RISK ANALYSIS IN FRANCE RELATED TO THE SUSTAINABILITY CRITERIA OF EUROPEAN DIRECTIVE (EU) 2018/2001 - RED II

2022

With the contribution of:

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I. Summary

This risk analysis is written in the context of the RED II Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources, and more specifically, Article 29, paragraphs 6 and 7, related to sustainability criteria for biomass fuels from forests. Operators in the wood energy sector in mainland France and overseas territories must justify the sustainability of forest biomass in accordance with the criteria outlined in this article, namely:

- The legality of harvesting operations
- Forest regeneration in harvesting areas
- Regulation of protected areas
- Preservation of biodiversity
- Preservation of soil quality
- Maintaining the long-term production capacity of the forest
- Land use, land-use change, and forestry: CO2 emissions and absorptions

The 17 million hectares of mainland forest and the 8.24 million hectares of forest in overseas territories are managed sustainably within the framework of the Forestry Code, the Environmental Code, and the European Union Timber Regulation (EUTR). The documents for sustainable forest management and the involvement of regulatory authorities further strengthen this observation. Indicators to identify sustainable forest management are regularly monitored by various organizations. 1/3 of mainland forests are also involved in voluntary certification, ensuring sustainable management. The analysis, therefore, concludes a low and negligible risk regarding the non-compliance with these requirements. The sustainability of forest management is regulated by law, well monitored and enforced, and positive developments in the state of the forests can be identified. This risk analysis will be updated every 5 years to ensure that regulations, practices and indicators are monitored.

The information regarding the overseas territories has been provided in this document based on available data.

II. Glossary of terms

- **ADEME:** Agency for Ecological Transition
- **AFB:** French Biodiversity Agency
- **BE:** Wood Energy
- **BI:** Wood Industry
- **BO:** Timber
- **CBPS:** Code of Good Forestry Practices
- **UNFCCC:** United Nations Framework Convention on Climate Change
- **CBD:** Convention on Biological Diversity
- **NDC: Nationally Determined Contributions**
- **CNPEF:** National Standard of Forest Exploitation Requirements
- **CNPF:** National Centre for Forest Ownership
- **CRPF:** Regional Centre for Forest Ownership
- **DDT:** Departmental Directorate of Territories
- **DGD:** General Delegation for Sustainable Development
- **DRA:** Regional Development Document
- **DRAAF:** Direction Régionale de l'Alimentation, de l'Agriculture et de la Forêt
- **DREAL:** Regional Directorate for the Environment, Planning, and Housing.
- **EPCI:** Public Establishment for Intercommunal Cooperation
- **ETP:** Full Time Equivalent
- **FCBA:** Forestry, Pulp, Wood Construction, Furniture
- **FNEDT:** National Federation of Territorial Entrepreneurs
- **IGN: National Institute of Geographic and Forestry Information**
- **INPN:** National Inventory of Natural Heritage
- **INRAE:** National Research Institute for Agriculture, Food and Environment
- **IRD:** Institute of Research for Development
- **LAAAF:** LAW N° 2014-1170 of 13 October 2014 on the future of agriculture, food and forestry
- **MAA:** Ministry of Agriculture and Food. (2017) (subsequently renamed as MASA, after the 2022 elections: Ministry of Agriculture and Food Sovereignty
- **MAAF:** Ministry of agriculture, Agrifood and Forestry (2012)
- **MCT:** Ministry of Territorial Cohesion (subsequently renamed as Ministry of Territorial Cohesion, Planning, and Public Action after the 2022 elections) Ministry of Ecological Transition and Territorial Cohesion)
- **MNHN:** National Museum Of Natural History
- **MTE:** Ministry of Energy Transition
- **OFB:** French Biodiversity Office
- **ONCFS:** National Office for Hunting and Wildlife
- **ONF:** National Forestry Office
- **GDP:** Gross Domestic Product
- **PBF:** Biodiversity Forest Platform
- **PNFB:** National Forest and Wood Program

- **PRFB:** Regional Forest and Wood Program
- **PSG:** Simple Management Plan
- **RBUE:** Renewable Energy Directive for the European Union
- **RMQS:** Soil Quality Monitoring Network

III. About the Authors of the Risk Analysis

Edited by:

- Antoine Mugnier – Agro-Energy Consultant: Antoine Mugnier, founder of Agro énergie Conseil and an agricultural engineer with a degree from INP Purpan, has over 15 years of experience in developing new industrial and commercial activities. He has acquired a strong and dual expertise in the environmental sector, serving as a resident expert in 2011-2012 for the Food and Agriculture Organization of the United Nations on forest-related topics. He also has expertise in renewable energies, especially biomass, as the co-responsible for France's largest biomass power plant project (Tranche 4 at the Provence Power Plant). In this role, he was responsible for project supply (procurement and logistics) and local integration. Since 2018, he has been a member of the Impartiality Committee of the ECOCERT group, a leading body for the certification of sustainable agriculture and forestry.

- Manon Sueur – Agro-Energy Consultant: Manon Sueur, an agricultural engineer with a degree from ENSAIA and specializing in Environmental Sciences and Engineering, has acquired strong expertise in environmental regulations during her experience at SUEZ Consulting. At Agro énergie Conseil, Manon Sueur works on various projects involving farmers and forest owners.

  Agro-Energy Consultant: Energy Transition Consulting Firm

- Marco Gardin – OBBOIS: Forest-wood expert with 15 years of experience, Marco GARDIN brings his project management and compliance assessment skills to OBBOIS. He has extensive knowledge of the French wood industry and has conducted hundreds of control and compliance audits for forest harvesting, primary and secondary processing companies since 2007. Initially with FCBA and later with Bureau Veritas, he managed national and international client portfolios, providing technical support and commercial oversight. He was responsible for audit methods and operations for Bureau Veritas' international network for FSC, PEFC, and OLB certifications.

  Since 2015, he has been responsible for Saint-Gobain's wood environmental policy, particularly in risk management and supply source assessments.

  Obbois: a consulting firm and training organization specializing in responsible forest management, FSC/PEFC certification, and performance assessment.

Coordinated by:

- CIBE: Interprofessional Committee for Wood Energy

With contributions by:

- CNPF: National Centre for Private Forests: a public company dedicated to serving forest owners.
- FNCOFOR Communes forestières: the national federation that brings together all levels of local authorities that own forests or are concerned with the development of forests within their territory.
- COPACEL: represents French companies producing paper, cardboard, and wood pulp.
- FEDENE: Federation of Energy and Environment Services, involved in the fields of energy efficiency and renewable thermal energies.

- FNB: National Wood Federation
- Fransylva: Federation of Private Forest Owners' Unions in France
- FNEDT: National Federation of Rural and Agricultural Contractors, brings together companies in agricultural, forestry, and rural work.
- Forestry Experts of France
- ONF: National Forestry Office
- ONF Energie Bois is a network developed by the National Forestry Office (ONF) that brings together stakeholders in the wood energy sector.
- SER: Syndicate of renewable Energies
- UCFF: Union of French Forestry Cooperatives

With the financial support of:

- MASA: Ministry of Agriculture and Food Sovereignty
- ADEME: Agency for Ecological Transition

And the support of:

- MTE: Ministry of Energy Transition

IV. Framework of the risk analysis

IV.1. Geographical framework of the risk analysis

For the purpose of this analysis, we will consider Mainland France (see figure 1) (17 million hectares of forest) and its overseas territories (see figure 2) (8.24 million hectares of forest).

