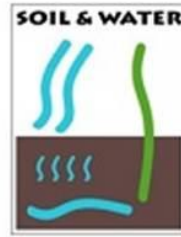




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Jihočeská univerzita  
v Českých Budějovicích  
University of South Bohemia  
in České Budějovice



**Eesti Maaülikool**  
Estonian University of Life Sciences

# Erasmus+ Strategic Partnership

## The Educational Network on Soil and Plant Ecology and Management



# What is an Erasmus+ Strategic Partnership?

- Partnership between different European Universities (+ sometimes enterprises)
- Part of internationalization strategies
- Improvement of overall quality of education and research
- 3 years funding for different activities and “Intellectual Outputs”



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**Eesti Maaülikool**  
EMU Estonian University of Life Sciences

Soil science  
Root ecology  
Wetland ecology  
Soil zoology  
Effects of soil degradation  
on soil organisms

Plant stress ecophysiology  
Soil-plant-atmosphere continuum  
Soil degradation  
Protection and sustainable use of soils

# EduSaPMan

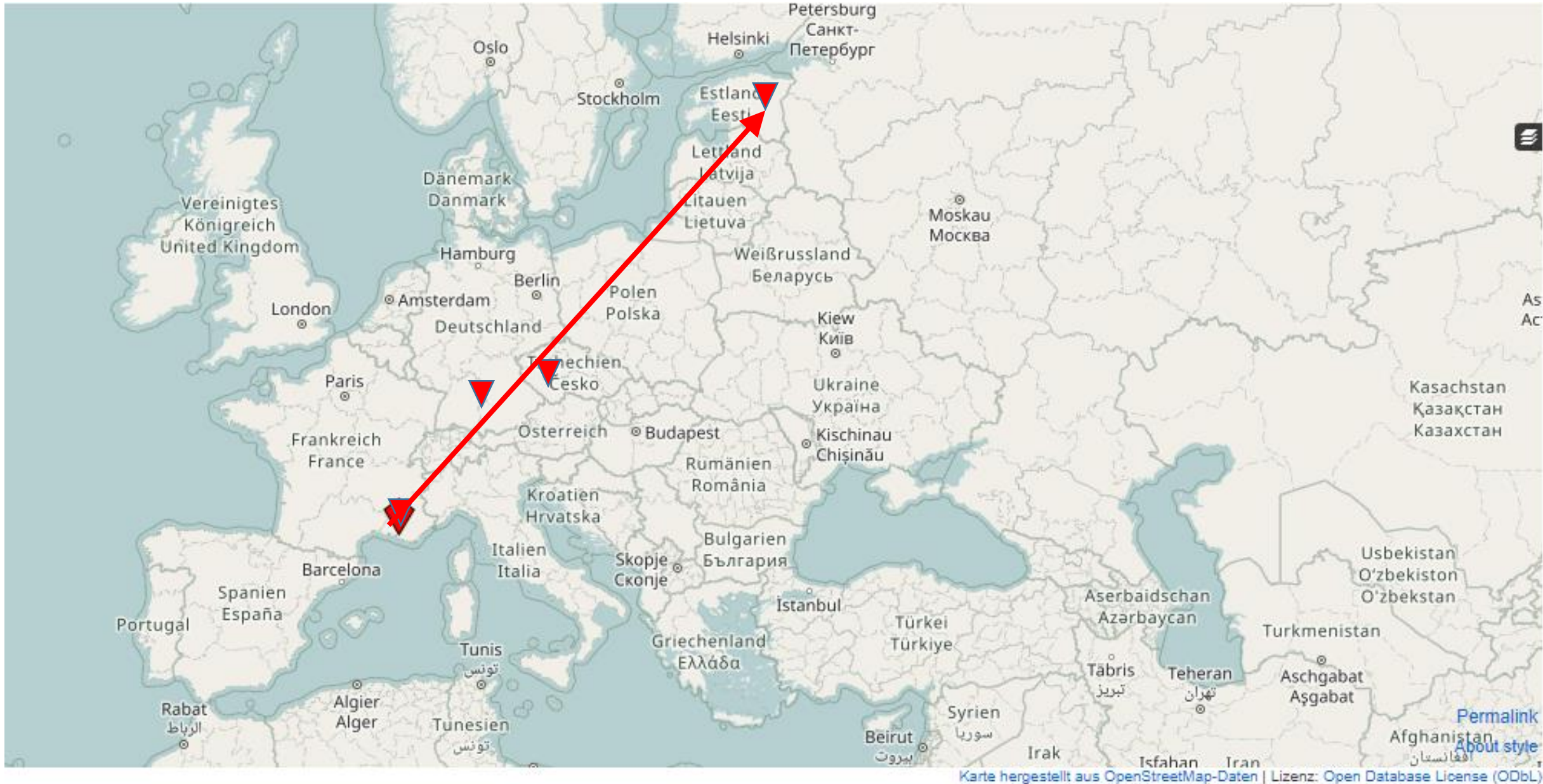


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Ecosystem Biology  
Microbial processes in different soil types  
Wetland ecology and constructed wetlands  
