



Report

Austria

FAO has been monitoring the world's forests at 5 to 10 year intervals since 1946. The Global Forest Resources Assessments (FRA) are now produced every five years in an attempt to provide a consistent approach to describing the world's forests and how they are changing. The FRA is a country-driven process and the assessments are based on reports prepared by officially nominated National Correspondents. If a report is not available, the FRA Secretariat prepares a desk study using earlier reports, existing information and/or remote sensing based analysis.

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Introduction

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Introductory text

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1 Forest extent, characteristics and changes

1a Extent of forest and other wooded land

National data

Data sources

1988	References	Austrian Forest Inventory (NFI) - Assessment 1986-1990, Federal Research Centre for Forests (BFW), Vienna, http://www.bfw.ac.at/i7/Oewi.oefi8690
	Methods used	National Forest Inventory
	Additional comments	

1994	References	Austrian Forest Inventory (NFI), Assessment 1992-1996, Federal Research Centre for Forests (BFW), Vienna, http://bfw.ac.at/rz/wi.home
	Methods used	National Forest Inventory
	Additional comments	

2001	References	Austrian Forest Inventory (NFI), Assessment 2000-2002, Feder Research Centre for Forests (BFW), Vienna, http://bfw.ac.at/rz/wi.home
	Methods used	National Forest Inventory
	Additional comments	

2008	References	Austrian Forest Inventory (NFI), Assessment 2007-2009, Feder Research Centre for Forests (BFW), Vienna, http://bfw.ac.at/rz/wi.home
	Methods used	National Forest Inventory
	Additional comments	

2017	References	Austrian Forest Inventory (NFI), Assessment 2016-2021, preliminary results based on 2016-2018 assessed sample plots, Federal Research Centre (BFW), Vienna
	Methods used	National Forest Inventory
	Additional comments	

Classifications and definitions

1988	National class	Definition
	Waldfläche ohne Strauchfläche (Forest without OWL)	

FRA 2020 report, Austria		
		Land with tree species according the Austrian Forest Act 1975 (without land with shrub and bushes) spanning more than 0.05 hectares (minimum width: 10 meter) and a canopy cover of more than 30 percent.
	"Strauchfläche" (OWL) within "Ertragswald" (forest in yield)	Land with shrub and bushes spanning more than 0.05 hectares (minimum width: 10 meter), including areas with pinus mugo and alnus viridis.
	"Strauchfläche" (OWL) within "Schutzwald außer Ertrag" (protective forest without yield)	Land with shrub and bushes spanning more than 0.05 hectares (minimum width: 10 meter), including areas with pinus mugo and alnus viridis.
1994	National class	Definition
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	Waldfläche ohne Strauchfläche (Forest without OWL)	Land with tree species according the Austrian Forest Act 1975 (without land with shrub and bushes) spanning more than 0.05 hectares (minimum width: 10 meter) and a canopy cover of more than 30 percent.
	"Strauchfläche" (OWL) within "Ertragswald" (forest in yield)	Land with shrub and bushes spanning more than 0.05 hectares (minimum width: 10 meter), including areas with pinus mugo and alnus viridis.
	"Strauchfläche" (OWL) within "Schutzwald außer Ertrag" (protective forest without yield)	Land with shrub and bushes spanning more than 0.05 hectares (minimum width: 10 meter), including areas with pinus mugo and alnus viridis.
2017	National class	Definition
	Waldfläche ohne Strauchfläche (Forest without OWL)	

FRA 2020 report, Austria

		Land with tree species according the Austrian Forest Act 1975 (without land with shrub and bushes) spanning more than 0.05 hectares (minimum width: 10 meter) and a canopy cover of more than 30 percent.
	Strauchfläche (Other wooded land)	Land with shrub and bushes spanning more than 0.05 hectares (minimum width: 10 meter), including areas with pinus mugo and alnus viridis.

Original data and reclassification

1988	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Waldfläche ohne Strauchfläche (Forest without OWL)	3 759.00	100.00 %	0.00 %	0.00 %
	"Strauchfläche" (OWL) within "Ertragswald" (forest in yield)	32.00	0.00 %	100.00 %	0.00 %
	"Strauchfläche" (OWL) within "Schutzwald außer Ertrag" (protective forest without yield)	87.00	0.00 %	100.00 %	0.00 %
	Total	3 878.00	3 759.00	119.00	0.00

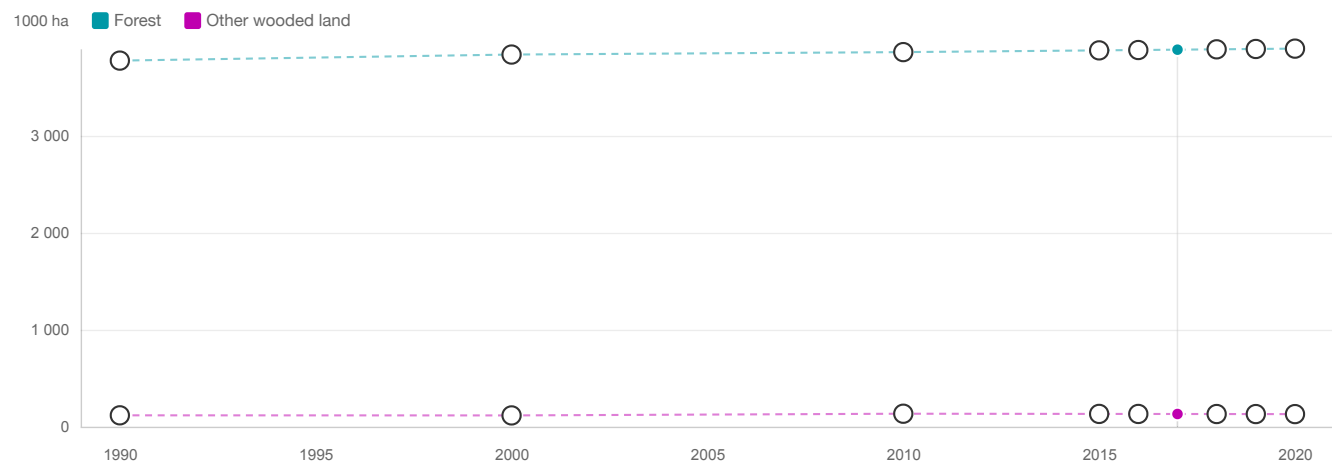
1994	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Waldfläche ohne Strauchfläche (Forest without OWL)	3 809.00	100.00 %	0.00 %	0.00 %
	"Strauchfläche" (OWL) within "Ertragswald" (forest in yield)	26.00	0.00 %	100.00 %	0.00 %
	"Strauchfläche" (OWL) within "Schutzwald außer Ertrag" (protective forest without yield)	89.00	0.00 %	100.00 %	0.00 %
	Total	3 924.00	3 809.00	115.00	0.00

2001	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Waldfläche ohne Strauchfläche (Forest without	3 843.00	100.00 %	0.00 %	0.00 %

	OWL)				
	"Strauchfläche" (OWL) within "Ertragswald" (forest in yield)	26.00	0.00 %	100.00 %	0.00 %
	"Strauchfläche" (OWL) within "Schutzwald außer Ertrag" (protective forest without yield)	91.00	0.00 %	100.00 %	0.00 %
	Total	3 960.00	3 843.00	117.00	0.00

2008	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Waldfläche ohne Strauchfläche (Forest without OWL)	3 856.00	100.00 %	0.00 %	0.00 %
	"Strauchfläche" (OWL) within "Ertragswald" (forest in yield)	25.00	0.00 %	100.00 %	0.00 %
	"Strauchfläche" (OWL) within "Schutzwald außer Ertrag" (protective forest without yield)	110.00	0.00 %	100.00 %	0.00 %
	Total	3 991.00	3 856.00	135.00	0.00

2017	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Waldfläche ohne Strauchfläche (Forest without OWL)	3 888.38	100.00 %	0.00 %	0.00 %
	Strauchfläche (Other wooded land)	131.44	0.00 %	100.00 %	0.00 %
	Total	4 019.82	3 888.38	131.44	0.00



FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest (a)	3 775.67	3 838.14	3 863.20	3 881.19	3 884.79	3 888.38	3 891.97	3 895.56	3 899.15
Other wooded land (a)	117.67	116.71	134.21	132.23	131.84	131.44	131.04	130.64	130.24
Other land (c-a-b)	4 358.66	4 297.15	4 254.59	4 238.58	4 235.37	4 232.18	4 228.99	4 225.80	4 222.61
Total land area (c)	8 252.00	8 252.00	8 252.00	8 252.00	8 252.00	8 252.00	8 252.00	8 252.00	8 252.00

The FAOSTAT land area figure for the year 2015 is used for all reference years

Climatic domain	% of forest area 2015	Override value
Boreal	0.00	
Temperate	100.00	
Sub-tropical	0.00	
Tropical	0.00	

Comments

Forest and OWL areas for 2010 and 2015 don't match FRA 2015 areas because of new NFI data for the reference year 2017. 2010 and 2015 forest and OWL areas are interpolated between reference years 2008 and 2017.

The Austrian minimum Forest + OLW area is 0.05 hectares. This causes a larger area in comparison with the FRA 2020 definition of 0.5 hectares. The Austrian minimum Forest + OWL canopy cover is 30 percent. This causes a smaller area in comparison with the FRA 2020 definition of 10 percent. It is assumed that both differences cancel out each other. This assumption was proofed true by a supplementary assessment according to the FAO forest definition as part of the NFI 2007/09 assessment.

1b Forest characteristics

National Data

Data sources + type of data source eg NFI, etc

Austrian Forest Inventory (NFI) - Assessments 1992-96, 2000-02, 2007-09, 2016-21 (preliminary results based on 2016-18 assessed sample plots) and expert estimates for older forest stands (based on regeneration assessments and knowledge of usual regeneration methods by forest type), Federal Research Centre for Forests (BFW), Vienna, <http://bfw.ac.at/rz/wi.home>.

National classification and definitions

In many older forests stands, retrospectively, it is impossible to identify, whether the regeneration happened naturally or artificially (by planting or deliberate seeding). For this reason the NFI doesn't collect any information about origin of older stands. Due to this lack of any measured information concerning the origin of older stands, NFI experts derived estimates for each forest type (European Forest Types) to distinguish the older stands into naturally regenerating forest and planted forest. For younger stands, NFI provides information on the method of regeneration. In 1994 (NFI 1992/96) only 41% of regeneration areas without canopy cover were natural regenerated, in 2017 (NFI 2016/18) the share amounted to 83%. The regeneration assessment covers a plant height range of 10 - 130 cm.

Original data

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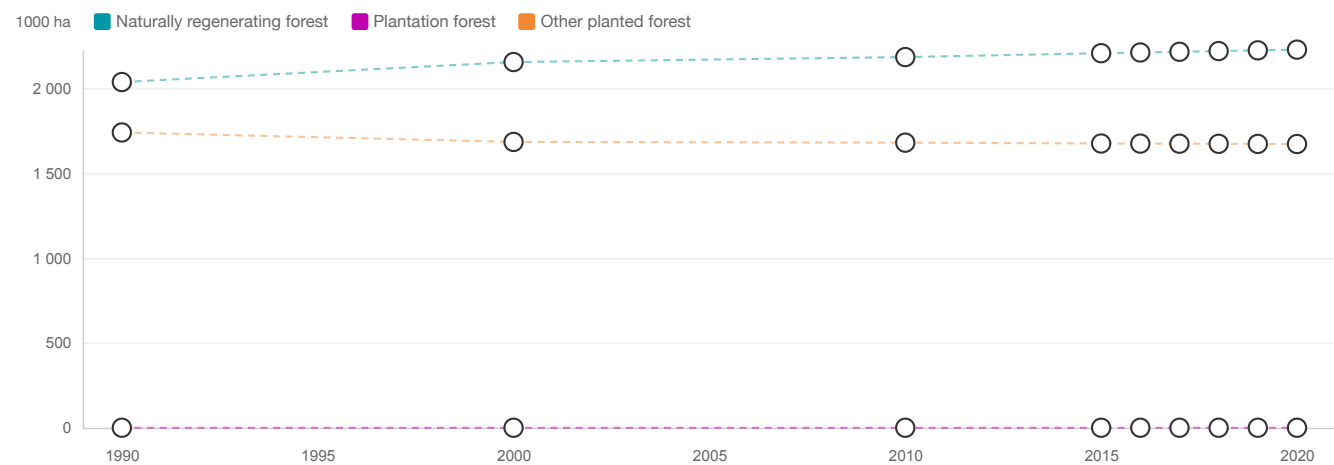
Analysis and processing of national data

Estimation and forecasting

Provided estimates for 1994, 2001, 2008 and 2017 were adapted to FRA 2020 reference years by inter- or extrapolation.

