

ΔΙΑΠΕΡΙΦΕΡΕΙΑΚΟ ΣΕΜΙΝΑΡΙΟ/ INTERREGIONAL WORKSHOP

Αρωματικά και Φαρμακευτικά Φυτά: Από την πρόκληση της δικτύωσης στις δυνατότητες της αγοράς

Aromatic and medicinal plants: From networking challenge to market opportunities

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INCREdible H2020**

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Non Wood Forest Products (NWFPs) & Non Timber Forest Products (NTFPs)

NWFPs are of “biological origin other than wood derived from forests, other wooded land and trees outside forests”.

NWFPs can be derived from trees, understory plants, fungi or animals. They are collected from natural forests, or produced in plantations and agroforestry systems.

Examples include mushrooms, truffles, bark (e. g. cork), nuts, acorns and other tree fruits, resin, understory berries, medicinal and aromatic plants, fodder and litter for livestock, honey and game (FAO 1999),

NWFPs

Exclude all wood

NTFPs

Do not exclude wood other than timber such as fuel-wood, artisanal use of wood or charcoal

In Greece we also use the term “secondary harvests of forest ecosystems»





Wild Forest Products Fair



**WILD FOREST
PRODUCTS FAIR**
GLYNLLIFON, NORTH WALES
FRIDAY 27TH MAY 2016

1

Καρποί κέδρου -
Juniper berries



2

Χειροτεχνήματα από ιτιά -
Willow crafts



3

Μελάνι από
κηκίδες
βελανιδιάς -
Oak gall ink



4

Βαφές από λειχήνες -
Lichens fye



5

Squirrel pâté



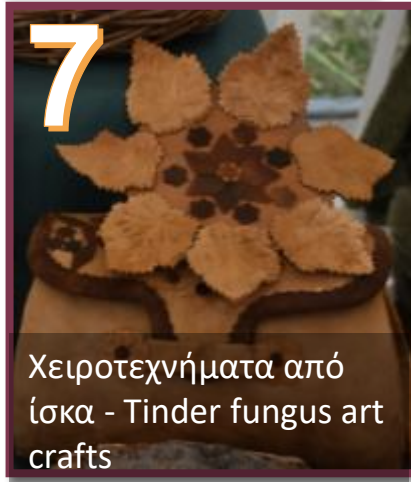
6

Wild bluebells are harvested
legally under licence



7

Χειροτεχνήματα από
ίσκα - Tinder fungus art
crafts



8

Βούρτσες και δερμάτινες θήκες από
αγριογούρουνο - Wild boar brushes and leader



9

Χυμός από σημύδα - Birch sap



Total value of marketed non-wood goods reached **€2.3 billion** in Europe, of which:

Raw material for utensils, handicrafts and constructions: **0.70%**

€1.68 billion
(73%) came from marketed plant products

Other plant products: **20.90%**

Exudates: **0.70%**

Decorative foliage, ornamental plants: **47.20%**

Raw material for medicines, aromatic products, colourants: **1.50%**

Food: **29.00%**



Wild meat: **51.10%**



Living animals: **0.08%**



Hides, skins and trophies: **2.90%**

Other edible and non-edible animal products: **0.21%**

Raw materials for medicine, colourants: **0.02%**

Wild honey and bees wax: **45.68%**

€0.62 billion
(27%) came from marketed animal products

FOREST EUROPE 2015. State of Europe's forests



Kew Royal Botanical Gardens, State of the World's plants 2017



USEFUL PLANTS – MEDICINES

AT LEAST

28,187

PLANT SPECIES ARE CURRENTLY RECORDED AS BEING OF MEDICINAL USE

How many plant species are currently used as medicines? As traditional plant-based medicines become more widely accepted in mainstream health systems what are the future drivers and risks that need to be considered?
<https://www.kew.org/press/2017/world-plants.html>



PLANT TRADE AT A GLANCE

The trade in wild plant ingredients affects us all. Here is a snapshot of an enormous trade that largely goes unmentioned, unrecognised and under-researched.

