

Erik Stenström's Foundation

Report for 2023 and 2024

MIXED OAK FOREST FOR VALUABLE TIMBER PRODUCTION, PRACTICAL CLIMATE ADAPTATION AND FOREST DIVERSITY

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Background

The project is based on a long-term field experiment in stem-mapped mixed forests of oak, maple, hornbeam, wild service tree and hazel, set up and managed under the auspices of the Swedish University of Agricultural Sciences. The experiment was planted at two locations in Sweden and three in Denmark during 2012-14 and includes five different types of mixtures, with each species represented in different, experimentally controlled proportions and planting patterns.

Establishment and maintenance of the experiment were supported by local forest owners, SLU core funding and the Danish Fund for Practical Forestry Experiments.

The project is led and supervised by Jens Peter Skovsgaard, Professor of Silviculture at SLU. From August 2024 onwards, the project forms the core of a two-year post-doc project, staffed by Julia Schmucker.

Support from Erik Stenström's Foundation

Focusing on the experimental blocks in Sweden, the application submitted to Erik Stenström's Foundation in 2022 covered the costs of data procurement (field work and subsequent data handling) during 2023. The application submitted to the foundation in 2023 covered parts of the costs for data analysis and for continued data procurement during 2024. Both applications were granted and are herewith reported.

Activities

The activities carried out with support from Erik Stenström's Foundation during 2023 and 2024 included basic measurements prior to selection of potential future crop trees, pruning, thinning and protection of pre-selected potential crop trees against bark peeling. The basic measurements and recordings included survival/mortality, stem diameter at 1.30 m above ground level (all trees), total tree height (crop trees and some sample trees), height above ground level of lowest live branch, pruning height, stem quality characteristics and, in some plots, the occurrence and severity of symptoms of a so far unidentified stem canker.

Following initiation of the associated post-doc project, analyses of data collected so far began in August 2024. The analyses includes a summary of relevant tree and stand variables for each plot and block (see enclosure). These are so far the main results of the activities supported by Erik Stenström's Foundation and will form a solid basis for further analyses of site- and species-specific

tree and stand developments depending on the five experimentally defined species mixtures. Additionally, in September 2023, the experimental block located near Påarp at Bjäre was included in a course and field tour on 'minor tree species for climate-change adaptation in forests', organized by SLU. The participants included forest managers, land owners, policy makers and students who visited and discussed the experiment at Bjäre.

Future activities

Future analyses will include the impact of site and species mixture on the survival, growth and stem quality of oak (the main species) and of the admixed hardwood species. As part of this, it remains to be clarified to which extent the experimental block at Trolleholm in Skåne can be utilised for formal analyses other than survival growth during the first few years, as this part of the experiment has been heavily browsed due to an early, unplanned removal of the fence.

As outlined in our recent application to Erik Stenström's Foundation for continued support during 2025, some field and lab work as well as scientific analyses and publication activities remain to be carried out. These include expensive soil analyses and some pathological investigations that are crucial for the interpretation and publication of results from the experiment. Unfortunately, Erik Stenström's Foundation decided to decline our application for support in 2025. As we currently have no other funding for these activities, we are now seeking alternative funding sources.

Once funding has been re-established so that further analyses can progress, we plan to publish scientific as well as practically-oriented results from the project, including an article in 'Ekbladet' and an article in a peer-reviewed scientific journal.

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Thank you for support received so far!

Best wishes,

Jens Peter Skovsgaard and Julia Schmucker

Alnarp, 18 December 2024