



# Practical cases of soil, water and biodiversity improvement in Dehesas in Southwest of Spain

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ISLAS DE CORCHO NATURAL SI



**The Dehesa is an agroforestry area,**

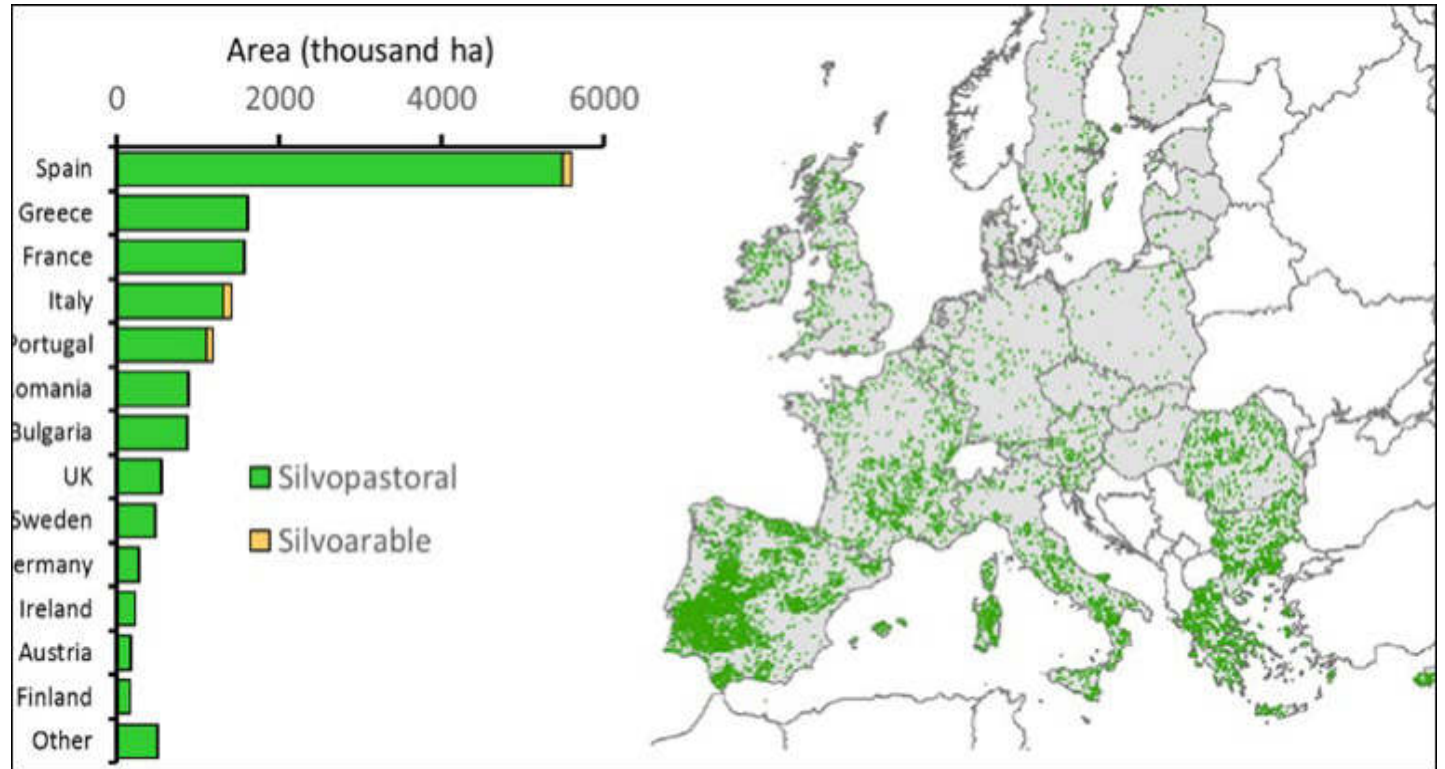




## Agroforestry areas occupy:

- 15 million hectares in the EU whole
- a third of them are located in Spain

Considering that they cover about 9% of the EU's agricultural area, agroforestry systems deserve a more prominent place on policy agendas



Spain, the EU country  
with the largest  
agroforestry area

Spain reaches 5.58 million hectares  
followed by:

- Greece and France (1.6 million hectares)
- Italy (1.4 million hectares)
- Portugal (1.2 million hectares)
- Romania (0.9 million hectares)

