



Food and Agriculture  
Organization of the  
United Nations

# Global Forest Resources Assessment 2025

Report

Italy

Food and Agriculture Organization of the United Nations

Rome, 2025

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

## Introductory text

The management of Italian forests is delegated by law to the regional administrations which regulate their legislation based on the Framework Law for Forests and the Forestry Sector (TUFF) issued in 2018 (Legislative Decree 34/2018), with the coordination of the General Directorate of the mountain economy and forestry (DIFOR) of the Ministry of Agriculture, Food Sovereignty and Forests (MASAF). In 2022, the National Forestry Strategy was issued, hinged on that of the European Union.

### 1. Forests and the forestry sector

The Italian forests, according to data from the latest national forest inventory (INFC2015), published last year, have a total surface area (forest and other wooded lands, FAO definition) of 11,054,458 hectares equal to 36.7% of the Italian national territory. Compared to the previous inventory of 2005, the surface area has increased by approximately 586,925 hectares, as well as an increase in biomass of 18.4%, going from 144.8 to 165.4 cubic meters per hectare in 10 years. The carbon stock, in aboveground biomass and dead wood, is equal to 569 million tonnes of organic carbon (490 million tonnes in 2005), equivalent to a CO<sub>2</sub> value of 2,088 million tonnes, with an increase of 290 million tons of CO<sub>2</sub>, compared to 2005, stored and therefore removed from the atmosphere. The main factor that determined the increase in forest area and biomass was the abandonment of agricultural land, particularly in hilly and mountainous areas, which led the forest to quickly regain these areas.

Italian forests can count on a protection regime so extensive that it is among the highest in Europe. The forest surface included in protected areas of all levels (national, regional, European and international) is equal to approximately 3.5 million hectares (31.8% of the national forest surface). The forest area that falls within the Natura2000 Network sites (around 3 million hectares) is often also included in national or regional parks and reserves (around 1.7 million hectares).

In Italy the surface of the forest is mainly attributable to pure broad-leaved stands. Pure coniferous forests and mixed coniferous and broad-leaved forests individually represent just over 10% of the national wooded area; the exception is the Alpine regions, where coniferous forests prevail.

Italian forests are composed by around 180 different species, which corresponds to a total volume of 1.5 billion cubic metres. Four species contribute to reaching 50% of the volume of the forests with three species of broad-leaved trees (beech - *Fagus sylvatica* L.; chestnut - *Castanea sativa* Mill.; turkey oak - *Quercus cerris* L.) and one of conifers (spruce - *Picea abies* K.). The 75% share of the overall volume is exceeded with the addition of seven other species: larch (*Larix decidua* L.), downy oak (*Quercus pubescens* Willd.), black hornbeam (*Ostrya carpinifolia* L.), holm oak (*Quercus ilex* L.), silver fir (*Abies alba* Mill.), black pine (*Pinus nigra* Arn.), Scots pine (*Pinus sylvestris* L.).

Forest ownership is predominantly private (63.5% of the national forest area). Within privately owned forests, the prevalent typology (more than 75%) is that with a single owner, while public forests are predominantly municipally owned or provincial.

As regards silvicultural management, the crop types relating to coppice (in all its cultivation distinctions) and high forest management occupy approximately the same percentage, 42.3% and 41.9% respectively. The remaining surface is mostly made up of stands not subjected to any form of management, at most affected by sporadic interventions and therefore not attributable to canonical forms of governance; often these are surfaces no longer affected by silvicultural practices due to station limitations (impervious surfaces, rocky slopes or other limitations of the physical environment) and those of spontaneous colonization of abandoned crops (newly formed forests).

Finally, the forest area at national level subjected to detailed planning (forest management and management plan or equivalent tools) is quite limited (15.3%), even if the situation is very different between regions. On the contrary, the percentage of subject to forestry and environmental requirements and constraints, it reaches 86.5% of the total at a national level.

### 2. Forest governance

The management of Italian forests is delegated by law to the regional administrations which regulate their legislation based on the Framework Law for Forests and the Forestry Sector (TUFF) issued in 2018 (Legislative Decree 34/2018), which replaced the previous one similar law (Legislative Decree 227/2001), with the coordination of the General Directorate of the mountain economy and forestry (DIFOR) of the Ministry of Agriculture, Food Sovereignty and Forests (MASAF). In 2022, the National Forestry Strategy was issued, hinged on that of the European Union.

### 3. Data sources

The main data sources for compiling FRA2025 for Italy are: - P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. *Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine*. Springer Tracts in Civil Engineering. (<https://www.inventarioforestale.org>) with cartographic data base referring to 2015 but with ground surveys carried out in 2021, created by the Arma dei Carabinieri, with the scientific collaboration of CREA - Council for research in agriculture and the agricultural economy. Data published in 2022. The INFC is carried out every 10 years. - National Inventory Report 2023 – Italian Greenhouse Gas Inventory 1990-2021.

(<https://emissioni.sina.isprambiente.it/wp-content/uploads/2023/04/NIR2023.pdf>). Data published annually. This inventory is sent to the Secretariat of United Nations Framework Convention on Climate Change (UNFCCC) and to the European Commission as part of the Greenhouse Gas Monitoring Mechanism. - Annual statistics produced by the National Institute of Statistics (ISTAT), that is the primary source of official statistics in Italy. The institute conducts a variety of activities, including the census of population, economic censuses, and numerous social, economic, and environmental surveys and analyses.

## Report preparation and contact persons

The present report was prepared by the following person(s)

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# 1 Forest extent, characteristics and changes

## 1a Extent of forest and other wooded land

### National data

#### Data sources

1985	
References	Ministero dell'Agricoltura e delle Foreste - ISAFA. 1988. Inventario Forestale Nazionale. Sintesi metodologica e risultati.
Methods used	National Forest Inventory
Additional comments	Hereinafter NFI1985

2005	
References	Gasparini P, Tabacchi G., 2011(eds). L'Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio (INFC-2005). MiPAAF-CFS, CRA-MPF. Edagricole, Milano. Web URL: <a href="https://www.inventarioforestale.org">https://www.inventarioforestale.org</a>
Methods used	National Forest Inventory
Additional comments	Hereinafter INFC-2005

2015	
References	De Laurentis D, Papitto G, Gasparini P, Di Cosmo L, Floris A (2021). Italian Forests - Selected results of the third National Forest Inventory INFC2015. DOI: <a href="https://doi.org/10.1007/978-3-030-98678-0">https://doi.org/10.1007/978-3-030-98678-0</a> Web URL: <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>
Methods used	National Forest Inventory
Additional comments	Hereinafter INFC2015

2021	
References	National Inventory Report 2023 – Italian Greenhouse Gas Inventory 1990-2021. <a href="https://emissioni.sina.isprambiente.it/wp-content/uploads/2023/04/NIR2023.pdf">https://emissioni.sina.isprambiente.it/wp-content/uploads/2023/04/NIR2023.pdf</a>
Methods used	Other (specify in comments)
Additional comments	The For-est model, used in the italian GHG inventory under UNFCCC, has been used to derive the relevant data for aboveground, belowground, litter and dead wood data.

### National classifications

1985	
National classifications	Definition
Other wooded land	Land not classified as "Forest" spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of 5-10 percent or trees able to reach these thresholds ; or with a combined cover of shrubs bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

2005	
National classifications	Definition
Other Wooded Land	Fully consistent with FRA definitions.

Forest	Fully consistent with FRA definitions.
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2015	
National classifications	Definition
Other Wooded Land	Fully consistent with FRA definitions.
Forest	Fully consistent with FRA definitions.

2021	
National classifications	Definition
Forest	Fully consistent with FRA definitions.
Other wooded land	Fully consistent with FRA definitions.

### Original data and reclassification

1985	National classifications		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Remaining land area
	Other wooded land	1 475.10	%	100.000 %	0.000 %
	Forest	7 200.00	100.000 %	0.000 %	0.000 %
	<b>Total</b>	<b>8 675.10</b>	<b>7 200.00</b>	<b>1 475.10</b>	<b>0.00</b>

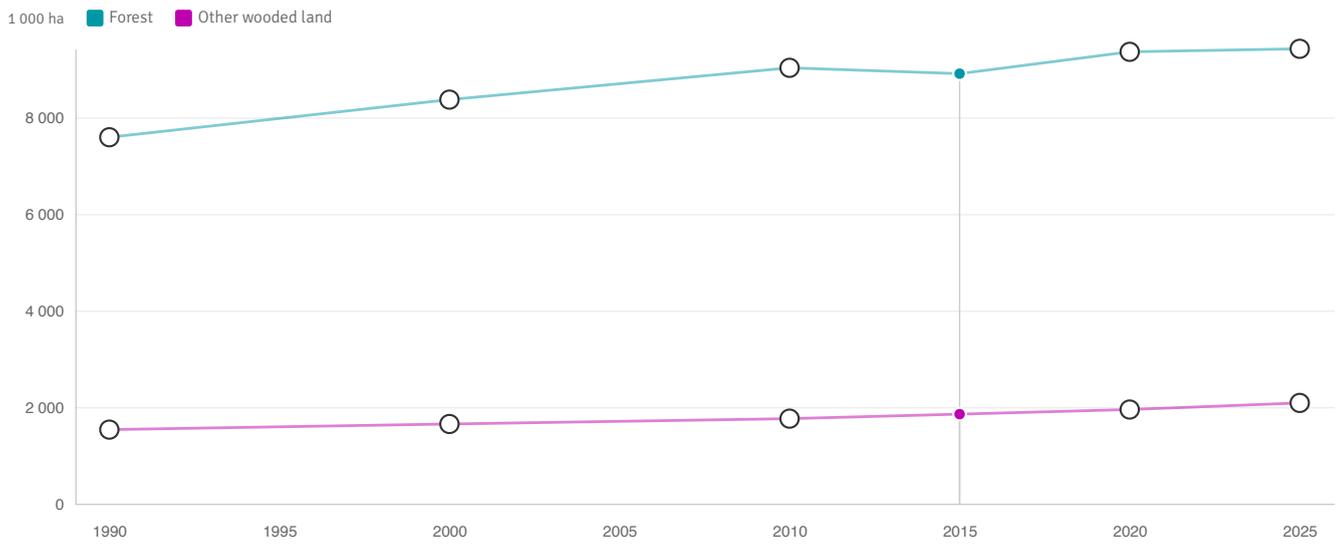
2005	National classifications		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Remaining land area
	Other Wooded Land	1 713.00	0.000 %	100.000 %	0.000 %
	Forest	8 307.00	100.000 %	0.000 %	0.000 %
	<b>Total</b>	<b>10 020.00</b>	<b>8 307.00</b>	<b>1 713.00</b>	<b>0.00</b>

