



Expert Foresight for Enhancing European Forests' Climate Mitigation Potential up to 2100

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Forest transformations extend beyond ecology to institutional shifts driven by evolving values, actor networks, and policy frameworks. This impacts carbon sequestration and mitigation capacities. Past research on shifts from deforestation to net gains or state to community management relies on ex-post case studies (Meyfroidt & Lambin, 2011; Rudel et al., 2010; Charmakar et al., 2024). However, forward-looking approaches are essential for guiding sustainable management amid uncertainties like climate change and bioeconomy demands. This study employs a three-round Delphi survey with high-level experts from policy, industry, and bioeconomy sectors to project wood production trajectories and management transformations across 2021-2030, 2031-2050, and 2051-2100, aligning with the role of forests and wood production for reaching climate targets.

Responses distinguish likelihood from desirability of developments, revealing on the one hand the points of consensus on institutional innovations such as reconfigured governance, property rights, and stakeholder participation. On the other, they reveal how experts value the role of forest carbon sinks while sustaining wood supply for bioeconomy mitigation (Weiss et al., 2021; Ludvig & Buzogány, under review). The advantage of a Delphi survey in this study is that it reveals the points of departure for consensus in complex and debated policy matters such as the purpose of wood use and harvesting. To this point, experts favor sustained wood mobilization over widespread set-asides for emissions reductions, viewing knowledge gaps as the primary barrier to sustainable production rather than market competition. Furthermore, wood markets are projected stable or growing to 2050 but declining post-2050. Diverse expert backgrounds reveal nuanced insights. Moreover, open responses highlight some innovative ideas for novel rules in tackling the trade-offs between ecological and economic challenges. The findings inform science-based strategies for forest mitigation. The approach advances foresight methods for complex socio-ecological systems (D'Amato et al., 2020).

References

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