

Master's Thesis Project description

Title

Quantification of biomass and validation of leaf area index functions for Scots pine

Background, study question(s)/Hypotheses (max 200 words)

Scots pine represents about 40% of the total volume of tree species in Sweden, being, therefore, an integral part of the Swedish landscape and economy. Quantification of biomass has become increasingly important, because it allows the estimation of carbon stored in the trees. Leaf area index (LAI) – the amount of foliage area that absorb solar radiation - is an important ecophysiological parameter that is closely related to productivity. Destructive sampling is the most accurate way to measure biomass and LAI. However, site-specific functions can be created from it for future estimation, on short- or long-terms, depending on sampling size and stand age. If one has sampled many sites, you can use those functions on a larger scale. Goude et al. (2019) have created LAI functions using destructive sampling data based on 8 sites spread out across Sweden. With these, we get to estimate LAI by using non-destructive methods. Thus, this study aims (1) to validate Goude et al. (2019)'s LAI functions by doing a destructive sampling on a Scots pine stand in Hallarp, (2) to create site-specific biomass functions that will be used in future studies and (3) to estimate the amount of carbon stored in trees.

Topic available from/to

Predicted start end of November 2022

Supervisor(s)

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Special conditions/requirements

It is preferred that the student has a driver's license, but not mandatory. The experimental site is in Hallarp, about 30 km from the Tönnersjöheden experimental station in Halland.

Other information

Pictures: