









for Climate Change Mitigation









Goals

Promote voluntary emissions offsets and use them to finance initiatives that will help restore natural areas of high ecological value.

Test a regulatory and operational model at the regional level and promote its transfer to the EU.

Develop and disseminate carbon forestry for CCM.

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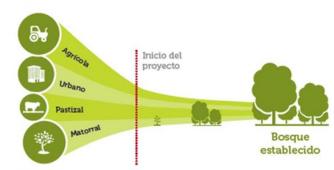
Goals

Promote CO₂ offsetting in slow-growing forests to enhance the value and profitability of mature forest, with more

biodiversity-complex ecosystems.

Ensure recognition of forest management as a mean of achieving additional CO₂ Sequestration → <u>not only plantations</u>

Fund nature restoration



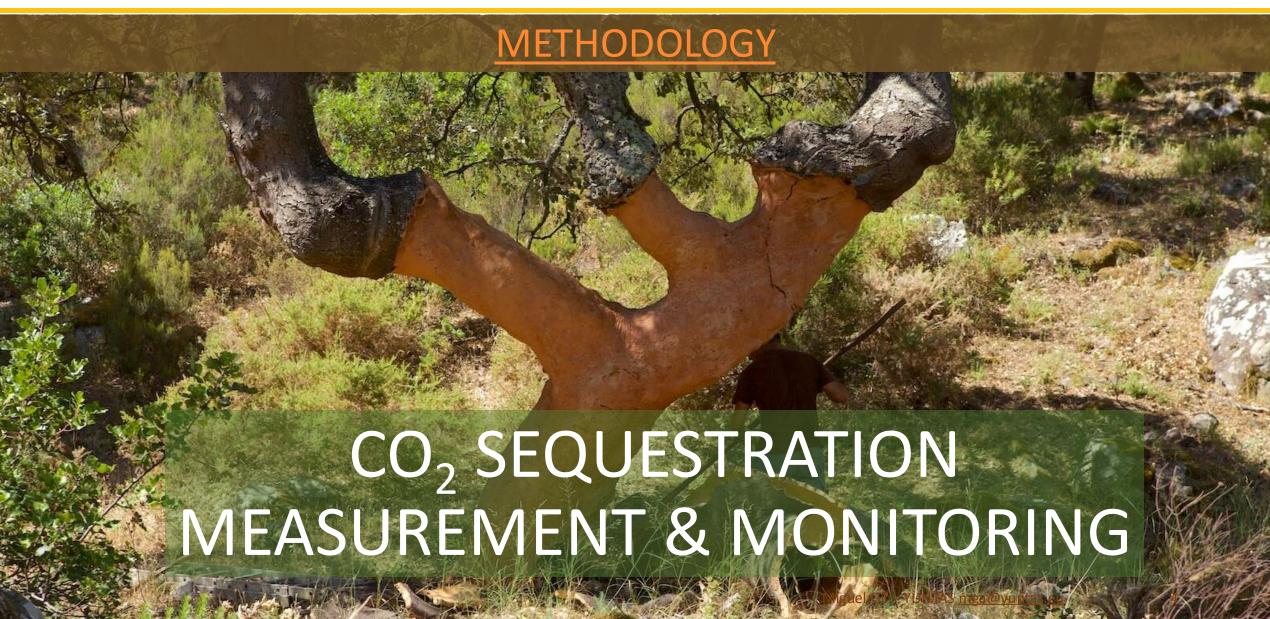


















Methodology: forest management

Analysis existing forest practices and those that can be incorporated to generate greater sequestration

Results

- → Appropriate management can generate greater amounts of soil organic carbon (SOC) and promote biomass growth, both in trees and shrubs
- → traditional management must be recovered, innovations needed are few and very easy to incorporate (Hunt vs Cork)







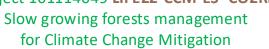
Methodology: Carbon storage

A set of study plots cover all cork oak forest variability

- Biogeographic regions (climate, geology...)
- Typologies derived from different managements, pests, ...
 - from more intervened by man, to less intervened
 - Forests plots affected by pests, due to poorly managed plantations that have become scrubland
 - Areas where there is degradation for other reasons



