Metadata form of Silva Fennica

This form is designed for writing the elements of metadata, which are used in the description of research materials such as data and codes. The form is based on the work done in the Work Group "Description of research materials" under the Finnish Open Science Coordination.

Item	Description	Responsible
Name of the data / code	Point cloud data (las/laz files): Backpack mobile laser scanning (BpMLS) Drone-based laser Scanning (DLS) data Harvester-mounted mobile laser scanning (HarvMLS) data Excel data: Quantified forest structure R script for estimation of forest structure	Author
Author & ORCID	Kafle, Binod: 0000-0003-0744-3480; Kärhä, Kalle: 0000-0002-8455-2974	Author
Authors' affiliation(s)	Kafle, Binod[1]; Kärhä, Kalle[1] School of Forest Sciences, University of Eastern Finland (UEF), P.O. Box 111, FI-80101 Joensuu, Finland (https://ror.org/00cyydd11)	Author
Owner of the material	UEF (https://ror.org/00cyydd11)	Author
Publisher	-	Author
Funder	UEF (https://ror.org/00cyydd11)	Author
Description	This study aimd to evaluate the performance of a HarvMLS for assessing forest structure in Finland. It compares the system with BpMLS and DLS using point cloud data from 62 study plots (10 m × 10 m) to support research on forest structure assessment during active forest operations including first thinning.	Author
Methods	Point cloud processing was carried out using 3 softwares: ArcGis Pro, LASTools, and CloudCompare. Further, forest structure at the plot level was quantified using lidR package in R program.	Author
Variables	Variables are forest structural attributes and forest structural complexity metrics (mentioned in the article and the excel file).	Author
Author keywords	harvester, laser scanning, point cloud, forest structure	Author
Vocabulary keywords (community standard)	-	Author
Discipline	Forest Sciences, Remote Sensing	Archive/Repository/Publisher
Type of material	Research data and analytical code (R script)	Author
Language	eng	Author
Time range covered	2024-09-1 to 2026-02-17.	Author
Geographic region	Evo, Finland. The coordinates of the study area are 61°21'N and 25°11'E.	Author
Version	-	Author
File format(s)	.LAZ or .LAS, CSV, XLSX and R code	Author
Availability of the materials (open, embargo, registration, limited, registration required)	The point cloud data (LAS files), which are larger in size (more than 50 GB), are not available online but are available upon request from Binod Kafle.	Author
Justification for access restrictions	The research data will be available to everyone.	Author
Licence	CC BY 4.0 Creative Commons licences.	Author

Connections with other research materials	No	Author
Access to the connected research materials	-	Author
Codes only: hardware/software requirements for running the code	R programme with following packages (library) installed: lidR, readxl, writexl, corrplot, tidyverse, car, dunn.test, ggplot2, lme4, lmerTest, emmeans.	Author
Connections to other products of research	No	Author
Personal data	No	Author
Confidential or secret data	No	Author
Publication date	-	Archive/Repository/Publisher
Preservation policy	-	Author
Permanent identifier (PID)	For the R script and quantified forest structure, the link is https://zenodo.org/records/23491331 .	Archive/Repository/Publisher