

# Welcome to today's public webinar!



## “Towards an interactive digital Toolbox on sustainable land-use”

29 January 2025, Zoom

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Funded by  
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# Agenda – 29 January 2025

- 10:00-10:05**      **Welcome and brief introduction – the Europe-LAND project in a nutshell**  
*Franziska Wolf (HAW Hamburg, Germany)*
- 10:05-10:10**      **Introduction to the platform**  
*Nicolaos Theodossiou, Aristotle University of Thessaloniki, Greece*
- 10:10-10:20**      **Presentation of the platform**  
*Konstantinos Plataridis, Diamantis Karakatsanis, Yiannis Kontos, Aristotle University of Thessaloniki, Greece*
- 10:20-10:30**      **Presentation of the IACS data**  
*Martin Rudbeck Jepsen, University of Copenhagen, Denmark*
- 10:30-10:40**      **Future plans**  
*Nicolaos Theodossiou, Aristotle University of Thessaloniki, Greece*
- 10:40-10:50** **Online testing**  
*Yiannis Kontos, Aristotle University of Thessaloniki, Greece*
- 10:50-11:00**      **Q&A and end of the webinar**

29 January 2025, Zoom

**Speaker:**

**Franziska Wolf, Hamburg University of  
Applied Sciences, Germany**



**“Introducing the Horizon Europe project  
“Towards Sustainable Land-use Strategies  
in the Context of Climate Change and  
Biodiversity Challenges in Europe”**





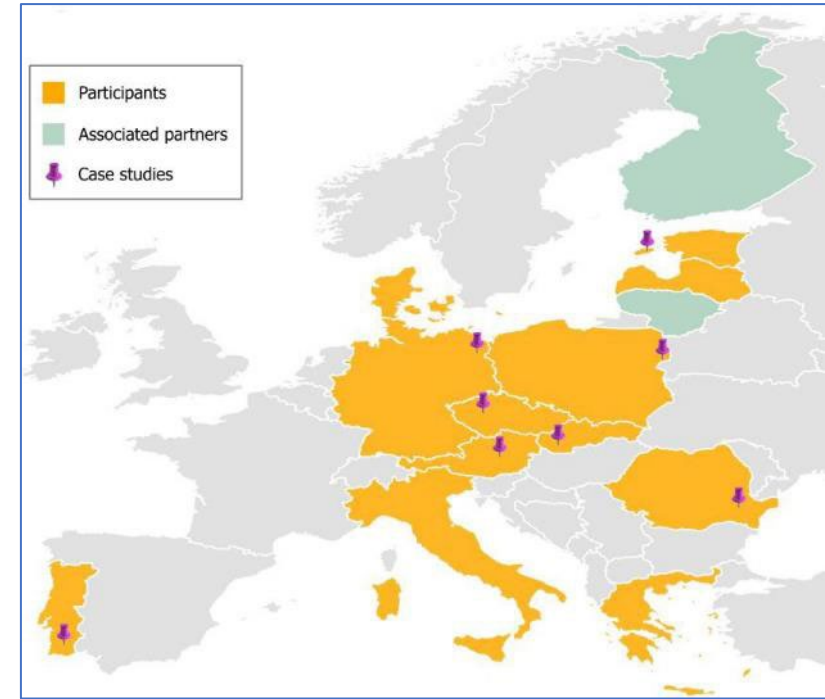
# Europe-LAND in a nutshell

- **Consortium:** 13 partners (12 countries, 8 cases), 2 Associates (FIN, LIT)
- **Duration:** 1 June 2023 til 31 May 2027

## Main Objective:

to identify, develop, test and implement integrated tools to **improve the understanding of the factors behind land-use decisions** as well as the **stakeholders' awareness and engagement** in terms of climate change and biodiversity challenges across Europe.

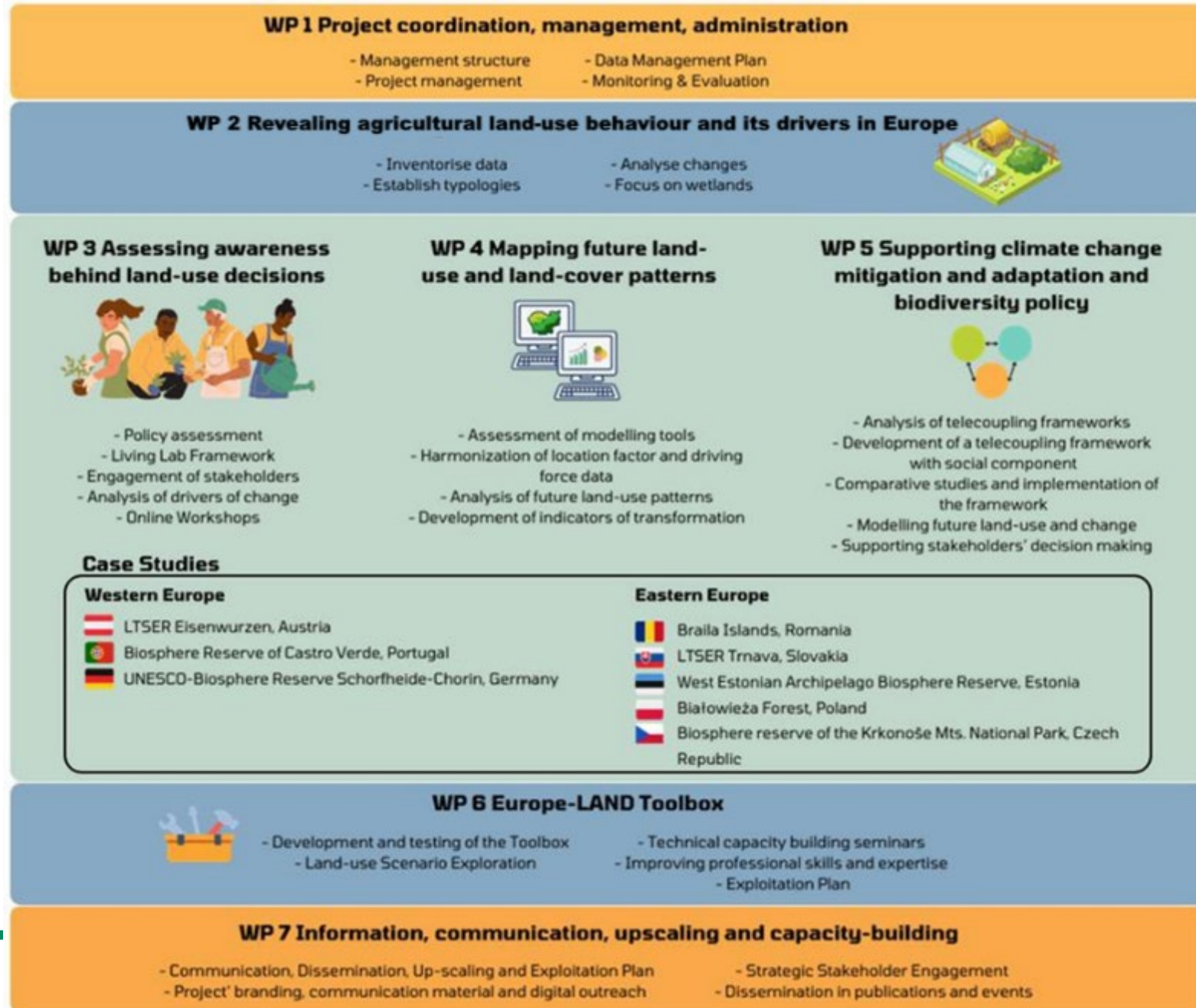
This includes **increasing the knowledge base** on how such decision can be oriented towards the efficient and socially responsible pursuit of multiple policy objectives on various scales in order to **gain a national, regional and pan-European vision** that supports land-use strategies, climate change mitigation and adaptation, as well as biodiversity conservation.





# Methodology

- national-level analyses, land use/land management surveys, policy assessments, social network analyses, development of a **telecoupling framework**, **comparative studies**, **modelling** of land-use changes, **living labs/stakeholder interaction** (interviews, focus groups)  
complemented by
- 8 local cases** as demonstrators (cross-cutting feature) and a **toolbox for interactive land-use scenario exploration**
- capacity-building** (open access), **Community of Practice**



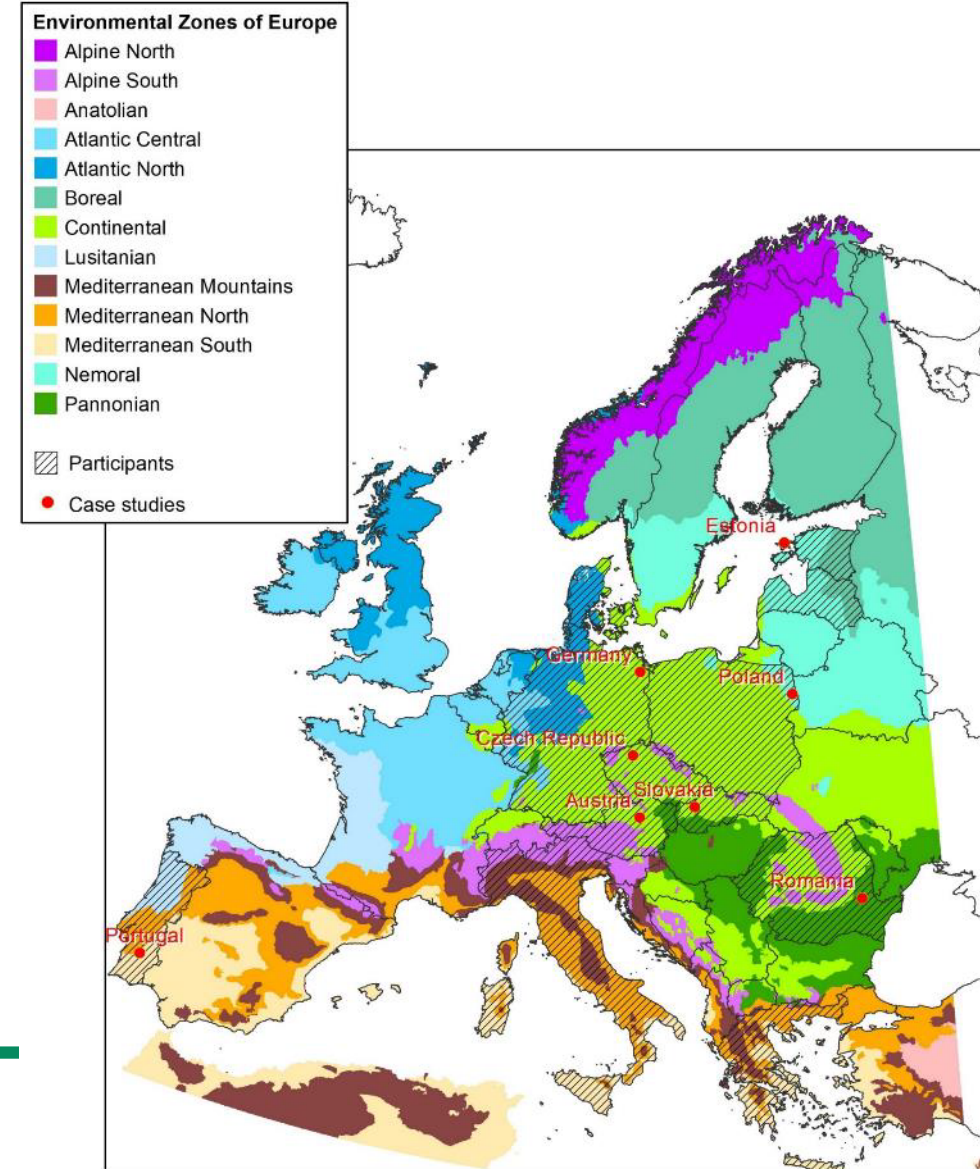


# Zooming in – our 8 case studies

Case studies in **different environmental regions** of Europe, aiming to provide an in-depth understanding of land users' behaviour and conditions of local land-use decision-making

**Criteria** for selecting the case studies:

- Main focus (agriculture, forestry, protected areas)
- Trade-offs between conservation and land use
- Connection with LTSER sites
- Previous connection with stakeholders (co-creation) – participatory (Living-lab) approach





# Save the dates: Upcoming project actions, learning and networking activities

- **19-21 February, 2025**: In-person workshop, "Leveraging data from the Integrated Administration and Control System (IACS) for research." Hamburg, Germany.
- **29 April, 2025, 09:30-12:00**: Second Science – EU Policy Dialogue
- **16 May, 2025**: Online symposium, "Sustainable Land Use and Land Management: Emerging Trends, Current Challenges, and European Solutions."
- **25-26 June, 2025**: 3rd General Assembly Meeting. Nitra, Slovakia

Find all events and project results on our project website [www.europe-land.eu](http://www.europe-land.eu).

# Thank you for your attention!

## Team Hamburg

Prof Walter Leal, Franziska Wolf, Jasmin  
Röseler, Minami Tsuchikura, Sven  
Kannenberg

Hamburg University of Applied Sciences,  
Research and Transfer Centre  
„Sustainable Development and Climate  
Change Management“, Ulmenliet 20,  
D-21033 Hamburg, Germany

**Contact:** [info@europe-land.eu](mailto:info@europe-land.eu)



**Project website:** [www.europe-land.eu](http://www.europe-land.eu)

Join us on **LinkedIn** at <https://www.linkedin.com/company/europe-land/>



29 January 2025, Zoom

**Speaker:**

**Prof. Nicolaos Theodossiou  
Aristotle University of Thessaloniki (AUTH)**



**Towards an interactive digital Toolbox on  
sustainable land-use**

***Introduction to the platform***



# WP6 Deliverables - Milestones

Number	Deliverable name	Work package number	lead participant	Type	Dissemination level	Delivery date
D6.1	Developed and Tested Toolbox	WP6	AUTH	R	PU	M46
	In Task 6.1. the Europe-LAND Toolbox is planned, developed and tested					
D6.2	Serious Gaming Approach for scenario exploitation	WP6	BUT	R	PU	M46
	The Serious Gaming Approach is used for interaction with the Scenario Exploitation System (SES)					
D6.3	Open-Access MOOC and Summer School	WP6	UNIBO	DEM	PU	M46
	In Task 6.3. the Massive Open Online Courses (MOOC) and a Summer School are prepared					
D6.4	Exploitation plan	WP6	AUTH	DATA	SEN	M46
	In Task 6.4. an exploitation plan is developed for the replication and up-scaling across Europe, using an integrated framework					

Milestone number	Milestone name	Related work package(s)	Due date (in month)	Means of verification
6.1	Toolbox evaluation report	WP6	M19	Report on the evaluation of the alternative toolboxes reviewed
6.2	Five capacity building seminars finalised	WP6	M36	Seminars implemented



# Europe-LAND Toolbox

Project's main objective → identify, test and implement social science tools to improve the understanding of the factors behind land-use decisions

WP6 → **design + implement** a one-stop-shop “toolbox” for various stakeholders

- policy makers
- local authorities
- regulatory agencies
- farm federations
- agriculture organisations
- spatial planning engineers
- NGOs
- citizen initiatives
- anyone interested

that will provide information for **SPATIAL + TEMPORAL changes in LAND USE** while allowing them to **add further information** to it and **easily identify** how a planned action will affect **current** and **future** land uses



# Europe-LAND Toolbox

WP6 Toolbox (team AUTH-Greece) works closely with WP2, WP3, WP4 and WP5

→ to use **info** gathered + **models** developed

regarding the key **motivations, drivers** and **factors** behind land-use related **decisions**

and the impact of **climate change** and the effectiveness of **mitigation** and **adaptation measures** needed