2015	National classifications		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Remaining land area
	Other Wooded Land	1 854.00	0.000 %	100.000 %	0.000 %
	Forest	8 907.00	100.000 %	0.000 %	0.000 %
	<b>Total</b>	<b>10 761.00</b>	<b>8 907.00</b>	<b>1 854.00</b>	<b>0.00</b>

2021	National classifications		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Remaining land area
	Forest	9 372.00	100.000 %	0.000 %	0.000 %
	Other wooded land	1 977.00	0.000 %	100.000 %	0.000 %
	<b>Total</b>	<b>11 349.00</b>	<b>9 372.00</b>	<b>1 977.00</b>	<b>0.00</b>

### Comments

<b>1985</b>	As regards planted forest, 1985 NFI provided information limited to productive plantations. Missing values for intermediate reporting years have been calculated by means of a linear interpolation while 2010 and 2015 figures for planted forest were obtained by applying the same proportion of planted forest reported for 2005 to the updated total forest area for those years.
<b>2021</b>	<p>Italian primary forest is mainly located within the main protected areas managed by the State.</p> <p>The extent of Italian primary forest according with FRA definition is not well known. Anyway such extent was considered equal to forest cover in core areas of national parks. This data was considered unvaried for the whole reporting period.</p> <p>Temporay unstocked area was estimated by the two NFIs, NFI1985 and INFC2005. For the reporting year 1990 the area estimated by NFI1985 was used; for the year 2000 the interpolated value between the two NFI estimates was used. Data from 2015 are based on final estimates from last NFI survey (INFC2015).</p>



FRA 2025 categories	Area (1000 ha)					
	1990	2000	2010	2015	2020	2025
Forest (a)	7 589.75	8 369.25	9 028.04	8 907.00	9 359.51	9 421.96
Other wooded land (b)	1 533.33	1 649.78	1 760.62	1 854.00	1 949.71	2 086.16
<b>Remaining land area (c-a-b)</b>	<b>20 287.92</b>	<b>19 552.77</b>	<b>18 783.14</b>	<b>18 810.80</b>	<b>18 262.48</b>	<b>18 063.58</b>
<b>Total land area (c)</b>	<b>29 411.00</b>	<b>29 571.80</b>	<b>29 571.80</b>	<b>29 571.80</b>	<b>29 571.70</b>	<b>29 571.70</b>

Climatic domain	% of forest area	Override value
Boreal		0.00
Temperate		32.00
Sub-tropical		68.00
Tropical		0.00

Forest area tier criteria		Tier
Status	Data sources: Recent <sup>1</sup> National Forest Inventory or remote sensing (sample-based survey or wall-to-wall mapping) with accuracy assessment / field data calibration.	High
	Data sources: Old <sup>2</sup> National Forest Inventory or remote sensing (sample-based survey or wall-to-wall mapping) with accuracy assessment / field data calibration.	Medium
	Data sources: Other, such as registers, expert estimates, or remote sensing without accuracy assessment / field data calibration.	Low
Trend	Estimates based on repeated compatible <sup>3</sup> National Forest Inventories where the most recent is not older than five years; and/or remote sensing- change assessments through multitemporal analysis for a period ending not more than five years ago (e.g., REDD+ forest reference [emission] levels).	High
	Estimates based on repeated compatible <sup>3</sup> National Forest Inventories where the most recent is older than five years; and/or remote sensing change assessments through multitemporal analysis for a period ending more than five years ago; or comparison of compatible maps without multitemporal analysis.	Medium
	Other data sources, e.g., expert estimates, or estimates based on non-compatible assessments.	Low

<sup>1</sup> Data not older than 5 years from year of submission of report (2018 or more recent for FRA 2025 country reports)

<sup>2</sup> Data older than 5 years from year of submission of report (older than 2018 for FRA 2025 country reports)

<sup>3</sup> Compatible in terms of methods, categories and definitions used

Forest	Tier
Status	High
Trend	Medium

## Comments

The For-est model, used in the Italian GHG inventory under UNFCCC, has been used to estimate the forest area in the reporting period (i.e., 1985-2025), based on the NFIs data referring to 1985, 2005 and 2015.

To be noted that the NFI2015 data have been finalized in 2022, resulting in a different share of forest land vs other wooded land, as compared with the preliminary NFI2015 data used in the FRA2020,

## 1b Forest characteristics

National data - Data sources and national classifications have been displayed in Section 1a. Please refer to the corresponding content.

### Original data and reclassification

1985	National classifications		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Forest	7 200.00	93.120 %	1.860 %	5.020 %
	<b>Total</b>	<b>7 200.00</b>	<b>6 704.64</b>	<b>133.92</b>	<b>361.44</b>

Naturally regenerating forest	Area (1000 ha)	...of which primary forest
Forest	6 704.64	%
<b>Total percentage</b>		<b>%</b>
<b>Total</b>	<b>6 704.64</b>	<b>-</b>

Plantation forest	Area (1000 ha)	...of which introduced
Forest	133.92	100.000 %
<b>Total</b>	<b>133.92</b>	<b>133.92</b>

2005	National classifications		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Forest	8 307.00	92.820 %	1.400 %	5.780 %
	<b>Total</b>	<b>8 307.00</b>	<b>7 710.56</b>	<b>116.30</b>	<b>480.14</b>

Naturally regenerating forest	Area (1000 ha)	...of which primary forest
Forest	7 710.56	1.140 %
<b>Total percentage</b>		<b>1.140 %</b>
<b>Total</b>	<b>7 710.56</b>	<b>87.90</b>

Plantation forest	Area (1000 ha)	...of which introduced
Forest	116.30	76.320 %
<b>Total</b>	<b>116.30</b>	<b>88.76</b>

2015	National classifications		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Forest	8 907.00	93.120 %	1.360 %	5.520 %
	<b>Total</b>	<b>8 907.00</b>	<b>8 294.20</b>	<b>121.14</b>	<b>491.67</b>

Naturally regenerating forest	Area (1000 ha)	...of which primary forest
Forest	8 294.20	0.990 %
<b>Total percentage</b>		<b>0.990 %</b>
<b>Total</b>	<b>8 294.20</b>	<b>82.11</b>

Plantation forest	Area (1000 ha)	...of which introduced
Forest	121.14	73.770 %
<b>Total</b>	<b>121.14</b>	<b>89.36</b>

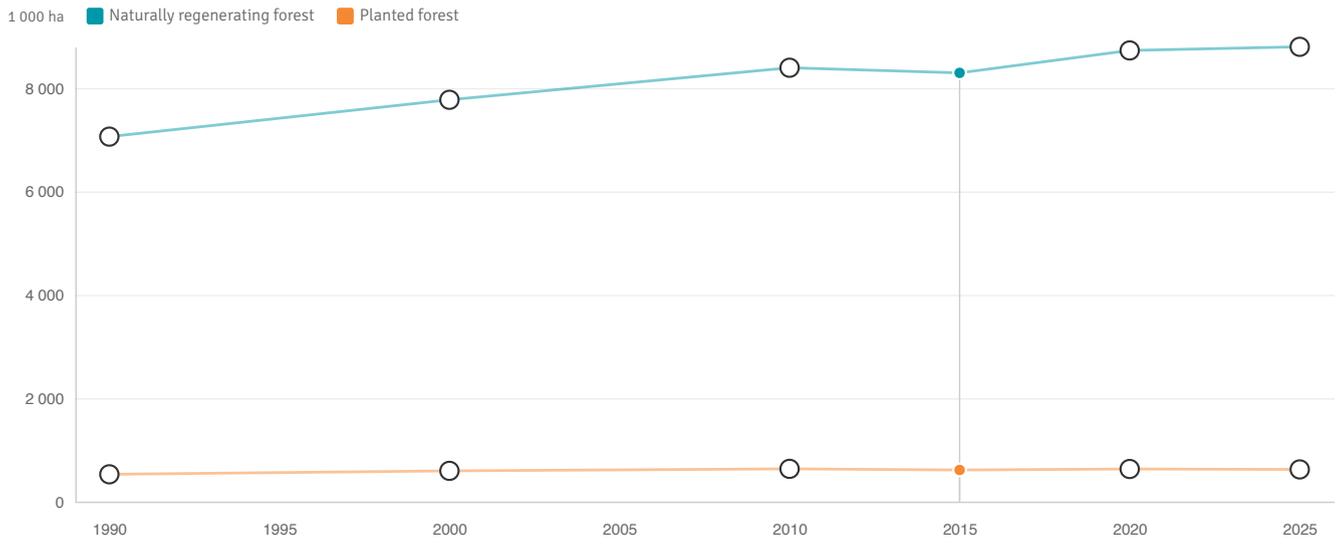
2021	National classifications		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Forest	9 372.00	93.280 %	1.340 %	5.380 %
	<b>Total</b>	<b>9 372.00</b>	<b>8 742.20</b>	<b>125.58</b>	<b>504.21</b>

Naturally regenerating forest	Area (1000 ha)	...of which primary forest
Forest	8 742.20	1.060 %
<b>Total percentage</b>		<b>1.060 %</b>
<b>Total</b>	<b>8 742.20</b>	<b>92.67</b>

Plantation forest	Area (1000 ha)	...of which introduced
Forest	125.58	74.140 %
<b>Total</b>	<b>125.58</b>	<b>93.11</b>

## Comments

<b>1985</b>	As regards planted forest, 1985 NFI provided information limited to productive plantations. Missing values for intermediate reporting years have been calculated by means of a linear interpolation while 2010 and 2015 figures for planted forest were obtained by applying the same proportion of planted forest reported for 2005 to the updated total forest area for those years.
<b>2021</b>	Italian primary forest is mainly located within the main protected areas managed by the State. The extent of Italian primary forest according with FRA definition is not well known. Anyway such extent was considered equal to forest cover in core areas of national parks. This data was considered unvaried for the whole reporting period. Temporay unstocked area was estimated by the two NFIs, NFI1985 and INFC2005. For the reporting year 1990 the area estimated by NFI1985 was used; for the year 2000 the interpolated value between the two NFI estimates was used. Data from 2015 are based on final estimates from last NFI survey (INFC2015).



