OLIVARES vivos

SEO BirdLife

Olivares Vivos

Case study. A result based (payment) scheme in Spain

Carlos Ruiz (SEO/ BirdLife Spain)

LIFE PLATFORM MEETING

AGRICULTURE FOR THE BENEFIT OF BIODIVERSIY

HOW CAN RESULTS BASED PAYMENT SCHEMES ADDRESS THE BIODIVERSITY CRISIS?

9th - 11th OCTOBER, 2024, Dirk Boutsgebouw (VAC Leuven), Belgium

CONTENTS

- Project framework
- Presentation of the AES Olivares Vivos
- Key results and recommendations

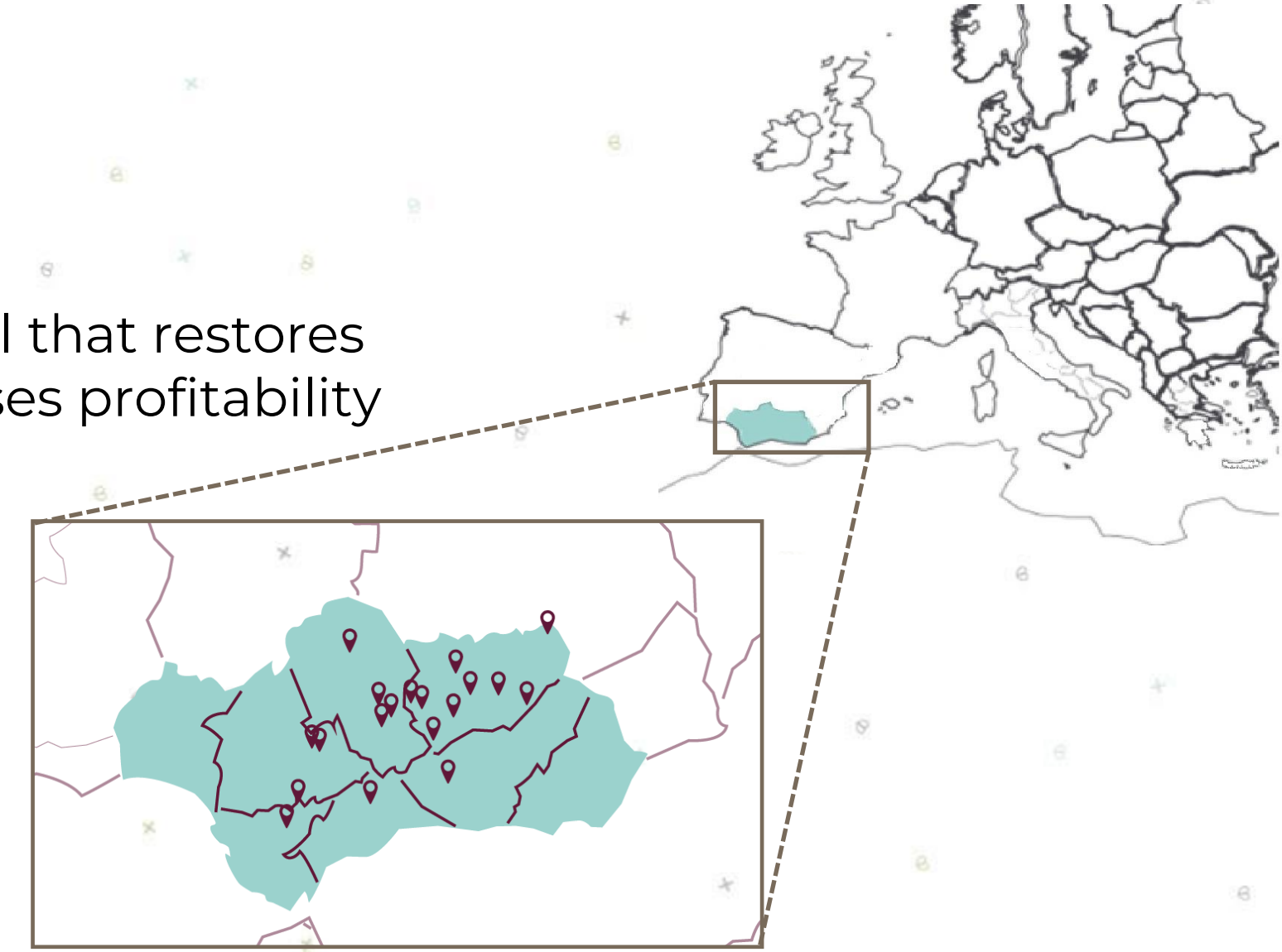
PROJECT FRAMEWORK

PROJECT FRAMWORK

FIRST STAGE: LIFE OLIVARES VIVOS

Objectives:

- To test a farming model that restores biodiversity and increases profitability
- To set up a certification

