Hidden costs of implementing afforestation as a climate mitigation strategy: A comprehensive assessment of direct and indirect impacts

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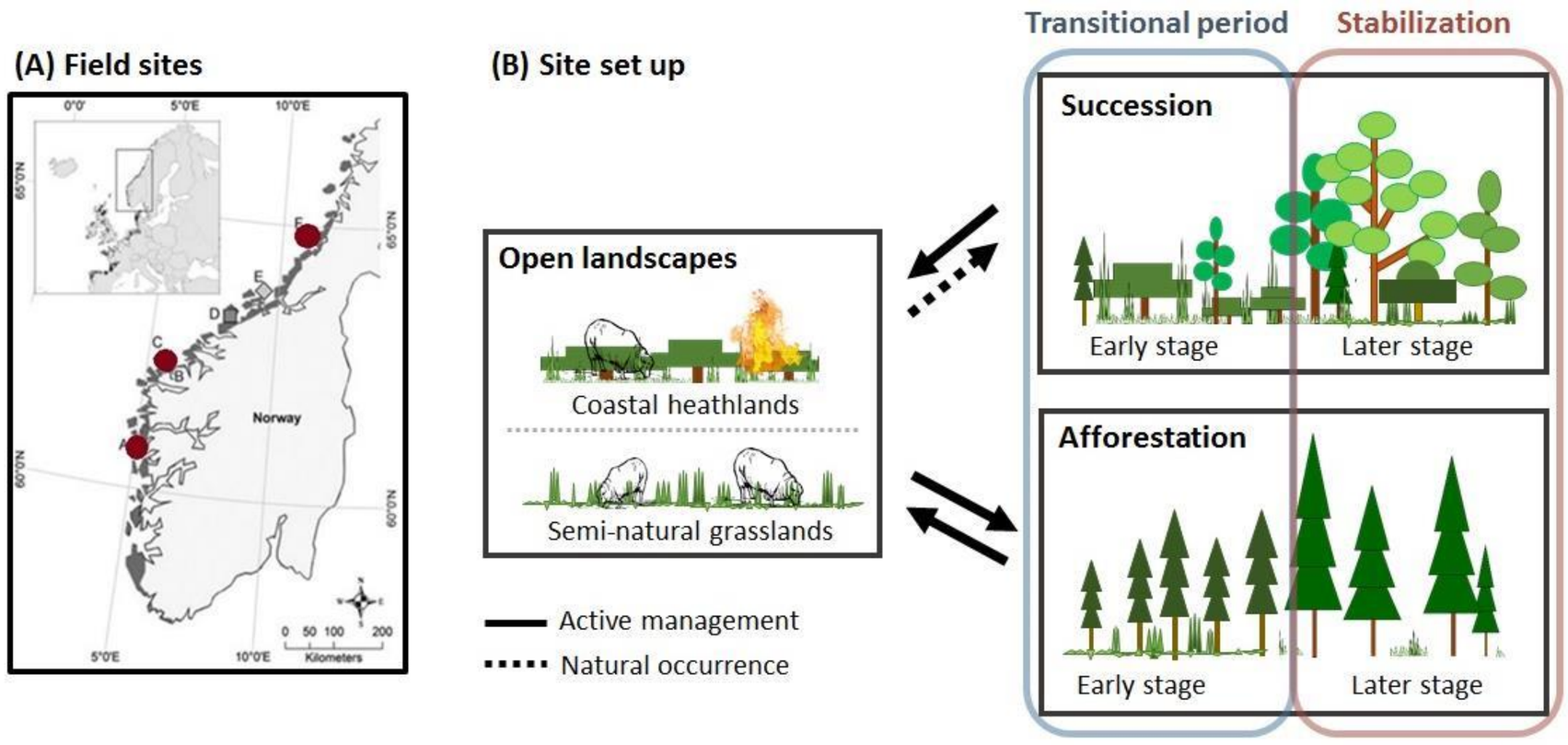
Is afforestation a viable climate mitigations strategy, considering the full 'costs and benefits' from direct and indirect impacts combined? How well does afforestation fit in the framework of climate mitigation and adaptation strategy, relative to natural succession and management?

Background

Until now, we have learned that planting trees could only provide benefits to our nature and society. More and more recent research results show that this depends on land management. In Norway, extensive planting of trees in open landscapes, including abandoned heathlands, has been suggested as an important policy measure.

The HiddenCosts project

HiddenCosts is based on the realization that the current policy for afforestation as a climate mitigation strategy is based on incomplete knowledge and needs more rigorous evaluation in the full range of direct and indirect effects and costs vs. the realistic alternative landscape management scenarios.



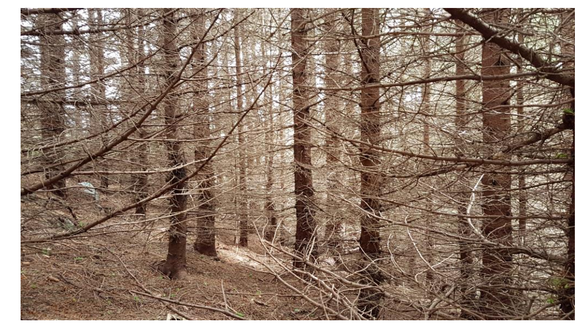
(A) Location of field sites and (B) Schematics of site establishment plan.

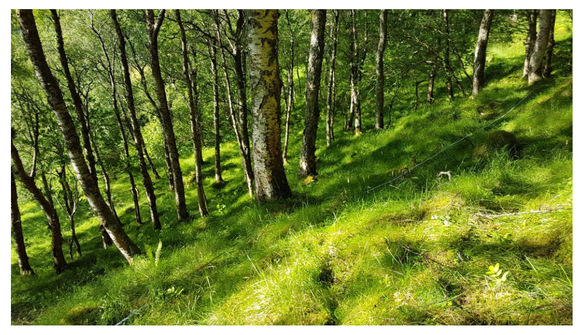
Our approach

We apply a multidisciplinary approach by 1) integrating Earth System and regional climate modelling, 2) in situ observations of biodiversity, ecosystem structure, and carbon storage, and 3) public valuation and ecosystem services analysis to gain more holistic understanding of the effects of afforestation, continued management, and natural succession in the open lowland landscapes of Norway.

We will combine information gained from the project research topics to synthesize and communicate effectively with relevant stakeholders and the public to find a better way of land management.

The project period is from 2017 to 2020, and the project is financed by the Research Council of Norway.






Photos of the different landscapes scenarios studied.

For more information about our project, please contact: Hana Lee (project leader), Hanna.Lee@uni.no, Vigdis Vandvik, Vigdis.Vandvik@uib.no, or Liv Guri Velle, liv.guri.velle@moreforsk.no.