

## 6 Appendix

### 6.1 Variable Documentation

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The variable documentation provides information about the attributes that were used in the second National Forest Inventory. The documentation is intended to give a rough overview. A detailed description of the individual attribute values and code definitions is therefore not given at this point. With abbreviated names and the name of the table, it ensures that the attributes are clear and the reference to the database of the second NFI is given. The data for the individual attributes are stored in a relational database in thematic tables and can be linked with the help of key variables (which are not listed here) for the analysis. The list at hand is sorted by themes (=tables) and abbreviated names.

Table	Theme
BA	Individual tree data
BEMERK	Remarks on special features of sample tree
CL2	Geographic data of the sample plot
HHVORAUF	Timber harvest expenditure
HOLZWEG	Forest transportation system
JWKLA2	Young growth
JWSALFI2	Young growth (area = plot)
LBAUFN	Aerial photography interpretation
RUVORAUF	Expenditure for timber extraction
SCHADEN	Damage
SORTD	Timber assortment
STRASSE	Forest transportation system
WA	Area data for the forest survey
WR	Forest margin

- 1) “**Origin**” denotes the data source:
- |   |                                   |
|---|-----------------------------------|
| 1 | Terrestrial inventory             |
| 2 | Aerial photography interpretation |
| 3 | Map or GIS                        |
| 4 | Derived attribute                 |

2) Category “**used as**”: The number of “used as” refers to the chapter in the result volume publication of the second NFI.

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Abbreviated name	Table	Description (in the NFI1: Long name)	Unit	Minimum	Maximum	Number of Codes	Definition of code differently for each inventory	Origin 1)	Used as 2)	NFI1	NFI2	Author	NFI1-Var.No.
ZWANUANT	WA	Proportion of unregulated fellings, in percentage of the total utilization	%	0	100		*	1	9,2		*	AH	
ZWANUURS	WA	Cause of unregulated fellings	Code	1	10	10	*	1	9,2		*	AH	
LETZTENU	WA	Number of years since last silvicultural treatment	Number	0	99			1	9,2		*	AH	
NUART	WA	Type of last silvicultural treatment since the first NFI	Code	1	11	11	*	1	9,2		*	AH	
PLAN	WA	Kind of management plan that was valid during the time of the survey	Code	1	4	4	*	1	9,2		*	AH	
PLANJAHR	WA	Year when management plan was created	Year	1900	1995			1	9,2		*	AH	
EGART	WA	Type of next required silvicultural treatment	Code	1	7	7	*	1	9,2		*	AH	125
EGDRING	WA	Urgency of next silvicultural treatment	Code	1	5	5	*	1	9,2		*	AH	
EBSGRAD	BA	Degree of damage of the sample tree	Code	1	6	6		4	9,3		*	AH	
SANZ AHL	BA	Number of damages on the sample tree	Code	0	3	4		4	9,3		*	AH	
HSCHURS	SCHADEN	Indicator if recorded damage is the main cause	Code	0	1	2		4	9,3		*	AH	
SCHANR	SCHADEN	Damage identification number	Code	1	14	6		4	Auxiliary variable		*	AH	
SCHART	SCHADEN	Type of tree damage	Code	11	199	31	*	1	9,3		*	AH	
SCHURS	SCHADEN	Cause of damage	Code	2	115	20	*	1	9,3		*	AH	
SCHORT	SCHADEN	Location of damage at tree	Code	1	4	4		1	9,3		*	AH	
BESTSTAB	WA	Mechanical stability of stand	Code	1	10	10		1	9,4		*	AH	154
BSTSGRAD	WA	Degree of stand damage	Code	1	6	6		4	9,3		*	AH	
FONUFL	WA	Management intensity	Code	1	3	3		4	9,2		*	AH	
HANDBDF2	WA	Fulfillment of the stability requirements for protection forests, only NFI2	Number	0	1			4			*	AH	
HANDBDF2	WA	Number of defined variables for HANDBDF2	Number	3	5			4	Auxiliary variable for HANDBDF2			AH	
NUJRLFI2	WA	Number of years since last silvicultural operation, if missing in NFI2: updated	Number/code	-99	110			4	9,2		*	AH	
SCHUWIRL	WA	Protection effect of the forest against the fracture of avalanches	Code	1	3	3		4	13,3		*	AH	
SCHUWIRS	WA	Protection effect of the forest against the hazard "rockfall"	Code	1	4	4		4	13,3		*	AH	
STABHDST	WA	Stability requirement for protective forest with respects to the DBH dispersion	Code	0	1	2		4	13,3		*	AH	
STAKRONE	WA	Stability requirement for protective forest with respects to the crown form and length	Code	0	1	2		4	13,3		*	AH	
STAMISCH	WA	Stability requirement for protective forest with respects to the mixture proportion	Code	0	1	2		4	13,3		*	AH	
STASLKGR	WA	Stability requirement for protective forest with respects to the slenderness	Code	0	1	2		4	13,3		*	AH	
STASTRUK	WA	Stability requirement for protective forest with respects to the stand structure	Code	0	1	2		4	13,3		*	AH	
STAVJDG	WA	Stability requirement for protective forest with respects to the closure of regeneration	Code	0	1	2		4	13,3		*	AH	
STZGE16	WA	Number per ha of trees with DBH >= 16 cm	Number	0	2050			4	Auxiliary variable for SCHUWIRL			AH	
STZGE40	WA	Number per ha of trees with DBH >= 40 cm	Number	0	536			4	Auxiliary variable for SCHUWIRS			AH	
WIWATYP	WA	Forest type classification with respects to winter canopy (e.g. deciduous forest, mixed forest)	Code	1	5	5		4	Auxiliary variable for SCHUWIRL			AH	