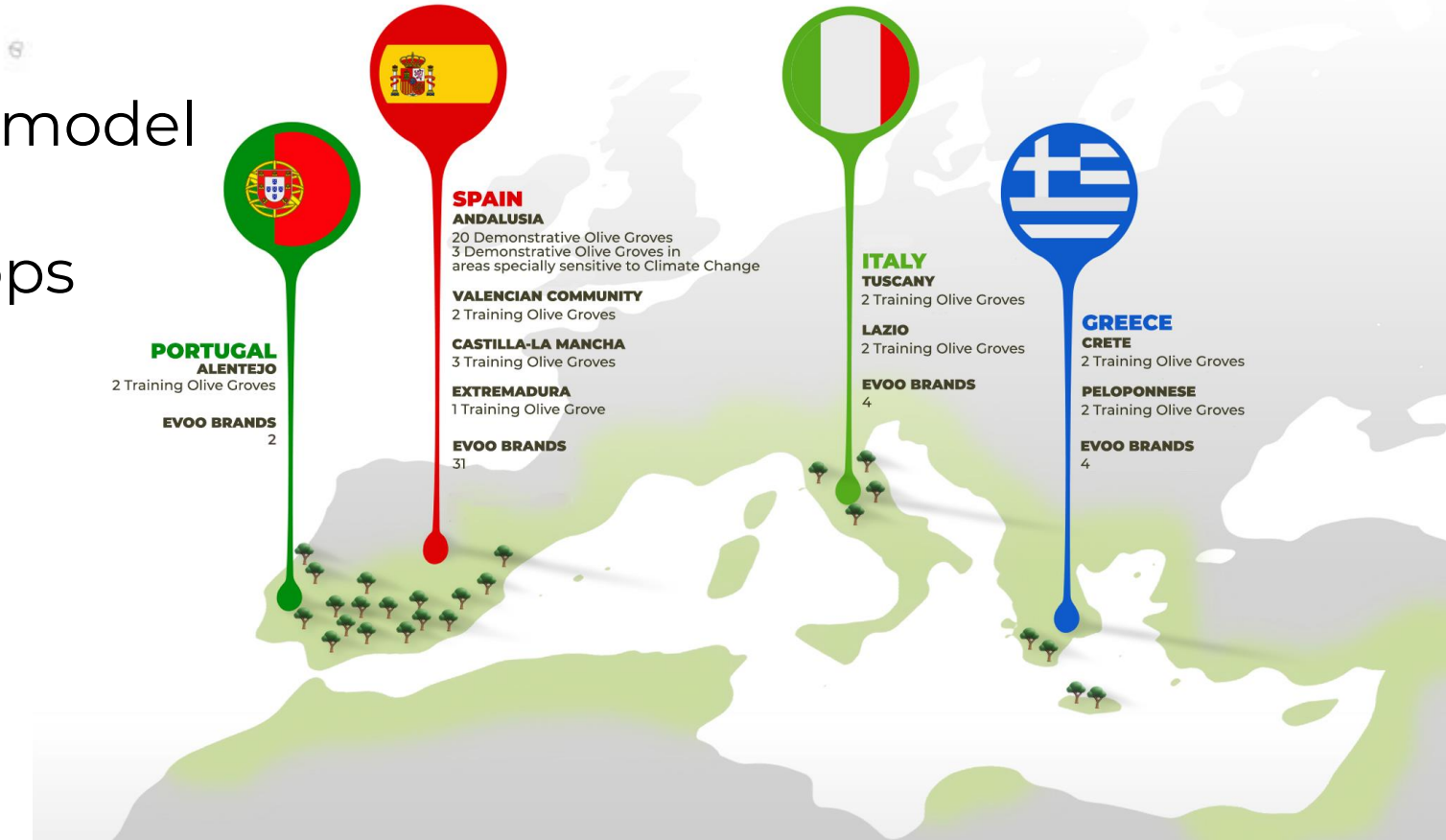


PROJECT FRAMWORK

SECOND STAGE: LIFE OLIVARES VIVOS +

Objectives:

- To replicate the farming model in other EU regions
- To transfer it to other crops



PROJECT FRAMWORK

BIODIVERSITY LOSS IN OLIVE GROVES

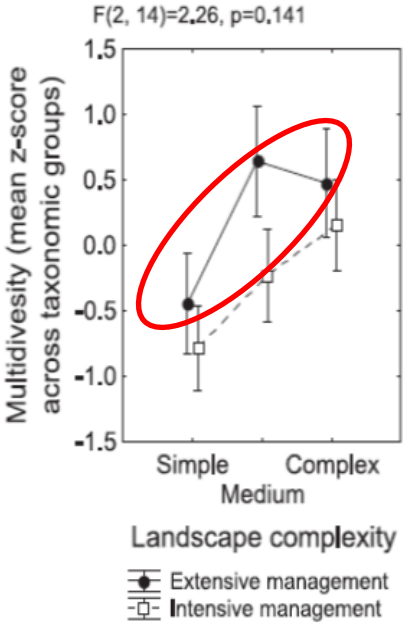
Two main drivers of biodiversity loss[1]:

