



Food and Agriculture  
Organization of the  
United Nations

# Global Forest Resources Assessment

## 2020

*Key findings*

This publication contains the main findings of the Global Forest Resources Assessment 2020 (FRA 2020). The data in FRA 2020 – the “backbone” of the assessment – have been obtained through a transparent, traceable reporting process and a well-established network of officially nominated national correspondents. The application of a standardized reporting methodology enables the monitoring of change over time in parameters such as forest area, management, ownership and use and the aggregation of data at the regional and global levels.

The information provided by FRA presents a comprehensive view of the world’s forests and the ways in which the resource is changing. Such a clear global picture supports the development of sound policies, practices and investments affecting forests and forestry.

FRA is the mechanism for collecting data on two forest-related indicators of the Sustainable Development Goals (SDGs), which the United Nations General Assembly adopted in 2015. Specifically, data submitted to FRA contribute to reporting on SDG indicator 15.1.1 (forest area as a proportion of total land area in 2015) and indicator 15.2.1 (progress towards sustainable forest management).

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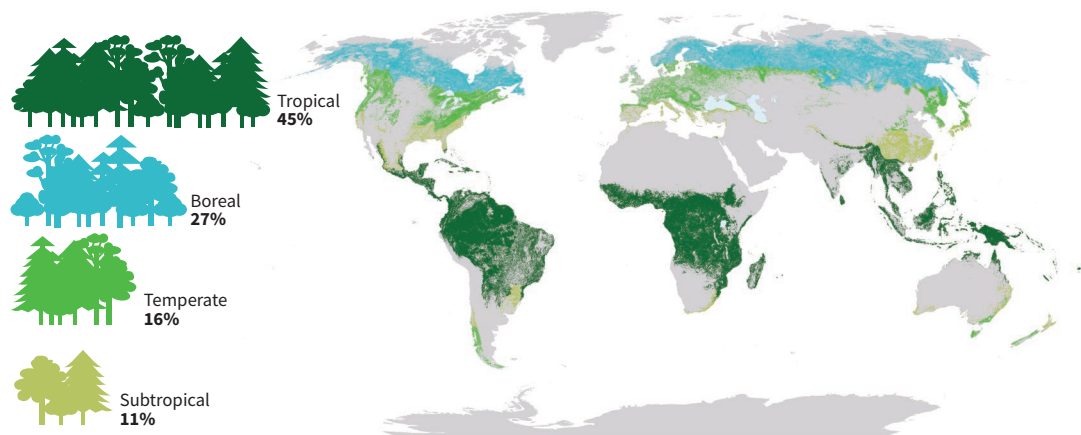
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## Forests cover nearly one-third of the land globally

The world has a total forest area of **4.06 billion hectares (ha)**, which is **31 percent of the total land area**. This area is equivalent to 0.52 ha per person<sup>1</sup> – although forests are not distributed equally among the world’s peoples or geographically. The tropical domain has the largest proportion of the world’s forests (45 percent), followed by the boreal, temperate and subtropical domains.

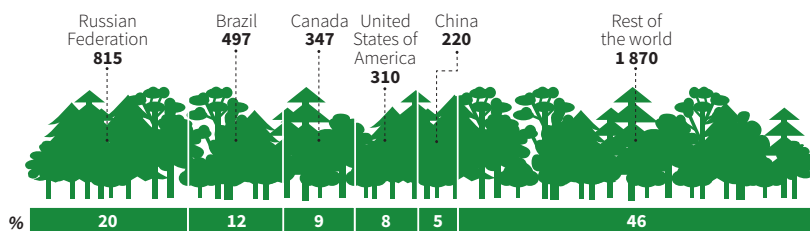
More than half (54 percent) of the world’s forests is in only five countries – the Russian Federation, Brazil, Canada, the United States of America and China.

### Proportion and distribution of global forest area by climatic domain, 2020



Source: Adapted from United Nations World map, 2020.

### Top five countries for forest area, 2020 (million ha)



<sup>1</sup> Calculated assuming a global population of 7.79 billion people, as estimated in United Nations, Department of Economic and Social Affairs, Population Division. 2019. *World Population Prospects 2019, Online Edition*.

