

## Special Issue

# Population Genetics and Molecular Evolution of Trees

### Message from the Guest Editor

Population genetics and molecular evolution studies in forest trees reveal high genetic diversity and adaptive potential, shaped by long lifespans, gene flow, and interbreeding. Integrated omics—genomics, transcriptomics, proteomics, and metabolomics—reveal mechanisms of divergence and adaptation. Genomic studies highlight genome duplication and dynamic gene regulation in response to biotic and abiotic stressors like pathogens, drought, and soil contamination.

Transcriptomics identifies key genes, while proteomics reveals post-transcriptional adaptations. Population genomics links polymorphisms to local adaptation, showing genomic plasticity as a buffer against climate change and highlighting the need for broader omics data, including predictive modeling of growth and adaptation under anthropogenic pressures. These advances suggest evolutionary responses can support sustainable forest management, calling for more studies on underrepresented species. This Special Issue invites interdisciplinary work, from experiments to modeling, on population and evolutionary genetics to conserve forest resources and guide policy.

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### Guest Editor

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### Deadline for manuscript submissions

closed (31 March 2026)



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### Message from the Editor-in-Chief

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