Topics of dissertation theses for doctoral studies, the field of study "Forest Biology."

The academic year 2021-2022

Department of Forest Ecology

1. Dynamics and structure of the natural forest ecosystems (prof. Svoboda, Dr. Čada)
2. Biomass cycle of the natural forest ecosystems (prof. Svoboda, Dr. Čada)
3. Structure and development of forest ecosystems in various degrees of their anthropogenic influence (prof. Svoboda, Dr. Čada)
4. Effects of disturbances on the dynamics of the natural and managed forest ecosystems (prof. Svoboda, Dr. Čada)
5. Ecosystem services and management of the forest ecosystems (prof. Svoboda, Dr. Mikoláš)
6. Biodiversity and the management of the forest ecosystems (Dr. Mikoláš, Dr. Hofmeister)
7. The effects of tree diversity and composition on forest productivity and resilience under climate change (natural or planted, boreal-tropical) (Dr. Matula)
8. The growth and stability of tropical forests across climatic gradients (Dr. Matula)
9. Forest biodiversity concerning forest and landscape history in Central Europe (Dr. Hofmeister)

Department of Genetics and Physiology of Forest Trees

1. New approaches in genetic evaluation using advanced phenotyping methods (Dr. Stejskal)
2. Ecotypic variability assessment in Norway spruce and Scots pine based on physiological and growth parameters (Dr. Stejskal)
3. The effect of migration on pedigree reconstruction efficiency in forest trees (prof. Lstibůrek)
4. Optimization of selection by linear programming methods (prof. Lstibůrek)
5. The estimate of heritability in panmictic populations accounting for epistatic gene effects (prof. Lstibůrek)
6. Optimization of the Scots pine breeding program in Norway (prof. Lstibůrek)
7. Stable carbon isotope ratio in coniferous tree ring affected by *Lophodermium* genus (doc. Tomášková)
8. Metabolic products exchange between Norway spruce and mycorrhizal fungi (doc. Tomášková)
9. Genetic structure of Norway spruce based on SNP genotyping array data (Dr. Korecký)
10. Proteomic profiling and determination of transcriptomic markers in response to the stress of significant forest trees species (Dr. Čepl)

Department of Forest Protection and Entomology

1. Biodiversity in commercial forests under disturbance: a multi-taxonomic comparison (doc. Horák)
2. Modelling of the spread of invasive bark beetles (prof. Holuša)

3. Influence of magnetic field and magnetoreception on the behavior of invertebrates (prof. Holuša)

Department of Silviculture

1. Environmental consequences of the introduction of Douglas fir into forest ecosystems (prof. Podrázský)

Excellent Team for Mitigation

1. Biological and socioeconomic correlates of insect invasions worldwide (prof. Turčáni)
2. Life history traits associated with global insect invasions (prof. Turčáni)
3. Delineating the mechanism of bark beetle adaptation in Anthropocene using multi-omics approach (Dr. Roy)
4. Bark beetle microbial diversity (Exo and Endo) and its contribution to host adaptation (Dr. Roy)
5. Developing microbe-based tools for bark beetle management in Anthropocene (Dr. Roy)
6. Understanding the mechanism of insect olfaction using physiological and molecular biology techniques (Dr. Kalinová)
7. Use of semiochemicals in the study of biodiversity of insect species associated with specific ecosystems (Dr. Kalinová)