300k–400k
the estimated number of plant species around the world

~30,000
plant species with well documented medicinal or aromatic uses

60–90%
of medicinal and aromatic plants in trade are

WILD COLLECTED

threefold
increase in trade in medicinal and aromatic plants since 1999

US\$14–15 billion
estimated value of trade in essential oils by 2025

for 93%

of medicinal and aromatic plant species the conservation status is unknown



only 7%

of medicinal and aromatic plant species have been assessed against extinction threat criteria

1 in 5

of these are threatened with extinction in the wild

CHINA

1.3 billion kg
of botanical ingredients were exported by China in 2013 alone

GERMANY

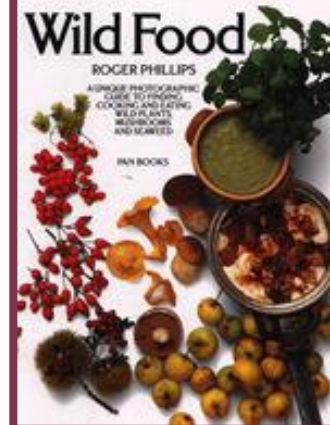
US\$250 million

value of medicinal and aromatic plants were imported by Germany in 2015



Foraging
THE ESSENTIAL GUIDE TO FREE WILD FOOD

John Lewis-Stempel



Wild Food
ROGER PHILLIPS
A ROVER PHOTOGRAPHIC GUIDE TO FINDING, COOKING AND EATING WILD PLANTS, MUSHROOMS AND SEASIDE
PAN BOOKS

TRAFFIC
REPORT

WILD AT HOME

Exploring the global harvest, trade and use of wild plant ingredients

JUNE 2018

Martin Jenkins, Anastasiya Timoshyna and Marcus Cornthwaite



Πηγή: Jenkins M., Timoshyna A., Cornthwaite M. (2018), *Wild at Home: Exploring the global harvest, trade and use of wild plant ingredients*. Traffic report. Cambridge, UK.

Mediterranean forests challenges

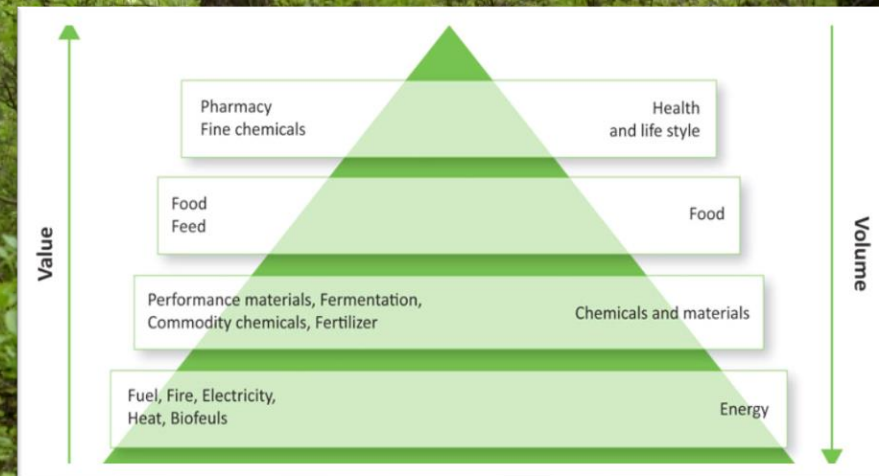
Rural abandonment
Rapid expansion of unmanaged forests
Increased risk of catastrophic forest fires

Rural and peri-urban populations
Pressure on forest resources

Lack of well-developed forest products value chains

Non-Wood Forest Products (NWFP):
Bio-based economy

Combining material production, with territorial marketing strategies and innovative commercialization channels for goods and services will be necessary



What is INCREdible?



