

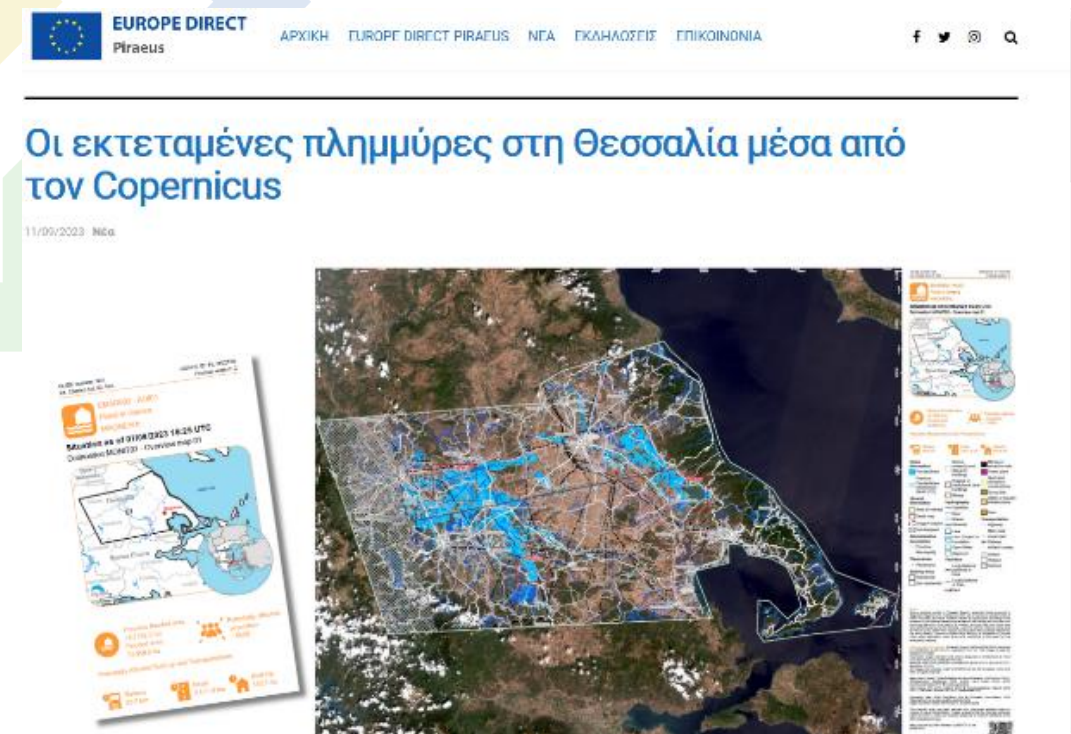
# Το έργο ResAlliance και η ανάδειξη καλών πρακτικών για την αντιμετώπιση των επιπτώσεων της κλιματικής αλλαγής.

**Δρ. Ευαγγελία Αβραμίδου**

Κύρια Ερευνήτρια, Ινστιτούτο Μεσογειακών Δασικών  
Οικοσυστημάτων, ΕΛΓΟ ΔΗΜΗΤΡΑ  
ResAlliance “Resilience Ambassador”

# Κύρια Φαινόμενα κλιματικής αλλαγής

- Πυρκαγιές
- Πλημμύρες
- Ξηρασία



Ξηράνσεις στον Υμηττό



# Το έργο ResAlliance

Το έργο ResAlliance «Συμμαχία γνώσης για την ανθεκτικότητα του τοπίου για τη γεωργία και τη δασοπονία στη λεκάνη της Μεσογείου» έχει ως στόχο να συγκεντρώσει και να αναλύσει επιστημονική γνώση και καλές πρακτικές για την αντιμετώπιση των επιπτώσεων της κλιματικής αλλαγής που εφαρμόζονται στην πράξη, στηριγμένες στην παράδοση ή σε νέες τεχνικές και τεχνολογίες, να τις αναδείξει και να διευκολύνει τη διάδοσή τους σε όλη τη Μεσόγειο.

Το κύριο «εργαλείο» για τον σκοπό αυτό είναι η δημιουργία ενός δικτύου γνώσης και ευαισθητοποιημένων ανθρώπων με το όνομα **LandNet!!!**



## Λίγα λόγια για το έργο

- Συντονιστής: **EUROPEAN FOREST INSTITUTE (EFI)**
- Διάρκεια : **36 μήνες**
- Συνολικός προϋπολογισμός:  
**2.989.515,00 €**
- 16 Συμμετέχοντες φορείς

| LANDSCAPE RESILIENCE ALLIANCE FOR AGRICULTURE AND FORESTRY IN THE MEDITERRANEAN BASIN (RESALLIANCE) |  |             |
|---|--|-------------|
| Participant No. *   | Participant organisation name  | Country     |
| 1 (Coordinator)   | European Forest Institute  | Finland     |
| 2   | ETIFOR   | Italy       |
| 3   | Pau Costa Foundation   | Spain       |
| 4   | Hellinikos Georgikos Organismos – DIMITRA                              | Greece      |
| 5   | European University of Cyprus  | EUC         |
| 6   | DREAM  | Italy       |
| 7   | CIFOR  | Indonesia   |
| 8   | Instituto Superior de Agronomia  | Portugal    |
| 9   | Forest Science and Technology Centre of Catalonia                      | Spain       |
| 10  | Institute of Agrifood Research and Technology                          | Spain       |
| 11  | Jouzour Loubnan Association  | Lebanon     |
| 12  | National Institute of Research in Rural Engineering, Water and Forests | Tunisia     |
| 13  | Mediterranean Agronomic Institute of Chania                            | Greece      |
| 14  | FoRESTAS   | Italy       |
| 15 (Associated)   | IUCN   | Switzerland |
| 16  | EURAF  | France      |



# ΔΟΜΗ ΤΟΥ ΕΡΓΟΥ

**LandNet:** Μεσογειακό Θεματικό Δίκτυο

**LandLabs:** 5 Εργαστήρια ανταλλαγής γνώσεων και καλών πρακτικών (Ισπανία, Ελλάδα, Πορτογαλία, Κύπρο και Πορτογαλία)

**Focal Points:** Εθνικά Σημεία αναφοράς

Το έργο εξετάζει καινοτόμες λύσεις για τη γεωργία και τη δασοπονία σε τέσσερις τομείς:

- διακυβέρνηση,
- πρακτικές διαχείρισης,
- χρήση της τεχνολογίας
- και δυνατότητες χρηματοδότησης.