WP6 Toolbox will

**integrate maps** (developed by WP4) about the **expected land-use patterns** consistent with **long-term objectives**

+

**integrate scenarios** and **models** (developed by WP5)

Objectives

1. Collection + analysis of work by WP2, WP3, WP4, WP5 to “translate” WP findings into deployable and easy-to-use tools based on the Stakeholder needs
2. Identification of scenarios of different land uses and land use alterations
3. Europe-wide Exploitation and Replication of Key Learnings



# Homepage of Europe-LAND Toolbox

Towards Sustainable Land-use Strategies in the Context of Climate Change and Biodiversity Challenges in Europe



JOIN US

Europe  
LAND

**Welcome to Europe-LAND Toolbox**

Identify, develop, test and implement integrated tools to improve the understanding of the factors behind land-use decisions as well as the stakeholders' awareness and engagement in terms of climate change and biodiversity challenges in Europe

Funded to be supported by Europe. This project has received funding from the European Union's HORIZON CLT 2022 research and innovation programme under grant agreement No 101001107

**HAW HAMBURG**

**ARISTOTLE UNIVERSITY OF THESSALONIKI**

**UNIVERSIDADE D COIMBRA**

**ALMA MATER STUDIOBUM UNIVERSITÀ DI BOLOGNA**

**SUA**  
Slovak University of Agriculture in Nitra

**UNIVERSITY OF LATVIA**

**BOKU** | **SEC**  
Institute of Social Ecology

**CHARLES UNIVERSITY Faculty of Science**

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

**UNIVERSITY OF COPENHAGEN**

**IAMO**  
Institute for Agricultural Development in Transition Economies





# The Europe-LAND AUTh team



*Afroditi Papageorgiou, Nicolaos Theodossiou, Zisis Mallios, Eleni Fotopoulou, Yiannis N. Kontos, Konstantinos Plataridis, Lysandros Katsifarakis, Diamantis Karakatsanis, Charalampos Stavridis*

29 January 2025, Zoom

**Speaker:**

**MSc, PhDc. Konstantinos Plataridis  
Aristotle University of Thessaloniki (AUTH)**



**Towards an interactive digital Toolbox on  
sustainable land-use**

***Presentation of the platform***







# NUTS regions of Eurostat

Towards Sustainable Land-use Strategies in the Context of Climate Change and Biodiversity Challenges in Europe



Europe LAND

Select NUTS region

- Level 0
- Level 1
- Level 2
- Level 3

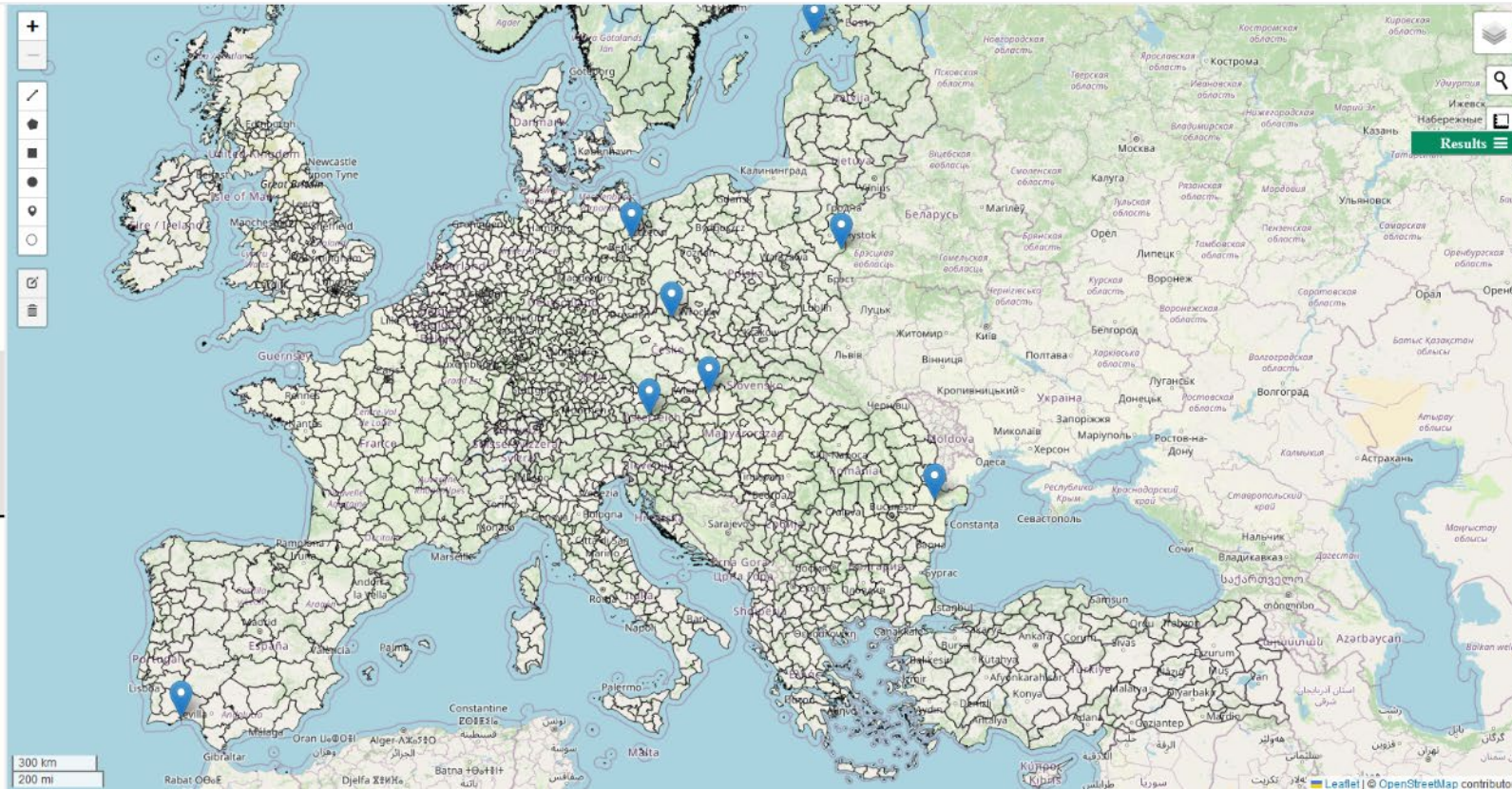
Select LULC

- Year
- 1990
- 2000
- 2006
- 2012
- 2018

Functions

Select Category

Corine Legend



**Level 0:** National level

**Level 1:** major socio-economic regions

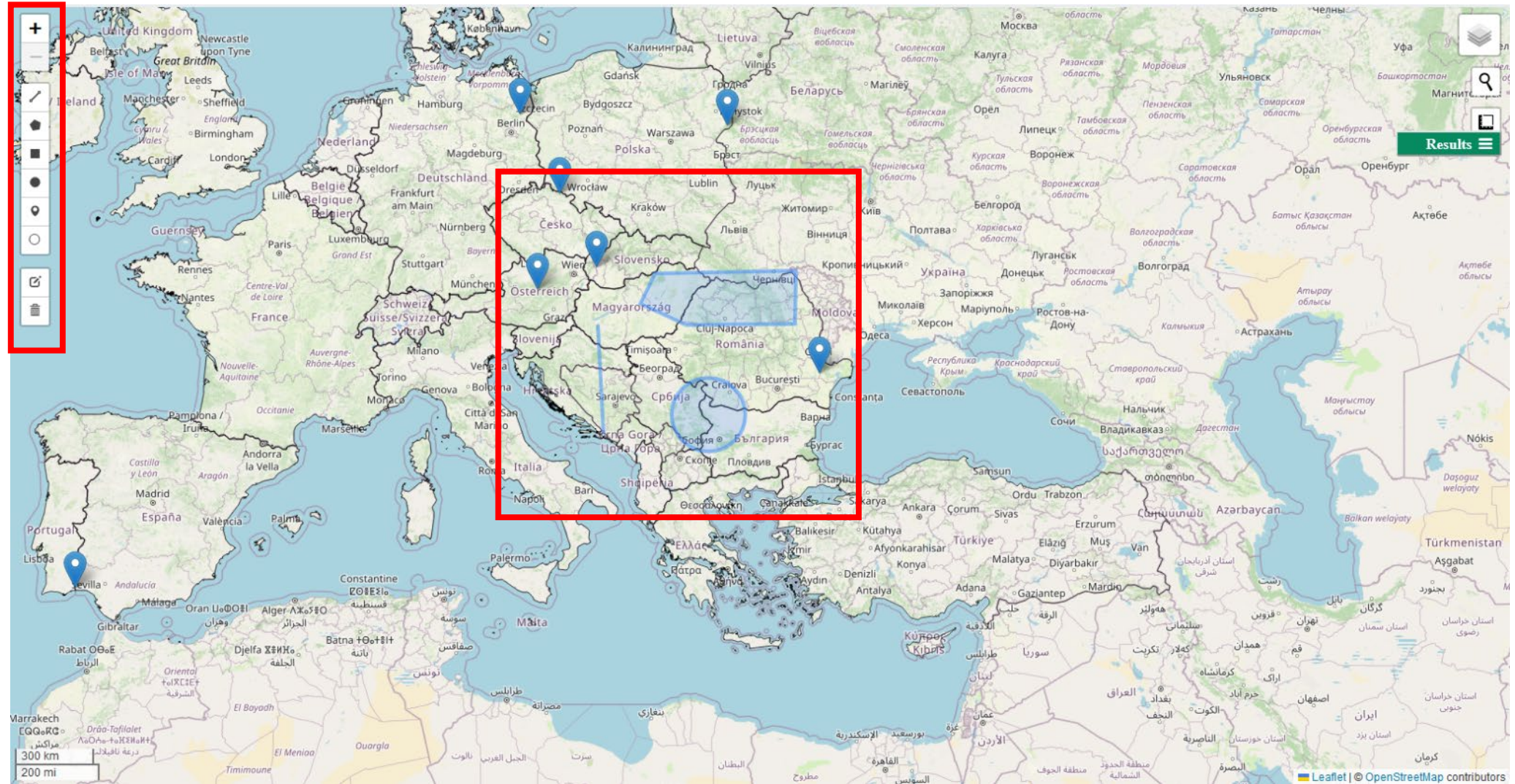
**Level 2:** basic regions for the application of regional policies