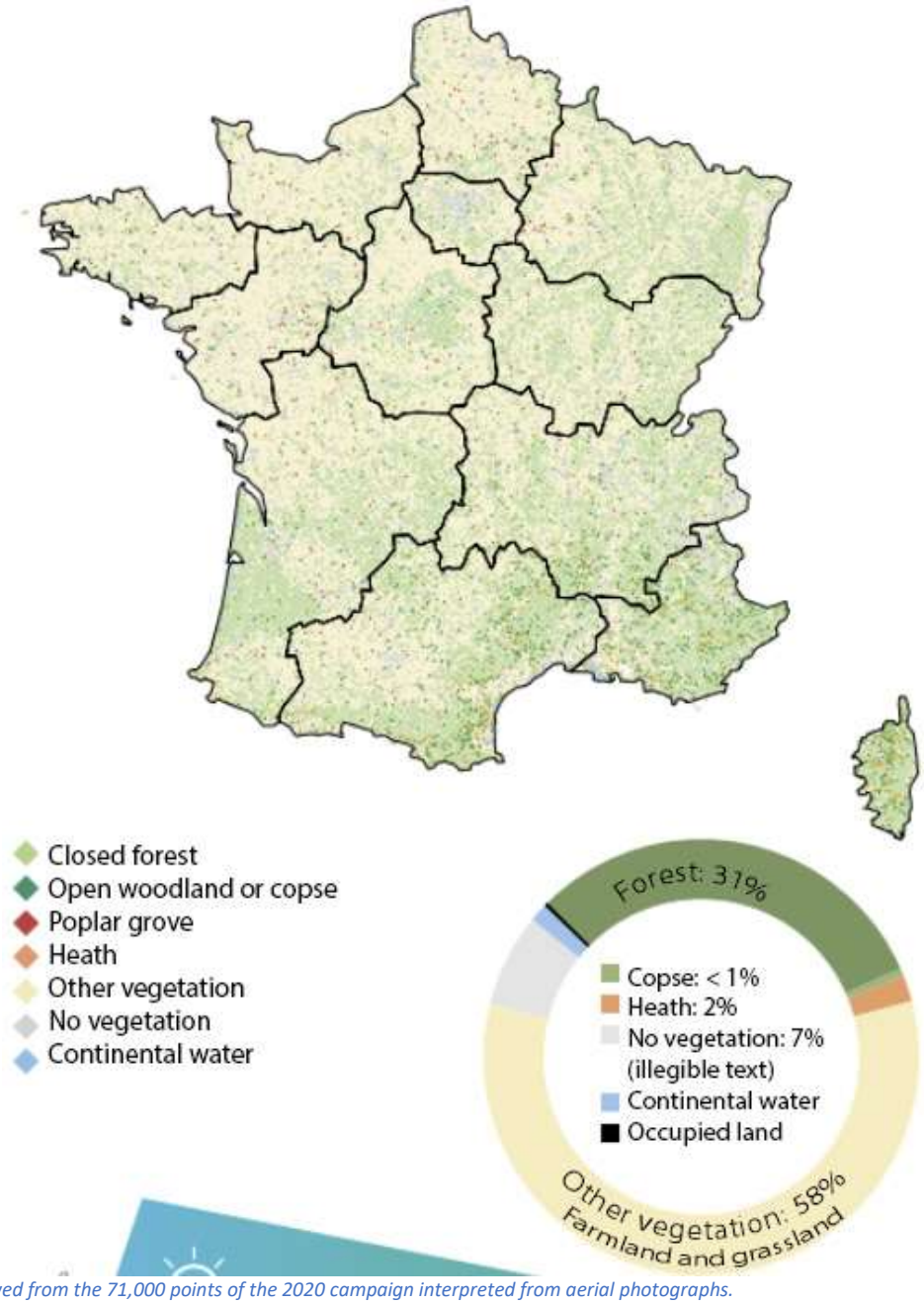


Figure 1. Map derived from the 71,000 points of the 2020 campaign interpreted from aerial photographs.

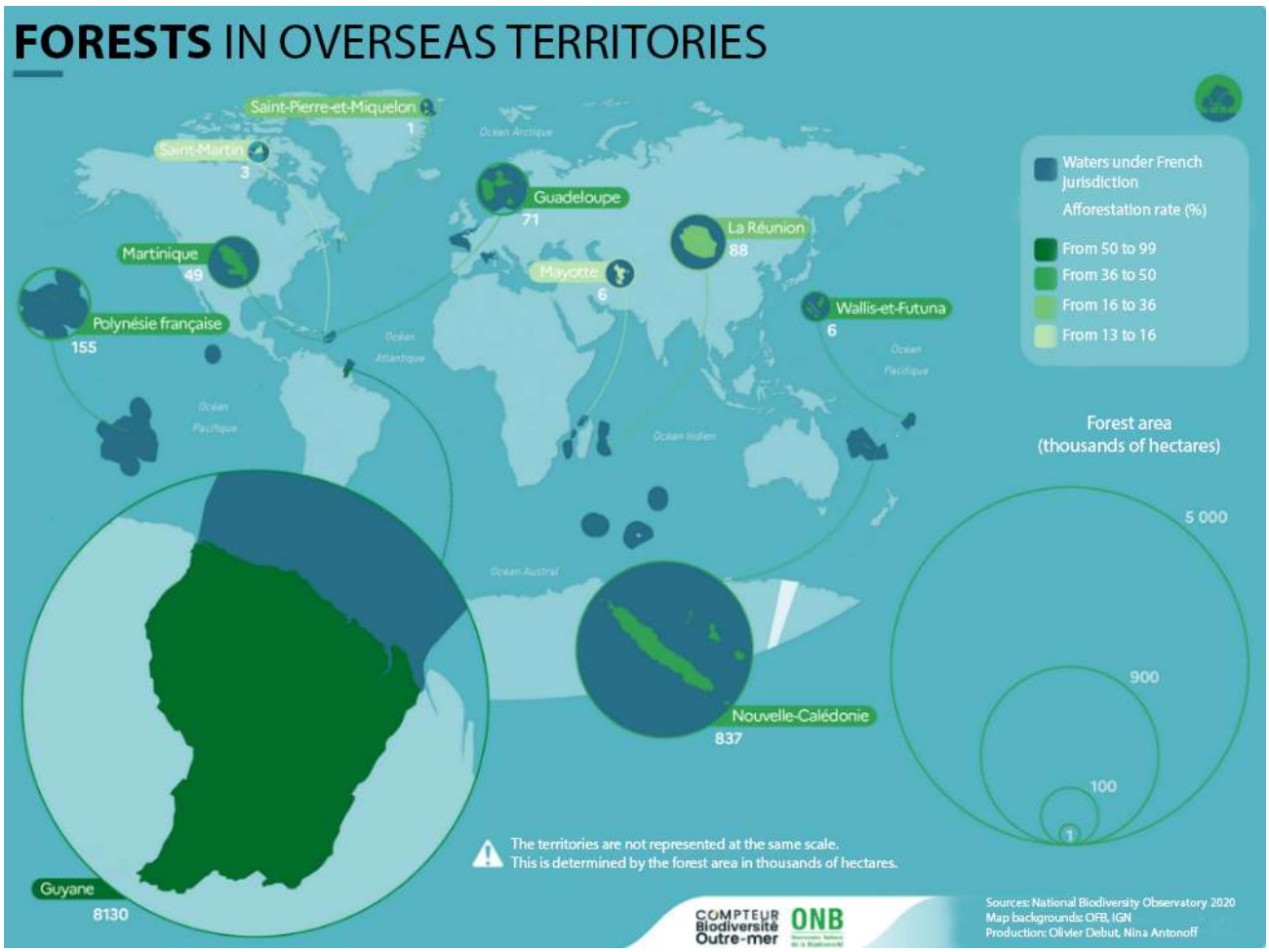


Figure 2 Forests in the overseas territories (source: ONB, 2021 IGN)

IV.2. Relevant period for the purposes of the risk analysis

The maximum validity period of the risk analysis is five years from the date of its publication. Any updates can be consulted on the following website: www.cibe.fr.

Publication date:	31/03/2023	Expiry:	01/04/2027

V. Role of the Forest and Structure of Wood Processing in France

V.1. The forest-wood sector in France

V.1.1. Multifunctionality of the forests.

French forests are managed in a "multifunctional" manner, which means that forest management by foresters aims to simultaneously promote the ecological, economic, and social functions of forests, contributing to territorial development.

Sustainably managed forests provide a wide range of services, including:

- Ecological Services: Forest ecosystems serve as biodiversity reservoirs, store carbon, and mitigate the effects of climate change.
- They also help mitigate the impacts of natural risks. Forests limit floods by filtering water, serve as a water reservoir, prevent rockfalls and avalanches in mountainous regions, and reduce coastal erosion by stabilizing dune sand.
- Economic services: Wood is at the heart of the green economy and is essential for ecological transition. When transformed, it provides a multitude of products to society (framework, carpentry, energy, etc.). Harvesting and processing wood are also a significant source of local, non-offshorable jobs.
- Social activities: Forests are spaces for relaxation, well-being, and leisure[1]

V.1.2. Forests in France

Mainland France

In 2021, with a forest area of 17 million hectares in mainland France (covering 31% of the territory), France ranks fourth in terms of surface area in Europe, after Sweden, Finland, and Spain. This forest surface area has increased by 2.8 million hectares since 1985 (see figure 3[2]).

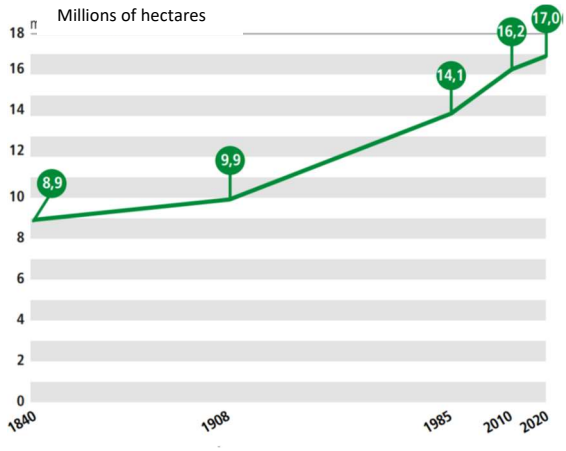


Figure 3. Evolution of the forest area since the mid-nineteenth century (source: IGN)

The forest cover rate map (see figure 4) reveals significant regional disparities. The regions of Corsica, Provence-Alpes-Côte d'Azur, and Auvergne-Rhône-Alpes are the regions with the most forests in France. Some

[1] https://www.onf.fr/onf/raconte-moi-la-foret/la-langue-des-bois/+/7ea::la-multifonctionnalite-ou-comment-la-foret-nous-rend-denombreux-et-precieux-services.html.

[2] https://www.ign.fr/reperes/la-foret-en-france-portrait-robot.

specific areas have a forestation rate of over 70%: The Landes de Gascogne, the central Vosges Massif, the external Alps of the South, the Cévennes, and the Ardennes[3]. The least wooded regions are concentrated in the northwestern quarter, such as Pays de la Loire.

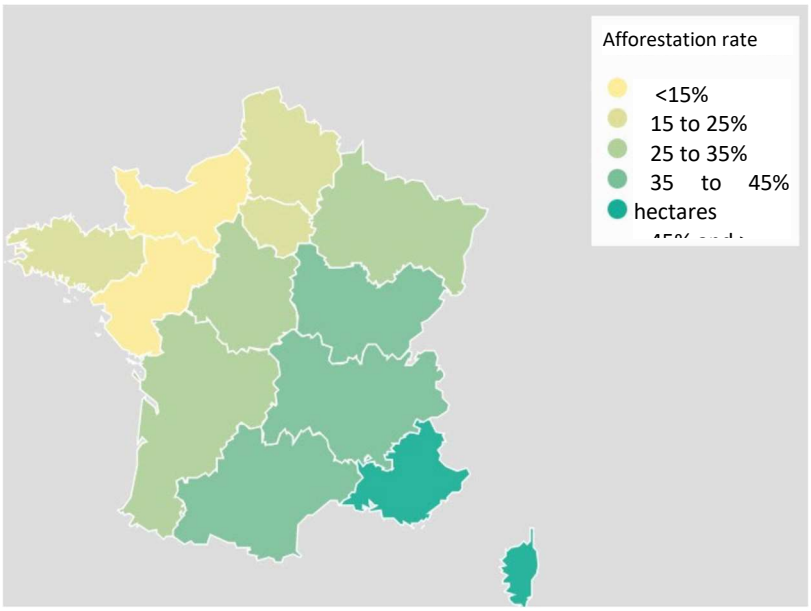


Figure 4 Map of the forest cover rate in France (source: memento 2021 IGN)

In France, ¾ of the forests are privately owned, totalling 12.7 million hectares, and ¼ is publicly owned, including 1.5 million hectares of state-owned forests and 2.8 million hectares of communal forests (see figure 5).

There are two main statutes governing public forests in France:

- State forests are lands owned by the government and subject to the forest regime, managed by the ONF (National Forestry Office). This category also includes lands for which the state holds undivided property rights.
- Communal forests generally belong to municipalities, but they can also be owned by other local authorities, public institutions, public utility institutions, and so on. The management is determined by the owner (the municipality, etc.) according to the management plan established and implemented by the manager (often ONF).

[3] https://inventaire-forestier.ign.fr/IMG/pdf/memento_2021.pdf For up-to-date data, please consult the National Forest Inventory website: https://inventaire-forestier.ign.fr/

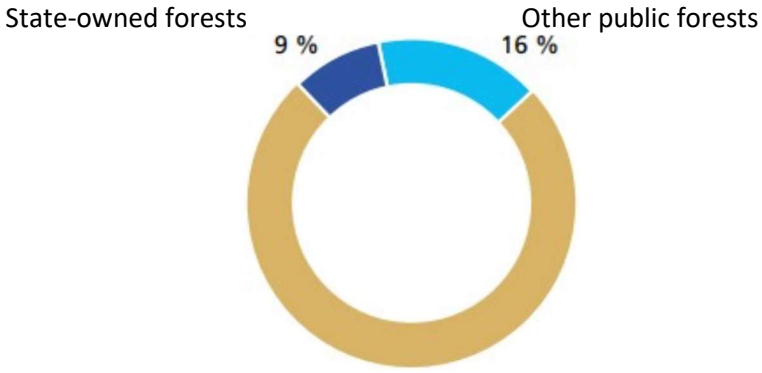


Figure 5 Map of the forest cover rate in France (source: memento 2021 IGN)

Private forests
75%

Forests in overseas territories

The French overseas territories have a population of 2.8 million people spread across 552,528 km². It is home to significant biodiversity, with 88,966 native species and a forest cover of 85%. As shown in Figure 6 below, according to the National Biodiversity Observatory (ONB), French Guyana far surpasses other overseas territories with a forest area of 8,002,850 ha (source FAO FRA 2020), followed by New Caledonia with 837,000 ha of forests, French Polynesia with 155,000 ha, Réunion with 120,000 ha, Guadeloupe with 71,000 ha, Martinique with 49,000 ha, Mayotte and Wallis and Futuna each with 6,000 ha, Saint-Martin with 3,000 ha, and Saint-Pierre and Miquelon with 1,000 ha. Saint-Barthélemy is not represented as this territory has no forested area, while for the Eparses, the French Southern and Antarctic Lands, Adélie Land, and Clipperton Island, no data was available.[4]

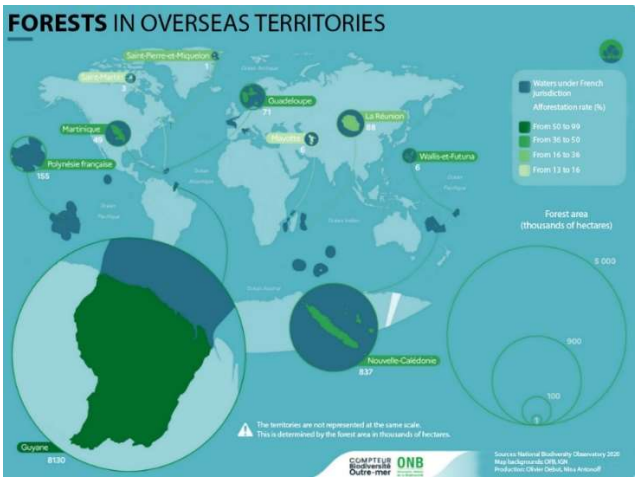


Figure 6 Map of the forest cover rate in France (source: ONB, 2021)

- <u>French Guyana:</u>

In French Guyana, forests cover more than 8 million hectares, which is approximately 97% of the territory. They are described as "tropical humid" forests and are home to exceptional biodiversity. Indeed, they are

[4] All indicators (biodiversite-outre-mer.fr)

home to over 1,600 tree species, some of which are endemic. The Guyanese forest domain is mainly composed of public forests, with nearly one-third being state-owned forests, and less than 1% managed privately by the Guyana Space Centre (CSG).[5]

- New Caledonia

In New Caledonia, 46% of the territory is covered by forests, which is 837,000 hectares. It possesses rich natural resources, with the presence of both humid and dry forests, along with a high rate of endemism (76% of the flora is endemic). Forests in New Caledonia face significant threats from fires, invasive species, and mining activities.
The productive forest is challenged by poor soil quality and limited land accessibility, with mining permits occupying large areas of land. Moreover, the harvesting of natural forests completely ceased at the end of 2012[6].

In New Caledonia, the lack of a comprehensive territorial forest policy hinders the development of a long-term vision for forest resource management. As a result, the timber industry is underdeveloped, and local production only plays a marginal role in the country's economy. There are three sawmills on the territory, one of which processes 2,000 to 3,000 m3/year. New Caledonia imports 90% of its construction timber needs[7].

- French Polynesia

Just like in New Caledonia, the forests in French Polynesia are poorly understood; no forest inventory has ever been conducted, and the areas of different forest types are currently only estimated. In French Polynesia, 42% of the territory is believed to be covered by forests, totalling around 155,000 hectares, in addition to 45,000 hectares of coconut plantations. The vast majority of lands in French Polynesia are privately owned (In 2005, an estimated 85% of the forests were in private ownership)[8].

- Réunion:

According to the National Forests Office (ONF), the total forest cover area is 120,000 hectares, which represents 45% of the island's surface[9].

Most of the forests are located in the central mountainous region, at the heart of the national park.

According to the ONF, 84% of the forests are public (of which 91% are departmental-domain forests, 3% are state-owned forests, 3% are departmental forests, and 1% are communal forests), while 16% of the forests are private. Out of the 100,000 hectares of public forests managed under the forest management regime by the ONF, the production forest represents only 3,500 hectares, distributed among 1,600 hectares of Cryptomeria stands (Cryptomeria Japonica) and 1,900 hectares of highland tamarind (Acacia heterophylla - endemic to La Réunion).

It should be noted that the departmental-domain forests are specific to the French overseas territories (DOM islands, including the Antilles and Réunion), which were placed under this status in 1948. The bare ownership belongs to the department, but the State retains the right of use[10].

[5] The Guyanese forest-wood sector - Guyana Internet (agriculture.gouv.fr)
[6] Global Forest Resources Assessment (FRA) 2020 New Caledonia - Desk Study (fao.org)
[7] Exchanges between stakeholders in the wood sector in the Pacific - New Caledonia (francetvinfo.fr)
[8] Forest – DAG (service-public.pf)
[9] Forests are at the heart of the identity of La Réunion and Mayotte (onf.fr).
[10] ONF - A vast domain

- Guadeloupe

In Guadeloupe, forests cover 71,300 hectares, which is 44% of the territory. Public forests account for 52% of the forest cover (37,000 hectares) and are divided as follows: 75% are departmental-state-owned forests. 13% are forests of the lake and maritime public domain. 4% is the state-owned forest of the coastline. 4% are departmental forests. 4% are wooded lands of the Coastal Conservatory.[11]

Due to physical constraints imposed by the relief, limitations of the transport network, and legal protection of areas where biodiversity conservation is a priority, less than 30% of the forests in Guadeloupe are easily exploitable for wood production. The forests available for exploitation are primarily privately owned[12].

- Martinique

According to the ONF, the forested area in Martinique covers 46,273 hectares (accounting for 41.3% of the territory). Of the total forested area, 34.2% is publicly owned, including 21% as territorial-state-owned forests, 4% as coastline state-owned forests, and 3% as territorial forests. This means that 65.8% of the forests are privately owned[13].

Public forests used for production purposes make up approximately 1,000 hectares (onf.fr). Private forests are in the early stages of developing management documents (PSG), and the extent of privately-owned production areas has not been thoroughly assessed yet. Currently, the local wood industry relies solely on resources from public forests, utilizing about 30% of the annual production potential. Technical difficulties and operating costs, competition from imported wood and the limited uses (cabinet-making only) of the main production species (*Swietenia Mahoganii*) are holding back the development of the wood industry. A player producing energy from wood biomass set up in 2018,but is currently using very little of the local resource.

