

Brolly, Gábor, Géza Király (2013): Mapping Forest Regeneration from Terrestrial Laser Scans. Acta Silv. Lign. Hung. 9:135-146.

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Short reference: Brolly, Király (2013)

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Abstract

Location, spread, abundance and density of forest regeneration are key factors in understanding forest dynamics as well as in operational management of uneven-aged stands. Simulation of forest growth, silviculture and planning of skid road networks require accurate and objective methods for locating forest regeneration. Terrestrial laser scanning has high potential for tree mapping, however, the development of automatic processing methods has been focused on mature trees so far. This study introduces an automatic procedure to locate individual trees with 3–6 meter height from terrestrial laser scanner data. The method has been validated on three sample quadrates representing different stand structures and it succeeded in detecting 79–90% of trees extracted manually from the point cloud. Out of the investigated stand features, stem density had the strongest impact on the performance, while branching intensity slightly affected the detection rate. The results highlight that terrestrial laser scanning has the ability for the quantitative evaluation of regeneration, providing a prospective tool for surveying forests of contiguous cover.

habitat: oak-hornbeam forests, beech forests

forest management

forest structure: shrub layer

forest structure: regrowth

methodology: survey, inventory, monitoring

remote sensing: laser scanning

Notes

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Type: scientific paper

Strict forest reserves: [Pilis-oldal Forest Reserve](#) Attached document: [Brolly, Gábor,
Laser Scans73](#)