RECOMMENDATIONS FOR THE DESIGN OF THE

POST-2020 CAP CONCERNING OLIVE FARMING

Context and aim of this dossier:

The main objective of the Olive Alive LIFE Project (September 2015 – September 2020) is to define a scientifically sound, innovative olive farming model of great demonstration value, which is agronomically, economically and socially viable and contributes in an efficient and solid manner to halting biodiversity loss in the EU.

As a part of action E6 of this LIFE project ('Dissemination and proposal to include recommendations derived from the project in the CAP 2014-2020 and in the European Agricultural Fund for Rural Development'), this report summarises the most important recommendations that can be derived from the results obtained so far.

OLIVARES VIVOS

Coordination: José Eugenio Gutiérrez Ureña (SEO/BirdLife).

Authors: José Eugenio Gutiérrez Ureña, Carlos Ruiz González, Samuel Galiano Parras (SEO/BirdLife), Francisco Valera Hernández (Estación Experimental de Zonas Áridas del CSIC) y Pedro Rey Zamora (Universidad de Jaén).

In colaboration with: Jesús Pinilla Infiesta, Inés Jordana Trisán y Ana Carricondo López (SEO/BirdLife).

In the framework of the project LIFE 14 NAT/ES/001094 "Olivares Vivos", which is funded by the European Comission and whose coordinating partner is SEO/BirdLife, with the beneficiary partners Diputación Provincial de Jaén, Universidad de Jaén and Consejo Superior de Investigaciones Científicas, as well as the co-financers Fundación Patrimonio Comunal Olivarero and Interprofesional del Aceite de Oliva Español.

0. Executive summary

Based on the Olive Alive LIFE Project results (LIFE14NAT/ES/001094), several recommendations can be put forward that are particularly useful in integrating biodiversity and its ecosystem services into the post-2020 Common Agricultural Policy (CAP), which will be implemented from 2023.

The proposal of certain elements that should be considered in the future green architecture of the CAP is based upon the scientifically sound, solid knowledge base generated by the project, knowledge regarding biodiversity of olive groves, the most effective measures for its recovery (farm management, restoration actions and good practice), and feasibility of such measures (farmer acceptance, impact on production costs and requirements for the assessment). This way, a model based on enhanced conditionality is built that includes recommendations for the design of effective, easily assessable eco-schemes, providing a solid base to plan the programmes of the second pillar in the olive growing regions of the EU.

A thorough, extensive analysis of the biodiversity of 40 olive groves in Southern Spain (15,000 samples were taken and almost 600,000 flora and fauna records were analyzed) was carried out. The findings show that **olive groves are a strategic crop to halt biodiversity loss in Europe** and that, although they have lost part of their biological diversity in the last decades, they still are an important refuge for flora and fauna. However, the species richness varies considerably according to the landscape context and farming practices. Even so, the most important conclusion in relation to the CAP objectives should be that olive groves retain great potential to recover biodiversity and its ecosystem services.

There are two key issues regarding this recovery: **an appropriate management of the herbaceous cover** and the conservation and **restoration of the natural vegetation in the non-productive areas of olive groves**. Likewise, another important conclusion drawn from the project is that, unlike in other agrosystems, the recovery of biodiversity in small farms is possible when they are olive groves. This factor should be taken into account in the definition of 'genuine farmer' and its possibility of accessing payments derived from eco-schemes, especially considering that the average size of olive groves in the EU is less than three hectares.

So far, environmental cross-compliance measures in the CAP have failed to significantly promote ecosystem services in olive groves. Such a low impact is due to design issues and/or a poor implementation and evaluation of measures. Regarding herbaceous covers, for instance, the insufficient minimum compulsory area (one metre wide) and the possibility of removing them using herbicides and ploughing have limited their ecological performance. Regarding conservation and restoration of non-productive areas (natural vegetation patches, field boundaries, streams, gullies, flood zones, road edges), the poor inventory of 'landscape features'(where all these non-productive areas should be included) has even a negative impact on the contribution of olive groves to the green infrastructure; as many of the non-productive areas are not listed in the inventory, Spanish Agricultural Guarantee Fund (FEGA) inspectors consider them to be the result of land abandonment, warn olive farmers about their possible exclusion as eligible hectares and urge them to 'clean' and even eliminate such important areas for ecological offsetting.

However, the results obtained from the intensive monitoring of biological indicators carried out in the framework of this LIFE Project show

in detail the effectiveness and feasibility of a specific set of actions to recover biodiversity. This information will be the basis to design effective, easily assessable eco-schemes for the olive groves, thus avoiding previous erroneous approaches arising from the inclusion of cross-compliance and agri-environmental measures of unknown effectiveness.

The project results also suggest that **farmers will welcome these measures**. According to a survey conducted among 640 olive farmers from 88 municipalities in Andalusia, eight out of ten are aware of the biodiversity loss suffered by this crop and are concerned about the decline in its ecosystem services. These farmers would be willing to change their farming model to recover biodiversity, provided they have the proper **advice**. The figure increases to nine out of ten olive farmers if such a transition were to be supported by the CAP. The farmers' interest to introduce changes in favour of biodiversity has been evident in the training actions of this LIFE project and in the growing interest about the Olivares Vivos certification (almost 700 farmers have showed interest in changing their olive groves to this new olive growing model). In this respect, it would be highly useful to **implement training programmes to increase the farmers' knowledge on the ecosystem services provided by biodiversity for agriculture and how to recover them**.

Rural development policies of the second pillar of the CAP should also foster agri-environmental measures and financial support programmes for non-productive investments in olive groves, aimed at transforming these farmlands in a true green infrastructure in olive farming regions. In this sense, **an enhanced synergy between the LIFE Programme and the EAFRD** would make the most of the lessons learned in this and other LIFE projects, in order to achieve the objectives and principles of EAFRD.

