FIRE-RES
Innovative technologies & socio-ecological-economic solutions for fire resilient territories in Europe

1st INNOVATION DAY SERIES - PORTUGAL
Matchmaking, Pitches, Success Stories & Networking
CoLAB forestwise

THEME III

"Innovations creating resilient territories from multiple perspectives"

CHAIR: Brigite Botequim
CoLAB ForestWISE

29-30th Oct 2024
Penafiel, Portugal

MAIN SPEAKER

CoLAB forestwise®

Paulo Fernandes

paulo.fernandes@forestwise.pt
ForestWiSE CoLab
Scientific Coordinator

pfern@utad.pt
Universidade de Trás-os-Montes & Alto Douro
Associate Professor

FIRE-RES
Innovative technologies & socio-ecological-economic solutions for fire resilient territories in Europe

1st INNOVATION DAY SERIES - PORTUGAL
Matchmaking, Pitches, Success Stories & Networking
CoLAB forestwise

PITCH

"Fostering resilience to wildfire through Traditional Ecological Knowledge"

Paulo Fernandes
UTAD & ForestWISE

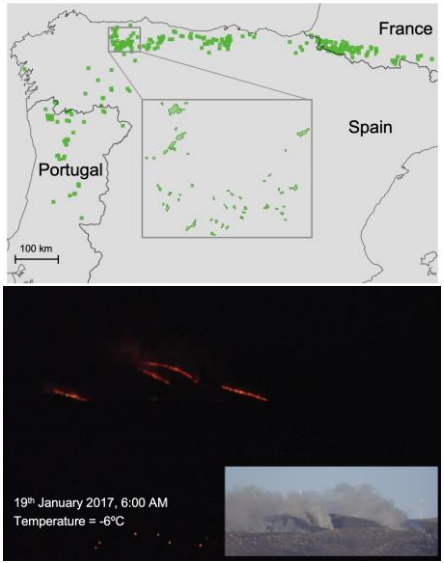
29-30th Oct 2024
Penafiel, Portugal

Traditional Ecological Knowledge (TEK)

- The cumulative knowledge of local communities in managing their environments, developed over generations
- Traditional practices involving the use of fire can assist fire management
- In Europe, the potential of TEK to decrease fire risk is usually disregarded, repressed and under-researched

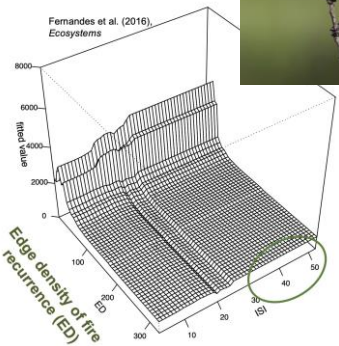
Traditional burning practices in southern Europe

- Remains of TEK are still present in mountain pastoral burning, from Portugal to Greece, and influence the fire regime
- Gaps in scientific understanding are manifest
  - **Limited data** on how seasonal, intensity, and spatial variations in traditional burns impact ecosystem dynamics
  - **Unrecognized mechanisms**: the ways in which low-intensity burning by communities regulate ecosystem functioning and maintain fire-resilient landscapes are under-documented



Ecosystem services enhanced by traditional burning practices

- Supporting services
  - Pyrodiversity (mosaic) enhances biodiversity
  - Habitat for grazing domestic & wild animals
  - Enhanced flowering supports pollinators
- Regulating services
  - Fuel reduction, mitigating high-intensity wildfire
  - Carbon cycle regulation
  - Erosion prevention & water quality maintenance
- Provisioning services (for sustainable livelihoods & resources)
  - Pastures
  - Plants for various uses, e.g. medicinal, food
  - Wood & biomass production
- Cultural services
  - Cultural heritage
  - Recreation & aesthetic value (ecotourism, hunting)



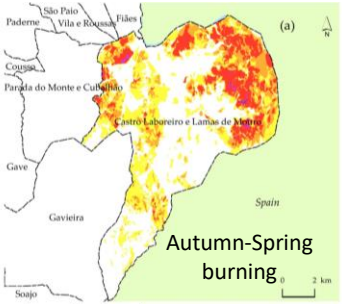
Examples of frequent-fire landscapes in SW Europe

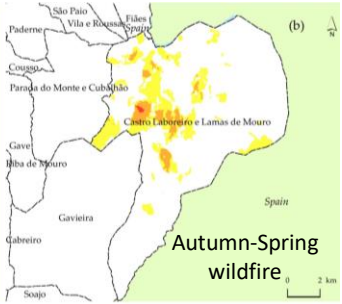


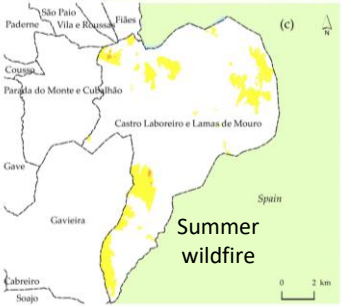



Castro Laboreiro & Lamas de Mouro,
NW Portugal

Fire frequency (2001-2020)







Parish limits

Fire Frequency

- Never burned or burn not detected
- 0 – 0.05
- 0.05 – 0.1
- 0.1 – 0.2
- 0.2 – 0.3
- 0.3 – 0.4

Oliveira & Fernandes (2023), *Fire*

Innovating fire management through TEK (rather than Tech)

- Low-tech, high impact, proactive: local knowledge, adaptable to environmental change
- TEK-science synergy allows for data-backed sustainable practices
- Community-based observation & adaptive learning, supplemented by technology
- Community involvement fosters land stewardship and knowledge transfer
- Integration of TEK with institutional fire management through policy & legal frameworks

Conclusion:
Moving fire management beyond technical solutions

Integration of TEK

- A nature-based, fire-smart & holistic approach that addresses ecological, cultural, and social dimensions
- A change towards resilience, sustainability & community empowerment

Managing fire risk, maintaining ecosystem services, and preserving cultural landscapes by blending science, policy and traditional practices

OIC PITCHER

David Almeida

david.almeida@ren.pt

REN

Sustainable Networks and Right-of-Way

OIC23

PITCH

"Increasing Resilience of Assets Facing the Risk of Wildfires"

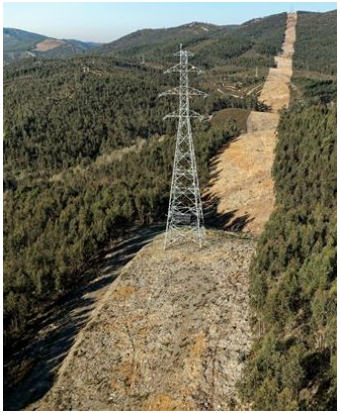
David Almeida
REN

REN

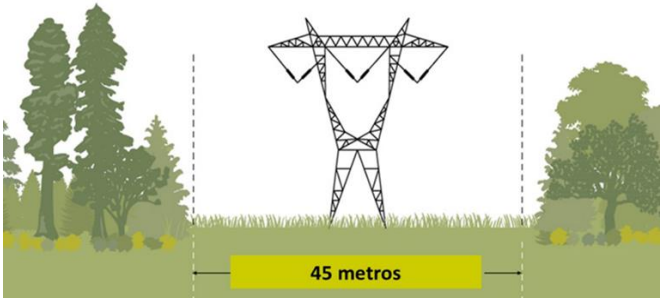
1290 UNIVERSIDADE D COIMBRA

29-30th Oct 2024
Penafiel, Portugal

REN - Integrated Transmission System Operator

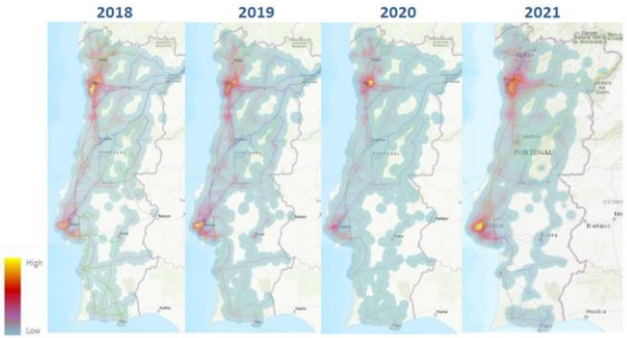


- >9 300 km of power lines
- 1 400 km of gas pipelines
- + 35 000 hectares of right-of-way
- 66% in forested areas