Hydrobiology



Functional ecology  
Terrestrial and aquatic Mediterranean environment  
Gas exchange between the atmosphere and plants  
Global change  
Plants under drought



# Intellectual Outputs

- **WP1:** Summer School „Soil & Water“
- **WP2:** Continuation of a jointly managed teaching module and agreement on a list of automatically accepted modules for regular exchange/student exchange between all partners.
- **WP3:** Enhancing teaching and networking potential for teachers
- **WP4:** Transposing the educational network into future research and teaching activities.



# „Intellectual Outputs“

- **WP1:** Summer School „Soil & Water“
- WP2: Continuation of a jointly managed teaching module and agreement on a list of automatically accepted modules for regular exchange/student exchange between all partners.
- **WP3:** Enhancing teaching and networking potential for teachers
- WP4: Transposing the educational network into future research and teaching activities.

# Summer Schools

2014	2015	2016	2017
Marseille - France	Ulm - Germany	Budweis – Czech Republic	Tartu - Estonia



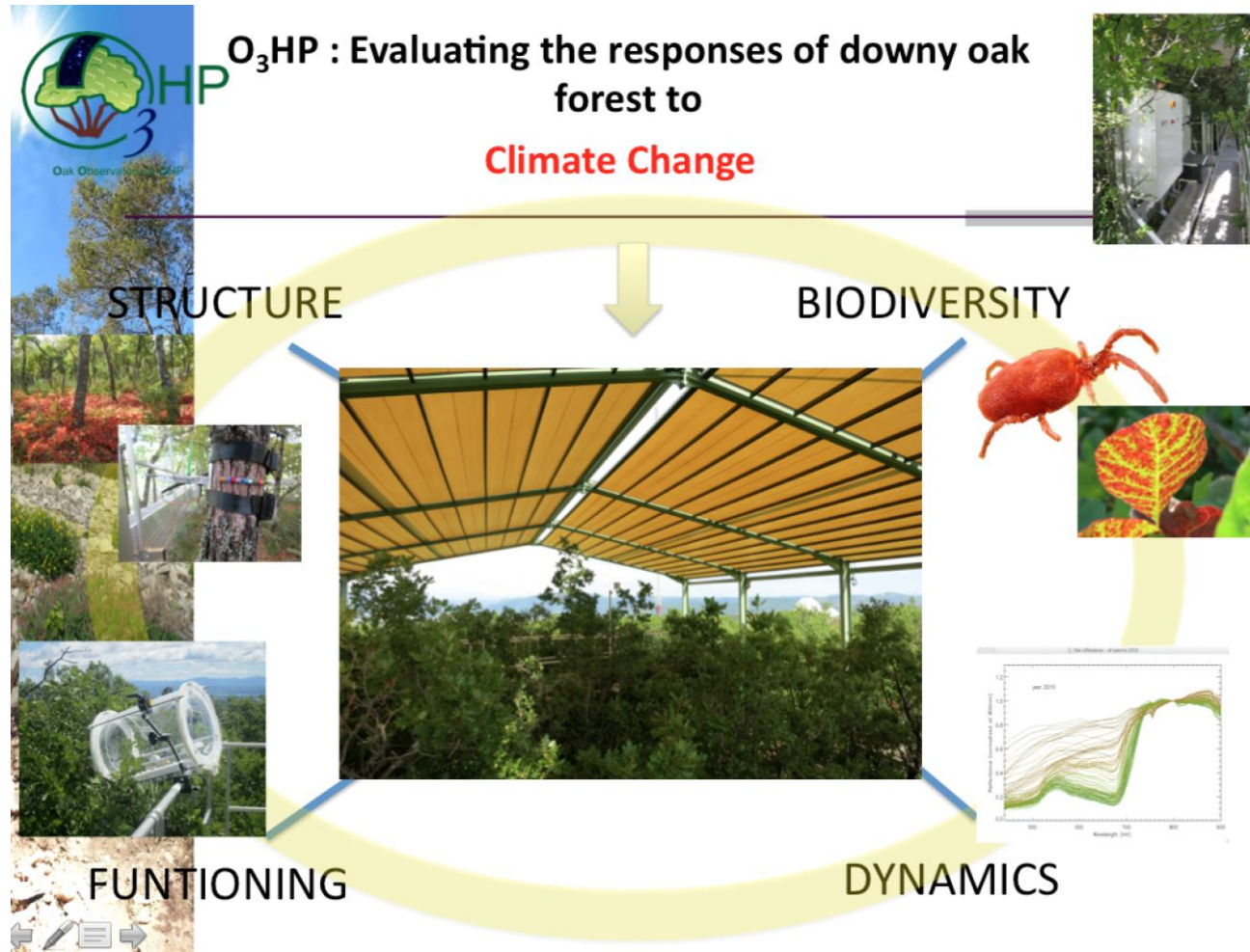
# Schedule of the Summer School "Soil & Water" 2016