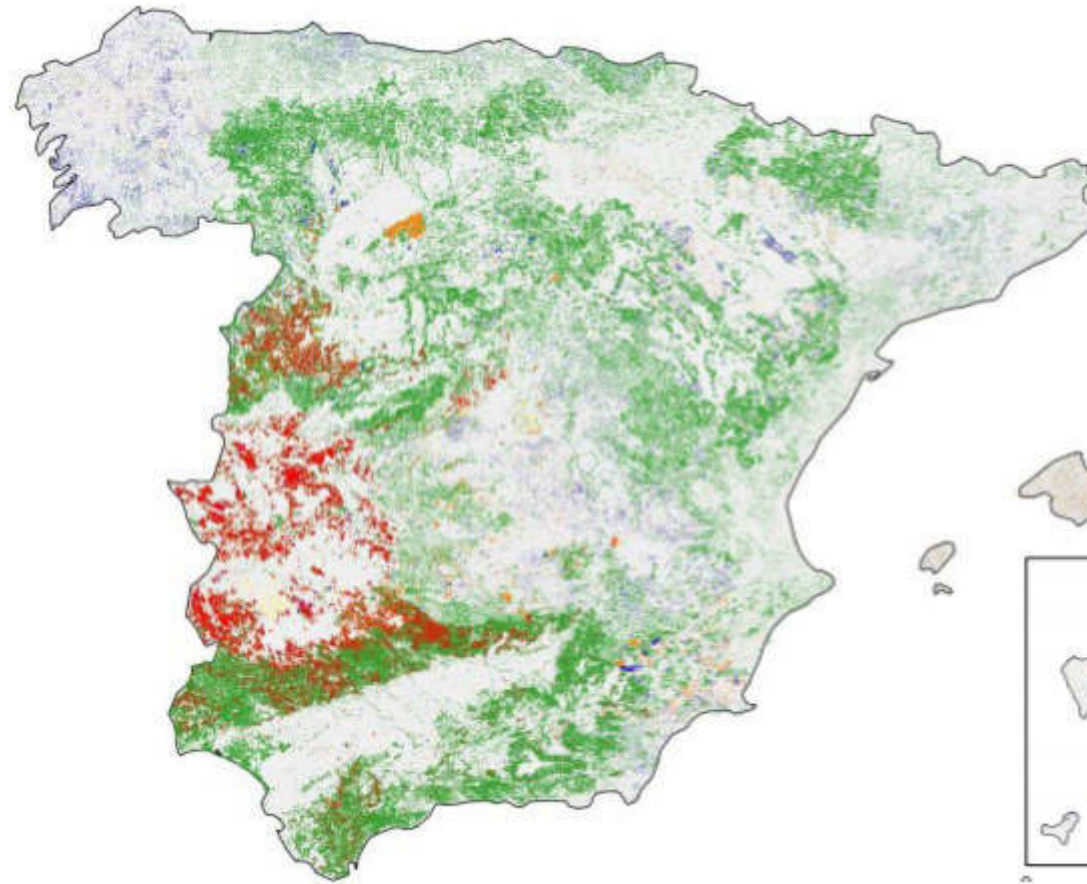


Figure 25. Distribution of the agroforestry systems in Spain estimated at landscape scale, including mosaics of land use 10-60% of tree cover. Canary Islands in the box.

Source: Elaborated from SIOSE database.

Legend:

**RED:** Dehesa

**GREEN:** Other silvopastoral systems

**ORANGE:** Silvoarable lands

**BLUE:** Mix of silvopasture with silvoarable lands

**YELLOW:** Olive + vines

\*according to calculations made within the framework of the AGFORWARD project





**MORE 7 MILLION HECTARES IN SPAIN AND  
PORTUGAL  
10-60% TREE COVER, MOST QUERCUS**



La Dehesa es una sabána Mediterranea, un bosque ahuecado lleno de especies y cultura, un bosque humanizado en equilibrio terminal.

Es un monte aclarado formando paisajes abiertos, con aprovechamientos tradicionales como sistema agro-silvo-pastoril,

Proporciona múltiples productos:

- Agrícolas: cereales y pastos
- Forestales: maderas, leña, corcho...
- Ganadero: extensivo
- Cinegético: caza mayor y caza menor
- Setas, apícola, plantas medicinales, turismo...