Wildfire Impact on REN Infrastructure

- Average of **5000 fires detected per year near REN infrastructures** (<5 km)
- Almost all **network is affected by wildfires**
- **More than 195 occurrences** registered in a **single day** (13 July 2022)



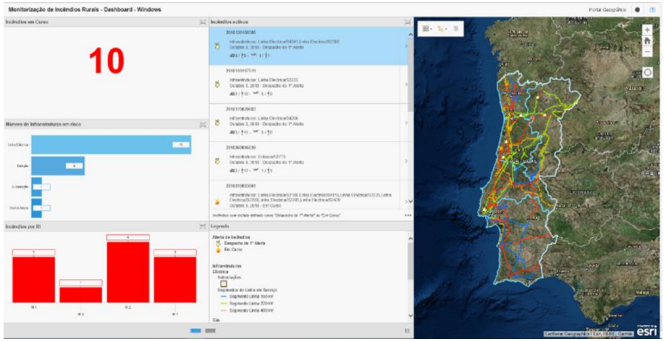
Point of Departure: REN Forest Fire Alert

- **Notification** on dashboard of wildfires detected **< 5km REN Infrastructures**
- **SMS** of wildfires detected **< 2km REN Infrastructures**

The Problem:

- Focus on the **point of ignition**
- No information on **where and when it is going to impact** the infrastructure
- **High volume of alerts**

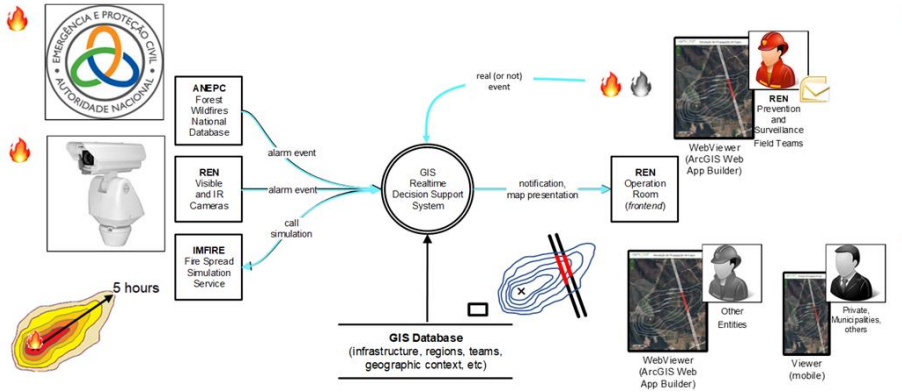
Forest wildfires dashboard < 5 km critical infrastructures



Incoming SMS (text message) when at less than 2km

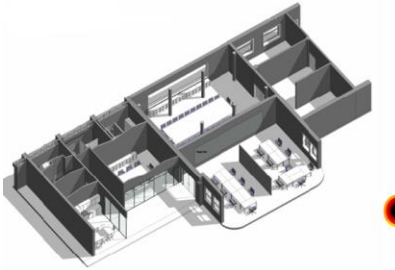
Follow up: rePLANT Project

- **Eight infrastructure monitoring and fire detection systems** were installed
- A **Decision Support System was developed** to anticipate when and where wildfires may impact the infrastructures



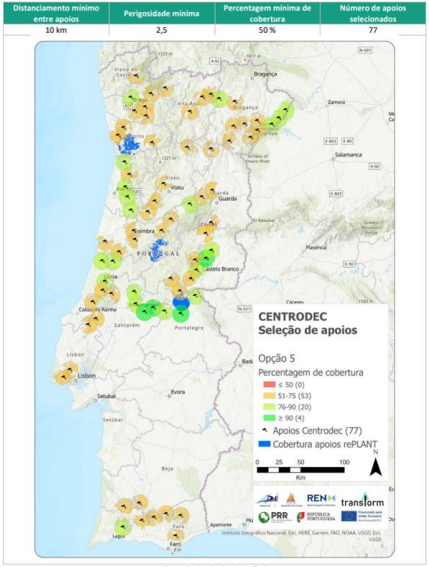
Scale up: transForm Agenda - P1.6. CENTRODEC

- Install **80 infrastructure monitoring and fire detection systems**
- Further develop the **Decision Support System** to anticipate other risks and impacts for asset management and protection
- Create a **Business Model** to provide services to other entities
- Create a **Decision Support Centre** to manage and provide Decision Support Systems as a service to REN and other entities.



Natureye

Fireye | Watereye | Stormeye | Safeye

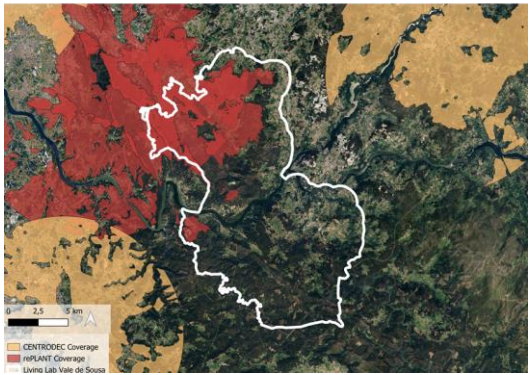


OIC 23: Increasing Resilience of Assets Facing the Risk of Wildfires

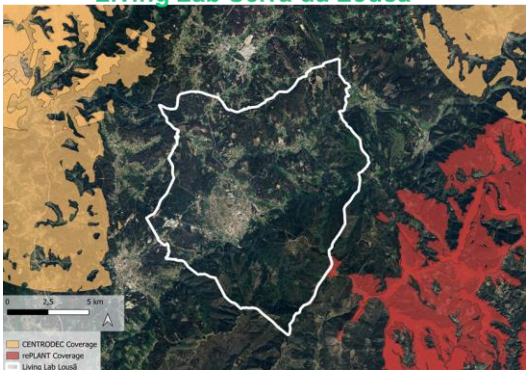
Living Labs Integration: Proposal to integrate Portuguese Living Labs into the DSS. Automatic alerts are sent when a fire is expected to impact Living Lab infrastructure.

- The report includes fire origin, location and **time of impact**, and a **summary map of fire spread and the asset**.
- Smaller areas/assets within the Living Lab, managed by **different entities**, can also be identified.

Living Lab Vale de Sousa



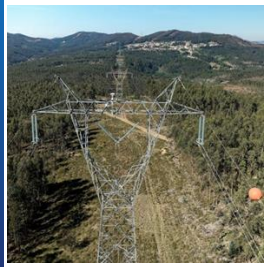
Living Lab Serra da Lousã



OIC 23: Increasing Resilience of Assets Facing the Risk of Wildfires

Features to be Tested:

- Fire behavior modelling: Simulation of predicted fire spread up to 5 hours after detection.
- Fire spread intersection: Identifying impact on physical assets/pilot projects within the Living Lab.
- Automatic alert system: Alerts sent to responsible personnel with details on location and time of impact.



Benefits of the Proposed Test for the User:

- Predictive information on **fire behavior** beyond location data.
- Increased **efficiency in wildfire protection**.
- Focus on **where and when** the fire will impact infrastructures, not just ignition point.
- Improved **activation of surveillance and prevention teams**.
- More **effective operational decision-making**.

OIC PITCHER

AGIF
Agency for Integrated Fire Management, Portugal

Yannick Le Page

niquya@gmail.com

AGIF
Knowledge and Innovation adviser
(OIC 48, submitted independently)

PITCH

"Physical raised-relief (3D) maps to promote knowledge, engagement and situational awareness in fire landscapes"

Yannick Le Page
AGIF

29-30th Oct 2024
Penafiel, Portugal

What are raised-relief maps ?

