Europe LAND

Newsletter 04_2026

connect partners

share information

gain insights

Welcome to the fourth edition of the Europe-LAND newsletter!

As Europe-LAND enters its final project year, collaboration and innovation continue to drive our work forward. In this edition, we highlight our 4th General Assembly, upcoming events, and advances in multifaceted research. We hope these updates offer valuable insights into our shared journey toward more resilient European landscapes.

The Europe-LAND project (2023–2027), funded by the Horizon Europe program, aims to support the development of sustainable land-use strategies across Europe in the context of climate change and biodiversity loss. To learn more, visit europe-land.eu.

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Partners Gather in Vienna for 4th General Assembly

By Megan Curling (Hamburg University of Applied Sciences, Germany)

Europe-LAND partners were hosted by partner BOKU University in Vienna from 10–12 June 2026 for the project's fourth General Assembly and the subsequent IACS Data Community of Practice (CoP) meeting on 13 June. The meetings brought together project partners and members of the wider IACS community to review progress, discuss remaining activities, and strengthen collaboration across disciplines and institutions. Alongside work package discussions and technical sessions, the event provided valuable opportunities for knowledge exchange and networking.

Day 1: Reviewing progress and preparing for the final phase

The first day of the General Assembly focused on reviewing Europe-LAND's progress to date and outlining priorities for the project's final year. Work package leaders presented updates on ongoing activities and upcoming deliverables, while discussions addressed timelines towards final reporting and the communication of key exploitable results. A dedicated session on the eight Europe-LAND case studies highlighted progress made across the consortium and explored common analytical approaches, future activities, and emerging opportunities. Participants also discussed draft land-use and land-use change scenarios looking towards the year 2050.

Photo 1: Members of the Europe-LAND consortium pose for a photo at BOKU University in Vienna on 11 June.

Day 2: Strengthening integration and collaboration

The second day included an internal expert user-testing session of the Europe-LAND Toolbox. During the day, particular attention was given to strengthening links between the different work packages and ensuring that project outputs are effectively integrated during the final phase of the project. Partners discussed synergies between datasets, scenarios and modelling approaches, and explored how these components can be brought together within the Toolbox, and team AUTh introduced the AI-powered Replication Facility in support of exploitation. Another interactive session focused on the co-development and testing of the project's serious gaming activities. The General Assembly concluded with a discussion of upcoming opportunities, i.e. future Horizon calls the consortium seeks to pursue, and the roadmap for the months ahead, reinforcing the consortium's shared commitment to focus on timely delivery in the final year of Europe-LAND!

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Mapping Europe's farming diversity: building farm typologies from harmonised agricultural data

By Kristoffer Ansbak Petersen & Martin Rudbeck Jepsen (University of Copenhagen, Denmark)

European farming systems vary widely across regions and countries, reflecting differences in what farmers grow, how land is used, and the structural characteristics of farms (Figure 1). Understanding these differences is important for characterising agricultural landscapes and farming systems across Europe. However, comparing European farming systems has long been difficult because agricultural data are collected differently between countries.
This work explores how harmonised agricultural datasets can reveal the diversity of farming systems across Europe by developing EU-wide farm typologies—groups of farms that share land-use and production characteristics.

The study builds on data from the European Union's Integrated Administration and Control System (IACS), specifically GeoSpatial Application (GSA) datasets linking agricultural parcels with crop declarations and farm identifiers. Unlike traditional agricultural statistics, these data provide detailed information at field and farm level, making it possible to understand what crops are grown, where fields are located, and how individual fields belong to the same farm.

Using harmonised datasets covering more than 3.6 million farms across 18 EU Member States, representing almost 90 million hectares of farmland, we grouped individual crop types into broader crop categories and constructed crop composition profiles for each farm. Advanced clustering methods were then used to identify recurring farming patterns across Europe.