AZI	BA	Azimuth of a sample tree, measured from the sample plot center	gon	0	400			1	Diverse			BT	
AZI	CL2	Derived aspect for the calculation of the total increment (TI)	gon	0	999			4	Auxiliary variable for TI			BT	
EX	CL2	Derived aspect class (north/south aspect) to derive the TI and HOESTUF	Code	N	s			4	Auxiliary variable for TI and HOESTUF			BT	
FLAECHE	CL2	Indicator variable, all aerial photo samples in the 500-m-grid receive the value 1	ha	1	1			4				BT	
TERRNET	CL2	Indicator variable, identifies the assignment to the terrestrial grid of NFI2	Code	0	1	2		4				BT	
TERRNETK	CL2	Indicator variable, identifies the assignment to the terrestrial grid of the first occasion of forest inventories in the regions	Code	0	1	2		4				BT	
DG	HHVORAUF	Diameter of the mean basal area tree used for the derivation of the timber harvest expenditure	cm	8.660254038	175			4	Auxiliary variable for HHVORAUF			BT	
JAHR	HHVORAUF	Reference year, auxiliary variable, input variable in simulation studies	YY	85	95			4	Auxiliary variable			BT	
MENGE	HHVORAUF	Harvest volume / standing gross volume separate by broadleaf and conifer tree species (derived attribute used in timber harvest expenditure)	m3/ha	0.95	1638.89			4	Auxiliary variable ?			BT	
NHLH	HHVORAUF	Classification of the tree species in conifer and broadleaf trees	Code	1	2	2		4	Diverse?			BT	
STZ	HHVORAUF	Total number of stems per hectare and tree species group (broadleaf, conifer) used for the calculation of the timber harvest expenditure	Code	20	2962			4	Auxiliary variable for timber harvest			BT	
VCODE	HHVORAUF	Code for timber extraction method, used for the expenditure calculation of carrying out the timber harvest	Code	1	13	20		4	Auxiliary variable?			BT	
KOMBENT	LBAUFN	Combined (=edited) forest decision from the aerial photography interpretation (default) and the terrestrial survey (verification)	Code	1	4	4		4	Diverse			BT	
RPLB	LBAUFN	Weight factor for the expansion of the aerial photography interpretation area to hectare values	Code	4	4			4	Auxiliary variable ?			BT	
SPANNHOE	LBAUFN	Range of the tree height, derived from the aerial photography interpretation (lbrast.kronhoe)	Meters	0.6	139.7			4	Auxiliary variable?			BT	
ANFALL	RUVORAUF	Estimated total timber for cable crane on the accessible area	m3	35	3439			4	?			BT	
JAHR	RUVORAUF	Reference year, auxiliary variable as an add-on for the inventory number of the simulation study	YY	95	95			4	Auxiliary variable			BT	

Abbreviated name	Table	Description (in the NFI1: Long name)	Unit	Minimum	Maximum	Number of Codes	Definition of code differently for each inventory	Origin 1	Used as 2)	NFI1	NFI2	Author	NFI1-Var. No.
MENGE	RUVORAU	Harvested volume in Efm/ha and tree species, calculated using the assortment volumes	m3	0.75	1419.959			4	?			BT	
NHLH	RUVORAU	Classification of the tree species in conifer and broadleaf trees	Code	1	2	2		4	Diverse			BT	
STKMIDM	RUVORAU	Mean assortment diameter per tree species	cm	10	48.2			4	?			BT	
TRSPEZ	RUVORAU	Code for timber extraction using a tractor	Code	1	3	3		4	?			BT	
VCODE	RUVORAU	Code for timber extraction method, used for the calculation of timber harvest expenditure.	Code	2	26	20		4	Auxiliary variable?			BT	
FLAECHE	WA	Indicator variable, all accessible terrestrial sample plots receive the value 1		1	1			4	Auxiliary variable			BT	
LBNEIG	WA	Slope of the interpretation area in the aerial photo	%	0	364			2	Diverse?			BT	
NEIGUNG	WA	Slope of the terrestrial sample plot	%	0	202			1	Diverse?			BT	
ASTDH	BA	Estimated volume of branches (diameter >=7cm)	m3	0	13.0374			4	11	*		EK	
BAL	BA	Basal area of all trees on the sample plot with larger d1.3	m2/ha	0	222.1			4	6	*		EK	
BASF	BA	Basal area	m2	0.01	3.11			4	6	*		EK	
BHDKL	BA	DBH class	Code	0	4	5		4	Diverse	*		EK	
BHOHD	BA	Individual tree height predicted with tariff function	Meters	0	45			4	6	*		EK	
D13	BA	Measured DBH, with calliper or measuring tape	cm	0	199			1	6	*		EK	
D7D	BA	D7 predicted with tariff function	cm	0	97			4	6	*		EK	
DUERR	BA	Health condition of the sample tree	Code	1	11	4		1	6	*		EK	
HBART	BA	Main tree species	Code	1	12	13		4	Diverse	*		EK	360
HISTKT	BA	Tree history for regional inventories	Code	-1	-1	9		4	Auxiliary variable	*		EK	
HISTORY	BA	Tree history for national inventory (e.g., survivor, ingrowth, ongrowth, cut tree)	Code	1	9	9		4	Auxiliary variable	*		EK	
IMMERTOT	BA	History of the health condition for the national inventory	Code	0	3	5		4	6	*		EK	
LBHNDH	BA	Broadleaf or conifer	Code	1	2	2		4	Diverse	*		EK	361
NADELN	BA	Needle weight	kg/m2	1.3	1293.8			4		*		EK	
OBIO	BA	Above ground biomass	m3	0.016	33.834			4	11	*		EK	
REISIG	BA	Branchwood	m3	0.0011	8.9781			4	11	*		EK	
RPSTZ	BA	Expansion factor from single tree value to per ha value	n/ha	0	300			4	11/diverse	*		EK	365
TARNR	BA	Tariff number	Code	201	230			4	6	*		EK	
TARWAHL	BA	Selected as tariff sample tree	Code	0	2	3		4	6	*		EK	
TOTKT	BA	History of the health condition for the regional inventories	Code	-1	-1	5		4	Diverse	*		EK	
VLOKAL	BA	Stem volume, estimated with locale tariff function	m3					4		*		EK	