- **A Thematic Network to bridge knowledge, innovation and practice**
- **Is about mobilising knowledge and making innovation happen!**
- **Funded by EU Commission's H2020**
- **November 2017 to October**



It is organised in iNets

Scoping Seminars

iNet	Location	Contact
Resin	Valladolid, Spain	Javier Calvo (CESEFOR): javier.calvo@cesefor.com
Mushrooms & truffles	Soria, Spain	José A. Bonet (CTFC) jantonio.bonet@ctfc.cat
Nuts & berries	Lisbon, Portugal	Sven Mutke (INIA) mutke@inia.es
Cork	Sardinia, Italy	Nuno Calado (UNAC) ncalado@unac.pt
Aromatic & medicinal plants	Tunis, Tunisia	Ibtissem Taghouti (INRGREF) ibtissem.taghouti@gmail.com



INCREDIBLE Partners



-  **Cork iNet**
-  **Resins iNet**
-  **Wild nuts & berries iNet**
-  **Mushrooms & truffles iNet**
-  **Aromatic & medicinal plants iNet**

Coordinator



Partners

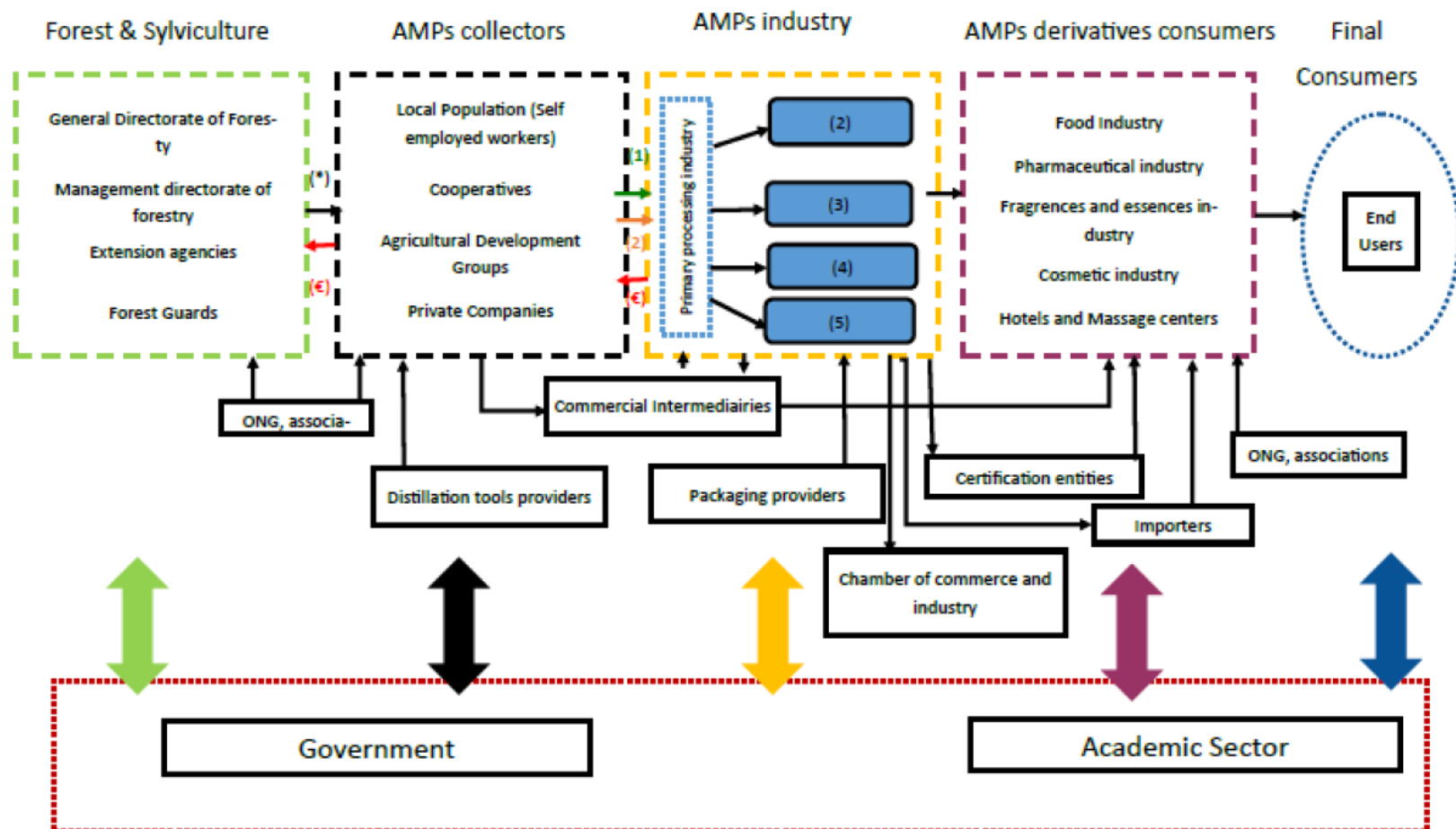


Aromatic & Medicinal Plants Value Chain

(*) Picking Permits
(0) Forests
(1) Aromatic and Medicinal Plants

(2) Essential Oils
(3) Dried AMPs
(4) Natural extracts

(5) : Biocraburant, Biopesticides,
Biofuel, Lubrifiant



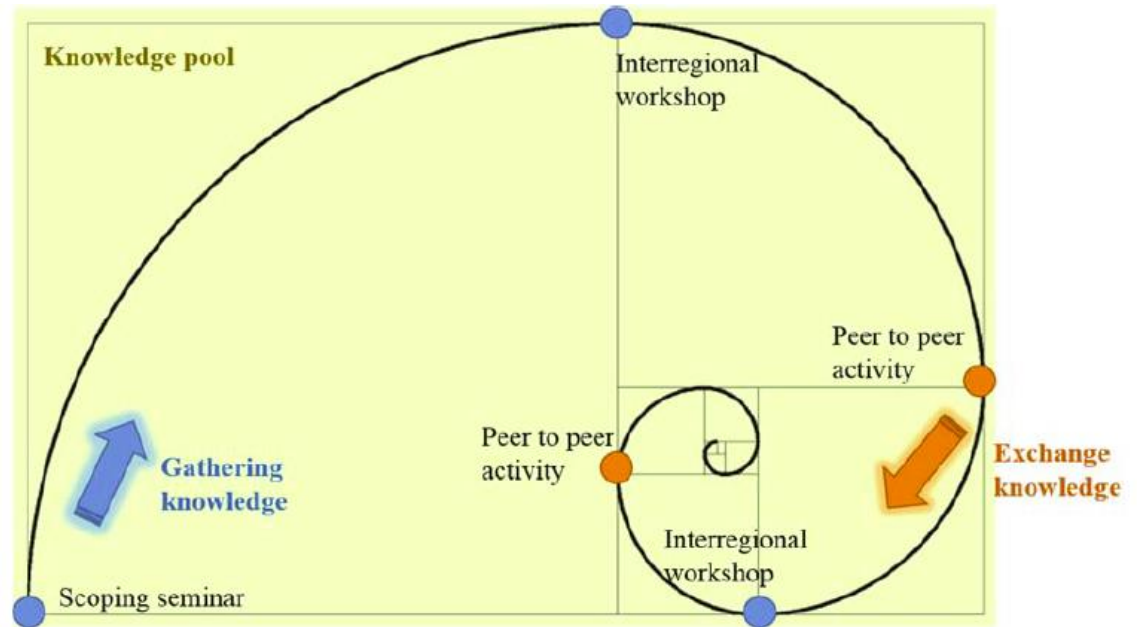
From Science to Practice

Interregional workshops

Collection of knowledge
from research & practice

Innovation challenges

Policy



Knowledge Repository for Non-Wood Forest Products


Overview and design concepts
June 2019

The knowledge repository purpose

INCREDIBLE project seeks to facilitate regional and trans-regional cooperation, knowledge exchange and innovation in Mediterranean Non-Wood Forest Products (NWFPs)