The analysis identified 16 distinct farm typologies, each representing a characteristic farm profile based on crop composition (Figure 1). Some typologies reflect highly specialised production types dominated by a single crop or land use, while others represent more diversified farming structures combining multiple crops and management patterns. Together, these profiles provide a simplified way to understand European farming systems. The identified typologies include extensive production systems (Clusters 1 and 11), mixed grassland-cereal and fodder-oriented systems (Clusters 2, 3, 5, and 8), cereal- and maize-dominated systems (Clusters 4, 6, and 7), specialised crop systems (Clusters 10, 13, 14, and 15), and diversified mixed farming systems (Clusters 9, 12, and 16).

Beyond describing farming diversity, this work demonstrates the potential of harmonised European agricultural data. While differences in national reporting systems still create challenges, the study highlights how these datasets can provide insights into farm structures and

land-use patterns across Europe. Such approaches can support future agricultural monitoring and contribute to a broader understanding of agricultural systems and land-use dynamics.

Author's Note: This report includes preliminary, unpublished methods, analyses, and conclusions that are in development and may be revised prior to publication.

Figure 1: Relative crop composition portfolios of the 16 farm typologies identified using two-stage clustering of harmonised GSA data. Adapted from author's original, 16-typology figure.

Photo 1: Members of the IACS CoP consortium pose for a photo on 12 June in Vienna.

IACS Community of Practice in Action

By Minami Tsuchikura (Hamburg University of Applied Sciences, Germany)

The IACS Community of Practice (CoP) continues to grow. We now have over 60 members from 14 different countries! On 12 June in Vienna, Austria, over 30 IACS CoP members gathered to exchange insights, update our ongoing work on IACS data, identify future tasks/collaborations, and discuss the science-policy interface. One of the greatest strengths of the community is its diversity, bringing members working across both research and policy fields. The meeting concluded by providing a great opportunity not only to advance discussions on IACS-related research but also to build strong relationships among researchers working with IACS data.

Since its launch, the Community has been actively engaged and maintained strong momentum through collaboration and knowledge exchange among working with Integrated Administration and Control System (IACS) data. For example, members have helped to organize a special issue "Leveraging agricultural data from the EU's Integrated Administration and Control System (IACS) for research and policy" in the **Journal of Land Use Science**. This special issue explores the transformative potential of IACS data for advancing agricultural and environmental research and supporting evidence-based policies, as well as key challenges such as data accessibility, interoperability, and transparency.

The IACS Data Community of Practice is a self-sustaining network for those working with IACS Data. It was launched in February 2024 following a capacity-building workshop organized by Europe-LAND. If you are interested in joining, please register using the form here. To learn more about IACS data, explore our podcast episode featuring community member Clemens Jänicke or the Harmonized IACS Inventory, a major project deliverable.

EMU Publishes Study in Land

By Anton Shkaruba (Estonian University of Life Sciences, Estonia)

Earlier this year, our team published "Assessing Sustainability and Socio-Economic Viability in Inhabited Protected Areas: A Framework Based on the West-Estonian Archipelago," in **Land**, with support from the project. The paper presents a novel, transferable framework for assessing socio-economic sustainability in rural settlements within protected areas—an issue that is central to Europe-LAND's mission of advancing sustainable land-use strategies in the context of climate change and biodiversity challenges.

Focusing on the West Estonian Archipelago Biosphere Reserve, one of the project's case studies, we introduce a "viability index" based on population dynamics, housing development, and demographic structure to monitor long-term settlement resilience. The results highlight stable settlement viability alongside emerging challenges such as population ageing, declining construction activity, and spatial disparities linked to accessibility. The framework provides tools for integrating socio-economic considerations into land-use planning and governance, supporting project goals of evidence-based sustainability transitions across European landscapes.