## The world's forest area is decreasing, but the rate of loss has slowed

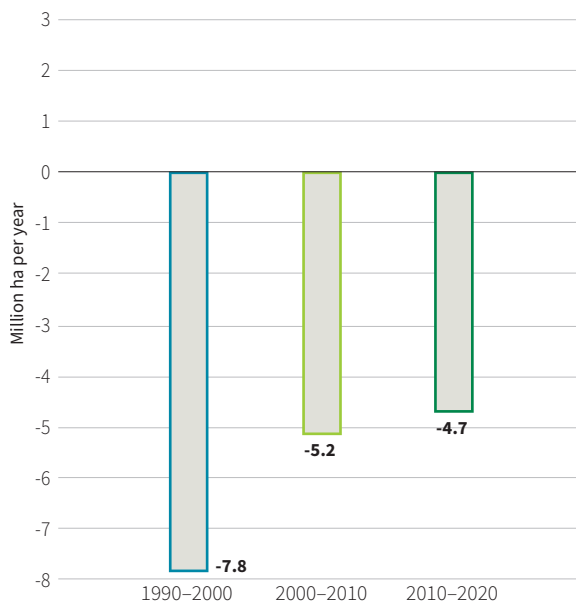
The world has **lost 178 million ha of forest** since 1990, which is an area about the size of Libya.

The rate of net forest loss decreased substantially over the period 1990–2020 due to a reduction in deforestation in some countries, plus increases in forest area in others through afforestation and the natural expansion of forests.

The rate of net forest loss declined from 7.8 million ha per year in the decade 1990–2000 to 5.2 million ha per year in 2000–2010 and 4.7 million ha per year in 2010–2020. The rate of decline of net forest loss slowed in the most recent decade due to a reduction in the rate of forest expansion.

FAO defines deforestation as the conversion of forest to other land uses (regardless of whether it is human-induced). “Deforestation” and “forest area net change” are not the same: the latter is the sum of all forest losses (deforestation) and all forest gains (forest expansion) in a given period. Net change, therefore, can be positive or negative, depending on whether gains exceed losses, or vice versa.

Global annual forest area net change, by decade, 1990–2020



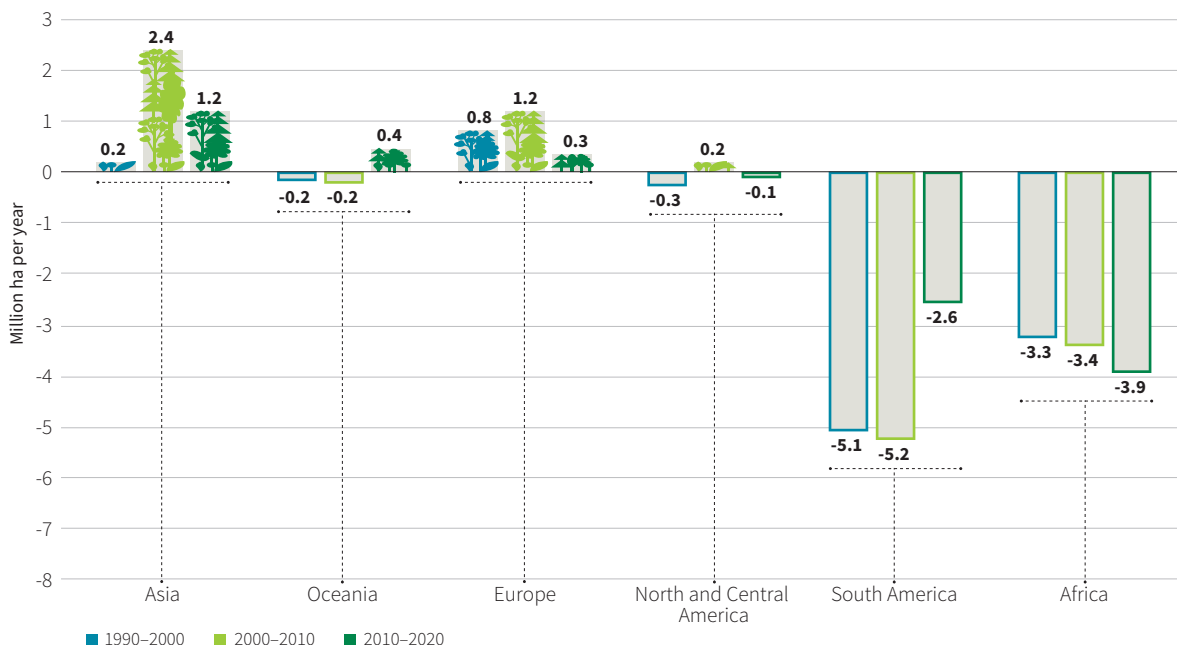
## Africa has the highest net loss of forest area