What are raised-relief maps ?

What are raised-relief maps ?

An effective way to promote knowledge, engagement and awareness in fire landscapes

Appealing and intuitive

A unique way to promote knowledge, engagement and awareness in fire landscapes

Create map narratives to understand the dynamics at play

Micro-climates

Vegetation

Fire hazard

A unique way to promote knowledge, engagement and awareness in fire landscapes

Large variety of applications and target audience

Public awareness
e.g. in visitor information centres

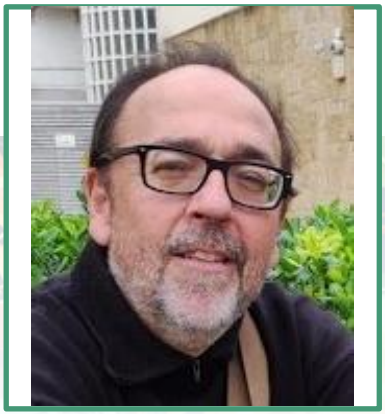
Educational activities in schools
e.g. participative cartography

Strengthening people's connection to their environment

Landscape patterns and situational awareness
e.g. firefighters

Applicable to any environmental and societal topic

OIC PITCHER



Fernando Pulido

nando@unex.es

University of Extremadura
Full Professor
INDEHESA – Institute for Silvo-pastoral Research

PITCH

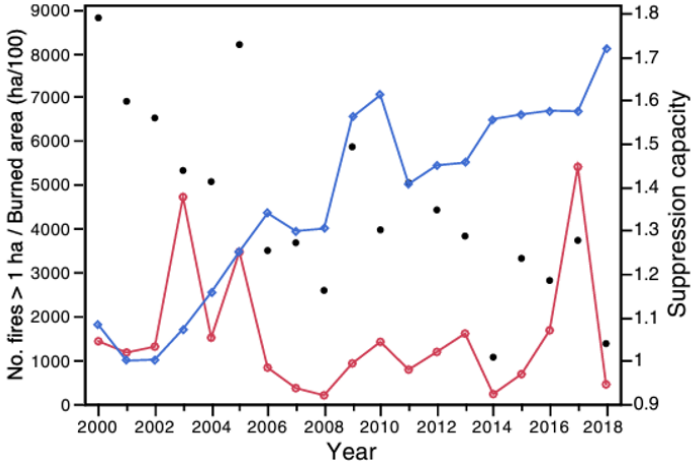
"MOSAICO, a toolkit for effective social engagement and proactive prevention through landscape management"

Fernando Pulido
University of Extremadura

29-30th Oct 2024
Penafiel, Portugal

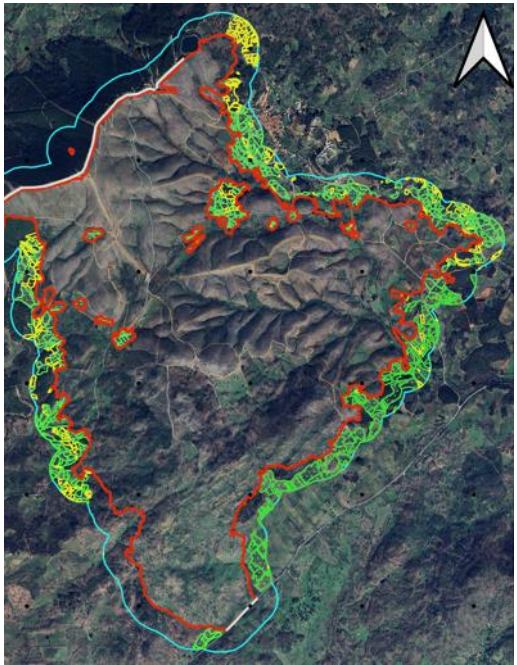
Wildfires as social pathology

Root causes not addressed

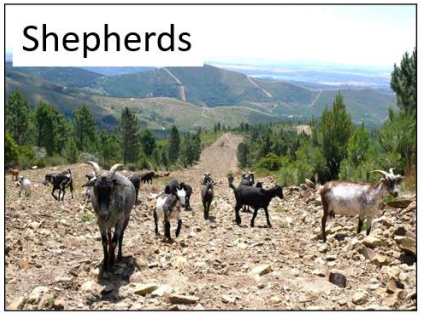


Fernandes, P. M., Delogu, G. M., Leone, V., & Ascoli, D. (2020). In *Extreme wildfire events and disasters* (pp. 187-200). Elsevier.

Neglected tools, missed opportunities



MOSAICO implements proactive governance to:



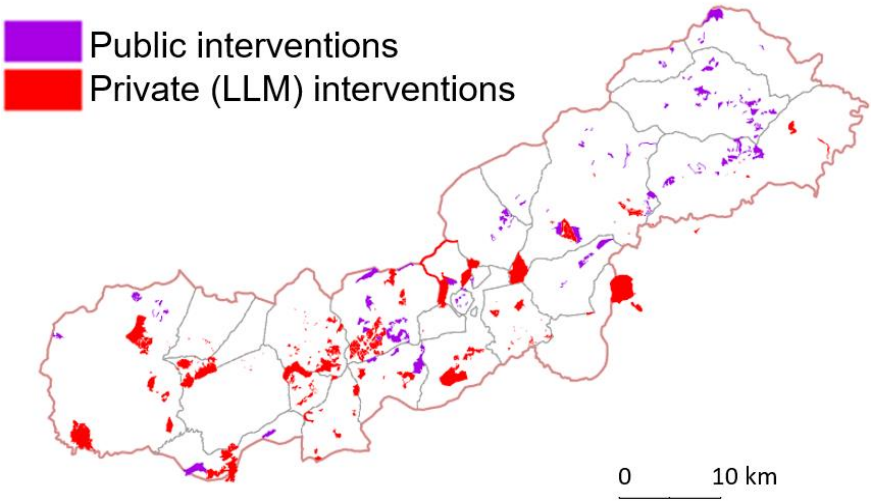
- Create Productive fuel-breaks (PFB)
- Engage actors from the whole value-chain

A labelled Nature-based-solution

MOSAICO

MOSAICO do increases fire-resilience

2017-2021	n	Área (ha)
Private interventions	94	**5754**
Agriculture	35	350
Forestry	39	1244
Livestock	20	4160
Public interventions	53	**2985**
Fuel removal	30	363
Thinning	23	2622



We offer FREE courses on MOSAICO to:

- Spread the solution
- Support companies in value generation
- Inform public departments
- Deliver social co-benefits

OIC PITCHER

HoZe Solutions GmbH
Solving burning issues

Martin Hofmann

martin.hofmann@hoze-solutions.com

HoZe Solutions GmbH

Founder

OIC98

PITCH

"Data-informed asset protection strategies"

Martin Hofmann
HoZe Solutions GmbH

29-30th Oct 2024
Penafiel, Portugal

Current situation

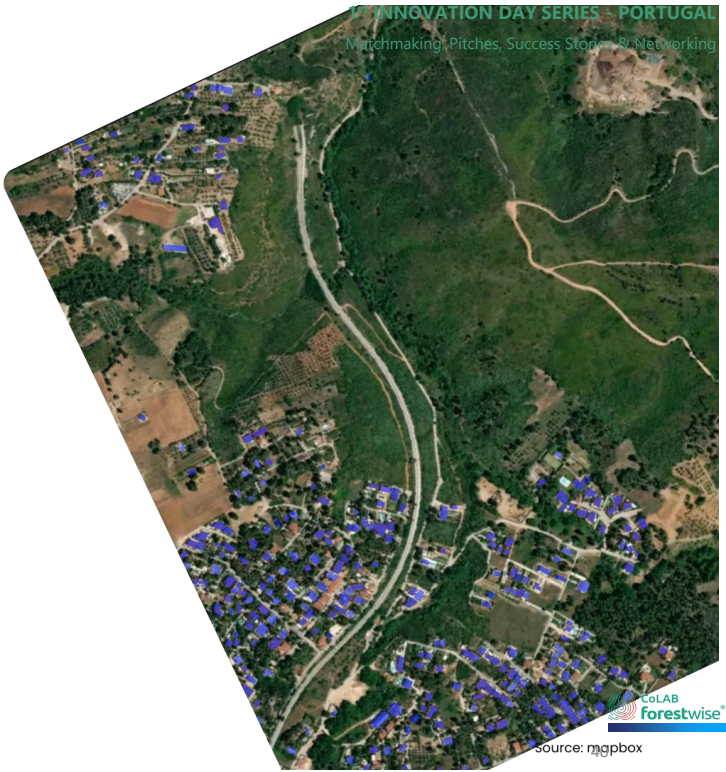
Lack of **prevention** and **protective measures**.

