

## 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 |
|--------------------------------|---|-------------|
| <i>Name of the data / code</i> | Sample plots from 45 local forest management inventories in South Norway and the Norwegian national forest inventory.   | Author      |
| <i>Author &amp; ORCID</i>      | Noordermeer, Lennart, ORCID: 0000-0002-8840-0345<br>Gobakken, Terje, ORCID: 0000-0001-5534-049X<br>Breidenbach, Johannes, ORCID: 0000-0002-3137-7236<br>Eriksen, Rune<br>Næsset, Erik, ORCID: 0000-0002-2460-5843<br>Ørka, Hans Ole, ORCID: 0000-0002-7492-8608<br>Bollandsås, Ole Martin, ORCID: 0000-0002-1231-7692)  | Author      |
| <i>Authors' affiliation(s)</i> | Norwegian University of Life Sciences (NMBU)<br>Affiliation Address: Faculty of Environmental Sciences and Natural Resource Management, Norwegian University of Life Sciences, P.O. Box 5003, NO-1432 Ås, Norway<br>ROR ID: <a href="https://ror.org/04a1mvv97">https://ror.org/04a1mvv97</a><br><br>Norwegian Institute of Bioeconomy Research (NIBIO)<br>Affiliation Address: Division of Forest and Forest Resources, Norwegian Institute of Bioeconomy Research, P.O. Box 115, NO-1431 Ås, Norway<br>ROR ID: <a href="https://ror.org/04aah1z61">https://ror.org/04aah1z61</a>  | Author      |
| <i>Owner of the material</i>   | Norwegian University of Life Sciences (NMBU), ROR: <a href="https://ror.org/04a1mvv97">https://ror.org/04a1mvv97</a><br><br>Norwegian Institute of Bioeconomy Research (NIBIO), ROR: <a href="https://ror.org/04aah1z61">https://ror.org/04aah1z61</a>  | Author      |
| <i>Publisher</i>               | Silva Fennica   | Author      |
| <i>Funder</i>                  | Norges Forskningsråd (Research Council of Norway). ROR: <a href="https://ror.org/00epmv149">https://ror.org/00epmv149</a>   | Author      |
| <i>Description</i>             | The dataset includes sample plots derived from 45 local forest management inventories conducted across Southern Norway and the Norwegian National Forest Inventory. The local inventories were carried out by Norwegian forest owners' cooperatives to provide spatially explicit data on forest properties and stands. The data include tree attributes such as species, height, diameter, collected using standardized inventory protocols.   | Author      |
| <i>Methods</i>                 | The study assessed the effects of sample tree selection and calculation methods on the accuracy of field plot values for volume, Lorey's mean height, and dominant height in area-based forest inventories. Data were obtained from 12,478 circular sample plots of 250 m <sup>2</sup> , measured as part of the Norwegian National Forest Inventory and 45 local forest management inventories. Monte Carlo simulations were applied to compare various sample tree selection methods (e.g., random, systematic, stratified) and numbers of sample trees (2, 6, 10, 14). Heights of non-sample trees were imputed using a modified Näslund height-diameter model, and tree volumes were computed with species-specific allometric models. Calculation methods for plot-level attributes were evaluated, including approaches that retained field-measured values or used imputed data. The root mean square error (RMSE%) and mean differences | Author      |