Μέσω:

- Ενιαίου Μεσογειακού Δικτύου ενδιαφερομένων (**LandNet**, ήδη 1200 μέλη)
- Εργαστηρίων μεταφοράς Γνώσης (**LandLabs**)
- Ενημερωτικών φύλλων που δείχνουν τις καλές πρακτικές (Factsheets) και υπάρχουν και στο EUFARMBOOK
- Διαδικτυακών δωρεάν μαθημάτων (Massive Online Open Courses (MOOCs))





Τα LandLab οργάνωσε στην Ελλάδα και πέτυχε με μία σειρά ημερίδων (workshops) να συλλέξει τους προβληματισμούς των ανθρώπων του γεωργικού τομέα και του δασικού χώρου σχετικά με τις επιπτώσεις της κλιματικής αλλαγής, τις νέες προκλήσεις που έχουν να αντιμετωπίσουν και τις έξυπνες λύσεις που εφαρμόζουν ή που προτείνουν.





About ▾ LandNet ▾ LandLabs Resources ▾ News ▾ Contact us

Join the LandNet

eavramidou@elgo.gr

\*\*\*\*\*



Log In



Forum



Course

[Home](#) » Factsheets

## Factsheets

The ResAlliance project presents 121 factsheets based on the four types of solutions to implement landscape resilience: governance, management practices, technology, and finance.

This collection of practical knowledge presents to you best practices, case studies, and relevant topics on landscape resilience, focusing particularly on the two pressing issues of climate change in the Mediterranean: wildfires and droughts.


On this page, you can browse through the factsheets, choose your area of interest, and access knowledge for landscape resilience!

The collection of factsheets is now completed, with 121 factsheets. In the below collection you will find both 2-pg factsheets and 4-pg factsheets.

Translations are coming soon!

Would you like to contribute to the project? Do you want to share your practice mitigating climate change risks in Mediterranean farms and forests? [Submit your practice as text or video!](#)



 EU-FarmBook

Σχετικά Βοήθεια Ενότητες ▾

Αναζήτηση για λέξεις-κλειδιά, δημιουργούς...

Σύνδεση

Εγγραφή

EL ▾

### ResAlliance

Landscape resilience knowledge alliance for agriculture and forestry in the Mediterranean basin

#### Σχετικά με το έργο

The objective of the ResAlliance is to facilitate information and knowledge flow and increase the awareness, understanding and capacity of farmers and foresters on landscape resilience in Mediterranean countries. More specifically, ResAlliance will gather and assess knowledge...

|   |   |
|---|---|
| ΣΥΝΤΟΝΙΣΤΗΣ                             | -   |
| ΤΥΠΟΣ ΕΡΓΟΥ                             | Horizon Europe  |
| ΧΩΡΑ                                    | ΙD ΕΠΙΧΟΡΗΓΗΣΗΣ<br>10.3030/101086600                    |
| ΗΜΕΡΟΜΗΝΙΑ ΕΝΑΡΞΗΣ                      | 2022-12-01  |
| ΗΜΕΡΟΜΗΝΙΑ ΛΗΞΗΣ                        | 2025-11-30  |
| ΔΕΙΤΕ ΛΕΠΤΟΜΕΡΕΙΕΣ ΤΟΥ ΕΡΓΟΥ ΣΤΟ CORDIS | ΕΠΙΣΚΕΦΘΕΙΤΕ ΤΗΝ ΙΣΤΟΣΕΛΙΔΑ ΤΟΥ ΕΡΓΟΥ                   |
| -                                       | Επισκεφθείτε την ιστοσελίδα του έργου <a href="#">↗</a> |

Contributions

Συνεισφορές στο έργο

# Πρόληψη Δασικών Πυρκαγιών μερικές ενδιαφέρουσες καλές πρακτικές

- Διαχείριση της βλάστησης μέσω **προδιαγεγραμμένης βόσκησης, καύσης, και υλοτομίας** σε στρατηγικά σημεία για τη μείωση του κινδύνου πυρκαγιάς. Η διαχείριση αυτή περιλαμβάνει τη δημιουργία περιοχών με οριζόντια και κάθετη ασυνέχεια στη βλάστηση.
- **Ελλάδα:** Χίος- προδιαγεγραμμένη καύση, Κύθηρα- πρόληψη μέσω της συμμετοχής των πολιτών.
- **Ισπανία:** FireFlocks- εκτεταμένη βόσκηση.
- **Ιταλία:** LIFE GrAnATHa-προδιαγεγραμμένες καύσεις για την αποκατάσταση οικοτόπων και Firewise Communities στην Τοσκάνη- κατανομή των ευθυνών πρόληψης πυρκαγιών μεταξύ δημόσιων ιδρυμάτων και ιδιωτών.
- **Τουρκία:** έργο FireAid στην, το οποίο χρησιμοποιεί τεχνητή νοημοσύνη για την πρόβλεψη της ανάφλεξης πυρκαγιών και την υποστήριξη της αντιμετώπισης τους.