Finally, the CAP needs to address the adverse effects regarding conservation that the rapid expansion of olive groves is causing in areas of high ecological value in some European regions (especially in Spain and Portugal). This growth is generally achieved at the expense of rainfed cereal crops in the South of Spain and of *dehesa*/*montado* areas in Extremadura and Portugal, causing the decline of a mosaic landscape of high conservation value for many listed species (particularly steppe birds). The results of this LIFE project show the great importance of landscape diversity for biodiversity conservation and the need to set up mechanisms for its recovery; they thus confirm the ecological importance and the need for agricultural policies to tackle the expansion of the monoculture in these agricultural landscapes. Hence, a necessary first step should be to **identify and catalogue rainfed cereal crops and natural vegetation areas within the olive grove matrix, to recognise their environmental value and to promote their profitability with CAP support**, preventing their conversion into woody crops and the consequent loss of biodiversity.

1. Context and objective of this report

The main objective of the Olivares Vivos LIFE Project (September 2015 – May 2021) was to define a scientifically sound, innovative olive farming model of great demonstration value, which is agronomically, economically and socially viable and contributes in an efficient and solid manner to halting biodiversity loss in the EU. As a result and deliverable of action E6 of this LIFE project ('Dissemination and proposal to include recommendations derived from the project in the CAP 2014-2020 and in the European Agricultural Fund for Rural Development'), this report summarises the most important recommendations that can be derived from the results obtained, in order to integrate biodiversity and its ecosystem services in the post-2020 CAP (objective 1f of the proposal for a Regulation establishing rules on support for strategic plans to be drawn up by Member States under the Common agricultural policy - CAP Strategic Plans)[1].

[1] Brussels, 1.6.2018 COM (2018) 392 final. Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing rules on support for strategic plans to be drawn up by Member States under the Common agricultural policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and by the European Agricultural Fund for Rural Development (EAFRD) and repealing Regulation (EU) No 1305/2013 of the European Parliament and of the Council and Regulation (EU) No 1307/2013 of the European Parliament and of the Council

2. Key messages and recommendations

1. Considering their strategic location, their importance as a refuge for biodiversity and their potential to recover it, olive groves are a fundamental crop to achieve the post-2020 CAP objectives regarding biodiversity. This should be reflected in the Regulation and in the Strategic Plans of the Mediterranean countries of the EU..

2. The results of the Olivares Vivos LIFE project provide a scientific and practical base to support the green architecture of the CAP regarding the conservation of biodiversity, its ecosystem services and the olive grove landscape.

3. Building on this knowledge, effective, viable and easily assessable eco-schemes can be designed, and the agricultural policies of the second pillar can be adjusted in the olive farming regions of the EU.

4. A high number of olive farmers are willing to change their production model in order to enhance biodiversity, particularly if such a transition is supported by proper advice and the CAP.

5. It is necessary to implement training measures that promote the importance of the ecosystem services provided by biodiversity and support olive farmers in the conversion to olive farming models that make such an added value profitable. This is particularly important in traditional olive farming (wide planting distance, usually with more than one trunk per tree and mostly rainfed), which is the model of highest environmental, social and cultural value, as well as the most widespread in the EU (73%).

6. Three key issues should be considered in the design of the enhanced conditionality of the post-2020 CAP and of eco-schemes:

a. Keeping a functional herbaceous cover during most of the year, removing it (cleared with a strimmer or similar) only at the beginning of the dry season, to avoid competition with olive trees.

b. The conservation and restoration of the non-productive areas of olive groves: natural vegetation along the edges or interspersed with the productive areas, such as boundaries, streams, gullies, flood zones, patches of natural vegetation, road edges, etc. This measure is of particular importance in simplified olive grove landscapes. Therefore, elements of ecological interest like the ones mentioned before should be inventoried, catalogued and their area be considered as eligible hectares.

c. Creating support structures and shelter for fauna (ponds, drinking troughs, perching poles, nest boxes, bee hotels or dry stone walls, among others), which have proven their effectiveness for the recovery of biodiversity, especially for some EU cataloged species.

7. Once the effectiveness of the measures tested in the project has been assessed and proven, the assessment of the implementation of the enhanced conditionality and/or eco-schemes that include these measures might be done using indicators based on areas that are identifiable by means of remote sensing.

8. The project results show that it is possible to recover biodiversity in small olive farms. Considering that the average size of olive farms in the EU is less than three hectares, the

role of this type of farms should be seen as fundamental to integrate the environmental objectives of the post-2020 CAP. This factor should be taken into account in the definition of 'genuine farmer' and its possibility of accessing payments derived from eco-schemes, especially considering that the average size of olive farms in the EU is less than three hectares and frequently are divided in several plots.

9. Landscape diversity is essential for the conservation and the setting up of mechanisms to recover biodiversity. Therefore, the CAP should tackle the effects that the accelerated expansion of olive groves in certain regions is causing. Consequently, keeping herbaceous crops and natural vegetation areas within the olive grove matrix should be encouraged. A first necessary measure would be the identification and catalogue these areas and farms, the recognition of their environmental value and the stimulation of their profitability.

10. Rural development policies under the second pillar of the CAP should foster agri-environmental measures and financial support programmes for non-productive investments in olive groves, aimed at recovering and restoring non-productive zones. Their role as a green infrastructure would thus be improved, as would the olive grove landscape and its multifunctionality. In this regard, an enhanced synergy between the LIFE Programme and the EAFRD would be desirable, so that the lessons learned be integrated into rural development programmes.

11. Rural development programmes should promote conservation strategies that are based on the added value provided to the agri-food system by biodiversity; it is therefore necessary to provide recources for the promotion of biodiversity as a recognised, profitable market value. These strategies contribute not only to objectives d and f directly, but also to the achievement of every other objective of article 6 of the proposal for a Regulation regarding post-2020 CAP Strategic Plans.

12. The measures included so far in the cross-compliance had little impact on the conservation and improvement of ecosystem services, due to either design errors or poor monitoring. It is essential to guarantee that future CAP measures will be functional in olive groves. In this sense, the incorporation of lessons learned from this LIFE project would be very useful.

3. Methodological basis and results supporting these recommendations

The recommendations made above are based on the results obtained from the following work:

- The study of several biodiversity indicators in 40 olive groves in Andalusia (20 demonstration olive groves and 20 control), where over 15,000 samples have been taken and almost 600,000 flora and fauna records have been analysed[2 and 3].