1 **Absence of cover weeds**
(Bare soils due to herbicides or intensive tillage)

10% decrease

2 **Simplification of the landscape**
(no natural landscape elements and lack of crop diversity)

20% decrease



PROJECT FRAMWORK

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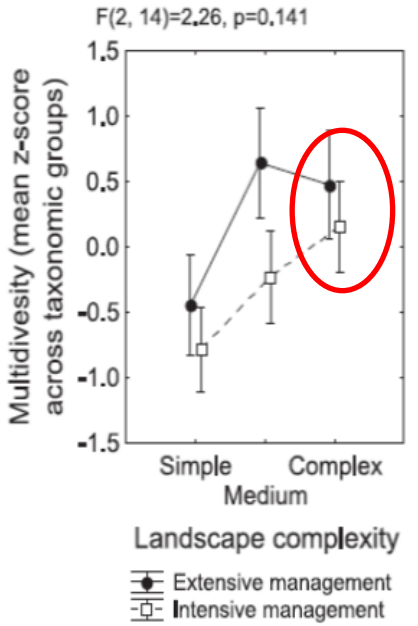

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AGRI-ENVIRONMENTAL SCHEME OLIVARES VIVOS

AGRI-ENVIRONMENTAL SCHEME OLIVARES VIVOS

1 Suitable management of natural herbaceous cover

With **agronomic criteria**, but also focusing on **ecological functions.**

AGRI-ENVIRONMENTAL SCHEME OLIVARES VIVOS

2 Restoration of nonproductive areas within farms

Revegetation with woody native plant species

Selected to improve **ecosystem services** and **ecological connectivity**

AGRI-ENVIRONMENTAL SCHEME OLIVARES VIVOS

3 | Installation of structures for local fauna within farms

To accelerate the return of many fauna species

That includes:

- ✓ Nest boxes
- ✓ Bee hotels
- ✓ Ponds for amphibians
- ✓ Water troughs
- ✓ Bat boxes
- ✓ Perching poles
- ✓ Stone walls

AGRI-ENVIRONMENTAL SCHEME OLIVARES VIVOS

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AGRI-ENVIRONMENTAL SCHEME OLIVARES VIVOS

A RESULT-DRIVEN APPROACH WITH MONITORING OF SEVERAL BIODIVERSITY INDICATORS

- ✓ Herbs
- ✓ Woody plants
- ✓ Ants
- ✓ Spiders
- ✓ Pollinating insects
- ✓ Birds
- ✓ Bats







AGRI-ENVIRONMENTAL SCHEME OLIVARES VIVOS

CENSUS AND SAMPLING SCHEDULE

	Spring	Summer	Autumn	Winter
Herbs	■			■
Woody plant sp			■	■
Ants and spiders	■	■	■	
Foraging pollinators	■			
Bee hotels	■	■	■	
Birds	■	■		
Bats	■	■		

Stage	Preoperational	Post-operational	Medium-term
LIFE OV (20 Farms)	2016/17	2019/20	2023/24
LIFE OV+ (19 Farms)	2022/23	*2025/26*	*tbc*

AGRI-ENVIRONMENTAL SCHEME OLIVARES VIVOS

RESULTS OF THE BIODIVERSITY MONITORING

Average change
LIFE OV: 2016/2019

RICHNESS	**7%**
Birds	+5.4%
Ants	-6.9%
Pollinators	+13.9%
Herbs	+13.9%
Woody plants	+171.8%
ABUNDANCE	**18%**
Birds	+9.8%
Ants	+4.1%
Pollinators	+47.2%
Herbs	+13.4%
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Initially more intensively managed farms

RICHNESS
12,5%

ABUNDANCE
70%

AGRI-ENVIRONMENTAL SCHEME OLIVARES VIVOS

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Initially more intensively managed farms

RICHNESS	
	12,5%
ABUNDANCE	
	70%

IN ONLY 3 YEARS!