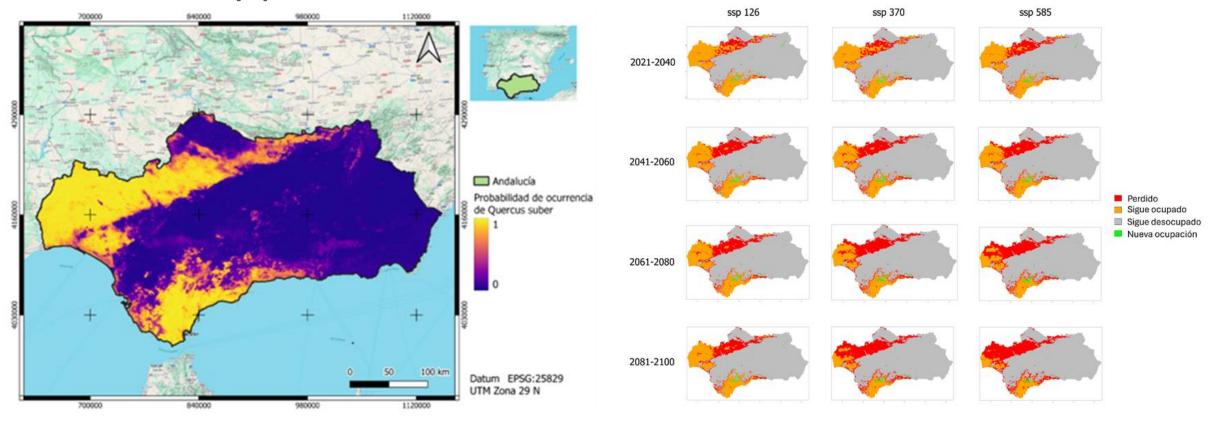






Methodology: Carbon storage

A set of study plots cover all cork oak forest variability





Slow growing forests management for Climate Change Mitigation



Methodology: Carbon storage

Chemical analysis of soil organic carbon (SOC)

Biomass growth monitoring using 3D topo (TLS) & UAV LIDAR.

 $\Delta C_{IJJ} = \Delta C_{AB} + \Delta C_{BB} + \Delta C_{DM} + \Delta C_{IJ} + \Delta C_{SO} + \Delta C_{HDM}$

ΔCLUi = changes in carbon stocks for a stratum of a land-use category

AB = Aboveground biomass

BB = Belowground Biomass

DW = Deadwoodta

LI = Litter

SO = Soils

HPW = Harvested Wood Products

Almacenes de carbono en Mg ha -1 Flujo de carbono en gC m⁻² an ⁻¹ CO₂ Atm Hojarasca: 4.64 ± 0.5 Suelo: 380.29 ± 77 Total: 538.78 ± 119 2110 ± 27 2263 ± 31 Hojas: $3,67 \pm 0,3$ Madera: 34,26 ± 7 Corcho: 9,71 ± 1,2 2000 ± 22 Hojarasca: 511 ± 12 - Madera: 49,63 ± 5,8 - Corcho: 19,17 ± 1,8 Hojarasca: 37,40 ± 3 Raíces: $37,40 \pm 3$

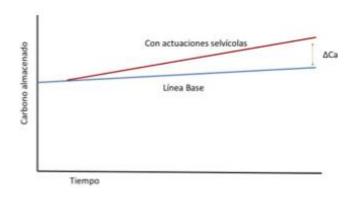


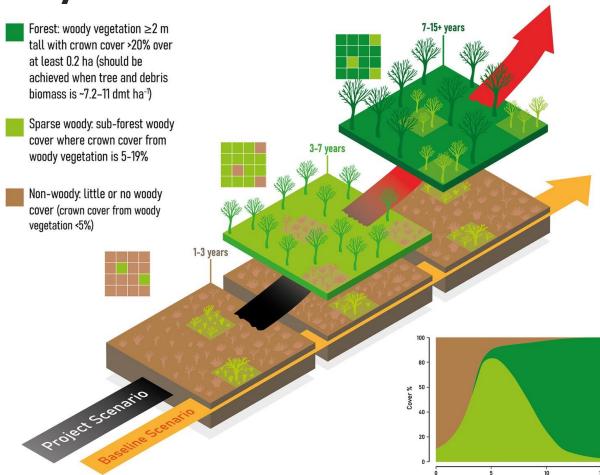


Additionality

Not only a technical but a legal matter:

9 years of operation shifts in cork oak forests \rightarrow 10 years = better cork plus 1 year of additional CO₂