	Sun 04.09.	Mon 05.09.	Tue 06.09.	Wed 07.09.	Thur 08.09.	Fri 09.09.	Sat 10.09.	Sun 11.09.	Mon 12.09.	Tue 13.09.	Wed 14.09.	Thur 15.09.	Fri 16.09.	Sat 17.09.					
08:30	Arrival	Introduction (PvW, MK)	Wetland Ecology II (TP)	Soil degradation (ER)	Wetlands and carbon fluxes (ZU)	Bus transfer to Sumava	Whole day excursion - Sumava mountain (spruce forests, management, succession,...)	Free day in Sumava	Soil exploitation & root architecture (MK)	Microbial processes in soil II (HS)	Experimental climate change (IR)	Synthesis (MK)	ERASMUS Mobility & Outlook (LJ)	Departure					
09:30		Introduction to South Bohemia region (TP)													Constructed wetlands (TP)	Secondary metabolism of plants (CF)	Microbial processes in soil I (HS)	Soil-plant interactions or Soil organic matters (AA)	Sustainable use of soils - from soil data into decisions (AA)
10:30		Soil water relations I (MK)	Plant-soil relationships: leaf litter decomposition, a key process for ecosystem functioning (VB)												Sustainable environmental management (MW)				
11:30		Introduction to soil zoology (MW)														Wetland Ecology I (TP)	Lunch	Whole day excursion (cut-away peatland, restored stream, virgin forest)	Lunch
12:30		Wetland Ecology I (TP)	How to write reports and give presentations (PvW)												Excursion: Constructed Wetlands, Eddy covariance, wet meadows				
14:00	Excursion to Vrbenské ponds	group formation & allocation of topics		self-study	Presentation of topics (10 min each group)	Presentation of topics (10 min each group)	Bus transfer to Budweis	Presentation of results	Farewell party with Barbecue										
15:00	self-study	Excursion: sandpits, water invertebrates, recultivation)	Presentation of results							Farewell party with Barbecue									
16:00				Presentation of results	Farewell party with Barbecue														
17:00	Presentation of results	Farewell party with Barbecue																	
18:00			Presentation of results	Farewell party with Barbecue															
19:00	Presentation of results	Farewell party with Barbecue																	
20:00			Presentation of results	Farewell party with Barbecue															
21:00	Welcome event																		