- Mayotte

The forest cover in Mayotte covers an area of 10,792 hectares, which is 29% of the territory. According to the ONF, the public forest domain represents 7,060 hectares, with 3⁄4 of it being departmental forests managed by the Department. [8]

There isn't a well-established timber industry in Mayotte. The former and only sawmill owned by the Departmental Council has not been operational for many years. However, Mayotte faces significant demand for wood for various purposes, such as cooking and temporary constructions, along with illegal deforestation pressure[14].

- Wallis and Futuna

According to the ONB, forested areas would cover 43% of Wallis and Futuna, equivalent to 6,000 hectares. The forest situation, including species behaviour, changes in vegetation types, and more, is challenging to describe due to a lack of specific knowledge about the territory and its organization. The timber industry is also complex to describe because the Wallisian and Futunian societies have a quite different perspective on the market value of forest products. Forests are considered a free and unlimited source of timber, firewood, and other services[15].

[11] Guadeloupe is an archipelago of forests with a strong tourist appeal (onf.fr)
[12] 190722_guadeloupe.pdf (ign.fr)
[13] The Forests of Martinique: Balancing Natural Space Conservation and Public Accessibility (onf.fr)
[14] https://www.fao.org/3/az274f/az274f.pdf
[15] Global Forest Resources Assessment 2015. National report. Wallis and Futuna Islands Rome, 2014. az374f.pdf (fao.org)

- Saint-Martin

According to the ONB, forested areas would cover 20% of the island of Saint-Martin, equivalent to 3,000 hectares. For this island, forest-related information is also scarce. The distance from Guadeloupe and its research centres (UAG, INRA, ONF) has led to a lack of investment by local partners in forest knowledge[16].

- Saint Pierre and Miquelon

According to the ONB, forested areas would cover 13% of the island of Saint-Pierre-et-Miquelon, equivalent to 1,000 hectares. However, according to ONFI (National Forestry Office International), the forested area would be 3,000 hectares. The territorial community of Saint-Pierre-et-Miquelon owns the forested areas (boreal forest)[17].

V.1.3. Standing timber

Mainland France

France holds the 3rd largest wood stock in Europe. The standing volume of timber in metropolitan France is **2.8 billion cubic meters**, with 64% being hardwoods. Oak species, including pedunculate oak, sessile oak, downy oak, and green oak, make up the majority of hardwoods in metropolitan France (44% of hardwoods). Common spruce and silver fir together constitute 42% of softwood volume.

Overall, the national timber resource continues to grow. Between 1985 and 2018, the stock increased from 137 m3/ha to an average of 174 m3/ha. However, due to challenging climatic conditions for trees and the development of biotic stressors, organic production, which is the growth of trees, slowed down during the period from 2011 to 2019 compared to the period from 2005 to 2013. For the same reasons, tree mortality significantly increased (by 35%), and timber harvests also increased (by 18%)[18].

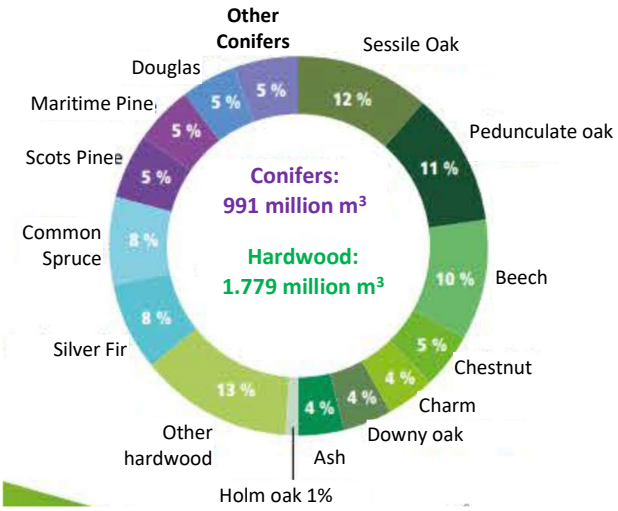


Figure 7 Distribution of standing live wood volume by tree species (source: 2021 IGN memo)

[16] Global Forest Resources Assessment 2015. National report. Saint Martin (French section) Rome, 2014. az321f.pdf (fao.org)
[17] Elaboration and Implementation of the Forest Management Plan for the Saint-Pierre and Miquelon Community - ONF International
[18] https://inventaire-forestier.ign.fr/IMG/pdf/memento_2021.pdf

French Guyana:

The standing live wood volume in Guyana is comparable to that in mainland France, estimated at 2,640,680,000 m3 according to the FAO. However, the standing live wood volume per hectare is twice as high as that in mainland France, reaching 350 m3/ha in northern Guyana and 262 m3/ha for the entire territory. The volume is lower in swamp forests, plains, and inland depressions than on plateaus and hills, and it is intermediate in high-relief areas. Forests in Guyana are highly diverse in tree species. For the entire Guyana region, 11 tree species are needed to cover 50% of the standing live wood volume, whereas only 5 are needed in mainland France.[19]

Réunion:

Cryptomeria[20]

The Cryptomeria stands cover an area of 1,493 hectares, of which 1,198 were inventoried through a systematic inventory using circular sample plots in 2013. The remaining 295 hectares were not inventoried because their low medium-term production potential, assessed by expert judgment, coupled with the difficulties in mobilizing the wood, did not justify the required inventory effort.

In total, the 568 hectares of Cryptomeria stands that are currently accessible have an estimated total standing volume at 7 cm of approximately 206,000 cubic meters. In total, the 720 hectares of Cryptomeria stands that are currently accessible have an estimated total standing volume at 7 cm of approximately 255,000 cubic meters. This adds up to a total of 461,000 cubic meters.

The average volume per hectare at a 7 cm cutting size is 369 cubic meters. However, there is a significant difference for stands that are likely to be clear-cut (accessed: 645 m3/ha vs. yet to be accessed: 1002 m3/ha). The stands that have not been accessed have accumulated a substantial volume per hectare.

Tamarind[21]

Of the 1,534 hectares of Tamarind stands designated for forestry purposes in the management plans, 91 hectares do not meet the necessary quality standards for producing timber. There is no available data on the standing volume of these stands.

There are three different qualities of wood:

1. Choice 1 is wood intended for timber
2. Choice 2 is wood intended for shingles or craftsmanship
3. Choice 3 is wood intended for wood energy or charcoal production

It is considered that a mature stand provides 95 m3/ha of choice 1, and an equivalent volume of choice 2 and choice 3 in a related manner. The results of the inventory conducted in 2017 in Bélouve showed an average volume of 48 m3 choice 1/ha for stands of approximately 60 years. It seems reasonable to expect to reach 95 m3 choice 1/ha around 120 years of age.

[19] https://inventaire-forestier.ign.fr/IMG/pdf/190625_guyane.pdf
[20] Report: “Evaluation of the Cryptomeria Wood Resource in Réunion," 2014, ONF
[21] Report: "Assessment of deployable tamarind wood resource", 2017, ONF

Acacia Mearnsi (Black Wattle)[22]

The volumes of Acacia stands have been overestimated in the past (250 m3/ha for a mature stand with no reference for young stands). The ongoing study by CIRAD, the results of which are not yet available, aims to improve this knowledge and will continue for 5 years.

Guadeloupe

The standing volume of wood per hectare is estimated at just over 300 m³/ha on average, which is a relatively high level. The forest stands in Guadeloupe, especially those in Basse Terre, are not very tall on average but generally very dense, except in degraded areas. [11]

Martinique:

The standing volume of wood per hectare is estimated to be nearly 300 m³/ha on average. It varies significantly depending on the forest type, climatic zone, and the state of conservation. In mangroves, which are subject to strong constraints, the average standing volume is estimated to be around 200 m³/ha. Dry forests, on the other hand, have a much lower stock due to water scarcity and their secondary (recolonization) and recent nature (less than 100 m³/ha on average). The highest volumes are found in moderately humid to humid forests, with generally over 500 m³/ha, except for areas planted with mahogany (200 m³/ha) and areas invaded by bamboo, which significantly reduces the proportion of tree species. At higher altitudes, wind and temperature conditions become limiting factors, resulting in shorter vegetation, trees with small diameters (less than 10 cm), and negligible standing wood volumes.[23]

V.1.4. Forest Health

Mainland France

To draw up the French forest health report, experts from the forest inventory and the Department of Forest Health (DSF) continuously observe and analyse two indicators in particular:

- the stock of dead trees (especially those less than five years old)
- branch mortality in the tree crown (branches around the top).

Climate change, as well as the proliferation and geographic expansion of biotic agents, are weakening the health of French forests. This is the conclusion of research conducted jointly by IGN and the Forest Health Department of the Ministry of Agriculture and Food since 2007. Chestnut, ash, and common spruce are particularly affected.

Among the living trees observed, nearly 95% have less than 5% dead branches. Over the periods 2008-2012 and 2015-2019, there is a slight decrease in the number of trees with branch mortality. This trend does not necessarily reflect an improvement in forest health and should be viewed in the context of increased tree mortality and a slight rise in harvesting.

[22] "*Aménagement des HSVent 2019-2038*" Report
[23] 190722_martinique.pdf (ign.fr)

Chestnut, black locust, ash, Scots pine, and common spruce are the species that have the highest average annual rates of dead trees under five years old. This rate tends to increase for broadleaf trees, while it remains relatively stable for conifers.[24]

[24] https://www.ign.fr/reperes/bilan-de-sante-des-forets-francaises

A few figures:

- In mainland France, standing deadwood or windthrow was observed on a third of the managed forest area. They represent **120 million cubic meters**, or 4% of the volume of living wood (2.8 billion cubic meters).
- Dead wood on the ground represents **260 million cubic meters**. On average, there are 16 m^3 of dead wood on the ground per hectare of forest.
- In mainland France, annual mortality amounts to an average of **10 million cubic meters (Mm3/year)** over the period 2011-2019, with a statistical uncertainty of around 0.4 Mm3/year, which represents on average 0.6 m3/ha/year.

