Supplementary material sample plot inventory Sihlwald

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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 10 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

Living trees 1981 - 2017

The file `trees1981_2017.csv` contains the derived data of the living trees measured during the inventories 1981, 1989, 2003 and 2017. Trees were included in the inventory with a DBH $\geq$ 8.0 cm on a circular plot area of 300 m^2 (horizontal radius = 9.77 m). Table 1 gives an overview on the structure of the dataset.
The dataset contains 12 columns and 5181 rows.

Living trees 2017

The file `trees2017.csv` contains the derived data of the living trees measured during the inventory 2017. Trees were measured on two concentric sample plots of 200 m^2 (DBH $\geq$ 7 cm) and 500 m^2 (DBH $\geq$ 36 cm). The file is structured as shown in table 1 and contains 12 columns and 1125 rows.

Dead trees 2003 - 2017

The file `standingDeadwood2003_2017.csv` contains the derived data of the dead trees recorded during the inventories 2003 and 2017. Dead trees were included in the inventory with a DBH $\geq$ 8 cm on a circular plot of 300 m^2 (horizontal radius = 9.77 m). The file is structured as shown in table 1 but is missing the dbh_group column. The dataset contains 11 columns and 90 rows. The dataset does not distinguish between species as for the living trees but between conifers and broadleaved species. It contains 90 columns and 11 rows.

Dead trees 2017

The file `standingDeadwood.csv` contains the derived data of the dead trees recorded during the inventory 2017. Trees were measured on two concentric sample plots of 200 m^2

(DBH $\geq$ 7 cm) and 500 m^2 (DBH $\geq$ 36 cm). The file is structured as shown in table 1. The dataset does not distinguish between species as for the living trees but between conifers and broadleaved species. It contains 12 columns and 151 rows.

Table 1: Structure of the files `trees1981_2017.csv / trees2017.csv / standingDeadwood2003_2017.csv / standingDeadwood2017.csv`

Column	**Description**	**Type**
strata_code	strata encoding	numeric
strata_name	strata name, german	character
species_code	species encoding	numeric
species_latin	Scientific name of species	character
species_abb	German abbrevation of species	character
dbh_group	DBH group 0: All DBH-classes combined 1: 7 (2017 - datasets)/ 8 (change datasets) - 11 cm DBH 2: 12 - 35 cm DBH 3: $\geq$ 36 cm DBH	numeric
year	Year of inventory	numeric
estimator	Estimator for the respective estimate `ntrees`: Number of trees [N/ha] `bArea`: Basal area [m^2/ha] `vol`: Volume [m^3/ha]	character
n_plots	Number of plots used for the respective analysis and stratum	numeric
estimate	Value of the estimator per ha	numeric
s_err	Standard error of the estimate	numeric
share	Share on the total of the estimator per species and strata	numeric

Regeneration 2017

The file `regeneration2017.csv` contains the data derived from the regeneration surveys. These were carried out on a regeneration plot consisting of three concentric plots where regeneration trees were counted in three height classes (10 - 39 cm, 40 - 129 cm and $\geq$ 130 cm - 6.9 cm DBH), see Tinner et al. (2013) for more information on the sampling. Table 2 describes the structure of the file.

Table 2: Structure of the file `regeneration2017.csv`

Column	Description	Type
strata_code	strata encoding	numeric
strata_name	strata name, german	character
species_code	species encoding	numeric
species_latin	Scientific name of species	character
species_abb	German abbrevation of species	character
height_class	Height class 0: All height classes combined 1: 10 - 39 cm height 2: 40 - 129 cm height 3: height $\geq$ 130 cm - 6.9 cm DBH	numeric
year	Year of inventory	numeric
n_plots	Number of plots used for the respective analysis and stratum	numeric
estimate	Volume of lying deadwood per ha	numeric
s_err	Standard error of the estimate	numeric
share	Share on the total of the estimator per species and strata	numeric

Lying deadwood 2017

Lying deadwood was assessed using 3 line transects. All deadwood pieces with a mean diameter $\geq$ 7 cm were included in the inventory. The derivation of the local densities follows Böhl and Brändli (2007). During the deadwood assessment we only distinguished between coniferous and broadleaved species.

Table 3: Structure of the file `lyingDeadwood2017.csv`

Column	Description	Type
strata_code	strata encoding	numeric
strata_name	strata name, german	character
species_code	species encoding	numeric
species_latin	Scientific name of species	character
species_abb	German abbrevation of species	character
year	Year of inventory	numeric
n_plots	Number of plots used for the respective analysis and stratum	numeric
estimate	Number of regeneration trees per ha	numeric
s_err	Standard error of the estimate	numeric
share	Share on the total of the estimator per species and strata	numeric

References

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