Reclassification into FRA 2020 categories

Older stands were reclassified into naturally or artificially regenerated forest.



FRA categories	Forest area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest (a)	2 036.60	2 154.30	2 183.70	2 206.50	2 210.70	2 214.90	2 219.10	2 223.30	2 227.50
Planted forest (b)	1 739.40	1 683.70	1 679.30	1 674.50	1 673.90	1 673.30	1 672.70	1 672.10	1 671.50
Plantation forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...of which introduced species	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other planted forest	1 739.40	1 683.70	1 679.30	1 674.50	1 673.90	1 673.30	1 672.70	1 672.10	1 671.50
Total (a+b)	3 776.00	3 838.00	3 863.00	3 881.00	3 884.60	3 888.20	3 891.80	3 895.40	3 899.00
Total forest area	3 775.67	3 838.14	3 863.20	3 881.19	3 884.79	3 888.38	3 891.97	3 895.56	3 899.15

Comments

1c Primary forest and special forest categories

National Data

Data sources + type of data source eg NFI, etc

Temporarily unstocked and/or recently regenerated:

Austrian Forest Inventory (NFI) - Assessments 1986-90, 1992-96, 2000-02, 2007-09, 2016-21 (preliminary results based on 2016-18 assessed sample plots), Federal Research Centre for Forests (BFW), Vienna, <http://bfw.ac.at/rz/wi.home>

Primary forest:

Source: Hemerobie österreichischer Waldökosysteme (Hemeroby of Austrian Forest Ecosystems), Österreichische Akademie der Wissenschaften. G. Grabherr ... - Innsbruck: Wagner, 1998. (Veröffentlichung des Österreichischen MaB-Programms; Bd. 17)

Reference year: 1995

Additional comment: Hemeroby study was carried out in co-operation with the NFI.

National classification and definitions

Temporarily unstocked and/or recently regenerated:

Development stages blank (> 500 m²), gap with shrubs (50-500 m²), gap without shrubs (50-500 m²) and regeneration I (tree height < 1,3 m)

Primary forest:

The reported data are based on the Hemeroby study (See "Data sources"!). The results of this singular study: Forest + OWL: 3% natural; OWL: 47% natural. The national category “natural” corresponds to the FRA 2020 category “primary forest”.

Original data

Temporarily unstocked and/or recently regenerated:

Forest (1000 ha)	1986/90	1992/96	2000/02	2007/09	2016/18
blank and gap with/without shrubs	203.047	256.532	267.817	347.604	377.036
regeneration with tree height < 1,3 m	160.613	144.727	108.180	103.987	103.042
Temporarily unstocked and/or recently regenerated	363.660	401.259	375.997	451.591	480.078

Primary forest:

National class (forest + OWL)	%	FRA 2020 Categories (only forest)
Natural	3	Primary forest
Seminatural	22	
Moderately altered	41	
Altered	27	
Artificial	7	
Total forest area (forest + OWL)	100	

Analysis and processing of national data

Estimation and forecasting

Temporarily unstocked and/or recently regenerated:

Linear interpolation/extrapolation.

Primary forest:

There is only a single source for information on primary wooded land, the Hemeroby study 1995. It is used for all reference years since it is assumed that the area of primary forests has not changed since 1990.

Reclassification into FRA 2020 categories

Not needed.

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Primary forest	63.00	63.00	63.00	63.00	63.00
Temporarily unstocked and/or recently regenerated	376.00	380.00	458.00	474.00	490.00
Bamboos	0.00	0.00	0.00	0.00	0.00
Mangroves	0.00	0.00	0.00	0.00	0.00
Rubber wood	0.00	0.00	0.00	0.00	0.00

Comments

1d Annual forest expansion, deforestation and net change

National Data

Data sources + type of data source eg NFI, etc

Austrian Forest Inventory (NFI) - Assessments 1992-96, 2000-02, 2007-09, 2016-21 (preliminary results based on 2016-18 assessed sample plots), Federal Research Centre for Forests (BFW), Vienna, <http://bfw.ac.at/rz/wi.home>

National classification and definitions

Waldfläche (Forest and other wooded land): Land with tree species according the Austrian Forest Act 1975 or shrub and bushes spanning more than 0.05 hectares (minimum width: 10 meter) and a canopy cover of more than 30 percent.

Strauchfläche (Other wooded land): Land with shrub and bushes spanning more than 0.05 hectares (minimum width: 10 meter), including areas with pinus mugo and alnus viridis.

Afforestation: See FRA 2020 definition!

Reforestation: See FRA 2020 definition!

Deforestation: See FRA 2020 definition!

Natural expansion of forest: See FRA 2020 definition! Through natural regeneration or other natural succession (increase of canopy cover, movement of the edge of the forest).

Original data

Forest area

FRA Categories	Area (1000 hectares)				
	1988	1994	2001	2008	2017
Forest	3759	3809	3843	3856	3888
Other wooded land	119	115	117	135	131
... of which “Strauchfläche” (OWL) within “Ertragswald” (forests in yield)	32	26	26	25	29
... of which “Strauchfläche” (OWL) within “Schutzwald außer Ertrag” (protective forest without yield)	[87]	89	91	110	102
TOTAL (Forest + OWL)	3878	3924	3960	3991	4020

Remark:

Other wooded land = “Strauchfläche” within all “Betriebsarten” (silvicultural systems) (including those within “Schutzwald außer Ertrag” (protective forest without yield)).

Forest = “Waldfläche” without “Strauchfläche”.

Forest expansion

	in 1000 ha	change 1992/96 - 2000/02	change 2000/02 - 2007/09	change 2007/09-2016/18
		(change 1994 - 2001)	(change 2001 - 2008)	(change 2008 - 2017)
	<u>observation period</u>	7 years	7 years	9 years
1+2+3	Forest area	68,1	74,4	84,4
1	.. of which through artificial regeneration	12,1	4,6	2,2
2	.. of which through natural regeneration	21,7	21,3	21,0

3	.. of which through other natural succession	34,3	48,5	61,2
2+3	Natural expansion of forest	56,0	69,8	82,2
	<u>per year</u>			
1+2+3	Forest area	9,7	10,6	9,4
1	.. of which through artificial regeneration	1,7	0,7	0,3
2	.. of which through natural regeneration	3,1	3,0	2,3
3	.. of which through other natural succession	4,9	6,9	6,8
2+3	Natural expansion of forest	8,0	10,0	9,1

Analysis and processing of national data

Estimation and forecasting

Forest expansion (afforestation, natural expansion) data are calculated as annual change between 1994 (1992/96), 2001 (2000/02), 2008 (2007/09) and 2017 (2016-2018).

- Figures for 1990-2000: annual change 1994-2001
- Figures for 2000-2010: $[1 * (\text{annual change } 1994-2001) + 7 * (\text{annual change } 2001-2008) + 2 * (\text{annual change } 2008-2017)] / 10$
- Figures for 2010-2015: annual change 2008-2017
- Figures for 2015-2020: annual change 2008-2017

Forest area net change: calculated on the basis of 1a "Forest (a)".

Deforestation = Forest area net change - Forest expansion

Reclassification into FRA 2020 categories

The reported figures refer to forest.

FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Forest expansion (a)	9.70	10.30	9.40	9.40
...of which afforestation	1.70	0.70	0.30	0.30
...of which natural expansion	8.00	9.60	9.10	9.10
Deforestation (b)	3.45	7.79	5.80	5.81
Forest area net change (a-b)	6.25	2.51	3.60	3.59

Comments

1e Annual reforestation

National Data

Data sources + type of data source eg NFI, etc

Austrian Forest Inventory (NFI) - Assessments 1992-96, 2000-02, 2007-09, 2016-21 (preliminary results based on 2016-18 assessed sample plots), Federal Research Centre for Forests (BFW), Vienna, <http://bfw.ac.at/rz/wi.home>

National classification and definitions

See 1c!

Original data

Regeneration area

Area (1000 ha)	1994	2001	2008	2017
Natural regeneration	408	443	505	571
Planting and seeding	45	29	25	36
Coppice	89	85	83	71

Annual regeneration

Area per year (1000 ha)	1994	2001	2008	2017
Natural regeneration	18,5	20,1	23,0	26,0
Planting and seeding = REFORESTATION	4,5	2,9	2,5	3,6
Coppice	3,0	2,8	2,8	2,4
TOTAL Annual regeneration	26,0	25,9	28,2	31,9

Analysis and processing of national data

Estimation and forecasting

Regeneration: The regeneration areas recorded by the NFI regeneration surveys are divided by 10 (planting and seeding) or 22 (natural regeneration). Natural regeneration is growing from a height of 10 cm to 130 cm in average within 22 years, artificial regeneration needs about 10 years from planting to height of 130 cm. This is derived from the three periods of NFI regeneration survey. The rotation time of coppice is premised with 30 years.

Annual reforestation: Data are calculated between 1994 (1992/96), 2001 (2000/02), 2008 (2007/09) and 2017 (2016-2018):

- Figure for 1990-2000: $(1994 \cdot 7.5 + 2001 \cdot 2.5) / 10$
- Figure for 2000-2010: $(2001 \cdot 4.5 + 2008 \cdot 5.5) / 10$
- Figure for 2010-2015: $(2008 \cdot 2.5 + 2017 \cdot 2.5) / 5$
- Figure for 2015-2020: 2017

Reclassification into FRA 2020 categories

The reported figures refer to forest.

FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Reforestation	4.10	2.68	3.05	3.60

Comments

1f Other land with tree cover

National Data

Data sources + type of data source eg NFI, etc

Tree orchards and Other:

- Land- und forswirtschaftliche Betriebszählung 1990 (agricultural and forestry farm census 1990), Statistics Austria
- Agrarstrukturerhebung 1999 (farm structure survey 1999), Statistics Austria
- Agrarstrukturerhebung 2010 (farm structure survey 2010), Statistics Austria
- Agrarstrukturerhebung 2016 (farm structure survey 2016), Statistics Austria

National classification and definitions

"Tree orchards" in 1990 and 2000 includes areas with berries.

Original data

Year	Christmas tree plantations (Christbaumkulturen)	Short-rotation tree areas on agricultural land for energy production (Energieholzflächen)
	in ha	
1990	1,347	1,254
1999	2,068	1,297
2010	2,002	2,330
2016	2,445	2,421
Q: STATISTIK AUSTRIA. - Land- und forstwirtschaftliche Betriebszählung 1990, Agrarstrukturerhebung 1999 und 2010 (Vollerhebung), Agrarstrukturerhebung 2016 (Stichprobenerhebung).		

Analysis and processing of national data

Estimation and forecasting

Tree orchards and Other:

- The 1999 data are reported for reference year 2000.
- The 2016 data are reported for reference years 2015 and 2020.

Reclassification into FRA 2020 categories

Not needed.

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Palms (a)	0.00	0.00	0.00	0.00	0.00
Tree orchards (b)	19.58	17.39	13.92	13.08	13.08
Agroforestry (c)					
Trees in urban settings (d)					
Other (specify in comments) (e)	2.60	3.37	4.33	4.87	4.87
Total (a+b+c+d+e)	22.18	20.76	18.25	17.95	17.95
Other land area	4 358.66	4 297.15	4 254.59	4 238.58	4 222.61

Comments

Other (e): Christmas tree plantations and Short-rotation tree areas on agricultural land for energy production (See original data!)