FRA 2025 categories	Forest area (1000 ha)					
	1990	2000	2010	2015	2020	2025
<b>Naturally regenerating forest (a)</b>	7 061.01	7 773.74	8 393.77	8 294.20	8 728.07	8 798.73
...of which primary forest			89.19	82.11	86.40	93.26
<b>Planted forest (b=b1+b2)</b>	<b>528.75</b>	<b>595.51</b>	<b>634.26</b>	<b>612.80</b>	<b>631.44</b>	<b>623.23</b>
...of which plantation forest (b1)	131.10	125.45	124.53	121.14	125.73	125.00
...of which introduced species	123.84	103.67	93.43	89.36	93.14	92.98
...of which other planted forest (b2)	397.65	470.06	509.73	491.67	505.71	498.23
<b>Total (a+b)</b>	<b>7 589.76</b>	<b>8 369.25</b>	<b>9 028.03</b>	<b>8 907.00</b>	<b>9 359.51</b>	<b>9 421.96</b>

Primary forest by climatic domain	Primary forest area (1 000 ha)					
	1990	2000	2010	2015	2020	2025
...of which boreal primary forest			0.00	0.00	0.00	0.00
...of which temperate primary forest			28.54	26.28	27.65	29.84
...of which sub-tropical primary forest			60.65	55.83	58.75	63.42
...of which tropical primary forest			0.00	0.00	0.00	0.00
<b>Total</b>			<b>89.19</b>	<b>82.11</b>	<b>86.40</b>	<b>93.26</b>

## Comments

Note that the data were entered through percentages, it is possible that there is not a perfect coincidence with the data already published. Below the table with original data (dot as thousands separator).

FRA categories	Area						
	1985	1990	2000	2005	2010	2015	2021
<b>Naturally regenerating forest</b>	6.671.182	7.042.575	7.785.360	8.156.752	8.407.194	8.657.636	8.973.820
...of which primary forest	93.000	93.000	93.000	93.000	83.000	86.000	89.000
<b>Planted forest</b>	528.818	547.225	584.040	547.745*	558.786	569.827*	646.060
...of which plantation forest	134.100	131.138	125.214	111.151	113.392	115.632	128.720
...of which other planted forest	394.718	416.087	458.826	436.594	445.394	454.195	517.340
<b>Forest</b>	<b>7.200.000</b>	<b>7.589.800</b>	<b>8.369.400</b>	<b>8.704.497</b>	<b>8.965.980</b>	<b>9.227.463</b>	<b>9.619.880</b>

Category	Comments related to data definitions etc	Comments on reported trend
Planted forest	Italian planted forest is mainly represented by protective plantations devoted to prevention of soil erosion. Productive plantations, especially poplar stands, are important as well and represent on average the 20% of the planted forest. * DATA from NFI 2005 and NFI 2015; sub-categories obtained as proportions.	Due to the augmented attention towards environmental protection, exotic species plantations are decreasing in extent.
Primary forests	Integral natural reserves established within National Parks. For 2010 the average of 2005 and 2015 was applied; for 2020-2021-2025 the proportion of primary forest to Naturally regenerating forest at 2015 (0.99%) was applied.	NFI 2015 revised estimate slightly downwards

# 1c Specific forest categories

## National Data

### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
All the Italian National Forest Inventories	National Forest Inventory (NFI)	Bamboos Mangroves <sup>4</sup> Rubber wood	1985 - 2005 - 2015	These categories don't exist in Italy

### National classification and definitions

-

### Original data

-

### Analysis and processing of national data

### Estimation and forecasting

-

### Reclassification into FRA 2025 categories

None

FRA 2025 categories	Area (1000 ha)					
	1990	2000	2010	2015	2020	2025
Bamboos	0.00	0.00	0.00	0.00	0.00	0.00
Mangroves <sup>4</sup>	0.00	0.00	0.00	0.00	0.00	0.00
Rubber wood	0.00	0.00	0.00	0.00	0.00	0.00

<sup>4</sup>Includes both Forest and Other wooded land

## Comments

-

# 1d Annual forest expansion, deforestation and net change

## National Data

### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Ministero dell'Agricoltura e delle Foreste - ISAF. 1988. Inventario Forestale Nazionale. Sintesi metodologica e risultati.	National Forest Inventory (NFI)	Forest expansion ...of which natural expansion	1985	Hereinafter NFI1985
Gasparini P. Tabacchi G., 2011 (eds). L'Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio (INFC-2005). MiPAAF-CFS, CRA-MPF. Edagricole, Milano. <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Forest expansion ...of which natural expansion	2005	Hereinafter NFI2005
P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. DOI: <a href="https://doi.org/10.1007/978-3-030-98678-0">https://doi.org/10.1007/978-3-030-98678-0</a> ; <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Forest expansion ...of which afforestation ...of which natural expansion Deforestation	2021	Hereinafter NFI2015

### National classification and definitions

Category	Definition
Forest expansion	Expansion of forest on land that, until then, was not defined as forest.
...of which afforestation (sub-category)	Establishment of forest that, until then, was not defined as forest (likely through planting and/or deliberate seeding on land).
...of which natural expansion of forest (sub-category)	Expansion of forests through natural succession on land that, until then, was under another land use/cover (e.g. natural evolution of other wooded lands).
Deforestation	The conversion of forest to other land use or the long term reduction of the tree canopy cover below the minimum 10 percent threshold.
...of which human induced (sub-category)	Human induced conversion of forest to other land use or the permanent reduction of the tree canopy cover below the minimum 10 percent threshold.

### Original data

Area estimates of land use and cover changes to and from Forest and Other wooded land occurring between INFC2005 and INFC2015

NFI 2005	NFI 2015			
	to Forest (ha)	Proportion (%)	to Other land use and cover (ha)	Proportion (%)
from Forest	8 599 194	94.65	127.93	1.41 (d)
from Other land use and cover	464 818	5.12 (b)	18 914.51	
from Other wooded land	21 174	0.23 (c)	35.94	
Total (a)	9 085 186	100		

## Analysis and processing of national data

### Estimation and forecasting

#### Afforestation, natural expansion and deforestation

We used the relative proportion to Total forest area at 2015 (a) as a multiplier to calculate afforestation (b), natural expansion (c) and deforestation (d) for the requested periods. Deforestation must be intended as authorized change of land use/cover, since deforestation "as is" is forbidden by law.

**Reclassification into FRA 2025 categories****Forest area**

The findings of the first NFI (1985) have been reclassified according to FRA categories. While 2005 and 2015 data were directly used, being fully consistent with FRA definitions. As a result of the reclassification into FRA 2025:

Data source	Forest (ha)	OWL (ha)
NFI1985	7 200 000	1 475 100
NFI2005	8 759 200	1 708 333
NFI2015	9 085 186	1 969 272

FRA 2025 categories	Area (1000 ha/year)				
	1990-2000	2000-2010	2010-2015	2015-2020	2020-2025
Forest expansion (a=a1+a2)	45.21	47.16	48.06	48.52	48.92
...of which afforestation (a1)	43.24	45.10	45.96	46.41	46.79
...of which natural expansion (a2)	1.97	2.05	2.09	2.11	2.13
Deforestation (b)	11.90	12.41	12.65	12.77	12.88
<b>Forest area net change (a-b)</b>	<b>33.31</b>	<b>34.75</b>	<b>35.41</b>	<b>35.75</b>	<b>36.04</b>
Forest area net change calculated from table 1a	77.95	65.88	-24.21	90.50	12.49

### Comments

The difference between values in tab. 1a and tab 1d is because of two different methods of estimation of forest area. The data in Tab. 1a are from Greenhouse Gas Inventory, whilst data in tab. 1d are based on NFI's for the years 1985, 2005, and 2015. The NFI's data were modeled as log-function to obtain the requested in-between and forecasts estimates.

# 1e Other land with tree cover

## National Data

### Data sources + type of data source eg NFI, etc

-

### National classification and definitions

Trees in urban setting: Other land with tree cover such as: urban parks, alleys and gardens.

Tree Orchards: Other land with tree cover predominantly composed of trees for production of fruits, nuts, or olives.

### Original data

Data from photointerpretation are available at 1990, 2000, 2008 and 2016

## Analysis and processing of national data

### Estimation and forecasting

#### Trees in urban setting:

Data for 1990, 2000, 2005, 2015 and 2020 were estimated assuming that the presence of trees in urban setting remained stable through time in relation to the increasing urban coverage.

The urban coverage from IUTI is 1,676,268 ha (1990), 1,765,826 ha (2000), 2,092,314 ha (2008), 2,258,288 ha (2016)

A simple linear interpolation was performed between the 2008 and 2016 data. The annual trend was applied to urban coverage in 2008 in order to retrieve urban coverage in 2010 and 2015 and to estimate it in 2020

the ratio between trees in urban setting and urban coverage was calculated for 2010 as 6.7% and assumed to be a constant over the reported years.

#### Tree Orchards:

Data from photointerpretation are available at 1990 (2,527,634 ha), 2000 (2,628,629 ha) 2008 (2,910,610 ha), 2016 (2,777,918 ha). Assuming as constant the 2008-2016 trend, the 2010 and 2015 data were retrieved and projection to 2020 were performed.