# Summer Schools – Lectures



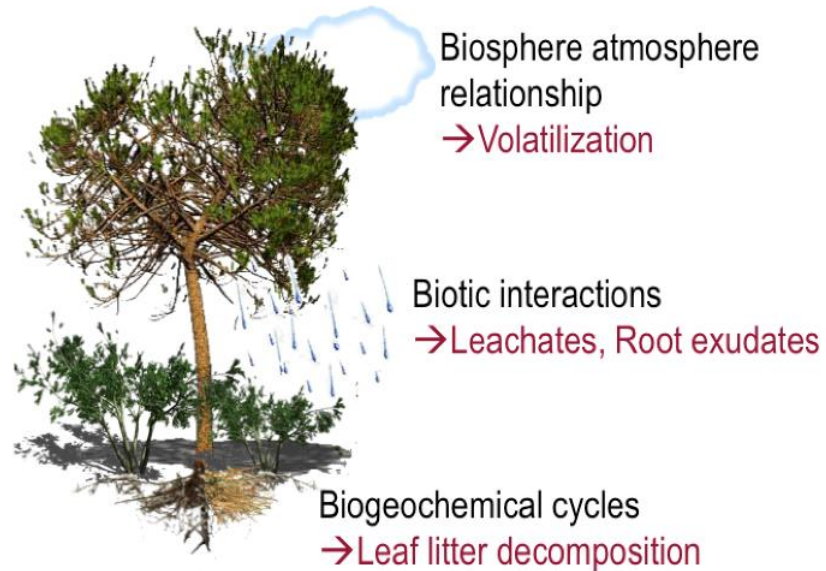
**Research Facilities/Institutions**

# Summer Schools - Lectures



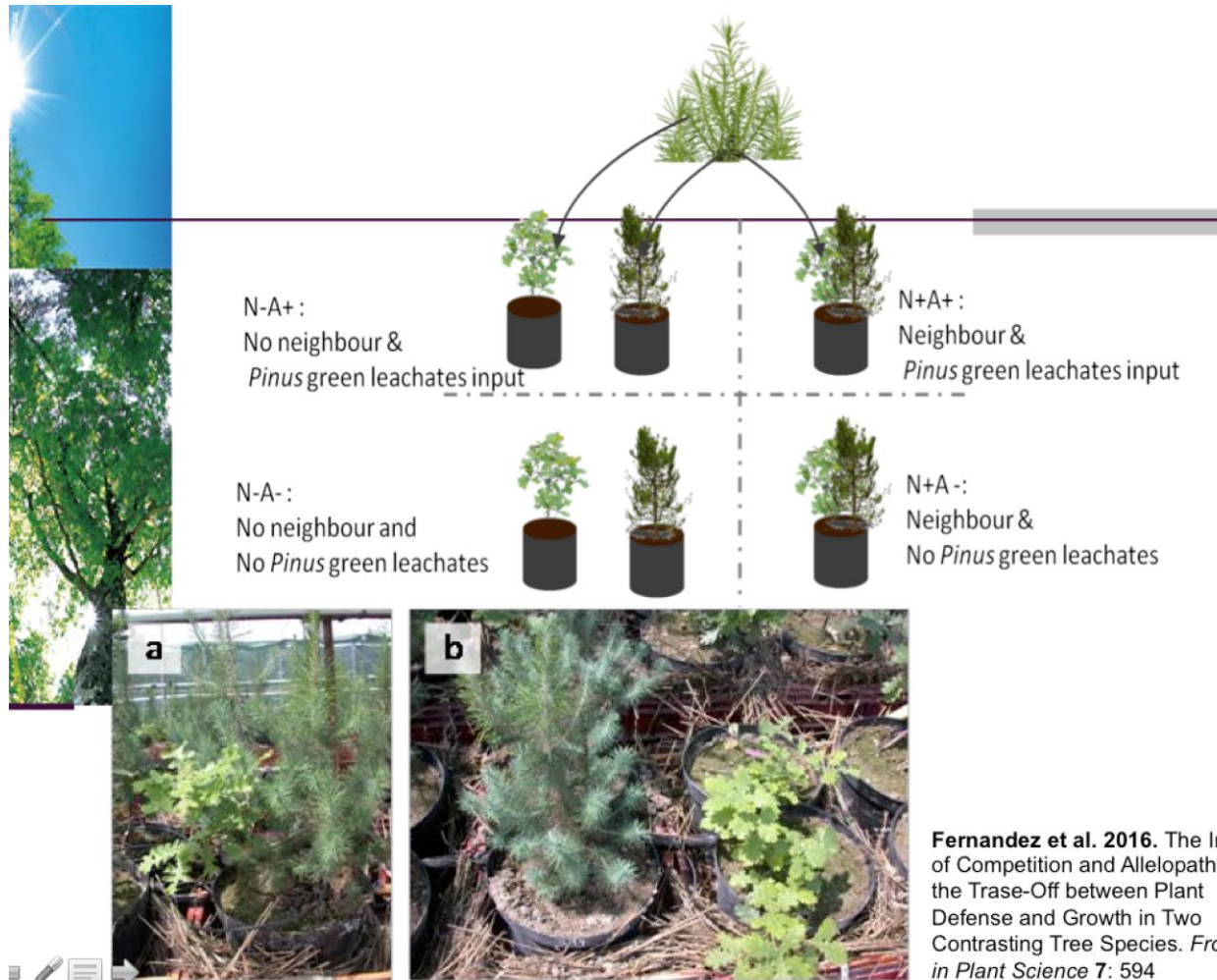
*Pinus halepensis*: plant species producing high amount of Plant Secondary Metabolites (PSM)

