## Modelling of tree mortality rates during fires to fine-tune conservation burns in Southern Sweden

Forest fires, once a major driver of ecosystem dynamics in the Nordic region, have almost completely disappeared in Nordic region. In forests not used for timber harvesting, decline in fire activity has resulted in changes in forest structure and loss of biodiversity associated with habitats maintained by fire. Controlled fires become an increasingly important tool to manage natural protected areas where fires were common in the past. Such fires aim to re-create fires with mixed severities, often aiming at particular level of mortality among canopy and sub-canopy trees. Removal of spruce understory and creating more open conditions in forests stands are often among their goals. It is therefore critical to predict correctly effects of prescribed fires upon tree mortality during controlled burns.

The current project will model risk of mortality as a function of tree age and size for four tree species (oak, spruce, pine and birch). We will collect data in the areas of controlled burns in Southern Sweden and will use a combination of dendrochronological (i.e. tree ring based) and statistical methods to build up a model predicting mortality as a function of weather conditions during burns, fuel, size and age of the trees.

The project includes field sampling (~one week) in visually stunning forests of historical Swedish province of Småland, work in the laboratory (3 weeks), development of R code for statistical analyses, and writing of the project report (= Master theses). We are looking for a student interested in applied forest ecology, dendrochronology, conservation management and related fields.

This project will be run in cooperation with project LifeTaiga (https://lifetaiga.se/) and Nature Protection Unit of Administration of Kalmar County.

**Interested?** Contact Igor Drobyshev (igor.drobyshev@slu.se), www.dendrochronology.se

Relevant reading:
https://doi.org/10.1016/j.foreco.2020.118853