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|  | (MD%) were calculated to assess the accuracy of plot values, with results analyzed across forest types and strata using ANOVA.   |                              |
| <i>Variables</i>   | <p>InventoryID: Unique identifier for each inventory.</p> <p>PlotID: Unique identifier for each plot within an inventory.</p> <p>Cluster: Identifier for groups of sample plots.</p> <p>Stand: Local ID for forest stand within the inventory.</p> <p>X: East coordinate.</p> <p>Y: North coordinate.</p> <p>Coordsys: Coordinate system (e.g., EPSG codes).</p> <p>SDHoriz/SDHeight: Standard deviations for X-Y and Z coordinates.</p> <p>Elevation: Elevation above sea level (meters).</p> <p>Date: Measurement date.</p> <p>Crew_leader: Name/initials of the field crew leader.</p> <p>Plotsize: Area of sample plot (m<sup>2</sup>).</p> <p>Dominant species: Dominant species in the stand (species code).</p> <p>Development class: Development class of the stand.</p> <p>Age: Age of the stand (years).</p> <p>SiteIndex: Productivity of the stand.</p> <p>Treenr: Unique tree number within a plot.</p> <p>Species: Tree species code (e.g., 1=Spruce, 2=Pine, 3=Deciduous).</p> <p>DBH (dbh): Diameter at breast height (cm).</p> <p>Height (H): Tree height (meters).</p> | Author                       |
| <i>Author keywords</i>   | Forest inventory, sample plots, Norway, forest management, tree attributes, national forest inventory.   | Author                       |
| <i>Vocabulary keywords (community standard)</i>  | Forest inventory; Sample plots; Norway spruce; Scots pine; Height-diameter relationship; Area-based forest inventory.  | Author                       |
| <i>Discipline</i>  | Forest Inventory and Management  | Archive/Repository/Publisher |
| <i>Type of material</i>  | Research data.   | Author                       |
| <i>Language</i>  | English (en).  | Author                       |
| <i>Time range covered</i>  | 2004-01-01 to 2023-12-31.  | Author                       |
| <i>Geographic region</i>   | Valdres, Hamar, Drammen (Norway).  | Author                       |
| <i>Version</i>   | NA   | Author                       |
| <i>File format(s)</i>  | Csv.   | Author                       |
| <i>Availability of the materials (open, embargo, registration, limited, registration required)</i> | The data from the local forest management inventories are owned by the respective forest owners' cooperatives and are subject to their permissions. As such, these datasets cannot be freely shared. Access may be granted upon request and with explicit approval from the data owners. For the Norwegian National Forest Inventory data, access may be granted upon request.   | Author                       |
| <i>Justification for access restrictions</i>   | See above.   | Author                       |
| <i>Licence</i>   | The data from the local forest management inventories are subject to proprietary restrictions and cannot be shared without explicit permission from the forest owners' cooperatives. The Norwegian National Forest Inventory data is also restricted and not openly licensed due to confidentiality agreements. For further inquiries regarding usage rights, please contact the respective data owners.   | Author                       |
| <i>Connections with other research materials</i>   | This dataset is derived from raw data collected during local forest management inventories and the Norwegian National Forest Inventory.  | Author                       |
| <i>Access to the connected research materials</i>  | The data from the Norwegian National Forest Inventory data is subject to confidentiality agreements and is not openly accessible. Requests for access can be directed to the Norwegian Institute of Bioeconomy Research (NIBIO; <a href="https://ror.org/04aah1z61">https://ror.org/04aah1z61</a> ).   | Author                       |

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|  | <p>The data from the local forest management inventories are owned by the respective forest owners' cooperatives (Glommen-Mjøsen Skog, Viken Skog, AT-Skog and Allskog) and are not publicly available. Access to these datasets requires explicit permission from the data owners. For inquiries regarding access, please contact the respective cooperatives directly:</p> <p>Glommen Mjøsen Skog<br/>Grindalsvegen 3<br/>2406 Elverum<br/>Norway<br/>Contact person: Erik Ødegård<br/>Email: eo@glommen-mjosen.no</p> <p>Viken Skog<br/>Postboks 500 Sentrum,<br/>3504 Hønefoss<br/>Norway<br/>Contact person: Svein Dypsund<br/>Email: sd@viken.skog.no</p> <p>AT-skog<br/>Postboks 73,<br/>3901 PORSGRUNN<br/>Norway<br/>Contact person:Knut Nesland<br/>Email: knut.nesland@atskog.no</p> <p>Allskog<br/>Ingvald Ystgaards vei 13A,<br/>7047 Trondheim<br/>Norway<br/><a href="https://www.allskog.no/kontakt-oss">https://www.allskog.no/kontakt-oss</a><br/>Contact person:Kenneth Svensson<br/>Email: kenneth.svensson@allskog.no</p> |                              |
| <i>Codes only:<br/>hardware/software<br/>requirements for running<br/>the code</i> | NA   | Author                       |
| <i>Connections to other<br/>products of research</i>                               | NA   | Author                       |
| <i>Personal data</i>   | NA   | Author                       |
| <i>Confidential or secret<br/>data</i>   | The local forest management inventory data are owned by forest owners' cooperatives and contain proprietary details that cannot be freely shared without explicit permission. Similarly, the Norwegian National Forest Inventory data are subject to confidentiality agreements, restricting open access.  | Author                       |
| <i>Publication date</i>  | NA   | Archive/Repository/Publisher |
| <i>Preservation policy</i>   | NA   | Author                       |
| <i>Permanent identifier<br/>(PID)</i>  | NA   | Archive/Repository/Publisher |