Type of solution: Technology Sector: Forestry  
Good practice(s): Protection against biotic and abiotic hazards

## Artificial intelligence to predict wildfire ignition and support response

An ignition probability map is used by decision makers to optimise the allocation of fire suppression resources across a vast territory of Mediterranean Turkey.

### /// Context ///

In Turkey, about 230,000 km<sup>2</sup> of its 783,562 km<sup>2</sup> of land are covered by forests, mainly publicly owned. A significant portion of them burnt in the Mediterranean region in 2021 in the worst-ever wildfire season in the country's history. Around 80% of the fires are caused by humans due to urban expansion, infrastructures, and recreational activities. As early detection and initial attack are crucial, it is important that the suppression resources are located as close as possible to the potential fire outbreaks. As a result, firefighting services are under great strain and require a high level of mobility. During the fire season, firefighters are stationed at fire stations near or within forest areas to extinguish fires as quickly as possible.

The Turkish Ministry of Agriculture and Forestry (TMAF) has been using a forest fire risk prediction tool based on meteorological parameters. However, meteorological data is not sufficient to assess fire risk if human activities are the main driver of ignitions, as they are unpredictable. Thus, there was an urgent and fundamental need for an ignition probability map that could take into account statistical as



Forest firefighting workers extinguish and control a fire in Bodrum, Turkey, in August 2021.  
Author: idilofficio | © Shutterstock

well as dynamic parameters, including human-made ignitions. Koç Digital created FireAid, an interactive fire risk map developed using artificial intelligence and machine learning that predicts the probability of ignition in each area. It optimises the distribution of fire suppression resources across the territory.

### /// Solution for a Resilient Future ///

The World Economic Forum's Center for the Fourth Industrial Revolution, Koç Digital, TMAF and Deloitte launched the FireAid initiative in January 2022. The goal of FireAid is to facilitate the use of artificial intelligence (AI), machine learning (ML) and other cutting-edge technological advances in predicting fire outbreaks and optimising the distribution of suppression resources in different territorial compartments for early detection and initial response. This effort is motivated by the need to increase the efficiency and affordability of forest fire fighting operations at country scale.

The output of this effort is FireAid, an interactive fire risk map developed using AI algorithms and ML, backed by a global community of experts. It provides crucial information for authorities to prepare and respond to fires, with simulation tools processing fire size, predicting progress, and evaluating firefighting tactics. FireAid has two phases:

- An interactive map where predictive data (dynamic and static wildfire related datasets) are input to generate an ignition probability map.

- The ignition probability map is used to create an optimal post-ignition resource allocation model to help decision makers direct resources to predicted wildfires and identify potential threats.

FireAid pilot project has been developed for South Aegean and West Mediterranean areas of Turkey, which account for 44,000 km<sup>2</sup> of land. For the model, the area was divided into 66,394 territorial compartments. Historical data is used to train the models included the location, date, duration and size of any fire in the area since 2010, the means used to extinguish them in relation to different forest and land characteristics (vegetation and land features, land use types, and terrain) and the meteorological conditions before and during the fire (including the daily five-day weather forecast).

The output of the model is the probability of fire occurrence, with four classes of risk per territorial compartment: extremely high, high, medium and low. The model is run twice a day: once in the afternoon using current weather data, and once in the evening using the forecast for the next five days.



➤ **Διαχείριση μη ξυλωδών δασικών προϊόντων (NWFP):** Η βιώσιμη εκμετάλλευση προϊόντων όπως το δεντρολίβανο, η μυρτιά, οι κουκουναρόσποροι και τα μανιτάρια μπορεί να ωφελήσει τις τοπικές κοινότητες, ενώ παράλληλα συμβάλλει στη διατήρηση των δασών. (Τυνησία)

➤ **Χρήση κουκουναριάς για πολλαπλούς σκοπούς:** Η καλλιέργεια κουκουναριάς για την παραγωγή καρπών, την πρόληψη της εγκατάλειψης γης και τη διατήρηση ενός μωσαϊκού αγροδασικού τοπίου. (Ισπανία)



Type of solution: Management Sector: Agroforestry, Forestry  
Good practice(s): Soil management, Management alternatives

## Stone pine grafting with alternative rootstock species and grafting approaches: an alternative to increase the potential production area of stone pine nuts

Results from a 12-year experiment contributing to a more versatile land use and with multiple benefits in the domain of Stone and Aleppo pines in Os de Balaguer (Leida, Spain).



Aspect of the plantation in 2012.  
Author: AGS-CTFC | © CC BY-ND-NC 4.0



Image of a successfully grafted tree.  
Author: AGS-CTFC | © CC BY-ND-NC 4.0

### Context

The Mediterranean Stone Pine (*Pinus pinea*) is a species of high productive and ecological interest in the Mediterranean region, particularly known for its highly prized edible nut. The grafting technique makes it possible to anticipate and significantly increase nut production, resulting in a growing interest in this species as a forest fruit tree. In addition, grafting onto Aleppo pine (*Pinus halepensis*) rootstocks significantly increases the potential production area of stone pine nuts.

We describe the process of design, implementation, maintenance, and production results of a stone pine plantation installed at the beginning of 2012 with a triple objective:

- Nut production.
- Prevent land abandonment and maintain a mosaic agroforestry landscape.

- To generate research and knowledge transfer on the use of different rootstocks (Aleppo pine – *Pinus halepensis* vs. Mediterranean Stone Pine – *Pinus pinea*) and grafting approaches (nursery vs. field grafting vs. no grafting).