Africa had the largest annual rate of net forest loss in 2010–2020, at 3.9 million ha, followed by South America, at 2.6 million ha.

The rate of net forest loss has increased in Africa in each of the three decades since 1990. It has declined substantially in South America, however, to about half the rate in 2010–2020 compared with 2000–2010.

Asia had the highest net gain of forest area in 2010–2020, followed by Oceania and Europe.<sup>2</sup> Nevertheless, both Europe and Asia recorded substantially lower rates of net gain in 2010–2020 than in 2000–2010. Oceania experienced net losses of forest area in the decades 1990–2000 and 2000–2010.

Annual forest area net change, by decade and region, 1990–2020



<sup>2</sup> According to the regional breakdown used in FRA 2020, Europe includes the Russian Federation.

## Deforestation continues, but at a lower rate

An estimated **420 million ha of forest has been lost worldwide** through deforestation since 1990, but the rate of forest loss has declined substantially. In the most recent five-year period (2015–2020), the annual rate of deforestation was estimated at 10 million ha, down from 12 million ha in 2010–2015.

Annual rate of forest expansion and deforestation, 1990–2020

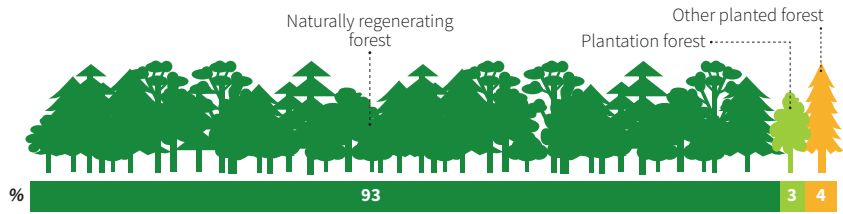


## More than 90 percent of the world's forests have regenerated naturally

Ninety-three percent (3.75 billion ha) of the forest area worldwide is composed of naturally regenerating forests and 7 percent (290 million ha) is planted.

**The area of naturally regenerating forests has decreased** since 1990 (at a declining rate of loss), but **the area of planted forests has increased** by 123 million ha. The rate of increase in the area of planted forest has slowed in the last ten years.

### Naturally regenerating versus planted forests, 2020 (% of global forest area)



### Annual net change in area of naturally regenerating and planted forest, by decade, 1990–2020



## Plantations account for about 3 percent of the world’s forests

Plantation forests cover about 131 million ha, which is 3 percent of the global forest area and 45 percent of the total area of planted forests.

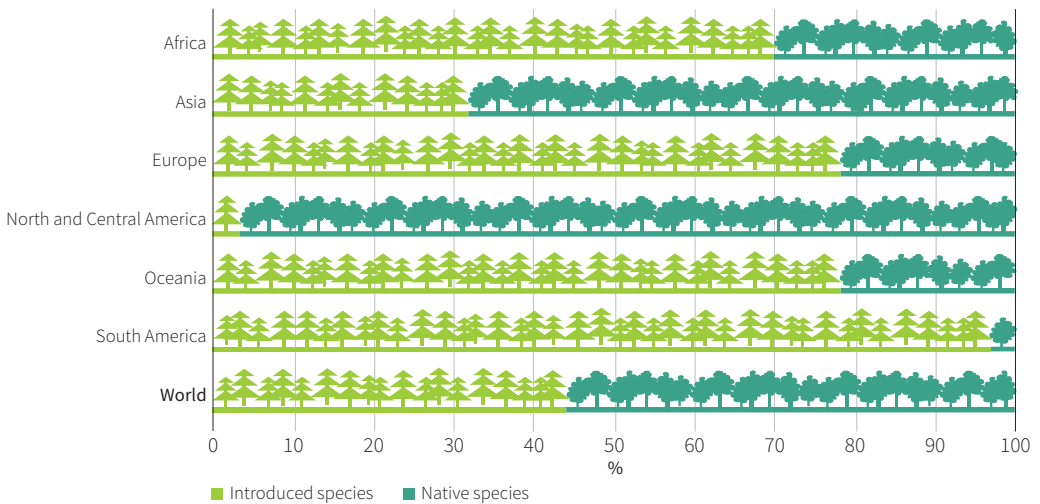
**Plantation forests** are intensively managed, composed of one or two species, even-aged, planted with regular spacing, and established mainly for productive purposes. **Other planted forests**, which comprise 55 percent of all planted forests, are not intensively managed, and they may resemble natural forests at stand maturity. The purposes of other planted forests may include ecosystem restoration and the protection of soil and water values.