2 Forest growing stock, biomass and carbon

2a Growing stock

National Data

Data sources + type of data source eg NFI, etc

Austrian Forest Inventory (NFI) - Assessments 1992-96, 2000-02, 2007-09, 2016-21 (preliminary results based on 2016-18 assessed sample plots), Federal Research Centre for Forests (BFW), Vienna, <http://bfw.ac.at/rz/wi.home>

National classification and definitions

- Volume over bark of all standing trees
- Minimum diameter (cm) at breast height of trees included in growing stock: 10
- Minimum diameter (cm) at the top end of stem for calculation of growing stock: 0
- Branches are not included.
- Volume refers to above ground.

Original data

Growing stock forest:

NFI	1992/96	2000/02	2007/09	2016/18
	1000 m³ o. b.			
Growing stock Forests in yield (Ertragswald)	965 855	1 070 276	1 112 201	1 153 243
Dead wood trees	13 301	18 311	25 617	27 070
Living trees	952 554	1 051 965	1 086 584	1 126 173
Growing stock Protective forests without yield (Schutzwald außer Ertrag (SaE))	30 511	28 463	31 362	27 668

Growing stock OWL:

Most OWL areas are located in higher altitudes and predominantly consist of *Pinus mugo* or *Alnus viridis*. These tree species normally don't reach a DBH \geq 10cm. Therefore the OWL growing stock volume is assumed to be 0.

Analysis and processing of national data

Estimation and forecasting

Linear interpolation and extrapolation between 1994 (NFI 1992/96), 2001 (NFI 2000/02), 2008 (NFI 2007/09) and 2017 (NFI 2016/18) is used.

Reclassification into FRA 2020 categories

FRA 2020 Growing stock = NFI Growing stock (forests in yield) - Dead wood trees (forests in yield) + Estimated growing stock in protective forest without yield.

FRA categories	Growing stock m³/ha (over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	253.36	275.73	287.13	289.15	287.24	287.60	287.95	288.31	289.11
Planted forest	236.29	280.93	297.15	303.37	307.66	308.97	310.28	311.58	312.29
...of which plantation forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...of which other planted forest	236.29	280.93	297.15	303.37	307.66	308.97	310.28	311.58	312.29
Forest	245.52	278.00	291.47	295.27	296.03	296.78	297.54	298.29	299.04
Other wooded land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FRA categories	Total growing stock (million m³ over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	516.00	594.00	627.00	638.00	635.00	637.00	639.00	641.00	644.00
Planted forest	411.00	473.00	499.00	508.00	515.00	517.00	519.00	521.00	522.00
...of which plantation forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...of which other planted forest	411.00	473.00	499.00	508.00	515.00	517.00	519.00	521.00	522.00
Forest	927.00	1 067.00	1 126.00	1 146.00	1 150.00	1 154.00	1 158.00	1 162.00	1 166.00
Other wooded land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Comments

2b Growing stock composition

National Data

Data sources + type of data source eg NFI, etc

See 2a!

National classification and definitions

See 2a!

Original data

Breakdown of original data (2a).

Analysis and processing of national data

Estimation and forecasting

See 2a!

Reclassification into FRA 2020 categories

See 2a!

FRA categories	Scientific name	Common name	Growing stock in forest (million m³ over bark)				
			1990	2000	2010	2015	2020
Native tree species							
#1 Ranked in terms of volume	Picea abies	Fichte	550.00	640.00	672.00	681.00	691.00
#2 Ranked in terms of volume	Fagus sylvatica	Buche	82.00	96.00	106.00	111.00	116.00
#3 Ranked in terms of volume	Pinus sylvestris	Weißkiefer	73.00	74.00	73.00	74.00	74.00
#4 Ranked in terms of volume	Larix decidua	Europäische Lärche	62.00	70.00	71.00	70.00	69.00
#5 Ranked in terms of volume	Abies alba	Weißtanne	43.00	46.00	48.00	50.00	51.00
#6 Ranked in terms of volume	Quercus sp.	Eiche unbestimmt	21.00	25.00	27.00	29.00	31.00
#7 Ranked in terms of volume	Fraxinus sp.	Esche unbestimmt	12.00	18.00	23.00	23.00	23.00
#8 Ranked in terms of volume	Acer sp.	Ahorn unbestimmt	9.00	12.00	15.00	17.00	19.00
#9 Ranked in terms of volume	Pinus nigra	Schwarzkiefer	9.00	9.00	9.00	9.00	9.00
#10 Ranked in terms of volume	Carpinus betulus	Hainbuche	5.00	7.00	8.00	8.00	9.00
Remaining native tree species			55.00	63.00	68.00	67.50	67.50
Total volume of native tree species			921.00	1 060.00	1 120.00	1 139.50	1 159.50
Introduced tree species							
#1 Ranked in terms of volume	Populus sp. (X)	Hybridpappel	2.00	3.00	3.00	3.00	3.00
#2 Ranked in terms of volume	Robinia pseudoacacia	Robinie	2.00	2.00	2.00	2.00	2.00
#3 Ranked in terms of volume	Pseudotsuga mezesii	Douglasie	0.50	0.50	1.00	1.00	1.00

FRA categories	Scientific name	Common name	Growing stock in forest (million m³ over bark)				
			1990	2000	2010	2015	2020
Native tree species							
#4 Ranked in terms of volume	Pinus strobus	Weymouthskiefer	0.50	0.00	0.00	0.50	0.50
#5 Ranked in terms of volume	Others (Picea sp.,Abies sp., Larix sp., Pinus sp.)	andere Nadelholzarten	0.00	0.50	0.00	0.00	0.00
Remaining introduced tree species							
Total volume of introduced tree species			5.00	6.00	6.00	6.50	6.50
Total growing stock			926.00	1 066.00	1 126.00	1 146.00	1 166.00

Comments

2c Biomass stock

National Data

Data sources + type of data source eg NFI, etc

NFI: Austrian Forest Inventory - Assessments 1992-96, 2000-02, 2007-09, 2016-21 (preliminary results based on 2016-18 assessed sample plots), Federal Research Centre for Forests (BFW), Vienna, <http://bfw.ac.at/rz/wi.home>

Biomass functions: Eckmüllner, 2006; Ledermann & Neumann, 2006; Rubatscher et al., 2006; Gschwantner & Schadauer, 2006; Hochbichler et al., 2006; Wirth et al., 2004; Offenthaler & Hochbichler, 2006. In: Austrian Journal of Forest Science (2006), 123. Jahrgang, Heft 1/2. Tree compartments: dependent on biomass functions – branches, needles, roots.

National classification and definitions

- Above-ground biomass: All living biomass above the soil including stem, stump, branches, bark, seeds and foliage (only of evergreen trees).
- Below-ground biomass: See FRA 2020 definition.
- Dead wood: All non-living stem biomass of standing dead stems with dbh \geq 10 cm.

Original data

NFI data and related information (see data sources!).

The biomass data (above-ground, below-ground, dead wood) relate to the area of forest and other wooded land with the exception of permanently unstocked parts due to forest management (e.g. forest roads, timber yards) or natural reasons. For the individual reporting years these areas are as follows (in 1000 ha): 1990: 3798, 2000: 3825, 2010: 3851, 2015: 3850, 2016: 3850, 2017: 3849, 2018: 3849, 2019: 3849, 2020: 3849.

Analysis and processing of national data

Estimation and forecasting

Data on biomass are based on the results of the National Forest Inventory (NFI, see 2a). For estimates on above- and below-ground biomass in forests (forests in yield) national biomass functions (BFs) have been applied. The BFs were derived from numerous single tree data from Austrian forest sites (literature references see in section data sources). The estimates are carried out with all single tree data of the individual NFIs at the Federal Research Centre for Forests (BFW). Only the evergreen biomass of foliage is estimated (leaves of deciduous trees become part of the soil C pool within one year).

The results for each NFI have been attributed to the year in the middle of a NFI period. Data for the years in between were calculated with linear interpolation and linear extrapolation of the previous trend was applied for years beyond the latest NFI assessment.

In NFI 2016/21 single tree data are collected also in the accessible protective forests without yield and other wooded land and allow for the application of BFs to estimate the above-ground and below-ground biomass in these categories. The assessment of trees and shrubs with dbh < 5 cm as conducted in the previous NFI 2007/09 was not repeated.

In NFI 2007/09 the data on above- and below-ground biomass in protective forests without yield and from other wooded land were based on the assessment of stand basal area and height classes. Biomass data of trees and shrubs with a dbh < 5 cm are also available in NFI 2007/09 for forests in yield. This information was related to the respective forest areas in 2008 and the biomass/ha was calculated. For the reported years 1990, 2000, 2005, 2010, and 2015-2020 these data (biomass/ha) were multiplied with the interpolated or extrapolated data for each forest area. Data therefore include all living biomass with a diameter > 0 cm. The biomass estimates relate to forest and other wooded land with the exception of permanently unstocked parts due to forest management (e.g. forest roads, timber yards) or natural reasons.

Dead wood masses are also based on NFI results. To avoid any double accounting, only standing dead wood is included and the expansion does not include dead roots and branches.

Reclassification into FRA 2020 categories

The calculations and data refer to the national definitions (see above), as they are to a large extent comparable to the FRA categories.

FRA categories	Forest biomass (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass	143.50	157.40	164.50	168.40	169.10	169.90	170.70	171.50	172.30
Below-ground biomass	37.10	40.80	42.10	42.30	42.60	42.60	42.60	42.60	42.70
Dead wood	1.60	2.10	3.10	3.40	3.50	3.60	3.60	3.70	3.70

Comments

2d Carbon stock

National Data

Data sources + type of data source eg NFI, etc

See also "Data sources" at 2c Biomass stock!

Carbon contents from Weiss et al. 2000: Die Kohlenstoffbilanz des Österreichischen Waldes und Betrachtungen zum Kyoto-Protokoll. Umweltbundesamt Wien, M-106, pp. 94, download:

<http://www.umweltbundesamt.at/fileadmin/site/publikationen/M106.pdf>.

1990 litter and soil C stock; forest soil inventory; results from 511 sampling sites; sampling period 1987-89; BFW (1992): Österreichische Waldbodenzustandsinventur. Mitteilungen der Forstlichen Bundesversuchsanstalt Wien, Vol. 168/I, Vol. 168/II, Federal Research Centre for Forests, Wien. Published in: Weiss et al. 2000: Die Kohlenstoffbilanz des Österreichischen Waldes und Betrachtungen zum Kyoto-Protokoll. Umweltbundesamt Wien, M-106, pp. 94, download: <http://www.umweltbundesamt.at/fileadmin/site/publikationen/M106.pdf>.

2010 litter and soil C stock; forest soil survey; results from 139 sampling sites within the EU wide BioSoil project; sampling period 2006/07; BioSoil Project (BFW, 2013): Projekt BioSoil - Europäisches Waldboden-Monitoring (2006/07). Datenband. Standort- u. Bodenbeschreibung, Einzeldaten, Grundstatistik. Federal Research Centre for Forests, Wien.

National classification and definitions

See "National classification and definitions" at 2c Biomass stock!

Figures for the 1990 and 2010 litter and soil C stocks are based on different methodological approaches; it is not possible to derive a trend from or compare the litter and soil carbon stocks of these two years.

Original data

NFI data, forest soil inventory data and related information (see data sources!).

The carbon data (above-ground, below-ground, dead wood) relate to the area of forest and other wooded land with the exception of permanently unstocked parts due to forest management (e.g. forest roads, timber yards) or natural reasons. For the individual reporting years these areas are as follows (in 1000 ha): 1990: 3797.771, 2000: 3824.592, 2010: 3850.942, 2015: 3849.816, 2016: 3849.591, 2017: 3849.365, 2018: 3849.215, 2019: 3849.064, 2020: 3848.914.

Analysis and processing of national data

Estimation and forecasting

See "Analysis and processing of national data" in 2c Biomass stock!

Reclassification into FRA 2020 categories

The calculations and data refer to the national definitions (see above), as they are to a large extent comparable to the FRA categories.