**Level 3:** small regions for specific diagnoses

<https://ec.europa.eu/eurostat/web/nuts>



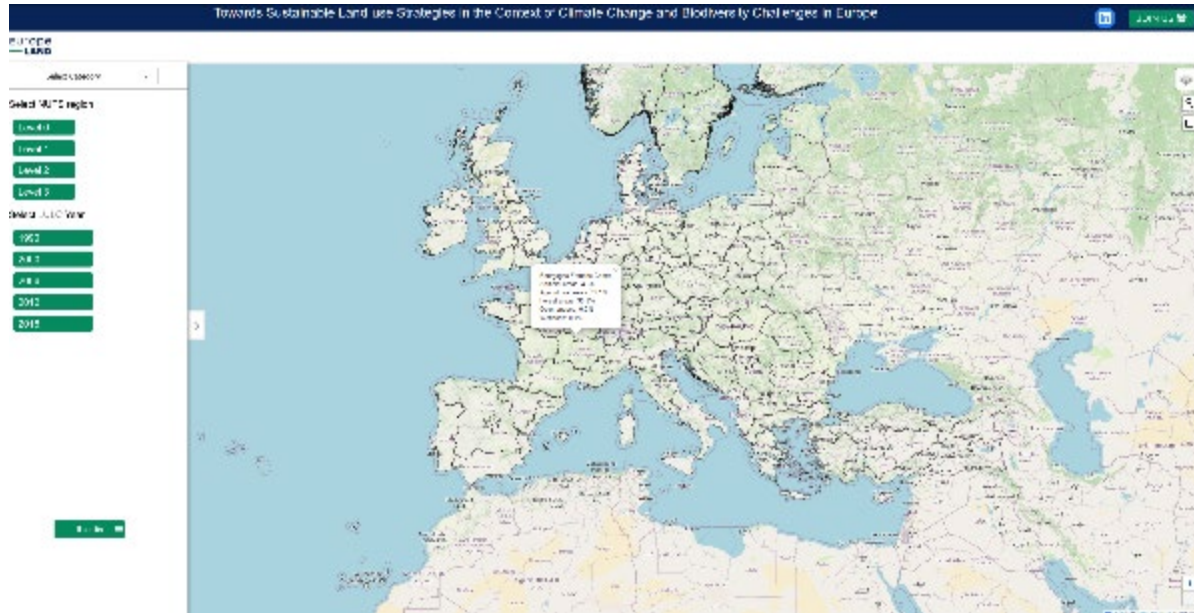
# Draw Toolbar





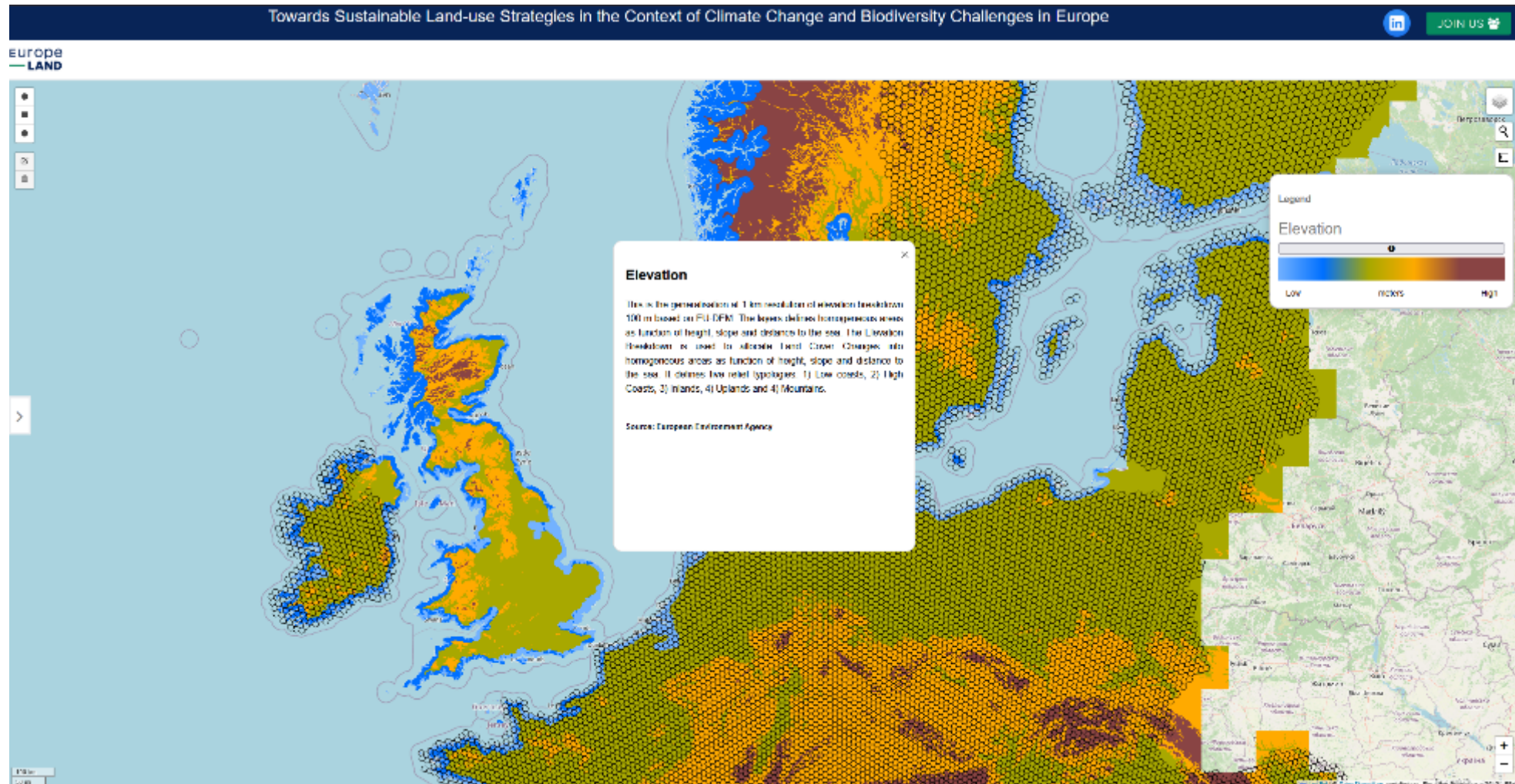


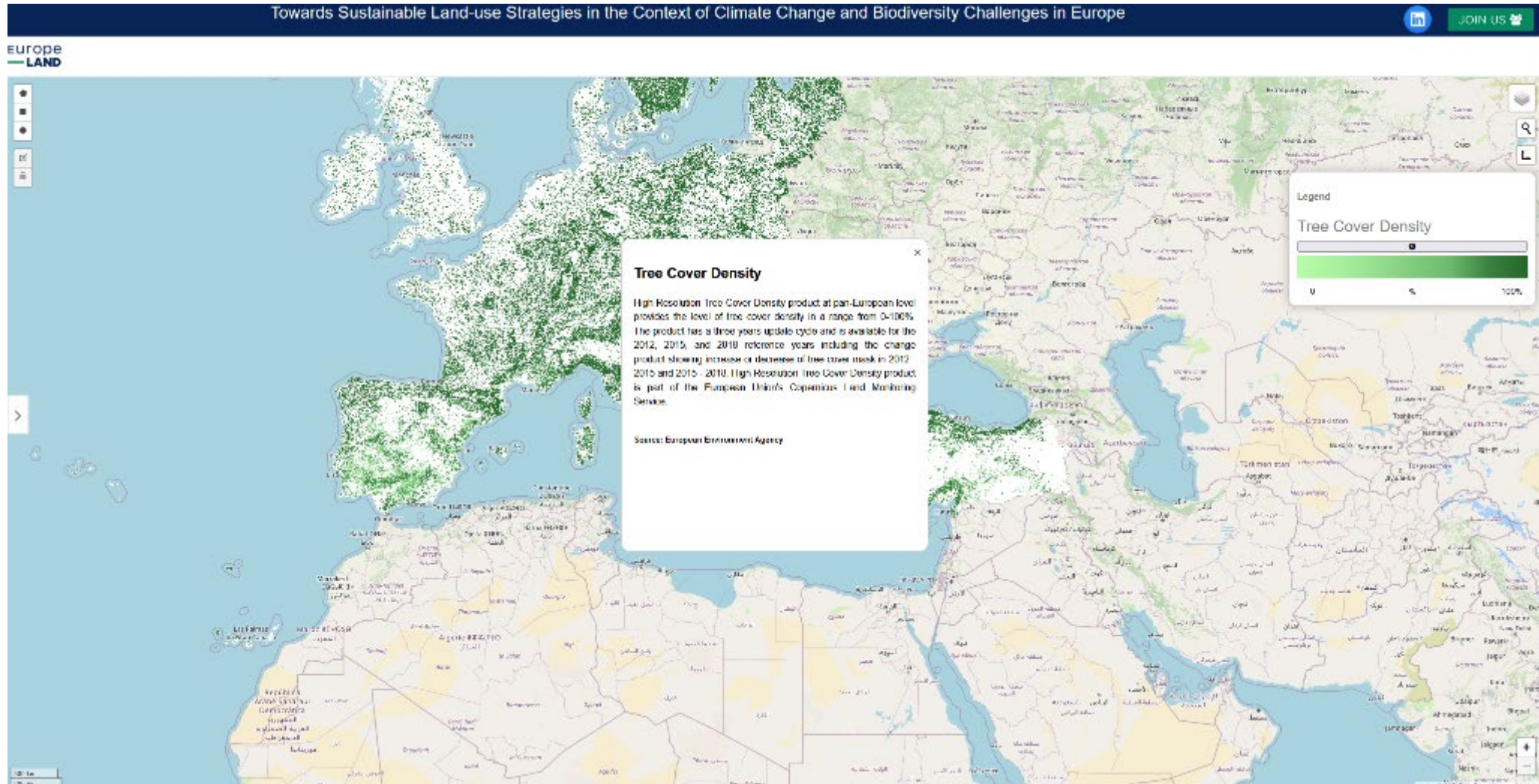
# Platform Interface Adjusted for Different Screen Sizes



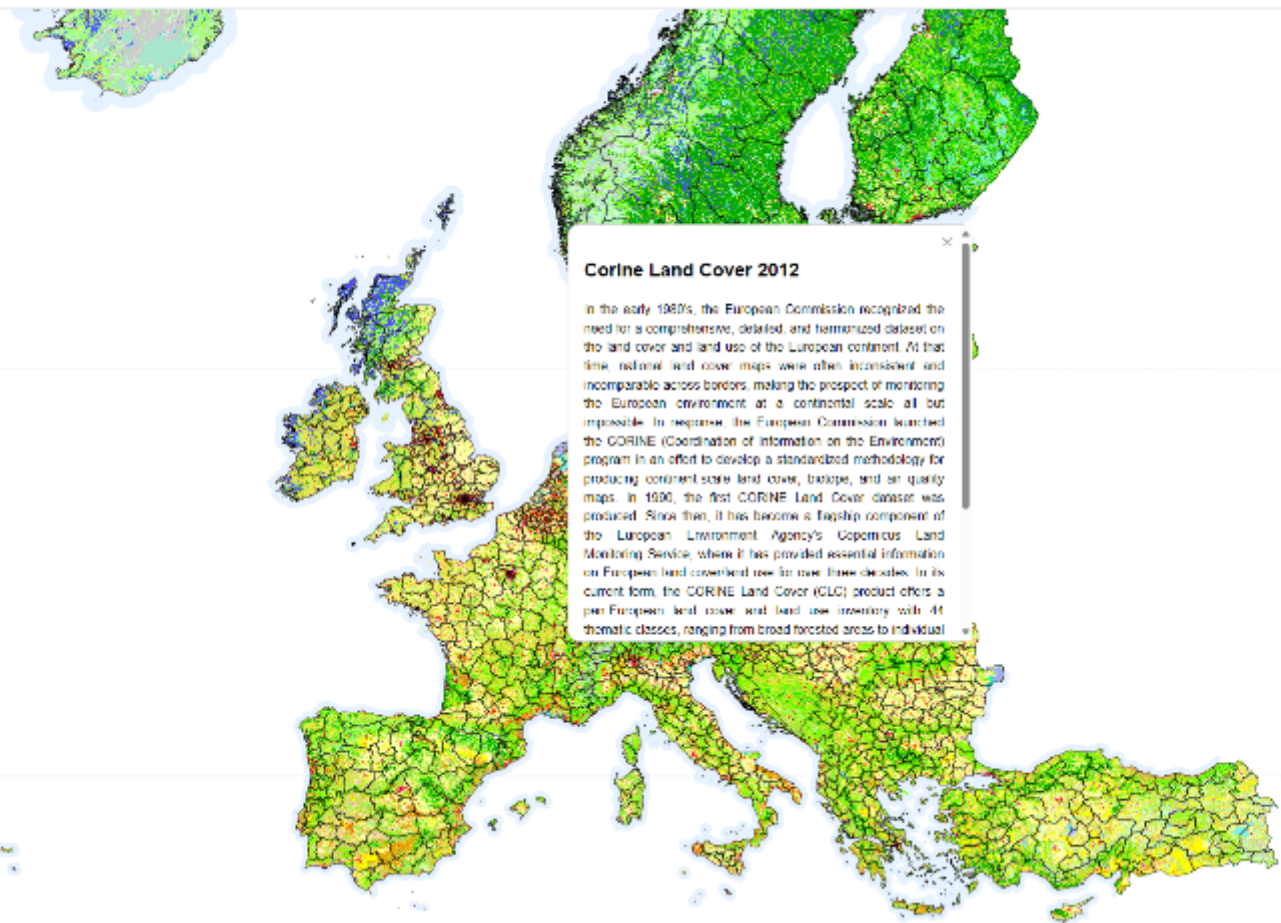
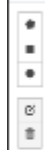


# WP2 data with Elevation-Legend with Information









### Corine Land Cover 2012

In the early 1980s, the European Commission recognized the need for a comprehensive, detailed, and harmonized dataset on the land cover and land use of the European continent. At that time, national land cover maps were often inconsistent and incomparable across borders, making the prospect of monitoring the European environment at a continental scale all but impossible. In response, the European Commission launched the CORINE (Coordination of Information on the Environment) program in an effort to develop a standardized methodology for producing continent-wide land cover, biotope, and air quality maps. In 1990, the first CORINE Land Cover dataset was produced. Since then, it has become a flagship component of the European Environment Agency's Copernicus Land Monitoring Service, where it has provided essential information on European land cover and use for over three decades. In its current form, the CORINE Land Cover (CLC) product offers a pan-European land cover and land use inventory with 44 thematic classes, ranging from broad forested areas to individual

and principally occupied by production with significant potential for agriculture	<input type="checkbox"/> Shrublands	<input type="checkbox"/> Pasture
agricultural land	<input type="checkbox"/> Traditional woodlands	<input type="checkbox"/> Bare
land covered by forest	<input type="checkbox"/> Pasture, dense forest	<input type="checkbox"/> Bare
artificial land	<input type="checkbox"/> Pasture	<input type="checkbox"/> Bare
land forest	<input type="checkbox"/> Pasture, dense forest	<input type="checkbox"/> Bare
land forest	<input type="checkbox"/> Pasture	<input type="checkbox"/> Bare
land forest	<input type="checkbox"/> Pasture, dense forest	<input type="checkbox"/> Bare
land forest	<input type="checkbox"/> Pasture	<input type="checkbox"/> Bare
land forest	<input type="checkbox"/> Pasture, dense forest	<input type="checkbox"/> Bare
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land forest	<input type="checkbox"/> Pasture, dense forest	<input type="checkbox"/> Bare
land forest	<input type="checkbox"/> Pasture	<input type="checkbox"/> Bare





# Analysis of LULC on NUTS Levels

Select Category

Data

Select NUTS Region

- Level 0
- Level 1
- Level 2

Rhône-Alpes  
Artificial areas: 7.1%  
Agricultural areas: 38.6%  
Forest areas: 46.2%  
Open spaces: 6.4%  
Wetlands: 1.7%

Rhône-Alpes  
Artificial areas: 7.1%  
Agricultural areas: 38.6%  
Forest areas: 46.2%  
Open spaces: 6.4%  
Wetlands: 1.7%

Results

### Analysis Charts

#### Land Use/Cover (%)

Category	Percentage
Forest	46.2%
Agricultural	38.6%
Open Spaces	6.4%
Artificial	7.1%
Wetlands	1.7%

Export to PDF

# Analysis of LULC on NUTS Levels-PDF Export

## Land Use Analysis Report

Region: Bayern  
Country: DE  
Date: 11/21/2024

### Land Use Analysis Report

#### Main Land Use categories

Artificial Areas: 7.1%

Agricultural Areas: 38.8%

Forested Areas: 46.2%

Open Spaces: 6.4%

Wetlands: 1.7%

Code	Class Name	Percentage
1	Continuous urban fabric	0.1%
2	Discontinuous urban fabric	6.2%
3	Industrial or commercial units	1.1%
4	Road and rail networks and associated land	0.2%
5	Airports	0.1%
7	Mineral extraction sites	0.1%
10	Green urban areas	0.1%
11	Sport and leisure facilities	0.2%
12	Non-irrigated arable land	9.4%
15	Vineyards	1.0%
16	Fruit trees and berry plantations	0.7%
17	Olive groves	0.1%
18	Pastures	13.0%
20	Complex cultivation patterns	10.3%
21	Land principally occupied by agriculture with significant areas of natural vegetation	3.2%
23	Broad-leaved forest	15.0%
24	Coniferous forest	12.1%
25	Mixed forest	8.3%
26	Natural grasslands	6.3%
27	Moors and heathland	1.0%
28	Sclerophyllous vegetation	0.0%
29	Transitional woodland-shrub	1.2%
31	Bare rocks	3.0%
32	Sparsely vegetated areas	2.4%



# Corine Land Cover 2000 of Coimbra region

Towards Sustainable Land-use Strategies in the Context of Climate Change and Biodiversity Challenges in Europe



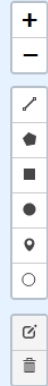
Europe  
—  
LAND

Select NUTS region

- Level 0
- Level 1
- Level 2
- Level 3

Select LULC  
Year

- 1990
- 2000
- 2006
- 2012
- 2018



Functions

Select Category ▾

[Corine Legend](#)



# Corine Land Cover 2018 + Flood Prone areas

Towards Sustainable Land-use Strategies in the Context of Climate Change and Biodiversity Challenges in Europe



JOIN US

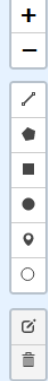
Europe  
LAND

Select NUTS region

- Level 0
- Level 1
- Level 2
- Level 3

Select LULC  
Year

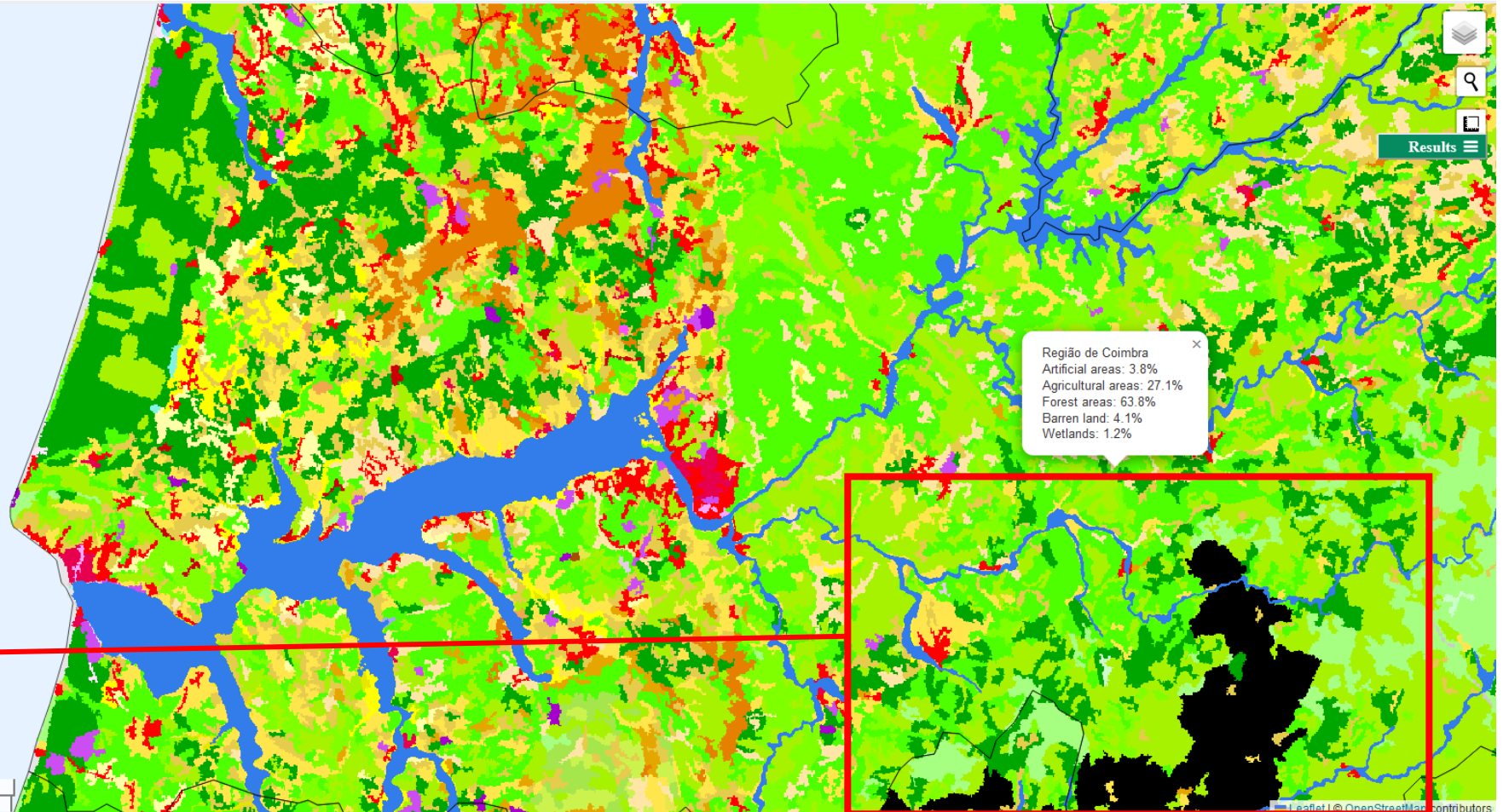
- 1990
- 2000
- 2006
- 2012
- 2018



Functions

Select Category ▾

[Corine Legend](#)



