



What happens during conservation burns: evaluating fire effects on an oak-pine forest in Southern Sweden

Forest fire is a common disturbance agent across boreal forests of the Northern Hemisphere. Climate and, more recently, humans influence fire regimes through their impact on both the type and the state of fuels as well as the temporal and spatial patterns of ignitions. The recent relatively warm period after the Little Ice Age (1300-1850 CE) has witnessed a decline in fire activity across most of the boreal zone. Increasingly effective fire suppression by humans has been an important driver of this trend. In Northern Europe, where fire suppression is generally very efficient, lack of forest fires has led to changes in composition of forests protected from intensive forestry. The downside of this is that declines in biodiversity associated with fire-affected habitats has been reported. Modern management of protected forests in Sweden seeks to integrate fire as one of the tools to maintain long-term availability of habitats created by fires, keep forests sufficiently open and cancel successional pathways towards less fire-adapted ecosystems. As a part of this effort, Swedish County Administrations have engaged in a program of controlled fires that are carried out in nature reserves with predominantly old pine forests.

The current project aims to explore the possibilities provided by airborne Light Detection and Ranging (LIDAR) sensors to evaluate the effects of conservation burns in Sweden. Within this project, we will aim to quantify the changes in fuel loads associated with a controlled fire. Furthermore, we will, link these changes to post-fire mortality of understory oaks, and develop recommendations for the use of airborne LIDAR data for similar future burns. The project is part of a collaboration between Swedish Agricultural University (SLU Alnarp), Vrije Universiteit Amsterdam (the Netherlands), and the Nature Protection Unit of Kalmar County (Sweden).

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