prevention tool, and the lack of replication and transferability of successful experiences -as the RAPCA programme in Andalusia- elsewhere. As the European Court of Auditors states, fire prevention approaches and activities should be more focused on cost-efficiency, and the actions should be more strongly related with the prevention goals. This could be improved by implementing the aforementioned successful experiences more systematically and on wider areas (e.g. at national level) as well as integrating them in National Plans and secure long term budget stability.

As conclusion, conservation efforts are still insufficient both in Spain and at EU level (as the poor conservation outcomes show), and are too focused on emblematic species and symbolic protected areas, while effective implementation of transversal approaches for the conservation of more integral parts of the territory is still the exception.

5. Conclusions

- Current conservation efforts and approaches are insufficient for preserving Spanish habitats and species in a good conservation status: 80% of Spanish terrestrial Habitats of Community Interest (HCI) are in an unfavourable status.

- Undergrazing by livestock or abandonment of pastoral activity is a major threat for the conservation of many types of Spanish habitats: according to the EU, 17 Spanish HCI out of 109 needs to “reinstate appropriate agricultural practices to address abandonment, including mowing,
Extensive livestock grazing is a major biodiversity conservation tool for preserving many types of Spanish HCI: measures proposed by the EU for preserving one third of Spanish HCI includes to adapt or reinstate mowing, grazing and other equivalent agricultural activities.

The use of extensive livestock grazing has been proved as a cost-effective conservation tool for preventing forest fires: some programmes are being successfully implemented in some Spanish regions for more than 15 years.

The use of extensive livestock grazing -and other preventive measures- to avoid forest fires has not been sufficiently explored in Europe (including Spain): in 2015 the European Court of Auditors concluded that preventive actions were not sufficiently targeted during the 2007–13 implementation of the European Agricultural Fund for Rural Development (EAFRD).

The design of local Grazing Management Plans is needed to adapt the management of extensive livestock grazing at local level, guaranteeing both a good conservation status of grazed HCI as well as the sustainability of the grazing activity: adapt mowing, grazing -and other equivalent agricultural activities- is needed for almost one third (28 out of 109) of the Spanish terrestrial HCI.

It is urgent to clearly characterize and differentiate extensive and intensive livestock grazing features in order to recognise and better understand their different impact -often opposite- on habitats conservation: according to the EU, abandonment of extensive traditional farming practices is the most important pressure on key farmland habitats and species of community interest and, by contrast, the second most important pressure on key farmland habitats and species is the intensification of management.

At least in the Spanish context, grazing by wild ungulates has not been identified as a relevant factor for the conservation status of HCI’s at the level of Spain or its biogeographic regions: the role of wild herbivores is very important from the ecological point of view, and it may be very important for the conservation of some HCI at the local level. But grazing by wild herbivores is not identified in the EU habitats conservation assessment as a relevant factor of the current conservation status of any of the HCI of Spain, neither at the level of the Member State, nor in any of the biogeographical regions analysed (Alpine, Atlantic, Macaronesian and Mediterranean).

Extensive livestock grazing has a great potential as a conservation tool, and this potential has been mostly disregarded and underused during the last decades. Current data shows that in the EU most Habitats of Community Interest are in an unfavourable conservation status (a trend that is mostly worsening), and many of them would benefit from, or are in dire need of planned extensive grazing activity. Nonetheless social recognition and administrative support of this cultural activity -although increasing- is still scarce. Policies as the Common Agricultural Policy is mostly detrimental for this activity, and its environmental and social benefits are dismissed by short-term market approaches. A main shift in the approach that administration, stakeholders and general public has on extensive livestock grazing is needed. A coordinated action integrating research, reporting and communication strategies and tools is needed to improve this scenario in the short term.