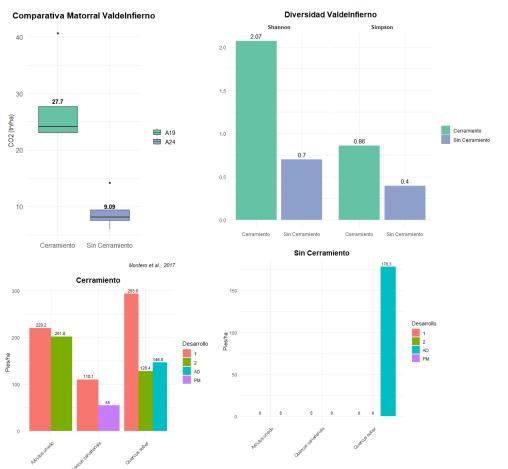








Carbon silvicuture: increasing forest profits through Carbon Credits



SILVICUTURE – Forestry treatments	Methodologies
Increase in the minimum CAP for 1st cork extraction up to 95 cm	Enhanced forest management
Increase in the deboning period to X+1 years → 10 years	
No cork extraction in areas with declining forest cover	
Intermediate treatments (thinning, clearing)	
Clearing, mulching, and chipping of scrubland/ruts and sidewalks	
Regeneration in pine forests subfloor	
Sapling recruitment: densification and/or enrichment	Improved productivity
Protection of natural regeneration. Protective enclosures (hoof control, livestock control).	
Plantations	















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First results

Large (wild) herbivores control through fencing & selective hunting



Large domestic herbivores control with cattle management

Getting back to traditional exploitation:

- 1. Priority for CORK \rightarrow 70% profits
- 2. Secondary CATTLE
- Tertiary HUNT

...model that needs forest regeneration, long term business models

Slow growing forests management for Climate Change Mitigation



First results

Andalusian
Compensation System
(SACE) has admitted
FOREST MANAGEMENT
as a way to generate
ADDITIONALITY



Spain's system DOESN'T...only:

- New plantations
- Reforestation after a forest fire









First results: fencing to keep deers out





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Results conditioned by EU Regulations

(1)Spain Regulation RD 214/2025, EU Regulation 2018/841, Regulation 2024/3012

Regulation 2024/3012 CE establishes that all wood products "harvested" cannot be counted within C sequestration \rightarrow we have to remove that C from the calculation equation

Only carbon from the biomass that remains in the forest is counted:

- a tree that is pruned and the pruning remains are left in the forest
- old tree that dies and is left in the forest to decompose.

















CO₂ compensation to fund Nature

CO2RK's core -> raising private funds to finance good forestry practices on private properties (60% EU).

Reward nature stewardship

- → landowners who practice sustainable forests management.
- > Funding actions that improve biodiversity and restore ecosystems.







Compensation System: SACE

Andalusian Law on Climate Change (2018)



SACE: Andalusian System for Carbon Compensation







Compensation System: SACE

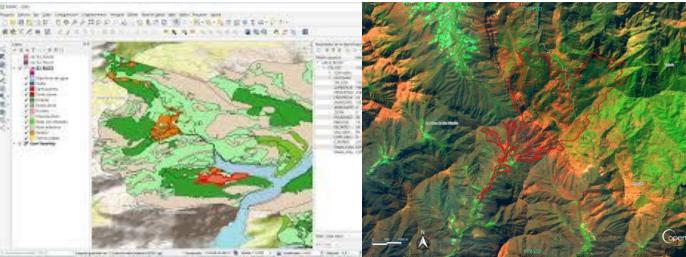
GOALS

- Ensure the quality and credibility of voluntary carbon markets
- Certify projects that meet their criteria
- Allow project developers to generate carbon credits

MEANS

Standard Calculator → Registry











Cork forestry CO₂ Standard

STANDARD \rightarrow Rules for CO₂ emissions compensation projects

 technical requirements → methodologies to calculate, monitor, certify. Project guide.

administrative procedures → agreements, validation & certification system, registry &







SACE Register

REGISTRATION

- Agreements (signed)
- Carbon offsetting (UDAs) → Units of Absorption
- Forest management project
 - Timeframe (?)

■ NOT THE FUNDING → a private matter, free market

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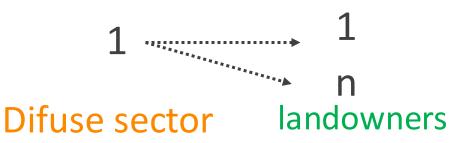


How much CO₂

can a company compensate

No legal limit

Depends on the ability to reach agreements





€/Tn CO₂ eq?