[2] https://drive.google.com/file/d/1slnsxkoPRopI-1q1aihHHooz-dQxf-k3/view
[3] https://doi.org/10.1016/j.agee.2019.03.007
[4] http://olivaresvivos.com/wp-content/uploads/2018/07/2018-Informe-02-Encuestas-WEB.pdf

• Two surveys among 1250 olive farmers in 88 municipalities of Andalusia[4].

• The monitoring and analysis of the impact of the implementation of Olivares Vivos agri-environmental measures on agricultural productivity, the use of fertilizers and phytosanitary products and on the production costs.

The main findings and recommendations derived from this work are summarised below, related to the integration of biodiversity and its ecosystem services into the post-2020 CAP:

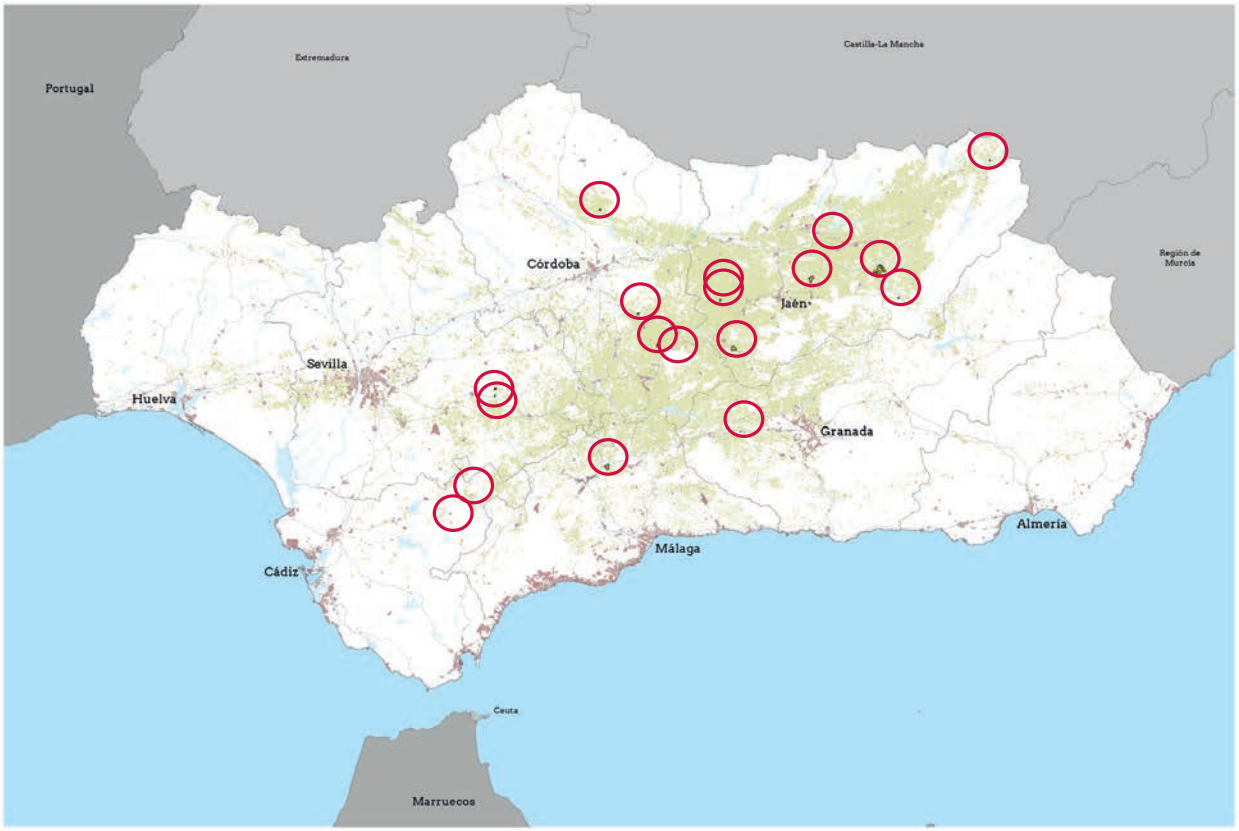
1. Olive groves are a strategic crop to halt biodiversity loss in the EU, their biodiversity is still considerable and they have great potential to recover it.

• **Due to their size and strategic location.** Olive groves take up over 6.2 million hectares in the Mediterranean Basin (4.59 million hectares in the EU), which makes this crop the most important hotspot for biodiversity conservation in Europe.

• **As a whole, they remain an important refuge for biodiversity.** 750 flora species (among them, a new species to science), 180 bird species, 60 ant species and 200 bee species have been found in just the 40 the studied olive groves. These figures represent very significant percentages (10,30, 20 and 20 %, respectively) of the total species present in the Iberian Peninsula (the region with the greatest biodiversity in the EU.)

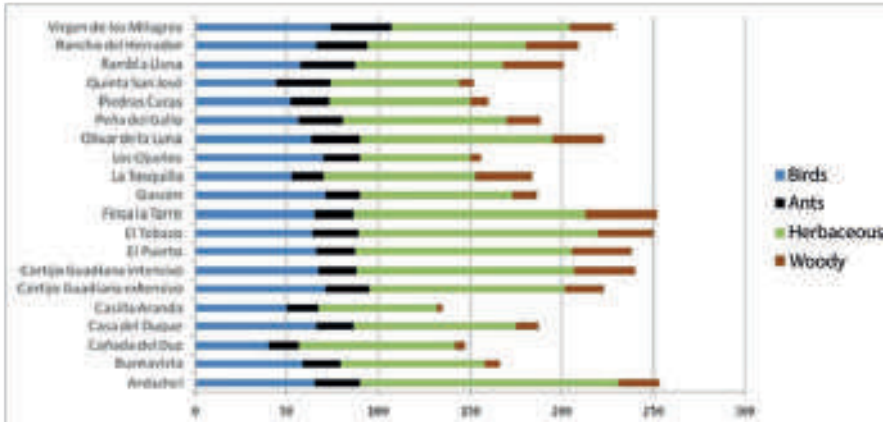
• **They have extraordinary potential to recover biodiversity.** The Agri-environmental schemes of Olivares Vivos (with no impact on agricultural productivity and low impact on operating costs) in just 3 years have achieved an average recovery of between 7 and 12% of birds, ants, bees and plant species and an increase in their abundance of 40%. The recovery has been more evident in the more intensified olive groves that started with low levels of biodiversity. In these olive groves, as modeled from the preoperational biodiversity monitoring in the Olivares Vivos LIFE Project, this recovery of species, in the longer term, can reach 30%.

