BOOK OF
ABSTRACTS

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Balancing Carbon and Costs: Unveiling the Climate Change Mitigation Potential and Opportunity Costs of Forest Lands Diverted from Forestry use

T2.1 Accounting for risks and uncertainties in forest-based businesses, sectoral projections, and policy design

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Abstract: The revision of the Climate Protection Act in Germany has led to the adoption of more stringent climate protection targets. To accomplish this goal, specific carbon reduction targets have been established for the LULUCF sector by 2045. One potential measure for mitigating climate change and achieving LULUCF objectives is the permanent cessation of raw timber production in commercial forests. However, this cessation would also increase the risks of stand mortality due to climate change impacts as forests age. Unfortunately, there is a lack of comprehensive knowledge regarding the long-term effects of this climate change mitigation option on the various carbon pools within forests.

In order to bridge this knowledge gap, a study was undertaken to evaluate the ramifications of climate change on the storage capacity of various carbon pools within forests, as well as the associated opportunity costs of setting aside forested areas in Germany, considering diverse RCP scenarios. The study employed the Forest Economic Simulation Model (FESIM) as a tool for analysis. To facilitate our research, we have constructed a series of idealized exemplary forest enterprises by leveraging data from the German Forestry Accountancy Data Network. This approach enabled us to capture the diverse spectrum of forest production in Germany, illustrating the pronounced regional variations. The preliminary findings of the study indicate that set-aside forestland plays a crucial role in sequestering carbon dioxide. Furthermore, the study identified key factors influencing the effectiveness of set-aside forest land in mitigating climate change. Moreover, the study explored the opportunity costs linked to set-aside forest land, which refers to the foregone benefits incurred by allocating land for forest protection and climate mitigation instead of other potential uses such as timber production.

The study's outcomes aim to support policymakers and forest landowners in making well-informed decisions regarding the establishment of set-aside forest lands, while also estimating their opportunity costs. Additionally, the results underscore the importance of considering the trade-off between the beneficial and protective functions of forests and the associated opportunity costs. Furthermore, it presents a case study from Germany that can assist decision-making processes in other regions grappling with similar challenges.