Photo 1: UAV data acquisition over the Úpské rašeliniště peatland in the Krkonoše National Park, Czechia

Towards Reliable Calibration of UAV Thermal Data for Evapotranspiration Modelling in Peatlands

By Lucie Kupková & Daniela Dančejová (Charles University, Czech Republic)

Peatlands are highly sensitive ecosystems with an essential role in carbon storage, water regulation, biodiversity conservation, and climate-change mitigation. However, many peatlands are currently affected by drying and degradation, which makes the monitoring of their water balance increasingly important. Evapotranspiration is one of the key components of this balance, but its spatial variability is often difficult to capture in detail.

Within WP2 of the Europe-LAND project, the TILSPEC team from Charles University Prague is developing a workflow for the reliable calibration and processing of thermal UAV data for evapotranspiration modelling. The work is being carried out as part of the diploma thesis of Daniela Dančejová and focuses on the Úpské rašeliniště peatland in the Krkonoše National Park, Czechia (Ramsar site).

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The main objective is to obtain accurate land surface temperature maps from UAV thermal imagery. These maps are a crucial input for surface energy balance approaches, which can be used to estimate evapotranspiration and related energy fluxes. However, UAV-based thermal data are challenging to use directly, as they are affected by several sources of uncertainty, including sensor instability, thermal drift, vignetting, changing atmospheric conditions, and differences in surface emissivity.

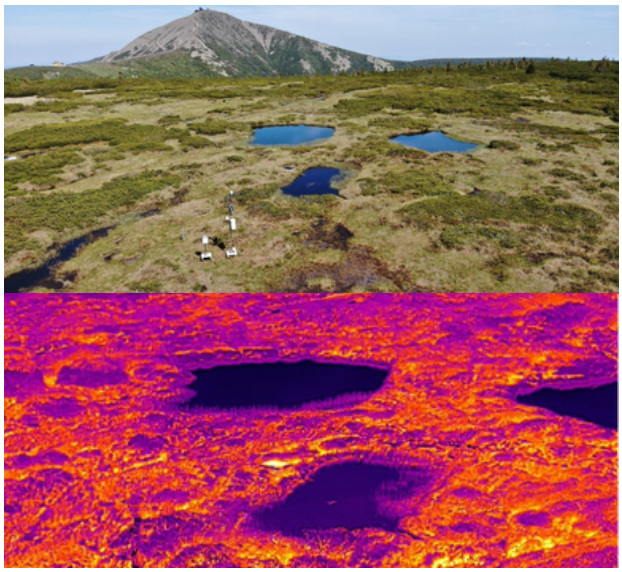
For this reason, a substantial part of the work focuses on the correction and calibration of thermal imagery before it is used for modelling. The workflow combines UAV thermal data, multispectral imagery, thermal calibration plates, thermocouple measurements in water bodies, and meteorological observations from a weather station located directly in the study area. These in-situ measurements make it possible to evaluate how the UAV thermal sensor behaves during flight and to correct temperature values accordingly.

The processing chain also includes the generation of thermal and multispectral orthomosaics using open-source tools such as OpenDroneMapper and WebODM. This supports transparency, reproducibility, and future scalability of the approach. Multispectral data are further used to support emissivity estimation, which is particularly important in heterogeneous peatland environments composed of vegetation, water bodies, wet surfaces, and bare patches.

Preliminary results show that careful calibration can substantially improve the reliability of UAV-derived temperature maps. The use of ground-based thermal measurements helps reduce temperature errors and correct sensor-related effects, which is essential if thermal data are to be used for evapotranspiration modelling.

This work contributes to Europe-LAND by improving methodological approaches for high-resolution monitoring of land-surface processes. It provides an important step towards more accurate spatial assessment of water and energy dynamics in unique, vulnerable peatland landscapes.

Based on the in-preparation diploma thesis work of Daniela Dančejová.