Map 1: Localisation of the demonstration olive groves in Andalusia.



Therefore:
Due to their strategic location, their importance as a refuge for biodiversity and their potential to recover it, olive groves are a crucial crop to achieve the objectives of the post-2020 CAP regarding biodiversity. This should be considered in the Regulation and the Strategic Plans of the Mediterranean countries of the EU
[Key message / Recommendation (KM/R) 1].

However,
objective 1f[5] is inexplicably not mentioned in article 56 of the Proposal for a regulation regarding Strategic Plans under the CAP (objectives in the sector).



Graph 1: Number of species of birds, ants, herbaceous and woody flora identified in the demonstration olive groves.

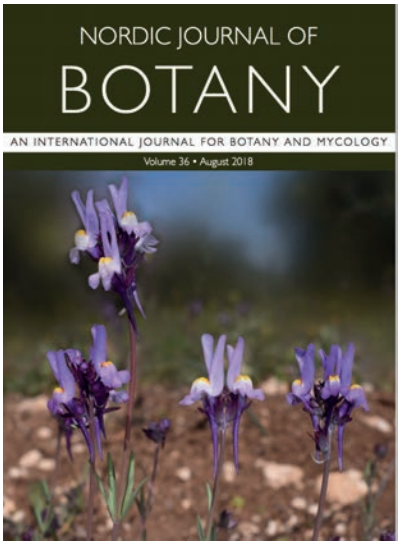


Image 1: Cover of "Nordic Journal of Botany" with the discovered species Linaria qartobensis.

2. Olive farmers are aware of biodiversity loss and are willing to make a change in their production model, especially if it were to be promoted by the CAP.

• Eight out of ten olive farmers are aware of the biodiversity crisis suffered by olive groves and the damages caused by the loss of its ecosystem services, and would be willing to make a change in their production model if they were properly advised.

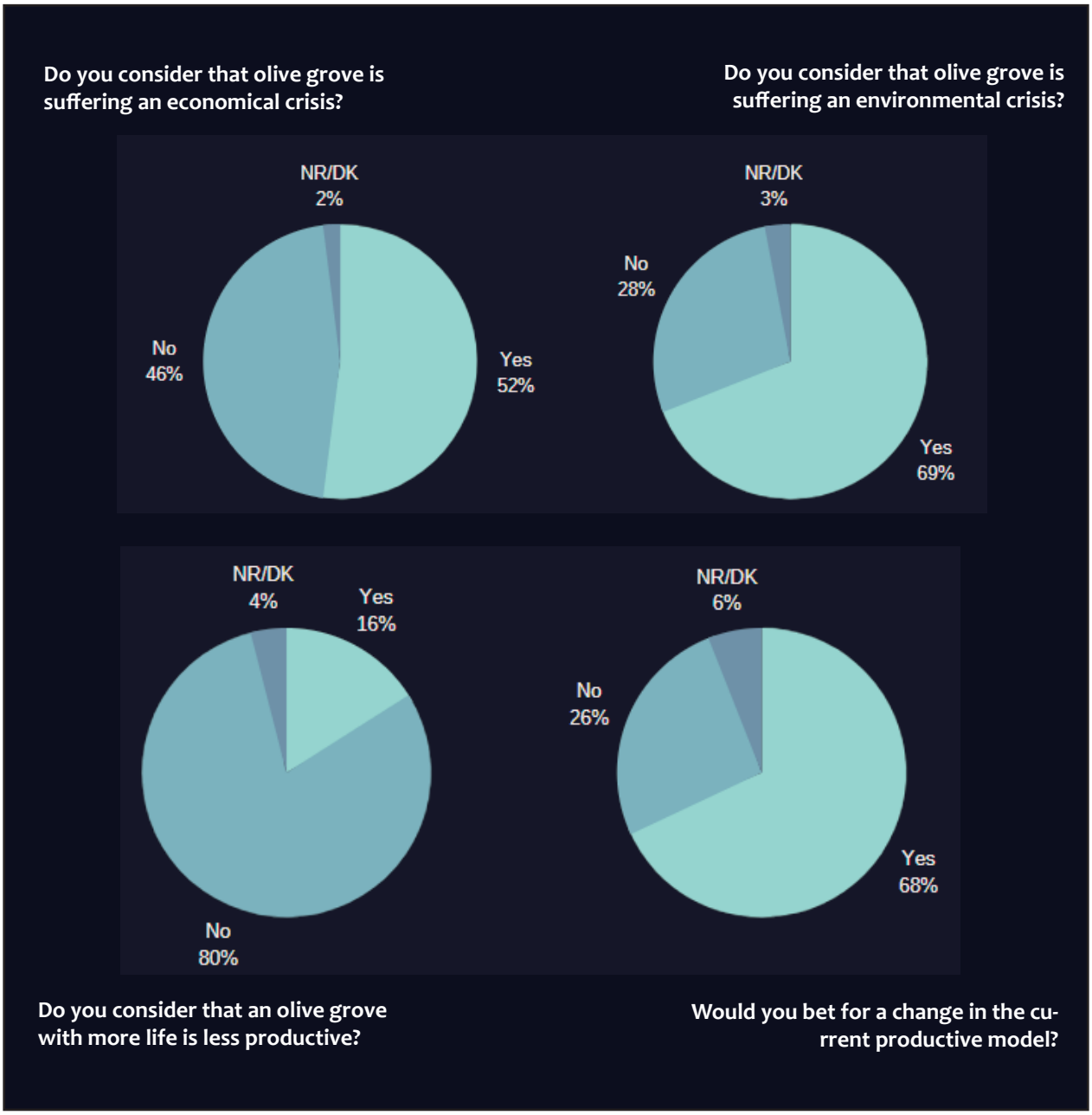
• The number increases to nine out of ten if they were to receive CAP support to make the transition.