In the long term, richness could increase by **35%.**

AGRI-ENVIRONMENTAL SCHEME OLIVARES VIVOS

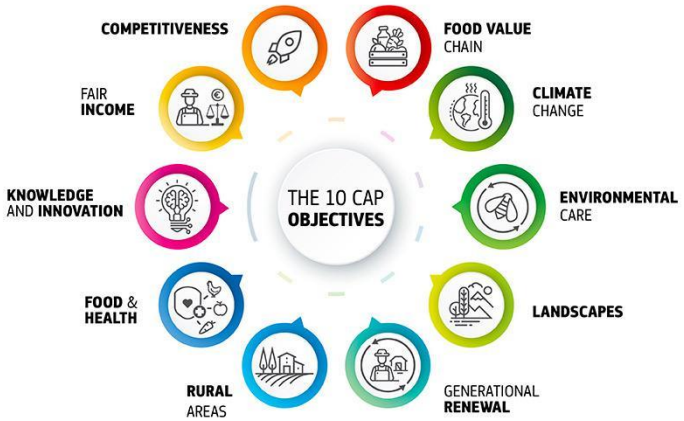
CONNECTING BIODIVERSITY WITH PROFITABILITY

THREE WAYS

1 | Financial support for providing environmental services

2 | Reducing inputs through ecosystem services

3 | Adding value to olive oils in the market



KEY RESULTS & RECOMENDATIONS

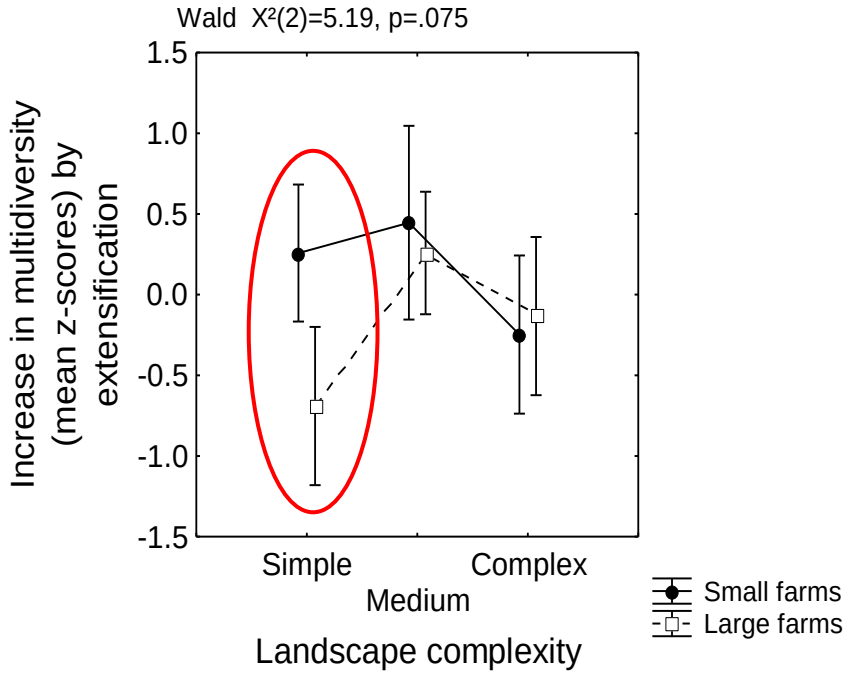
KEY RESULTS & RECOMENDATIONS

SIZE DOESN'T MATTER (not so much) [1]

It is possible (or even easier) to recover **biodiversity** in **small olive farms.**

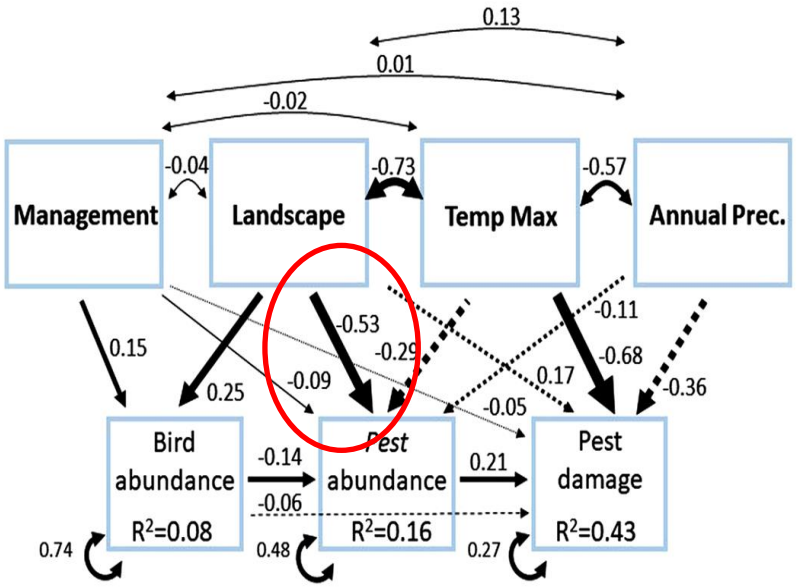
The average size of olive farms in the EU is ***less than three hectares.***

It is crucial to promote the implementation of AES also in small farms.



KEY RESULTS & RECOMENDATIONS

FACTORS AFFECTING PEST AND DISEASE CONTROL [2]



Temperature and **lanscape complexity** were the best predictors of pest abundance and damage.

Maintaining or increasing landscape complexity is important not only for biodiversity, but also for crop health.