The **highest share of plantation forest is in South America**, where this forest type represents 99 percent of the total planted-forest area and 2 percent of the total forest area.

The **lowest share of plantation forest is in Europe**, where it represents 6 percent of the planted forest estate and 0.4 percent of the total forest area.

Globally, 44 percent of plantation forests are composed mainly of introduced species. There are large differences between regions: for example, plantation forests in North and Central America mostly comprise native species and those in South America consist almost entirely of introduced species.

Proportion of introduced and native species in plantation forest, by region, 2020



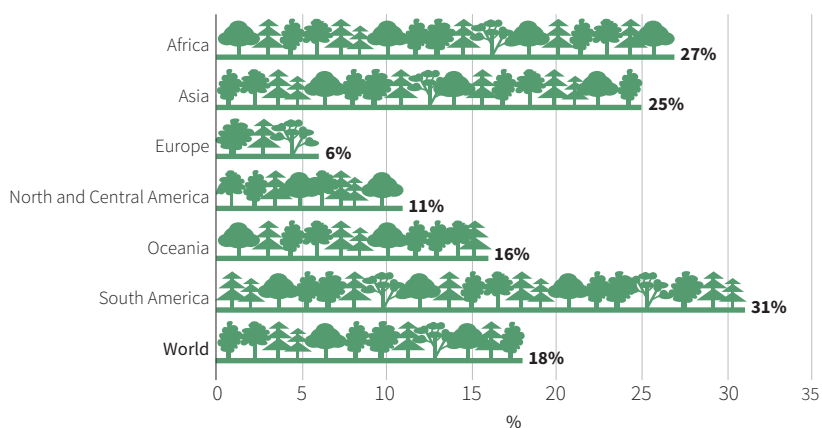


## More than 700 million ha of forest is in legally established protected areas

There is an estimated **726 million ha of forest in protected areas worldwide**. Of the six major world regions, South America has the highest share of forests in protected areas, at 31 percent.

The area of forest in protected areas globally has increased by 191 million ha since 1990, but the rate of annual increase slowed in 2010–2020.

Proportion of forest in protected areas, by region, 2020



## Primary forests cover about 1 billion ha

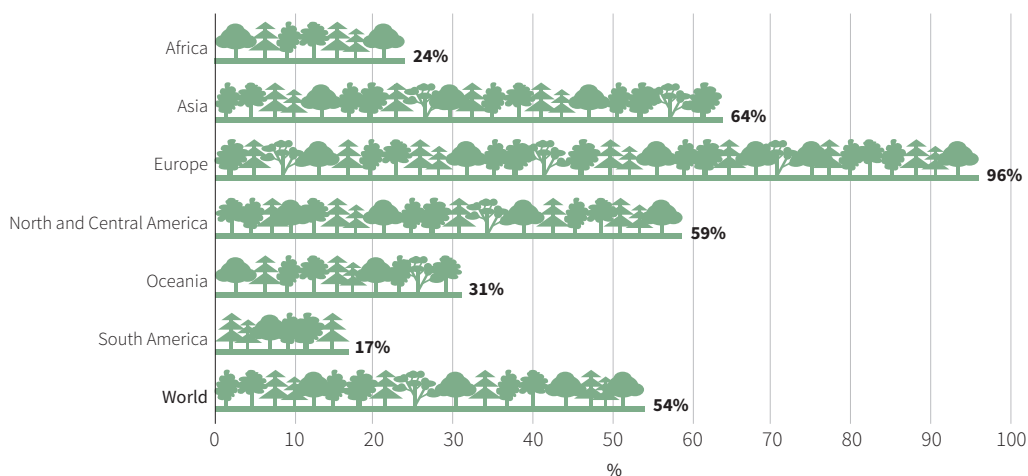
The world still has at least **1.11 billion ha of primary forest** – that is, forests composed of native species in which there are no clearly visible indications of human activities and the ecological processes have not been significantly disturbed. Combined, three countries – Brazil, Canada and the Russian Federation – host more than half (61 percent) of the world’s primary forest.