Photos 2 and 3: RGB and thermal images of Úpské rašeliniště peatland in the Krkonoše National Park, Czechia

Preparations Well Underway for Europe-LAND's ACT! Summer School

By Anton Shkaruba (Estonian University of Life Sciences, Estonia)

The ACT! Summer School 2026 has attracted exceptional interest, with a record 272 applications from 54 countries. Following a highly competitive selection process, 37 participants have now been accepted and fully registered, representing 19 countries. The cohort is highly international, with particularly strong representation from Germany, alongside participants from across Europe as well as India, Brazil, and Taiwan. With participants now confirmed, preparations are entering their final phase. We are currently organizing accommodation, including support for Baltic University Programme (BUP)-affiliated participants, and finalizing the academic program. We are especially grateful for the strong support from the Europe-LAND project, which is playing a central role in assembling an outstanding international teaching team. The curriculum will combine global perspectives on land-use change with hands-on engagement in the Estonian context, including field-based learning around Tartu and collaborative group research projects. We are particularly looking forward to the intensive group work phase, where participants will engage directly with real-world datasets, modelling tools, and policy challenges.

A collaboration between:

Europe — LAND

The Baltic University Programme Since 1991

Estonian University of Life Sciences

(Host institution)

SUNRISE

Updates from Sister Projects

By MOSAIC and PLUS Change Project Coordination Teams

PLUS Change

The PLUS Change project is advancing its Pathways of Change methodology to help stakeholders co-create actionable pathways towards sustainable land-use futures. During Workshop 4, partners and local actors applied the approach to identify strategic interventions and pathways for transformation. In parallel, a series of Multiplier Cluster and Capacity Building Workshops has expanded the methodology's reach, enabling planners, practitioners, and policymakers to learn and apply the Pathways approach in their own contexts.

MOSAIC

A new report from the MOSAIC project aims to identify the key drivers and values behind land use decision-making in Europe. A transdisciplinary approach across MOSAIC's six Policy Labs has been used, including interviews, photovoice and surveys, to analyze the gap between high-level sustainability targets and local implementation.

Have You Registered for the MOOC Yet?

By Megan Curling (Hamburg University of Applied Sciences, Germany)

On 28 April, we launched Europe-LAND's very own free massive open online course (MOOC), "*Land Use and Sustainability in Europe: From Policy to Practice*."

This online course is designed to explore one of Europe's most pressing challenges: how land is used, managed, and governed in the context of climate change and biodiversity.

Bringing together leading experts from the Europe-LAND project, the MOOC offers expert-led video lectures, case studies, and interactive content designed to bridge theory and practice. All learners gain access to a dedicated online forum where they can discuss ideas with fellow learners.

Whether you are a student, researcher, policymaker, professional, or just interested in sustainability, our MOOC offers a flexible and accessible learning experience to deepen your expertise and engage with a European network on sustainability!

MOOC Curriculum

Module 1 – Introduction and Course Overview

Module 2 – Land Use Behavior and Drivers in Europe

Module 3 – Awareness Behind Land-Use Decisions

Module 4 – Future Land-Use Mapping and Climate Change Mitigation

Module 5 – Biodiversity Conservation and Climate Change Adaptation

Module 6 – The Europe-LAND Toolbox: Exploring the Dynamics of Future Land-Use

Click here to register!

Meet Our Researchers

17-21 August, Istanbul, Türkiye
International Geographic Union Regional Conference (IRC 2026)
8-10 September, Sofia, Bulgaria
Joint Research Centre - IACS Community Exchange (ICE) Conference
27-28 October, Athens, Greece
Farming for Climate Conference

Upcoming Events

10 September, 11:00 CEST – Webinar #14, Europe-LAND Telecoupling Framework technical capacity-building workshop
17 September, 11:00 CEST – Webinar #15, Future expected land-use patterns
24 September, 11:00 CEST – Webinar #16, Europe-LAND Toolbox for Policymakers

Thank you for reading. We hope that you have enjoyed this latest edition of the Europe-LAND newsletter and that you will stay in touch with us. Please follow us on LinkedIn, subscribe to our newsletter, and visit our Zenodo repository.

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