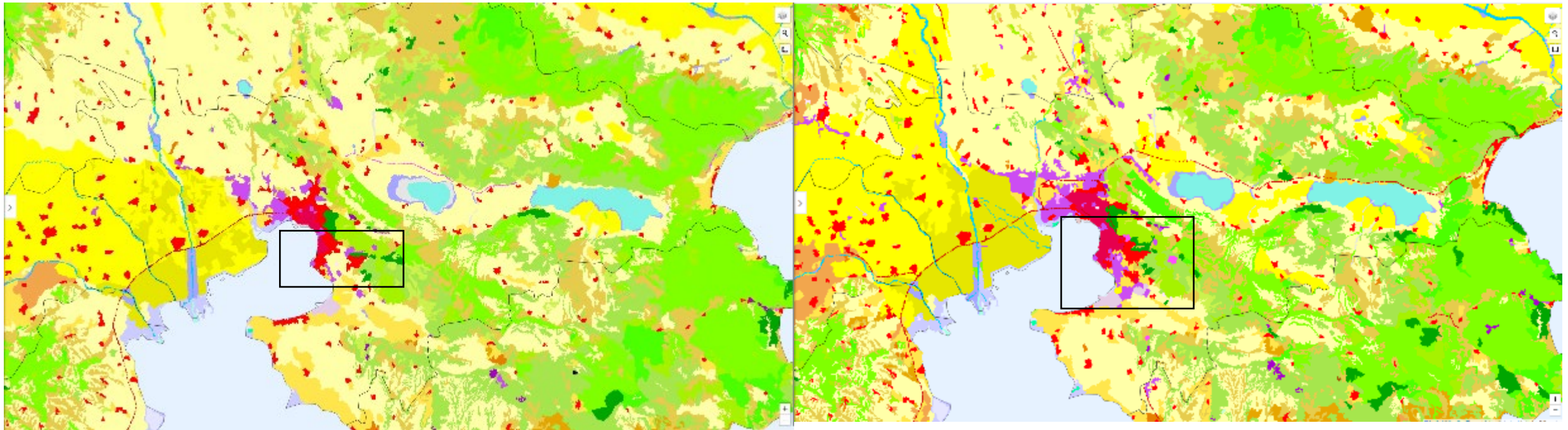
Burnt areas





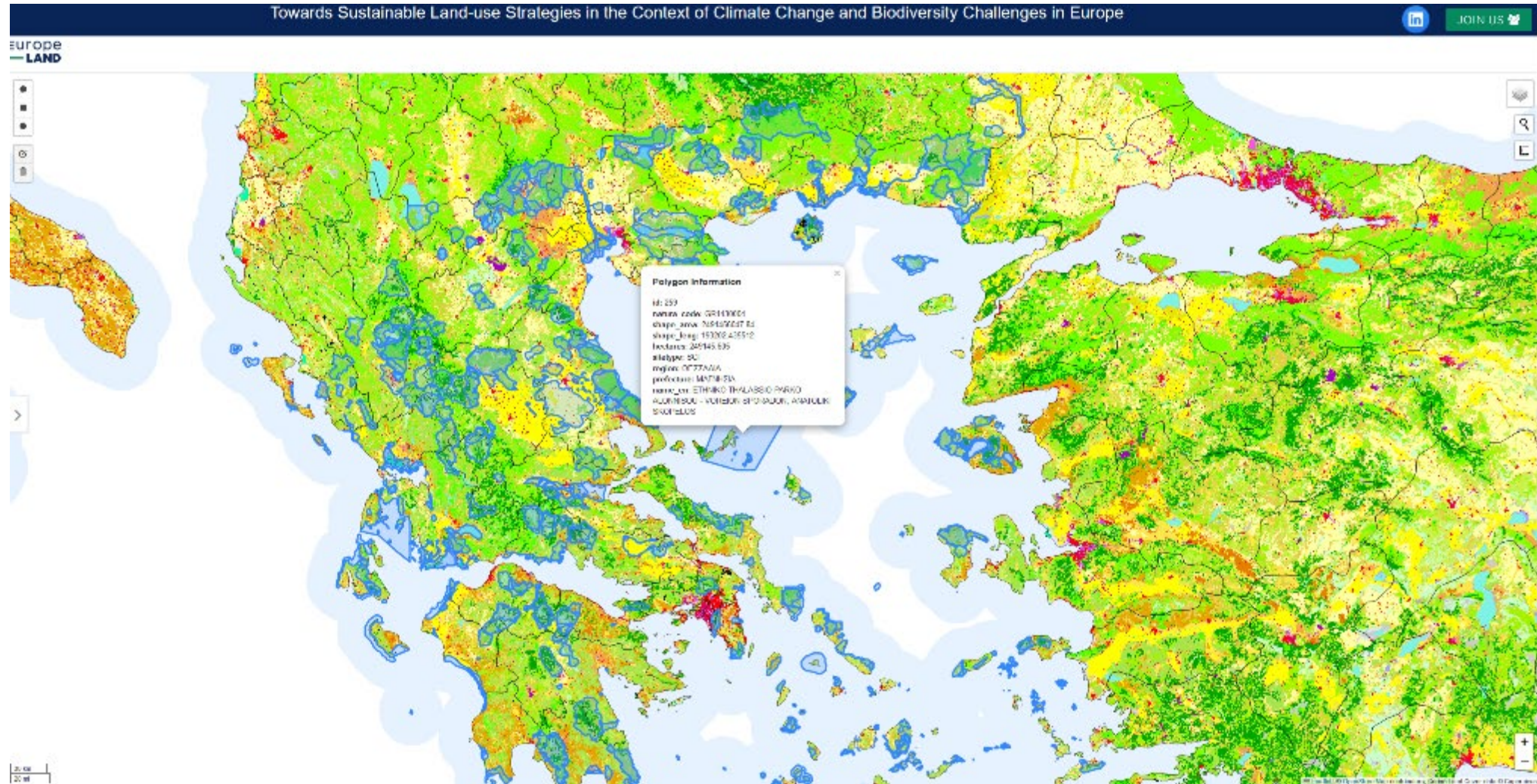
# Example of usage

## Expansion of city of Thessaloniki





# Upload KML File – NATURA 2000 of Greece







# Case Studies Visualization

## Portugal Case Study

Select Category ^

Results v

Historical

RealTime

Projections

Case Studies v

Upload KML

LULC Year

Portugal v

Romania

Austria

Slovakia

Poland

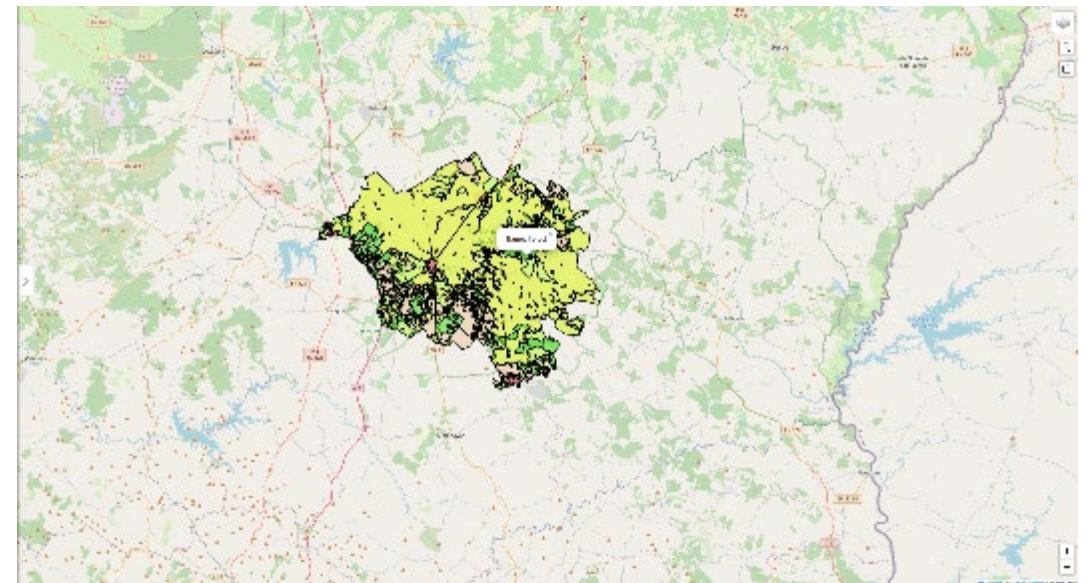
Czech Republic

Germany

Estonia

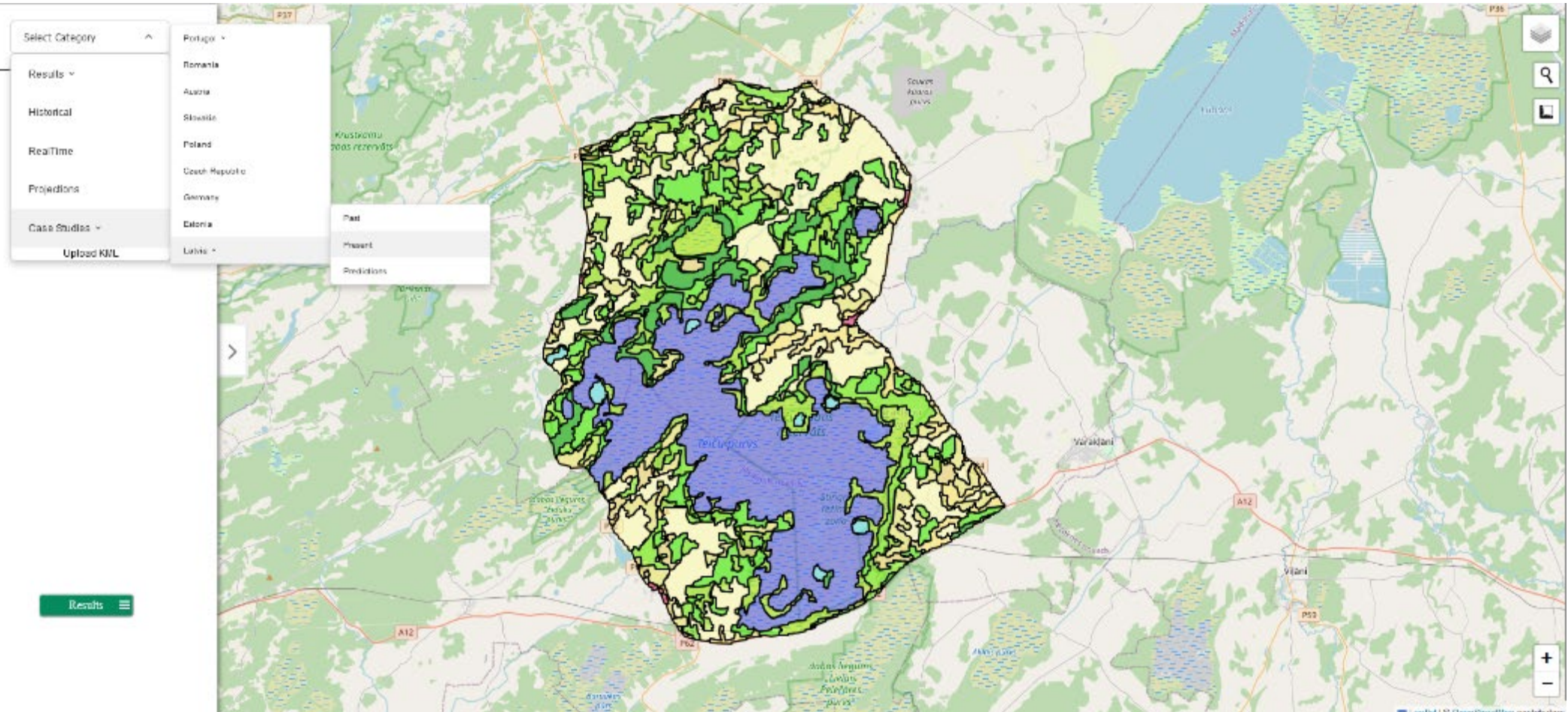
Latvia v

Present

A map of Europe with Portugal highlighted in yellow. The map shows major cities and geographical features across the continent.