The area of **primary forest has decreased by 81 million ha** since 1990, but the rate of loss more than halved in 2010–2020 compared with the previous decade.

## More than 2 billion ha of forest has management plans

Most of the forests in Europe have management plans; on the other hand, management plans exist for less than 25 percent of forests in Africa and less than 20 percent in South America. The area of forest under management plans is increasing in all regions – globally, it has increased by 233 million ha since 2000, reaching 2.05 billion ha in 2020.

Proportion of forest area with long-term management plans, by region, 2020



## Fire is a prevalent forest disturbance in the tropics

Forests face many disturbances that can adversely affect their health and vitality and reduce their ability to provide a full range of goods and ecosystem services. About 98 million ha of forest were affected by fire in 2015;<sup>3</sup> this was mainly in the tropical domain, where fire burned about 4 percent of the total forest area in that year. More than two-thirds of the total forest area affected was in Africa and South America.

Insects, diseases and severe weather events damaged about 40 million ha of forests in 2015, mainly in the temperate and boreal domains.

<sup>3</sup> The latest year for which data are available.

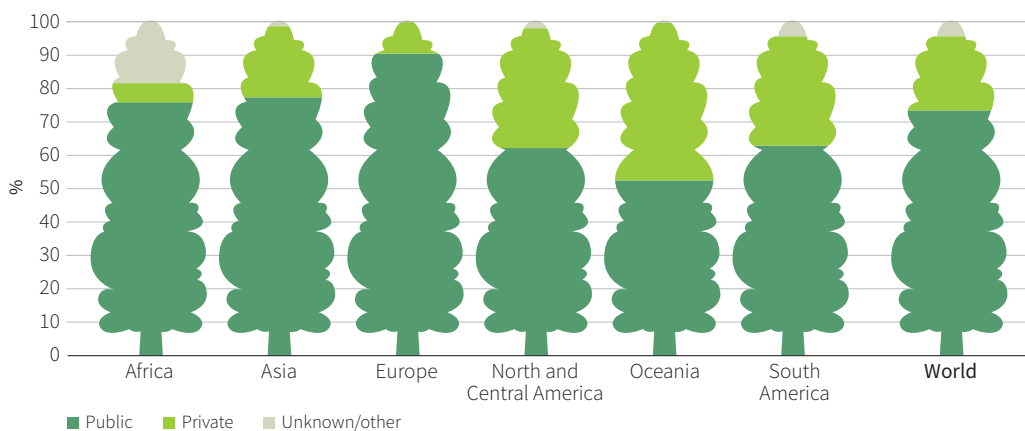
## The world's forests are mostly publicly owned, but the share of privately owned forests has increased since 1990

Seventy-three percent of the world's forests is under public ownership,<sup>4</sup> 22 percent is privately owned, and the ownership of the remainder is categorized as either “unknown” or “other” (the latter mainly comprising forests where ownership is disputed or in transition).

Public ownership is predominant in all regions and most subregions. Of the regions, Oceania, North and Central America and South America have the highest proportions of private forests.

Globally, the share of publicly owned forests has decreased since 1990 and the area of forest under private ownership has increased.

Forest ownership, by region, 2015



<sup>4</sup> As of 2015, the latest year for which global data are available.

Public administrations hold management rights to 83 percent of the publicly owned forest area globally. Management by public administrations is particularly predominant in South America, where it accounts for 97 percent of management responsibility in publicly owned forests. The share of public administration management rights has decreased globally since 1990, with an increasing share of publicly owned forests managed by private businesses, entities and institutions and by indigenous and tribal communities.