VMRD	BA	Stem volume over bark, estimated with tariff	m3	0	24.856			4	6/diverse	*		EK	
VORD	BA	Stem volume under bark, estimated with tariff	m3	0.012	22.014			4	6	*		EK	
VPPS	BA	Bias correction for the tariff function in the national inventory	m3	-9.948	20.517			4	6	*		EK	
VPPSKT	BA	Bias correction for the tariff function in the regional inventory	m3	0	0			4	6	*		EK	
WURZELN	BA	Root weight	kg/m3	4.8	16115.5			4		*		EK	
BEM	BEMERK	Remarks	Code	1	18	18	*	1	Auxiliary variable	*		EK	
EFMD	HHVORAU	Timber volume in cubic meters of timber harvested	m3	0.75	1419.959			4	Auxiliary variable	*		EK	
HBART	JWKLA2	Main tree species	Code	1	12	13		4	Diverse	*		EK	
RPSTJ	JWKLA2	Expansion factor from single tree value to per ha value for regeneration plot data	n/ha	708.24	3183.1			4	13	*		EK	452
SCHADEN	JWKLA2	Type of damage at young growth tree	Code	1	9	10		1		*		EK	
JAZIABBR	JWSALFI2	Stopped counting at azimuth in the first NFI	gon					1		*		EK	
MISTKINH	RUVORAU	Average volume per piece	m3	0.0075	5.0844			4		*		EK	
MITDMD	SORTD	Estimated mean assortment diameter	cm	0	154			4	11	*		EK	
SORTART	SORTD	Type of assortment	Code	A	T	4		4	11	*		EK	
SORTKLD	SORTD	Estimated class of assortment	Code	1	10			4	11	*		EK	
SORTVD	SORTD	Estimated volume of assortment	m3	0.001	21.43			4	11	*		EK	
ALTERD	WA	Estimated age using tree-ring based model	Years	30	350			4	6	*		EK	
BASFPH	WA	Basal area per ha	m3/ha	0.57	143.27			4	6	*		EK	
DDOM	WA	Mean diameter of the 100 thickest trees per hectare	cm	0	132.5			4	6	*		EK	
DMPH	WA	Sum of all tree diameters (per hectare) of all standing and living trees on the sample plot	cm/ha	0	56257			4		*		EK	
EFMD	WA	Cubic meters of timber harvested per hectare	m3/ha	0	1454.568			4	Auxiliary variable	*		EK	
KFM	WA	Diameter corresponding to mean basal area	cm	0	175			4	11	*		EK	
NPH	WA	Number of stems per hectare for all standing and living trees	n/ha	20	2962			4	6/diverse	*		EK	
RVMRD	WA	Volume over bark per ha of standing and living trees	m3/ha	0	1638.89			4	6/diverse	*		EK	
VEGPER	WA	Number of growing seasons since first NFI		7.26	12.75			4	6	*		EK	
BART	BA	Tree species	Code	1	118	98	*	1	7.5	*		HST	340
BHD	BA	Diameter at breast height	cm	12	121			1	7.3/7.5	*		HST	341
BSTAT	BA	Status of the tree (e.g., present in NFI1 and NFI2)	Code	1	5	5		1	Auxiliary variable	*		HST	
GRUND	BA	Reason for trees present in first assessment not found in second assessment	Code	1	4	4		1	Auxiliary variable	*		HST	
KROFRM	BA	Shape of crown	Code	1	3	3	*	1	Auxiliary variable	*		HST	
KROLAE	BA	Crown length	Code	1	3	3	*	1	Auxiliary variable	*		HST	
RINGE	BA	Number of year rings	Number	33	33			1	Auxiliary variable	*		HST	
SCHICHT	BA	Layer to which sample tree belongs	Code	1	4	4		1	Auxiliary variable	*		HST	344
SOZSTEL	BA	Social position of sample tree in forest stand	Code	1	5	5		1	Auxiliary variable	*		HST	
UMFANG	BA	Circumference of the sample tree in 1.3 meter heights	cm	33	628			1	Auxiliary variable	*		HST	
ZWIESL	BA	Tree has a bifurcation	Code	0	1	2	*	1	Auxiliary variable	*		HST	363
ANZAHL	JWKLA2	Number of stems in regeneration class	Number	1	216			1	8.2	*		HST	
ALTERMET	WA	Method for estimating stand age	Code	1	3	4		1	Auxiliary variable	*		HST	
AZIEXPOW	WA	Azimuth of the terrestrial sample plot aspect	gon	0	400			1	Diverse	*		HST	81
BESTALT	WA	Stand age	Years	1	400			1	7.4	*		HST	248
BESTGREN	WA	Stand boundary	Code	1	2	2		1	Auxiliary variable	*		HST	
BODVEGDG	WA	Closure of ground vegetation	Code	0	6	7		1	12	*		HST	
BRAND	WA	Traces of fire	Code	1	2	2		1	5	*		HST	88
DATUMU	WA	Date of enquiry	Date	07-MAY-93	22-MAY-96			1	Auxiliary variable	*		HST	

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DATUMW	WA	Date of sample plot assessment	Date	06-MAY-93	27-OCT-96			1	Auxiliary variable		*	HST	
DG	WA	Crown closure in percentages	%	0	100			1	Auxiliary variable		*	HST	
EST	WA	Stage of stand development	Code	1	6	6		1	7.3	*	*	HST	101
EXPO	WA	Aspect determinable?	Code	1	2	2	*	1	Auxiliary variable	*	*	HST	82
KRFLGR	WA	Reduced area of the large plot (for plots at forest boundary)	m2	1	500			4	Auxiliary variable	*	*	HST	
KRFLKL	WA	Reduced area of the small plot (for plots at forest boundary)	m2	1	200			4	Auxiliary variable	*	*	HST	
MISCHG	WA	Mixture proportion of needle and deciduous trees	Code	1	4	4	*	1	Diverse	*	*	HST	121
NUTZKAT	WA	Utilization class of forest land (e.g., forest stand, road, meadow)	Code	1	12	12		1		*	*	HST	
PFRAGR	WA	Radius of 500 m2 field plot (horizontal: 12.62m)	Meters	12.62	17.83			1	Auxiliary variable	*	*	HST	
PFRAKL	WA	Radius of 200 m2 field plot (horizontal: 7.98m)	Meters	7.98	11.28			1	Auxiliary variable	*	*	HST	
PFSTAT	WA	Status of field plot (e.g., found, not found, assessed for the first time)	Code	1	8	8		1	Auxiliary variable	*	*	HST	
RELIEF	WA	Type of relief	Code	1	5	5		1	Diverse	*	*	HST	83
STOECKE	WA	Stumps present or not	Code	1	2	2		1	12	*	*	HST	
STRADG	WA	Closure of shrub species	Code	1	6	7		1	12	*	*	HST	
STRUK	WA	Stand structure (vertical layers)	Code	1	4	4		1	7.3	*	*	HST	123
VORHERBA	WA	Dominant tree species	Code	1	12	13		4	7.5	*	*	HST	
WFRM	WA	Origin and management type of forest	Code	1	5	5		1	7.3	*	*	HST	100