## Three ways of release



**Basic Knowledge e.g. on Plant Secondary Metabolites**

# Summer Schools - Lectures



Up-to-date research results

**Fernandez et al. 2016.** The Impact of Competition and Allelopathy on the Trade-Off between Plant Defense and Growth in Two Contrasting Tree Species. *Frontiers in Plant Science* 7: 594



# Summer Schools - Projects

Allelopathy experiment realizable in less than two weeks time!



- Allelopathy Bioassay in Petri dishes
- Experimental Design of allelopathy process
- Donor plant: young *Pinus halepensis*
- Needles macerates
- Different target species (seeds)
- Measured parameters after one week (germination rates, size of seedlings)
- Statistical analyses




# Consortium



# How can you benefit?

- Online available teaching material (Including Video-Lectures)
- Online available project descriptions
- Online available guides for excursions around the aforementioned areas
  
- <https://www.uni-ulm.de/nawi/nawi-edusapman/>



# Intellectual Output 3

## Virtual Learning Aid

# Virtual Learning Aid (IO 3)

## Question 5

Not complete

Marked out of 1.00

Which environmental factor is the driver of the Mediterranean terrestrial ecosystem functioning?

Select one:

- a. Water
- b. Wind
- c. Temperature

Check



# Virtual Learning Aid (IO 3)

## Question 5

Correct

Mark 1.00 out of  
1.00

Which environmental factor is the driver of the Mediterranean terrestrial ecosystem functioning?

Select one:

- a. Water ✓
- b. Wind
- c. Temperature

# Virtual Learning Aid (IO 3)

## Question 1

Correct

Mark 1.00 out of 1.00



Please, match the numbers to the organisms' role in the food chain associated to leaf litter.

Mesofauna, detritivorous, able to feed on decomposed litter, mainly microorganisms and small pieces of leaves

2 ▼



Predators of mesofauna

3 ▼



Decomposers, able to remineralize the organic matter

1 ▼



Your answer is correct.

The correct answer is: Mesofauna, detritivorous, able to feed on decomposed litter, mainly microorganisms and small pieces of leaves – 2, Predators of mesofauna – 3, Decomposers, able to remineralize the organic matter – 1

# Virtual Learning Aid (IO 3)

## Question 21

Not complete

Marked out of 2.00

Please match the terms with the definitions.

Chemical substances secreted by plants which can affect the growth, behavior and population biology of other live beings.

Choose...

Any direct or indirect effect by one plant, including micro-organisms, on another through the production of chemical compounds that escape into the environment and subsequently influence the growth and development of neighbouring plants t includes both inhibitory and stimulative reciprocal biochemical interactions.

Choose...

Choose...  
Allelopathy  
Abiotic stress  
Allelochemicals

Check

# Virtual Learning Aid (IO 3)

## Question 21

Correct

Mark 2.00 out of 2.00

Please match the terms with the definitions.

Chemical substances secreted by plants which can affect the growth, behavior and population biology of other live beings.

Allelochemicals ▼



Any direct or indirect effect by one plant, including micro-organisms, on another through the production of chemical compounds that escape into the environment and subsequently influence the growth and development of neighbouring plants t includes both inhibitory and stimulative reciprocal biochemical interactions.

Allelopathy ▼



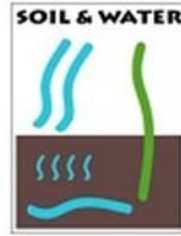


# Virtual Learning Aid (IO 3)

- <https://www.uni-ulm.de/nawi/nawi-edusapman/work-packages/work-package-1/virtual-learning-aid/>



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