INCREDIBLE Factsheets (PDF)



Theme 4 Climate change adaptation & forest health
Position in the Value Chain Forestry
Factsheet type Practice

Postponing cork extraction under severe and prolonged drought events



Cork sampling is vital to inform decisions on when to carry out cork debarking. Photo: Joana A. Paulo

NWFP
Cork

Keywords
Precipitation Cork caliper Cork age
Debarking Cork

Scale
National Subnational

Objective

Increase the cork market price of the extracted cork and the equivalent annual annuity of the farm

Context

Cork thickness is one of the parameters considered for industrial classification of cork quality. This variable is directly related to cork price. The increase of cork thickness implies the increase of annual cork growth and/or the increase of the cork debarking rotation period. Ultimately, this will have an impact on the equivalent annual annuity of the farm. Cork sampling is crucial for evaluating cork thickness, and for accessing the need of delaying the cork debarking period, in order to increase cork thickness and ultimately the cork price.

Results

For discount rates of 0.5% and 2% the impact of different cork debarking rotation (CDR) on equivalent annual annuity (EAA) from 9 to 14 years is low. In stands characterized by high to average site index values or high to medium cork quality characteristics, CDR of 9 and 11 years are associated with similar values of EAA. The variation of the CDR in stands characterized by low site index values and/or low cork quality characteristics did not have a relevant effect on the variation of EAA. For the simulations carried out with a discount rate of 5% the EAA decreases with the increase of CDR, indicating that the minimum legal value of 9 years for CDR should be applied.

Recommendations

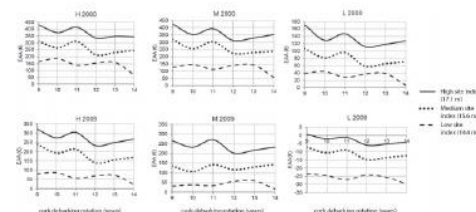
Climate is known for affecting cork annual growth and ultimately cork thickness. During the last years an increase of the frequency of severe drought events was observed in Portugal. As a result, for the same debarking rotation period, cork production shows a decreasing trend of average cork thickness. Detailed knowledge of cork and stand characteristics obtained by the collection of cork samples in a forest inventory, the consideration of climate conditions, namely precipitation regimes, during the period of cork growth, and the collection of updated information on cork prices structure and values, are essential drivers for the farmer's decision on the accomplishment or delaying of the debarking operation.

Impacts and weaknesses

Although cork annual growth is known to be much related to climate, namely precipitation regimes, it is also highly variable between farms, in different areas of one single farm, and even between trees geographically close. The importance of site conditions such as soil depth and texture, management practices and tree genetic variability implies that management operations, such as the cork debarking, should be decided for homogeneous management areas. This entails an increase investment in monitoring activities such as forest inventory and cork sampling. Cork price fluctuations and uncertainty are also a relevant driver for farmer's, that may affect the decision on cork debarking or postponing.

Future developments

Increase knowledge, that allows the quantification of the impact of soil and topographic characteristics and management operations (e.g. fertilization) on cork growth, is needed. This knowledge may be included in the management and decision support tools such as forest growth models and simulators, that should be accessible for managers.



Equivalent annual annuity (EAA) for discount rate of 0.5% as a function of cork debarking rotation for stands with different site index (14.4 m, 15.6 m or 17.1 m).

From: Paulo, J. A., Tomé, M. 2017 Using the SUBER model for assessing the impact of cork debarking rotation on equivalent annual annuity in Portuguese stands. Forest systems 26(1) e0008.