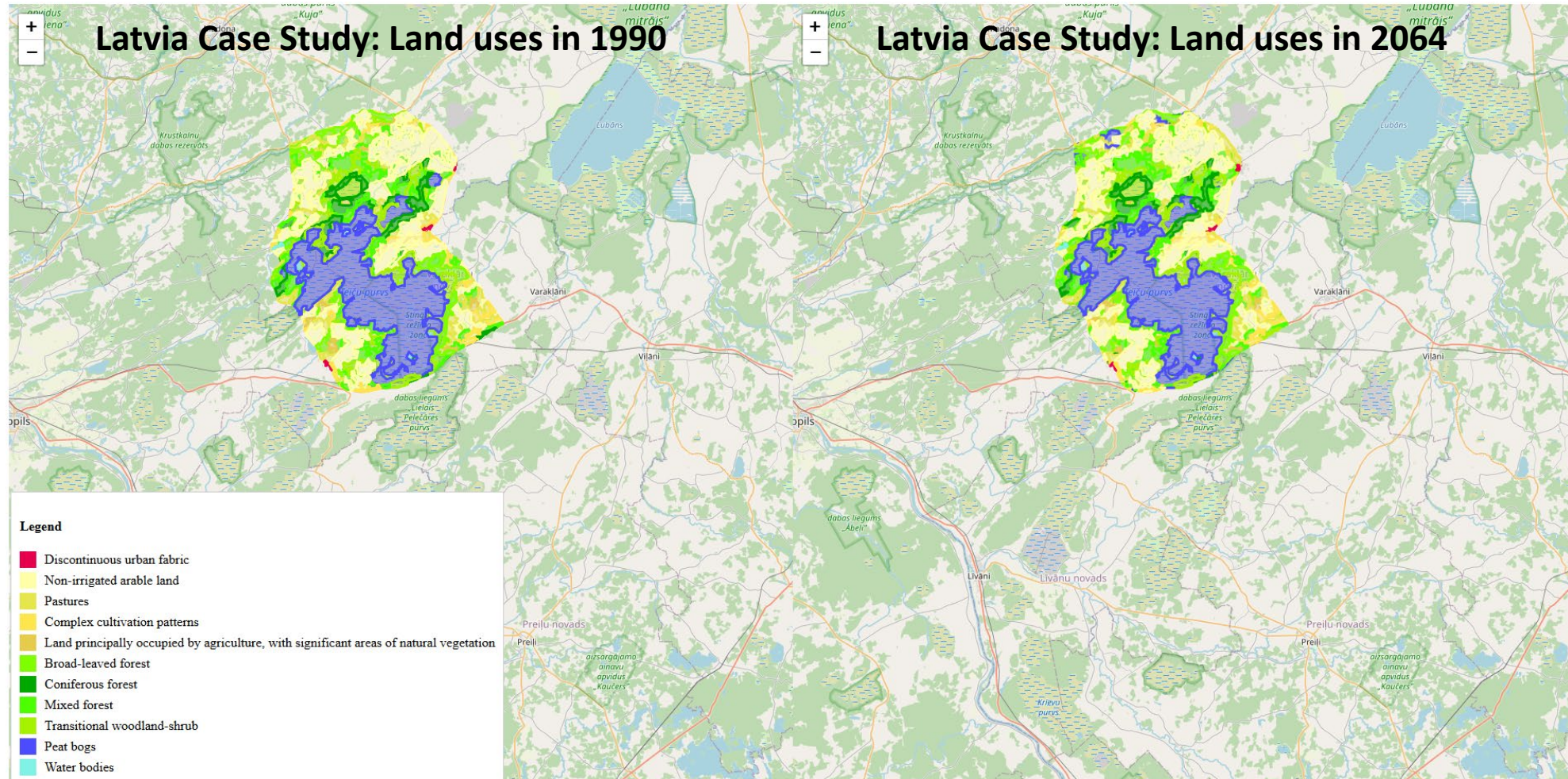
# Latvia's Area of Interest





# New feature 1: "Compare" tool

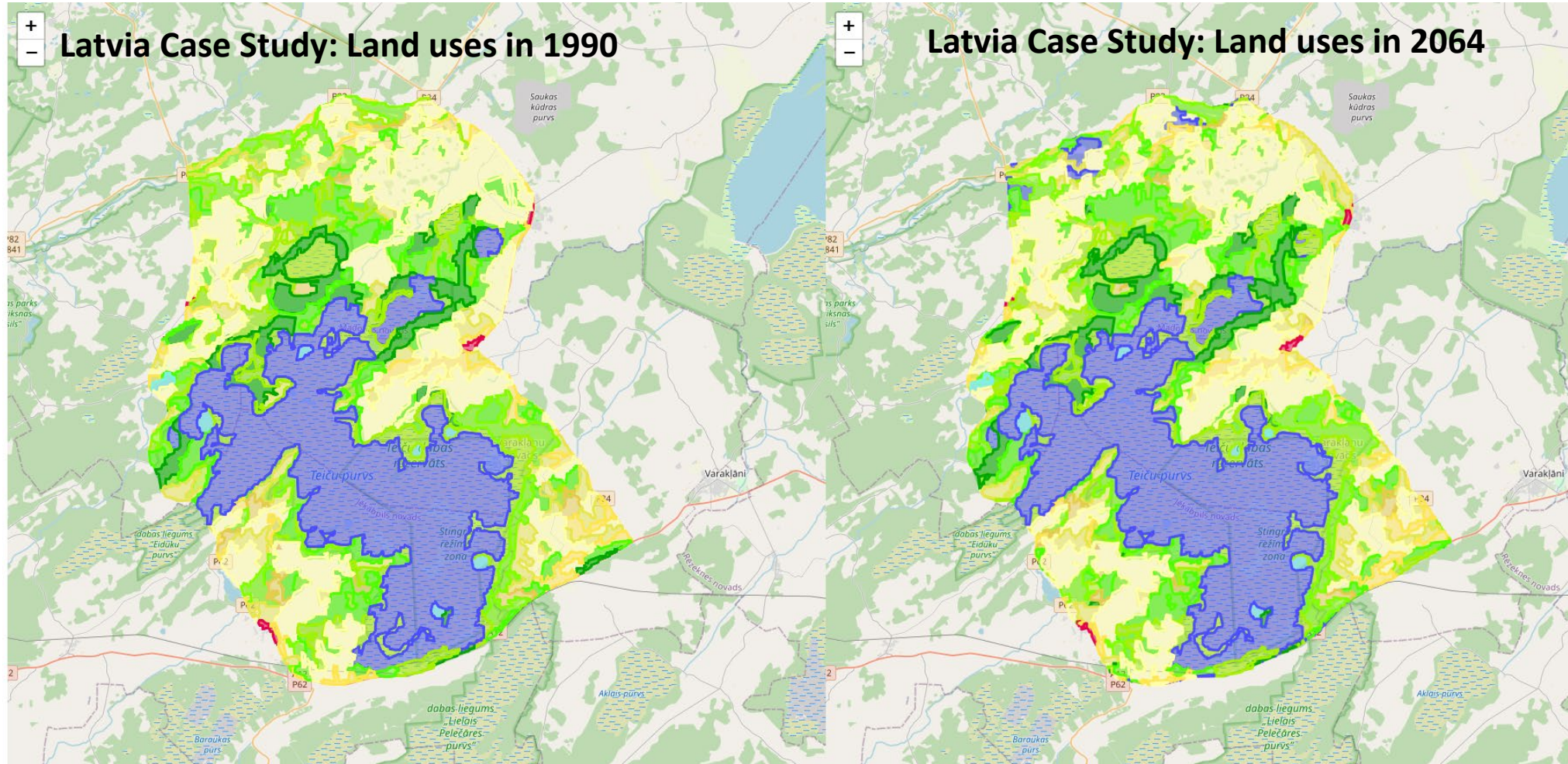
## Example: test case study Latvia





# New feature 1: "Compare" tool

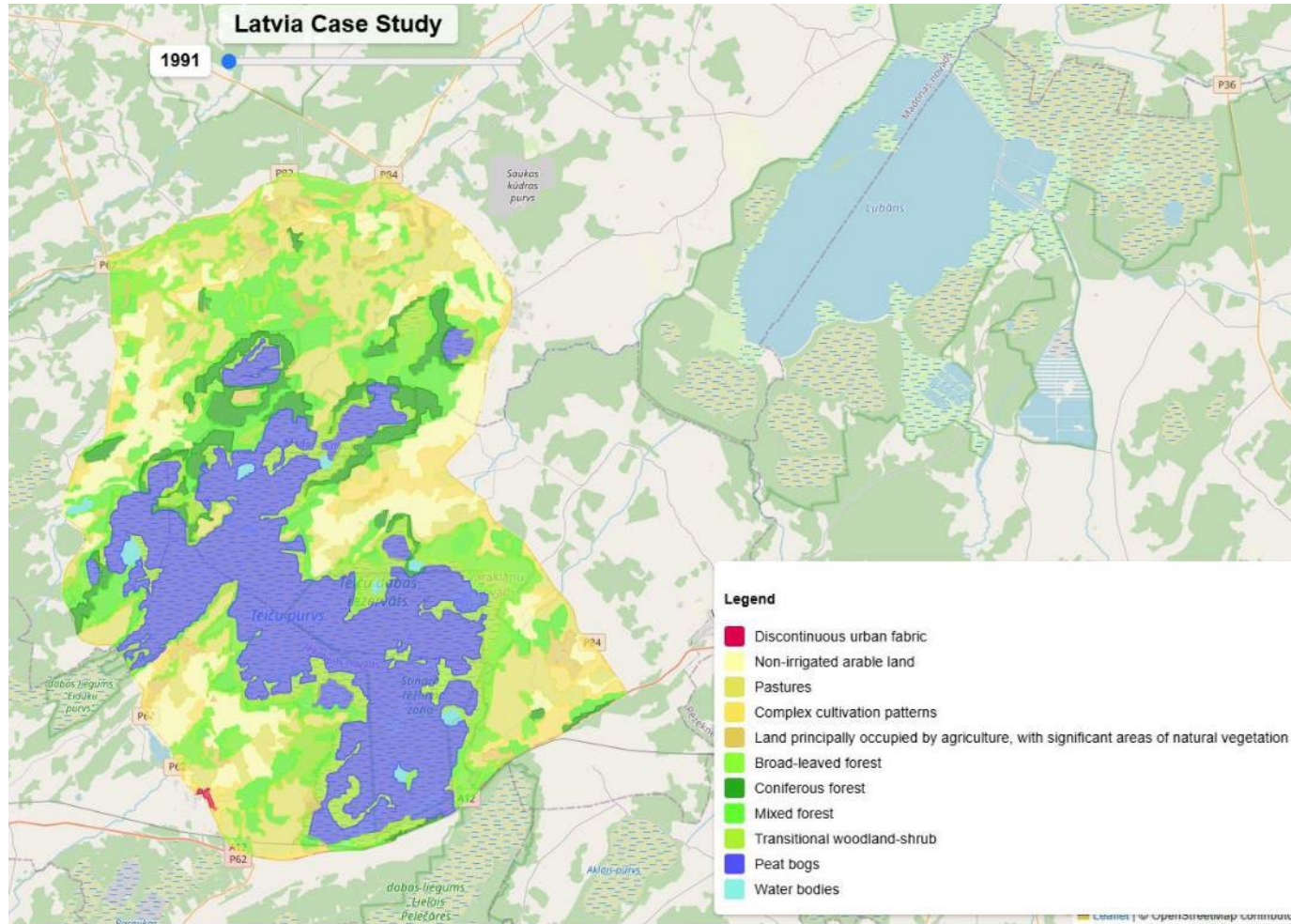
## Example: test case study Latvia





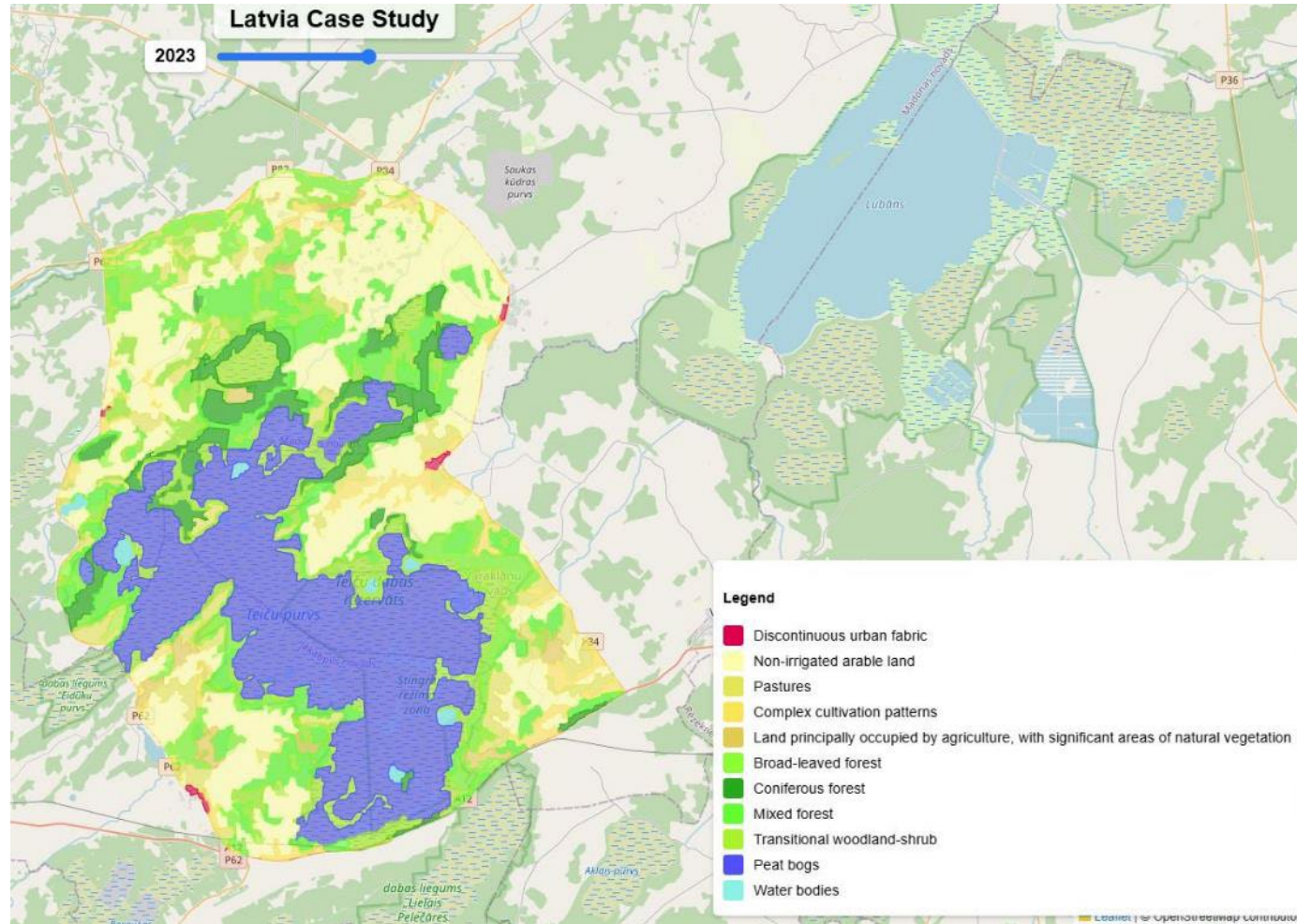
# New feature 2: temporal progression “Slider” tool

