Karl Rudolph´s Laboratory for Palaeoecology

"Our aim is to apply the reconstruction of past ecosystems, vegetation and flora to understand their longterm dynamics and to link these with present-day processes."

Offer

- Experience in the field of European and North African palaeoecology
- Palaeoecological analyses of sedimentary material
- Numerical analysis and interpretation of data, quantitative land cover reconstructions

Requirements

- Quaternary sedimentary sequences containing preserved biological remains
- Novel methods in ancient DNA, fossil analysis, leaf wax-derived dD and branched GDGTs
- Access to palaeoecological data inaccessible in public databases

Know-how & Technologies

Ecosystem Dynamics on Long-term Scales; Studying Processes Beyond Observation Leading To an Understanding of Climate and Human Interactions With Earth's Systems

- Quaternary ecosystem dynamics driven by climate change
- Archaeobotany of cultural systems
- Fire dynamics and disturbance in postglacial ecosystems
- Past land cover changes affected by anthropogenic disturbance

Content of Research

- Holocene land-cover reconstruction: effect of climate, human impact, origin of natural vegetation
- Long-term perspective of forest fires within temperate landscape
- Post-glacial migration legacies of plant species
- Holocene land-use changes

Main Capabilities

- Analysis of plant remains (pollen, macrofossils, charcoal, phytoliths) in natural and anthropogenic sedimentary environments
- Pollen-based quantitative vegetation reconstruction using models of pollen dispersal and sedimentation
- Quaternary ecology and macroecology of forest species
- Administration and development of large palaeoecological databases, analysis of large datasets in order to answer ecological questions
- Species distribution modelling
- Description of fire regimes using charcoal record in soil and sedimentary sequences

Key Research Equipment

- Coring equipment for lakes and bogs
- Fully equipped laboratory for treatment of palaeoecological samples (pollen, plant macrofossils, charcoal, phytoliths)
- Microscopic facility

Main Projects

- 2016–2018: EUROPIA Holocene distrurbance dynamics in European Picea abies (Norway spruce) forests implications for conservation and management (Czech Science Foundation, grant No. 16-06915S)
- 2016–2018: Origin of diversity of Central European ladnscapes: using recent pollen and vegetation models to reconstruct historical biodiversity changes (Czech Science Foundation, grant No. 16-10100S)

- 2012–2015: Pollen-based land-cover reconstruction – model testing and its implications for Holocene environmental change studies (The Czech Science Foundation, grant No. P504/12/0649)
- 2007–2011: Long-term development of cultural landscape of Central Bohemia as a co-evolution of human impacts and natural processes (Grant Agency of the Academy of Sciences of the Czech Republic, IAAX00020701)
- 2009–2011: Forest wildfire dynamics in Czech sandstone areas and its effect on recent vegetation (Grant Agency of Charles University no. 97609)
- 2007–2009: Pollen Database of the Czech Republic (Grant Agency of Charles University no. 29407)
- Participation in one project funded by the European Research Council

Partners and Collaborations

Academic Partners

Institute of Botany of the Czech Academy of Sciences (Průhonice and Brno, Czech Republic) | Institute of Archaeology of the Czech Academy of Sciences, Prague | Czech University of Life Sciences, Prague | Department of Physical and Applied Geo-logy, Eötvös University, Hungary | Institute of Ecology, Tallinn University, Estonia | CNRS GEODE UMR, Toulouse University Le Mirail, France | Department of Geography and Planning, University of Liverpool, the United Kingdom

Achievements

Publications in respected international journals with high impact factors: Global Change Biology, Quaternary Science Reviews, Journal of Biogeography, The Holocene, Climate of the Past, Journal of Vegetation Science

Are you interested in this expertise?

Please contact CPPT UK
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Experts and their department

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