Therefore:
A high number of olive farmers are willing to change their production model in order to enhance biodiversity, especially if the transition is supported by proper advice and the CAP
[KM/R 4].

[5] Objective 1f. Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes

Therefore:

It is necessary to implement training measures that promote the importance of the ecosystem services provided by biodiversity and support olive farmers in the conversion to olive farming models that make this added value profitable. This is particularly important in traditional olive farming, which is the model of highest environmental, social and cultural value, as well as the most widespread in the EU [KM/R5].

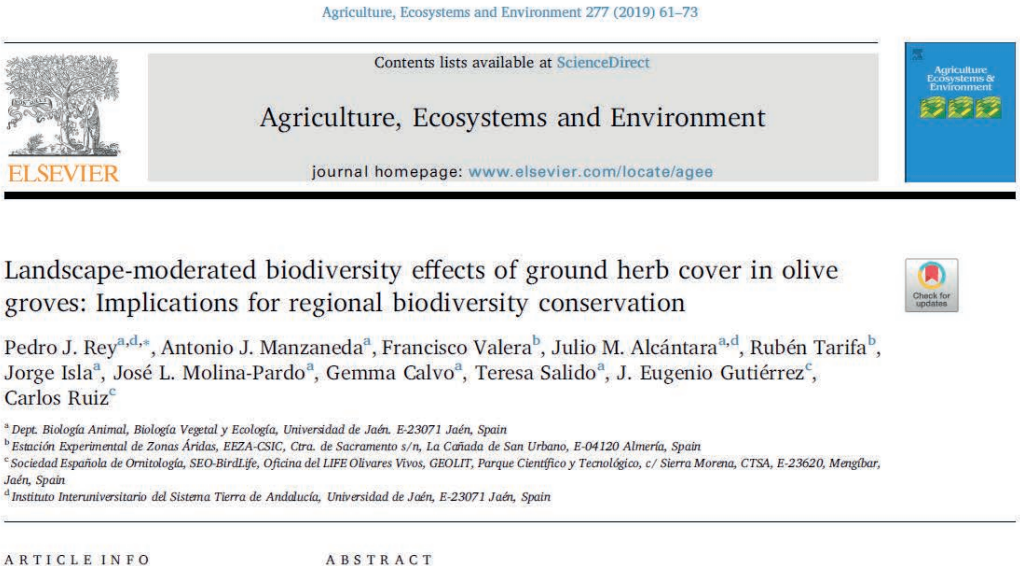


Graph 2: Replies by olive farmers to questions about the olive grove, its management and its biodiversity.

3. There are two key aspects to halt biodiversity loss in olive groves: producing landscape heterogeneity by restoring non-productive areas and introducing and managing functional herbaceous covers.

Biodiversity in olive groves is largely linked to the management of the herbaceous cover and

to the complexity/simplification characteristics of the landscape. Keeping the soil free of herbaceous cover throughout the year causes a reduction of over 10% of the species in each of the groups studied (birds, flora and ants).



Agriculture, Ecosystems and Environment 277 (2019) 61–73

Contents lists available at ScienceDirect

Agriculture, Ecosystems and Environment

journal homepage: www.elsevier.com/locate/agee

Landscape-moderated biodiversity effects of ground herb cover in olive groves: Implications for regional biodiversity conservation

Pedro J. Rey[a,d,*], Antonio J. Manzaneda[a], Francisco Valera[b], Julio M. Alcántara[a,d], Rubén Tarifa[b], Jorge Isla[a], José L. Molina-Pardo[a], Gemma Calvo[a], Teresa Salido[a], J. Eugenio Gutiérrez[c], Carlos Ruiz[c]

[a] Dept. Biología Animal, Biología Vegetal y Ecología, Universidad de Jaén, E-23071 Jaén, Spain
[b] Estación Experimental de Zonas Áridas, EEZA-CSIC, Ctra. de Sacramento s/n, La Cañada de San Urbano, E-04120 Almería, Spain
[c] Sociedad Española de Ornitología, SEO-BirdLife, Oficina del LIFE Olivares Vivos, GEOLIT, Parque Científico y Tecnológico, c/ Sierra Morena, CTSA, E-23620, Mengíbar, Jaén, Spain
[d] Instituto Interuniversitario del Sistema Tierra de Andalucía, Universidad de Jaén, E-23071 Jaén, Spain

ARTICLE INFO

ABSTRACT

Image 2: Scientific article with some conclusions about the analysis. of the biodiversity in olive groves.

Therefore:

Keeping a functional herbaceous cover during all the year, only managed by mechanical clearing, at the beginning of the dry season, is a measure that should be included in the enhanced conditionality of the post-2020 CAP. Most olive farmers would be willing to implement it, especially if supported by proper advice and the CAP [KM/R 6a]).

In addition, the absence or removal of natural vegetation zones interspersed with the olive grove matrix causes the loss of more than 20% of the species in the groups of bioindicators studied.

Therefore:

Another fundamental measure to be included is the conservation (in the enhanced conditionality) and restoration (through an eco-scheme) of the non-productive areas of olive groves: natural vegetation along the crop edges or interspersed with the productive zone, such as boundaries, streams, gullies, flood zones, patches of natural vegetation, road edges, etc. To this end, all elements of ecological interest should be inventoried, catalogued and their area be considered as eligible hectares [KM/R 6b].

The combination of both factors – eradication of the herbaceous cover and removal of natural vegetation areas within olive groves, causes the loss of no less than one third of the species. It should be noted that this loss leads to the elimination or decrease of the associated ecosystem services, which are not only beneficial for the crop, but also generate environmental goods and services that are essential to society, such as pest regulation, efficient rainwater use, control of soil erosion, improvement of pollination and CO_2, fixation, among others.