## Example: Land uses of Latvia’s Case Study in 1991



# New feature 2: temporal progression “Slider” tool

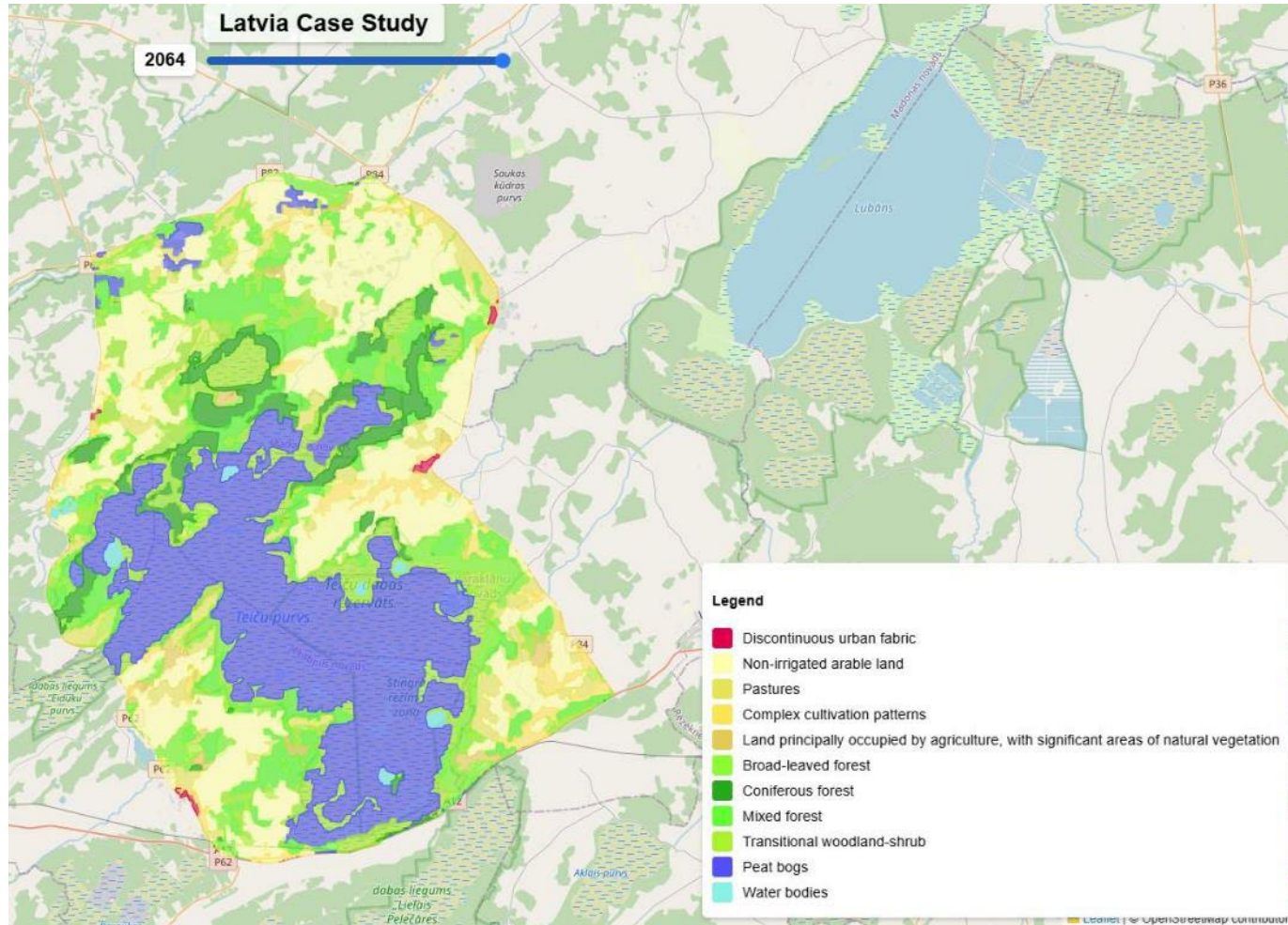
## Example: Land uses of Latvia’s Case Study in 2023





# New feature 2: temporal progression “Slider” tool

## Example: Land uses of Latvia’s Case Study in 2064



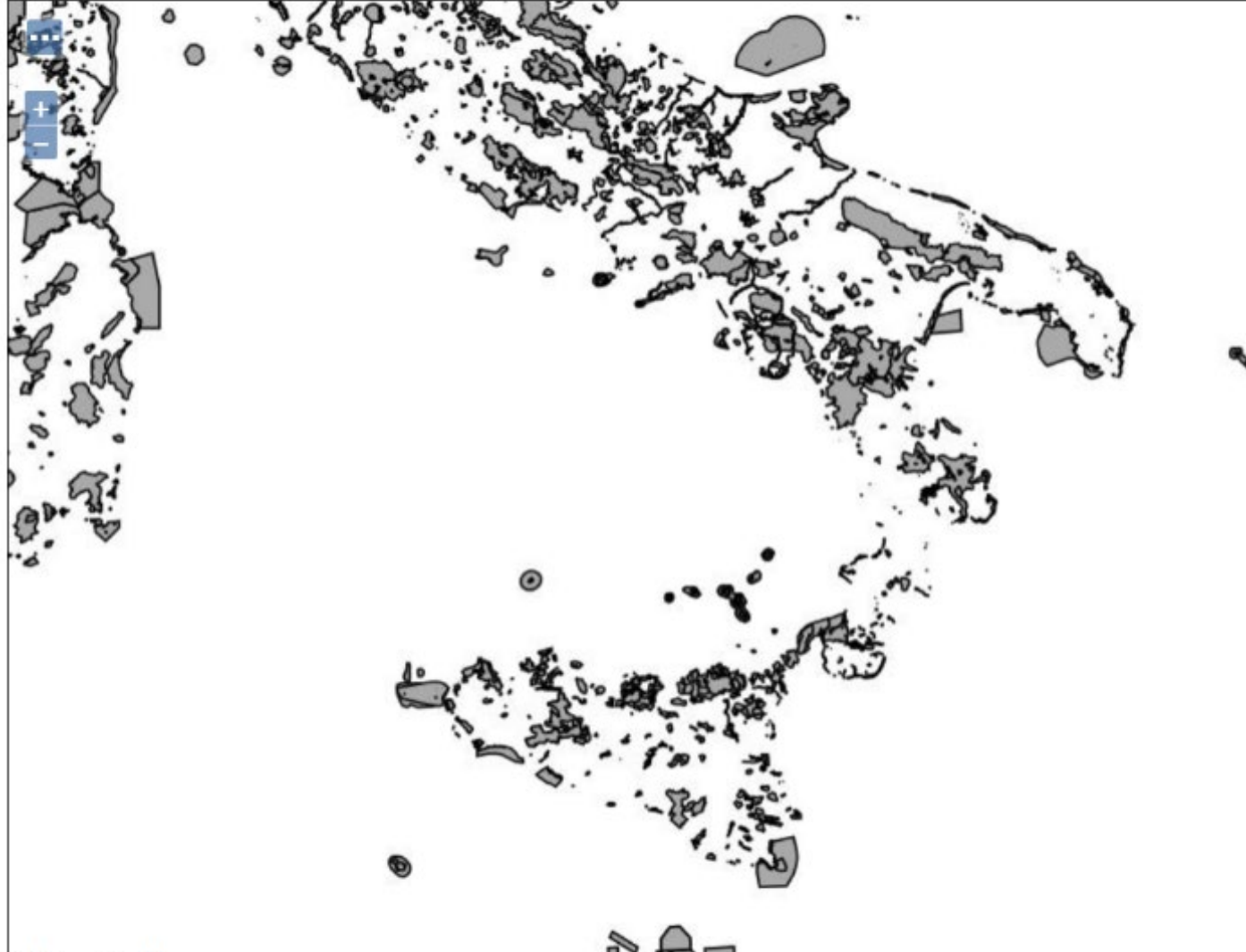


## New feature 3: Tile server functionality (vector)



Scale = 1 : 17M

## New feature 3: Tile server functionality (vector)

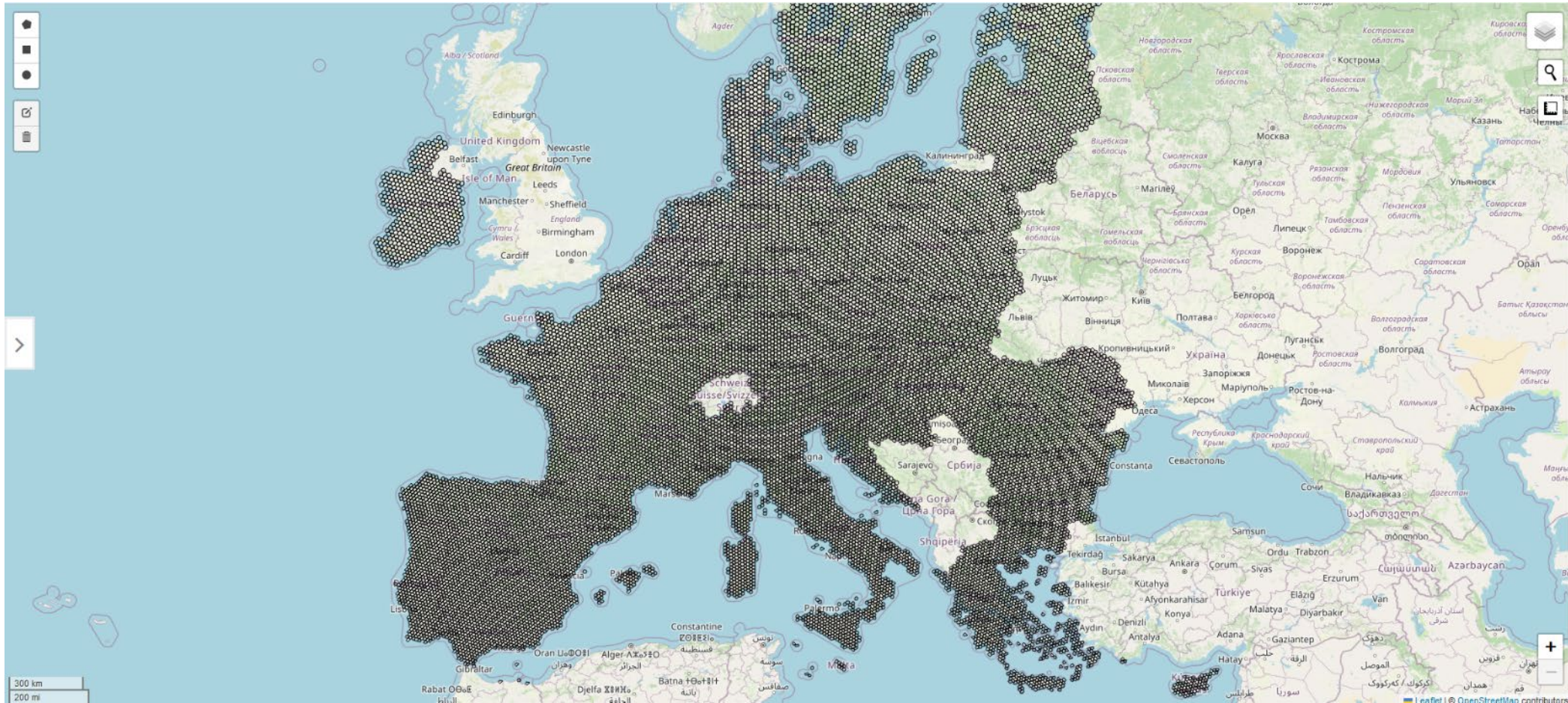


Scale = 1 : 4M



# Results of WPs

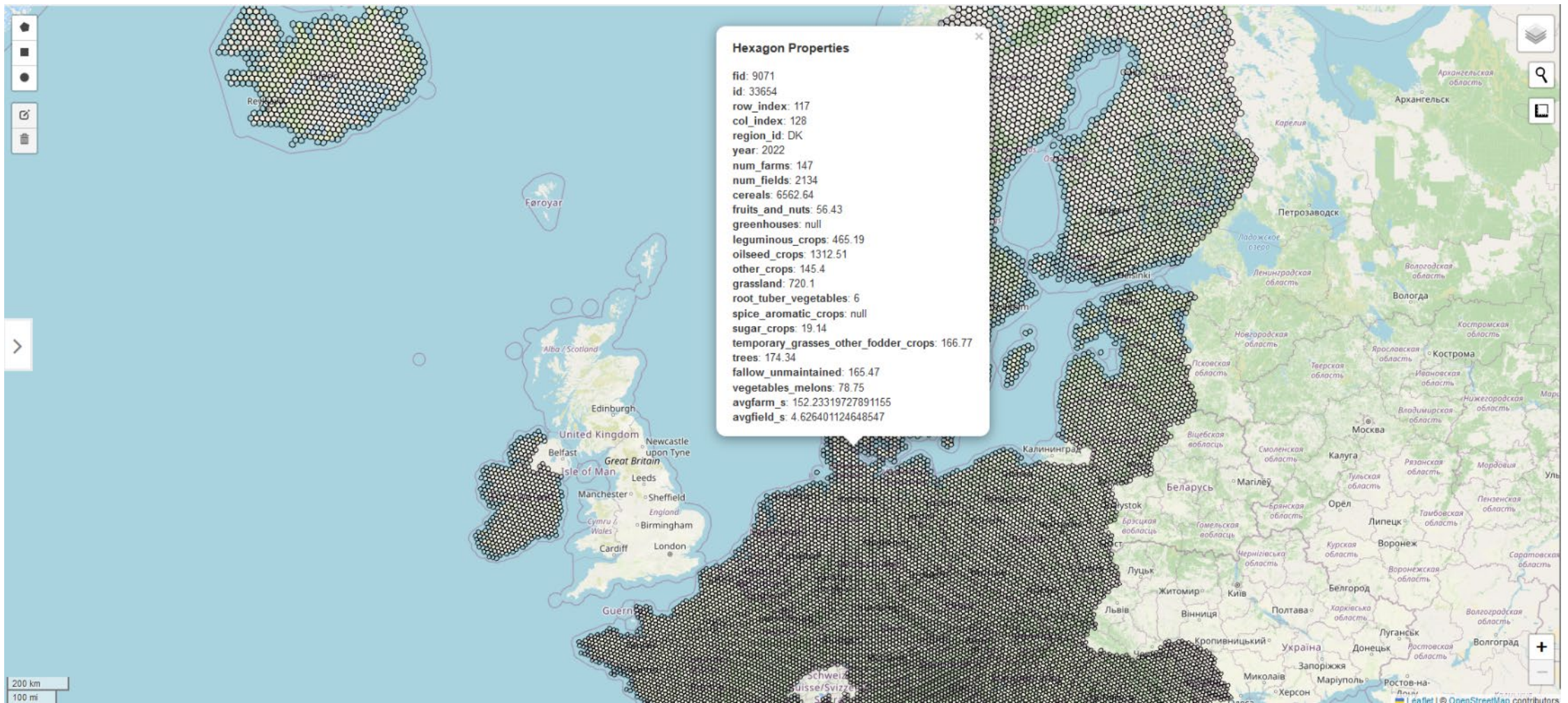
## WP2 Preliminary Dataset-Result





# Results of WPs

## WP2 Preliminary Dataset-Result







# Visualisation of IACS data including anonymous land users ID

## Example: an island in Denmark



Europe-LAND

**WP2 ‘Revealing agricultural land-use  
behaviour and its drivers in Europe’  
– updates and perspectives**

November 2024

Piotr Banaszuk , Andrzej Kamocki, Clemens  
Jänicke, Kristoffer Ansbak Petersen, Phillip  
Schmidts, Martin Rudbeck Jepsen, Daniel Müller,  
Zhanli Sun