No controlled price: agreement between private parties

Today's market Price (EU ETS - emissions trading system): €72.75

CO2RK 2022 calculations: €25

promotor



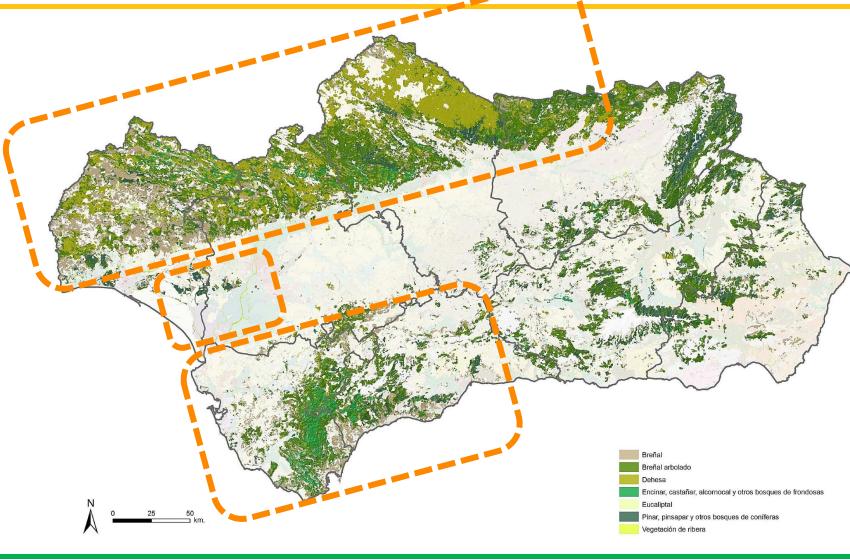






Where?

Andalusia → Potential territories match with **Natural Parks**









How to?

Agreement to finance the specific forestry works that generates aditional CO₂ sequester → Carbon Silviculture guide

Tasks, execution schedule, CO₂ credits, verification methods, payment schedule... EVERYTHING is included in the **Compensation Agreement.**







Timeframe?

The longest, the better \rightarrow greater CO_2 absorption

Geometric progression:

10 years = 1 cork removal shift and little sequestration in soil and shrubs

20 years = 2 cork removal shifts and possibly +150% sequestration through soil, shrubs, etc.







10-year terms

10 years = Project validity (Andalusian forest law) & usual forest management of a farm

10 years = 1 cork removal shift

10th year \rightarrow Independent verification of Carbon Forestry carried out. Guarantee mechanisms for companies