French overseas territories:

French Guyana:

In Guyana, the causes of damage to forest stands are limited to storms and tempests, invasive species, and activities related to logging. Overall, the Guyanese forest is not significantly affected by forest fires. Occasionally, strong winds and large swells on the coastal mangroves may affect some inland and coastal forest areas. Regarding exotic species, 11 were identified in 2010, but the majority of them do not penetrate natural vegetation, except in open ecosystems. The proportion of tree injuries varies depending on the density and type of logging, as well as the nature of the terrain. In conventional logging, it affects approximately a quarter of the stems but does not exceed 15% when low-impact logging techniques are used (see figure 8). [18]

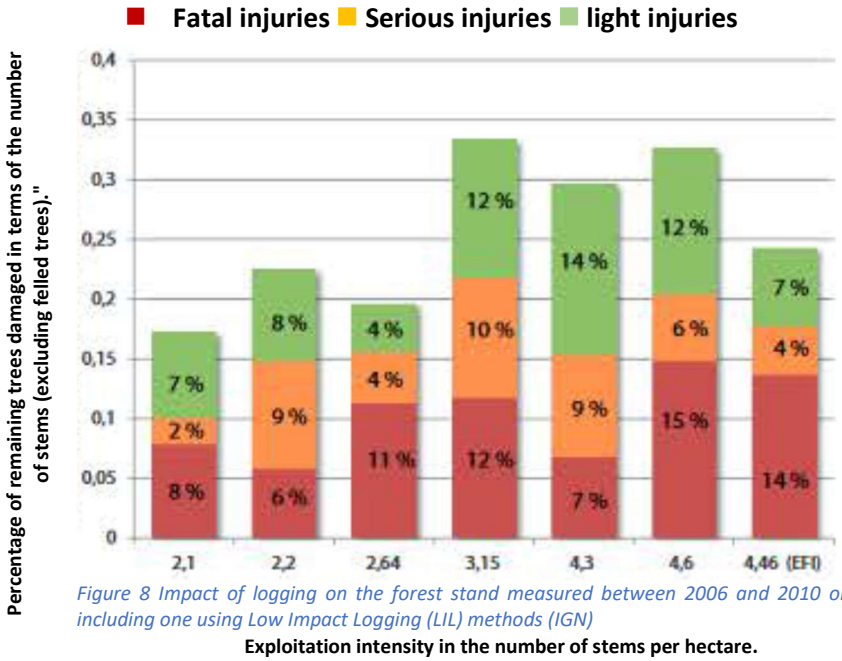


Figure 8 Impact of logging on the forest stand measured between 2006 and 2010 on 7 plots, including one using Low Impact Logging (LIL) methods (IGN)

Source: Guitet *et al*. 2014 (see methodological details)

Réunion:

Following are the threats that forests in Réunion are facing:

- The spread and development of invasive exotic species due to a lack of maintenance or the elimination of invasive stands

- Seasonal vulnerability to forest fires
- Persistent diffuse poaching
- Destructive roaming of cattle affecting young trees
- The presence of Psyllid insects, which particularly affect the Tamarind wood
- Extreme climatic events that can promote forest decline [21]

Guadeloupe:

The forests in Guadeloupe face two main risks: Firstly, there is the biotic and anthropogenic risk, which comes from invasive exotic plant and animal species, including bamboo and the cassava ant. Secondly, there is the abiotic risk, which is primarily natural, originating from cyclones. Cyclones have a relatively short return period, and their negative impact on forests is enhanced when invasive exotic species are present in degraded natural environments. In addition, vigilance is needed concerning forest fires, geological risks, and water quality. [11]

Martinique:

The forests in Martinique face two main risks: The first risk is from cyclones, which are primarily abiotic and natural and have a relatively short return period of only a few years. They particularly impact mangroves but, with low cyclone recurrence, these ecosystems can regenerate well. Secondly, the biotic risk is from invasive exotic plant species, including bamboo. Human-induced degradation of forest ecosystems can exacerbate this threat. Additionally, vigilance is needed regarding forest fires, geological risks, and water quality. [19]

- Forests represent 17 million hectares, i.e., 31% of the territory.
- Overseas forests account for 8.24 million hectares, with French Guyana accounting for the largest share (8,002,850 ha)
- The ownership reflects that ¾ are private and ¼ public in mainland France.
- There are 2.8 billion cubic meters of standing timber, 64% of which is hardwood. The figures are comparable in French Guyana
- Climate change and bio-aggressors are weakening the state of health of French forests.

V.2. Volume of wood and usage

V.2.1. Wood use categories

The marketed timber harvest in France in 2020 was 37 million m^3. This harvest is intended for various complementary uses, which may include:

- Timber (or BO): 18.594 million m3 round on bark.
- Industrial wood (or BI): 10.124 million m3 round on bark.
- Energy wood (or BE): 8.362 million m3 round on bark[25].

Many products are derived from the wood industry. The table below shows this industry's billings and production in 2016.

[25] https://agreste.agriculture.gouv.fr/agreste-web/download/publication/publie/Chd2117/cd2021-17_Bois%20et%20sciages%202020.pdf.
for updated data, see Agreste's website at https://agreste.agriculture.gouv.fr/agreste-web/

Markets	Products	Billing in K€	Quantities sold
Sawn timber (all company sizes)	**Total sawn timber**	1,742,847	6,745,942 m3
	including hardwood sawn timber	400.823	1,042,690 m3
	including hardwood sawn timber, planed or sanded	30.404	64,215 m3
	rough sawn softwood	958.418	5,044,797 m3
	including planed, finger-jointed or sanded softwood sawn timber	76.712	341,456 m3
	including stave wood	215.889	71,512 m3
Veneers and panels (1621)	**Total**	**1,607,573**	
Assembled parquet floors (1622)	**Total**	78.767	
	including wood, excluding mosaics	77.878	3,130 971 m'
Carpentry and other joinery (1623)	**Total**	**2,411,543**	
	including woodwork	967.351	
	including frames	710.216	
	including stairs	129.953	14.270 tonnes
	including other woodwork	555.676	
Wood Packaging (1624)	**Total Wood Packaging**	**2,005,455**	
	including palettes	697.110	
	including Cooperage	677.322	85.470 tonnes
	including light packaging	238.377	
	including industrial packaging	392.646	
Other wood packaging (1629)	**Total**	**591.934**	
Paper pulp (1711)	**Total all pulp**	586.874	
	including chemical pulps (softwood-soda)	387.069	833.081 tonnes*
Paper and cardboard (1712)	Total	**5,173,838**	
Wooden furniture (part 31)	Total wooden furniture	3,041,774	
	including office and store furniture with chairs	858.258	
	including kitchen/bathroom units	936.537	
	including indoor furniture seats	173.461	
	including other furniture (excluding bedding)	1,073,518	

** tonnes of dry matter at 90%* *Sources: PRODFRA EAP 2016, EAB 2016, FCBA 2018*

Figure 9 2016 invoicing and production of the wood industries according to product (source: memento 2018 FCBA)[26]

Industrial wood and energy wood are largely by-products of the timber industry, and their complementarity is significant. There is a 9.2% increase in the volume of industrial and energy wood between 2012 and 2020 (figures from the 2012 and 2020 Mementos). However, there is no significant increase in the relative volume of energy wood from the forest compared to industrial wood.

There has been a decline in the use of domestic wood. Agreste figures, which take into account the non-commercialized harvest, show a slight decrease in industrial wood (BO), stability in industrial wood (BI), a decrease in firewood (BE bois buche), and an increase in the commercialized energy wood (marketed BE).

What's more, firewood has a diversified supply base (wood from outside the forest and waste wood).

[26] https://fbie.org/wp-content/uploads/2019/05/memento2018.pdf

V.2.2. Wood consumption

Mainland France

Over the period 1990-2013, the apparent consumption of wood products exceeded national production, except for roundwood and panels. Apparent consumption shows a downward trend for almost all products, even as the French population continues to grow. It has decreased from 1,184 m3 of roundwood per thousand inhabitants in 1993-1997 to 815 m3 of roundwood per thousand inhabitants in 2018 (-30%) (see figure 10). Over the same periods, the consumption of sawn wood decreased from 187 m3 per thousand inhabitants to 149 m3 per thousand inhabitants (-20%). Thus, despite an overall decrease in apparent consumption of products from the first transformation of wood, national production is not sufficient to cover it, except for panels[27] (see figure 11 et 12).