WNWENT	WA	Forest/non-forest decision	Code	1	11	11	*	1	Diverse	*	*	HST	70
WTYP	WA	Forest type	Code	1	4	4	*	1	7.3	*	*	HST	99
ZUGANG	WA	Accessibility of sample plot	Code	1	7	7	*	1	Diverse	*	*	HST	69
BEFAHRB	CL2	Trafficability of soil according to the soil suitability map (Frei et al., 1980)	Code	0	5	6		3	None	*		IP	52
BONUKAT	CL2	Land-use categories of the area statistics (BFS, 1992), 69 classes	Code	10	99	69		3	Auxiliary variable	*		IP	
DURCHL	CL2	Soil characteristic "water permeability" according to the soil suitability map (Frei et al., 1980)	Code	0	6	8		3	5	*	*	IP	50
ENTWREG	CL2	Regions of the land-use planning and promotion of mountain regions	Code	1	55			4	Diverse	*		IP	11
GRUEND	CL2	Soil characteristic "depth" according to the soil suitability map (Frei et al., 1980)	Code	0	6	8		3	5	*	*	IP	46
HERKEX	CL2	Source of origin for aspect	Code	1	4	4		4	Auxiliary variable			IP	
HERKREL	CL2	Source of origin for relief	Code	1	3	3		4	Auxiliary variable			IP	
HUEM	CL2	Elevation above sea level from aerial photo/terrain models	Meters	174.2	4501			2	Diverse	*	*	IP	3
KAFO	CL2	Combined key of canton and forest districts	Code	100	2603			4	Diverse	*	*	IP	
LANUKL17	CL2	Simplified land-use categories according to area statistics (BFS, 1992) with 17 classes	Code	1	17	17		4	Diverse	*		IP	
NAEHRSP	CL2	Soil characteristic "nutrient content"	Code	0	6	7		3	None	*		IP	49
RASTFLAE	CL2	Actual area of the quadratic sample plot (500 x 500 m) around the sample plot center (smaller at Swiss border)	ha	5.724	25			3	10.2	*		IP	
RPGIS	CL2	Weight factor of the sample plot for GIS-variables	Number	0.04	1.831501832			4	Diverse	*		IP	
RUSACK	CL2	Soil characteristic "risk of rock/ soil slides" as determined from the simplified geotechnical map	Code	1	5	5		3	5	*		IP	
SKEL	CL2	Soil characteristic "skeleton content" according to the soil suitability map (Frei et al., 1980)	Code	0	5	6		3	5	*	*	IP	47
SOILTYPE	CL2	Type of soil according to the soil suitability map (Frei et al., 1980) (letters)	Code	A1	Z5			3	5	*		IP	
VERNAESS	CL2	Soil characteristic "soil moisture" according to the soil suitability map (Frei et al., 1980)	Code	0	4	6		3	5	*		IP	51
WAFLAE	CL2	Forest area on the 25 ha sample of the pixel map	ha	0	25			4	10.2	*		IP	
WALDANT	CL2	Forest area proportion on the 25 ha sample of the pixel map	Number	0	1			4	10.2	*		IP	
WASSP	CL2	Soil characteristic "water storage capacity"	Code	0	6	7		3	5	*	*	IP	48
NEIG	HHVORAUF	Slope of the interpretation plot (from aerial photo)	Percentage	0	182			2	Diverse	*	*	IP	
TE0	HOLZWEG	Theoretical transport distance to the next forest road	Meters	0	297761.8227			3	10.2	*		IP	
TEM	HOLZWEG	Horizontal transport distance to the next forest road	Meters	0	13665			3	10.2	*		IP	
TES	HOLZWEG	Oblique distance to the next forest road	Meters	0.141	19677.028			3	10.2	*		IP	
DIST	BA	Distance of tree from plot center, measured at 1.3 meter heights	Meters	0	17.6			1	Diverse	*	*	JZ	342
TRAEMGEB	CL2	Indicator whether the assortments are short timber or long timber, determined from the enquiry NFI2	Code	1	2	2		4	Auxiliary variable	*		JZ	
HHABSMAS	HHVORAUF	Felling expenditure per sample plot and type of timber for machines except chain saw	min	0	1792.752			4	Auxiliary variable for timber harvest	*		JZ	
HHABSMS	HHVORAUF	Felling expenditure per sample plot and type of timber for chain saw	min	0	26979.221			4	Auxiliary variable for timber harvest	*		JZ	
HHABSP	HHVORAUF	Felling expenditure per sample plot and type of timber for personnel	min	0	78074.093			4	Auxiliary variable for timber harvest	*		JZ	
HHAUFWA	HHVORAUF	Felling expenditure in Swiss francs per sample plot and type of timber	Fr/ha	0	55909.23813			4	Auxiliary variable for timber harvest	*		JZ	
HHMAS	HHVORAUF	Felling expenditure in Swiss francs per m3, sample plot, and type of timber for machines except chain saw	min/m3	0	16			4	Auxiliary variable for timber harvest	*		JZ	
HHMS	HHVORAUF	Felling expenditure in minutes per m3, sample plot, and type of timber for chain saw	min/m3	0	81			4	Auxiliary variable for timber harvest	*		JZ	
HHP	HHVORAUF	Felling expenditure in minutes per m3 sample plot, and type of timber for personnel	min/m3	0	220			4	Auxiliary variable for timber harvest	*		JZ	
WEGLAE	HOLZWEG	Length of roads important for forestry as determined with the digitized roads	Meters	0	3609.716334			4	10	*		JZ	
JWART	JWKLA2	Tree species (including shrubs) in the young growth	Code	1	118	98		1	Auxiliary variable	*	*	JZ	
JWSANR	JWKLA2	Identification number of regeneration plot	Code	1	2			4	Auxiliary variable	*		JZ	
KLA	JWKLA2	Size class (trees < 10-130 cm height ) or diameter class (trees > 0.1-12 cm diameters) of trees on the regeneration plots	Code	1	7	7		1	Auxiliary variable	*		JZ	
WURST	JWKLA2	Indicator whether the young growth plant is a living tree (regeneration without shrubs and dead trees)	Code	0	1	2		4	8.2	*		JZ	

Abbreviated name	Table	Description (in the NFI: Long name)	Unit	Minimum	Maximum	Number of Codes	Definition of code differently for each inventory	Origin		NFI	NFI2	Author	NFI-Var. No.