This plantation was established by the Forest Science and Technology Centre of Catalonia (CTFC) on private land, as part of the AECI-PCI project "Production and management techniques of stone pine (*Pinus pinea*) for early pine production: plantations planted as an alternative for the restoration of degraded areas and the generation of income in rural communities". In recent years, monitoring has been carried out under the MasPineNut project "Making sustainable the stone pine production by its management as nut tree" (2020-2024), led by IRTA and CTFC.

### Solution for a Resilient Future

The Mediterranean stone pine is characterised by its multifunctionality, both productive (highly valued pine nut, timber), ecological (restoration of sandy soils) and social – a species characteristic of the Mediterranean landscape, with a particular conformation, with an umbrella-shaped crown.

The aim of this experimental and demonstration plantation, which covers almost one hectare and was planted in Os de Balaguer (Leida province) in the winter of 2011-2012, is threefold:

1. Production of pine nuts: to produce a nut with a remarkably high market price, averaging 60€/kg between 2020 and 2023 (DACC, 2024).
2. Preventing the abandonment of a small agricultural plot and maintaining a mosaic landscape.
3. Experimental: to generate knowledge on the effect of grafting (evaluation of nursery grafted trees, field grafted trees and non-grafted trees) and on the use of rootstocks of different species (Mediterranean stone pine and Aleppo pine) on survival and cone production.

The number of experimental trees is:

- Stone pine rootstocks (70) vs Aleppo pine rootstocks (70).
- Nursery grafted (44) vs field grafted (68) vs not grafted (18).

In the nursery treatments, three complete randomised blocks

were distributed. A total of 140 trees were planted in a 5 x 5 frame.

Soil preparation consisted of deep subsoiling (50 cm) and manual opening of pits (30 x 30 x 30 cm). At the time of planting, black polyethylene mulch (100 x 100 cm) was placed on each tree to prevent competition from spontaneous vegetation and individual 60 cm black mesh protectors to prevent damage from fauna. The perimeter of the field was

|  | Kernel biomass<br>per tree,<br>2021 (g) | Equivalent gross<br>income,<br>2021 (€/ha)* | Kernel biomass<br>per tree,<br>2022 (g) | Equivalent gross<br>income,<br>2022 (€/ha)* |
|--|---|---|---|---|
| <i>P. halepensis</i> ,<br>field grafting   | 423.9                                   | 1,017                                       | 67.8                                    | 163   |
| <i>P. halepensis</i> ,<br>nursery grafting | 511.8                                   | 1,228                                       | 48.5                                    | 116   |
| <i>P. pinea</i> ,<br>field grafting        | 39.9                                    | 96  | 26.0                                    | 62  |
| <i>P. pinea</i> ,<br>nursery grafting      | 114.4                                   | 275   | 25.3                                    | 61  |
| <i>P. pinea</i> ,<br>not grafted           | 2.6                                     | 6   | 7.6                                     | 18  |

\* Based on 400 trees/ha with this treatment, and the average market reference price of 60 €/kg.

# ΚΑΛΕΣ ΠΡΑΚΤΙΚΕΣ ΔΙΑΧΕΙΡΙΣΗ ΔΑΣΩΝ

- **Βιολογικός έλεγχος τρωκτικών με τη χρήση τεχνητών φωλιών για κουκουβάγιες.** Ενθάρρυνση των κουκουβαγιών να φωλιάζουν σε γεωργικές περιοχές για τον έλεγχο του πληθυσμού των τρωκτικών, μειώνοντας την ανάγκη για χημικά φυτοφάρμακα (Κύπρος).
- **Εγκατάσταση φυτοφραχτών σε περιοχές που είναι επιρρεπείς στην ερημοποίηση.** Φύτευση ανθεκτικών φυτοφραχτών με βαθιές ρίζες για την καταπολέμηση της ερημοποίησης και την προσαρμογή στην κλιματική αλλαγή (Κύπρος).
- **Αποκατάσταση δασικών τοπίων στην περιοχή Shouf Biosphere Reserve, Λίβανος.** Φύτευση αυτόχθονων δέντρων, αποκατάσταση εγκαταλειμμένων αναβαθμίδων και διαχείριση βιομάζας για την επίτευξη οικολογικών στόχων και την ενίσχυση των τοπικών οικονομικών ευκαιριών.

## Forest landscape restoration in the Shouf Biosphere Reserve, Lebanon

Pilot actions integrating social needs and ecological restoration through a community-driven approach



Low mountain pasture, including abandoned agriculture terraces at the Shouf Biosphere Reserve.  
Author: Shouf Biosphere Reserve team and Pedro Regato | © Educational use, non-commercial.



Land degradation in a sandstone quarry.  
Author: Shouf Biosphere Reserve team and Pedro Regato  
© Educational use, non-commercial.

### /// Context ///

The landscape in the Shouf Biosphere Reserve has been under unsustainable use for many years. Deteriorating soils and lack of local employment led many households to migrate for work, sending remittances back home, leading to a sharp increase in mining and building houses. These challenges caused a decline in traditional cultural practices and customary governance around land use. In particular, farmers abandoned terraced farming which led to additional soil degradation and reduced water retention. The rise in mining and building houses further displaced agricultural and forest lands. Since 2005, the management team of the reserve has taken proactive steps to engage stakeholders in planning and

visioning. Their goal has been to align environmental, social and economic objectives to show that ecological and social benefits can be achieved simultaneously. They initiated pilot actions such as planting native trees, restoring abandoned terraces, constructing dry-stone walls and managing biomass. These efforts were based on the concept of forest and landscape restoration. All pilot actions were implemented on public and private lands, in areas that were most appropriate for each based on participatory mapping and planning. Overall, they were used to illustrate a proactive approach to environmental restoration while fostering local economic opportunities and advocating for supportive policy changes for future interventions.