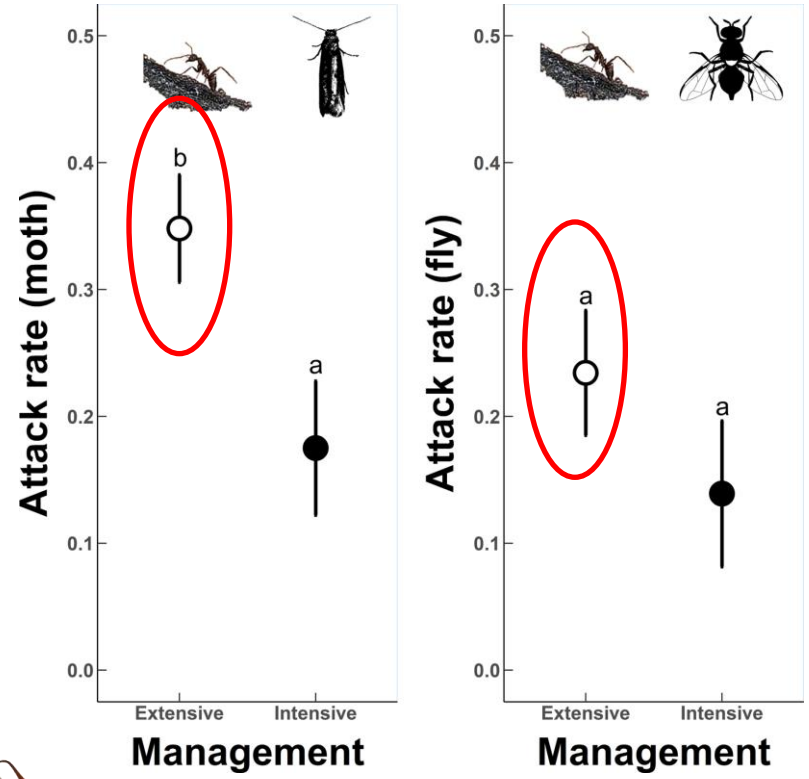
KEY RESULTS & RECOMENDATIONS

ANTS: KEY PLAYERS IN BIOLOGICAL PEST CONTROL[3]

High attack rates on larvae of the main pest species: **27%** for **olive moth** and **20%** for **olive fly**.

Olive moth attacks were higher in farms with **herbaceous cover**.

Generalist species, like ***T. nigerrimum***, contribute significantly to pest control.



Extensification practices are needed to maximize ant-driven predation pressure on pests.

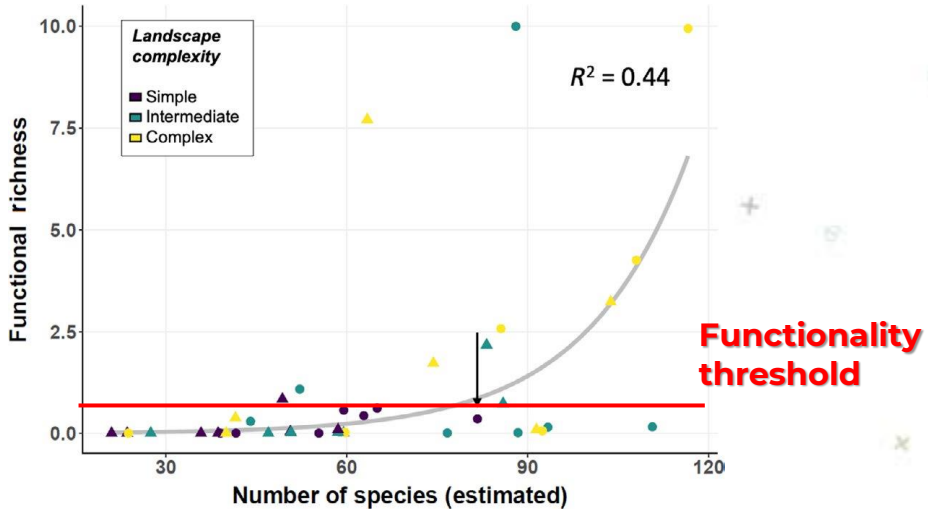
Ants should be considered as beneficial insects and the effects of AES on them, assessed.

KEY RESULTS & RECOMENDATIONS

FUNCTIONALITY OF THE HERBACEOUS COVER [4]

Intensification drastically **homogenizes** the functionality of herbs communities.

Landscape complexity reduces the **impact of agricultural intensification**, but also limits the potential for herb functionality.



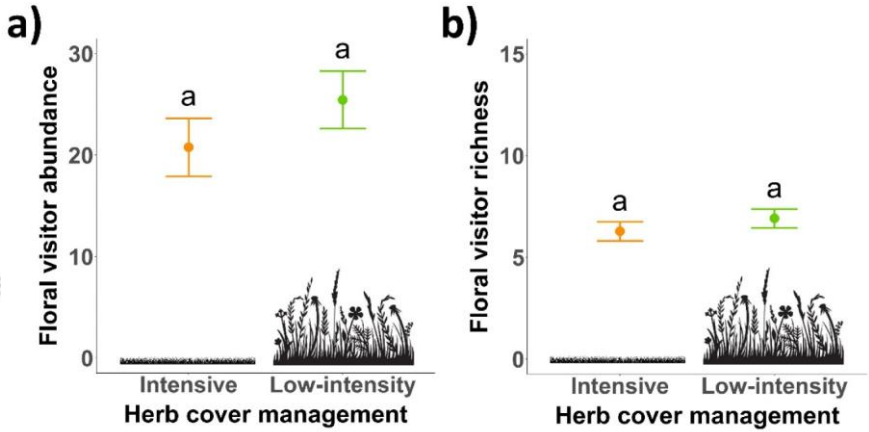
Actions to restore a functional herbaceous cover should consider the landscape context.