								Origin 1	Used as 2)				
ESTJ	JWSALFI2	Development stage of the stand in which the regeneration plot is located, if regeneration plot center is in a different stand than the main sample plot center	Code	1	6	6		1	Auxiliary variable	*	JZ		
GESAMTDG	JWSALFI2	Closure of regeneration on regeneration plot	Percent	0	100			1	Auxiliary variable	*	JZ		
JWLAGE	JWSALFI2	Position of the regeneration plot with respects to properties (stand, accessibility, etc.) of the NFI-sample plot center	Code	1	4	4		1	Auxiliary variable	*	JZ		
JWRAGR	JWSALFI2	Radius of the regeneration plot for class 2-7, with slope	Meters	2.12	3			1	Auxiliary variable	*	JZ		
JWRACL	JWSALFI2	Radius of the regeneration plot for class 1, with slope	Meters	1	1.41			1	Auxiliary variable	*	JZ		
SCHLUSGJ	JWSALFI2	Crown closure of the stand in which the regeneration plot is located if regeneration plot center is in a different stand than the main sample plot center	Code	1	8	55		1	Auxiliary variable	*	JZ		
SCHUTZ	JWSALFI2	Type of protection measures of regeneration against game browsing	Code	1	3	3		1	8	*	JZ		
VERJART	JWSALFI2	Origin of the regeneration in the regeneration plot (planted, natural regeneration, mixed)	Code	1	4	4		1	Auxiliary variable	*	JZ		
VERYBEST	JWSALFI2	Stands for which the regeneration is silviculturally important	Code	1	4	4		4	8	*	JZ		
RI	RUVORAU	Direction of timber transport = direction with longest timber transport	Code	0	3	3		4	Auxiliary variable	*	JZ		
RUABSMAS	RUVORAU	Extraction expenditure in machine minutes per sample plot and type of timber	min	1.5	195058.4			4	Auxiliary variable	*	JZ		
RUABSP	RUVORAU	Extraction expenditure in person minutes per sample plot and type of timber	min	0	412696.93			4	Auxiliary variable	*	JZ		
RUAUFWA	RUVORAU	Extraction expenditure in Swiss francs per sample plot and type of timber	Fr/ha	0	488395.1373			4	Auxiliary variable	*	JZ		
RUDIS	RUVORAU	Timber extraction distance, total distance of the procedure without skidding	Meters	0	80000			4	10	*	JZ		
RUMAS	RUVORAU	Extraction expenditure in machine minutes/m3 per sample plot and type of timber, depending on the tools used for timber harvest	min/m3	1	1840			4	Auxiliary variable	*	JZ		
RUP	RUVORAU	Extraction expenditure in person minutes/m3 per sample plot and type of timber, depending on the tools used for timber harvest	min/m3	0	3893			4	Auxiliary variable	*	JZ		
ZUZUG	RUVORAU	Distance of pre-skidding	Meters	0	800			4	Auxiliary variable	*	JZ		
LTYF	STRASSE	Road type of the forest transportation roads	Code	1	8	8		3	Auxiliary variable	*	JZ		
STRKLASS	STRASSE	Road class according to Swiss Federal Office of Topography	Code	0	6	7		3	Auxiliary variable	*	JZ		
STRLAE	STRASSE	Road length according to the GIS	Meters	0.125973	3410.808143			4	Auxiliary variable	*	JZ		
STRWO	STRASSE	Type of surrounding of the forest transportation roads	Code	1	4	4		3	Auxiliary variable	*	JZ		
TUNNEL	STRASSE	Road in tunnel or gallery	Code	0	9	2		3	Auxiliary variable	*	JZ		
AUFWA	WA	Total expenditure in Swiss francs/ha per sample plot, without debarking expenditure	Fr/ha	0	524471.447			4	Auxiliary variable	*	JZ		
AUFWAM	WA	Total expenditure in Swiss francs/m3 per sample plot, without debarking expenditure	Fr/m3	14.78333333	4725.366667			4	Auxiliary variable	*	JZ		
ERKONZ	WA	Concept for the timber harvesting and transportation system of the forest districts	Code	1	5	6		4	Auxiliary variable	*	JZ		
ERNTART	WA	Tools for timber harvest at the present time	Code	1	5	5		1	Auxiliary variable	*	JZ		
ERNTAUSF	WA	Timber harvest carried out by external enterprise or with own personnel	Code	1	7	7		1	Auxiliary variable	*	JZ		
GESDIS	WA	Total transportation distance (timber extraction + pre-skidding)	Meters	0	80290			4	Stratifying variable	*	JZ		
HHAUFWA	WA	Felling expenditure in Swiss francs/ha per sample plot, without debarking expenditure	Fr/ha	0	55909.23813			4	Auxiliary variable	*	JZ		
HHAUFWAM	WA	Felling expenditure in Swiss francs/m3 per sample plot, without debarking expenditure	Fr/m3	0	162.8666667			4	Auxiliary variable	*	JZ		
HOHAUEIN	WA	Constraints for timber harvest (e.g. settlements)	Code	1	5	5		1	Auxiliary variable	*	JZ		
