

MWP – Young Researcher Abstract 2024

Project title: Mapping of old-growth forests using remotely sensed data Author: Janne Räty, Mari Myllymäki, Mikko Peltoniemi, Aleksi Lehtonen & Petteri Packalen Affiliation: Natural Resources Institute Finland (LUKE) E-mail: janne.raty@luke.fi Abstract (approx. 200 words): Old-growth forests have become rare and fragmented in the managed forest areas of the boreal biome. The locations of such forests are not usually known accurately enough to support the planning of forest management actions and conservation efforts targeting at maintaining or increasing the connectivity of natural-like forests. The lack of information on forests' naturalness may also cause societal conflicts regarding the use of forest resources. Our study employs 2D/3D remotely sensed (RS) data and forest inventory data to develop a methodological framework for the mapping of old-growth forests in Finland. The study employs a machine learning classifier, coupled with RS-based canopy structure, spectral information, and tree-pattern characteristics, to separate old-growth forests from managed forests. The study also critically evaluates the challenge of mapping rare phenomena using RS-based methods. While the RS-based map of old-growth forests is not perfect, it is valuable for supporting sustainable forestry and conservation at different administrative levels.

Key words:

airborne laser scanning, lidar, satellite images, individual tree detection, 3D remote sensing