In simple landscapes, priority should be given to restoring natural vegetation; but in complex ones, introducing less common herb species in cover crops may be more effective.

KEY RESULTS & RECOMENDATIONS

EFFECT OF FLORAL PATCHES IN POLLINATION [5]

The influence of herbaceous cover management was modulated by the presence **small-scale floral patches.**



Complexity should be enhanced at different scales, also at small –scale or farm level.

Small interventions should be encouraged, like creating floral patches within the productive area, as they are cost-effective measures to support pollination communities.

KEY RESULTS & RECOMENDATIONS

THE ROLE OF INSECTIVOROUS BIRDS IN PEST CONTROL [6]

Smaller effect than expected, but could be enhanced through restoration of non-productive patches

It is essential to increase complexity at the farm scale by introducing small patches of natural vegetation that serve as stepping-stones.

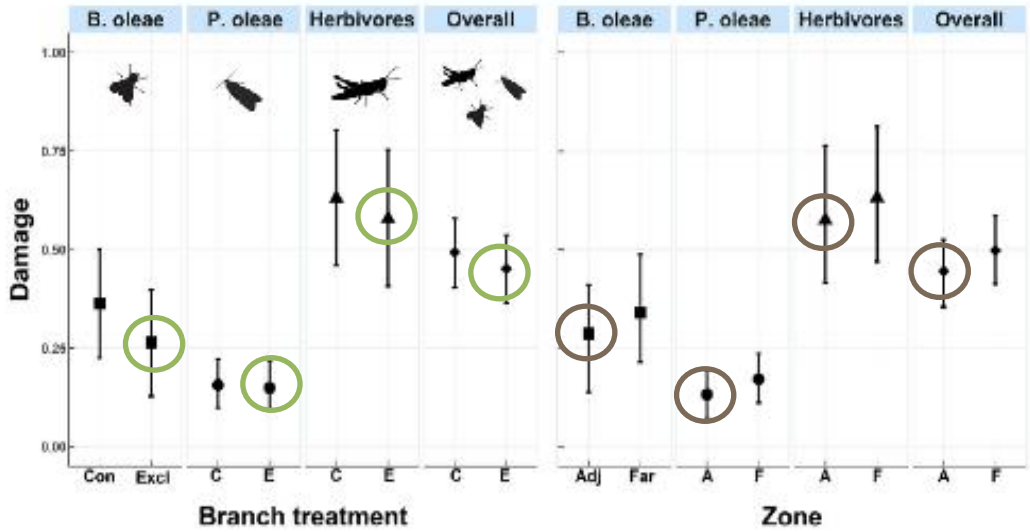


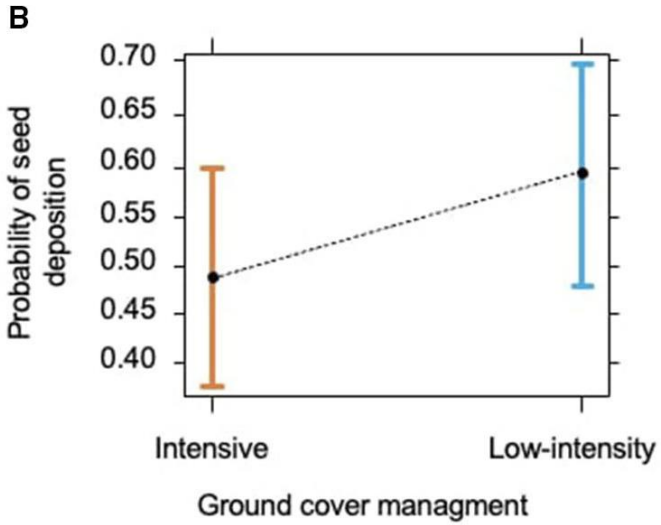
Fig. 3. Back-transformed predicted damage (proportion) by *Prays oleae*, *Bactrocera oleae*, other phytophagous insects (herbivores) and overall damage (cumulated), and its variation across treatments (Control vs. Excluded branch) and Zone (Adjacent to semi-natural patch =Adj. vs. olive orchard matrix, far from semi-natural patches= Far). Solid symbols show predicted posterior mean and whiskers 95% credible intervals.