- **An open Mediterranean Forest intimately linked to human activities**







## MULTIFUNCTIONAL ACTIVITIES



## EXTENSIVE LIVESTOCK CEREALS AND PASTURES





**BIOPRODUCTS –WOOD-CORK-ACORNS-  
MUSHROOMS-HONEY...**

**HUNTING**

**ECOSERVICES SERVICES**



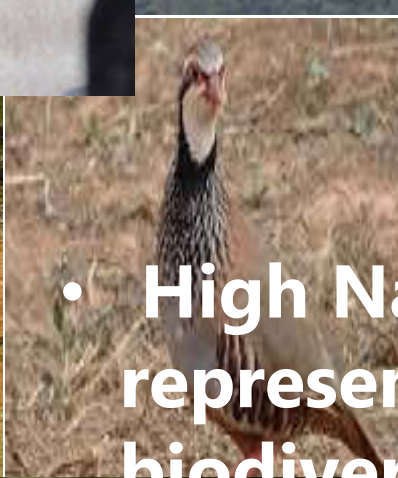
**BIODIVERSITY**

**TOURISM**

**JOBS**







- High Natural Value habitat, representing 35% European biodiversity, with multiple endangered species
- NATURA 2000- HABITAT 6310





## PROBLEMS-Dehesa decline

- abandonment of the agricultural activity
- or its intensification with inadequate agricultural practices
- climatic changes

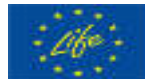
Origin of the growing decline of the Dehesas, reducing the density of water filtration, tree cover, increasing the soil losses and erosion, increasing diseases ( insects, fungi, virus ...)



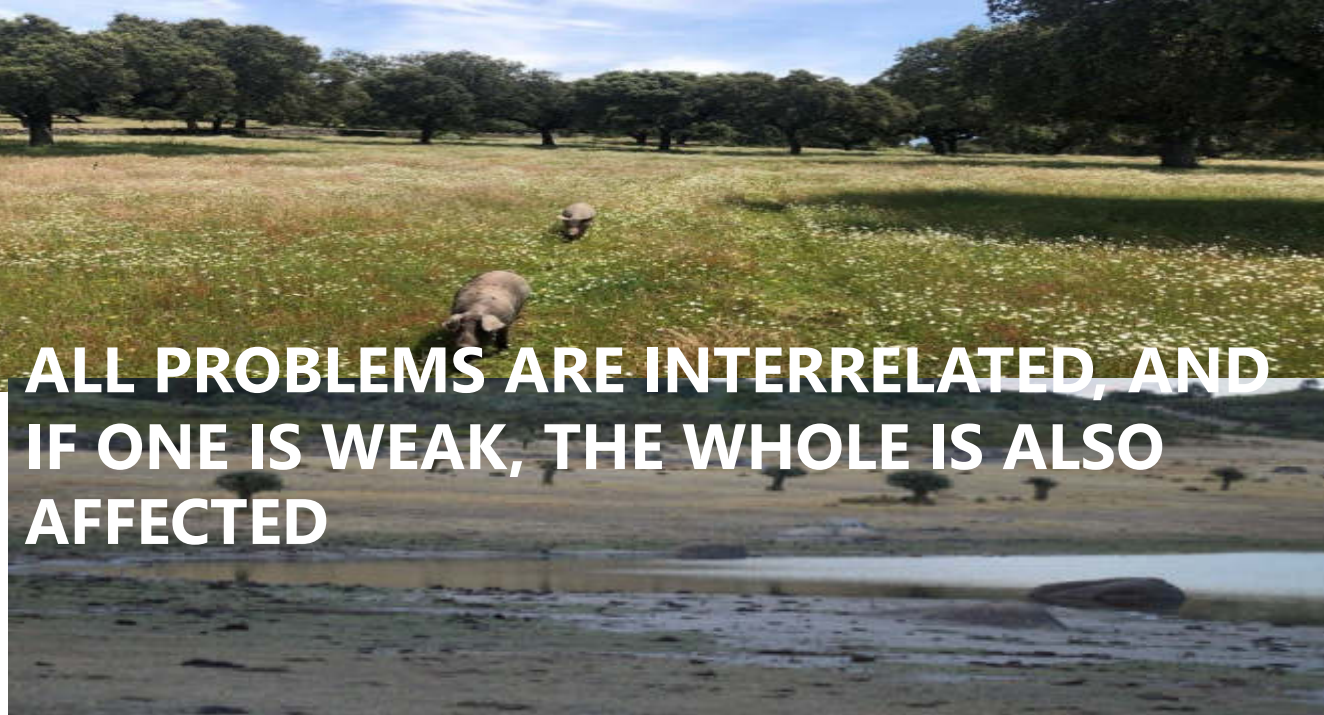


THE DEHESAS HAVE SUFFERED, FOR VARIOUS REASONS, A SERIES OF INAPPROPRIATE PRACTICES THAT HAVE BEEN A SERIOUS DETRIMENT TO THEIR SOIL, AND THEIR ECOSYSTEM ITSELF:

- EXCESS STOCKING RATES
- LACK OF REGENERATION
- EXCESSIVE PRUNING
- EXCESS WILDLIFE LOAD
- EXCESS EFFICIENCY OF MACHINERY
- EROSION PROBLEMS
- PLANT AND ANIMAL DISEASES...







# CONSEQUENCES

- Increased dryness and tree mortality
- Decrease in the productivity and quality of pastures
- Decrease animal production
- Diseases in animals and vegetation, sanitary problems
- Problems with Water quality and quantity
- Decrease profitability





- Soil degradation
- Water erosion
- Extreme climate events
- Invasive alien species
- Lack of population
- Rural abandonment
- Too many bureaucracy
- Policies do not help for Climate Change adaptation
- Inconsistent environmental and agricultural policies.....



**Aware of the importance of the health of the Habitat and of course in human health, ONE HEALTH**

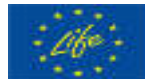
- We focus on enhancing the health of the soil in order to strengthen vegetation and all the species that live in.**
- The greater the biodiversity is , the lower the risk of diseases in both flora and fauna and humans.**
- The more complex a system is, the more robust and resilient it becomes.**





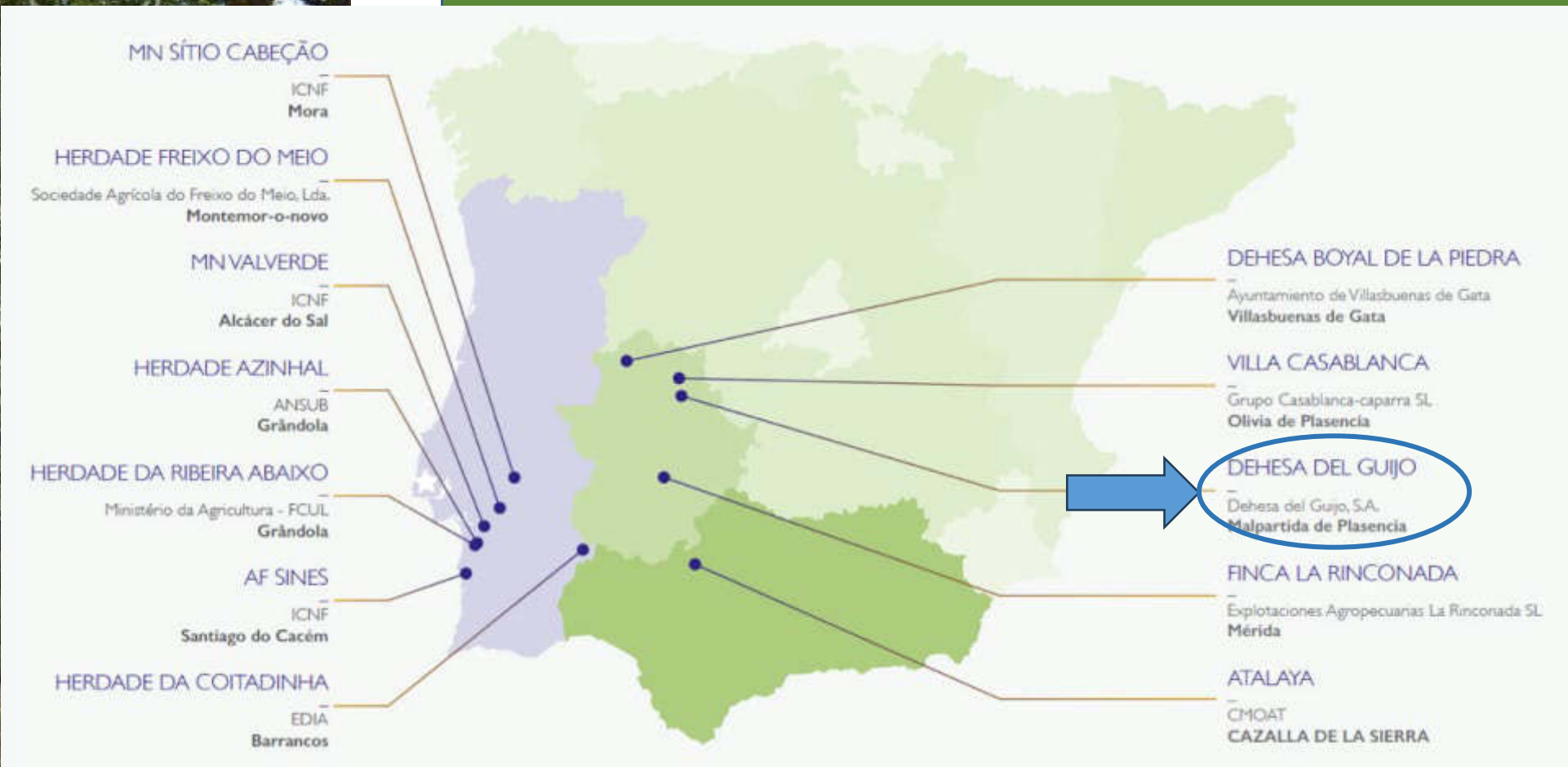
## LIFE MONTADO-ADAPT

It is a project to promote the adaptation of the Montado/Dehesa system in Portugal and Spain, which main objective is to mitigate the consequences of climate change, increasing the sustainability at an economic, social and environmental level.



