



# BIODIVERSITY AND LANDSCAPE FEATURES

MAP Position Paper



## RURAL POLICIES TO PROTECT AND ENHANCE BIODIVERSITY THROUGH THE PRESERVATION, CREATION AND MANAGEMENT OF LANDSCAPE FEATURES

MAP ALQUEVA

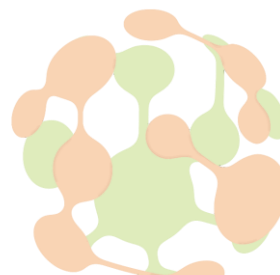
### Topic and headline messages

It is recognized by the members of the MAP Alqueva that landscape features (LF) are essential to restore, and to prevent the loss of, biodiversity and ecosystem services. It is also recognized that there is a need for the definition of rural policies that mitigate the loss of biodiversity through the promotion of the protection and sustainable management of landscape features, and that these policies need to be based in solid scientific information and long term monitoring of their impact.

CAP application and surface control audits meant that farmers' parcels were adjusted only to useful areas, which led many farmers to exclude areas of ecological interest from the total useful surface of their holdings, with a loss for farmers in terms of support granted. Because of this, many farmers sought to get rid of these landscape elements, such as the edges of plots, rocky cliffs or bush areas, thereby neglecting the role that these areas have in the balance of the agricultural ecosystem.

Current agricultural policies in Portugal have not effectively supported the protection and the establishment of landscape features, mainly because there are no systems for monitoring landscape features and biodiversity (regarding the identification of adequate indicators), which block support long-term monitoring of the impact of policy measures for rural areas. In the future it will be important to introduce in European policies a positive discrimination to farmers that provide ecosystem services, namely the regulation services.

**Keywords:** *biodiversity, landscape features, ecosystems services, agriculture, rural policies, agriculture*



## Problem being addressed and key questions

Semi-natural habitats with landscape features (LF) linked to agricultural activities, such as hedges, stone walls, tree lines, or ditches and other watercourses, can contribute enormously to the conservation and even improvement of biodiversity and ecosystems. It is recognized that there is a global decline in biodiversity, with estimations of a decline of more than 30% of farmland birds and grassland species since 1990 ([Biodiversity on farmland: CAP contribution has not halted the decline, 2020](#)). And it is also clear that non-sustainable intensification and extreme "extensification" (with land abandonment) are drivers of biodiversity loss and ecosystem degradation in Europe.

There is an added value that landscape features bring through the creation of synergies between some species and farming systems, which result in ecosystem services such as pollination and biological pest control services.

The MAP Alqueva gathered a total of 15 members who were divided in three groups, each with a balanced representation its community. Zoom platform was used to create three rooms where each group took turns answering questions under the general subjects of: politics, indicators and monitoring, and science.

The questions addressed by the Multi-Actor Platform were:

- **What changes need to be made in terms of public policies?**
- **What indicators and what monitoring should be implemented?**
- **What role can research play in the topic under discussion?**
- **How should science interact with society and with policy makers in the development and implementation of measures and policies?**

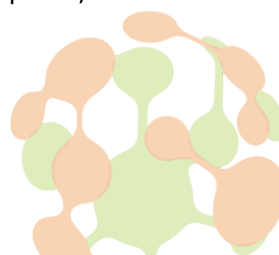
## Key scientific evidence

The SHERPA Discussion Paper was presented at the MAP discussion, as well as the Diagnosis of the Portuguese Strategic Plan for CAP and the actions put in place by EDIA ("Empresa de Desenvolvimento e Infra-estruturas do Alqueva", which is the entity responsible for the water management of the Alqueva dam) related to these issues.

The landscape, climatic and orographic characteristics in Alqueva makes it recognized as a region rich in natural heritage, possessing species of flora and fauna associated with a wide variety of ecosystems, habitats and landscapes, with a very relevant diversity. An example is the cork oak systems, widely present in this territory, which is one of the habitats with the greatest biodiversity in Europe, being an important component of the Mediterranean Basin hotspot, which is one of the 35 biodiversity hotspots worldwide.

At the MAP Alqueva, several issues were discussed about Landscape Features and Biodiversity in the region, namely:

- **The threat to biodiversity in agriculture areas**, which is related to non-sustainable intensification and/or to extreme "extensification" (with land abandonment)
- **Differentiated levels of biodiversity** result from the combination of the type of land use, management practices, and the landscape elements that characterize production systems
- **Diverse landscapes and semi-natural habitats enhance pest control and pollination**. Benefits to pest control that arise from diversifying landscapes are independent of benefits secured from crop rotation, meaning that they occur even in single crop system
- **The presence of landscape elements in more intensive production systems**, namely riparian galleries and well-developed groups of trees, which function as feeding and shelter areas for many species,



and the adoption of management techniques that promote the sustainable use of resources, allow to maintain or improve the levels of biodiversity

- The main threat to steppe birds is the disappearance of extensive rain-fed farming systems, where cereal crops with fallow rotations and pastures are replaced by irrigation, olive, vine, almonds or forest intensive agriculture. To avoid the continuity of intensive permanent crops, solutions such as ecological corridors can be promoted.
- Having enough semi-natural habitats can buffer the negative effects of climate change, for example linked to negative effects of winds and sunburn in fruit production
- There are wide variations in the effectiveness for biodiversity of the different typologies currently available in Ecological Focus Area. Agroforestry, buffer strips, landscape features and land lying fallow are generally more effective for biodiversity than measures such as cover crops and legumes. It is important to note that in Portugal, and namely in Alqueva, fallow is the most prevalent typology in the total of Ecological Focus Area.