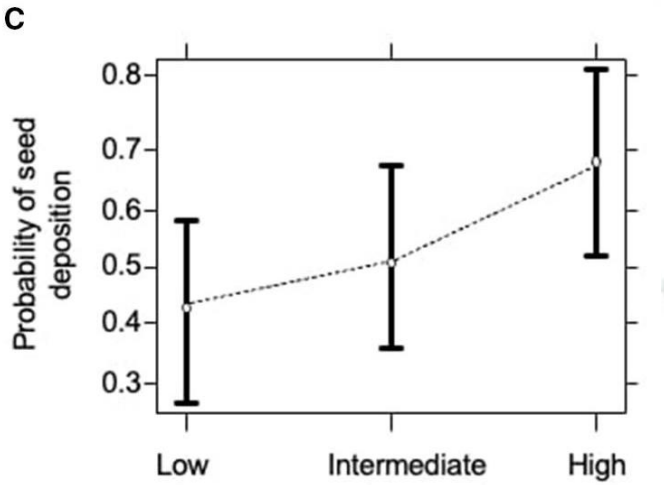
KEY RESULTS & RECOMENDATIONS

SEED DISPERSAL [7]

The **landscape complexity** of our olive groves, along with the conservation and restoration of **semi-natural vegetation patches**, is crucial for seed dispersal by frugivorous birds.

It is essential to increase complexity at the farm scale by introducing small patches of natural vegetation that serve as stepping-stones.



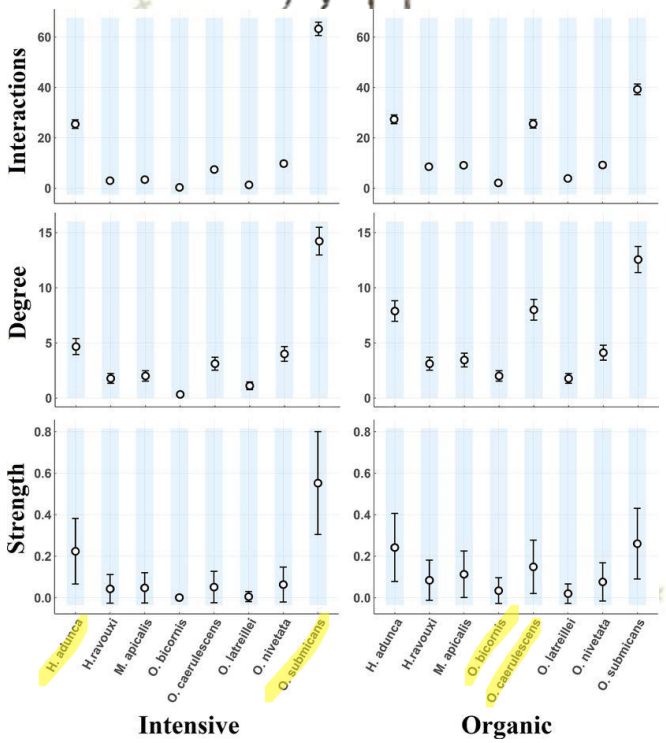


KEY RESULTS & RECOMENDATIONS

POLLINATION NETWORKS IN OLIVE GROVES [8,9]

Intensification and landscape simplification affected negatively the **variety of bee-floral visitor networks.**

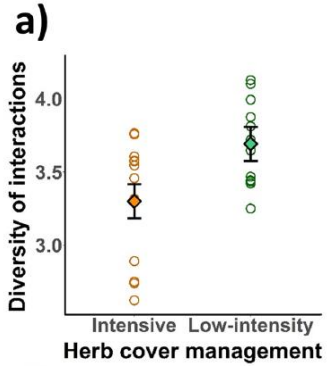
Certain species of **solitary bees indicates** the **agricultural management quality** in the crop.



Landscape diversification is key for strong floral-pollinator communities.

It is essential to avoid removing herbaceous covers.

Information is available to establish specific bioindicators for assessing farming practices of different crops.



KEY RESULTS & RECOMENDATIONS

HABITAT CONNECTIVITY

Non-productive areas restored with **small-scale natural vegetation** parches are heavily used by wildlife.

Some structures are used **shortly after their installation**.

They increase **habitat connectivity and permeability**, enabling wildlife to move.

Small vegetation patches and other structures act as important “stepping-stones” for wildlife and should be carefully distributed across the farm.

KEY RESULTS & RECOMENDATIONS

LACK OF TRAINING PROGRAMMES [10]

Many farmers are **willing to change**,
but they are unsure about **how to do** it.

Training and advisory programmes are essential to help farmers transition smoothly to biodiversity-friendly management practices.

KEY RESULTS & RECOMENDATIONS

CAP AGRO-SCHEMES IN SPAIN: A PARTIAL SUCCESS

Carbon Farming: Cover crops between tree rows on permanente crops

Agroecology: Semi-natural hábitat creation and enhacement features above conditionality

Both eco-scheme should be implemented to achieve a real impact.

The agroecology eco-scheme must be promoted on a large scale.