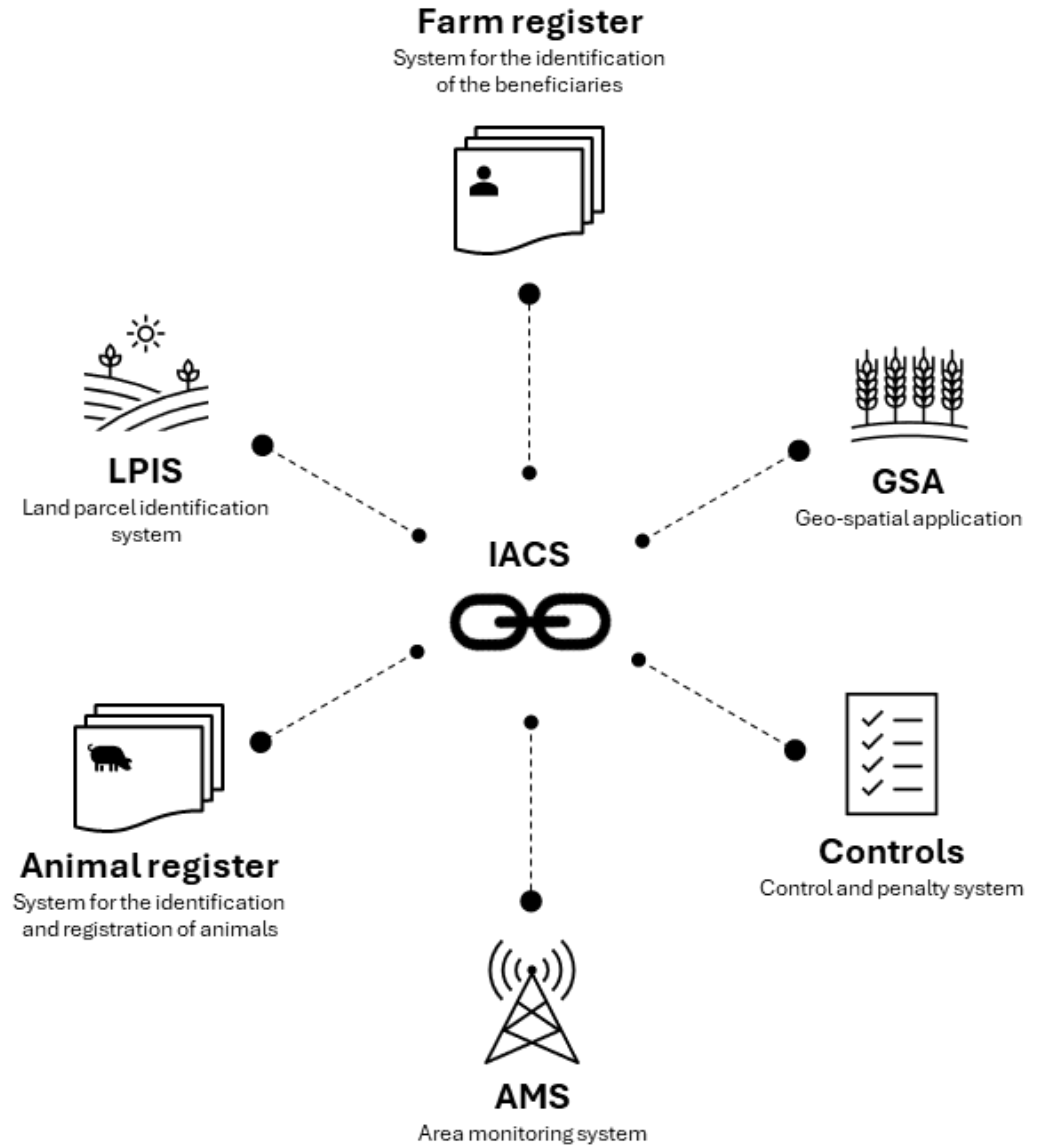


# What is IACS?

Integrated Administration and Control System

Maps of individual fields (spatial geometry)

Agricultural fields and parcels, crop types or other management information





# What is IACS?

Example of IACS data

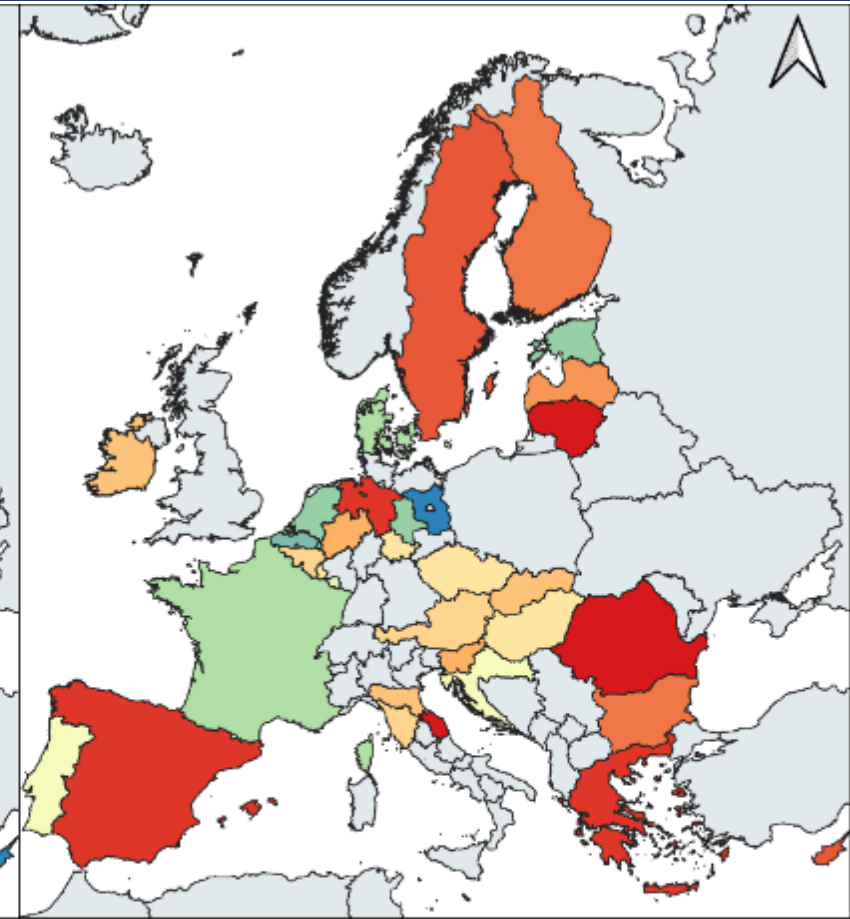
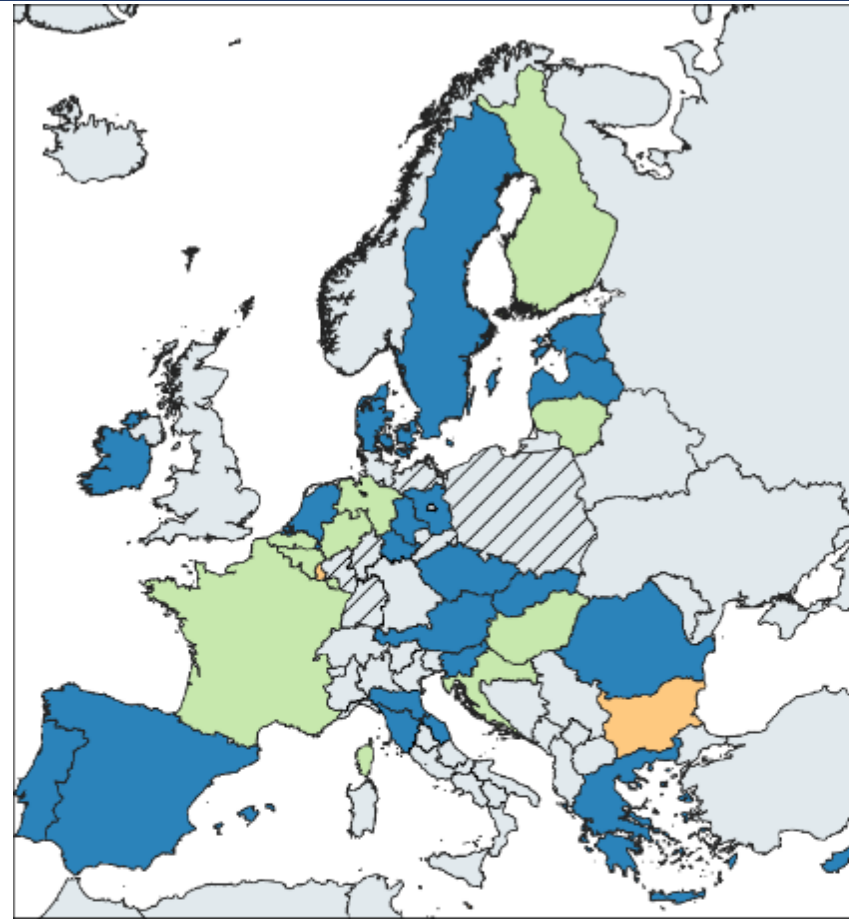


Colors indicate different farms



# Data

- EU-wide collection via project partners, official websites, and inquiries at ministries
- Good spatial coverage, but still gaps
- Temporal coverage varies strongly
- For ~50% of countries we miss land user ID



Spatial coverage

No data

Awaiting data

Field boundaries

Field boundaries + Crop Codes

Field boundaries + Crop Codes + Applicant ID

0 250 500 750 km

Temporal coverage

0

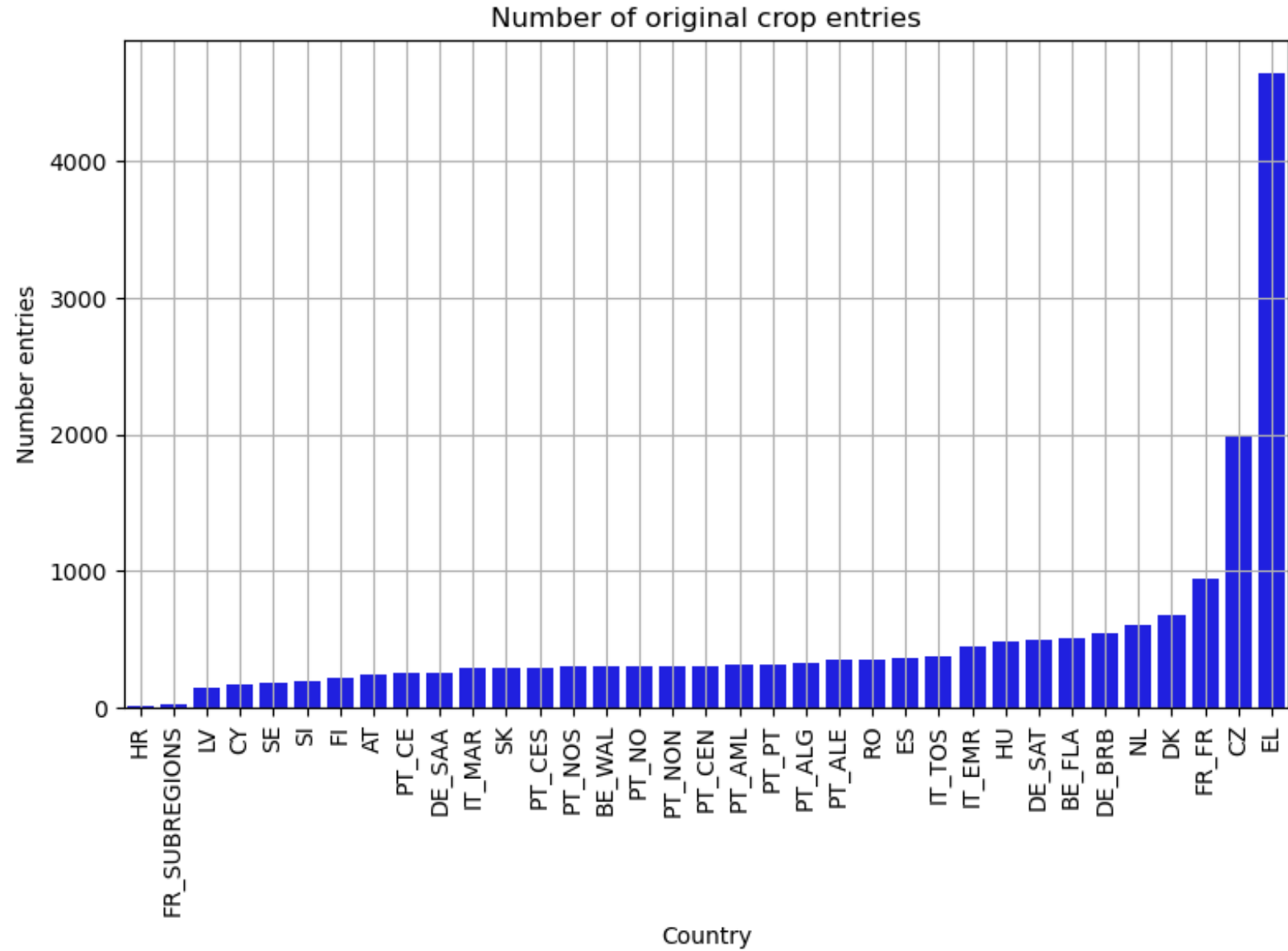
20





# Data

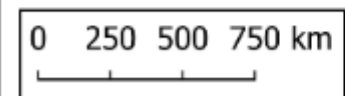
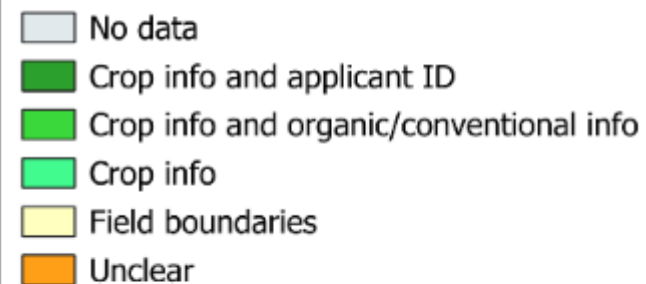
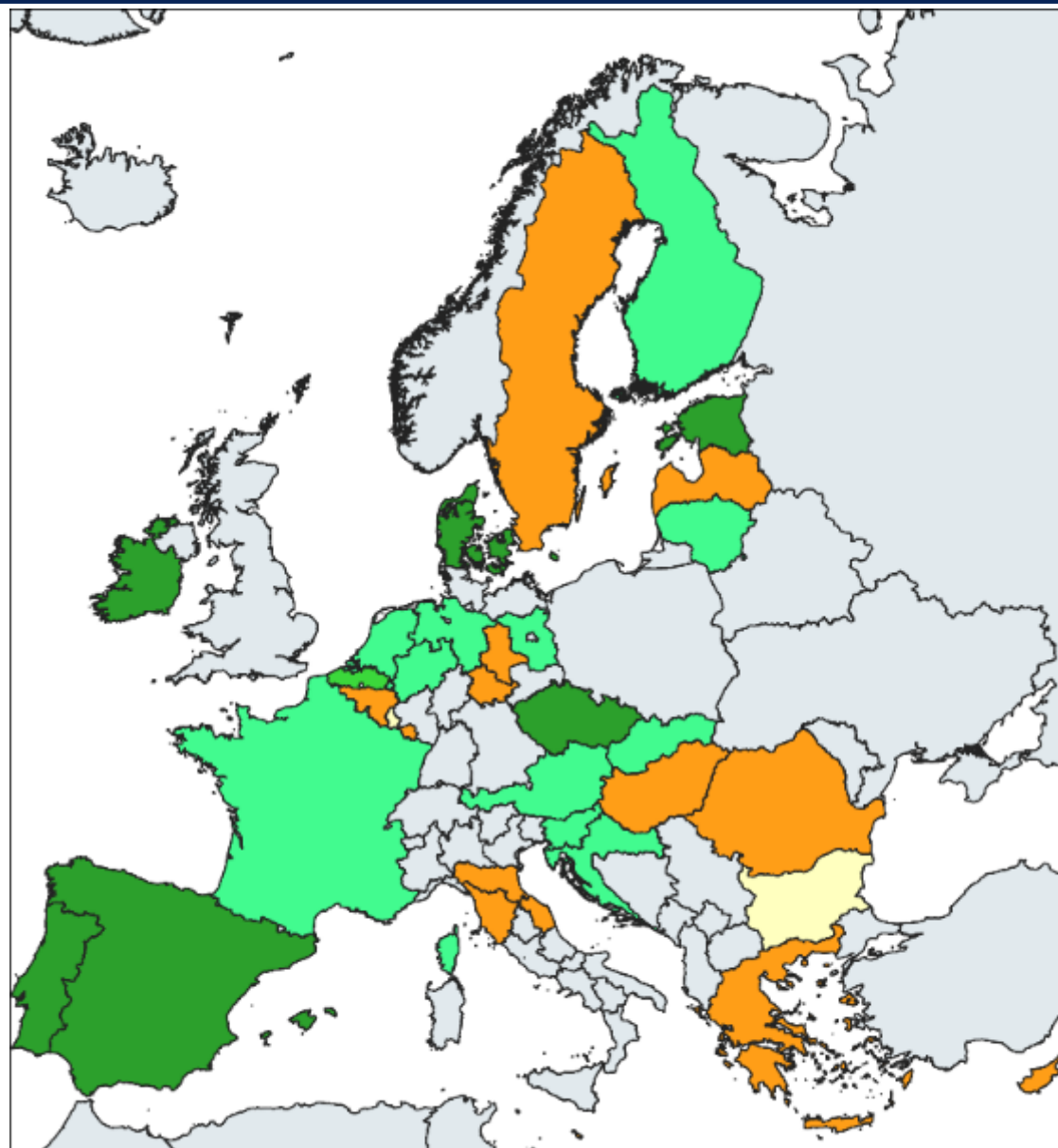
- Thematic depth varies