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Further information

Paulo, J. A., Tomé, M. 2017 Using the SUBER model for assessing the impact of cork debarking rotation on equivalent annual annuity in Portuguese stands. -09931Forest systems. 26(1), e008, 11 pages.
<https://doi.org/10.5424/fs/2017261>

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<https://doi.org/10.5424/fs/2017261>

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<https://doi.org/10.5424/fs/2017261>

About INCREDIBLE Project

INCREDIBLE aims to show how Non-Wood Forest Products (NWFP) can play an important role in supporting sustainable forest management and rural development, by creating networks to share and exchange knowledge and expertise. 'Innovation Networks of Cork, Resins and Edibles in the Mediterranean basin' (INCREDIBLE) promotes cross-sectoral collaboration and innovation to highlight the value and potential of NWFPs in the region. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 774652.

Knowledge repository for Non-Wood Forest Products (NWFP)



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CORK



Postponing cork extraction under severe and prolonged drought events

30 May 2019

Increase the cork market price of the extracted cork and the equivalent annual annuity of the farm.

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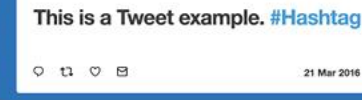
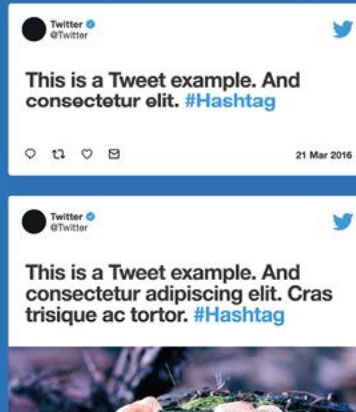
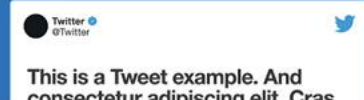
AROMATIC & MEDICINAL PLANTS



Medicinal plants and their uses in modern medicine...

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INCREDIBLE repository will be developed as a microsite

Content will be stored in the Oppla platform

This means that:

- The INCREDIBLE repository will have its own design and structure.
- INCREDIBLE content will be stored in Oppla and appear seamlessly the INCREDIBLE repository.
- Content can also be shared with other websites via the Oppla API.
- All content is archived in Oppla and made available after the project has ended.



Oppla is a **community**

Oppla is also
a marketplace

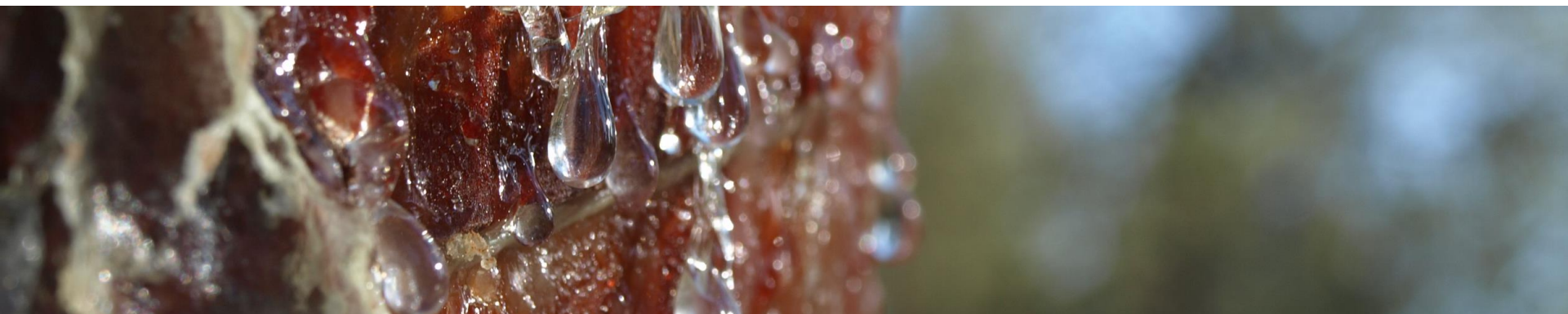
A place where
ideas can grow



The EU repository of **Nature-Based Solutions**

Send contributions to your local iNet contact point:

Name	email	country



Share your knowledge on the repository!

Thank you!

Coordinator



Partners



This project has received funding from the European Union's H2020 research and innovation programme under grant agreement No.774632.

www.incredibleforest.net