Leading to loss of life, biodiversity and substantial damages.

Source: NASA | CNN

/ Our vision

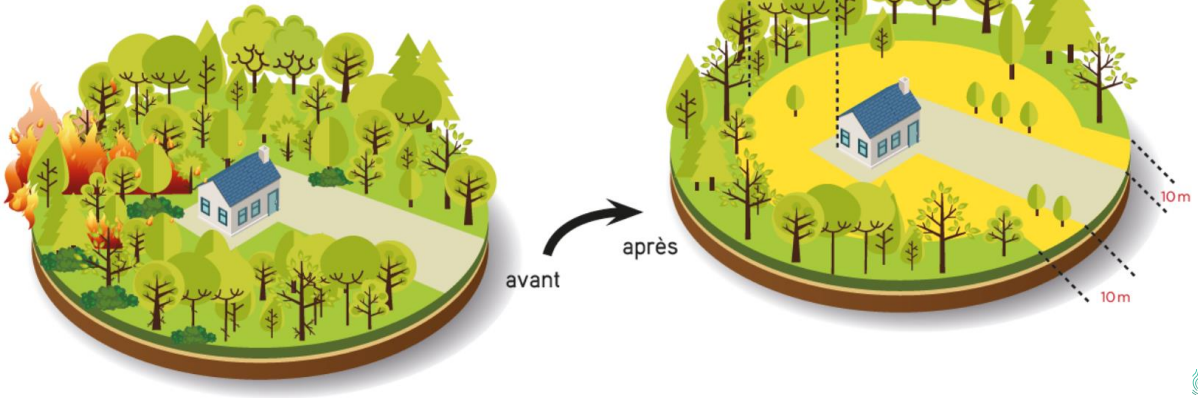
Readying communities through a combination of **best practices** and **innovative fire protection technology**.



Source: mapbox

/ Defensible space

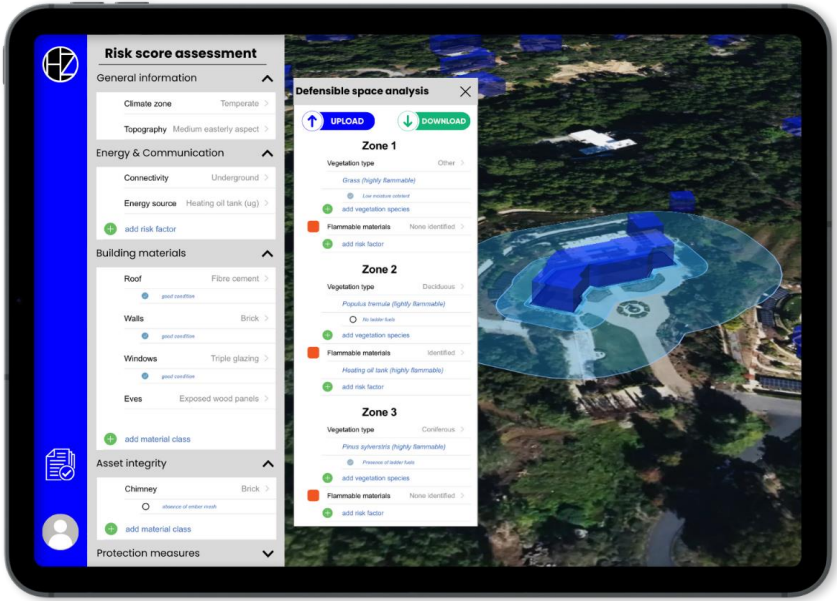
Creating safe space around assets for improved firefighting operations and reduced risk.



Source: www.saintchristollezales.fr

/ An interactive platform

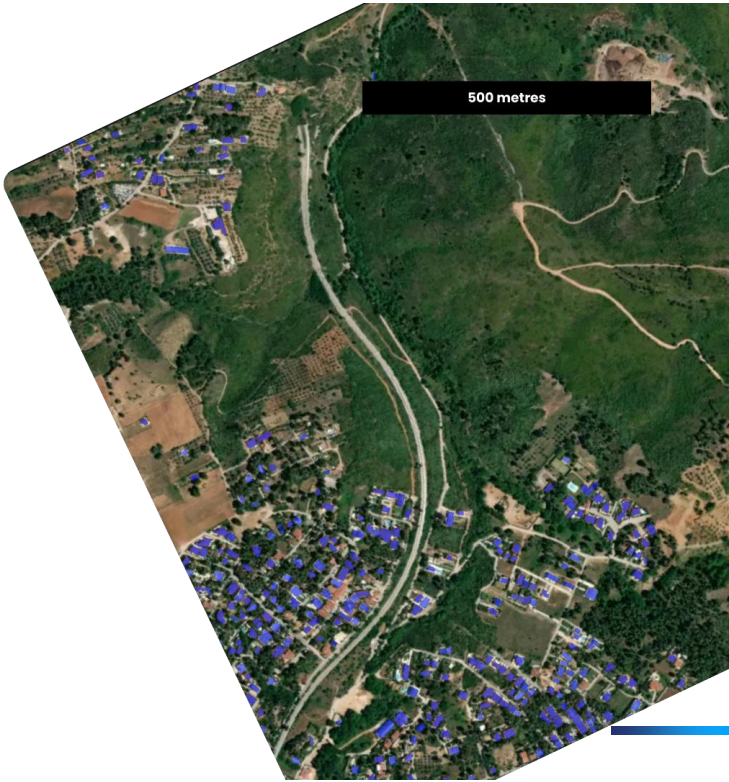
An **automated risk mitigation platform** guiding asset owners towards ideal asset hardening strategies.



Visit www.defensiblespaceviewer.com to try it out.

Source: mapbox | HoZe Solutions

Fire protection equipment

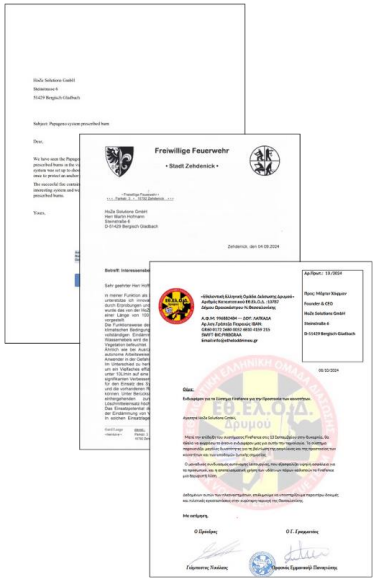


Rethink the current firefighting approach by **empowering communities to better protect themselves**.

Fire protection equipment

- Scalable to long distances (>500 metres)
- Efficient use of water resources
- Autonomous operations to ensure safety for practitioners

/ FireFence roadshow



Portugal

Germany

Greece

/ Academically validated

Up to **1000x savings in water**

Easily scalable

Autonomous operations

zone to be protected

effective containment

/ Call to action

Looking for parties interested in the **FireFence system**:

- remote communities,
- critical infrastructure,
- tourism assets

Looking for asset owners keen on learning more about their **defensible space** and ways to harden their property.