Therefore:

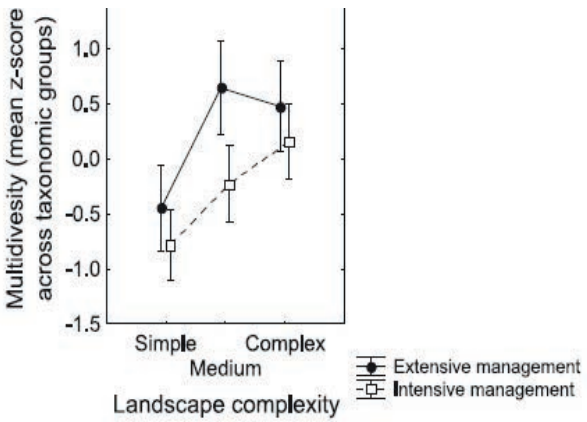
Rural development policies of the second pillar of the CAP should foster agri-environmental measures and financial support programmes for non-productive investments in olive groves, aimed at recovering and restoring non-productive zones. This way their role as a green infrastructure would be improved, as would the olive grove landscape and its multifunctionality. In this regard, an enhanced synergy between the LIFE Programme and the EAFRD is desirable, so that the lessons learned be integrated into the rural development programmes. [KM/R 10].

Olive groves with functional herbaceous covers sequester twice as much CO_2 asthose with no soil cover[6]

Eligible hectares:

It is essential for the green architecture of the CAP that non-productive zones, which make landscape features are considered as eligible hectares!

Image 3: Differences between an olive grove without herbaceous cover (intensive management) and another one with herbaceous cover (extensive management), participating in the LIFE project "Olivares Vivos".



Graph 3: Multidiversity across taxonomic groups based on landscape complexity and herbaceous cover management, according to biodiversity study carried out by the LIFE project "Olivares Vivos".

[6] Objective 1f. https://doi.org/10.1016/j.agee.2017.01.016

4. As a result of the implementation and monitoring of twenty action (restoration) plans in the demonstration olive groves of the project, several direct implementation measures of proven effectiveness can be applied in the design of eco-schemes for olive groves.

In addition to changes in the management of the herbaceous cover, a set of twelve restoration actions in non-productive areas has been tested and assessed, aiming at diversifying the landscape by restoring road edges, replanting in gullies and watercourses, as well as creating other diversifying features of the olive grove landscape that help in this objective. Other actions regarding creation and adaptation of infrastructures to enhance biodiversity, such as the construction of ponds and water troughs, the adaptation of irrigation ponds and the construction and placing of nest boxes, bat boxes and insect hotels, are also included. The impact of these measures on biodiversity and the associated ecosystem services (for example, seed dispersal and pest control by birds and insects) was assessed through an intensive monitoring of bioindicators (woody and herbaceous plants, soil arthropods, birds and pollinators), before and after restoration. Furthermore, the monitoring of other indicators linked to restoration effort, such as the cost (in euros) of the restored area, makes it possible to know the cost-benefit ratio of each measure and their feasibility.

The effectiveness and feasibility of the measures can be known based on the analysis of this information, which is accurate and rigorously quantified. This way, an enhanced conditionality that meets the environmental objectives set can be now defined, and the most effective and viable eco-schemes can be designed in order to meet the biodiversity objectives of the post-2020 CAP.

Therefore:

The Olive Alive LIFE project results provide a scientific and practical base to support the green architecture of the CAP regarding conservation of biodiversity, its ecosystem services and the olive grove landscape.
[KM/R 2].

Building on this knowledge, effective, viable and easily assessable eco-schemes can be designed, and the agricultural policies of the second pillar can be adjusted in the olive farming regions of the EU.
[KM/R 3].

Imagen 4: Pond build as an action, in order to increase biodiversity, by the LIFE project "Olivares Vivos".

Image 5: Construction of a stone wall, in order to recover biodiversity, by the LIFE project "Olivares Vivos".

Image 6: New vegetation appeared after the restoration of a gully, carried out by the LIFE project "Olivares Vivos"

Image 7: Hedgerow of bushes at the edge of a road. Result of actions to recover biodiversity, carried out by the LIFE Olivares Vivos project.

5. The intensive monitoring of bioindicators carried out in the LIFE project makes it possible to define simple indicators with which to assess the eco-schemes aimed at enhancing biodiversity in a feasible, safe manner.

Prior knowledge of the impact that the measures that might be included in an eco-scheme have on the conservation and recovery of biodiversity will enable its evaluation in the post2020-CAP, on the basis of simple indicators linked to intervention surfaces (for example, surface revegetated in gullies, lineal metres of road edges restored, number of poles with nest boxes), many of them measurable through remote sensing. This way, the design of eco-schemes that are not only effective and feasible, but also easily assessable, is possible.

Therefore:

Once the effectiveness of the measures tested in the project has been studied and proven, the assessment of the compliance of the enhanced conditionality and eco-schemes that include these measures might be done using indicators based on areas that are identifiable by means of remote sensing
[KM/R 7].

In this regard, measures related to conservation and restoration of non-productive areas and the creation of functional covers might yield new indicators, but they could also certainly be linked to several of the indicators already included in the proposal for the Regulation, particularly indicators R14, R18, R27 and R29

Image 8: Difference in the NDVI index (Normalized Difference Vegetation Index) between olive groves. By estimating the quantity, quality and development of vegetation, it is possible to observe the presence of vegetation cover. In this way, those farms with green cover appear on red and yellow on April 14, 2019. The demonstration olive grove of the LIFE Olivares Vivos project "Cortijo de Guadiana" (Úbeda, Jaén) is identified.