FRA categories	Forest carbon (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Carbon in above-ground biomass	70.37	76.89	80.22	82.03	82.39	82.76	83.12	83.48	83.84
Carbon in below-ground biomass	18.29	19.97	20.43	20.67	20.72	20.77	20.82	20.86	20.91
Carbon in dead wood	0.78	1.03	1.50	1.70	1.72	1.74	1.76	1.77	1.79
Carbon in litter	15.00		26.00						
Soil carbon	106.00		104.00						

Soil depth (cm) used for soil carbon estimates	50.00
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Comments

Please note: Litter and soil carbon stocks in 1990 and 2010 are based on different methodological approaches; it is not possible to derive a trend from or compare the litter and soil carbon stocks of these two years.

3 Forest designation and management

3a Designated management objective

National Data

Data sources + type of data source eg NFI, etc

Waldentwicklungsplan (Forest Development Plan, www.waldentwicklungsplan.at), Federal Ministry for Sustainability and Tourism, Vienna, status 1991, 2009 and 2016.

- Presenting and describing all of Austria's forests, the Forest Development Plan currently provides the most important tool for assessing forest functions of public interest. Pursuant to the provisions of the Austrian Forestry Act, the forest functions as defined there are demarcated as "function areas" on the basis of expert opinions provided by the provincial forest services. The function areas are then entered into a working map on a scale of 1:50,000. The four key functions of the forest are its economic, protective, beneficial and recreational function. A description of the respective function area (on areas of more than 10 hectares performing a key function) is provided in the text section of the Forest Development Plan. If necessary, measures are defined to enhance or sustainably ensure the relevant key function. Since 1990, the Forest Development Plan has been publicly available. Updates take place periodically.

Studies based on GIS data and analyses of nature conservation regulations and decrees:

- Forests in Protected Areas in Austria. Classification of Protected Forest Areas according to the Criteria of the Ministerial Conference on the Protection of Forests in Europe (MCPFE) (SCHWARZL B. & AUBRECHT P., 2003). Federal Environment Agency Vienna. http://www.umweltbundesamt.at/aktuell/publikationen/publikationssuche/publikationsdetail/?pub_id=1628
- Wald in Schutzgebieten – Update 2009 (Forests in Protected Areas – Update 2009. Classification of Protected Forest Areas according to the Criteria of the Ministerial Conference on the Protection of Forests in Europe (MCPFE)) (SCHWARZL B., 2009). Umweltbundesamt, Vienna.
- Wald in Schutzgebieten – Update 2013 (Forests in Protected Areas – Update 2013. Classification of Protected Forest Areas according to the Criteria of the Ministerial Conference on the Protection of Forests in Europe (MCPFE)) (SCHWARZL B., 2014). Umweltbundesamt, Vienna.
- Wald in Schutzgebieten – Update 2018 (Forests in Protected Areas – Update 2018. Classification of Protected Forest Areas according to the Criteria of the Ministerial Conference on the Protection of Forests in Europe (MCPFE)) (SCHWARZL B., 2019). Umweltbundesamt, Vienna.

Austrian Forest Inventory (NFI) - Assessments 1992-96, 2000-02, 2007-09, 2016-21 (preliminary results based on 2016-18 assessed sample plots), Federal Research Centre for Forests (BFW), Vienna, <http://bfw.ac.at/rz/wi.home>.

National classification and definitions

Primary designated management objective

National class	Definition
Key forest function (The Forest Development Plan displays for the whole forest area the respective key forest function.)	The Austrian Forest Act defines four functions: economic, protective, beneficial and recreational function. The key forest function is those with the prior public benefit.
Economic function	i.e. in particular the economically sustained production of wood as a raw material ...is equivalent to FRA 2020 category "Production"
Protective function	i.e. in particular protecting against elementary risks and harmful environmental influences as well as maintaining the resistance of the soil against rainwash and drift, scree-formation and landslips ...is equivalent to FRA 2020 sub-category "Protection of soil"
Beneficial function	i.e. the influence on the environment, especially on the balance of climate and water regime, on the purification and renewal of air and water ...is equivalent to FRA 2020 sub-category "Protection of water"
Recreational function	i.e. in particular the effect of forests as recreational areas on those visiting forests ...is equivalent to FRA 2020 category "Social services"
Forests in Protected Areas MCPFE classes 1.1 + 1.2 + 1.3 (= MCPFE class 1.x)	MCPFE definitions ...is equivalent to FRA 2020 category "Conservation of biodiversity"

Forest Development Plan + Forests in protected areas: No distinction between forests and OWL.

Total area with designated management objective

Production: Forest available for wood supply according to NFI (See the Austrian reply to the Joint FOREST EUROPE/UNECE/FAO Questionnaire on Pan-European Indicators for Sustainable Forest Management (Quantitative indicators), Reporting Form 1.1a Forest area).

Protection of soil and water: Forests with protective or beneficial function (value > 0) according to the Forest Development Plan.

Conservation of biodiversity: Forests in protected areas (MCPFE classes 1.1, 1.2 and 1.3).

Social Services: Total forest and OWL area available for public recreation (See the Austrian reply to the Joint FOREST EUROPE/UNECE/FAO Questionnaire on Pan-European Indicators for Sustainable Forest Management (Quantitative indicators), Reporting Form 6.10 Recreation in forests!).

Original data

Primary designated management objective

1991

Key forest function (Forest Development Plan)	km²	%	Equivalent to FRA 2020 category	Adaptation to the 1990 forest area (1000 ha)	Adaptation to the 2000 forest area (1000 ha)
Economic function	22,172.92	69.42	Production	2621.07	2664.44
Protective function	8,351.03	26.14	Protection of soil and water	986.96	1003.29
Beneficial function	1,116.78	3.50	Protection of soil and water	132.15	134.33
Recreational function	299.68	0.94	Social services	35.49	36.08
TOTAL Forest area	31,940.41	100.00		3775.67	3838.14

2002

	km²	%	Equivalent to FRA 2020 category
Total Forest Area according to ÖK50 (Map of Austria 1:50,000)	38,835	100.000	
Forests in Protected Areas	10,191		
MCPFE class 1.x (1.1 + 1.2 + 1.3)	1,167	3.005	Conservation of biodiversity
MCPFE class 1.1	0		
MCPFE class 1.2	281		
MCPFE class 1.3	885		
MCPFE class 2	9,025		

1991x2002

Intersection	km²	%	Equivalent to FRA 2020 category
Class (MCPFE) 1.x x Economic key function	247.03	25.49	Conservation of biodiversity
Class (MCPFE) 1.x x Protective key function	630.87	65.10	Protection of soil and water
Class (MCPFE) 1.x x Beneficial key function	84.19	8.69	Protection of soil and water
Class (MCPFE) 1.x x Recreational key function	6.94	0.72	Conservation of biodiversity
TOTAL	969.03	100.00	

2000 (1991x2002)

	%	km²	%	Equivalent to FRA 2020 category	Adaptation to the 2000 forest area (1000 ha)
Class (MCPFE) 1.x	100.00	1,167.00	3.005		115.34
Class (MCPFE) 1.x x Economic key function	25.49	297.47	0.766	Conservation of biodiversity	29.40
Class (MCPFE) 1.x x Protective key function	65.10	759.72	1.956	Protection of soil and water	75.07
Class (MCPFE) 1.x x Beneficial key function	8.69	101.41	0.261	Protection of soil and water	10.02
Class (MCPFE) 1.x x Recreational key f.	0.72	8.40	0.022	Conservation of biodiversity	0.84
Total Forest Area according to ÖK50 (Map of Austria 1:50,000)		38,835.00	100.000		3838.14

2009

Key forest function (Forest Development Plan)	km²	%	Equivalent to FRA 2020 category	Adaptation to the 2010 forest area (1000 ha)
Economic function	24,101.97	62.49	Production	2414.11
Protective function	11,491.10	29.79	Protection of soil and water	1150.85
Beneficial function	2,604.64	6.75	Protection of soil and water	260.77
Recreational function	373.51	0.97	Social services	37.47
TOTAL forest area	38,571.22	100.00		3863.20

2009

	km²	%	Equivalent to FRA 2020 category
Total Forest Area according to ÖK50 (1:50,000)	38,773	100.00	
Forests in Protected Areas	6,586		
MCPFE class 1.x (1.1 + 1.2 + 1.3)	2,912	7.51	Conservation of biodiversity
MCPFE class 1.1	0		
MCPFE class 1.2	322		
MCPFE class 1.3	2,590		
MCPFE class 2	3,674		

2009x2009

Intersection	km²	%	Equivalent to FRA 2020 category
Class (MCPFE) 1.x x Economic key function	1,028.65	36.16	Conservation of biodiversity
Class (MCPFE) 1.x x Protective key function	1,302.01	45.77	Protection of soil and water
Class (MCPFE) 1.x x Beneficial key function	491.62	17.28	Protection of soil and water
Class (MCPFE) 1.x x Recreational key f.	22.44	0.79	Conservation of biodiversity
TOTAL	2,844.72	100.00	

2010 (2009x2009)

	%	km²	%	Equivalent to FRA 2020 category	Adaptation to the 2010 forest area (1000 ha)
Class (MCPFE) 1.x	100.00	2,912.00	7.510		290.13
Class (MCPFE) 1.x x Economic key function	36.16	1,052.98	2.716	Conservation of biodiversity	104.92
Class (MCPFE) 1.x x Protective key function	45.77	1,332.82	3.437	Protection of soil and water	132.78
Class (MCPFE) 1.x x Beneficial key function	17.28	503.19	1.298	Protection of soil and water	50.14
Class (MCPFE) 1.x x Recreational key f.	0.79	23.01	0.059	Conservation of biodiversity	2.28
Total Forest Area according to ÖK50 (Map of Austria 1:50,000)		38,773.00	100.000		3863.20

2016

Key forest function (Forest Development Plan)	km²	%	Equivalent to FRA 2020 category	Adaption to the 2015 forest area (1000 ha)	Adaption to the 2020 forest area (1000 ha)
Economic function	23,837.20	61.49	Production	2386.54	2397.59
Protective function	11,812.40	30.47	Protection of soil and water	1182.60	1188.07
Beneficial function	2,634.20	6.80	Protection of soil and water	263.92	265.14
Recreational function	480.00	1.24	Social services	48.13	48.35
TOTAL forest area	38,763.80	100.00		3881.19	3899.15

2018

	km²	%	Equivalent to FRA 2020 category
Total Forest Area according to BFW-Waldlayer (2018)	39,745	100.00	
Forests in Protected Areas	8,784		
MCPFE class 1.x (1.1 + 1.2 + 1.3)	5,210	13.11	Conservation of biodiversity
MCPFE class 1.1	0		
MCPFE class 1.2	335		
MCPFE class 1.3	4,876		
MCPFE class 2	3,574		

2015, 2020 (2016x2018 on the basis of 2009 intersection)

	% (2009x2009)	km²	%	Equivalent to FRA 2020 category	Adaptation to the 2015 forest area (1000 ha)	Adaptation to the 2020 forest area (1000 ha)
Class (MCPFE) 1.x	100.00	5,210.00	13.11		508.82	511.18
Class (MCPFE) 1.x x Economic key function	36.17	1884.20	4.74	Conservation of biodiversity	184.02	184.87
Class (MCPFE) 1.x x Protective key function	45.77	2384.39	6.00	Protection of soil and water	232.87	233.94
Class (MCPFE) 1.x x Beneficial key function	17.28	900.48	2.27	Protection of soil and water	87.94	88.35

FRA 2020 report, Austria

Class (MCPFE) 1.x x Recreational key f.	0.79	40.93	0.10	Conservation of biodiversity	4.00	4.02
Total Forest Area according to BFW-Waldlayer (2018)		39,745.00	100.00		3881.19	3899.15

Analysis and processing of national data

Estimation and forecasting

1990, 2000, 2010, 2015 and 2020: All available relevant national data refer to the combined area of forest + OWL. FRA 2020 refers only to forest area. Therefore it is assumed that the conditions on forest area are the same as on OWL.

Primary designated management objective

1990: 1991 “Forest Development Plan” data are used without extrapolation.
2000: 1991 “Forest Development Plan” and 2002 “Forests in protected areas” data are used without any extra/interpolation.
2010: 2009 “Forest Development Plan” and 2009 “Forests in protected areas” data are used without any extra/interpolation.
2015: 2016 “Forest Development Plan” and 2018 “Forests in protected areas” data are used without any extra/interpolation.
2020: 2016 “Forest Development Plan” and 2018 “Forests in protected areas” data are used without any extra/interpolation.