Reach out to **martin.hofmann@hoze-solutions.com**

Q&A (20’mins)

THEME IV

"Innovations relying on, or enhancing, nature-based solutions"

CHAIR: Daniela Teixeira
CoLAB ForestWISE

29-30th Oct 2024
Penafiel, Portugal

MAIN SPEAKER

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

André Mota

andremota@cimvdl.pt

CIM Viseu Dão Lafões

Head of the Intermunicipal Environment and Civil Protection Unit

Welcome

LANDSCAPE FIRE

30
october 2024

LIFE LANDSCAPE FIRE PROJECT

LIFE LANDSCAPE FIRE

LIFE18 ENV/PT/000361

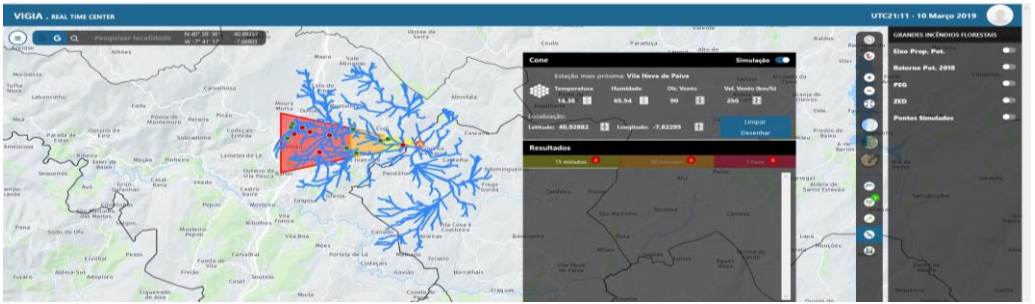
LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Before LIFE Landscape Fire

- Region heavily affected by severe wildfires;
- Study of all wildfires that ignited in the region between 1990 and 2017:

Axes of fire spread | Strategic management points | Recurrence period



- Need to define alternative ways of managing fuels in the region:

Hand tools - 1,000 €/ha | Controlled fire - approx. 180 €/ha | Grazing - 60 to 80 €/ha.

LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

The Project

LIFE LANDSCAPE FIRE – New methodologies for forest fire prevention

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Partner organisations

Instituto Politécnico de Viseu

MANCOMUNIDAD SIERRA DE SAN PEDRO

JUNTA DE EXTREMADURA

UNIVERSIDAD DE EXTREMADURA

Project objective

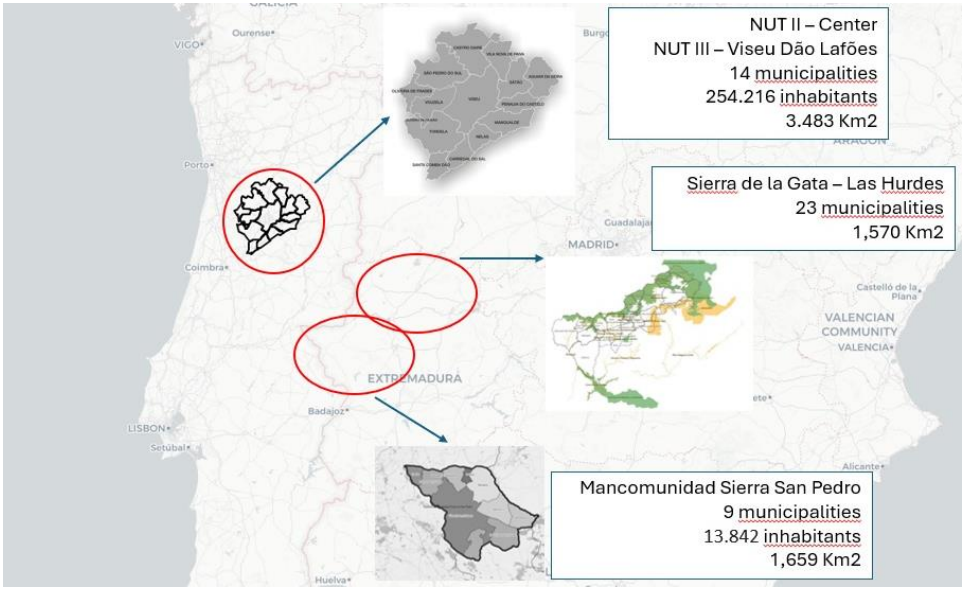
Implementation of new methodologies for the prevention of forest fires through the use of prescribed burning and grazing for fuel management.

LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

The Regions

Viseu Dão Lafões
Extremadura



Welcome

LANDSCAPE FIRE

30
october 2024

LIFE LANDSCAPE FIRE PROJECT

Implemented actions

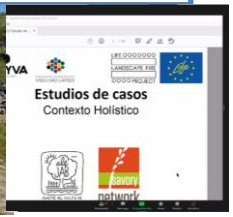
LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

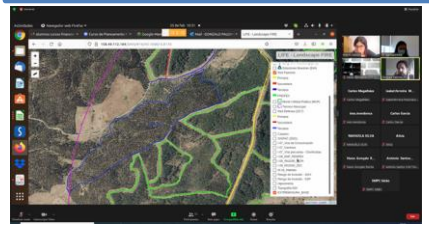
Implemented actions

B1. Using of grazing for wildfires prevention

- Training in Techniques for Planning Grazing Activities: 15 technicians



- Training in Pasture Management:15 technicians



LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

B1. Using of grazing for wildfires prevention

Training in Pasture Management – Instalation of Drinking facilities

- São Macário (São Pedro do Sul)

- Aguiar da Beira

LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Implemented actions

B2. Training of professionals, volunteers and municipal technicians

Prescribed fire training

- **Prescribed Fire Technitians: 25**
- **Burn operators: 75**
- **Fire analysts and use of simulation tools: 30**

Forestry Technical Offices
Municipal Civil Protection Services
Municipal Firemen Sappers, Volunteer Firemen
Forest Sappers
Emergency Protection and Rescue Unit (UEPS) of the National Republican Guard
Institute for Nature Conservation and Forests (ICNF)
National Emergency and Civil Protection Authority (ANEPC)

LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Implemented actions

B2. Training of professionals, volunteers and municipal technicians

LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Implemented actions

B2. Training of professionals, volunteers and municipal technicians

November 2021

June 2022

LIFE LANDSCAPE FIRE PROJECT

LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Implemented actions

B3. Execution of the demonstration actions

LANDSCAPE FIRE

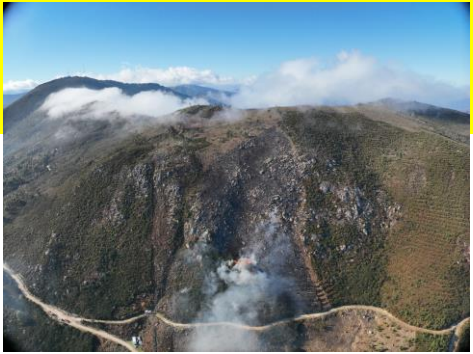
Implemented actions

B3. Execution of the demonstration actions

LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

B3. Execution of the demonstration actions



LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL VISEU DÃO LAFÕES

Summary of areas executed | Prescribed burning

Training in Prescribed Fire

Municipalities	Area (ha)
Tondela, São Pedro do Sul, Vouzela, Sátão, Vila Nova de Paiva	118

Pilot actions

Municipalities	Area (ha)
Castro Daire, São Pedro do Sul, Vouzela, Vila Nova de Paiva	130

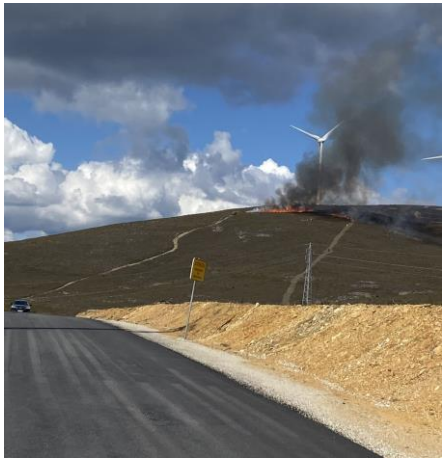
LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Wildfire response | august and september 2024