HOHAUHN	WA	Obstacles for the timber harvest on the interpretation area	Code	1	4	4		1	Auxiliary variable	*	JZ		
HOLZMECH	WA	Level of mechanization of the timber harvest	Code	1	5	5		4	10	*	JZ		
RUAUFWA	WA	Timber extraction expenditure in Swiss francs/ha per sample plot	Fr/ha	0	495974.8523			4	Auxiliary variable	*	JZ		
RUAUFWAM	WA	Timber extraction expenditure in Swiss francs/m3 per sample plot	Fr/m3	0	4678.566667			4	Stratifying variable	*	JZ		
RUEDIS	WA	Total timber extraction distance per sample plot	Meters	0	14800			4	Stratifying variable	*	JZ		
RUEMIEIN	WA	Constraints for extraction method	Code	1	4	5		1	Auxiliary variable	*	JZ		
RUEMIT	WA	Main timber extraction method	Code	1	4	5		1	Auxiliary variable	*	JZ		
SANR	WA	Identification number of plots within the cluster	Code	1	1	1		1	Auxiliary variable	*	JZ		
SCHLUSSG	WA	Crown closure	Code	1	8	8		1	Auxiliary variable	*	JZ		
SCHUTZ	WA	Protection measures in the stand against game browsing	Code	1	3	3		1		*	JZ		
TRAE LANG	WA	Utilized timber, sorted as shorter or longer stemwood	Code	1	2	2		1	Stratifying variable	*	JZ		
TRANSDIS	WA	Total pre-skidding distance per sample plot	Meters	10	80000			4	10	*	JZ		
VERJART	WA	Origin of the regeneration in the relevant stand (e.g., natural, planted)	Code	1	3	4		1	8	*	JZ		
VERJDG	WA	Closure of regeneration	Code	1	6	7		1	8	*	JZ		
VERYBEST	WA	Stands for which the regeneration is silviculturally important	Code	1	4	4		4	Auxiliary variable	*	JZ		
ABKGRUND	LBAUFN	Reason for terrestrial verification of forest/non-forest decision from the aerial photo	Code	0	5	6		2	Auxiliary variable for KOMBENT	*	MK		
AUFOP	LBAUFN	Initials of the last aerial photo interpreter		hd	vm			2	Auxiliary variable for aerial photograph	*	MK		
AUFOPN	LBAUFN	Number of the last aerial photo interpreter	Number	0	123			2	Auxiliary variable for aerial photo	*	MK		
AUSSBAUM	LBAUFN	Tree species of stocks outside of the forested area	Code	-1	7	8		2	4.6	*	MK		
AUSSGEHO	LBAUFN	Type of woody plant stocks outside of the forested area	Code	-1	9	10		2	4.6	*	MK		
AUSSWALD	LBAUFN	Indicator for stocks outside of the forested area	Code	-1	3	5		2	4.6	*	MK		
BAUMANZ	LBAUFN	Number of trees for stocks outside the forested area	Code	0	99	2		2	4.6	*	MK		
BESTGR	LBAUFN	Stand edge within the 500 m2 sample plot	Code	-1	2	3		2	Auxiliary variable for aerial photo	*	MK		
DGRAD25	LBAUFN	Crown closure determined with 25 grid dots	%	-1	100			4	Auxiliary variable	*	MK		

Abbreviated name	Table	Description (in the NFI1: Long name)	Unit	Minimum	Maximum	Number of Codes	Definition of code differently for each inventory	Origin 1)	Used as 2)	NFI1	NFI2	Author	NFI1-Var.No.
DGRAD9	LBAUFN	Crown closure determined with 9 central grid dots	%	-1	100			4	Auxiliary variable		*	MK	
FLUGJAHR	LBAUFN	Flight year when the aerial photo was taken	YYYY	1987	1995			2	Auxiliary variable for aerial photo		*	MK	
GEHOLANG	LBAUFN	Length of wooded area for stocks outside of the forested area	Meters	0	129.4			2	4.6		*	MK	
GWART	LBAUFN	Species of shrub forest	Code	-1	3	4		2	Tree species		*	MK	
GWTYP	LBAUFN	Type of shrub forest (e.g., pure shrub forest, mixed with forest trees)	Code	-1	2	3		2	Forest type		*	MK	
INSDATUM	LBAUFN	Date of the first interpretation of the aerial photo	Date	28-Feb-93	27-Jun-96			2	Auxiliary variable for aerial photo		*	MK	
INTBED	LBAUFN	Conditions for interpretation of aerial photo	Code	1	3	3		2	Auxiliary variable for aerial photo		*	MK	
LBANR	LBAUFN	Identification number (foreign key) of aerial photo sample	Number	3948	243154				Auxiliary variable		*	MK	
LBEST	LBAUFN	Stage of development in forest stand determined with aerial photo	Code	-1	6	7		2	Auxiliary variable		*	MK	
LBEXPO	LBAUFN	Aspect determined in aerial photo	Code	-1	9	11		2	Auxiliary variable		*	MK	
LBMISCHG	LBAUFN	Mixture proportion of conifers and deciduous trees determined with aerial photo	Code			5		2	Auxiliary variable			MK	
LBREL	LBAUFN	Relief determined in aerial photos	Code	-1	7	9		2	Auxiliary variable			MK	
LBWNWENT	LBAUFN	Forest/non-forest decision determined in aerial photos	Code	1	4	4		2	4.2			MK	
LUWAHOKL	LBAUFN	Forest height classes	Code	1	5	5		4	Double sampling stratification		*	MK	