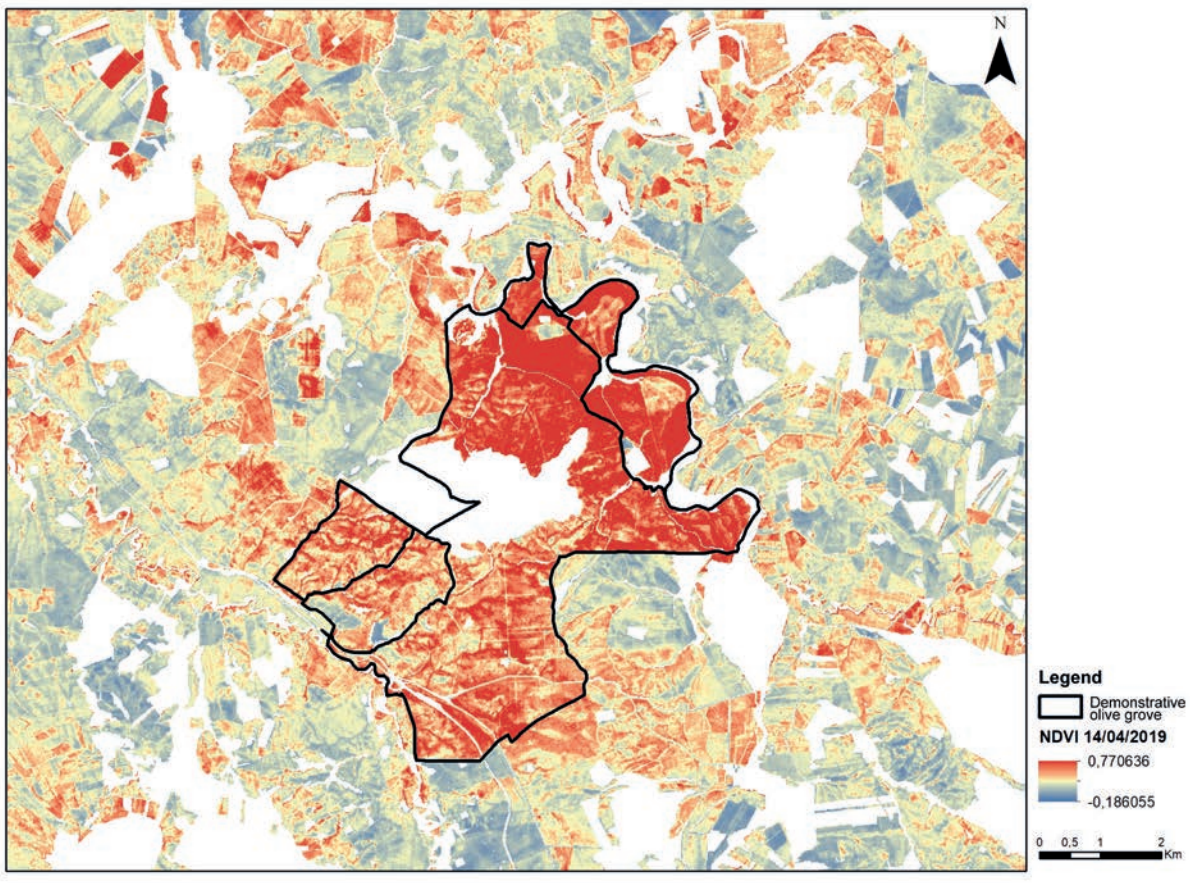


Image 9: Herbaceous cover in "Gascón", demonstration olive grove of the LIFE project Olivares Vivos, localised in Marchena, Seville).

6. Recovery of biodiversity is possible in small olive plots.

The project results show that it is possible to recover biodiversity in small olive plots (of less than 5 hectares), by implementing the measures tested in this LIFE project. In simple landscapes, the benefit is even higher than that obtained in larger farms. This outcome is especially significant considering that the average size of olive plots in the EU is less than three hectares

Therefore:

It is possible to recover biodiversity in small olive farms. Considering that the average size of olive farms in the EU is less than three hectares, the role of this type of farms should be seen as fundamental to integrate the environmental objectives of the post-2020 CAP. This is a particularly relevant consideration when defining the concept 'genuine farmer' [KM/R 8].

Genuine farmer:

It should be possible to apply eco-schemes in small olive plots.

7. Crop diversity in olive grove landscapes generates high levels of biodiversity.

This LIFE project results show the great importance of landscape diversity for biodiversity conservation and restoration. In this sense, herbaceous crops interspersed throughout the olive grove matrix support high levels of biodiversity, which gives them an extraordinary ecological value. However, the increase of the surface of olive groves entails the loss of these crops and, with them, the loss of a mosaic landscape of great value for the conservation of a wide array of listed species of great conservation value (mainly steppe birds).

Therefore:

The CAP should tackle the effects that the accelerated expansion of olive groves, at the cost of the disappearance of cereal crops and areas of natural vegetation, in certain regions is causing. In this regard, herbaceous crops and natural vegetation areas should be kept within the olive grove matrix. A first necessary measure would be the identification and catalogue of these farms, the recognition of their environmental value and the stimulation of their profitability by means of CAP payments [KM/R 9].