Póvoa das Leiras/Coelheira | São Pedro Sul

Controlled Fire – January and February 2023



LANDSCAPE FIRE

Wildfire response | august and september 2024

Póvoa das Leiras/Coelheira | São Pedro Sul

Wildfire – 17/08/2024

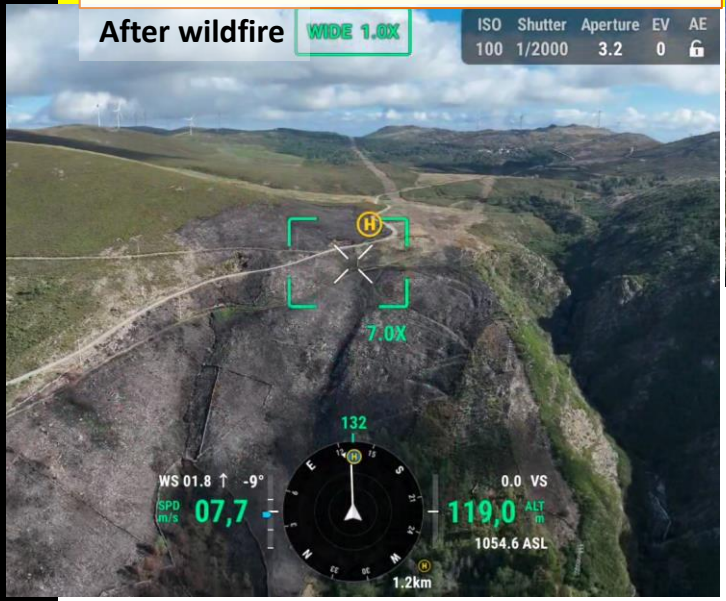
LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Wildfire response | august and september 2024

Póvoa das Leiras/Coelheira | São Pedro Sul

After wildfire



LANDSCAPE FIRE

Wildfire response | august and september 2024

São Macário/Ameixiosa| São Pedro Sul

Controlled fire – february 2024

LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Wildfire response | august and september 2024

São Macário/Ameixiosa| São Pedro Sul

After wildfire of september 2024

Wildfire response | august and september 2024

São Macário| São Pedro Sul – other examples beside LLF project

After wildfire of september 2024

LANDSCAPE FIRE

Wildfire response | august and september 2024

São Macário| São Pedro Sul – other examples beside LLF project

After wildfire of september 2024

LANDSCAPE FIRE

JUNTA DE EXTREMADURA

Implemented actions

B3. Execution of the demonstration actions

Virtual fencing

LANDSCAPE FIRE

Implemented actions

B3. Execution of the demonstration actions

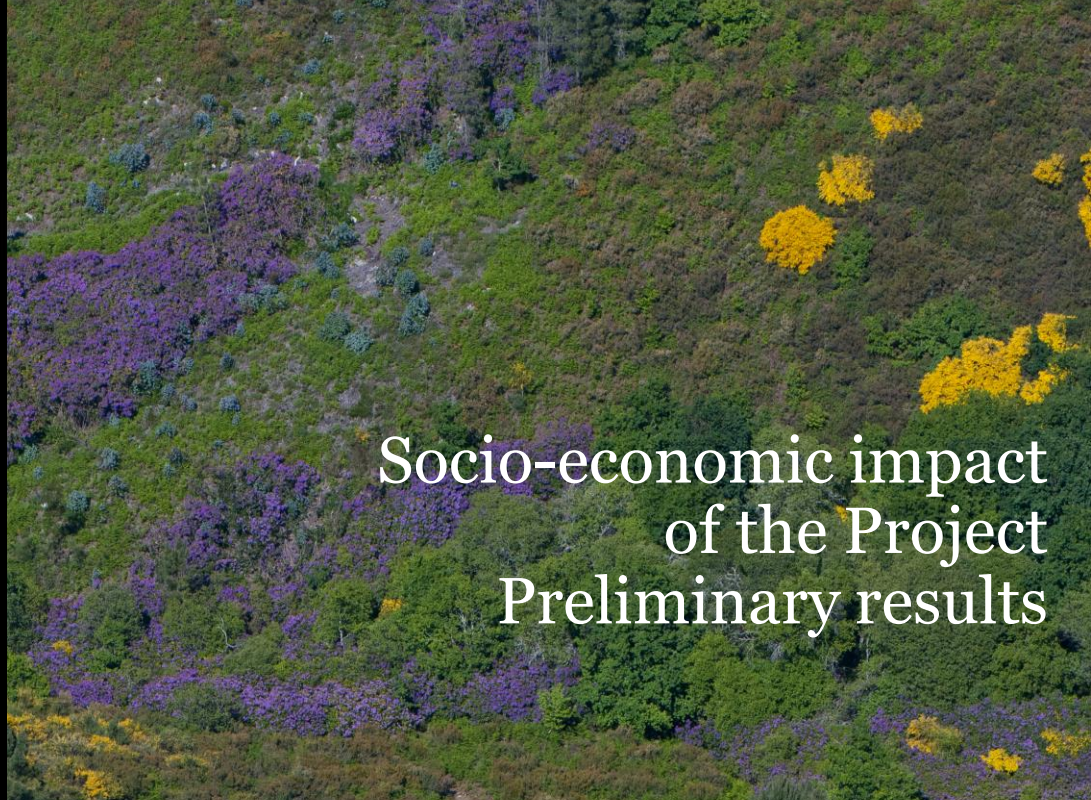
The effect of a Strategic Management Point during the wildfire of Pinofranqueado, Las Hurdes, May 2023

Welcome

LANDSCAPE FIRE

30
october 2024

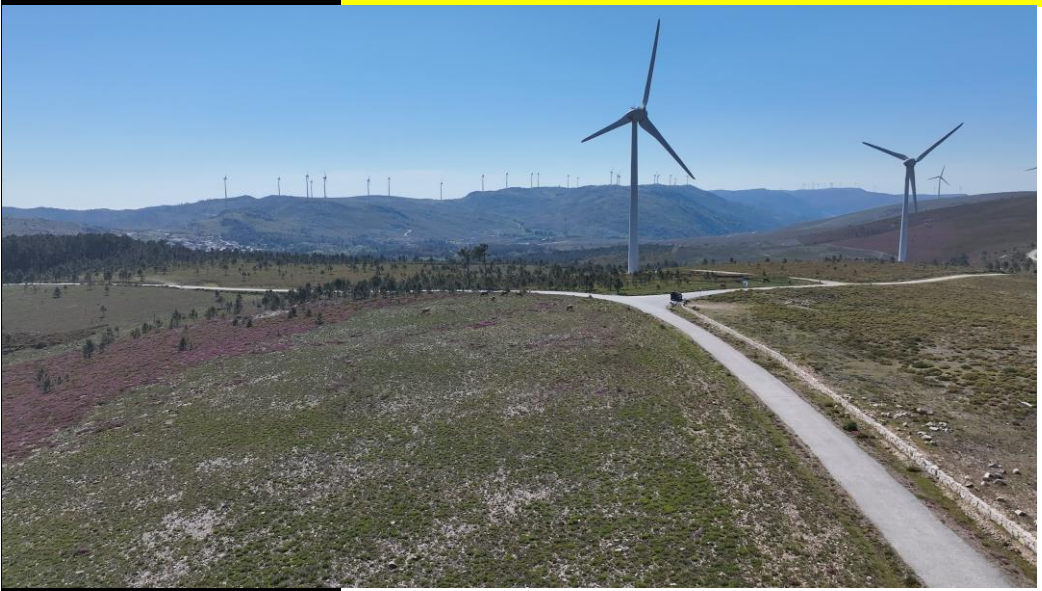
LIFE
LANDSCAPE FIRE
PROJECT



Socio-economic impact of the Project Preliminary results

LANDSCAPE FIRE

Socio-economic impact of the Project



Production of knowledge in the following areas:

