

# Dr. FOREST



## WHO WE ARE

Our team is comprised of researchers from France, Belgium, Germany, Austria and Poland. Together we aim to quantify the impacts

of biodiversity on multiple human health benefits and risks to combine biodiversity conservation with ecosystem management that supports various health co-benefits.

## WHAT WE STUDY

Biodiversity can have positive effects on human health and well-being by both increasing benefits and reducing harm. We research both pathways, broadly summarised as:

**1. Increasing the restoring and building capacities** that improve mental and physical health

**2. Decreasing physical illness**, caused by allergies, infections or chronic disease.



## RESTORING & BUILDING

## REDUCING ILLNESS

### 1 PSYCHOLOGICAL RESTORATION

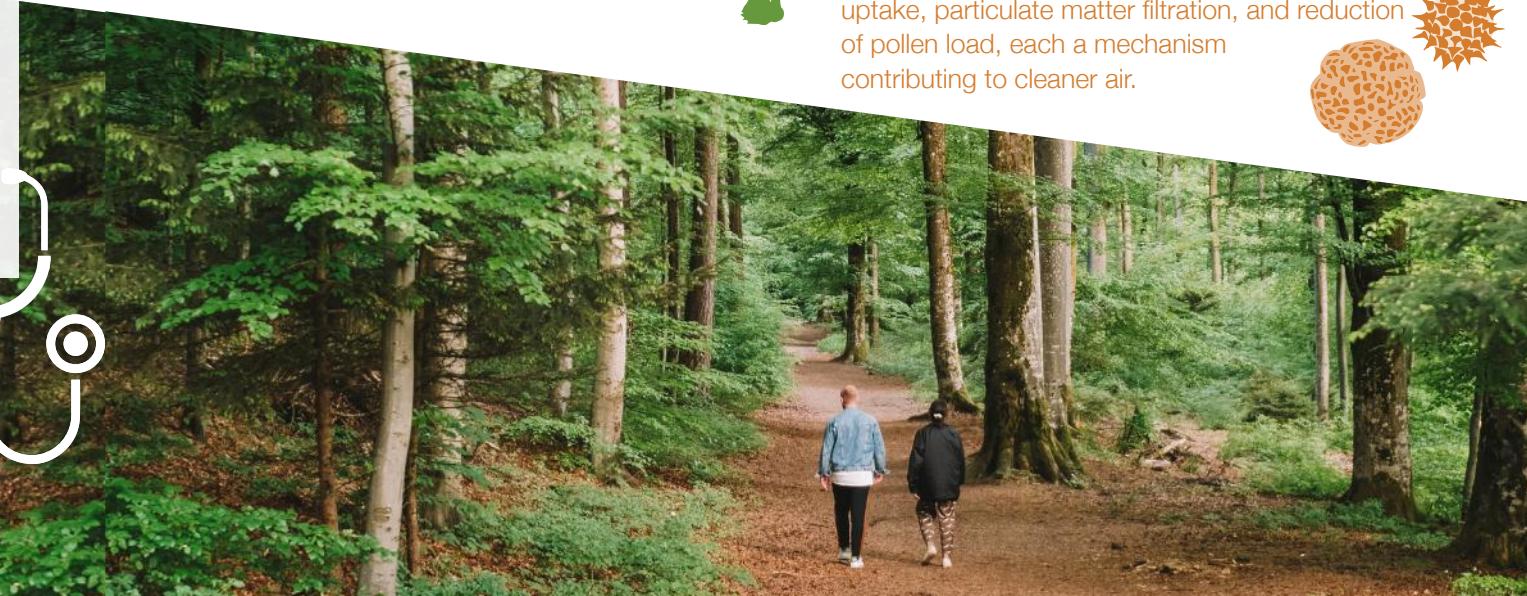


- Natural space can improve health and well-being by two mechanisms: attention restoration and stress reduction
- We will test if audio and visual cues of increasing diversity affect these restoring capacities differently, thereby identifying biodiversity levels best-suited for human benefit.

### 2 RECREATION & PRODUCTS



- We will assess if forests of different tree diversity levels provide varying microclimate characteristics relevant for recreational forest visitors (temperature buffering)
- We will also test the relative potential for collecting non-wood forest products such as medicinal plants, berries and mushrooms along tree diversity gradients



### 3 DISEASE VECTORS

- The oak processionary moth poses serious human health risks due to dermatitis and allergic reactions (respiratory distress, anaphylactic shock).



- Ticks transmit pathogens to humans causing Lyme disease and tick-borne encephalitis.
- We investigate if forest diversity affects the bottom-up (dilution of host-trees) and top-down (control by predators) effects of tree diversity on reducing abundance and performance of these disease vectors

### 4 AIR POLLUTION

- Ozone ( $O_3$ ) and particulate matter such as pollen are a major causes of lung and heart disease and allergies in Europe.



- We study the effects of tree diversity on ozone uptake, particulate matter filtration, and reduction of pollen load, each a mechanism contributing to cleaner air.



# HOW WE ACHIEVE IT

In the last phase of this project, we will synthesize our results and communicate our findings to a wider audience.

## 5 SYNTHESIS & HEALTH-IMPACT ASSESSMENT

We use probabilistic graphical models to synthesise the relationships between forest biodiversity and the various human health benefits and risks. We account for causal relationships between variables, quantify their relative importance, and validate model outcomes using data from Taks 1-4.

## 6 KNOWLEDGE EXCHANGE

- To add to our understanding of this complex system of benefits and risks, we also conduct local stakeholder workshops in three case study areas. We draw from local expert knowledge to create regionally-tailored, realistic forest diversification scenarios and understand which risks and benefits are most important to practitioners in a given region.
- We will hold a concluding seminar with international experts, intended to progress our findings into practice by communicating our findings to high-level decision-makers.
- We also share our results with the wider public through videos, our website, and regionally-specific press pieces.



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affecting human health  
and well-being**

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