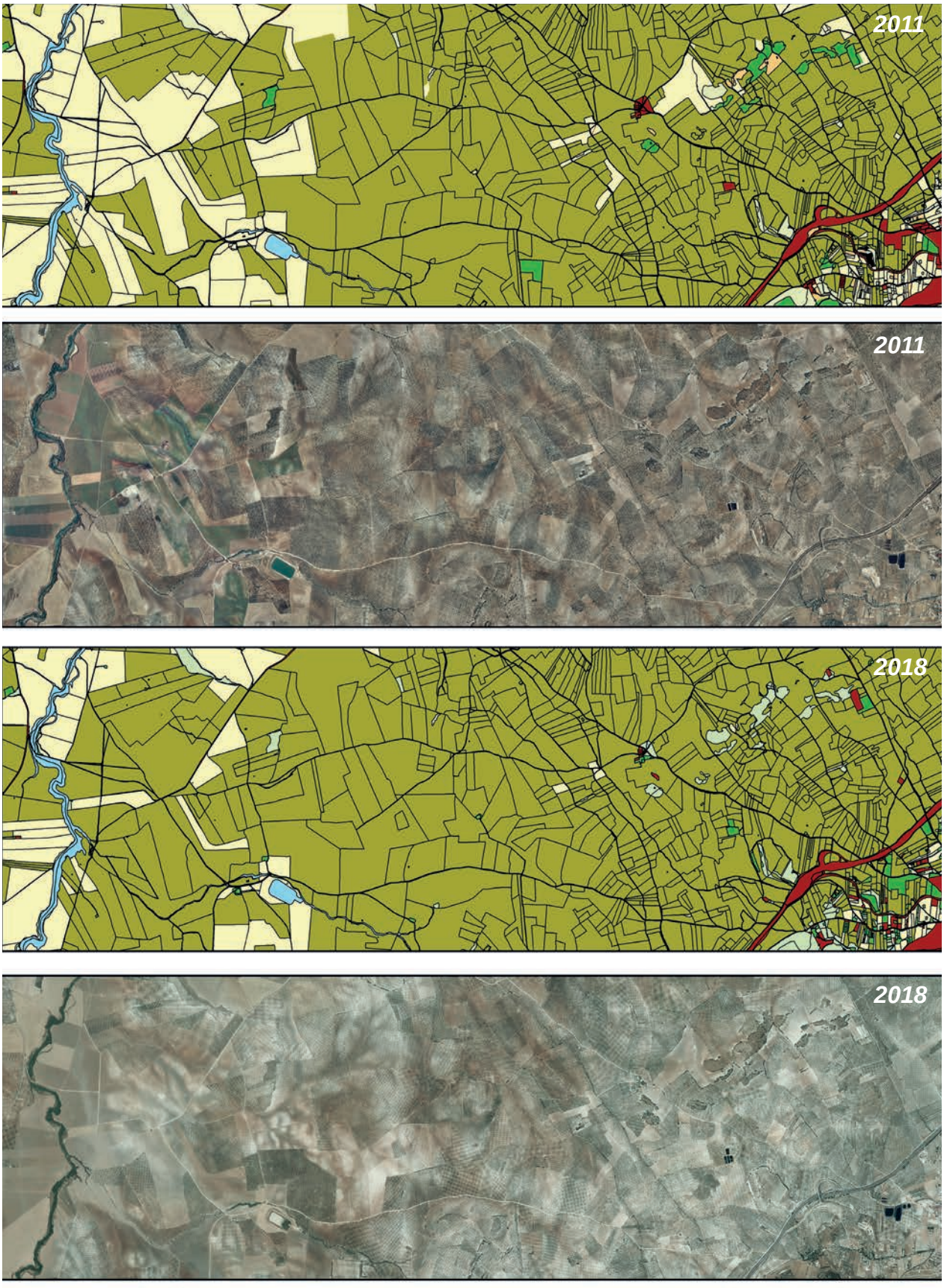


Image 10:
Changes in land uses between 2011 and 2018 in the municipality of Estepa (Seville). It can be observed the advance of the olive grove monoculture over plots which were grown with cereal. Source: SIOSE and SIGPAC (Junta de Andalucía)

4. Other considerations

Fostering the integration of biodiversity in the post-2020 CAP concerning olive farming, as well as promoting olive farming models that include biodiversity as an added value, contribute to the rest of specific objectives of the Regulation.

The Olive Alive LIFE project results show that the replication of conservation strategies based on the added value that biodiversity provides to the agri-food system, not only contributes to objectives 1d and 1f of article 6 of the proposal for a Regulation regarding post-2020 CAP Strategic Plans, but also to the rest of its specific objectives:

- Objective 1.a. It supports viable farm income and resilience in traditional and rainfed olive groves (which are the most widespread in the EU).
- Objective 1.b. It increases extra virgin olive oil competitiveness, opening new niche markets (consumers who are concerned about the loss of biodiversity).
- Objective 1.c. It improves the olive farmers' position in the value chain (as they are more directly involved in the commercialisation of the olive oils produced in their farms).
- Objective 1.e. It fosters sustainable management of essential resources, such as water and soil, by recovering ecosystem services.
- Objective 1.g. New model that attracts young farmers and contributes to rural development (a good share of the olive farmers who attend training courses and are interested in the Olive Alive model are young).
- Objective 1.h. It promotes sustainable bio-economy and green employment (by including biodiversity and its ecosystem services within the olive farm profit and loss account, and creating green jobs linked to restoration actions).
- Objective 1.i. It meets societal demands on environment and biodiversity (by giving a response to the interest of citizens and institutions in biodiversity conservation).

Therefore:

Rural development programmes should foster conservation strategies that are based on the added value provided by biodiversity to the agri-food system, and support mechanisms that transform it into profitability. These strategies contribute not only to objectives d and f, but also to the achievement of every other objective of article 6 of the proposal for the Regulation
[KM/R 11].

The measures included so far in the cross-compliance have had very little impact on the ecosystem services of olive groves.

Finally, the lessons learned from the implementation of the current CAP provide some interesting considerations concerning the little ecological performance of some of the measures included in the cross-compliance (GAEC - Good Agricultural and Environmental Conditions) related to olive groves.
Considering the two GAEC linked to the key aspects for biodiversity recovery that have been included, both in the previous period and in the last draft of the Strategic Plan for the CAP so far (herbaceous cover and conservation and restoration of non-productive areas of olive groves), we find that: i) the narrow width of herbaceous covers required (one metre wide), and the possibility of removing them by means of herbicides or ploughing at any time of the year, greatly limit their ecosystem services (control of erosion, biodiversity and carbon sequestration); ii) as the inventory of landscape features has not been completed (at least in Andalusia the inventory is certainly poor), some inspectors have not considered or may not consider (in the net period) some unproductive areas or landscape elements, as they are not inventoried, as eligible hectares, urging olive farmers to eliminate or "clean" them. This fact results in the decrease of the ecological performance and

the impoverishment of the green infrastructure of this agrosystem.

For all these reasons, it is very important that herbaceous covers meet minimum requirements for them to be both agronomically and environmentally functional (something that is not guarantee in the current of the Strategic Plan for the CAP, and that non-productive areas and natural vegetation patches within olive groves, essential in the green infrastructure of this crop, are inventoried, catalogued and considered as eligible hectares.

Therefore:

The measures included so far in the cross-compliance had little impact on the achievement of the environmental objectives of the CAP in olive groves and on the conservation and improvement of their ecosystem services, due to either design errors or poor monitoring. It is essential to guarantee that future CAP measures to be included in the enhanced conditionality and the eco-schemes will be functional in olive groves. In this sense, the results of this LIFE project are a good scientific and practical basis to achieve this objective [MC/R 12].

OLIVARES VIVOS

NATURA 2000

SEO BirdLife

DIPUTACIÓN DE JAÉN

Universidad de Jaén

CSIC

ACEITES DE OLIVA DE ESPAÑA