- Environmental service provision;
- Animal behaviour and grazing preferences in burnt areas;
- Regeneration of vegetation and soil after prescribed burning;
- Effects of grazing and fire on soil quality;

LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Socio-economic impact of the Project

The method used in the LIFE Landscape Fire Project, by combining prescribed fire and extensive grazing at strategic management points, is more efficient and cheaper, while at the same time reducing the area of intervention

Welcome

LANDSCAPE FIRE

30
october 2024

LIFE LANDSCAPE FIRE PROJECT

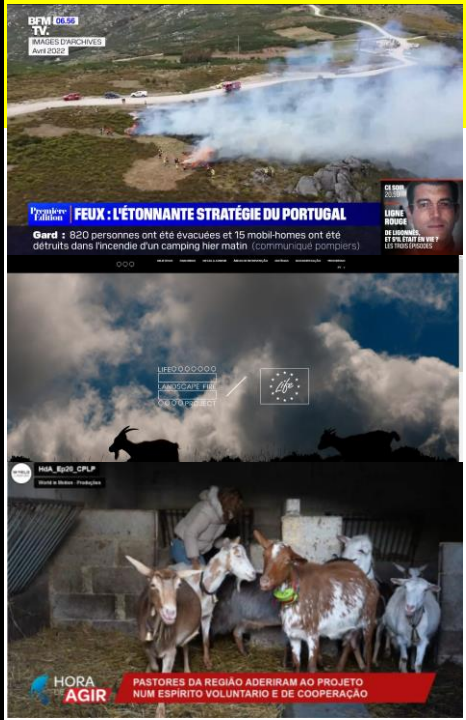
Public awareness and dissemination of the results

LANDSCAPE FIRE

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

Public awareness and dissemination of the results

COMMUNICATION



More information:

LLF project website: http://life.cimvdl.pt

Hora de Agir (RTP): https://vimeo.com/781294816/5ad676fa13

CIMVDL Playlist Youtube_LLF :

- https://www.youtube.com/watch?v=vd3nwPac-as&list=PLFY69GaSGWrZ1jfklGPHtLf5bfpZT-NQh

SIC: https://youtu.be/WOhPP8NCO2g

BFMTV:

- https://www.youtube.com/watch?v=2co6OY_zPBY
- https://www.bfmtv.com/international/le-portugal-fait-office-de-modele-dans-la-lutte-contre-la-prevention-des-feux-de-foret_VN-202308040066.html

Climate-adapt study case: https://climate-adapt.eea.europa.eu/en/metadata/projects/landscape-fire-project

Expresso: https://expresso.pt/sociedade/incendios/2024-05-15-ha-um-fogo-bom-que-reduz-o-perigo-de-incendio-e-da-de-comer-ao-gado--mas-faltam-mais-cabras-e-vacas-a99fe91a

COMUNIDADE INTERMUNICIPAL
VISEU DÃO LAFÕES

LANDSCAPE FIRE

OBRIGADO!

LIFE LANDSCAPE FIRE PROJECT

Welcome

LANDSCAPE FIRE

30
october 2024

LIFE LANDSCAPE FIRE PROJECT

LIFE LANDSCAPE FIRE

LIFE18 ENV/PT/000361

OIC PITCHER

Daniela Sá

daniela.sa@terrafarmers.io

TerraFarmers

Reaserch & Development

PITCH

"Post-wildfire Emergency Solution"

Daniela Sá
Terrafarmers

29-30th Oct 2024
Penafiel, Portugal

SOLUTION

MULCH SPREADING

- **Post-Fire Soil Stabilization**

85% Reduction Soil Erosion
45% Water Runoff Reduction

- **Reforestation**

+25% increased tree height & diameter
+25% increase agro crops yield

MIX SPREADING

- **Ground Seeds, Organic Materials, and *Biochar***

Increased Soil Organic Matter
Improved Water Storage Capacity
Boost Biodiversity
Invasive Species Prevention

AERIAL REFORESTATION

- **Precision Reforestation of Bushes and Trees**

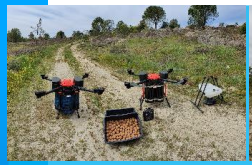
Cost Competitive
Inaccessible Areas
Environmental Impact
Large Scale Restoration

NO COST-EFFICIENT SOLUTIONS

PROFITABLE REFORESTATION CARBON PROJECTS

TERRA Farmers

PILOT PROJECTS




MOTA_ENGIL ATIV
Mix Spreading & Aerial Reforestation

- 8 species +1500 trees
- Spreading 25 kg of seeds, 20 species of herbaceous plants
- Prevention pine wood disease


CM LEIRIA - PINHAL LEIRIA
Mix Spreading & Aerial Reforestation

10,000 ha devastate by fire 2017
Implemented by D. Afonso III (1248-1279) & D. Dinis I (1279-1325) to protect agricultural land from sand


CM NELAS
Mix Spreading - Post Wildfire Restoration

Spreading 40 kg of seeds of 26 native herbaceous species
Prevent further loss of soil
Restore organic layer of soil

SOIL, ECOSYSTEM & BIODIVERSITY RESTORATION


TERRA
Farmers
DO YOU WANT TO PLANT THE FUTURE WITH US?
#GenerationRestoration
info@terrafarmers.io
www.terrafarmers.io
+351 96 4557006
© Terrafarmers

PITCHER

ACHLI
Associação de Conservação do Habitat do Lobo Ibérico

Cindy Loureiro

cindyloureiro@loboiberico.org

ACHLI

Forest Engineer/Project manager

FIRE-RES
Innovative technologies & socio-ecological-economic solutions for fire resilient territories in Europe

1st INNOVATION DAY SERIES - PORTUGAL
Matchmaking, Pitches, Success Stories & Networking
CoLAB forestwise

PITCH

"Habitat conservation strategies hand in hand with fire prevention"

Cindy Loureiro
Company

29-30th Oct 2024
Penafiel, Portugal

- ACHLI – non-profit organization focused on applying compensation measures that aim for the conservation of the Iberian wolf's habitat
- Our work serves multiple purposes – efforts mainly driven towards our conservation goals which inevitably are combined with fire prevention efforts
- Not wanting our sites to burn in the event of a wildfire we hope our efforts contribute to creating sites that are more resilient to fires thus reducing impacts that may occur
- Many of the strategies we apply are related to clearing overgrown vegetation in specific areas which can enhance resilience, whilst maintaining the conservation value or even increasing it

Strategies

Powerline fuelbreaks – required to keep low fuel load

- Corridors used for creating feeding fields for game species

Strategies

Broadleaf and conifer stands – clearing understory overgrown vegetation and pruning (thinning - very seldom)

- Opening areas for animals
- Offering trees better growing conditions

Strategies

Conversion of pure conifer stands to mixed species stands

- After wildfire – by managing natural regeneration and planting open spaces with native broadleaf species (enrichment planting)
- Existing conifer stand – planting native broadleaf species (birch, oak, cork oak, strawberry tree, holly, hawthorn, sycamore, etc.)

Strategies

Conversion of “abandoned” areas to new mixed broadleaf stands

– These pose high risk to fire – disruption of same vegetation cover

Strategies

Conversion of “abandoned” areas to new mixed broadleaf stand

Strategies

Conversion of “abandoned” areas to new mixed broadleaf stand

Strategies

Controlling invasive alien species (*Hakea decurrens*)

- High fire risk – disruption of vegetation cover – making area available
- Opportunity to convert land use by installing new mixed broadleaf stands

Strategies

Clearing vegetation in newly planted areas

- Tricky when trying to manage free ranging livestock and fire risk
- Applying strategies to protect young plants from browsing and fire

10-20 m border around plot
Vegetation totally cleared on the inside

Fenced area
Clearing vegetation - 15 m strips

- We do not seek economic gains with our work, our aim is to improve habitat conditions for the Iberian wolf and its prey.
- Since there are many other species that share the same territory, including humans, all benefit from our work and if our interventions can contribute to making these territories more resilient to fire then it's a win for us and for all.