MODNR	LBAUFN	Identification number of stereo model (foreign key)		18	999999						*	MK	
MWNWENT	LBAUFN	Manual acceptance or rejection of automatic forest/non-forest decision	Code	-9	2	3		2	4		*	MK	
PFZLAGE	LBAUFN	Location of plot center in aerial photo inside or outside forest	Code	-1	1	3		2	Auxiliary variable for KOMBENT		*	MK	
SCHLGRD	LBAUFN	Crown closure of the stand in the aerial photo	Code	-1	10	11		2	Auxiliary variable		*	MK	
STEIGX1	LBAUFN	X-coordinate for the highest point of the gradient vector	Meters	0	831998			2	Auxiliary variable for aerial photo aspect		*	MK	
STEIGX2	LBAUFN	X-coordinate for the lowest point of the gradient vector	Meters	0	832020			2	Auxiliary variable for aerial photo aspect		*	MK	
STEIGY1	LBAUFN	Y-coordinate for the highest point of the gradient vector	Meters	0	295000			2	Auxiliary variable for aerial photo aspect		*	MK	
STEIGY2	LBAUFN	Y-coordinate for the lowest point of the gradient vector	Meters	0	294995			2	Auxiliary variable for aerial photo aspect		*	MK	
STEIGZ1	LBAUFN	Z-coordinate (elevation) for the highest point of the gradient vector	Meters above sea level	0	2295			2	Auxiliary variable for aerial photo aspect		*	MK	
STEIGZ2	LBAUFN	Z-coordinate (elevation) for the lowest point of the gradient vector	meter above sea level	0	2276			2	Auxiliary variable for aerial photo aspect		*	MK	
TERABKL	LBAUFN	Aerial forest/nonforest decision to be verified by terrestrial assessment – yes/no	Code	1	2	2		2	Auxiliary variable for KOMBENT		*	MK	
UPDATUM	LBAUFN	Data of the last interpretation	Date	28-Feb-93	22-Apr-96			2	Auxiliary variable		*	MK	
WALDRD	LBAUFN	Existence of forest edge	Code	-1	3	4		2	Forest edge		*	MK	
WBREITE	LBAUFN	Forest width	Meters	-1	1564.3			2	Auxiliary variable for KOMBENT		*	MK	
WRABST	LBAUFN	Distance sample plot center – forest edge	Meters	-1	499.6			2	Forest edge		*	MK	
Z	LBAUFN	Elevation of the sample plot center (measured in the aerial photos)	Meters above sea level	174.2	4501			2	Diverse		*	MK	
KROKLA	BA	Crown class estimated from leaf/needle density and crown form	Code	1	3	3	*	1	Only LFI1		*	PB	
ACIDIT	CL2	Acidity according to classification by Keller (1978, 1979)	Code	1	2	2		4	Auxiliary variable for GWL		*	PB	
GEOLOG	CL2	Geology according to Keller (1978, 1979)	Code	0	3	4		4	Auxiliary variable for GWL		*	PB	
GWL	CL2	Site index according to Keller	kg	-1	6432			4	5.3		*	PB	
HDOMBU	CL2	Site index for beech according to Keller (1978, 1979)	Meters	0	22.5			4	5.3		*	PB	
HDOMFI	CL2	Site index for spruce according to Keller (1978, 1979)	Meters	0	27.2			4	5.3		*	PB	
HDOMKI	CL2	Site index for pine according to Keller (1978, 1979)	Meters	0	25.2			4	5.3		*	PB	
HDOMLAE	CL2	Site index for larch according to Keller(1978, 1979)	Meters	0	31.5			4	5.3		*	PB	
HDOMTA	CL2	Site index for fir according to Keller (1978, 1979)	Meters	0	26.1			4	5.3		*	PB	
BGRAD	LBAUFN	Crown closure	%					2	Auxiliary variable		*	PB	
POTWALD	CL2	Potential forest area derived from area statistics (BFS; 1992)	Code	1	3	3		4	4.3		*	TS	
BESTOCK	LBAUFN	Type of stock, determined in aerial photos	Code	1	6	5		4	4.6		*	TS	
EIGENKAT	WA	Ownership public/ private	Code	0	2	3		1	4.2/diverse		*	TS	156
EIGENTUM	WA	Ownership	Code	1	7	8	*	1	4.2		*	TS	79
HOESTUF	CL2	Altitudinal vegetation zones	Code	2	7	8		4	Diverse		*	UBB	38
LWSPS	CL2	Avalanche protection forest for settlements	Code	0	8	2		4	13.2		*	UBB	
LWSPV	CL2	Avalanche protection forest for traffic	Code	0	16	2		4	13.2		*	UBB	
SCHUREG	CL2	Protection forest regions	Code	1	6	7		4	13		*	UBB	
STSPS	CL2	Rockfall protection forest for settlements	Code	0	5	3		4	13.2		*	UBB	
STSPV	CL2	Rockfall protection forest for traffic	Code	0	10	3		4	13.2		*	UBB	
VUNIT1	CL2	Most probable potential natural vegetation as derived by PNV model (Brzeziecki et al., 1993)	Code	-99	71	76		4	Diverse		*	UBB	
VUNIT2	CL2	Second most probable potential natural vegetation as derived by PNV model (Brzeziecki et al., 1993)	Code	-99	71	76		4	BWNATURN		*	UBB	

Abbreviated name	Table	Description (in the NFI1: Long name)	Unit	Minimum	Maximum	Number of Codes	Definition of code differently for each inventory	Origin 1	Used as 2)	NFI1	NFI2	Author	NFI1-Var. No.