**LIFE**  
**MONTADO-ADAPT**  
TECHNICAL ASSISTANCE FOR CLIMATE ADAPTATION

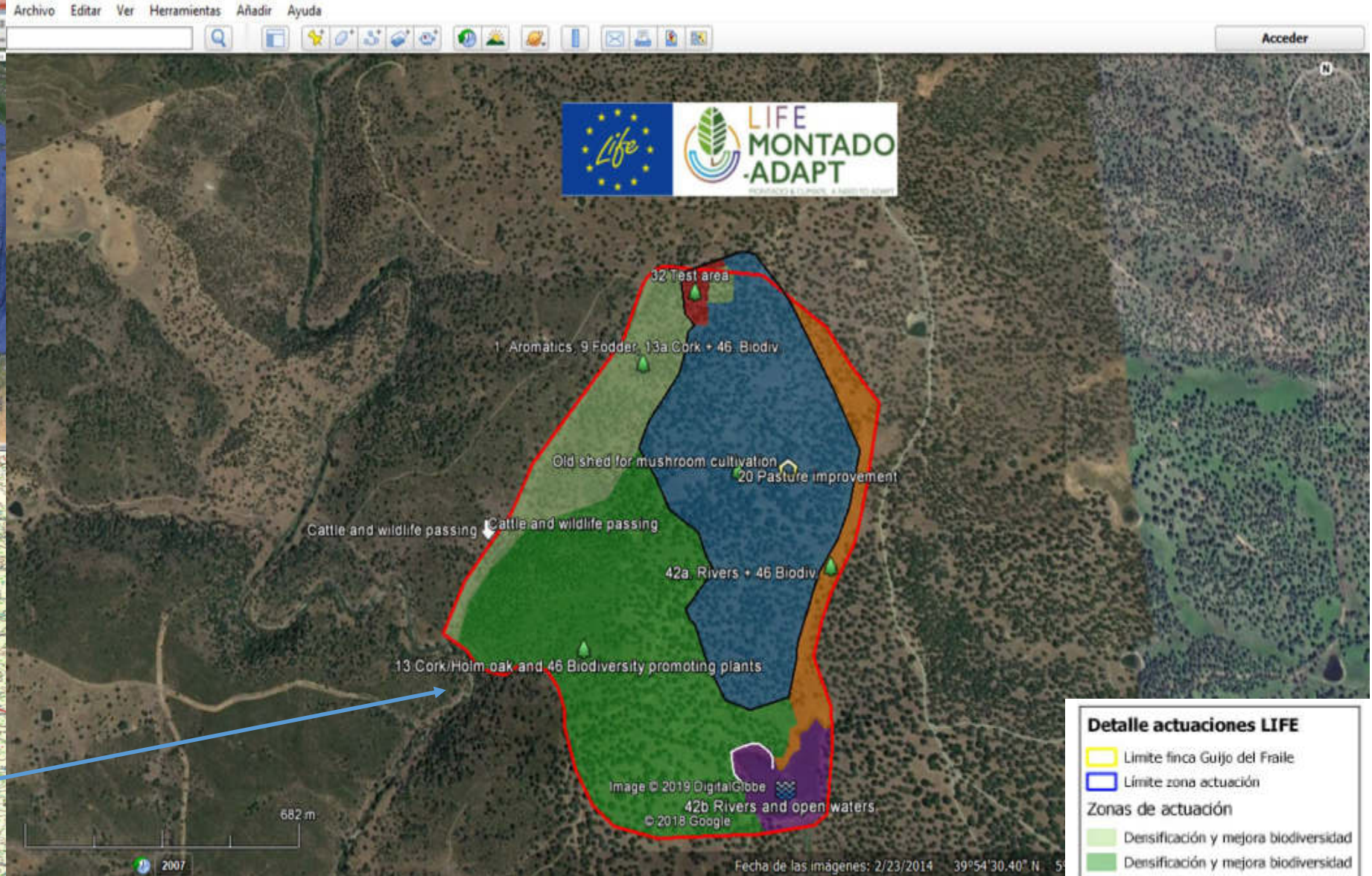