For further information please meet us at our workstation.

Thank you!

CoLAB forestwise®

Q&A
(20’ mins)

Networking & Afternoon Coffee (Atrium) > 35’

FIRE-RES
Innovative technologies & socio-ecological-economic solutions for fire resilient territories in Europe

1st INNOVATION DAY SERIES - PORTUGAL
Matchmaking, Pitches, Success Stories & Networking

CoLAB forestwise

Round Table Discussion

"A Boost for Financial Resilient Innovations in Wildfire Management"

CHAIR: Alípio Torre
INESC TEC

29-30th Oct 2024
Penafiel, Portugal

INSPIRING KEYNOTE

Blue Forest

Tessa Maurer

tessa@blueforest.org

Blue Forest
Director of Science Strategy
blueforest.org

INSPIRING KEYNOTE

"Co-benefits of landscape resilience: creative solutions to finance wildfire risk reduction"

Tessa Maurer
Blue Forest

29-30th Oct 2024
Penafiel, Portugal

About **Blue Forest**

Blue Forest is a non-profit conservation finance organization that **sustainable financial solutions to ecosystem restoration**.

- Founded in 2015
- Now around 40 people
- Launched our work in the Western U.S. and currently have initiatives in Canada, Central America, and southern Europe
- We bring together stakeholders & arrange financing to support landscape restoration
- Primarily work in fire-prone ecosystems to reduce the risk of catastrophic wildfires

What is **conservation finance?**

Conservation finance is the practice of raising new funding and financing capital to support holistic ecosystems and community health.

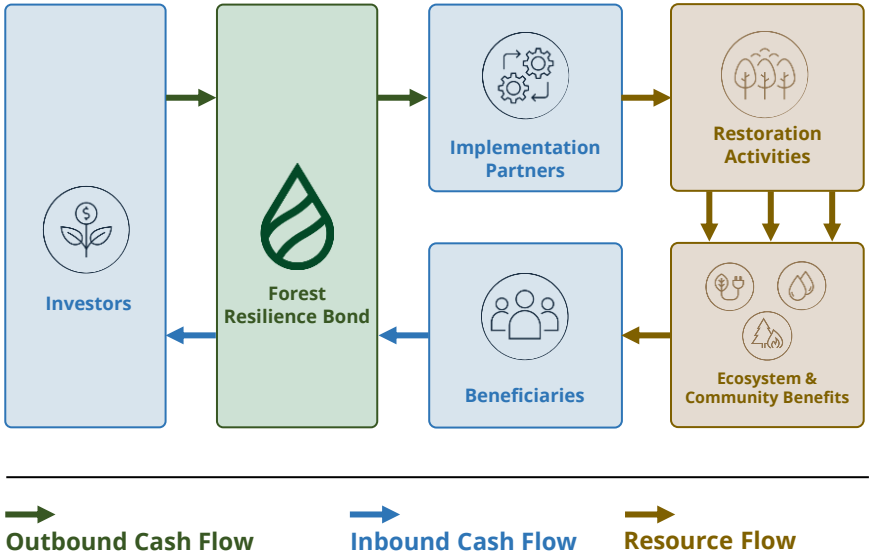
CF options vary by **source** (e.g. public, private, and nonprofit funders); by **type** (loans, grants, tax incentives, market mechanisms); and by **scale** (local to national to supranational).

Goals of **Conservation Finance**

Scaled Projects	Larger project size, scaled revenue, and reduced costs across multiple landowners
Faster Projects	Upfront funding to streamline landowner & contractor payments → quicker implementation
Capacity Building	Promote partnership opportunities, build local capacity, and leverage funds

Flow of Funds

The Forest Resilience Bond is a conservation finance vehicle that helps deploys capital to **ease cash flows** and **add new value streams** to fund restoration work, while **shifting the risk** from landowners and public agencies to private investors.



Key **Benefits of Ecosystem Restoration**

Wildfire Risk Reduction

Water Security

Community Resilience

Biodiversity & Habitat Protection

Recreation

Economic Development

Healthy Working Lands

Carbon Stability

Public Health

Types of **Ecosystem Benefits**

Revenue enhancement

- Improved crop quality, quantity, & reliability
- Enhanced tourism revenue
- Timber sales & ranching leases

Cost avoidance or risk mitigation

- Reduced fire risk
- Reduced flooding risk
- Increased water supply & quality reliability
- Avoided sedimentation

Compliance & Values

- Aquatic habitat obligations
- Water quality standards
- Cultural resource protection
- Partnership goals

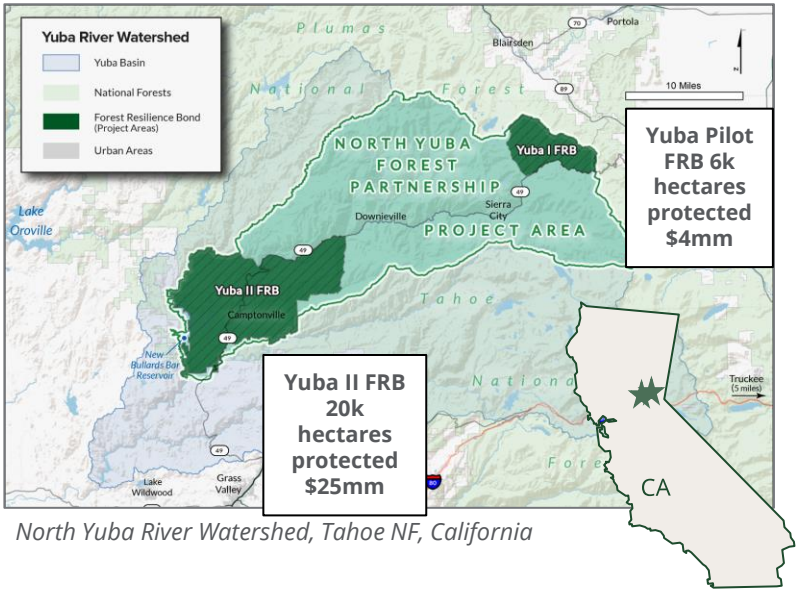
Project Case Study: Yuba I & II FRBs

Activities: Thinning, prescribed burning, meadow restoration, etc.

Implementer: non-profit National Forest Foundation

Beneficiaries: Yuba Water Agency, State of California, and – for Yuba II – private corporations

Impact: FRB development catalyzed formation of the North Yuba Forest Partnership and follow-on funding opportunities



North Yuba River Watershed, Tahoe NF, California

Project Development Process

1. Explore	• What are community priorities? How can we design a project for ecology & society?
2. Design	• What are the ecological benefits and potential value streams from this project? • Who is benefiting?
3. Develop	• How do we model or demonstrate benefit from this project to secure funding?
4. Contract	• What is the appropriate governance structure and contract type for this project?
5. Implement & Scale	• Does ongoing monitoring demonstrate the benefit?

Thank you!

Tessa Maurer
tessa@blueforest.org

Invited Experts | Forestry, Economy and entrepreneurship

Ricardo Fernandes
ricardo.fernandes@cm-lousa.pt
LOUSÃ CÂMARA MUNICIPAL

Miguel Sottomayor
msottomayor@ucp.pt
CATÓLICA PORTO BUSINESS SCHOOL

Cristina Guimarães
cristina.m.guimaraes@inesctec.pt
INESCTEC TECHNOLOGY & SCIENCE

Closing remarks – Portuguese Living Lab Leaders

Brigite Botequim

Brigite.botequim@forestwise.pt

CoLAB forestwise®

José Borges

Joseborges@isa.ulisboa.pt

INSTITUTO SUPERIOR DE AGRONOMIA
Universidade de Lisboa

The Innovation Journey Continues:

See You in Bulgaria!

Hosted by

Next Stop: Bulgaria!

24-25th April 2025

Kazanlak, Bulgaria

See you soon

MUITO OBRIGADA!!!