

Public perceptions of genomics in forest management: A literature review

Climate change poses a major challenge for forest management, potentially disrupting tree recruitment and phenology, pest populations, and ecosystems. Genomic science offers tools for managing forests under such dynamic scenarios but requires extensive public engagement. This study synthesizes peer-reviewed research on public perceptions of using genomics in forest management and identifies gaps in current knowledge.

Research Questions

1. How have public perceptions of genomics in forestry been studied to date?
2. How do different people view the risks and benefits of genomic applications?

Highlights of Findings

- People viewed genomic tools as less acceptable if they involved greater *human intervention into nature* (e.g. artificial breeding, using non-local seeds, and genetic engineering). However, these interventions were often seen as more acceptable than doing nothing, and perceptions changed if people were given additional information framing genomics more positively or negatively.
- *Factors that increased acceptability* of genomic applications included: knowledge of genomics, trust in government and forestry decision-makers, positive attitudes towards science, and framing genomics as solving an important problem. Some studies found more support among industry, government scientists and forest practitioners. Support for assisted migration was greater in BC than Quebec or Alberta.
- Many articles cited '*barriers to the uptake of genomics*'. Social barriers include public opposition to genomic applications, perceptions that government and industry are not being transparent in decision-making, and negative associations with genetic modification. There are also technical and scientific barriers: the complexity of genomes, scientific uncertainties, and the ethics of interventions into nature.

Management/Policy Implications

These findings suggest that meaningful engagement with diverse groups of rightsholders and stakeholders is important for forest managers considering genomic tools to deal with ecological problems such as climate change and pests. *How* communication takes place and the way that genomics is framed matters for acceptability, and acceptability is also shaped by cultural and geographic differences.

Future Research

There is a need for research on ethical and cultural aspects of the ethical debates about genomic applications, as well as research that engages with more diverse audiences and stakeholders, such as policy makers and environmentalists. Greater engagement with First Nations is particularly important.

For more information on this study: Contact the study team for the full report.

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