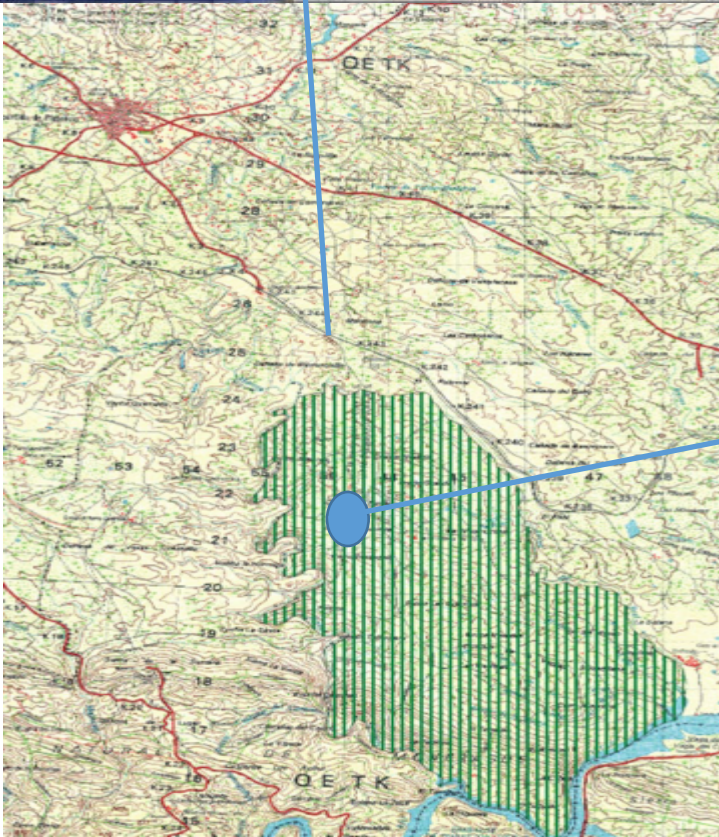
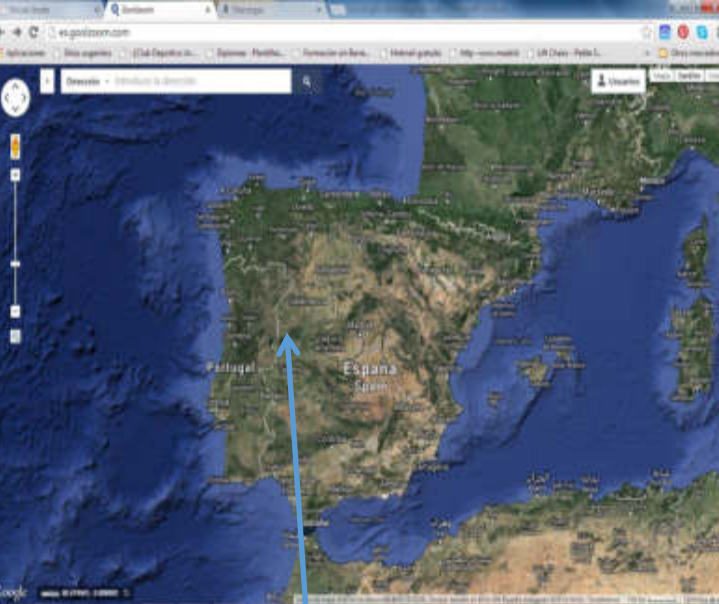




