

Supplementary material sample plot inventory Sihlwald for Wildnispark Sihlwald

Jonas Stillhard,¹ Kathrin Brändli,¹ Martina Hobi,¹ Peter Brang¹
May 2020

¹*Swiss Federal Research Institute for Forest, Snow and Landscape Research WSL, Forest Resources and Management, Zürcherstrasse 111, 8903 Birmensdorf, Switzerland.*

This document describes the available data and the data structure of the supplementary material provided to Wildnispark Sihlwald. This document describes the available data and the data structure of the supplementary material for the publication Brändli et al. (2020). The dataset consist of 8 comma separated files containing data derived from inventories in Sihlwald of 1981, 1989, 2003 and 2017.

The data was analysed with a design-based approach (Mandallaz 2008) using the R-package `forestinventory` (Hill et al. 2017). More information on the analysis is given in Brändli et al. (2020).

Derived data sample plot inventories

`plot_info.csv`

The file `plotinfo.csv` contains information on all sample plots. That data was used to create figure 5 in Brändli et al. (2020). The file is structured as shown in table 1 and contains 8 columns and 226 rows.

Table 1: Structure of the file `plot_info.csv`

Column	Description	Type
<code>plot_nr</code>	Plot number	numeric
<code>x_ch</code>	X-coordinate of plot in LV03	numeric
<code>y_ch</code>	Y-coordinate of plot in LV03	numeric
<code>inclination</code>	Inclination of plot, given in %	numeric
<code>exposition</code>	Slope-exposition of plot, given in gradians	numeric
<code>relief</code>	Encoded value 1: Plain, flat area 2: Top, upper slope 3: Middle slope 4: Foot slope, depression 5: Undeterminable	numeric
<code>strata_code</code>	strata encoding	numeric
<code>elevation</code>	Elevation of plot	numeric

DBH distribution 1981 - 2017

The file `dbhdistribution1981_2017.csv` contains information on the number of trees per dbh-class. Classes start from 8 cm and have a width of 4 cm, i.e class 1 covers all living trees between 8 and 11 cm. The file contains 5 columns and 540 row and it's structure is described in table 2. The data was used to create figure 17 in Brändli et al. (2020).

DBH distribution 2017

The file `dbhdistribution2017.csv` contains information on the number of trees per dbh-class. Classes start from 7 cm and have a width of 4 cm with only the first class covering 5 cm (7 - 11 cm). The file contains 5 columns and 135 row and it's structure is described in table 2. The data was used to create figure 8 in Brändli et al. (2020).

Table 2: Structure of the file `dbhdistribution1981_2017.csv`

Column	Description	Type
<code>strata_code</code>	strata encoding	numeric
<code>year</code>	Year of inventory	numeric
<code>dbh_class_4</code>	DBH-classes with a width of 4 cm, starting from 8 cm, see figure 17 in Brändli et al. (2020).	numeric
<code>estimate</code>	Value of the estimator per ha	numeric
<code>s_err</code>	Standard error of the estimate	numeric

Deadwood data Plots

The file `deadwood_plots.csv` contains the local densities based on the deadwood transects. The file contains 226 rows and 6 columns.

Please note: The line intersect sampling approach can not be used to find plots where large amounts of deadwood can be found as the approach is optimised towards an unbiased estimate of deadwood volume using multiple sample plots.

Table 3: Structure of the file `deadwoodplots_2017.csv`

Column	Description	Type
<code>plot_nr</code>	Plot number	numeric
<code>x_ch</code>	X-coordinate of plot in LV03	numeric
<code>y_ch</code>	Y-coordinate of plot in LV03	numeric
<code>zone_code</code>	Zone encoding 1: Core zone 2: Buffer zone	numeric
<code>strata_code</code>	strata encoding	numeric
<code>year</code>	Year of inventory	numeric
<code>local_density</code>	Local density of lying deadwood, based on line intersect sampling on 3 deadwood transects	numeric

Local densities of Tree related microhabitats (TREM's)

The file `tremplots20107.csv` contains the local densities of TREM-bearing trees for all sample plots. The file contains 226 rows and 6 columns. The structure of the file is described in 4

Table 4: Structure of the file `tremplots2017.csv`

Column	Description	Type
<code>plot_nr</code>	Plot number	numeric
<code>x_ch</code>	X-coordinate of plot in LV03	numeric
<code>y_ch</code>	Y-coordinate of plot in LV03	numeric
<code>zone_code</code>	Zone encoding 1: Core zone 2: Buffer zone	numeric
<code>strata_code</code>	strata encoding	numeric
<code>year</code>	Year of inventory	numeric
<code>local_density</code>	Local density of TREM's, see Brändli et al. (2020) for definitions.	numeric

Table 7, 9, 10

The files `tab7.csv`, `tab9.csv` and `tab10.csv` contain the information of table 7, table 9 and table 10. The structure is self-explanatory and described in the caption of the respective table.

Figures

All data-based figures of Brändli et al. (2020) have been included in the supplementary material as .pdf. Please refer to the figure captions in Brändli et al. (2020) for more information.

References

- Brändli, K., J. Stillhard, M. Hobi, and P. Brang. 2020. Waldinventur 2017 im Naturerlebnispark Sihlwald. WSL Ber. 93 52p .
- Hill, A., A. Massey, and D. Mandallaz, 2017. forestinventory: Design-based global and small-area estimations for multiphase forest inventories. R package version 0.2.0.
- Mandallaz, D. 2008. Sampling techniques for forest inventories. Chapman and Hall, Boca Raton.