### /// Solution for a Resilient Future ///

Several pilot actions (2 to 6) aimed at planting native trees to achieve various ecological goals. Trees were planted in a staggered (quincunx) pattern at densities of 500-800 seedlings per hectare to enhance water retention and reduce runoff. Initial plantings in 2014 faced high mortality due to drought and predation, leading to replanting with improved seedlings in 2015. Survival rates after 3 years ranged from 75%-99%.

Pilot actions included:

**Pilot 1 – Improving nursery management**  
Improved nursery management techniques led to stronger root systems in seedlings, minimizing the need for extra watering and reducing restoration costs. Improved methods were later adopted in national forest restoration plans.

**Pilot 2 – Creating connectivity between isolated cedar stands**  
Oak acorns were planted to connect isolated cedar stands, aiming to enhance cedar growth by reducing solar radiation, improving soil and water retention, shielding young cedars from herbivores and serving as nurse logs. The use of plastic tubes protected the acorns from rodents; allowing good germination and growth with a survival rate of 70-80%.

**Pilot 3 – Enhancing tree and shrub diversity in high mountain forest and facilitating upward climate-induced migration**

High mountain forest habitats were reforested with diverse tree and shrub species to help forest ecosystem recovery. After 3 years, seedling survival rate was around 90%.

**Pilot 4 – Establishing "tree islands" for applied nucleation in overgrazed areas**  
"Woodland islets" featuring diverse species were established in overgrazed areas, achieving a 95% survival rate. This pilot showed its positive impacts on biodiversity and local livelihoods through supporting ecological succession.

**Pilot 5 – Restoring vegetation to abandoned quarry**  
Abandoned limestone quarry slopes were afforested. Both directly sown seeds and seedlings successfully controlled erosion. After 3 years, seedling survival rates were high (85-95%).

**Pilot 6 – Restoring wetlands and diversifying wetland forests**  
This pilot was carried out in collaboration with private

capture prey with precision.

Hywwood that is resistant to weather conditions



- Το TreesAdapt είναι μια μετασχηματιστική πλατφόρμα εταιρικής σχέσης. Στοχεύει στην υποστήριξη χωρών και φορέων στην ανάπτυξη και εφαρμογή λύσεων προσαρμογής στην κλιματική αλλαγή για και μέσω συστημάτων που βασίζονται στα δέντρα (δασών, δέντρων και αγροδασοπονίας) σε μια σειρά πλαισίων.

Ειδικότερα, το TreesAdapt στοχεύει:

- Στην παροχή πολλαπλών υπηρεσιών οικοσυστήματος για ανθρώπους και οικοσυστήματα.
- Στη μεγιστοποίηση των πολλαπλών περιβαλλοντικών, κοινωνικών και οικονομικών συν-οφελών των συστημάτων που βασίζονται στα δέντρα.
- Στην υποστήριξη φορέων σε όλο τον κύκλο προσαρμογής.
- Στη διευκόλυνση της διαμόρφωσης μιας κοινής αντίληψης για τα θέματα και την συλλογική κατασκευή λύσεων προσαρμοσμένων στις τοπικές συνθήκες μέσω διατομεακών διαλόγων.
- Στην ενίσχυση των παγκόσμιων αφηγήσεων για την κλιματική δράση, συμπεριλαμβανομένων των κοινών προσεγγίσεων μετριασμού και προσαρμογής και των λύσεων που βασίζονται στη φύση.
- Στην καλύτερη σύνδεση των δασών, της γεωργίας και της χρήσης γης σε σχέση με την κλιματική κρίση.



Type of Solution: Management  
Sector: Agriculture, Agroforestry, Forestry  
Good practice(s): Water management, Soil management, Management alternatives, Ecosystems services

## TreesAdapt, a transformative partnership platform for adaptation

Adaptation with forests, trees and agroforestry for landscapes and people.



Traditional Quercus ilex coppice system in a managed forest within the natural parc of Maremma, Tuscany, Italy | Author: Vincent Gitz | © Vincent Gitz



Trees provide food and feed in semi-arid areas and during the dry season. Silvopastoralism, Khajur, Churu District, Rajasthan, India. Author: World Agroforestry Centre/N. P. Singh | © CC BY-NC-SA 2.0

### /// Context ///

Forests, trees and agroforestry provide multiple ecosystem services for people and ecosystems. They are central to climate action, biodiversity protection, land restoration. They are key to the resilience of natural, rural and urban landscapes, to the livelihoods and food security of millions of people around the world. Inclusive, up-to-date and integrated knowledge generation and sharing is a precondition to maximize the multiple environmental, social and economic co-benefits of tree-based systems.

TreesAdapt is a transformative partnership platform aiming at supporting countries and actors in the development and implementation of climate change adaptation solutions for and through tree-based systems (forests, trees and agroforestry) in a range of contexts. Since its launch at the Global Landscape Forum (GLF) at Sharm El Sheikh on 12 November 2022, TreesAdapt is developing, progressively including new partners and teaming-up with other initiatives on forests, trees, agroforestry and adaptation.

### /// Solution for a Resilient Future ///

Forests, trees and tree-based systems provide critical contributions to climate change mitigation and biodiversity, and invaluable ecosystem services for people and ecosystems. They are key to the resilience of natural, rural and urban landscapes, to the livelihoods and food security of millions of people around the world. With characteristics lifespan from decades to centuries, forests and trees are vulnerable to rapid climate change and critical for adaptation.

To maximize the multiple environmental, social and economic co-benefits of adaptation, the challenge is to plant the right tree, in the right place, for the right purpose. This supposes a knowledge-intensive and inclusive endeavour to avoid maladaptation, empower the most vulnerable people and ensure the relevance, credibility, legitimacy and effectiveness of actions undertaken. The wealth of existing knowledge, from various sources (scientific, technical, indigenous, traditional or local), also needs to be better integrated, organized, mobilized, oriented towards action and made more accessible to different stakeholders at different scales.