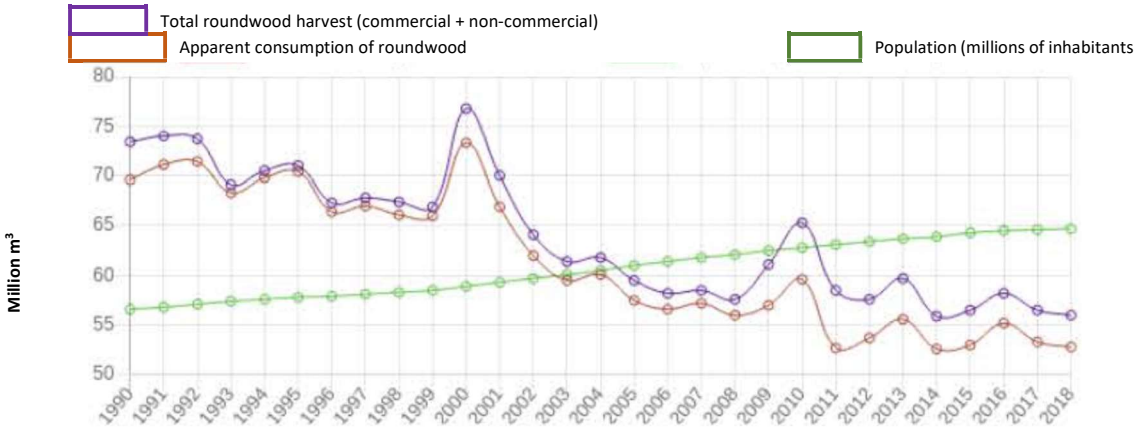


Figure 10 Harvest and consumption of roundwood (source: IGN report – State and evolution of mainland French forests 2020)

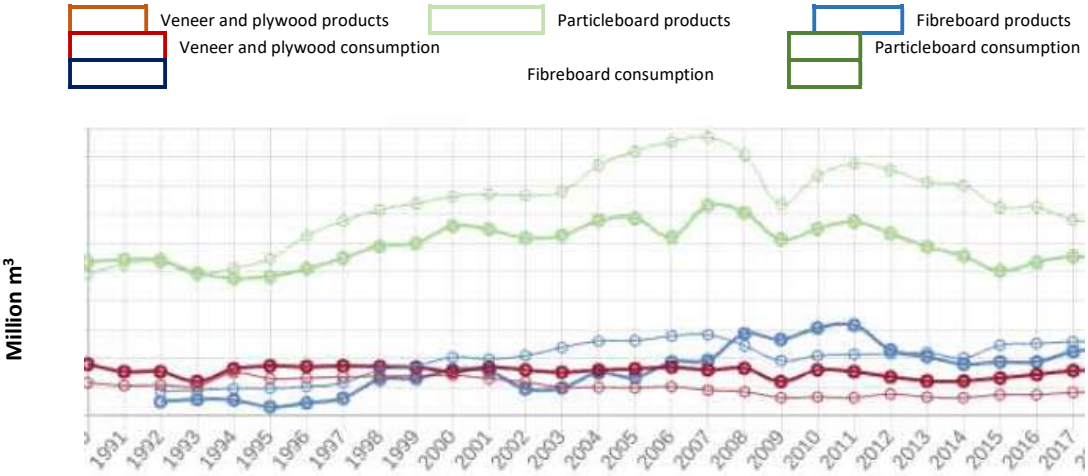


Figure 11 Production and apparent consumption: panels and plywood (source: IGN report – State and evolution of mainland French forests 2020)

[27] https://foret.ign.fr/api/upload/print/IGD-2020-c255.pdf

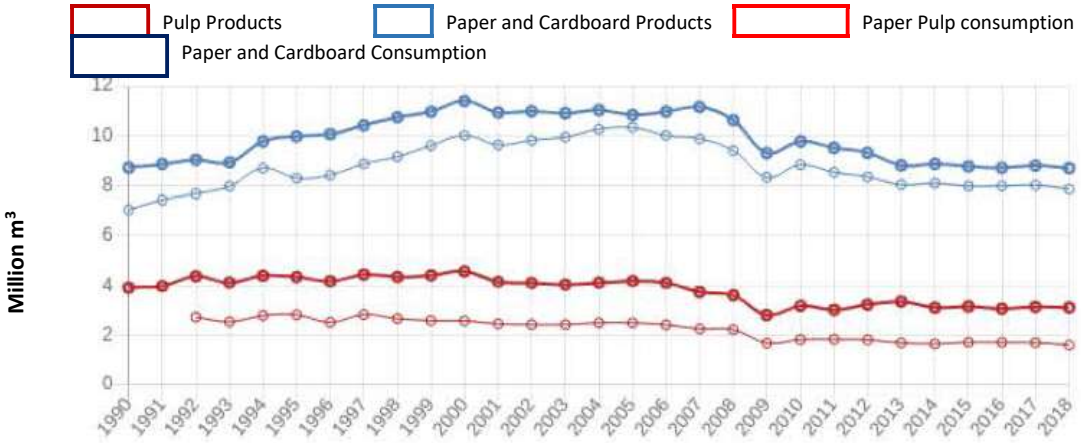


Figure 12 Production and apparent consumption: pulp, paper, and cardboard (source: IGN report – State and evolution of mainland French forests 2020)

French overseas territories:

French Guyana:

In Guyana, the timber industry was the 2nd largest economic sector in the territory in 2021. Timber volumes extracted from the forests in Guyana increased significantly between 1975 and 2015, with continuous growth until the production peak in 1980 (related to the implementation of the Ariane 4 program). Overall, there has been continuous growth since 1995, although it experiences annual variations due to several factors (the duration of the dry season, which is favourable for the exit of timber from the forest, the pace of public orders, and variations in the activity level of the main sawmills) (see figure 13).[18]

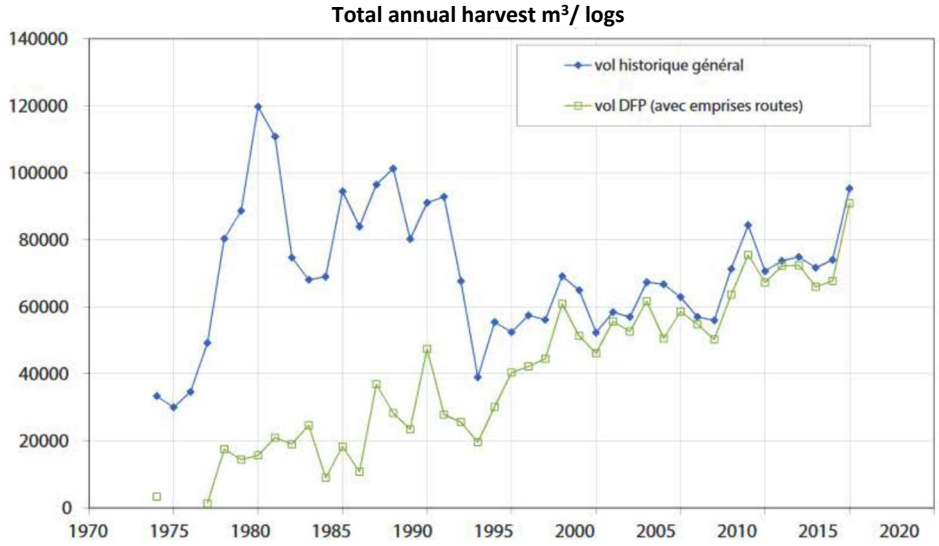


Figure 13 Evolution of timber volumes extracted from forests (volume under bark) since 1974 (PFP: permanent forest estate, established since 2008).

Source : Desccroix L. (ONF) 2016 personal communication.

These statistics do not include extractions carried out by the informal sector, which is assumed to be of little significance, but they do include timber from land clearances (road construction).

Period	Roundwood volume 1000 m³ under bark per year		Estimated breakdown between uses 1000 m3 under bark per year		
	Total wood extraction	…including DFP*	…including structural wood	…including biomass energy (estimated)	…including firewood (estimated)
1974-1980	64	10	62	0	2
1981-1990	89	24	87	0	2
1991-2000	63	39	61	0	2
2001-2010	67	59	60	5	2
2011-2015	80	74	58	20	2

Source : Descroix L. (ONF) 2016 personal communication

Figure 14 Distribution of volumes extracted from the forest based on their usage

Industrial roundwood for sawmilling is the only product formally tracked among the volumes extracted from forests.

The quantity of firewood extracted for charcoal production and private consumption is not subject to statistics but is estimated by the ONF at around 2,000 m³ per year. Timber use is the major purpose of timber extraction (see figure 14)[18], with approximately 80,000 m³ of logs harvested each year. [4]

Réunion:

Reunion's timber industry, with its three sawmills – only one of which is industrial-scale – and its traditional joinery and cabinetmaking activities, processes an annual production of 7 to 8,000 m3 of cryptomeria lumber and 200 to 400 m3 of tamarind from the highlands, supplied by the ONF. At the same time, ONF-regulated charcoal and firewood production in public forests and informal charcoal and firewood production in private forests have no impact on forest clearing or impoverishment.

Martinique:

The local wood industry currently consumes around 30% of the annual production potential. Technical difficulties and operating costs, competition from imported wood and the limited uses (cabinet-making only) of the main production species (Swietenia mahoganii) are holding back the development of the wood industry.

Mayotte

Mayotte is subject to strong pressure from the illegal production of charcoal and service wood, combined with agricultural and livestock activities, with a strong impact in terms of forest clearance and depletion.

V.2.3. Focus on wood energy

Mainland France

Wood energy accounted for almost half (42%) of the renewable energies consumed in France in 2017, and 4% of overall energy production in France.

The different sources of wood energy are distributed as follows:

- 56% forest biomass (logs and chips)
- 17% wood industry by-products (bark, sawdust, etc.)
- 10% pulp co-products (black liquor)
- 10% end-of-life wood (pallets, urban green waste, etc.)

- 7% processed wood fuels (pellets, briquettes, etc.)[28]

The main sources of wood energy are logs and woodchips directly from the forest (56%), but their share is declining with the more frequent use of recycled wood from outside the forest, and the marked development of processed wood such as wood pellets (see figure 15).