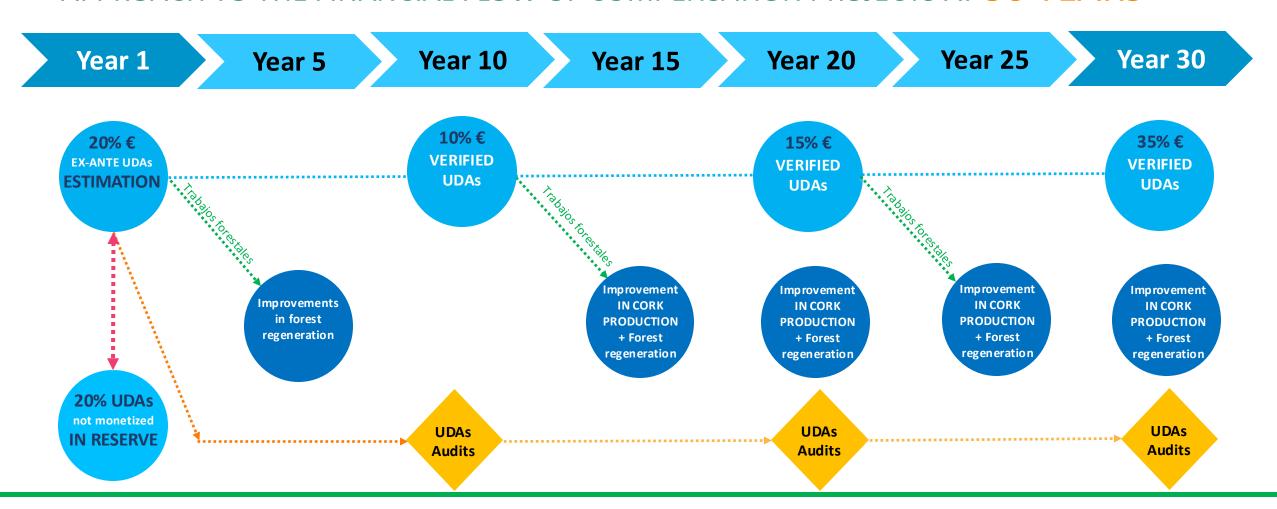








APPROACH TO THE FINANCIAL FLOW OF COMPENSATION PROJECTS AT 30 YEARS









Guarantees

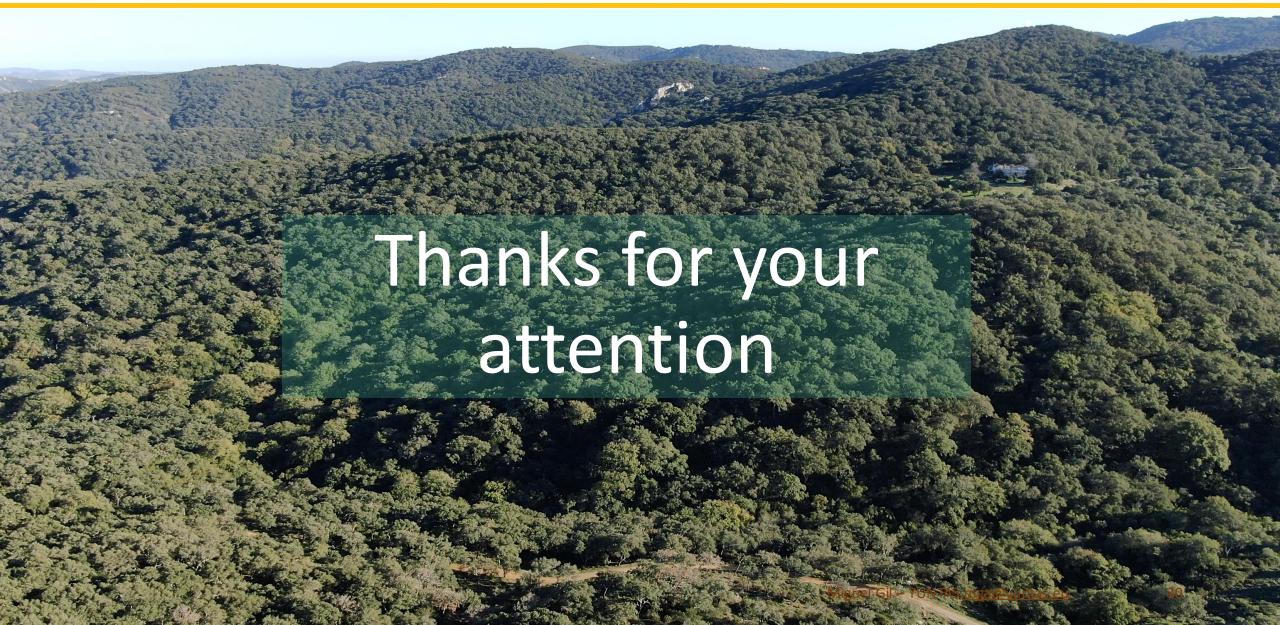
System (SACE) to manage a CO₂ credit guarantee fund which covers forestry contingencies (fire, malpractice, etc.) for the offsetting company

Substitute projects: if necessary, offsetting continues on a different property.

















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What if a forest manager / landowner ...?

Does not implement Carbon silviculture correctly Lack of sequestration to be detected in Certification

Penalty to be defined in the Compensation Agreement.

Investors may claim for their money back and even some additional "compensation" to landowners









What if a forest manager / landowner ...?

Does not implement Carbon silviculture correctly

SACE System to provide another Project to the investor check UDAs gained and help investor get the needed amount







What if a forest manager / landowner ...?

Wants to quit after 1st 10 years SACE System to provide another Project to the investor







What if an investor...?

Quits before the end of the Compensation agreement? **Penalty** to be defined in the Compensation Agreement.

Landowner may keep the investment corresponding to the 1st 10 years and shall continue with the Carbon Silviculture practices

SACE helps in finding a new investor for the next 10 years







What if an investor ...?

Quits before the end of the Compensation agreement? Project goes on! Carbon silviculture moves forward and CO₂ sinking don't stop

Register is not an intermediary but supervisor and somehow a promoter...committed on CC policies. Continues with matchmaking effort







What if an investor ...?

Cannot acquire long term compromises

SACE System to provide several investors to fund each Compensation Project for at least 30 years

Register able to show up Units of Absorption

Location \rightarrow GIS

Environmental values \rightarrow GIS

...and more

Foto de un banquillo de futbol









NEXT FUTURE: Roadmap towards Nature Credits