# Data

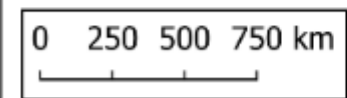
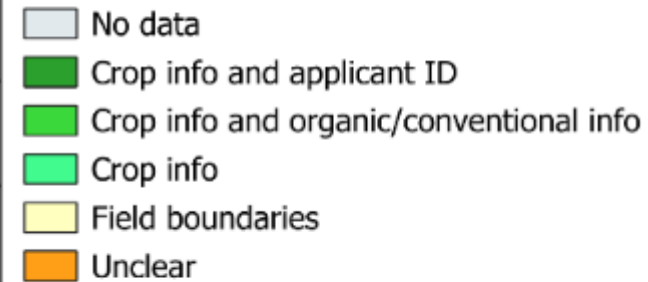
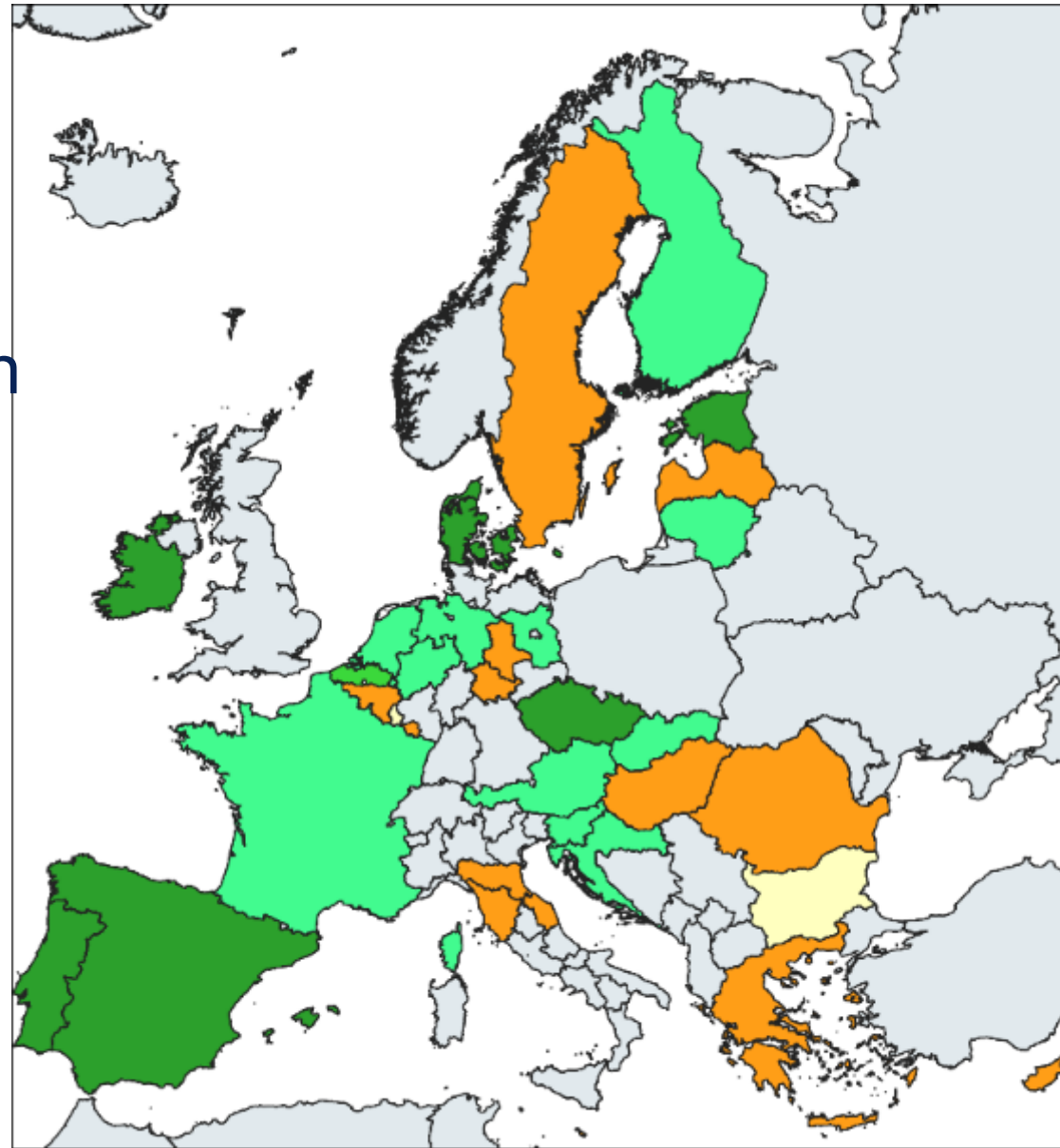
- As do data sharing possibilities





# Data

- Some data shared in aggregated form
- For other countries, the true resolution data can be shared





Thanks for  
listening!

Questions?

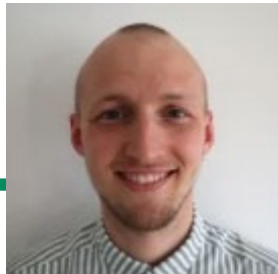
Anton Stahl  
Olafsson



Martin Rudbeck  
Jepsen



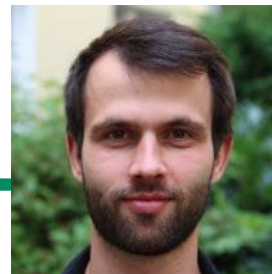
Kristoffer Ansbak  
Petersen



Daniel Müller



Clemens Jänicke



Phillip Schmidts



29 January 2025, Zoom

**Speaker:**

**Prof. Nicolaos Theodossiou  
Aristotle University of Thessaloniki (AUTH)**

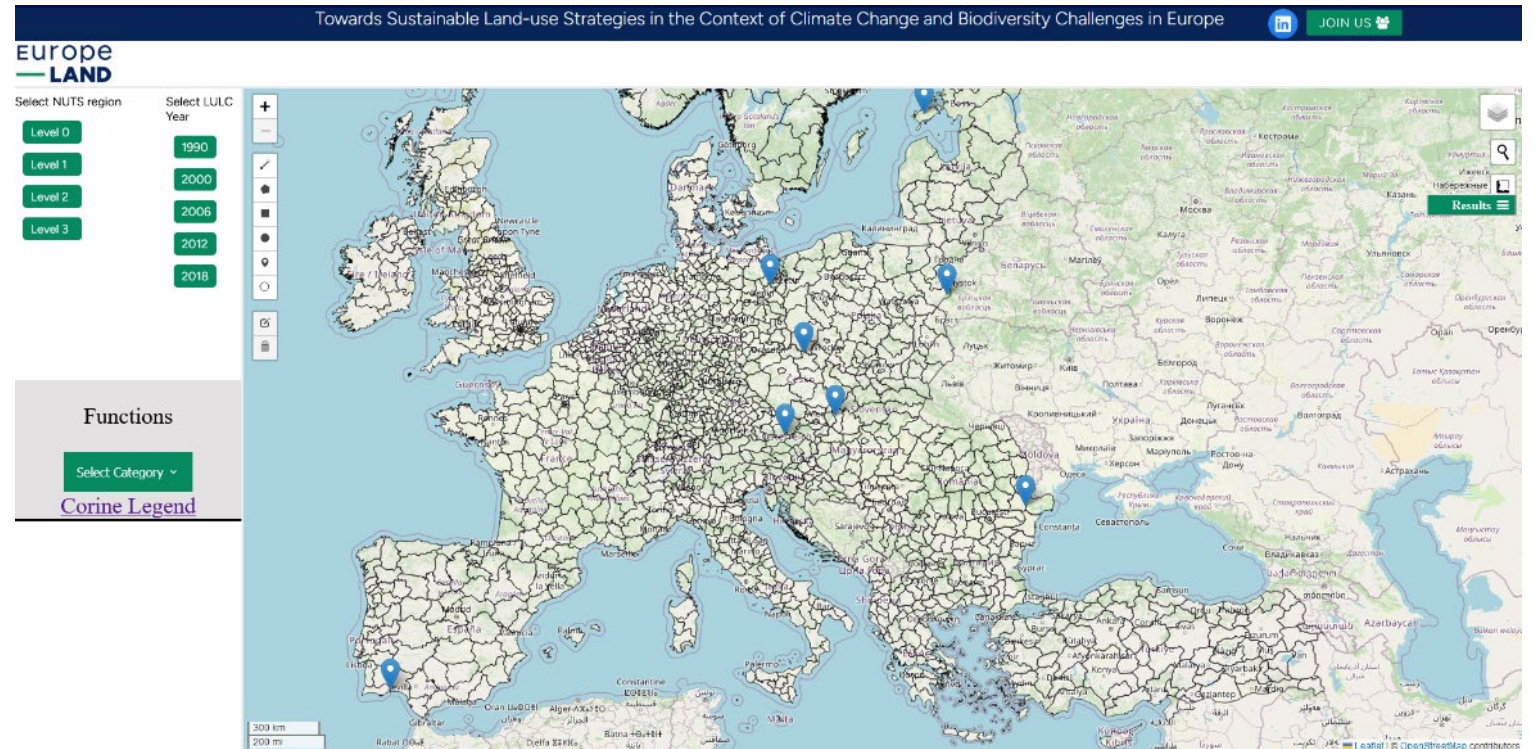


**Towards an interactive digital Toolbox on  
sustainable land-use**

***Future plans***



1. Data Integration
2. Feature Enhancements
3. Tool Improvements
4. Technical Enhancements







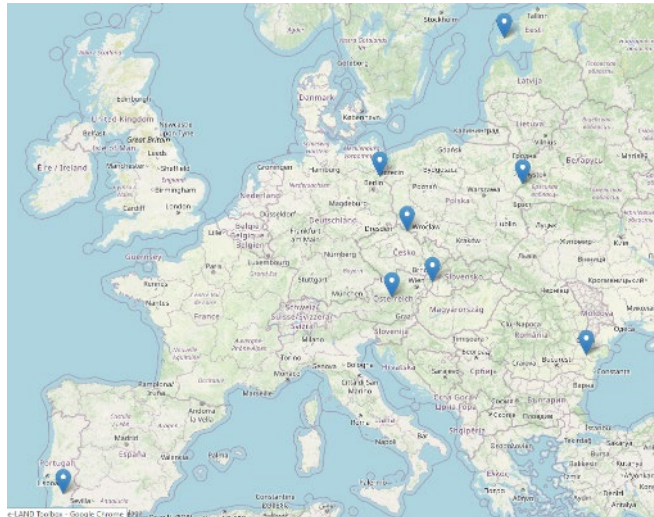
# Europe-LAND Toolbox – future plans

## 1. Data Integration

- Import data from other case studies (platform is already data-ready)
- Integrate data from external databases

## Databases

## 8 Case Studies



### Land Use and Land Cover

- CORINE Land Cover (CLC)
- Copernicus Land Monitoring Service (CLMS)
- European Land Use and Ecosystem Accounts (LUCAS)

### Disasters and Hazards

- Copernicus Emergency Management Service (EMS)
- European Flood Awareness System (EFAS)
- European Forest Fire Information System (EFFIS)
- European Climate Adaptation Platform (Climate-ADAPT)
- European Drought Observatory (EDO)
- Copernicus Atmosphere Monitoring Service (CAMS)

### Cultural and Archaeological Data

- European Heritage Hub (EHH)
- Arches Project (cultural heritage inventory)

### Biodiversity and Ecosystems

- European Biodiversity Data Centre (EBDC)
- Natura 2000

### Soil and Water

- European Soil Data Centre (ESDAC)
- WISE (Water Information System for Europe)

### Remote Sensing and Satellite Data

- Sentinel Satellites (Copernicus)
- European Space Agency Climate Change Initiative (ESA CCI)



# Europe-LAND Toolbox – future plans

## 2. Feature Enhancements

- Improve appearance & functionality of the web-GIS platform
- Enable user-drawn shape analysis, including calculations of area and LU/LC percentages
- Add support for exporting vector graphics and improve PDF exports for results and information.



# Europe-LAND Toolbox – future plans

## 3. Tool Improvements

- Refine and generalise the "compare tool" to enhance before-and-after analysis
- Upgrade the temporal progression "slider" tool for dynamic layer animation





# Europe-LAND Toolbox – future plans

## 4. Technical Enhancements

- Develop further **tile server** functionality for better map rendering
- Implement support for a large number of **simultaneous users**
- Introduce a robust **layer manager** to prioritise and organise layer order effectively

29 January 2025, Zoom

**Speaker:**

**Dr. Yiannis Kontos**

**Aristotle University of Thessaloniki (AUTH)**



# **Towards an interactive digital Toolbox on sustainable land-use**

***Online testing***





# Europe-LAND Toolbox – future plans

## Main site of Europe-LAND toolbox

<https://europe-land.civil.auth.gr/wp-content/static/#>

<<<this link should be provided now in the chat for all participants to be able to click and open the toolbox in their browsers>>>







# Europe-LAND Toolbox – future plans

## Main site of Europe-LAND toolbox

<https://europe-land.civil.auth.gr/wp-content/static/#>

### Task 1:

Zoom to Thessaloniki, Greece area

Load Copernicus → Land User Cover → 2000 and 2018

Load Flood Prone areas

Check for correlations for various stakeholders





# Europe-LAND Toolbox – future plans

**Main site of Europe-LAND toolbox**

<https://europe-land.civil.auth.gr/wp-content/static/#>

Task 2:

Zoom to Coimbra, Portugal area

Load Copernicus → Land User Cover → 2000 and 2018

Load Flood Prone areas

Check for correlations for various stakeholders





# Europe-LAND Toolbox – future plans

**“Compare” tool of Europe-LAND toolbox**

<https://europe-land.civil.auth.gr/wp-content/static/compare.html>

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# Europe-LAND Toolbox – future plans

**“Slider” tool of Europe-LAND toolbox**

[https://europe-land.civil.auth.gr/wp-content/static/index\\_time\\_line.html](https://europe-land.civil.auth.gr/wp-content/static/index_time_line.html)

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**Thank you for your participation  
to today's public webinar!**



**“Towards an interactive digital Toolbox on  
sustainable land-use”**

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