In 2017, the quantity of wood needed to supply this energy was 47 million m3 (roundwood equivalent), up significantly since the introduction of measures to increase the share of renewable energies to reach the target of 23% by 2020.

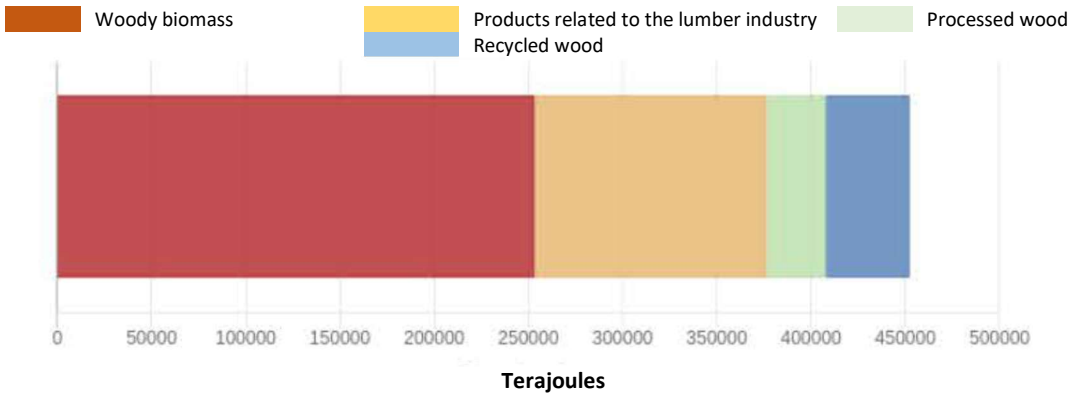


Figure 15 Share of different products in wood energy consumption in 2017 (source: IGN report The State and Evolution of Forests in Mainland France 2020)

Energy	Primary Energy Production			
	Mtoe	Roundwood equivalent (millions m3) (1)	% of wood in the sector	% of the sector in wood energy
Thermal renewables	15.39			
Including wood energy	10.50	47.9	68%	98%
Electric renewables (2)	8.54			
including wood energy	0.26	1.2	3%	2%
Renewable Biofuels	2.42			
Total Renewable Energy	26.54			
Including wood energy	10.76	49.0	41%	100%
Total of all energy sources combined	141		8%	

Sources: SOeS/SDBE (March 2018) - FCBA 2018

(1) 1 toe = 4.558 ml of roundwood.
(2) The conversion of electrical kWh is based on 1 GWh = 0.086 ktoe.

Figure 16 Primary energy production 2016 (estimated data without climate correction in Mtoe and m3 roundwood equivalent) (source: memento 2018 FCBA)

French overseas territories:

[28] https://foret.ign.fr/api/upload/print/IGD-2020-c255.pdf

French Guyana:

As shown in Figure 14 (previous section), the development of wood energy in Guyana began in the 2001-2010 period. In late 2009, the start of the first biomass energy production plant in Kourou with a capacity of 30,000 tons per year, and in early 2021, a second plant in Cacao consuming 61,000 tons annually, along with a third in Saint-Georges de l'Oyapock (up to 36,000 tons), explains the emergence of this new use of wood.

Two other power plants are under construction: one in Montsinéry (to be operational in 2023) and one near the Petit Saut dam (to be operational in 2024). In total, there will be more than 25 MW of installed electrical power in Guyana by 2024, with an annual consumption of 300,000 tons of biomass (at 45% humidity). These biomass installations will produce 20% of the electricity needs for the Guyanese coastal region in 2024.

This consumption mainly comes from residues and by-products of other activities:

- The production of timber: from sawmills and residues from the exploitation of timber in natural forests
- Urban development, industrial areas
- Industrial development: submerged or cleared wood
- Creation of roads and tracks
- Agricultural clearance
- Agro-food processing

Other sources of supply are being developed, such as biomass from agroforestry systems, timber plantation, or energy cane.

Réunion:

On the island of Réunion, two cogeneration plants with hybrid bagasse/coal combustion (capacity of 62 MW and 64 MW) are in operation, supplying more than half of the island's electricity. During a certain period (mid-December to mid-July), they operate with imported coal from South Africa (outside the sugarcane harvest season). The wood-energy sector is one of the working hypotheses for the biomass conversion by 2023. In fact, Réunion has set a target of substituting 481 GWh of electricity production from coal with biomass. The wood-energy sector is currently being structured.[29]

Guadeloupe:

The annual wood-energy harvest in Guadeloupe is estimated at 17 thousand cubic meters. This wood is primarily used in the form of charcoal and represents about 2 thousand tons of oil equivalent (ktep). The primary energy consumption was estimated at 836 ktep in 2015, with 9/10 of it relying on imported fossil resources and only 1/10 on local renewable energies. Therefore, the energy value of wood is still relatively low in Guadeloupe. [11]

[29] 20211001_Filiere_ForetBois.indd (agriculture.gouv.fr)

Martinique:

A player producing energy from wood biomass set up in 2018 but is currently using very little of the local resource.

- The commercialized harvest of wood amounted to 37 million cubic meters per year in 2020. It is allocated as follows:
  - BO: 51%
  - BI: 27%
  - BE: 22%
- The consumption of products derived from the primary processing of wood is decreasing.
- National production does not cover the consumption except for panels.
- Energy produced from wood is the primary renewable energy source, representing 42% of renewable energy consumed in France and 4% of the overall energy production in France (2017).

V.3. The economics of the French timber industry

In France, the forest-wood sector is active in markets as diverse as paper-cardboard, panels, packaging, furniture, construction, green chemistry, and energy. It is therefore a sector whose activities and products are at the heart of the lives of all citizens.

V.3.1. Employment and added value in the sector

Mainland France

The forestry and timber industry is an important part of the national economy:

- €24.9 billion of value added, representing 1.1% of the GDP in 2017, equivalent to the entire service sector for individuals.
- 378,000 direct jobs in full-time equivalents (FTEs), representing 1.4% of the active population.

The goods and services of the forest-wood sector permeate the entire French economy, from the production of raw materials, their transformation, distribution, to their various uses by individuals, communities, and businesses.

French overseas territories:

French Guyana:

The forest-wood sector is the second-largest economic sector in French Guyana. The timber sector accounts for 0.8% of wage employment and represents 1.6% of total employment, with 845 jobs out of the 53,474 recorded in French Guyana by INSEE in 2015. INSEE reports 400 wage jobs in the wood industry (with the paper and printing sector being non-existent in French Guyana), compared to an estimated 700 jobs in the primary and secondary processing sector (see figure 17). A large portion of the activities is carried out by small businesses, particularly individual enterprises. SMEs are few in number and small in size (see figure 18). [18]

Sector/year	2008	2015*
Forest management."	35	45

Forest exploitation	83	100
1st transformation: sawing and planing of wood.	202	200
2nd transformation, including...	507	500
... carpentry, external joinery, wooden construction.	415	400
... joinery, fitting, and cabinet making.	57	60
... artistic crafts and others.	35	40
Total	**827**	**845**

Source: Brunaux and Binet 2014 (Tendron report in FRA2015) for 2008; Bonjour I. (MFBG) 2016 personal communication for 2015.
These data encompass both salaried and non-salaried employment.
*The "forest management" employment is underestimated in 2015 (it does not account for all ONF personnel but only the full-time equivalent positions dedicated to production).

Figure 17 Distribution and evolution of jobs in the wood industry in 2008 and 2015

Sector/year	2008	2015*		2015		
	N° of units	Including Micro-Businesses	Including SMB	N° of Units	Including Micro-Businesses	Including SMB
Forest management."	1		1	1		1
Forest exploitation	20	18	2	20	18	2
1st transformation: sawing and planing of wood.	37	31	6	30	25	5
2nd transformation, including...						
... carpentry, external joinery, wooden construction.	113	101	12	120	105	15
... joinery, fitting, and cabinet making.	22	22	0	25	25	0
... artistic crafts and others.	19	19		19	19	
Total	**212**	**191**	**21**	**215**	**192**	**23**

Source: Brunaux and Binet 2014 (Tendron report in FRA2015) for 2008; Bonjour I. (MFBG) 2016 personal communication for 2015.

Figure 18 Number of units and company sizes in the wood industry in 2008 and 2015

Réunion:

The forest-wood sector employs a small portion of direct jobs, which are directly related to the production of forest products or services. These direct jobs create additional jobs in goods and services companies, known as indirect jobs. With a large number of micro-enterprises (TPE), the wood sector employs 968 companies and 785 employees (as of 2020) with an estimated turnover of 70 million euros (see figure 19).

	Sector	Jobs	Description
Direct jobs	Resource harvesting	15	Loggers, forest workers, transporters, etc.
	1st transformation (sawing, slicing, rolling, etc.)	60	7 sawmills, wood transportation, etc.
Indirect jobs	Wood construction (manufacturing and/or installation).	785 Employees	681 businesses (mainly carpenters and joiners)
	Wood for furniture		287 businesses

Figure 19 Distribution of employment in the forest-wood industry (source: DAAF Réunion)

The first wood processing stage (sawing, slicing, peeling, etc.) relies on 7 identified companies, of which 6 are small family-owned sawmills. Only one unit is industrial (Sciages de Bourbon) and employs 12 employees with a total processing capacity of 18,000 cubic meters per year, processing two wood species (Cryptomeria and Highland Tamarind). [31]

Martinique:

There are approximately **120 jobs** related to the timber sector[30]. The professional sector consists of around half a dozen traditional buyers (sawmills) and an energy wood unit at Galion.
An informal network of non-professional charcoal producers complements the sector, but their impact and significance are difficult to estimate.
The annual professional use of forest products amounts to around 4,000 to 5,000 m3, which is a volume much lower than the estimated biological growth on the 10% to 15% of the realistically exploitable area.