## The world's forest growing stock is declining

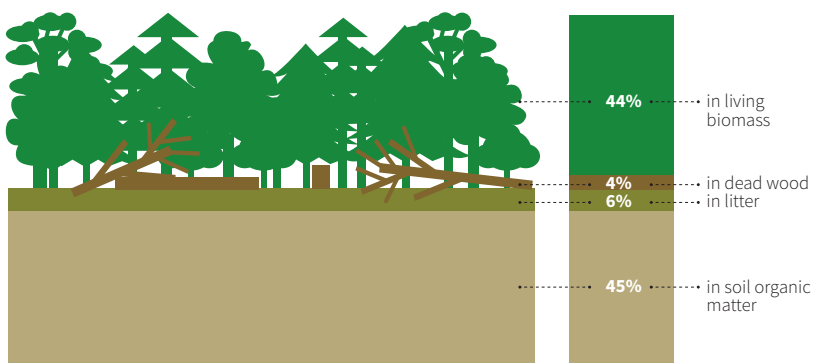
The world's **total growing stock of trees decreased slightly, from 560 billion m<sup>3</sup> in 1990 to 557 billion m<sup>3</sup> in 2020**, due to a net decrease in forest area. On the other hand, growing stock is increasing per unit area globally and in all regions; it rose from 132 m<sup>3</sup> per ha in 1990 to 137 m<sup>3</sup> per ha in 2020. Growing stock per unit area is highest in the tropical forests of South and Central America and West and Central Africa.

The world's forests contain about 606 gigatonnes of living biomass (above- and below-ground) and 59 gigatonnes of dead wood. The total biomass has decreased slightly since 1990 but biomass per unit area has increased.

## Total forest carbon stock is decreasing

Most forest carbon is found in the living biomass (44 percent) and soil organic matter (45 percent), with the remainder in dead wood and litter. The **total carbon stock in forests decreased from 668 gigatonnes in 1990 to 662 gigatonnes in 2020**; carbon density increased slightly over the same period, from 159 tonnes to 163 tonnes per ha.

Proportion of carbon stock in forest carbon pools, 2020



## About 30 percent of all forests is used primarily for production

Globally, about **1.15 billion ha of forest is managed primarily for the production of wood and non-wood forest products**. In addition, 749 million ha is designated for multiple use, which often includes production.

Worldwide, the area of forest designated primarily for production has been relatively stable since 1990 but the area of multiple-use forest has decreased by about 71 million ha.

## About ten percent of the world's forests is allocated for biodiversity conservation

Globally, **424 million ha of forest is designated primarily for biodiversity conservation**. In total, 111 million ha has been so designated since 1990, of which the largest part was allocated between 2000 and 2010. The rate of increase in the area of forest designated primarily for biodiversity conservation has slowed in the last ten years.

## The area of forest designated primarily for soil and water protection is increasing

An estimated **399 million ha of forest is designated primarily for the protection of soil and water**, an increase of 119 million ha since 1990. The rate of increase in the area of forest allocated for this purpose has grown over the entire period but especially in the last ten years.

## More than 180 million ha of forest is used mainly for social services

An area of **186 million ha of forest worldwide is allocated for social services** such as recreation, tourism, education research and the conservation of cultural and spiritual sites. The area designated for this forest use has increased at a rate of 186 000 ha per year since 2010.

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Note that numbers may not sum to the totals indicated and percentages may not tally to 100 due to rounding. Not all countries reported on all parameters mentioned here.



Since 1946, FAO has been monitoring the world's forest resources through periodic assessments conducted in cooperation with its member countries.

The *Global Forest Resources Assessment 2020* (FRA 2020), the latest of these assessments, examines the status of, and trends in, more than 60 forest-related variables in 236 countries and territories in the period 1990–2020.

This publication, which contains the key findings of FRA 2020, presents a comprehensive view of the world's forests and the ways in which the resource is changing. Such a clear global picture supports the development of sound policies, practices and investments affecting forests and forestry.

This publication has been produced with the assistance of the European Union, the Government of Finland and the Government of Norway.

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