



forests



Special Issue Reprint

Genetics and Genomics of Forest Trees

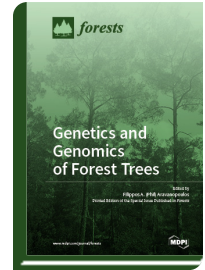
www.mdpi.com/books/reprint/869

Edited by

Filippos A. (Phil) Aravanopoulos

ISBN 978-3-03897-298-3 (Softback)

ISBN 978-3-03897-299-0 (PDF)



Forest tree genetics and genomics are advancing at an accelerated rate, thanks to recent developments in high-throughput, next-generation sequencing capabilities, and novel biostatistical tools. Population and landscape genetics and genomics have seen the rise of new approaches implemented in large-scale studies that employ the use of genome-wide sampling. Such studies have started to discern the dynamics of neutral and adaptive variation in nature and the processes that underlie spatially explicit patterns of genetic and genomic variation in nature. The continuous development of genetic maps in forest trees and the expansion of QTL and association mapping approaches contribute to the unravelling of the genotype-phenotype relationship and lead to marker-assisted and genome-wide selection. However, major challenges lie ahead. Recent literature suggests that species demography and genetic diversity have been affected both by climatic oscillations and anthropogenically induced stresses in a way calls into question the possibility of future adaptation. Moreover, the pace of contemporary environmental change presents a great challenge to forest tree populations and their ability to adapt, taking into consideration their life history characteristics. Several questions emerge that include, but are not limited to, the interpretation of forest tree genome surveillance and their structural/functional properties, the adaptive and neutral processes that have shaped forest tree genomes, the analysis of phenotypic traits relevant to adaptation (especially adaptation under contemporary climate change), the link between epigenetics/epigenomics and phenotype/genotype, and the use of genetics/genomics as well as genetic monitoring to advance conservation priorities.



Order Your Print Copy

You can order print copies at

www.mdpi.com/books/reprint/869

MDPI Books offers quality open access book publishing to promote the exchange of ideas and knowledge in a globalized world. MDPI Books encompasses all the benefits of open access – high availability and visibility, as well as wide and rapid dissemination. With MDPI Books, you can complement the digital version of your work with a high quality printed counterpart.



Open Access

Your scholarly work is accessible worldwide without any restrictions. All authors retain the copyright for their work distributed under the terms of the Creative Commons Attribution License.



Author Focus

Authors and editors profit from MDPI's over two decades of experience in open access publishing, our customized personal support throughout the entire publication process, and competitive processing charges as well as unique contributor discounts on book purchases.



High Quality & Rapid Publication

MDPI ensures a thorough review for all published items and provides a fast publication procedure. State-of-the-art research and time-sensitive topics are released with a minimum amount of delay.



High Visibility

Due to our global network and well-known channel partners, we ensure maximum visibility and broad dissemination. Title information of books is sent to international indexing databases and archives, such as the Directory of Open Access Books (DOAB), and the Verzeichnis Lieferbarer Bücher (VLB).



Print on Demand and Multiple Formats

MDPI Books are available for purchase and to read online at any time. Our print-on-demand service offers a sustainable, cost-effective and fast way to publish MDPI Books printed versions.