**12 Pilot areas**

<b>7 in Portugal</b>	7 Alentejo region	5 public / 2 private
<b>5 in Spain</b>	4 Extremadura region	1 public / 3 private
	1 Andalucía region	1 public





**SURFACE: 100 HAS**

#### Detalle actuaciones LIFE

- Limite finca Guijo del Fraile
- Limite zona actuación

#### Zonas de actuación

- Densificación y mejora biodiversidad
- Densificación y mejora biodiversidad
- Mejora de pastos
- Test área
- Regeneración arroyo temporal
- Aguas abiertas
- Bancos forrajeros
- Plantación aromáticas



# SOLUTIONS / OPPORTUNITIES TROUGH LIFE MONTADO ADAPT PROJECT

- IN FIRST PLACE WE NEED TO TREAT THE DEHESA, AS A WHOLE. **“ONE HEALTH”**
- **SOIL IS THE BASE FOR FOREST AND FOR ANIMALS, SO WE NEED TO IMPROVE IT:**
  - PASTURES IMPROVEMENT BY SEEDING AND FERTILIZING
  - CATTLE MANAGEMENT WITH ADEQUATED CHARGES
  - IMPROVING MICCORRYZAS IN SOIL
  - IMPROVING SOIL
  - RETAINING WATER FROM RAIN...
- WILD AND LIVESTOCK ANIMALS MUST BE WELL FED, WE MUST INCREASE IMMUNOLOGICAL STATE



# SOIL > REDUCING EROSION AND INCREASING FERTILITY > INCREASING SOIL M.O., BIODIVERSITY AND FERTILITY

## IMPROVED SOIL CROPS-PASTURES





**LIVESTOCK > ENSURE QUALITY AND QUANTITY FEED >  
IMPROVE PASTURE PRODUCTIVITY AND QUALITY >  
INCREASE LIVESTOCK SELF-SUFFICIENCY**



SUPERFICIAL TILLAGE FOR INSTALLING  
BIODIVERSE PERMANENT PASTURES IN 37 HAS,  
PROTECTED BY ELECTRIC FENCE, 1º YEAR

INSTALLING BIODIVERSE PERMANENT PASTURES  
IN 37 HAS, PROTECTED BY ELECTRIC FENCE

INTENSIVE GRAZING MANAGEMENT IN 37 HAS  
TWICE PER YEAR WITH SHEEPS 2ª-5ª YEAR



# Soil > Reduce the risk of erosion and flooding > Reduce soil compaction and erosion



Placing stones along, protecting soil from erosion and runoff,

Placing stones under barefoot trees

Plantation in front of problematic areas





Ripping no more than 30 cm deep following contour lines:

- stopping water speed
- enhancing soil infiltration





Promoting biodiversity





# SOLUTIONS / OPPORTUNITIES TROUGH LIFE MONTADO ADAPT PROJECT

- IN FIRST PLACE WE NEED TO TREAT THE DEHESA, AS A WHOLE. **“ONE HEALTH”**

- TREES AND SHRUBS, BIODIVERSITY PROMOTING PLANTS:
  - MUST FEED FROM BETTER SOIL
  - CAPTURE CO<sub>2</sub>
  - STOP EROSION
  - REGULATE T<sup>a</sup>
  - FEED FOR ANIMAL,
  - BIOPRODUCTS...

