

PhD position in Fire-Resilient Landscapes under Climate Change: Linking Ecosystem Management, Wildfire Risk and Ecosystem Restoration

The sGlobe lab at KU Leuven (Belgium) and the Research Institute Nature and Forest - INBO (Belgium) are seeking a highly motivated PhD student to work on the MicroChange project: *"Fire-Resilient Landscapes under Climate Change: Linking Ecosystem Management, Wildfire Risk and Ecosystem Restoration"*.

About the sGlobe lab

The lab is part of the division Forest, Nature and Landscape of KU Leuven. We aim to improve our understanding of the effects of global change on biodiversity and the functioning of terrestrial ecosystems. We combine big data with state-of-the-art modelling techniques, fieldwork and drone imagery to extract patterns and answer ecological questions on large spatial scales. One of our key research areas is microclimate ecology, as microclimate conditions are key to understanding organismal responses to warming. More information: www.sglobelab.com

About INBO

INBO is a research institute of the Flemish government, that focuses on monitoring biodiversity and the environment, mainly in Flanders. We combine fieldwork with the use of innovative monitoring approaches (remote sensing, image recognition, eDNA, bioacoustics) and have a strong focus on open science. Within the team Landscape Ecology and Nature Management (LEN), we research the impact of nature management on the functioning and biodiversity of landscapes, including the impact of and on wildfires. More information: <https://www.vlaanderen.be/inbo/en-gb/homepage/>

About FireRisk

Wildfires have significant socio-economic and ecological impacts, posing risks to human lives, buildings, ecosystem services and biodiversity values. In Europe, areas with increased danger are being pushed north by climate change. Even though many industrialized countries have implemented fire management strategies, formal risk assessment systems are lacking in many regions, including Flanders. Pan-European initiatives are hampered by coarse spatial resolution, often underestimating local fire dynamics and overlooking the need for region-specific assessments. Without this locally contextualised accuracy, the reliable prediction of fire propagation and optimization of resource deployment remains severely constrained.

We will recruit five PhD students to meet FireRisk's core objectives:

- the development of a locally calibrated fire spread model that accounts for land management and design scenarios (**PhD 1**)
- the generation of near-real-time, high-resolution maps of fuel loads, fuel moisture, microclimate conditions, and fire weather indices for improved wildfire risk assessment and management (**PhD 2**)
- understanding how land management and landscape design influence wildfire risk and post-fire ecosystem resilience (**PhD 3**)

- the translation of scientific outputs into actionable frameworks for both operational decision-making and long-term governance (**PhD 4**)
- the enhancement of first responder training through high-fidelity 3D visualization (**PhD 5**)

Position

This PhD position, under the supervision of Prof. Koenraad Van Meerbeek and Dr. Stien Heremans, will focus on understanding how land management and landscape design influence wildfire risk and post-fire ecosystem resilience, and to develop science-based tools that support land managers in creating fire-resilient landscapes under a changing climate.

Wildfires are becoming an increasingly important challenge across Europe as climate change alters fire weather, vegetation dynamics, and landscape vulnerability. At the same time, land managers are seeking effective strategies to reduce fire risk while maintaining biodiversity, ecosystem services, and landscape resilience.

We are seeking a highly motivated PhD candidate to investigate how land management and landscape characteristics influence wildfire behaviour and ecosystem recovery after fire. The project combines landscape ecology, fire ecology, geospatial analysis, ecological modelling, machine learning, remote sensing, and stakeholder engagement. The PhD research will focus on two complementary themes:

First, the candidate will assess how land management practices and landscape structure affect the key determinants of wildfire behaviour, including fuel types, fuel loads, live fuel moisture content, and microclimatic conditions. Using data from ten fire-prone study landscapes, the candidate will integrate information on vegetation, ecohydrology, soils, topography, management history, and human land use into a harmonized geospatial database. Statistical and machine-learning approaches (e.g. Random Forests and XGBoost) will be used to quantify how management actions and landscape characteristics shape wildfire risk and to develop future management scenarios.

Second, the candidate will investigate ecosystem resilience and recovery following fire. Field monitoring plots will be established across gradients of wildfire history, fire severity, and management interventions, including prescribed burning. The candidate will evaluate indicators of ecosystem health and recovery, including vegetation structure, soil properties, and belowground biodiversity. These field observations will be combined with satellite-based analyses of post-fire recovery trajectories to identify the factors that promote resilient ecosystems and reduce future fire risk.

The project will contribute directly to the development of decision-support tools for land and nature managers, enabling evidence-based evaluation of management options such as prescribed burning, vegetation management, restoration planting, and fuel reduction measures. Throughout the project, the PhD candidate will collaborate closely with stakeholders, land managers, policymakers, and an interdisciplinary consortium of ecologists, remote sensing specialists, and fire scientists.

The PhD offers opportunities to develop expertise in ecological modelling, machine learning, GIS, remote sensing, field ecology, and stakeholder co-creation, while contributing to urgently needed solutions for climate adaptation and wildfire management.

General profile of the candidate

- You hold an MSc degree in a relevant field (e.g. Ecology, Biology, Bioscience Engineering, Environmental Sciences, Physical Geography, or a related discipline), or you will have obtained it by the start of the position.
- You have excellent grades.
- You have a strong interest in biodiversity and conservation.

- You have a background in terrestrial ecology and ecological modelling.
- You have solid programming skills (e.g. R) and experience with fieldwork and spatial data analysis.
- You are fluent in English, both written and spoken.
- You are a collaborative team player with strong communication skills.

Our offer

- A full-time PhD fellowship (4 years) following a positive evaluation after one year.
- Preferred starting date: November 2026.
- The successful candidate will be based at the division Forest, Nature and Landscape in Leuven (Belgium), and will also collaborate closely with team Landscape Ecology and Nature Management at INBO (Brussels, Belgium)
- The salary is competitive and follows KU Leuven [assistant scales](#).
- You will receive ecocheques, a bicycle and a bicycle allowance or a full reimbursement of public transport costs for commuting. See [here](#) for full benefits including holidays and bonuses.
- Collaboration in a young and dynamic international scientific team. Work-life balance is important for us.

How to apply?

Send your application (CV and application letter) to koenraad.vanmeerbeek@kuleuven.be. The application letter should include a description of how you would approach the project and at least one reference | Application deadline: 30th of July 2026 | Notification of selection for interview: Mid-August 2026 | Interviews (online or in person): End of August 2026

More information

Prof. Koenraad Van Meerbeek | koenraad.vanmeerbeek@kuleuven.be | www.sglobelab.com