## Summary of position of the Multi-Actor Platform

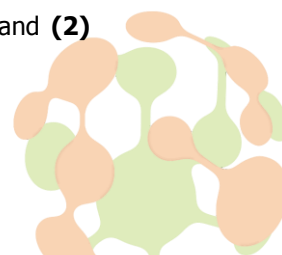
- There is no recognition of the environmental benefits that less productive areas of agricultural holdings have for biodiversity, landscape and the balance of the agricultural ecosystem, mainly because that benefits are not well known by the farmers. Policies should promote the maintenance, or the creation, of landscape features, thereby recognizing their importance and preventing their destruction.
- The definition of policies must involve different actors, including farmers and their associations, conservations experts and researchers. It is also essential to determine the baseline of the indicators considered essential to monitor the development of biodiversity and to define the medium-long term objectives of each production system that are achievable and take into account the well-being of the populations and the profitability of the farms
- Currently, there is no need to "license" agricultural projects, especially of permanent crops, which would imply that a detailed project of the entire plantation would have to be submitted to the responsible entities with the measures to be implemented to maximize biodiversity and minimize impacts on the landscape. If this was implemented, it would be possible to define, from the beginning, a set of practices and measures that would be beneficial for the promotion of biodiversity and landscape features. These measures, if they imply loss of income, must be compensated under programs to support the sector, either from the Agriculture or the Environment Ministers. In any case, and in order that this process does not become a complicated, and not very transparent, administrative process, clear criteria should be created for the technical evaluation with indicators / targets to be achieved.
- Collaboration and communication between science and society and policy makers has not been efficient in the timing and format. Very often the language adopted by science needs to be tailored to the needs of the recipients so that it can translate into policy development and implementation. There is also a need to improve communication and dissemination to let the information from research labs reach society and policy makers, producing real impacts in the long run
- Regarding indicators and monitoring of landscape features and biodiversity, the MAP Alqueva identified the main lacking indicators for a more holistic interpretation and gave relevant suggestions on how stakeholders think is possible to monitor them. Furthermore, the MAP Alqueva constructed a matrix where some of those insights were classified as follows:
  - Within the scope of landscape features indicators:



- **(1) Landscape regionalisation.** There is a need to classify landscape according to objectives (through land cover analysis), for instance, landscape differentiating elements, landscape disrupters and landscape alteration;
  - **(2) Map farming systems transitions and their drivers,** such as market fluctuations, policies, climate.
  - **(3) Water quality analysis,** upstream and downstream from the region in order to infer fertiliser, pesticides, soil particles, and others that originated in the region.
  - **(4) Population wellbeing index,** studies that have been developed should be used when landscape decision making is being made.
- Concerning biodiversity, the main indicators identified as crucial to assess the regional situation were:
    - **(1) Land cover as a proxy of biodiversity,** by collecting statistically valid biodiversity data from different locations in all the different land cover categories. The information obtained should allow for an approximation on the number of species by hectare, microorganisms by cm<sup>3</sup>, and ultimately a biodiversity index.
    - **(2) Wildlife census,** by quantifying the population evolution of certain animal species, we can estimate biodiversity curves.

## Multi-Actor Platform recommendations

- Policy must rely on a strong knowledge base in the decision process (science-based policy), based on a two-way exchange of knowledge, where policy makers pose challenges to science and vice versa. Information must be tailored to the needs of society and policy making. The way to communicate science must be simple and appropriate for the recipient of the information.
- Science should be able to transmit a clear and effective message, understandable by the target groups that is intended to, on the advantages and added value of ecosystem services associated with good agricultural practices. It is also recommended that science develops inexpensive, flexible and adaptable tools for monitoring and alert, with relevant indicators.
- Science communication, dissemination and exploitation of results should be supported by nationally funded projects, and by the new CAP. It should make use of a simply and clear language and effective platforms (e.g. videos or radio programs) to reach a wider audience in formats that make communication efficient.
- Recommendations for the interaction between science and society include the promotion of models of collaboration with society raising issues and challenging science to respond to the needs of society. Society should finance research and should help identify priority research topics.
- A model similar to the CAP cooperation measure should be implemented, with a multi-actor approach, to define consensual commitments between the different actors, making it possible to build a diagnosis and establish regional objectives. Each farmer who joins assumes results to achieve.
- To monitor indicators, the **creation of a dedicated observatory** was suggested. This observatory should be maintained by a regional public institution. When indicators are centralized in the same platform, significant added value can be generated by relating different sources of landscape and biodiversity data. Along with the traditional data sources, two other sources of information were highlighted in this MAP, **(1) Citizen science**, where all citizens can proactively collaborate with data collection and delivering to a centralized database, like the suggested observatory and **(2)**



**Subsidies for neighbouring farmers that work together to promote landscape and biodiversity**, and also that collect valid data for the benefit of the region.

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## Annex 1: Key scientific evidence or activities cited by the Multi-Actor Platform

For this first meeting of the MAP Alqueva, the decision was to share the SHERPA Discussion Paper, provided by the project, adding extra information for the Alqueva region. This was the basis document used in the discussion that led to the recommendations and position of the MAP.

Access to the preview of the Diagnosis of the Portuguese Strategic Plan for CAP and to the biodiversity monitoring plan, used by EDIA, was also provided.

## Annex 2: Key scientific evidence or activities provided by the Multi-Actor Platform

The most important scientific source of information for Portugal is:

- Domingos, Tiago & Vicente, Luis & Proença, Vânia. (2009). Ecosystems and human well-being: evaluation for Portugal of the Millennium Ecosystem Assessment (Ecosystemas e bem-estar humano: avaliação para Portugal do Millennium Ecosystem Assessment).
- [ASEBIO](#) – Assessment of Ecosystem Services and Biodiversity in Portugal, 2018.



### Annex 3: Graphical representation of the overview of the position paper