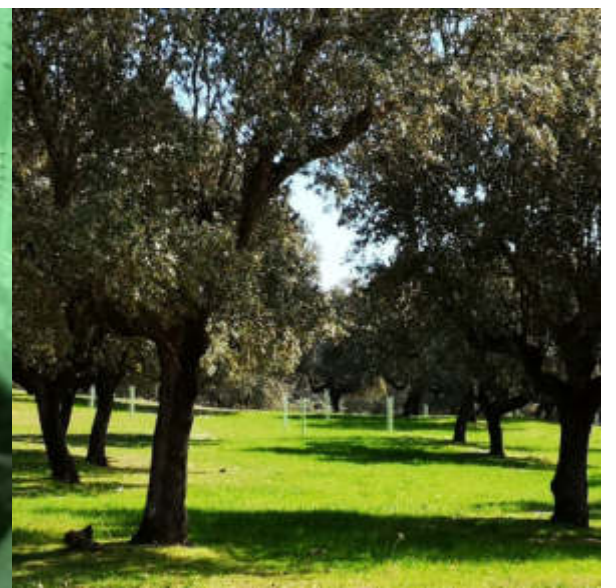


# VEGETATION > TREE & SHRUBS>BIODIVERSITY PROMOTING PLANTS> RAW MATERIAL& ANIMAL FEED



## Plantations:

- ripping or hole drilling by hand of native plants
- Plantation
- tubex protector
- cactus cage,
- providing biochar
- irrigation for summer implantation
- maintenance





## SOLUTIONS / OPPORTUNITIES TROUGH LIFE MONTADO ADAPT PROJECT

- IN FIRST PLACE WE NEED TO TREAT THE DEHESA, AS A WHOLE. **“ONE HEALTH”**

- PEST FIGHT WITH BIOCIDAL METHODS, NEST HOUSES FOR INSECTIVORE BIRDS

- INCREASING POLLINATORS FOR IMPROVING SOIL AND HARVESTS



# TREES > REDUCTION OF THE VULNERABILITY OF TREES > PROMOTION OF AUXILIARY FAUNA

Nesting Boxes for Birds and Bats







Place 1 ud/ ha  
Great biocidal power against pests  
Enhancer of biodiversity:

- birds
- mammals
- insects/pollinators...

Nest Box Model	2020-24	% OCCUPATION
<b>WHITE DEMA</b>	<b>10</b>	<b>100%</b>
BATS	5	50%
BIR NEST	5	50%
<b>WOODEN BOX-BD.</b>	<b>10</b>	<b>100%</b>
BATS+ POLIINATORS	1	10%
NEST+BATS+POLLINATORS	9	90%
<b>NATURAL CORK</b>	<b>70</b>	<b>100%</b>
BATS	5	7%
BIR NEST	65	93%
<b>GREEN DEMA</b>	<b>10</b>	<b>100%</b>
BATS	2	20%
BIR NEST	8	80%
<b>Total general</b>	<b>100</b>	<b>100%</b>





## SOLUTIONS / OPPORTUNITIES TROUGH LIFE MONTADO ADAPT PROJECT

- IN FIRST PLACE WE NEED TO TREAT THE DEHESA, AS A WHOLE. **“ONE HEALTH”**

- WATER STOCK & QUALITY IS IMPORTANT, MACROPHYTES FOR DEPURATION AND NESTING

- INCREASING POLLINATORS FOR IMPROVING SOIL AND HARVESTS



## **WATER > IMPROVE EFFICIENCY IN WATER CONSERVATION AND USE > CONSERVE WATER QUALITY**



Promotion of purifying aquatic vegetation

Natural filters removing organic matter and heavy metals

Creating artificial wetlands

**NATURAL CORK ISLANDS**





## BIODIVERSITY

They improve the health of the entire ecosystem.

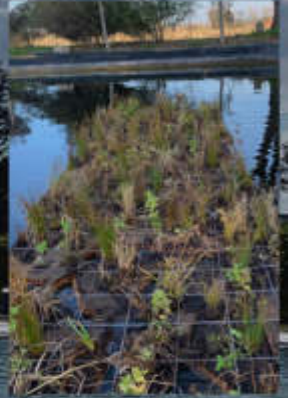
Nesting of birds.

Great promoters of flora and fauna thanks to the refuge they offer.



## BIOSECURITY

Faced with the possibility of falling into a pond or raft from which it is impossible to get out by oneself, it acts as a lifeguard for both people or any type of animal.



## POLLINATOR FUNCTION

The islands of natural cork have a series of plants that attract insects such as bees & butterflies and therefore promote pollination.



## LANDSCAPE RESTORATION

Through the creation of floating wetlands that are integrated into the landscape providing it with adequate vegetation that allows the lining of banks,...





# NATURAL CORK ISLANDS AN SOCIAL- ECONOMIC & ENVIROMENTAL PRODUCT







**THANK YOU FOR YOUR ATTENTION**



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