### Reclassification into FRA 2025 categories

Corona P, Barbati A, Tomao A, Bertani R, Valentini R, Marchetti M, Fattorini L, Perugini L, 2012. Land use inventory as framework for environmental accounting: an application in Italy.

iForest 5: 204-209 [online 2012-08-12] URL: <http://www.sisef.it/iforest/contents?id=ifor0625-005>

FRA 2025 categories	Area (1000 ha)					
	1990	2000	2010	2015	2020	2025
Palms (a)	0.00	0.00	0.00	0.00	0.00	0.00
Tree orchards (b)	2 527.63	2 628.63	2 877.44	2 794.50	2 711.57	2 455.00
Agroforestry (c)	0.00	0.00	0.00	0.00	0.00	0.00
Trees in urban settings (d)	110.00	116.00	140.00	147.00	154.00	154.00
Other (specify in comments) (e)	0.00	0.00	0.00	0.00	0.00	0.00

### Comments

Since we do not have up-to-date values for 'Trees in urban settings (d)' and "Other (e)", we have repeated the 2020 data for 2025 assuming that the value has not changed significantly in recent years.

## 2 Forest growing stock, biomass and carbon

### 2a Growing stock

#### National Data

##### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Ministero dell'Agricoltura e delle Foreste-ISAFA, 1988 Inventario Forestale Nazionale Sintesi metodologica e risultati.	National Forest Inventory (NFI)	Total Forest Other wooded land	1985	Hereinafter NFI1985
Gasparini P. Tabacchi G., 2011 (eds). L'Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio (INFC-2005). MiPAAF-CFS, CRA-MPF. Edagricole, Milano. <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Total Forest Other wooded land	2005	Hereinafter NFI2005
P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. DOI: <a href="https://doi.org/10.1007/978-3-030-98678-0">https://doi.org/10.1007/978-3-030-98678-0</a> ; <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Total Forest Other wooded land	2015	Hereinafter NFI2015
ISPRA , National Inventory Report 2023 – Italian Greenhouse Gas Inventory 1990-2021. <a href="https://emissioni.sina.isprambiente.it/wp-content/uploads/2023/04/NIR2023.pdf">https://emissioni.sina.isprambiente.it/wp-content/uploads/2023/04/NIR2023.pdf</a>	Other (specify in comments)	Total Forest Other wooded land	1990-2021	Hereinafter National GHGI
Federici S, Vitullo M, Tulipano S, De Lauretis R, Seufert G, 2008. An approach to estimate carbon stocks change in forest carbon pools under the UNFCCC: the Italian case. iForest 1: 86-95 URL: <a href="https://iforest.sisef.org/pdf?id=ifor0457-0010086">https://iforest.sisef.org/pdf?id=ifor0457-0010086</a>	Other (specify in comments)	Total Forest Other wooded land	1985-2021	The For-est model, used in the Italian GHG inventory under UNFCCC, has been used to derive the relevant data for aboveground, belowground, litter and dead wood data.

##### National classification and definitions

National class	Definition
Growing stock NFI2005	Volume over bark of all living trees with a minimum diameter of 4,5 cm at breast height; volume is estimated above stumps; it includes branches and stem top up to the diameter of 5 cm.

##### Original data

Original NFI data after recalculation to apply the dbh threshold 10 cm; just the data useful for table 2a are shown

NFI1985 Forest classes with original growing stock data	Total GS (m <sup>3</sup> ) dbh >10 cm	Area (ha)	Volume/ha (m <sup>3</sup> /ha) dbh>10 cm
High Forest	400.002.554	2.478.442	161,4
Coppice	297.418.711	3.901.658	76,2
Plantations	10.201.412	134.100	76,1
Particular woody ecosystems - riparian and rupicolous stands	41.009.996	685.800	59,8
Total Forest GS	748.632.673	7.200.000	104,0

NFI2005 Forest classes with original growing stock data	Area (ha)	Volume/ha (m3/ha) dbh>10 cm	Total volume (m3) dbh>10 cm
<b>Total</b>	10.467.533	n.a.	n.a.
<b>Forest</b>	8.759.200	134,0	1.174.061.038
<b>...of which plantations</b>	122.252	96,8	11.836.438
<b>Other wooded Land</b>	1.708.333	n.a.	n.a.

The table below provides the GS data series, as reconstructed from the original data for the report FRA2015

FRA 2015 category	Growing stock volume (million m3 over bark)				
	Forest				
	1990	2000	2005	2010	2015
Total growing stock	855	1068	1.174	1.279	1.385
... of which coniferous	318	409	454	499	543
... of which broadleaved	537	659	720	781	841

## Analysis and processing of national data

### Estimation and forecasting

As the definition of growing stock and forest categories changed between the NFI1985 and the subsequent NFIs (i.e., 2005 and 2015), the 1985 data were reassessed to made them consistent with the definition applied in the recent NFIs. Details of this process are described in depth in FRA2010 and 2015 reports. Additionally, NFI1985 and NFI2005 data were processed again to apply the new dbh threshold (10 cm) for the FRA2015 reporting (see FRA2015 report for Italy for details). For the purpose of the present report, GS data on plantations were extracted from original data and harmonized according to the dbh threshold 10 cm. As GS data divided by naturally regenerating - planted forests are not available in the official NFI estimates, they were derived by applying the proportion between naturally regenerating and planted forests observed for area estimates, to the total GS estimate. The GS values for the year 2015 were based on the third NFI, while 2020 and 2021 have been calculated based on the For-est model used in the framework of UNFCCC reporting (i.e., National GHGI).

### Reclassification into FRA 2025 categories

NFI1985 categories	FRA categories				
	Naturally regenerating forest	Planted forest		Forest	Other wooded land
		...of which plantation forest	...of which other planted forest		
High Forest	84		16	100	
Coppice	100			100	
Plantations		100		100	
Particular woody ecosystems - riparian and rupicolous stands	100			100	

NFI2005 categories	FRA categories				
	Naturally regenerating forest	Planted forest		Forest	Other wooded land
		...of which plantation forest	...of which other planted forest		
Forest excluding plantations	95		5	100	
Plantations		100		100	

FRA 2025 categories	Growing stock m <sup>3</sup> /ha (over bark)					
	1990	2000	2010	2015	2020	2025
Naturally regenerating forest	109.70	126.80	142.90	150.40	150.40	142.98
...of which primary forest						
Planted forest	134.30	122.20	122.60	129.00	129.00	125.31
...of which plantation forest	81.30	91.60	103.60	110.40	110.40	106.40
...of which introduced species						
...of which other planted forest	151.90	131.30	127.30	133.60	133.60	129.86
Total Forest	111.50	126.50	141.50	148.90	148.90	141.74
Other wooded land						

FRA 2025 categories	Total growing stock (million m <sup>3</sup> over bark)					
	1990	2000	2010	2015	2020	2025
Naturally regenerating forest	774.59	985.71	1 199.47	1 247.45	1 312.70	1 258.00
...of which primary forest						
Planted forest	71.01	72.77	77.76	79.05	81.46	78.10
...of which plantation forest	10.66	11.49	12.90	13.37	13.88	13.30
...of which introduced species						
...of which other planted forest	60.40	61.72	64.89	65.69	67.56	64.70
Total Forest	846.26	1 058.71	1 277.47	1 326.25	1 393.63	1 335.50
Other wooded land						

Growing stock tier criteria		Tier
Status	Data sources: Recent <sup>1</sup> National Forest Inventory or Airborne Laser Scanning (ALS) with probabilistic ground samples.	High
	Data sources: Old <sup>2</sup> National Forest Inventory, partial field inventories, or ALS without probabilistic ground samples.	Medium
	Data sources: Other data sources, such as satellite data, registers, questionnaires or expert assessments.	Low

<sup>1</sup> Data not older than 10 years from year of submission of report (2013 or more recent for FRA 2025 country reports)

<sup>2</sup> Data older than 10 years from year of submission of report (older than 2013 for FRA 2025 country reports)

Growing stock	Tier
Status	High

## Comments

Below the total growing stock data calculated from the Italian raw surface values. The differences are due to the estimation of the surface data from percentage entered in section 1. Total growing stock data for the years 2016-2020 were calculated by multiplying the area estimates of table 1b (obtained through extrapolation of provisional estimates of the forest area for the year 2015) by the growing stock per hectare estimated for each class in the year 2015; the latter was considered constant through the period, as new NFI data are still not available.

FRA categories	Total growing stock (million m <sup>3</sup> over bark)			
	1990	2000	2010	2015
Naturally regenerating forest	781.851482	996.692740	1203.147039	1302.180708
Planted forest	73.138283	71.011206	76.221638	82.495608
...of which plantation forest	10.610169	11.427682	12.898110	13.959782
...of which other planted forest	62.528114	59.583525	63.323528	68.535827
Forest	854.989765	1067.703947	1279.368677	1384.676316
Other wooded land				

## 2b Forest growing stock composition

### National Data

#### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Gasparini P. Tabacchi G., 2011 (eds). L'Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio (INFC-2005). MiPAAF-CFS, CRA-MPF. Edagricole, Milano. <a href="https://www.inventarioforestale.org">https://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Native tree species #1 Ranked Native tree species #2 Ranked Native tree species #3 Ranked Native tree species #4 Ranked Native tree species #5 Ranked Native tree species #6 Ranked Native tree species #7 Ranked Native tree species #8 Ranked Native tree species #9 Ranked Native tree species #10 Ranked	2005	
P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. DOI: <a href="https://doi.org/10.1007/978-3-030-98678-0">https://doi.org/10.1007/978-3-030-98678-0</a> ; <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Native tree species #1 Ranked Native tree species #2 Ranked Native tree species #3 Ranked Native tree species #4 Ranked Native tree species #5 Ranked Native tree species #6 Ranked Native tree species #7 Ranked Native tree species #8 Ranked Native tree species #9 Ranked Native tree species #10 Ranked	2015	

### National classification and definitions

National class	Definition
Growing stock NFI1985	Harmonized volume over bark of all living trees with a minimum diameter of 4.5 cm at breast height (see FRA2010 Italy country report for harmonization process details).
Growing stock NFI2005	Volume over bark of all living trees with a minimum diameter of 4.5 cm at breast height; volume is estimated above stumps; it includes branches and stem top up to the diameter of 5 cm.
Growing stock NFI2015	Volume over bark of all living trees with a minimum diameter of 4.5 cm at breast height; volume is estimated above stumps; it includes branches and stem top up to the diameter of 5 cm.