In this context, TreesAdapt, a transformative partnership platform, launched at the Global Landscape Forum (GLF) at

Sharm El Sheikh in November 2022, aims at supporting countries, farmers, businesses, national governments, international organizations and other actors in the development and implementation of climate change adaptation solutions for and through tree-based systems (forests, trees and agroforestry) in a range of contexts. Through intersectoral dialogues, TreesAdapt aims to facilitate the elaboration of a shared understanding on issues and the collective construction of solutions adapted to local conditions. Its findings will contribute to strengthen global narratives on climate action including joint mitigation and adaptation approaches and nature-based solutions, as well as to better link forests, agriculture and land-use in climate action.

TreesAdapt works all along the adaptation cycle (see Figure 1) to help countries and actors: identify climate change impacts on forests and trees; realize vulnerability assessments; identify and prioritise adaptation options; support implementation on the ground; monitor and assess effectiveness of adaptation efforts. It conducts a range of activities that can be grouped under four main clusters: knowledge generation; development of methods and tools; stakeholder mobilization and engagement; capacity



# The FireFlocks Project: Προδιαγεγραμμένη βόσκηση για τη μείωση του κινδύνου πυρκαγιάς

- **Στόχος του έργου:** Μείωση των κινδύνων μεγάλων πυρκαγιών στην Καταλονία μέσω της προδιαγεγραμμένης βόσκησης.
- **Ιστορικό:** Η εγκατάλειψη γεωργικών εκτάσεων και η μειωμένη βόσκηση έχουν αυξήσει τις περιοχές που είναι επιρρεπείς σε πυρκαγιές σε ολόκληρη τη Μεσόγειο.
- **Λύση:** FireFlocks χρησιμοποιεί τη βόσκηση σε στρατηγικά σημεία διαχείρισης (SMPs) που προσδιορίζονται από τις αρχές πυρόσβεσης για τον έλεγχο της βλάστησης και της εξάπλωσης της πυρκαγιάς.
- **Αντίκτυπος:** Από 3 βοσκούς το 2016 σε 72 το 2024, που διαχειρίζονται 72.000 εκτάρια γης για την πρόληψη των πυρκαγιών.
- **Προσέγγιση πολλαπλών οφελών:** Συνδυάζει την πρόληψη των πυρκαγιών, την αγροτική ανάπτυξη και την παραγωγή τροφίμων υψηλής ποιότητας.
- **Οικονομικό μοντέλο:** Προωθεί τη βιοοικονομία με την πιστοποίηση προϊόντων από τα συμμετέχοντα κοπάδια και την ανάπτυξη πληρωμών για υπηρεσίες οικοσυστήματος.
- **Διακυβέρνηση και συνεργασία:** Εμπλέκει δημόσιους φορείς, αγρότες και επιχειρήσεις για την κλιμάκωση του έργου σε περιφερειακό επίπεδο.



◆ Type of Solution: Finance, Governance, Management  
◆ Sector: Agroforestry, Forestry  
◆ Good practice(s): Management alternatives, Ecosystems services, Protection against biotic and abiotic hazards

## The FireFlocks Project: Prescribed Silvopasture for Wildfire Risk Management

The FireFlocks project promotes forest management through extensive grazing to reduce the risk of wildfires. This case study has been implemented in the region of Catalonia (north-east Spain).



Sheep grazing a wildfire strategic area (north-east Spain)  
Author: Diego Espada | © CC BY-NC-ND 4.0



Goats eating shrub fuels of a wildfire strategic area (north-east Spain)  
Author: Diego Espada | © CC BY-NC-ND 4.0

### /// Context ///

In Mediterranean Europe the last few decades have been characterised by dramatic land use changes. The abandonment of farmland and reduced grazing have led to an increase in woodland areas. These changes in the landscape have contributed to a more aggressive spread of large wildfires (LWF) all over Europe. A small number of wildfires are responsible for most of the burnt area. These large forest fires represent a growing risk for society, as firefighting services are unable to deal with, despite the high budgets and investments allocated. Experts state that "extinction is the answer, but not the solution", and that the latter depends on sustainable management of forests and landscapes.

Silvopastoralism is a common practice with high benefits for society (landscape conservation, fire risk management, and the

production of high quality meat and dairy products). But the presence of herds and shepherds is becoming increasingly uncommon, leading to the growth of fire prone forests. Thus, the presence of livestock in woodlands has become a shared common interest of owners, farmers, firefighters, environment rangers, and businesses willing to sell food products with an added value. All of this has motivated the project FireFlocks.

The number of participants and managed hectares has been increasing since 2016. Initially, there were 3 shepherds involved (pilot phase), in year 2021 there were 21 shepherds that formed part of the project in the province of Girona, and in 2024, thanks to the expansion in all Catalonia, there are 72 shepherds engaged in the project. Since 2016, the number of hectares that have been managed to address wildfire risk is 72.000ha.

### /// Solution for a Resilient Future ///

#### Reducing wildfire risk

The overall objective of the project is to reduce the risk of large forest fires through prescribed grazing, meaning grazing with predefined objectives and management aimed at achieving those goals. In general, the project's livestock farmers graze strategic fire management points (SMPs) identified by the Catalan Fire Department. These SMPs, if properly managed, limit the spread of forest fires and provide an opportunity for control operations by altering fire behavior on the day of the fire. Therefore, FireFlocks promotes targeted grazing at these strategic points, connecting, supporting, and informing farmers about existing SMPs in their area. Subsequently, a prescribed grazing plan is agreed upon with the farmers, which is the document identifying grazing objectives.