Total area with designated management objective

Protection of soil and water: Total forest area is reported (See 1a!).
Conservation of biodiversity : 1990: n.a., 2000: 2002 data are reported, 2010: 2009 data are reported, 2015: 2013 data are reported, 2020: 2018 data are reported.
Social Services: 2020: The 2015 number is repeated.

Reclassification into FRA 2020 categories

Primary designated management objective

The breakdown of forest area was done according to the Forest Development Plan key functions (economic, protective, beneficial and recreational function). Areas dedicated for conservation of biodiversity area were generated (for 2000, 2010, 2015 and 2020) by intersection of Forest Development key functions and MCPFE protected forest area class 1.x according to following prioritisation rule:

1. Protective key function and beneficial key function (Protection of soil and water)
2. Class (MCPFE) 1.x (Conservation of biodiversity)
3. Recreation key function (Social services)
4. Economic key function (Production)

1990

Production = **2,621.07**
Protection of soil and water = **1,119.11**
Conservation of biodiversity = **n. a.**
Social services = **35.49**

2000

Production = 2,664.44 – 29.40 = **2,635.04**
Protection of soil and water = 1,003.29 + 134.33 = **1,137.62**
Conservation of biodiversity = 29.40 + 0.84 = **30.24**
Social services = 36.08 – 0.84 = **35.24**

2010

Production = 2,414.11 – 104.92 = **2,309.19**
Protection of soil and water = 1,150.85 + 260.77 = **1,411.62**
Conservation of biodiversity = 104.92 + 2.28 = **107.20**
Social services = 37.47 – 2.28 = **35.19**

2015

Production = 2,386.54 – 184.02 = **2,202.53**
Protection of soil and water = 1,182.60 + 263.92 = **1,446.52**

Conservation of biodiversity = $184.02 + 4.00 = \mathbf{188.01}$

Social services = $48.13 - 4.00 = \mathbf{44,13}$

2020

Production = $2,397.59 - 184.87 = \mathbf{2,212.72}$

Protection of soil and water = $1,188.07 + 265.14 = \mathbf{1,453.21}$

Conservation of biodiversity = $184.87 + 4.02 = \mathbf{188.89}$

Social services = $48.35 - 4.02 = \mathbf{44.33}$

Primary designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production (a)	2 621.07	2 635.04	2 309.19	2 202.53	2 212.72
Protection of soil and water (b)	1 119.11	1 137.62	1 411.62	1 446.52	1 453.21
Conservation of biodiversity (c)	0.00	30.24	107.20	188.01	188.89
Social Services (d)	35.49	35.24	35.19	44.13	44.33
Multiple use (e)	0.00	0.00	0.00	0.00	0.00
Other (specify in comments) (f)	0.00	0.00	0.00	0.00	0.00
None/unknown (g)	0.00	0.00	0.00	0.00	0.00
Total forest area	3 775.67	3 838.14	3 863.20	3 881.19	3 899.15

Total area with designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production	3 308.00	3 342.00	3 336.00	3 319.00	3 305.00
Protection of soil and water	3 775.67	3 838.14	3 863.20	3 881.19	3 899.15
Conservation of biodiversity		116.60	291.20	501.59	521.04
Social Services	3 495.00	3 662.00	3 761.00	3 813.00	3 813.00
Other (specify in comments)					

Comments

Primary designated management objective, Conservation of biodiversity (c), 1990:

In 1990 there were already forests in protected areas. For lack of available georeferenced data on the federal level and the resulting inability to intersect them with the other forest functions, however, the total forest area is completely allocated to the other functions and "Conservation of biodiversity" is therefore reported as zero.

3b Forest area within protected areas and forest area with long-term management plans

National Data

Data sources + type of data source eg NFI, etc

Forest area within protected areas :

- Wald in Schutzgebieten – Update 2009, 2013, 2018 (Forests in Protected Areas – Update 2009, 2013, 2018. Classification of Protected Forest Areas according to the Criteria of the Ministerial Conference on the Protection of Forests in Europe (MCPFE)) (SCHWARZL B., 2009, 2014, 2019). Umweltbundesamt, Vienna.
- Studies based on GIS data and analyses of nature conservation regulations and decrees.

Forest area with long-term forest management plan:

- So far, there was only a single data collection: Supplementary questionnaire "Verwendung von Waldbewirtschaftungsplänen" to the annual removals statistics 2017 (Holzeinschlagsmeldung 2017), BMNT, 2018.
- Expert estimations made for former FRA and SoEF national reports.

Forest area within protected areas with long-term forest management plan:

- Wald in Schutzgebieten – Update 2018 (see above!)

National classification and definitions

Forest area within protected areas :

Classification of Protected Forest Areas according to the Criteria of the Ministerial Conference on the Protection of Forests in Europe (MCPFE)

Forest area with long-term forest management plan:

Definition: Forest area covered by a forest management plan = forest area with a long-term documented management plan, aiming at defined management goals and which is regularly revised.

Original data

Forest area within protected areas :

Year	MCPFE Class 1.1	MCPFE Class 1.2	MCPFE Class 1.3	MCPFE Class 2	SUM
	1000 ha (FOWL)				
2018	0	33.48	487.56	357.36	878.40
2013	0	29.81	471.78	333.20	834.79
2008	0	32.20	259.00	367.40	658.60

Forest area with long-term management plans 2017:

	Forest + OWL area (ha)	Share of forest + OWL area with long-term managment plans (%)
Forest holdings < 200 ha	1 689 162	18%
Forest holdings >= 200 ha und < 500 ha	286 677	56%
Forest holdings >= 500 ha	927 958	81%
Austrian Federal Forests (ÖBf)	492 144	100%
Total	3 395 941	50%

Source: Supplementary questionnaire "Verwendung von Waldbewirtschaftungsplänen" to the annual removals statistics 2017 (Holzeinschlagsmeldung 2017), BMNT, 2018

Earlier expert estimations: For 2010 an increase of 1% was estimated.

Analysis and processing of national data

Estimation and forecasting

Forest area within protected areas :

For reference years 2010, 2015, 2016 and 2017 interpolation is used:

Year	2008	2010	2013	2015	2016	2017	2018
Protected area in 1000 ha FOWL	658.60	729.08	834.79	852.23	860.96	869.68	878.40

For reference years 2019 and 2020 2018 figure is repeated.

The data belong to forest + OWL area. As the share of OWL in the total FOWL area is only around 3%, no further data adjustments were made.

Forest area with long-term forest management plan:

Since the original data belong to forest + OWL area, it is assumed that there is no difference between forest area and OWL area.

Following percentages of forest area are used for the reporting years: 1990 and 2000: 49%; 2010, 2015-2020: 50%.

Reclassification into FRA 2020 categories

Not needed.

FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest area within protected areas			729.08	852.23	860.96	869.68	878.40	878.40	878.40
Forest area with long-term forest management plan	1 850.00	1 881.00	1 932.00	1 941.00	1 942.00	1 944.00	1 946.00	1 948.00	1 950.00
...of which in protected areas							521.04		

Comments

4 Forest ownership and management rights

4a Forest ownership

National Data

Data sources + type of data source eg NFI, etc

See "Original data"!

National classification and definitions

See "Original data"!

Original data

Figures based on the Austrian land register; collected and compiled by the National Forest Statistics:		
	Hectares	%
2015 (Source: Nachhaltige Waldwirtschaft in Österreich - Datensammlung zum Österreichischen Wald, Stand: Nov. 2017, BMLFUW, 2017)		
TOTAL (Forest + OWL)	3.690.884	100,00
Private forests < 200 hectares	1.849.951	50,12
Private forests > 200 hectares	801.243	21,71
Community forests	360.053	9,76
SUM Private ownership	3.011.247	81,59
Municipal forests	75.703	2,05
Provincial forests	48.865	1,32
Austrian Federal Forests and other publicly owned forests	555.070	15,04
SUM Public ownership	679.638	18,41
2010 (Source: Nachhaltige Waldwirtschaft in Österreich - Datensammlung zum Österreichischen Wald, Stand: Nov. 2017, BMLFUW, 2017)		
TOTAL (Forest + OWL)	3.689.095	100,00
Private forests < 200 hectares	1.778.024	49,00
Private forests > 200 hectares	784.347	21,53
Community forests	402.746	10,50
SUM Private ownership	2.965.117	81,03
Municipal forests	76.420	2,13
Provincial forests	69.002	1,42
Austrian Federal Forests and other publicly owned forests	578.556	15,41
SUM Public ownership	723.978	18,97

2000 (Source: Nachhaltige Waldwirtschaft in Österreich, Österreichischer Waldbericht - Datensammlung, BMLFUW, 2004)		
TOTAL (Forest + OWL)	3.576.638	100,00
Private forests < 200 hectares	1.770.979	49,52
Private forests > 200 hectares	770.542	21,54
Community forests	333.830	9,33
SUM Private ownership	2.875.351	80,39
Municipal forests	81.629	2,28
Provincial forests	44.082	1,23
Austrian Federal Forests and other publicly owned forests	575.577	16,09
SUM Public ownership	701.288	19,61
1990 (Source: Waldbericht 1990, BMLF, 1991)		
TOTAL (Forest + OWL)	3.492.173	100,00
Private forests < 50 hectares	1.360.481	38,96
Private forests > 50 hectares	911.788	26,11
Church forests	144.782	4,15
Community forests	330.081	9,45
SUM Private ownership	2.747.132	78,67
Municipal forests	88.636	2,54
Provincial forests	46.033	1,32
Austrian Federal Forests	570.137	16,33
Other publicly owned forests	40.235	1,15
SUM Public ownership	745.041	21,33

Figures based on farm structure surveys (Statistics Austria):

Proportion on forest + OWL area owned by individuals:

- 1990 (census): 57.45%
- 1999 (census): 53.14%; estimation by NC: 57%
- 2010 (census): 56.96%
- 2016 (sample survey): 56,75%

As the surveys differ in methodology and categorisation, the same estimation (57%) is used for all four reference years.

Analysis and processing of national data

Estimation and forecasting

The proportions of ownership (see Original data above) refer to forest and OWL. They are used on the total forest area (table 1a). As there are no figures for forest and OWL separately available, it is assumed, that the ownership distribution is equal in both categories.

The Austrian land register gives information on public ownership, total private ownership and private ownership owned by local communities.

The farm structure surveys give information on private ownership owned by individuals.

Private ownership owned by private business entities and institutions = total private ownership - private ownership owned by individuals - private ownership owned by local communities.

Reclassification into FRA 2020 categories

Not needed.

FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Private ownership (a)	2 970.32	3 085.48	3 130.35	3 166.66
...of which owned by individuals	2 152.13	2 187.74	2 202.02	2 212.28
...of which owned by private business entities and institutions	461.39	539.64	522.69	575.58
...of which owned by local, tribal and indigenous communities	356.80	358.10	405.64	378.80
Public ownership (b)	805.35	752.66	732.85	714.53
Unknown/other (specify in comments) (c)	0.00	0.00	0.00	0.00
Total forest area	3 775.67	3 838.14	3 863.20	3 881.19

Comments

Figures for individuals and private business entities and institutions are estimations or calculations based on estimations. Therefore trends on subcategories individuals and private business entities and institutions are not meaningful.

4b Holder of management rights of public forests

National Data

Data sources + type of data source eg NFI, etc

See 4a!

FRA category (c), reference year 2015: Written information on “Forest area primarily managed by others” in Tyrol, Forest Authority Tyrol, 2015. Details can be found in Reporting form 1 of the Austrian reply to the "Joint COST Action FACESMAP/UNECE/FAO Enquiry on Forest Ownership in the ECE Region", 2016.

National classification and definitions

See 4a!

Original data

See 4a!

Analysis and processing of national data

Estimation and forecasting

See 4a!

Reclassification into FRA 2020 categories

Not needed.

FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Public Administration (a)	805.35	752.66	732.85	677.53
Individuals (b)	0.00	0.00	0.00	0.00
Private business entities and institutions (c)	0.00	0.00	0.00	37.00
Local, tribal and indigenous communities (d)	0.00	0.00	0.00	0.00
Unknown/other (specify in comments) (e)	0.00	0.00	0.00	0.00
Total public ownership	805.35	752.66	732.85	714.53

Comments

The first-time reporting of FRA category (c) for the reference year 2015 is not based on actual changes but on additional information.

5 Forest disturbances

5a Disturbances

National Data

Data sources + type of data source eg NFI, etc

Data sources:

Dokumentation der Waldschädigungsfaktoren (DWF) (Documentation of forest damage factors), Federal Research Centre for Forests (BFW), Vienna, 2018

Nachhaltige Waldwirtschaft in Österreich - Datensammlung zum Österreichischen Wald, Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, Feb. 2015 and Nov. 2017, <https://www.bmnt.gv.at/forst/oesterreich-wald/waldzustand/datensammlung2017.html>

Type of data source:

DWF data are based on enquiries and estimations made by local forest authorities.

National classification and definitions

Reduced damaged areas (=total affected area * damage intensity (percentage of damaged area or trees)) are reported.

Original data

Documentation of forest damage factors (DWF):

Nr	DWF-Gruppen	DWF-categories	Unit	FRA categories	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	holz-und rindenbrütende Insekten	wood and bark boring insects	ha			11,020	42,085	34,437	33,199	22,102	23,459	13,500	13,385
2	sonstige Insekten	other insects	ha			31,994	29,679	35,528	29,813	9,800	6,588	6,652	12,145
			ha	Insects [1 & 2]		43,013	71,764	69,964	63,012	31,902	30,047	20,152	25,531
3	Fäulepilze [fm]	rot fungi	m³			554,713	508,698	537,871	487,430	489,681	491,281	447,263	358,702
	HEM: Einschlag-NH [fm]	HEM: removals C	m³			12,669,923	14,734,464	14,070,563	14,007,649	16,336,345	18,626,396	18,884,481	14,078,942
	Anteil	percentage	%			4.38%	3.45%	3.82%	3.48%	3.00%	2.64%	2.37%	2.55%
	ÖWI: Waldfläche, Ertragswald, NH	NFI: forest in yield, C	ha		2,255,000	2,238,571	2,222,143	2,205,714	2,189,286	2,172,857	2,156,429	2,140,000	2,130,111
3mod	Fäulepilze [Umrechnung auf ha]	rot fungi [calculated]	ha			98,009	76,718	84,317	76,181	65,131	56,877	50,684	54,271
4	sonstige Pilze	other fungi	ha			19,553	23,385	13,184	18,971	24,033	9,679	9,037	41,416
			ha	Diseases [3mod & 4]		117,561	100,103	97,501	95,152	89,164	66,556	59,721	95,687
5	sonstige biotische Schäden	other biotic damage	ha	Other [5]		23,323	29,424	23,957	20,475	13,846	14,437	9,601	9,411
	abiotische Schäden	abiotic damage	ha			27,314	37,104	32,697	14,291	23,501	39,127	46,713	33,451
8	Waldbrand	forest fire	ha			86	115	9	25	28	33	43	26
	abiotische Schäden (ohne Waldbrand)	abiotic damage (without forest fire)	ha	Severe weather events		27,228	36,990	32,688	14,266	23,473	39,094	46,670	33,426
			ha	Total		211,125	238,281	224,111	192,905	158,385	150,134	136,144	164,054

Nr	DWF-Gruppen	DWF-categories	Unit	FRA categories		2010	2011	2012	2013	2014	2015	2016	2017
1	holz-und rindenbrütende Insekten	wood and bark boring insects	ha			13,036	10,352	7,561	14,459	10,862	17,513	13,306	23,400
2	sonstige Insekten	other insects	ha			10,703	12,204	8,567	6,945	9,787	4,850	22,894	6,372
			ha	Insects [1 & 2]		23,739	22,556	16,128	21,403	20,648	22,363	36,200	29,771
3	Fäulepilze [fm]	rot fungi	m³			369,806	350,290	352,685	338,326	309,108	334,092	352,191	329,787
	HEM: Einschlag-NH [fm]	HEM: removals C	m³			15,296,643	15,727,260	14,932,534	14,419,172	13,921,827	14,570,823	13,854,201	14,594,861
	Anteil	percentage	%			2.42%	2.23%	2.36%	2.35%	2.22%	2.29%	2.54%	2.26%
	ÖWI: Waldfläche, Ertragswald, NH	NFI: forest in yield, C	ha			2,120,222	2,110,333	2,100,444	2,090,556	2,080,667	2,070,778	2,060,889	2,051,000
3mod	Fäulepilze [Umrechnung auf ha]	rot fungi [calculated]	ha			51,258	47,003	49,609	49,052	46,197	47,481	52,390	46,345
4	sonstige Pilze	other fungi	ha			68,835	73,523	46,969	45,776	46,126	84,314	78,305	66,889
			ha	Diseases [3mod & 4]		120,093	120,526	96,578	94,828	92,323	131,794	130,695	113,234
5	sonstige biotische Schäden	other biotic damage	ha	Other [5]		8,810	6,564	5,432	5,453	5,409	6,331	4,720	5,159
	abiotische Schäden	abiotic damage	ha			11,604	11,888	16,992	17,806	32,823	52,192	53,065	74,620
8	Waldbrand	forest fire	ha			32	29	31	65	39	95	16	22
	abiotische Schäden (ohne Waldbrand)	abiotic damage (without forest fire)	ha	Severe weather events		11,572	11,859	16,961	17,741	32,784	52,097	53,049	74,597
			ha	Total		164,214	161,506	135,099	139,425	151,165	212,586	224,664	222,761

Further details: <https://www.bmnt.gv.at/forst/oesterreich-wald/waldzustand/datensammlung2017.html>, table 9.2

Original data belong to "Total forest and OWL".

Analysis and processing of national data

Estimation and forecasting

Not needed.

Reclassification into FRA 2020 categories

As OWL area is relatively small and the main OWL tree species are pinus mugo and alnus viridis it is assumed that all areas with disturbances belong to forest area.

FRA categories	Area (1000 ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Insects (a)			43.01	71.76	69.96	63.01	31.90	30.05	20.15	25.53	23.74	22.56	16.13	21.40	20.65	22.36	36.20	29.77
Diseases (b)			117.56	100.10	97.50	95.15	89.16	66.56	59.72	95.69	120.09	120.53	96.58	94.83	92.32	131.79	130.70	113.23
Severe weather events (c)			27.23	36.99	32.69	14.27	23.47	39.09	46.67	33.43	11.57	11.86	16.96	17.74	32.78	52.10	53.05	74.60
Other (specify in comments) (d)			23.32	29.42	23.96	20.48	13.85	14.44	9.60	9.41	8.81	6.56	5.43	5.45	5.41	6.33	4.72	5.16
Total (a+b+c+d)	–	–	211.12	238.27	224.11	192.91	158.38	150.14	136.14	164.06	164.21	161.51	135.10	139.42	151.16	212.58	224.67	222.76
Total forest area	3 838.14	3 843.00	–	–	–	–	–	–	3 856.00	–	3 863.20	–	–	–	–	3 881.19	3 884.79	3 888.38

Comments

Double counting between different insects, diseases and severe weather events is not explicitly prohibited. However, it is assumed, that double counted area is small.

"Other (d)": Dormice, squirrel; mice; mistletoe; oak death; pine decline.

5b Area affected by fire

National Data

Data sources + type of data source eg NFI, etc

Total land area affected by fire:

Written information based on the Austrian Fire Database (Waldbrand-Datenbank Österreich, <http://fire.boku.ac.at>), Institute of Silviculture, University of Natural Resources and Life Sciences (BOKU), Vienna, 2019.

...of which on forest:

Dokumentation der Waldschädigungsfaktoren (DWF) (Documentation of forest damage factors), Federal Research Centre for Forests (BFW), Vienna, 2018

Nachhaltige Waldwirtschaft in Österreich - Datensammlung zum Österreichischen Wald, Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, Feb. 2015 and Nov. 2017, <https://www.bmnt.gv.at/forst/oesterreich-wald/waldzustand/datensammlung2017.html>

National classification and definitions

Total land area affected by fire: > 1000 m²

...of which on forest: Area (forests + OWL) damaged by forest fire.

Original data

Total land area affected by fire: Austrian Fire Database (Waldbrand-Datenbank Österreich, <http://fire.boku.ac.at>)

...of which on forest: See 5a!

Analysis and processing of national data

Estimation and forecasting

Not needed.

Reclassification into FRA 2020 categories

Not needed.

FRA categories	Area (1000 ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total land area affected by fire				0.21	0.04	0.03	0.09	0.09	0.04	0.08	0.09	0.13	0.19	0.17	0.13	0.23	0.07	0.13
...of which on forest			0.09	0.11	0.01	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.06	0.04	0.09	0.02	0.02

Comments

The combination of different data sources used for this reporting table may not correctly reflect the proportion between subcategories.

In individual years (2005 and 2008), the forest area affected by fire according to DWF is larger than the total land area affected by fire according to the Austrian Fire Database (2005: 0.02; 2008: 0.03). For these two years, therefore, the "...of which on forest" values are also reported for the "Total land area affected by fire".

5c Degraded forest

Does your country monitor area of degraded forest		Yes
If "yes"	What is the national definition of "Degraded forest"?	<p>Forest Act 1975, § 16 reads as follows:</p> <p>“Forest Destruction Article 16. (1) Any destruction of forests is prohibited. This ban is directed against everybody. (2) There has been destruction of a forest if actions or failure to act result in (a) the productive power of the forest soil being materially weakened or entirely destroyed, (b) the forest soil being exposed to a clear danger of sliding or erosion, (c) prompt reforestation has been rendered impossible or (d) the plant growth is clearly exposed to widespread danger, especially that caused by wind, snow, wild animals with the exception of those that are huntable, improper fertilisation, air pollution of all kinds, except those referred to in Article 47, or waste (such as refuse, junk, sewage sludge) is dumped. ... (5) (Constitutional provision) Should it be determined that the plant cover is subject to widespread endangerment as a result of huntable animals, the competent officer of the forest monitoring service (“Forstaufsichtsdienst”) shall provide an expert report stating the causes, nature and extent of the endangerment, and proposals for dealing with the endangerment, to the hunting authority and to the director of the forest monitoring service the Provincial Government Office. The latter shall have the right of application, and shall be a party, in the proceedings provided for in Provincial legislation to protect forests against forest-endangering damage caused by game. ...”</p>
	Describe the monitoring process and results	<p>Forest Act 1975, § 16 (6) and (7) reads as follows:</p> <p>"(6) The Federal Minister of Agriculture, Forestry, Environment and Water Management [remark: since 2018 the Federal Minister for Sustainability and Tourism] shall each year publish on the internet a report on the nature and extent of forest destruction and, in particular, the widespread endangerment of plant cover due to game, the expert activities of the forest authorities and the measures taken by the hunting authorities as well as their success, broken down by Provinces. (7) This report shall be submitted to the Austrian “Nationalrat” for discussion by 1 September of each subsequent year."</p> <p>RESULTS: Destruction of forests according to § 16 (2) Forest Act 1975 is no problem in Austria. For 2017, only 121 cases with a total of 9 hectares were reported.</p> <p>Areal endangerment of the forest vegetation by huntable animals, however, is a problem. For 2017, 162 cases according to § 16 (5) Forest Act 1975 with a total area of 3830 hectares were reported (Game Damage Report 2017 – Report of the Federal Minister for Sustainability and Tourism according to § 16 (6) Forest Act 1975, Wildschadensbericht 2017, https://www.bmnt.gv.at/forst/oesterreich-wald/waldzustand/Wildschadensbericht.html).</p>

Comments

Sources:

Forest Act 1975: <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10010371>

Game Damage Reports – Reports of the Federal Minister for Sustainability and Tourism according to § 16 (6) Forest Act 1975: <https://www.bmnt.gv.at/forst/oesterreich-wald/waldzustand/Wildschadensbericht.html>

6 Forest policy and legislation

6a Policies, Legislation and national platform for stakeholder participation in forest policy

National Data

Data sources + type of data source eg NFI, etc

Sustainable Forest Management in Austria - Austrian Forest Report 2015, Federal Ministry of Agriculture, Forestry, Environment and Water Management, 2015, p 133 ff, <https://www.bmnt.gv.at/forst/oesterreich-wald/waldzustand/waldbericht2015.html>

Austrian Forest Strategy 2020+, Federal Ministry for Sustainability and Tourism, 2018, https://www.bmnt.gv.at/forst/oesterreich-wald/waldstrategie-2020/waldstrategie_paper.html (The English version can be ordered at walddialog@bmnt.gv.at.)