### Original data

As original data, figures reported for FRA2015-Table 3b are given

Category/Species name			Growing stock in forest (million cubic meters)					
Rank	Scientific name	Common name	1985	1990	2000	2005	2010	2015
1 st	Fagus sylvatica	Beech	131.2	148.5	187.6	207.1	225.8	272
2 nd	Picea abies	Norway spruce	117.5	138.5	179.9	200.6	218.8	229.8
3 rd	Castanea sativa	Chestnut	74.6	96.8	113.7	122.1	133.1	136
4 th	Quercus cerris	Turkey oak	53	57.7	74.7	83.1	90.7	121.5
5 th	Larix decidua	Larch	49	56.5	72.2	80	87.2	90.2
6 th	Quercus pubescens	Downy Oak	N/A	N/A	N/A	63.6	69.3	86.9
7 th	Ostrya carpinifolia	Hop-hornbeam	N/A	N/A	N/A	32.1	35	54.8
8 th	Quercus ilex	Holm oak	N/A	N/A	N/A	26.1	28.5	48.9
9 th	Abies alba	Silver fir	23.2	25.9	31.3	33.9	37	40.2
10 th	Pinus nigra	Black pine	N/A	N/A	N/A	29.7	32.4	38.3
Remaining			363	331.5	408.7	295.7	322	384.2
<b>TOTAL</b>			<b>811.5</b>	<b>855.40</b>	<b>1068.10</b>	<b>1174.00</b>	<b>1279.80</b>	<b>1502.8</b>

## Analysis and processing of national data

### Estimation and forecasting

As the definition of GS changed between the two NFIs, their data were made consistent through a recalculation of NFI1985 values. Details of this process are described in depth in FRA2010 and 2015 reports. Additionally, NFI1985 and NFI2005 GS data were processed again to apply the new dbh threshold (10 cm) for the FRA2015 reporting (see FRA2015 report for Italy for details). NFI1985 provided the GS just for the few main species, while NFI2005 provided estimates of the first 45 species, ranked by decreasing volume. Figures for the FRA's reporting years were derived by interpolation between 1985 and 2005; the total GS extrapolated for the year 2010 was divided among the main species by applying the proportion of species observed in the NFI2005. Extrapolation of the distribution of GS by species to the following reporting years was considered not feasible. The rank of the species by volume in the FRA tables is the one observed in NFI2005. As regards introduced species, the data provided by NFI2005 were extrapolated to the years 2000 and 2010. For the year 1990 just GS data on native species was available; as a consequence, GS for introduced species is conventionally set to 0.00 for the year 1990. Additionally, as estimates on the total GS by the division native-introduced tree species is not available in the original NFI2005 data, to calculate the total GS of introduced species we assumed that the requested data "GS of other introduced tree species" is equal to 0.00, as they are very rare in Italy; the total GS of native species was calculated as the difference between the total GS and the total GS of introduced species. Finally, as comprehensive field data on GS composition are available just for the year 2005 (NFI2005), and they were used to calculate the composition for the years 2000 and 2010, we decided not to extrapolate further these estimates for after 2010.

### Reclassification into FRA 2025 categories

None

FRA 2025 categories	Scientific name	Common name	Million m <sup>3</sup>	% of total
<b>Native tree species</b>				
Most recent year:			2015	
#1 Ranked	Fagus sylvatica	Beech	272.05	17.99
#2 Ranked	Picea abies	Spruce	229.99	15.21
#3 Ranked	Castanea sativa	Chestnut	136.01	8.99
#4 Ranked	Quercus cerris	Turkey oak	121.58	8.04
#5 Ranked	Larix decidua	Larch	90.32	5.97
#6 Ranked	Quercus pubescens	Downy oak	86.96	5.75
#7 Ranked	Ostrya carpinifolia	Black hornbeam	54.80	3.62
#8 Ranked	Quercus ilex	Holm oak	48.95	3.24
#9 Ranked	Abies alba	Silver fir	40.40	2.67
#10 Ranked	Pinus nigra	Black pine	38.33	2.53
Remaining native tree species			347.14	22.96
<b>TOTAL native tree species</b>			<b>1 466.53</b>	<b>96.98</b>
<b>Introduced tree species</b>				
#1 Ranked	Robinia pseudoacacia	Black locust	24.85	1.64
#2 Ranked	Pseudotsuga menziesii	Douglas fir	9.20	0.61
#3 Ranked	Populus x canadensis	Poplar	6.27	0.41
#4 Ranked	Eucalyptus spp.	Eucalyptus	5.29	0.35
#5 Ranked				
Remaining introduced tree species				
<b>TOTAL introduced tree species</b>			<b>45.61</b>	<b>3.02</b>
<b>Total growing stock</b>			<b>1 512.14</b>	

## Comments

Italian NFI does not distinguish between native and introduced species but, as far as we know, the species listed are surely introduced.

## 2c Biomass stock

### National Data

#### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Ministero dell'Agricoltura e delle Foreste-ISAFA, 1988 Inventario Forestale Nazionale Sintesi metodologica e risultati.	National Forest Inventory (NFI)	Above-ground biomass	1985	Hereinafter NFI1985
Gasparini P. Tabacchi G., 2011 (eds). L'Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio (INFC-2005). MiPAAF-CFS, CRA-MPF. Edagricole, Milano. <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Above-ground biomass Below-ground biomass Dead wood	2005	Hereinafter NFI2005
P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. DOI: <a href="https://doi.org/10.1007/978-3-030-98678-0">https://doi.org/10.1007/978-3-030-98678-0</a> ; <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Above-ground biomass Below-ground biomass Dead wood	2015	Hereinafter NFI2015
ISPRA, National Inventory Report 2023 – Italian Greenhouse Gas Inventory 1990-2021. <a href="https://emissioni.sina.isprambiente.it/wp-content/uploads/2023/04/NIR2023.pdf">https://emissioni.sina.isprambiente.it/wp-content/uploads/2023/04/NIR2023.pdf</a>	Other (specify in comments)	Above-ground biomass Below-ground biomass Dead wood	1990-2021	Hereinafter national GHG inventory

#### National classification and definitions

National class	Definition
Above-ground biomass	Consistent with FRA one
Below-ground biomass	Consistent with FRA one
Dead wood	All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, stumps larger than or equal to 10 cm in diameter and standing trees with DBH > 4,5 cm.

#### Original data

The table below provides the GS biomass data series, as reconstructed from the original data for the report FRA2015.

Table 3d

Category	Biomass (million metric tonnes oven-dry weight)									
	Forest					Other wooded land				
	1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
Above ground biomass	641	797	874	951	1028	N/A	N/A	N/A	N/A	N/A
Below ground biomass	158	196	215	235	254	N/A	N/A	N/A	N/A	N/A
Dead wood	36	45	50	54	58	N/A	N/A	N/A	N/A	N/A
TOTAL	835	1038	1139	1240	1340	N/A	N/A	N/A	N/A	N/A

### Analysis and processing of national data

#### Estimation and forecasting

As the definition of GS and forest categories changed between the two NFIs, their data were made consistent through a recalculation of NFI1985 values. Details of this process are described in depth in FRA2010 and 2015 reports. Additionally, NFI1985 and NFI2005 data were processed again to apply the new dbh threshold (10 cm) for the FRA2015 reporting (see

FRA2015 report for Italy for details). For the purpose of the present report, GS data on plantations were extracted from original data and harmonized according to the dbh threshold 10 cm. As GS data divided by naturally regenerating - planted forests are not available in the official NFI estimates, they were derived by applying the proportion between naturally regenerating and planted forests observed for area estimates, to the total GS estimate. This procedure is not fully consistent, as the proportions between GS values are different than the proportion between area estimates, but no other feasible procedures exist to derive these figures from past data. The GS values for the year 2015 were based on the third NFI, while 2020 and 2021 have been calculated based on the For-est model used in the framework of UNFCCC reporting (i.e., National GHG).

**Reclassification into FRA 2025 categories**

None

FRA 2025 categories	Forest Biomass (tonnes/ha)					
	1990	2000	2010	2015	2020	2025
Above-ground biomass	83.50	87.40	90.70	95.60	101.10	107.70
Below-ground biomass	17.00	17.80	18.40	19.30	20.40	21.70
Dead wood	4.70	4.70	4.70	4.60	4.60	4.46

FRA 2025 categories	Total forest Biomass (million tonnes)					
	1990	2000	2010	2015	2020	2025
Above-ground biomass	633.74	731.47	818.84	851.51	946.25	1 014.75
Below-ground biomass	129.03	148.97	166.12	171.91	190.93	204.46
Dead wood	35.67	39.34	42.43	40.97	43.05	42.00

Biomass estimation methods tier criteria		Tier
Status	Country-specific biomass conversion and expansion factors or allometric equations applied	High
	Application of generic or biome-level allometric equations or a combination of country/biome specific conversion factors and IPCC default biomass expansion factors.	Medium
	IPCC default biomass conversion and expansion factors applied (e.g. using the "biomass calculator"), or estimates based on remote sensing-based biomass maps.	Low

Biomass stock	Tier
Status	High

## Comments

-

## 2d Carbon stock

### National Data

#### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Ministero dell'Agricoltura e delle Foreste-ISAFA, 1988 Inventario Forestale Nazionale Sintesi metodologica e risultati.	National Forest Inventory (NFI)	Carbon in above-ground biomass	1985	Hereinafter NFI1985
Gasparini P. Tabacchi G., 2011 (eds). L'Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio (INFC-2005). MiPAAF-CFS, CRA-MPF. Edagricole, Milano. <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Carbon in above-ground biomass Carbon in below-ground biomass Carbon in dead wood Carbon in litter Soil carbon	2005	Hereinafter NFI2005
P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Carbon in above-ground biomass Carbon in below-ground biomass Carbon in dead wood Carbon in litter	2015	Hereinafter NFI2015
ISPRA, National Inventory Report 2023 – Italian Greenhouse Gas Inventory 1990-2021. <a href="https://emissioni.sina.isprambiente.it/wp-content/uploads/2023/04/NIR2023.pdf">https://emissioni.sina.isprambiente.it/wp-content/uploads/2023/04/NIR2023.pdf</a>	Other (specify in comments)	Carbon in above-ground biomass Carbon in below-ground biomass Carbon in dead wood Carbon in litter Soil carbon	1990-2021	

#### National classification and definitions

National class	Definition
Above-ground biomass	Consistent with FRA one
Below-ground biomass	Consistent with FRA one
Dead wood	All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, stumps larger than or equal to 10 cm in diameter and standing trees with DBH > 4,5 cm.