#### Promoting bioeconomy and ecosystem services

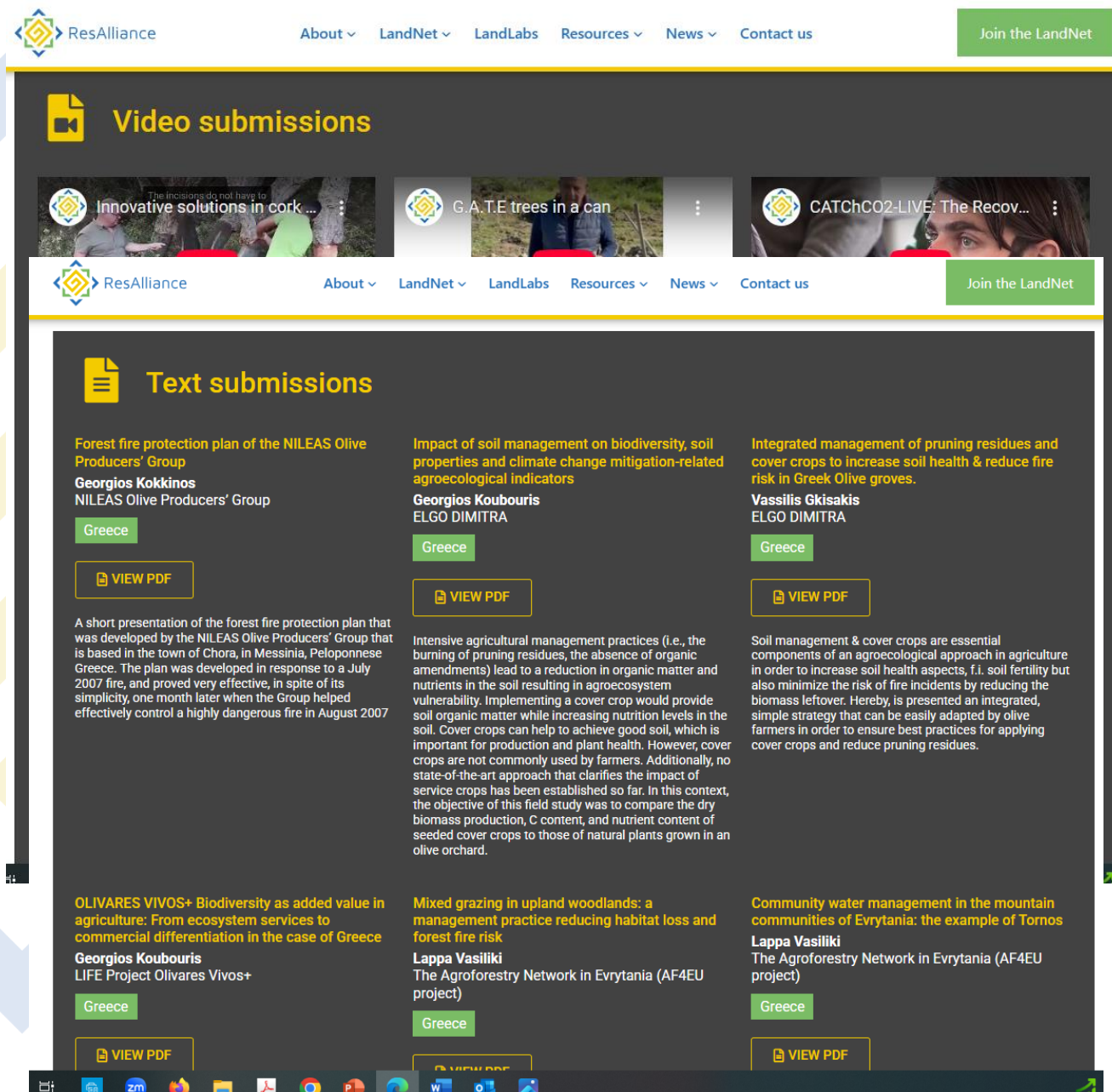
Due to the additional effort required by farmers for grazing in these SMPs, the project also aims to promote bioeconomy in rural areas, valorizing the livestock profession and products derived from extensive livestock farming. To achieve this, the project has created a certification for products produced from participating herds, aiming to make the end consumer more aware of the positive impact of consumption habits on reducing the risk of forest fires. The main idea is not just to sell more products, but for consumers to be able to recognize, and economically value, products derived from prescribed grazing.

In parallel, the project is working to have both products and services produced by the herds recognized and compensated as a public service. Currently, the Department of Climate Action,

## ➤ Δέντρα G.A.T.E σε μεταλλικά δοχεία

Το βίντεο παρουσιάζει τη μέθοδο G.A.T.E, μια καινοτόμο προσέγγιση για τη δενδροφύτευση που μπορεί να επιτύχει μείωση κατανάλωσης νερού έως και 50%. Αυτή η μέθοδος χρησιμοποιεί ειδικά υλικά για τη συγκράτηση της υγρασίας, βελτιώνοντας σημαντικά το ποσοστό επιβίωσης των δέντρων, ειδικά σε ξηρές περιοχές.

[https://www.youtube.com/watch?v=wO7L5Yhed\\_A&ab\\_channel=ResAlliance](https://www.youtube.com/watch?v=wO7L5Yhed_A&ab_channel=ResAlliance)



The screenshot displays the ResAlliance website interface. At the top, there is a navigation bar with links for About, LandNet, LandLabs, Resources, News, and Contact us, along with a 'Join the LandNet' button. The main content area is divided into two sections: 'Video submissions' and 'Text submissions'.