VUNIT3	CL2	Third most probable potential natural vegetation as derived by -PNV model (Brzeziecki et al., 1993)	Code	-99	71	76		4	BWNATURN		*	UBB	
AHAUFEN	WA	Heaps of branches present	Code	1	2	2		1	12.2		*	UBB	
ANZARTB	WA	Number of woody plants in stand		1	9			4	12.2		*	UBB	
ANZARTJW	WA	Number of woody plants in regeneration		1	19			4	12.2		*	UBB	
ANZARTPF	WA	Number of woody plants in the sample plot (total)		1	20			4	12.2		*	UBB	
BEERART	WA	Main berry species	Code	120	128	98		1	12.2		*	UBB	
BEERDG	WA	Closure of berry plants	Code	0	6	7		1	12.2		*	UBB	
BHDGT50	WA	Basal area proportion of trees with DBH > 50	%	0	100			4	12.2		*	UBB	
BIOLF11M	WA	Biotope rating NFI1 (minimum-model)		0.726190476	3.523809524			4	12.2		*	UBB	
BIOLF12	WA	Biotope rating NFI2 (maximum-model)		0.535714286	3.214285714			4	12.2		*	UBB	
BWARTEN	WA	Woody plant diversity in the stand		1	7			4	12.2		*	UBB	
BWNATURN	WA	Closeness to nature of the conifer proportion	Code	0	5	6		4	12.2		*	UBB	
BWSTRU1M	WA	Structural diversity of the stand (for BIOLF11M)		3	17			4	12.2		*	UBB	
BWSTRUKT	WA	Structural diversity of the stand (for BIOLF12)		4	41			4	12.2		*	UBB	
DUERSTA	WA	Dead standing trees present	Code	1	2	2		1	12.2		*	UBB	
ERHOLUNG	WA	Infrastructure for recreation	Code	1	6	6		1	12.4		*	UBB	
EROSION	WA	Erosion caused by water	Code	1	4	4		1	5.2		*	UBB	85
GEOMORPH	WA	Geomorphologic objects	Code	1	11	11		1	5.3/12.2		*	UBB	
LUECKEN	WA	Type of gaps	Code	1	8	8		1	12.2		*	UBB	
RUTSCH	WA	Traces of landslide	Code	1	3	3		1	5.2		*	UBB	84
SCHNEE	WA	Damage caused by snow	Code	1	2	2		1	5.2		*	UBB	87
SDI	WA	Stand Density Index (stand density)	Number	0	2607			4	12.13		*	UBB	
SPEZORT	WA	Special sites	Code	1	10	10		1	5.12		*	UBB	
STEIN	WA	Traces of rockfall	Code	1	2	2		1	5.2		*	UBB	86
TOTHOLZP	WA	Basal area proportion dead wood	%	0.6	100			4	12.2		*	UBB	
TOTVOLUP	WA	Volume proportion dead wood	%	0.3	100			4	12.2		*	UBB	
TROCKMAU	WA	Dry walls and heaps of stones present	Code	1	2	2		1	5.3/12.2		*	UBB	
TYP30517	WA	Forest type according to (EAFV, 1988) (17 classes)	Code	1	17	18		4	Diverse		*	UBB	159
TYP30563	WA	Forest type according to (EAFV, 1988) (63 classes)	Code	1	63	64		4	Diverse		*	UBB	160
UEBERBEL	WA	Traces of heavy utilization and disturbances	Code	1	7	7		1	9.2/12.2		*	UBB	
VEGLOS	WA	Patches without vegetation present	Code	1	2	2		1	BWSPEZ		*	UBB	
WARA	WA	Forest edge present	Code	1	2	2		1	12.3		*	UBB	
WEID	WA	Type of grazing	Code	1	6	6		1	9.2		*	UBB	
WEIDINT	WA	Intensity of grazing	Code	1	4	4		1	9.2		*	UBB	89
AUFBAU	WR	Type of forest edge (vertical)	Code	1	7	7		1	12.3		*	UBB	
DICHTE	WR	Density of forest edge	Code	1	4	4		1	12.3		*	UBB	
KRAUTBR	WR	Width of herbal belt at forest edge	Code	1	5	5		1	12.3		*	UBB	
MANTELBR	WR	Width of forest edge	Meters	0	50			1	12.3		*	UBB	
OEKOLF12	WR	Ecotone value of the forest edge		24	138			4	12.3		*	UBB	
STRABR	WR	Width of shrub belt at forest edge	Meters	0	60			1	12.3		*	UBB	
VERLAUF	WR	Type of forest edge (horizontal)	Code	1	5	5		1	12.3		*	UBB	
WRANZART	WR	Total number of woody plants at the forest edge		1	28			4	12.3		*	UBB	
WRARTEN	WR	Species diversity at the forest edge		1	57			4	12.3		*	UBB	
WRDORN	WR	Proportion of briar species at the forest edge		1	11			4	12.3		*	UBB	
WREXPO	WR	Azimuth of the aspect	gon	0	399			1	12.3		*	UBB	
WRGREN	WR	Border at forest edge (e.g., road, fence, river)	Code	1	10	10		1	12.3		*	UBB	
WRSTRUKM	WR	Structural diversity at the forest edge (without the width of forest edge)		6	24			4	12.3		*	UBB	
WRUMG	WR	Surrounding of forest edge	Code	1	11	11		1	12.3		*	UBB	
WRWEICH	WR	Proportion of softwood and special species at the forest edge		1	28			4	12.3		*	UBB	
WRZUST	WR	Condition of forest edge	Code	1	8	8		1	12.3		*	UBB	
ERHARTEN	WA	Basal area proportion of tree species important for recreation		0	5			4	ERHANATU3		*	UBB	
ERHNATU1	WA	Natural characteristics in the recreational forest 1		2	8			4	12.4		*	UBB	
ERHNATU3	WA	Natural characteristics in the recreational forest 2		8	42			4	12.4		*	UBB	
ERHOLNA	WA	Weighted recreational demand		1	42521			4	12.4		*	UBB	
ERHWALD	WA	Importance of the forest for local recreation	Code	1	4	4		4	12.4		*	UU	
ERSCHINF	WA	Accessibility and infrastructure for recreation	Code	1	4	4		4	12.4		*	UU	

## 6.2 Literature

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