#### Original data

The table below provides the carbon data series, as reconstructed from the original data for the report FRA2015

Table 3e

Category	Carbon (Million metric tonnes)									
	Forest					Other wooded land				
	1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
Carbon in above ground biomass	321	398	437	476	514	N/A	N/A	N/A	N/A	N/A
Carbon in below ground biomass	79	98	108	117	127	N/A	N/A	N/A	N/A	N/A
<i>Subtotal Living biomass</i>	400	496	545	593	641	N/A	N/A	N/A	N/A	N/A
Carbon in dead wood	18	23	25	27	29	N/A	N/A	N/A	N/A	N/A
Carbon in litter	24	27	28	29	30	N/A	N/A	N/A	N/A	N/A
<i>Subtotal Dead wood and litter</i>	42	50	53	56	59	N/A	N/A	N/A	N/A	N/A
Soil carbon	620	684	716	738	760	N/A	N/A	N/A	N/A	N/A
TOTAL	1062.00	1230.00	1314.00	1387.00	1460.00	.00	.00	.00	.00	.00

## Analysis and processing of national data

### Estimation and forecasting

As the definition of GS and forest categories changed between the two NFIs, their data were made consistent through a recalculation of NFI1985 values. Details of this process are described in depth in FRA2010 and 2015 reports.

The GS values for the year 2015 were based on the third NFI, while 2020 and 2021 have been calculated based on the For-est model used in the framework of UNFCCC reporting (i.e., National GHGI). Data on carbon content are obtained by applying the carbon fraction suggested by IPCC2003.

Carbon stock and C stock changes in mineral soils have been inferred from stock changes estimated in the aboveground biomass through linear regression i.e.,  $SOC = f(C_{Aboveground})$  per forestry use –stands (conifers, broadleaves, mixed stands) and coppices. These equations have been calculated on data collected within the European project BioSoil[1], for Soil Organic Matter (SOM), and a Life+ project FutMon[2] (Further Development and Implementation of an EU-level Forest Monitoring System), for the aboveground biomass. SOC stock values in mineral soils were assessed down to 40 cm, standardized at 30 cm, with layer-based sampling (0-10, 10-20, 20-40 cm) on 227 forest plots on a 15x18 km grid.

[1] BioSoil project [http://www.inbo.be/content/page.asp?pid=EN\\_MON\\_FSCC\\_condition\\_report](http://www.inbo.be/content/page.asp?pid=EN_MON_FSCC_condition_report)

[2] FutMon: Life+ project for the "Further Development and Implementation of an EU-level Forest Monitoring System"; <http://www.futmon.org>;

<http://www3.corpoforestale.it/flex/cm/pages/ServeAttachment.php/L/IT/D/D.e54313ecaf7ae893e249/P/BLOB%3AID%3D397>

### Reclassification into FRA 2025 categories

None

FRA 2025 categories	Forest carbon (tonnes/ha)					
	1990	2000	2010	2015	2020	2025
Carbon in above-ground biomass	42.30	47.60	52.70	55.30	55.30	50.60
Carbon in below-ground biomass	10.40	11.70	13.00	13.70	13.70	10.20
Carbon in dead wood	2.40	2.70	3.00	3.10	3.10	0.80
Carbon in litter	3.20	3.20	3.20	3.20	3.20	1.40
Soil carbon	81.70	81.70	81.70	81.70	81.70	83.50

FRA 2025 categories	Total forest carbon (million tonnes)					
	1990	2000	2010	2015	2020	2025
Carbon in above-ground biomass	321.05	398.38	475.78	492.56	517.58	476.75
Carbon in below-ground biomass	78.93	97.92	117.36	122.03	128.23	96.10
Carbon in dead wood	18.22	22.60	27.08	27.61	29.01	7.54
Carbon in litter	24.29	26.78	28.89	28.50	29.95	13.19
Soil carbon	620.08	683.77	737.59	727.70	764.67	786.73

Soil depth (cm) used for soil carbon estimates	30.00
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## Comments

The carbon stored in aboveground and belowground biomass, deadwood and litter pools is remarkably influenced by the annual fires occurrence and the relevant area burned by fires.

## 3 Forest designation and management

### 3a Designated management objective

#### National Data

##### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Ministero dell'Agricoltura e delle Foreste - ISAFA (1988) Inventario Forestale Nazionale. Sintesi metodologica e risultati.	National Forest Inventory (NFI)	Production Conservation of biodiversity No designation	1985	
P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. DOI: <a href="https://doi.org/10.1007/978-3-030-98678-0">https://doi.org/10.1007/978-3-030-98678-0</a> ; <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Production Protection of soil and water Conservation of biodiversity Social Services No designation	2015	

##### National classification and definitions

Term	Definition
Primary function	The primary function or management objective assigned to a management unit either by legal prescription documented decision of the landowner/manager or evidence provided by documented studies of forest management practices and customary use.
Production forest	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Multiple use forest	Forest area designated for more than one purpose and where none of these alone is considered as the predominant designated function.
Specialized stands	Managed using specific silvicultural practices for NWFP; mainly chestnut and cork oak stands
Forest designated for protection of soil and water	Forest area legally bound for hydro-geological purposes as defined by the national law n. 3267/1923
Conservation of biodiversity	As no significant new protected area has been established in the last reporting period, data for this category (coincident with Forest area within protected areas) has not changed from 2009.
Forests with special restrictions	Forests where the management objective is defined by special restrictions (for the presence of military areas, roads, railways, airports, etc.)

##### Original data

	Forest (ha)	
	NFI 1985	NFI 2015
Primary function		
Wood production	4 187 338	608 070
Non wood production	135 747	122 177
Touristic-recreational	14 655	43 786
<i>Rest of the Forest Area</i>	<i>2 862 260</i>	<i>8 311 353</i>
<b>Total</b>	<b>7 200 000</b>	<b>9 085 186</b>

Area by management type and intensity (ha)		
	NFI 2005	NFI 2015
Ordinary silvicultural practices	5 443 442	5 416 509
Specific silvicultural practices, for NWFP	189 240	223 420
Plantation forests for wood production	122 252	128 399

## Analysis and processing of national data

### Estimation and forecasting

- Data on the management objective "Production" for intermediate reporting years have been obtained by means of linear interpolation of 1985 and 2005.
- Data on forest area legally bound for hydro-geological purposes for the years 1990 and 2000 were obtained by linear interpolation between 1985 and 2005.

- Data from 2015 to 2025 are based on NFI estimates and linear extrapolation.
- Data for the category "Production (a)" for 2015 are explicitly derived from NFI 2015, whereas for previous years (1990-2010) estimates were based on a-priori assumptions.

### **Reclassification into FRA 2025 categories**

The class "Other" includes forests with special restrictions, as those located in military camps or close to highways, airports, power lines etc.

**Primary designated management objective**

FRA 2025 categories	Forest area (1000 ha)					
	1990	2000	2010	2015	2020	2025
Production (a)	294.55	305.84	317.14	730.25	741.55	752.85
Protection of soil and water (b)				188.43	191.34	194.26
Conservation of biodiversity (c)	93.00	93.00	93.00	187.58	187.58	187.58
Social Services (d)				43.79	44.46	45.14
Multiple use (e)						
Other (specify in comments) (f)						
No designation	7 202.00	7 970.00	8 618.00	7 885.00	7 928.00	7 970.00
Unknown	0.20	0.41	0.00	0.00	266.58	272.13
<b>Total forest area</b>	<b>7 589.75</b>	<b>8 369.25</b>	<b>9 028.04</b>	<b>8 907.00</b>	<b>9 359.51</b>	<b>9 421.96</b>

**Total area with designated management objective**

FRA 2025 categories	Forest area (1000 ha)					
	1990	2000	2010	2015	2020	2025
Production	4 650.48	5 305.28	5 960.08	6 287.48	6 614.88	6 942.00
Protection of soil and water	6 973.00	7 427.00	7 889.00	8 124.00	8 369.00	8 624.00
Conservation of biodiversity	645.00	2 874.00	3 265.00	3 265.00	3 265.00	3 265.00
Social Services				43.79	44.46	45.14
Other (specify in comments)		27.80	27.80	33.00	33.00	33.00

**Comments**

The class "Other" includes forests with special restrictions, as those located in military camps or close to highways, airports, power lines etc.

## 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

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Ministero dell'Agricoltura e delle Foreste - ISAF, 1988. Inventario Forestale Nazionale. Sintesi metodologica e risultati.	National Forest Inventory (NFI)	Forest area with long-term management plan	1985	Hereinafter NFI1985
Gasparini P. Tabacchi G., 2011(eds). L'Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio (INFC-2005).MiPAAF-CFS, CRA-MPF. Edagricole, Milano. <a href="http://www.inventarioforestale.org">www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Forest area with long-term management plan	2005	Hereinafter NFI2005
Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. DOI: <a href="https://doi.org/10.1007/978-3-030-98678-0">https://doi.org/10.1007/978-3-030-98678-0</a> ; <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Forest area within protected areas Forest area with long-term management plan	2015	Hereinafter NFI2015

#### National classification and definitions

Category	Definition
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.
Forest area with management plan	Forest area that has a long-term documented management plan, aiming at defined management goals which is periodically revise

#### Original data

-

### Analysis and processing of national data

#### Estimation and forecasting

Using 2005 and 2015 NFI data, we: a) interpolated the 2010 estimate; b) updated 2015 estimate; and c) extrapolated both 2020 and 2025 estimates. As no new relevant protected area has been established from 2015 onwards, this value has been repeated up to 2025. Estimates before 2010 are left as is.

**Reclassification into FRA 2025 categories**

None

FRA 2025 categories	Area (1000 ha)					
	1990	2000	2010	2015	2020	2025
Forest area within protected areas	645.00	2 874.00	2 795.00	2 829.00	2 829.00	2 829.00
Forest area with long-term management plan			1 578.00	1 389.59	1 201.18	1 012.77
...of which in protected areas						

## Comments

-

### 3c Forest restoration

Has your country forest restoration commitments?	No
Is there a law or other government mandate in support of restoration?	
Is there a national definition of "restoration" if yes, provide the definition the monitoring process and results.	
What areas in need of restoration have been identified and how have they been identified?	
What are the targets set for the restoration? E.g. xxx hectares by year yyyy	
How many hectares of forest have been restored to date?	