These two eco-schemes should be allowed to be adopted simultaneously.

Most olive growers have implemented it

Very little adoption

- More complex to implement
- Less well-paid

Incomplete information in the official publications from FEGA (Spain)

IN A NUTSHELL: KEY MESSAGES

Two key issues should be considered in the eco-schemes & conditionality:

- Keeping a functional herbaceous cover
- Conservation and restoration of non-productive areas
- It is crucial to promote the implementation of AES also in **small farms**

Management of the herbaceous cover in the productive area

- **It is essential to avoid removing herbaceous covers**.
- Extensification practices are needed to maximize ant-driven predation pressure on pests.
- **Small interventions should be encouraged**, like creating floral patches within the productive area, as they are cost-effective measures to support pollination communities.
- Actions to restore a functional herbaceous cover should consider the **landscape context**:
  - In simple landscapes, priority should be given to restoring natural vegetation.
  - In more complex ones, introducing less common herb species in cover crops may be more effective.

IN A NUTSHELL: KEY MESSAGES

Conservation and restoration of non-productive areas

- Maintaining or increasing **landscape complexity is important** not only for biodiversity, but also for crop health.
- Landscape diversification is key for strong floral-pollinator communities.
- Complexity should be enhanced also at **small –scale or farm level.**
- Introducing small patches of natural vegetation or other structures increase **connectivity and permeability of the crop**. They act as important “stepping-stones” to allow wildlife to move (biological pest control) and should be carefully planned.

Biodiversity indicators

- Information is available to establish specific bioindicators for assessing farming practices.
- Ants should be considered as beneficial insects and the effects of AES on them, assessed.

Training and advisory programmes are essential to help farmers transition smoothly to biodiversity-friendly management practices.

CAP eco-schemes

- Carbon farming and agroecology eco-schemes should be implemented to achieve a real impact.
- The agroecology eco-scheme needs to be promoted on a large scale.
- These two eco-schemes should be allowed to be adopted simultaneously.

RECOMMENDED REFERENCES

1 **Landscape-moderated biodiversity effects of ground herb cover in olive groves: Implications for regional biodiversity**. Rey P.J. *et al* 2019. *Agriculture, Ecosystems and Environment*, **277**, pp. 61-73. https://doi.org/10.1016/j.agee.2019.03.007

2 **Direct and in-direct effects of agricultural practices, landscape complexity and climate on insectivorous birds, pest abundance and damage in olive groves**. Martínez-Núñez C. *et al* 2020. *Agriculture, Ecosystems and Environment*, **304**, 107145. https://doi.org/10.1016/j.agee.2020.107145

3 **Ant community potential for pest control in olive groves: management and landscape effects**. Martínez-Núñez. *et al* 2021. *Agriculture, Ecosystems and Environment,* 305:107185. https://doi.org/10.1016/j.agee.2020.107185

4 **Agricultural intensification erodes taxonomic and functional diversity in mediterranean olive groves by filtering out rare species .**Tarifa, R. *et al* 2021. *Journal of applied ecology,* 115:106422. https://doi.org/10.1111/1365-2664.13970

5 **Small floral patches are resistant reservoirs of wild floral visitor insects and the pollination service in agricultural landscape**. Cano, D. *et al* 2022. *Biological conservation,* 276, 109789. https://doi.org/10.1016/j.biocon.2022.109789

6 **Insectivorous birds are not effective pest control agents in olive groves**. Martínez-Núñez C. *et al* 2021. *Basic and Applied Ecology*, ***56****, pages 270 - 280*. https://doi.org/10.1016/j.baae.2021.08.006

7 **Persistence of seed dispersal in agroecosystems: effects of landscape modification and intensive soil management practices in avian frugivores, frugivory and seed deposition in olive croplands**. Rey PJ. *et al* 2021. *Frontier in ecology and evolution,* 9:782462. https://doi.org/10.3389/fevo.2021.782462

RECOMMENDED REFERENCES

8 **Plant-solitary bee networks have stable cores but variable peripheries under differing agriculture management: bioindicator nodes unveiled**. Martínez-Núñez C. *et al* 2020. *Ecological Indicators,* 115:106422. https://doi.org/10.1016/j.ecolind.2020.106422

9 **Intensive ground cover management and landscape simplification affect community-wide floral vistor-plant interactions in olive groves**. Cano D. *et al* 2024. *Agriculture, Ecosystems and Environment,* 373: 109124. https://doi.org/10.1016/j.agee.2024.109124

10 **Percepción del sector olivarero sobre el Proyecto LIFE Olivares Vivos y receptividad al cambio de modelo productive que Proyecto propone. Encuesta inicial. Informe de resultados.** https://www.olivaresvivos.com/pdf/2018-Informe-02-Encuestas-WEB.pdf

11 **Olivares Vivos Webpage. Library section:** https://www.olivaresvivos.com/en/library/

THANK YOU!

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