**Video submissions:** This section features three video thumbnails. The first is titled 'Innovative solutions in cork ...', the second 'G.A.T.E trees in a can', and the third 'CATCHCO2-LIVE: The Recov...'. Each thumbnail includes a small ResAlliance logo and a play button icon.

**Text submissions:** This section displays a grid of text-based submissions. Each entry includes a title, author, organization, location, and a 'VIEW PDF' button. The entries are:

- Forest fire protection plan of the NILEAS Olive Producers' Group:** Authored by Georgios Kokkinos, NILEAS Olive Producers' Group, Greece. Description: A short presentation of the forest fire protection plan that was developed by the NILEAS Olive Producers' Group that is based in the town of Chora, in Messinia, Peloponnese Greece. The plan was developed in response to a July 2007 fire, and proved very effective, in spite of its simplicity, one month later when the Group helped effectively control a highly dangerous fire in August 2007.
- Impact of soil management on biodiversity, soil properties and climate change mitigation-related agroecological indicators:** Authored by Georgios Koubouris, ELGO DIMITRA, Greece. Description: Intensive agricultural management practices (i.e., the burning of pruning residues, the absence of organic amendments) lead to a reduction in organic matter and nutrients in the soil resulting in agroecosystem vulnerability. Implementing a cover crop would provide soil organic matter while increasing nutrition levels in the soil. Cover crops can help to achieve good soil, which is important for production and plant health. However, cover crops are not commonly used by farmers. Additionally, no state-of-the-art approach that clarifies the impact of service crops has been established so far. In this context, the objective of this field study was to compare the dry biomass production, C content, and nutrient content of seeded cover crops to those of natural plants grown in an olive orchard.
- Integrated management of pruning residues and cover crops to increase soil health & reduce fire risk in Greek Olive groves:** Authored by Vassilis Gkisakis, ELGO DIMITRA, Greece. Description: Soil management & cover crops are essential components of an agroecological approach in agriculture in order to increase soil health aspects, f.i. soil fertility but also minimize the risk of fire incidents by reducing the biomass leftover. Hereby, is presented an integrated, simple strategy that can be easily adapted by olive farmers in order to ensure best practices for applying cover crops and reduce pruning residues.
- OLIVARES VIVOS+ Biodiversity as added value in agriculture: From ecosystem services to commercial differentiation in the case of Greece:** Authored by Georgios Koubouris, LIFE Project Olivares Vivos+, Greece. Description: (Not fully visible in the image).
- Mixed grazing in upland woodlands: a management practice reducing habitat loss and forest fire risk:** Authored by Lappa Vasiliki, The Agroforestry Network in Evrytania (AF4EU project), Greece. Description: (Not fully visible in the image).
- Community water management in the mountain communities of Evrytania: the example of Tornos:** Authored by Lappa Vasiliki, The Agroforestry Network in Evrytania (AF4EU project), Greece. Description: (Not fully visible in the image).

# ΔΩΡΕΑΝ ΜΑΘΗΜΑΤΑ ΠΩΣ??? ΕΑΝ ΕΓΓΡΑΓΕΙΤΕ ΑΠΛΑ ΣΤΟ LANDNET



## Instructions

1. Click the button below *Take Course*
2. Open the module you are interested
3. Click on the lesson you want to view
4. View the video (or Take the quiz)
5. Click the button *Complete lesson*



Take Course

## Modules

General introduction

The main impacts of climate change on

Experiences from the Resilience Land change impacts and solutions from the

Innovative solutions for the Landscape forestry sector

The main impacts of climate change on

Experiences from the Resilience Land of Climate Change and Solutions from Agroforestry Sector

Innovative solutions for the Landscape agricultural and agroforestry sector

Conclusions

## Instructions

1. Click the button below *Take Course*
2. Open the module you are interested
3. Click on the lesson you want to view
4. View the video (or Take the quiz)
5. Click the button *Complete lesson*



Take Course

## Modules

Language of the lessons: Greek

Γενική εισαγωγή

Οι κύριες επιπτώσεις της κλιματικής αλλαγής στα δάση

Εμπειρίες από τα εργαστήρια γνώσης Resilience LandLabs και τα εστιακά σημεία Focal Points: Επιπτώσεις της κλιματικής αλλαγής και λύσεις προερχόμενες από τον Δασικό Τομέα

Καινοτόμες λύσεις για την ανθεκτικότητα τοπίου: ιδέες από τον δασικό τομέα

Οι κύριες επιπτώσεις της κλιματικής αλλαγής στη γεωργία και τη αγροδασοπονία

Εμπειρίες από τα Εργαστήρια Μεταφοράς Γνώσης (Resilience LandLabs) και τα Εστιακά Σημεία (Focal Points): Επιπτώσεις της Κλιματικής Αλλαγής και Λύσεις που προέρχονται από τον Γεωργικό και Αγροδασοπονικό Τομέα

Καινοτόμες λύσεις για την ανθεκτικότητα του τοπίου: ιδέες από τον Γεωργικό και Αγροδασοπονικό Τομέα

Καταληκτική Ενότητα



# Σας Προσκαλούμε

- Να ανταποκριθείτε στην πρόσκληση του ResAlliance δημιουργώντας και υποβάλλοντας ένα ολιγόλεπτο βίντεο ή αρχείο κειμένου με φωτογραφίες (PDF) όπου θα μας εξηγείτε κάποια από τις καλές πρακτικές αγροτικής παραγωγής, αγροδασοπονίας ή δασοπονίας που εφαρμόζετε στην περιοχή σας.

- Να εγγραφείτε στο δίκτυο LandNet  
<https://www.resalliance.eu/join/>



The team of the Institute of  
Mediterranean Forest Ecosystems

Look deep into nature and then you will  
understand everything, better...-  
Albert Einstein