#### Comments

-

## 4 Forest ownership and management rights

### 4a Forest ownership

#### National Data

##### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Ministero dell'Agricoltura e delle Foreste - ISAFA, 1988. Inventario Forestale Nazionale. Sintesi metodologica e risultati.	National Forest Inventory (NFI)	Private ownership ...of which owned by individuals ...of which owned by private business entities and institutions ...of which owned by Indigenous Peoples and local communities Public ownership Other (specify in comments)	1985	hereinafter NFI 1985
Gasparini P. Tabacchi G., 2011(eds). L'Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio (INFC-2005). MiPAAF-CFS, CRA-MPF. Edagricole, Milano. <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Private ownership ...of which owned by individuals ...of which owned by private business entities and institutions ...of which owned by Indigenous Peoples and local communities Public ownership Other (specify in comments)	2005	hereinafter NFI 2005
P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. DOI: <a href="https://doi.org/10.1007/978-3-030-98678-0">https://doi.org/10.1007/978-3-030-98678-0</a> ; <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Private ownership ...of which owned by individuals ...of which owned by private business entities and institutions ...of which owned by Indigenous Peoples and local communities Public ownership Other (specify in comments)	2015	hereinafter NFI 2015

#### National classification and definitions

Term	Definition
Public ownership	Coinciding with the FRA2025 definition
Private ownership	Coinciding with the FRA2025 definition
...of which owned by individuals	Coinciding with the FRA2025 definition
...of which owned by private business entities and institutions	Coinciding with the FRA2025 definition

#### Original data

-

### Analysis and processing of national data

#### Estimation and forecasting

The NFI 2005 percentage has been applied to the forest extent for the reporting years 1990, 2000. For 2010 data are interpolated from NFIs 2005 and 2015 estimates. For 2015 the NFI data were provided whilst data for 2020 have been extrapolated. Note that the data referred to "Unknown" as well as the "Total" at 2015, are underestimated when compared to NFI 2015 estimates ( $715 \cdot 10^3$  and  $9085 \cdot 10^3$  hectares, respectively).

#### Reclassification into FRA 2025 categories

None

FRA 2025 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Private ownership (a)	5 041.00	5 558.00	5 599.00	5 399.33	6 210.00
...of which owned by individuals	4 442.00	4 898.00	4 823.00	4 763.43	5 472.98
...of which owned by private business entities and institutions	599.00	660.00	776.00	635.90	737.48
...of which owned by Indigenous Peoples and local communities	0.00	0.00	0.00	0.00	0.00
Public ownership (b)	2 548.00	2 811.00	2 930.00	2 929.93	3 107.00
Other (specify in comments) (c)	0.00	0.00	0.00	0.00	0.00
Unknown (d)	0.75	0.25	499.04	577.74	42.40
<b>Total (a+b+c+d)</b>	<b>7 589.75</b>	<b>8 369.25</b>	<b>9 028.04</b>	<b>8 907.00</b>	<b>9 359.51</b>

## Comments

-

## 4b Holder of management rights of public forests

### National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2025 categories

-

FRA 2025 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Public Administration (a)					
Private business entities and institutions (b)					
Indigenous Peoples and local communities (c)					
Other (specify in comments) (d)					
Unknown (e)	2 548.00	2 811.00	2 930.00	2 929.93	3 107.00
<b>Total public ownership (a+b+c+d+e)</b>	<b>2 548.00</b>	<b>2 811.00</b>	<b>2 930.00</b>	<b>2 929.93</b>	<b>3 107.00</b>

### Comments

This section is left empty as no data are available at the national level.

## 5 Forest disturbances

### 5a Forest damage

#### National Data

##### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Gasparini P. Tabacchi G., 2011 (eds). L'Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio (INFC-2005). MiPAAF-CFS, CRA-MPF. Edagricole, Milano. <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Insects Diseases Severe weather events Other (specify in comments)	2005	hereinafter NFI 2005
P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. DOI: <a href="https://doi.org/10.1007/978-3-030-98678-0">https://doi.org/10.1007/978-3-030-98678-0</a> ; <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Insects Diseases Severe weather events Other (specify in comments)	2021	hereinafter NFI 2015

##### National classification and definitions

National class	Definition
Disturbance by parasites	Disturbance caused by insect and diseases
Disturbance by wildlife browsing and grazing	Disturbance by other biotic agents
Disturbance by pollution	Disturbance caused by abiotic factors: mainly air pollution
Disturbance adverse climatic conditions	Disturbance caused by abiotic factors: mainly snow, storm and drought

##### Original data

-

### Analysis and processing of national data

#### Estimation and forecasting

Note that the "Insects (a)" datum is comprehensive of damages caused by insects, fungi, bacteria, mycoplasma and viruses, since NFI does not distinguish between insects and pathogens. The class "Other" is the sum of the following causes: a) Browsing and grazing, other animals, epiphytes = 39920 ha; b) Direct human action = 1637 ha; c) Indirect human actions = 2037 ha; d) Complex or unknown = 24486 ha.

Insects (a) - Data from NFI 2005 and 2015 were used to interpolate values between the two NFIs and extrapolate values up to 2022. The function applied is:  $y = 557.65 \cdot \text{EXP}(-0.095 \cdot x)$ ;  $x = \text{year} - 2000$ .

Severe weather events (c) - The same as above; the function applied is:  $y = 1374.6 \cdot \text{EXP}(-0.171 \cdot x)$ ;  $x = \text{year} - 2000$ .

Other (d) - The same as above; the function applied is:  $y = 701.83 \cdot \text{EXP}(-0.156 \cdot x)$ ;  $x = \text{year} - 2000$ .

#### Reclassification into FRA 2025 categories

None

	Predominant cause forest area affected (1000 ha)			
	Insects	Diseases	Severe weather events	Other (specify in comments)
2000				
2001				
2002				
2003				
2004				
2005	346.90	591.20	584.30	322.70
2006	315.37		492.92	275.55
2007	286.78		415.45	235.75
2008	260.79		350.15	201.70
2009	237.16		295.11	172.56
2010	215.67		248.73	147.64
2011	196.12		209.63	126.31
2012	178.35		176.68	108.07
2013	162.18		148.91	92.46
2014	147.49		125.51	79.10
2015	134.24		105.48	68.08
2016	121.96		89.15	57.90
2017	110.91		75.14	49.54
2018	100.86		63.33	42.38
2019	91.72		53.38	36.26
2020	83.41		44.99	31.02
2021	75.85		37.92	26.54
2022	68.97		31.96	22.71
2023				

## Comments

Note that the "Insects (a)" datum is comprehensive of damages caused by insects, fungi, bacteria, mycoplasma and viruses, since NFI does not distinguish between insects and pathogens. The class "Other" is the sum of the following causes: a) Browsing and grazing, other animals, epiphytes = 39920 ha; b) Direct human action = 1637 ha; c) Indirect human actions = 2037 ha; d) Complex or unknown = 24486 ha.

Extract from the Italian INFC protocol for pathologies and damages: "Pathologies and damages are considered "visible" when they affect at least 30% of the crown coverage of the analysed stand\*, with reference to the subjects (trees and shrubs) with DBH  $\geq$  4.5 cm. For these cases, in addition to the presence, the severity of the pathology or damage, the origin (which can be biotic or abiotic) and, if defoliation is present, its degree and localization on the affected trees, are also assessed. Only permanent and lasting damage and not temporary damage (just on foliage, for example) are taken into account." \* Plot area = 2000 m<sup>2</sup>

[P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. DOI: <https://doi.org/10.1007/978-3-030-98678-0>; <http://www.inventarioforestale.org>]

# 5b Area affected by fire

## National Data

### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Forest Fires in Europe, Middle East and North Africa 2021, Publications Office of the European Union, Luxembourg, 2022. <a href="https://publications.jrc.ec.europa.eu/repository/handle/JRC130846">https://publications.jrc.ec.europa.eu/repository/handle/JRC130846</a>	Registers and statistics	Total land area affected by fire	from 2000 to 2021	
GEOPORTALE INCENDI BOSCHIVI - Arma dei Carabinieri - Comando Unità Forestali, Ambientali e Agroalimentari. <a href="https://geoportale.incendiboschivi.it/portal/apps/sites/#/geoportale-incendi-boschivi">https://geoportale.incendiboschivi.it/portal/apps/sites/#/geoportale-incendi-boschivi</a>	Other (specify in comments)	Total land area affected by fire	2022	<a href="https://geoportale.incendiboschivi.it/portal/apps/sites/#/geoportale-incendi-boschivi">https://geoportale.incendiboschivi.it/portal/apps/sites/#/geoportale-incendi-boschivi</a>

### National classification and definitions

National class	Definition
Forest Fire	A fire starting in forest or shrubby land that might spread through neighbouring other land.