Provincial forest strategies (examples):

- Waldstrategie 2020, Amt der Tiroler Landesregierung, 2011, https://www.tirol.gv.at/fileadmin/themen/umwelt/wald/waldzustand/downloads/waldstrategie2020_web.pdf
- Forststrategie 2018 des Landes Vorarlberg, Amt der Vorarlberger Landesregierung, 2009, <https://vorarlberg.at/at.gv.wien.vlbg.portal/documents/21336/22697/Forststrategie+2018/a86bb837-1412-47f7-b77d-407b27139eb4?version=1.0>

Forstgesetz 1975, <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10010371>

Provincial Forest Laws (examples):

- Styria: Steiermärkisches Waldschutzgesetz, <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrStmk&Gesetzesnummer=20000174>
- Vorarlberg: Gesetz über einige forstpolizeiliche Maßnahmen und über die Waldaufseher, <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrVbg&Gesetzesnummer=20000564>

Holzhandelsüberwachungsgesetz, 2013, <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20008546>

Österreichischer Walddialog, www.walddialog.at

Austrian Market Report 2018 - Statement submitted by the Austrian Delegation to the 76th session of the UNECE Committee on Forests and the Forest Industry, 2018, p 8, Certified forest products, <http://www.unece.org/fileadmin/DAM/timber/country-info/statements/austria2018.pdf>

National classification and definitions

SFM according to the Austrian Forest Act 1975, § 1 (3): "Sustainable forest management within the meaning of this Federal Act comprises the tending and use of forests in a way and at a rate that maintains their biodiversity, productivity, regeneration capacity, their vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions on local, national, and global level, and that does not cause damage to other ecosystems. In particular, when using the forest precautions shall be taken considering the long-term forestry production period and any existing plans to ensure that utilisation is retained for subsequent generations in line with the objectives of forestry."

Original data

Policies supporting SFM

- Austrian Forest Strategy 2020+ (Österreichische Waldstrategie 2020+)
- Some provinces have developed provincial forest strategies, e.g. Tyrol and Vorarlberg.

Legislation and regulations supporting SFM

- Austrian Forest Act 1975 (Forstgesetz 1975), amended several times, last amendment in 2016
- Ordinances of the Provincial Governors or Provincial Forest Laws as set out in §§ 15, 26 and 95 et. seq. of the 1975 Forest Act (implementing laws)
- Act on surveillance of timber trade (Holzhandelsüberwachungsgesetz - HolzHÜG), national implementation of the EU Timber Regulation
- Provincial laws on nature conservation and landscape protection

Platform that promotes or allows for stakeholder participation in forest policy development

- Austrian Forest Dialogue (Österreichischer Walddialog)

Traceability system(s) for wood products

- 2 private certification schemes: PEFC Austria, FSC

Indicate the existence of	Boolean (Yes/No)	
	National	Sub-national
Policies supporting SFM	Yes	Yes
Legislations and regulations supporting SFM	Yes	Yes
Platform that promotes or allows for stakeholder participation in forest policy development	Yes	No
Traceability system(s) for wood products	Yes	No

Comments

Policies supporting SFM and platform that promotes or allows for stakeholder participation in forest policy development

The main policy instrument is the Austrian Forest Strategy 2020+, developed within the framework of the Austrian Forest Dialogue and adopted in 2016.

Legislation and regulations supporting SFM

Due to the Austrian constitution, forestry is a matter of national responsibility. The enforcement of the national forestry law is mainly the responsibility of the federal states. Nature protection is in the responsibility of the nine federal states.

Traceability system(s) for wood products

PEFC Austria was founded in 1999. Since September 2000 the Austrian PEFC certification system has been applied. Both forest certification by means of the regional model and the “Chain of Custody” (CoC) certification have been developed so as to suit the specific requirements of small- and medium-sized enterprises in Austria. On 29 March 2018 the third Standard Revision was completed and the updated standards of PEFC Austria entered into force. Currently, about 63,000 forest owners holding about 3.0 million hectares effectively take advantage of the certification and 484 CoC certificates are valid.

Forest Stewardship Council (FSC): In Austria, 587 hectares of forest are currently certified according to FSC. There are 289 valid CoC certificates.

6b Area of permanent forest estate

National Data

Data sources + type of data source eg NFI, etc

Forest Act 1975, § 17, <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10010371>

National classification and definitions

Forest Act 1975, § 17 (1) reads as follows: "The use of forest soil for purposes other than those of forest cultivation (clearing) is prohibited."

Original data

Total forest area (See 1a!).

FRA 2020 categories	Forest area (1000 ha)					
	Applicable?	1990	2000	2010	2015	2020
Area of permanent forest estate	Yes	3 775.67	3 838.14	3 863.20	3 881.19	3 899.15

Comments

The whole forest area (incl. OWL) is protected by law (see National classification and definition). The use of forest soil for other purposes (clearing) than those of forest cultivation is prohibited in general. Clearing allowances request a special procedure carried out by the forest authority. If public interest in conserving the forest area overweighs, clearing won't be permitted.

7 Employment, education and NWFP

7a Employment in forestry and logging

National Data

Data sources + type of data source eg NFI, etc

Statistics Austria, calculations within the framework of European Forest Accounts, Table B1, formerly IEEAF Table 3c.

National classification and definitions

Volume of forestry labour input: Definition according to the explanatory note of Eurostat's European Forest Accounts questionnaire Table B1: The work done by both salaried and non-salaried workers, in 1000 annual working units. One annual work unit (AWU) corresponds to the work performed by one person occupied on a full-time basis. One person cannot represent more than one AWU. This constraint holds even if the person works for more than the number of hours defining full time.

Original data

Data on self-employed labour input mainly derive from the Farm Structure Survey (FSS), conducted as full survey. As FSS data are available only at intervals of several years model calculations are used to extrapolate the survey data. The model calculations are mainly based on data from accountancy networks and data on wood fellings.

Data on employees stem from National Accounts. These data are determined on the basis of data from the Main Association of Austrian Social Security Organisations on the number of jobs and findings from the Labour Force Survey (LFS) on working time.

Time series will be revised in the future.

Arbeitskräfte in der Forstwirtschaft				
Jahr	insgesamt	davon		3 year average
		Nicht entlohnte AK	Entlohnte AK	
	in 1.000 Jahresarbeitseinheiten			
1995	21,00	13,86	7,14	
1996	22,90	15,91	7,00	21,08
1997	19,34	12,44	6,90	
1998	19,54	13,00	6,54	
1999	18,68	12,36	6,32	
2000	17,93	11,87	6,06	18,00
2001	17,39	11,68	5,72	
2002	18,36	12,65	5,72	
2003	19,28	13,47	5,82	
2004	18,81	13,22	5,60	
2005	18,90	13,34	5,56	
2006	21,75	16,50	5,25	
2007	23,09	17,29	5,80	
2008	22,19	16,47	5,72	
2009	19,44	13,81	5,63	

2010	19,73	14,02	5,71	20,25
2011	21,57	15,75	5,82	
2012	20,34	14,17	6,16	
2013	20,28	14,21	6,07	
2014	21,40	15,29	6,11	
2015	20,69	14,68	6,01	20,31
2016	18,85	12,78	6,07	
2017	19,14	12,98	6,16	
Quelle: Statistik Austria, Berechnungen im Rahmen der land- und forstwirtschaftlichen Gesamtrechnung. Stand November 2018.				

FRA 2020 categories	Full-time equivalents (1000 FTE)											
	1990			2000			2010			2015		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Employment in forestry and logging	21.08			18.00			20.25			20.31		
...of which silviculture and other forestry activities												
...of which logging												
...of which gathering of non wood forest products												
...of which support services to forestry												

Comments

Reference year 1990: 3 year average 1995-1997 is reported. Reason: The time series with comparable data does not begin until 1995.

7b Graduation of students in forest-related education

National Data

Data sources + type of data source eg NFI, etc

Graduation of students in forest-related education (Doctoral degree, Master's degree, Bachelor's degree): University of Natural Resources and Life Sciences, Vienna (BOKU), 2018

Technician certificate / diploma : Nachhaltige Waldwirtschaft in Österreich - Datensammlung zum Österreichischen Wald, Stand: Nov. 2017, BMLFUW, 2017

Statistic of the "Höhere Bundeslehranstalt für Forstwirtschaft Bruck/Mur", 2019

Statistic of the "Forstfachschule Traunkirchen", 2019

National classification and definitions

The following current and former fields of study are included:

Doctoral degree: University of Natural Resources and Life Sciences, Vienna (BOKU):

- Dr.-Studium der Bodenkultur Forst- und Holzwirtschaft, Dr.-Studium der Ingenieurwissenschaften Forst- und Holzwirtschaft, Dr.-Studium der Sozial- und Wirtschaftswissenschaften Forst- und Holzwirtschaft

Master's degree: University of Natural Resources and Life Sciences, Vienna (BOKU):

- Masterstudium Forstwissenschaften, Masterstudium Mountain Forestry, Masterstudium Mountain Risk Engineering, Masterstudium DDP MSc European Forestry, Masterstudium Alpine Naturgefahren/Wildbach- und Lawinenverbauung, Individuelles Masterstudium Forstwissenschaften
- former diploma studies: Forstwirtschaft, Studium irregulare Forst- und Holzwirtschaft, Wildbach- und Lawinenverbauung

Bachelor's degree: University of Natural Resources and Life Sciences, Vienna (BOKU):

- Bachelorstudium Forstwirtschaft, Individuelles Bachelorstudium Forstwirtschaft

Technician certificate / diploma: Graduates of the following schools are included:

- Höhere Bundeslehranstalt für Forstwirtschaft Bruck/Mur
- Höhere Bundeslehranstalt für Forstwirtschaft Gainfarn (closed after year 2004/2005)
- Forstfachschule Traunkirchen (until July 2018 in Waidhofen/Ybbs)