### Original data

Year	Number of fires	Affected area (ha)		
		Forest or shrubby land	Other land	Total
1988	13 558	60 109	126 296	186 405
1989	9 669	45 933	49 228	95 161
1990	14 477	98 410	96 909	195 319
1991	11 965	30 172	69 688	99 860
1992	14 641	44 522	61 170	105 692
1998	9 540	73 017	82 536	155 553
1999	6 932	39 362	31 755	71 117
2000	8 595	58 234	56 414	114 648
2001	7 134	38 186	38 241	76 427
2002	4 601	20 218	20 573	40 791
2003	9 697	44 064	47 741	91 805
2004	6 428	20 866	39 310	60 176
2005	7 951	21 470	26 105	47 575
2006	5 643	16 422	23 524	39 946
2007	10 639	116 602	111 127	227 729
2008	6 486	30 273	36 055	66 328
2009	5 422	31 060	42 295	73 355
2010	4 884	19 357	27 180	46 537
2011	8 181	38 430	33 577	72 007
2012	8 274	74 532	56 267	130 799
2013	2 936	13 437	15 639	29 076
2014	3 257	17 320	18 805	36 125

2015	5 442	25 867	15 644	41 511
2016	4 906	31 003	31 905	62 908
2017	7 855	113 566	48 420	161 986
2018	3 220	8 805	10 676	19 481
2019	4 351	17 716,9	18 317,5	36 034,4
2020	4 865	31 030,3	24 596,2	55 656,5
2021	5 989	77 027,1	74 937,3	151 964,4
2022	6 529	35 468	36 219,2	71 687,2

## Analysis and processing of national data

### Estimation and forecasting

None

### Reclassification into FRA 2025 categories

None

	FRA 2025 categories area affected (1000 ha)	
	Total land area affected by fire	...of which on forest
2000	114.65	58.23
2001	76.43	38.19
2002	40.79	20.57
2003	91.80	44.06
2004	60.18	20.87
2005	47.57	21.47
2006	39.95	16.42
2007	227.73	116.60
2008	66.33	30.27
2009	73.35	31.06
2010	46.54	19.37
2011	72.01	38.43
2012	130.80	74.53
2013	29.08	13.44
2014	36.12	17.32
2015	41.51	25.87
2016	62.91	31.00
2017	161.99	113.57
2018	19.48	8.81
2019	36.03	17.72
2020	55.66	31.06
2021	151.96	77.03
2022	71.69	35.47
2023		

## Comments

Since April 2022, the new Forest Fires Geoportal of the GEOPORTALE INCENDI BOSCHIVI - Arma dei Carabinieri - Comando Unità Forestali, Ambientali e Agroalimentari. (CUFA) has been active.

The Geoportal, based on Esri technology, is a modern and immediately usable tool, aimed at administrations or even citizens who want to know the distribution and geographical extent of fires, where the forestry component of the Carabinieri operates.

## 5c Degraded forest

### Degraded forest definition

Has your country a national definition of "Degraded forest"		No
If "yes"	What is the national definition of "Degraded forest"?	
	Criteria applied in the definition of degraded forest	

### Forest degradation monitoring and assessment

Does your country monitor area of degraded forest		No
If "yes"	Main methods applied to monitor degraded forest area	
	Monitoring scale	
If national level data are available	Year of latest assessment	
	Degraded forest area for that year (in 1 000 ha)	

### Comments

Not applicable

## 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

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Legislative decree n.34/2018 "Testo unico in materia di foreste e filiere forestali" - "Framework law on forests and forestry sectors". Ministry of agriculture, food sovereignty and forests. <a href="https://www.politicheagricole.it/fl/ex/cm/pages/ServeBLOB.php/L/IT/IDPagina/12774">https://www.politicheagricole.it/fl/ex/cm/pages/ServeBLOB.php/L/IT/IDPagina/12774</a>	National Law	Policies supporting SFM Legislations and regulations supporting SFM Platform that promotes or allows for stakeholder participation in forest policy development Traceability system(s) for wood products	2018	
Interministerial legislative decree n.33/2022 "Strategia forestale nazionale" - "Italian National Forest Strategy". Ministry of agriculture, food sovereignty and forests. <a href="https://www.politicheagricole.it/fl/ex/cm/pages/ServeBLOB.php/L/IT/IDPagina/18749">https://www.politicheagricole.it/fl/ex/cm/pages/ServeBLOB.php/L/IT/IDPagina/18749</a>	National Law	Policies supporting SFM Legislations and regulations supporting SFM Platform that promotes or allows for stakeholder participation in forest policy development Traceability system(s) for wood products	2022	

#### National classification and definitions

None

#### Original data

None

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	Yes
Traceability system(s) for wood products	Yes	Yes

**Comments**

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## 6b Area of permanent forest estate

### National Data

#### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
Ministero dell'Agricoltura e delle Foreste - ISAFA. 1988. Inventario Forestale Nazionale. Sintesi metodologica e risultati.	National Forest Inventory (NFI)	Area of permanent forest estate	1985	
Gasparini P. Tabacchi G., 2011 (eds). L'Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio (INFC-2005). MiPAAF-CFS, CRA-MPF. Edagricole, Milano. <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Area of permanent forest estate	2005	
P. Gasparini et al. 2022 (eds.), Italian National Forest Inventory – Methods and Results of the Third Survey. Inventario Nazionale delle Foreste e dei Serbatoi Forestali di Carbonio – Metodi e Risultati della Terza Indagine. Springer Tracts in Civil Engineering. DOI: <a href="https://doi.org/10.1007/978-3-030-98678-0">https://doi.org/10.1007/978-3-030-98678-0</a> ; <a href="http://www.inventarioforestale.org">http://www.inventarioforestale.org</a>	National Forest Inventory (NFI)	Area of permanent forest estate	2021	

#### National classification and definitions

Italian Forest Resources are 100% legally bound. The two main bindings provided by the laws n. 3267 of 1923 and n. 431 of 1985 oblige private and public owners to strictly respect limitations concerning the use of their forest resources. As a matter of fact, each exploitation of forest resources must not compromise their perpetuation and therefore, any change of land use; this for the sake of hydro-geological, landscape and environmental protection in general (the same limitations apply also to burnt forest and OWL, due to the law n. 353 on forest fires approved in 2000). As a consequence, not only unplanned cuttings are always forbidden, but local prescriptions fix precise silvicultural rules to be observed. Only exception made for productive forestry plantations, such as poplar stands, usually located on plains and managed according to intensive silvicultural techniques. Thus, the whole forest area except for the area of the above-mentioned plantations is intended to be in permanent forest land use and corresponds also to the permanent forest estate area.

The forest area of permanent forest estate derive from the subtraction of forest plantations area from the Forest area.

#### Original data

	NFI1985	NFI2005	NFI2015
Forest	7200	8 759.2	9 085.1
Plantations	134.1	122.3	128.4
Forest under premanent estate (Forest-Plantations)	7065.9	8 636.9	8956.7

FRA 2025 categories	Forest area (1000 ha)						
	Applicable?	1990	2000	2010	2015	2020	2025
Area of permanent forest estate	Yes	7 458.70	7 858.40	8 675.00	8 907.00	9 139.00	9 421.96

**Comments**

-

## 7 Non wood forest products removals and value 2020

## 7 Non wood forest products removals and value 2020

### National Data

#### Data sources + type of data source eg NFI, etc

Reference to data source	Type of data source	FRA variable	Year for data source	Comments
ISTAT 2008 <a href="https://esploradati.istat.it/">https://esploradati.istat.it/</a>	Commercial value of NWFP	#1 #2 #3 #4 #5 #6 #7 #8 #9 #10	2008	

#### National classification and definitions

Term	Definition
Non wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Commercial value of NWFP	For the purpose of this table, value is defined as the commercial market value at the forest gate.

National class	Definition
Forest stands managed for non wood productions	Mainly Chestnut and Cork Oak stands

#### Original data

Area of forest designated for productive and touristic functions in 2015.

Area of forest designated for productive and touristic functions in 2005.

Area of forest designated for productive functions in 1985.

Categories	Year 2015
	ha
Plantations	128399
Coppice	3789413
Non wood production stands	165725

Source: NFI2015

Categories	Year 2005
	ha
Plantations	122252
Coppice	3663143
Non wood production stands	189240

Source: NFI2005

Categories	Year 1985
	ha
Plantations	134100
Coppice	3653800
Non wood production stands	135747

Source: NFI1985

	Name of NWFP product	Key species	Quantity	Unit	Value (1000 local currency)	NWFP category
#1	Chestnuts	Castanea sativa Miller			41 419	1 Food
#2	Truffles	Tuber spp.			16 915	1 Food
#3	Hazelnuts	Corylus avellana L.			16 084	1 Food
#4	Mushrooms	Various taxa			11 607	1 Food
#5	Cork	Quercus suber L.			11 175	3 Raw material for medicine and aromatic products
#6	Pine seeds	Pinus pinea L.			747	1 Food
#7	Blueberries	Vaccinium myrtillus L.			602	1 Food
#8	Strawberries	Fragaria vesca L.			320	1 Food
#9	Acorns	Quercus spp.			253	1 Food
#10	Raspberries	Rubus idaeus L.			214	1 Food
All other plant products						
All other animal products						
<b>Total</b>					<b>99 336</b>	

Name of currency	Euro
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### Comments

Data on NWFP are updated to 2010 and are available on FRA 2020. More updated data on NWFP are not available at national level. Quantity and Unit are NA.

## 8 Sustainable Development Goal 15

## 8 Sustainable Development Goal 15

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

Indicator	Percent									
	2000	2005	2010	2015	2020	2021	2022	2023	2024	2025
Forest area as proportion of total land area	28.30	28.09	30.53	30.12	31.65	31.69	31.73	31.78	31.82	31.86

### SDG Indicator 15.2.1 Progress towards sustainable forest management

Sub-Indicator 1	Percent					
	2000-2010	2010-2015	2015-2020	2020-2025	2005-2015	2015-2025
Annual forest area change rate	0.76	-0.27	1.00	0.13	0.24	0.56

Sub-Indicator 2	Forest biomass (tonnes/ha)									
	2000	2010	2015	2020	2021	2022	2023	2024	2025	
Above-ground biomass stock in forest	87.40	90.70	95.60	101.10	102.42	103.74	105.06	106.38	107.70	

Sub-Indicator 3	Percent (2015 forest area baseline)									
	2000	2010	2015	2020	2021	2022	2023	2024	2025	
Proportion of forest area located within legally established protected areas	32.27	31.38	31.76	31.76	31.76	31.76	31.76	31.76	31.76	

Sub-Indicator 4	Percent (2015 forest area baseline)									
	2000	2010	2015	2020	2021	2022	2023	2024	2025	
Proportion of forest area under long-term forest management plan		17.72	15.60	13.49	13.06	12.64	12.22	11.79	11.37	

Sub-Indicator 5	1 000 ha
Forest area under independently verified forest management certification schemes	
2000	14.32
2005	626.52
2010	536.56
2015	828.34
2016	819.92
2017	840.11
2018	818.27
2019	865.94
2020	866.44
2021	998.10
2022	904.73
2023	980.47
2024	1 044.66
2025	

Data for this SDG sub-indicator are provided by FSC and PEFC (forest certification organizations).