Original data

Graduation of students in forest-related education (3 year average)		female	male	total
Doctoral degree				
average 1989/90, 1990/91, 1991/92	Dr.-Studium der Bodenkultur; Forst- und Holzwirtschaft	0.33	5.67	6.00
average 1989/90, 1990/91, 1991/92	total	0.33	5.67	6.00
	Dr.-Studium der Bodenkultur; Forst- und Holzwirtschaft	2.00	11.33	13.33
average 1999/00, 2000/01, 2001/02	total	2.00	11.33	13.33
	Dr.-Studium der Bodenkultur; Forst- und Holzwirtschaft	3.33	7.33	10.67
	Dr.-Studium d.Sozial- u.Wirtschaftswiss.; Forst- und Holzwirtschaft	0.00	0.33	0.33
average 2009/10, 2010/11, 2011/12	total	3.33	7.66	11.00

average 2014/15, 2015/16, 2016/17	Dr.-Studium der Bodenkultur; Forst- und Holzwirtschaft	5.33	14.00	19.33
average 2014/15, 2015/16, 2016/17	Dr.-Studium d.Sozial- u.Wirtschaftswiss.; Forst- und Holzwirtschaft	1.33	1.00	2.33
average 2014/15, 2015/16, 2016/17	total	6.67	15.00	21.67
Master's degree				
average 1989/90, 1990/91, 1991/92	Forstwirtschaft (Stzw)	4.00	53.00	57.00
average 1989/90, 1990/91, 1991/92	Studium irregulare; Forst- und Holzwirtschaft	0.00	0.33	0.33
average 1989/90, 1990/91, 1991/92	Wildbach- und Lawinenverbauung (Stzw)	0.67	6.33	7.00
average 1989/90, 1990/91, 1991/92	total	4.67	59.66	64.33
average 1999/00, 2000/01, 2001/02	Forstwirtschaft (Stzw)	5.00	35.33	40.33
average 1999/00, 2000/01, 2001/02	Wildbach- und Lawinenverbauung (Stzw)	0.67	10.33	11.00
average 1999/00, 2000/01, 2001/02	total	5.67	45.67	51.33
average 2009/10, 2010/11, 2011/12	Forstwirtschaft (Stzw)	0.67	2.33	3.00
average 2009/10, 2010/11, 2011/12	Masterstudium; Alp.Naturgefahren/Wildbach- u.Lawinenv.	0.00	1.00	1.00
average 2009/10, 2010/11, 2011/12	Masterstudium; DDP MSc European Forestry	0.67	2.00	2.67
average 2009/10, 2010/11, 2011/12	Masterstudium; Forstwissenschaften	4.67	12.33	17.00
average 2009/10, 2010/11, 2011/12	Masterstudium; Mountain Forestry	3.00	2.67	5.67
average 2009/10, 2010/11, 2011/12	Masterstudium; Mountain Risk Engineering	1.00	7.33	8.33
average 2009/10, 2010/11, 2011/12	total	10.00	27.67	37.67
average 2014/15, 2015/16, 2016/17	Individuelles Masterstudium; Forstwissenschaften	0.00	0.33	0.33
average 2014/15, 2015/16, 2016/17	Masterstudium; Alp.Naturgefahren/Wildbach- u.Lawinenv.	2.33	10.33	12.67
average 2014/15, 2015/16, 2016/17	Masterstudium; DDP MSc European Forestry	1.00	0.33	1.33
average 2014/15, 2015/16, 2016/17	Masterstudium; Forstwissenschaften	5.67	18.00	23.67
average 2014/15, 2015/16, 2016/17	Masterstudium; Mountain Forestry	2.00	7.67	9.67
average 2014/15, 2015/16, 2016/17	Masterstudium; Mountain Risk Engineering	0.67	1.33	2.00
average 2014/15, 2015/16, 2016/17	total	11.67	38.00	49.66

Bachelor's degree				
average 2009/10, 2010/11, 2011/12	Bachelorstudium; Forstwirtschaft	8.00	23.67	31.67
average 2009/10, 2010/11, 2011/12	Individuelles Bachelorstudium; Forstwirtschaft	0.33	0.00	0.33
average 2009/10, 2010/11, 2011/12	total	8.33	23.67	32.00
average 2014/15, 2015/16, 2016/17	Bachelorstudium; Forstwirtschaft	11.33	35.67	47.00
average 2014/15, 2015/16, 2016/17	Individuelles Bachelorstudium; Forstwirtschaft	0.33	0.00	0.33
average 2014/15, 2015/16, 2016/17	total	11.66	35.67	47.33

Technician certificate / diploma												
	2015			2010			2000			1990		
year	2016/2017	2015/2016	2014/2015	2011/2012	2010/11	2009/10	2001/02	2000/01	1999/00	1991/92	1990/91	1989/90
Höhere Lehranstalt für Forstwirtschaft Bruck/Mur												
alumni	74	82	89	65	61	78	47	38	24	46	41	48
female	5	7	2	7	2	5	8	6	0	2	0	0
male	69	75	87	58	59	73	39	32	24	44	41	48
Höhere Lehranstalt für Forstwirtschaft Gainfarn												
alumni	School closed after year 2004/2005						34	18	38	50	50	45
female							3	4	6	2	2	2
male							31	14	32	48	48	43
Forstfachschule Traunkirchen/ Waidhofen/Ybbs												
alumni	43	44	42	33	26	38	30	30	26	40	35	44
female	3	2	0	3	0	1	1	0	2	0	1	1
male	40	42	42	30	26	37	29	30	24	40	34	43
average alumni female Bruck + Waidhofen (until 2000 incl. Gainfarn)	6.33			6.00			10.00			3.00		
average alumni male Bruck + Waidhofen (until 2000 incl. Gainfarn)	118.33			94.33			85.00			130.00		

average alumni Bruck + Waidhofen (until 2000 incl. Gainfarn)	124.67			100.33			95.00			133.00	
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FRA 2020 categories	Number of graduated students											
	1990			2000			2010			2015		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Doctoral degree	6.00	0.00	6.00	13.00	2.00	11.00	11.00	3.00	8.00	22.00	7.00	15.00
Master's degree	65.00	5.00	60.00	52.00	6.00	46.00	38.00	10.00	28.00	50.00	12.00	38.00
Bachelor's degree	0.00	0.00	0.00	0.00	0.00	0.00	32.00	8.00	24.00	48.00	12.00	36.00
Technician certificate / diploma	133.00	3.00	130.00	95.00	10.00	85.00	100.00	6.00	94.00	125.00	6.00	118.00
Total	204.00	8.00	196.00	159.00	18.00	142.00	181.00	27.00	154.00	244.00	37.00	207.00

Comments

7c Non wood forest products removals and value 2015

National Data

Data sources + type of data source eg NFI, etc

Study “Potenzialabschätzung von Nichtholzprodukten und forstlichen Dienstleistungen in Österreich” (potential assessment of non-wood goods and services in Austria), B. Wolfslehner, H. Vacik, carried out by the University of Natural Resources and Life Sciences (BOKU), commissioned by the Federal Ministry of Agriculture, Forestry, Environment and Water Management, 2009

Study "Konzeptstudie zur Erhebung der Indikatoren „Non Wood Products“ und „Forest Services“

Study "Folgeerhebung zur Erhebung der Indikatoren "Non Wood Products" und "Forest Services" carried out by the University of Natural Resources and Life Sciences (BOKU), Vacik, H., commissioned by the Federal Ministry of Sustainability and Tourism, 2018

Hunting statistics (game meat, skins, hides and trophies): national statistics for game harvest, Statistics Austria

Supply balances for honey and game meat: national statistics for honey and game

Production statistics for forest plants, forest seeds: national statistics provided by BFW

Production statistics for Christmas trees: Austrian Christmas tree producers associations

National classification and definitions

Product (group of products)		Comments related to data, definitions, etc.	Comments on trend(s)
1 st :	Christmas trees	Calculated as marketed share of (Christman) tree species sold mutiplied with an average market price (mean value per height metre and assortment). Does not include subsistence use, which is negligible according to experts. Quantities refer to 2015, Prices correspond to 2018 market prices.	Stable entity of Christmas trees originating from domestic supply
2 nd :	Wild honey	Estimated share of wild honey on total honey production (50% of total). Self-consumption not included. Quantities and prices refer to 2015.	Annual variation in production and resulting effects on market prices according to national statistics
3 rd :	Wild meat	Results calculated from game shot numbers multiplied by estimated average amount of meat per animal and game class. Quantities refer to 2015 statistics (self-consumption included as it refers to total game shot), prices were estimated (by experts, upon literature) to 2015 values.	Annual variation in game harvest according to national statistics
4 th :	Forest plants	Number of plants produced per species multiplied with an average market value. Quantities refer to 2015 statistics (non-marketed plants are not included), prices relate to 2017 and were discussed with experts to estimate 2015 values (based on prices reported in FRA 2015).	Annual production as monitored at national level
5 th :	Skins, hides and trophies	Calculated by estimated share of total game shot: approx. 10% of hides (depending on game species) are further processed in tannery, approx. 10% of total shot game (specific to different classes such as age, sex, etc.) is potentially used for trophies. Total value of trophies is based on numbers for individual shot allowances (90% of total allowances). Quantities refer to 2015 (self-consumption not considered), prices according to literature assessed for	Annual variation in game harvest according to national statistics
6 th :	Mushrooms	Estimated amount of marketed wild mushrooms mutiplied with an average market value per species. Quantities and prices refer to 2015. Self-consumption is not included.	Stable entitiy of actors involved in trade with high variations in production patterns according to climatic conditions
7 th :	Forest seeds	Mean value (5 year average) of total stock per species multiplied with an average market value. Quantities assess 2015 values, prices relate to 2017 and were discussed with experts to estimate 2015 values (based on prices reported in FRA 2015). Subsistence use not included.	Annual production as monitored at national level
8 th :	Decorative material	Estimated quantity of brushwood supply from Christmas tree production. Quantities refer to 2015, prices correspond to 2018 market prices (and have been discussed with experts to mirror 2015 values). Self-consumption not included.	Stable entity of Christmas trees originating from domestic supply and related share of brushwood sold from actors involved
9 th :	Fruits and berries	Fruits and berries for destilling alcohol. Quantities and prices refer to FRA 2015 values (lacking new statistical data). Self-consumption not included.	According to compulsory registration of destillers (considering relevent raw material used)
10 th :	Resins	Estimated amount of raw material used (per species) mutiplied with an average market value (per raw material). Quantities and prices correspond to 2015 values, self-consumption not included.	Traditional use of NWG based on a limited number of actors

All other plant products	raw material for aromatic oil (quantities and values relate to 2015 based upon FRA 2010 data and expert assessments, self-consumption not considered)	
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Original data

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	Name of NWFP product	Key species	Quantity	Unit	Value (1000 local currency)	NWFP category
#1	Christmas trees	Nordmann Fir	2 350 000	pcs.	47 000	6 Ornamental plants
#2	Wild honey		2 500	tons	28 325	11 Wild honey and bee wax
#3	Wild meat	Roe deer	7 400	tons	19 177	12 Wild meat
#4	Forest plants	Spruce	27 700 000	pcs.	16 120	8 Other plant products
#5	Skins, hides and trophies	Roe deer	276 000	pcs.	7 248	10 Hides skins and trophies
#6	Mushrooms	Chanterelle	250	tons	2 875	1 Food
#7	Forest seeds	Spruce	14 200	kg	2 733	8 Other plant products
#8	Decorative material	Nordmann Fir	1 410	tons	2 350	6 Ornamental plants
#9	Fruits and berries	Mountain ash		tons	460	3 Raw material for medicine and aromatic products
#10	Resins	Austrian pine	41	tons	122	3 Raw material for medicine and aromatic products
All other plant products					25	
All other animal products						
Total					126 435	

Name of currency	Euro
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Comments

Information is provided for marketed non-timber forest products (NTFP), the subsistence use of NTFP is not covered except for 'game meat'. All results have been produced by the use of statistics, information from associations and analysis of main traders and producers. Direct marketing initiatives are not covered in the current reporting. All values are calculated by means of average prices paid to producers in 2015 or estimated 2015 values based on expert assessments (fruit and berries: 2007), except expert estimations for 'trophies' which are based on shot allowances.

Reference area for reporting is "forest and OWL".

8 Sustainable Development Goal 15

8a Sustainable Development Goal 15

SDG Indicator 15.1.1 Forest area as proportion of total land area 2015

Indicator	Percent							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area as proportion of total land area 2015	46.51	46.82	47.03	47.08	47.12	47.16	47.21	47.25

Name of agency responsible	Federal Ministry for Sustainability and Tourism (BMNT)
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SDG Indicator 15.2.1 Progress towards sustainable forest management

Sub-Indicator 1	Percent						
	2000-2010	2010-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Forest area annual net change rate	0.07	0.09	0.09	0.09	0.09	0.09	0.09

Name of agency responsible	Federal Ministry for Sustainability and Tourism (BMNT)
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Sub-Indicator 2	Forest biomass (tonnes/ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass stock in forest	157.40	164.50	168.40	169.10	169.90	170.70	171.50	172.30

Name of agency responsible	Federal Ministry for Sustainability and Tourism (BMNT)
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Sub-Indicator 3	Percent (2015 forest area baseline)							
	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area located within legally established protected areas	–	18.78	21.96	22.18	22.41	22.63	22.63	22.63

Name of agency responsible	Federal Ministry for Sustainability and Tourism (BMNT)
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Sub-Indicator 4	Percent (2015 forest area baseline)							
	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area under long-term forest management plan	48.46	49.78	50.01	50.04	50.09	50.14	50.19	50.24

Name of agency responsible	Federal Ministry for Sustainability and Tourism (BMNT)
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Sub-Indicator 5	Forest area (1000 ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area under independently verified forest management certification schemes	0.00	1 960.60	2 891.51	2 949.51	3 051.10	3 126.38	–	–