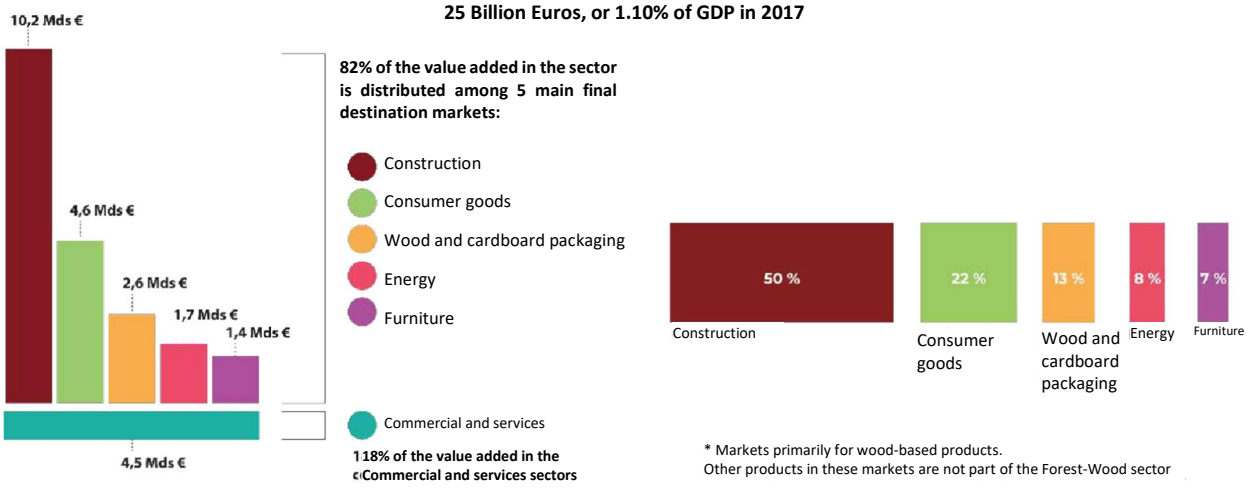
V.3.2. Value added by the end market

The activities of the forest-wood sector contribute to five final destination markets, generating a value added of 20 billion euros, which represents 82% of the overall wealth creation in the sector. In addition, there are services (transportation, consulting, etc.) and trade associated with these activities and end markets.

The forest-wood sector activities contribute 4.5 billion euros of value added, which represents 18% of the overall value creation. The sector utilizes the same material, wood, to cater to multiple independent markets simultaneously, minimizing economic risks associated with specific market fluctuations. Additionally, emerging markets such as green chemistry serve as significant growth opportunities.

The 20 billion euros wealth creation includes (see figure 20):

- The market for **construction**, which includes all wood used in building, renovation, retail layout, and civil engineering, represents half of the sector;
- The market for **consumer products**, which includes paper or cardboard articles, wooden items, manufactured products (musical instruments, coffins, games and toys, hangers, etc.), accounts for 22%;
- The **wood and cardboard packaging** market, including cooperage, contributes 12%;
- The market for industrial, collective, or individual **energy**, where only the commercialized part is counted, creates 9% of this wealth;
- The **furniture** market based on wood represents 7%.



[30] https://www.onf.fr/vivre-la-foret/journee-internationale-des-forets/en-rediffusion-nos-conferences-debats-et-concerts/+/74::onf-enmartinique.html

Figure 20 Value added by final destination market (2017 data) (source: Economic Watch Shared VEM)

The value added created by wood energy has increased. It went from 1,151 million euros in 2016 to 1,443 million euros in 2019. (See figure 21).

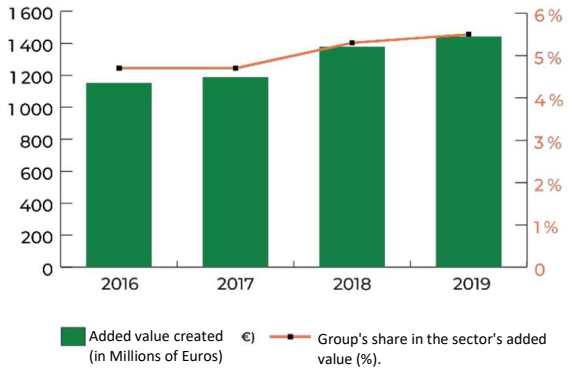


Figure 21 Value added of wood energy (source: Economic Watch Shared VEM)

The contribution of wood energy to the value added of the forest-wood sector comes from the derived value of the first transformation of wood and end-of-life wood.

V.3.3. Direct employment by the end market

The direct employment (in full-time equivalents, FTEs) by destination markets represents a total of 316,000 direct jobs (FTEs), which accounts for 84% of the direct employment in the forest-wood sector. In addition, cross-sector activities such as wholesale and retail trade, as well as services, contribute 62,000 direct jobs (FTEs), representing 16% of the total employment in the sector.

Of the 316,000 direct FTEs in 2017 (see figure 22):

- The market for **construction**, which includes all wood used in building, renovation, retail layout, and civil engineering, represents 52% of the sector;
- The market for **consumer products**, including paper or cardboard items, wooden objects, and manufactured products such as musical instruments, coffins, games and toys, hangers, etc., accounts for 20%.
- The market for **wooden and cardboard packaging**, including cooperage, represents 12%.
- The market for industrial, collective, or individual **energy**, counting only the commercialized portion, creates 8% of these jobs (the non-commercialized portion pertains to domestic use and is not relevant for this analysis).
- The **furniture** market based on wood represents 8%[31] (See figure 22)

[31] https://vem-fb.fr/index.php/chiffres-cles/95-graphiques/137-chiffres-cles-valeur-ajoutee-et-emploi

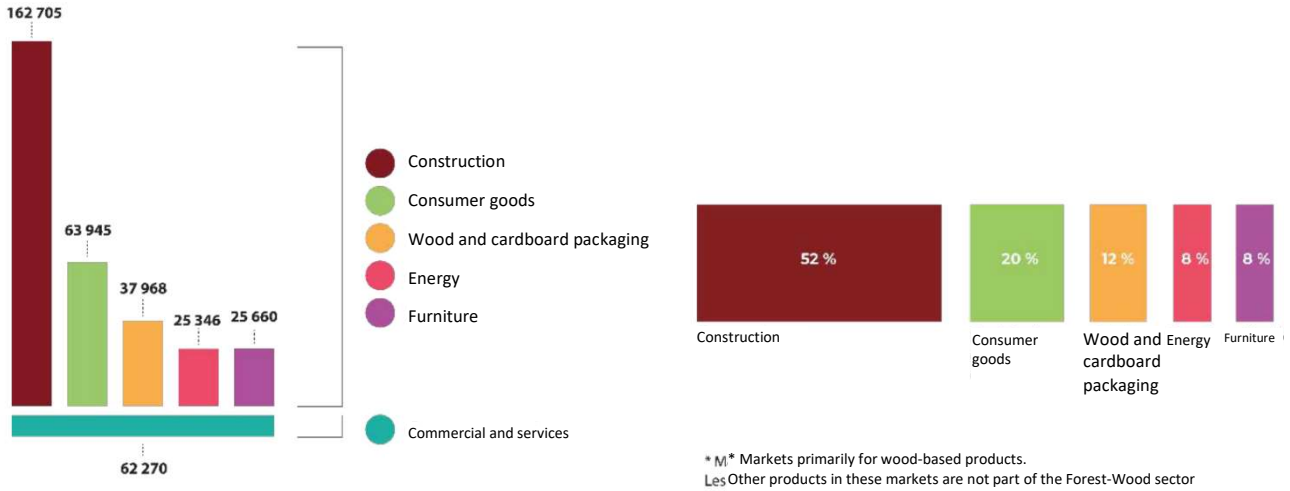


Figure 22 Value added by final destination market (2017 data) (source: Economic Watch Shared VEM)

The number of direct jobs in wood energy (domestic and collective) increased from 12,539 FTEs in 2016 to 16,427 FTEs in 2019[32]. (See figure 23)

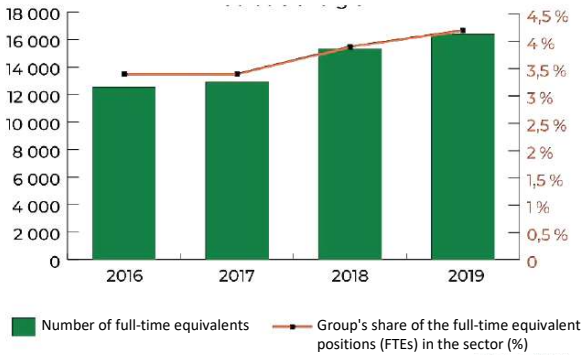


Figure 23 Value added by wood energy (source: Veille économique Mutualisée VEM)

The IGN report uses a different methodology and classification to account for the jobs generated by the wood industry. For example, it does not consider the construction sector, unlike the previous methodology. The selected branches of activity are as follows:

- Forestry and logging.
- Manufacture of wood and wood products.
- Pulp, paper and cardboard sector.
- Furniture manufacturing.

The IGN report counts 185,000 FTEs (Full-Time Equivalents) of direct jobs in the forest-wood-paper-furniture sector in 2017.
What is interesting here is to compare the share of FTEs according to the previously defined categories:

[32] https://vem-fb.fr/index.php/pages/bois-energie

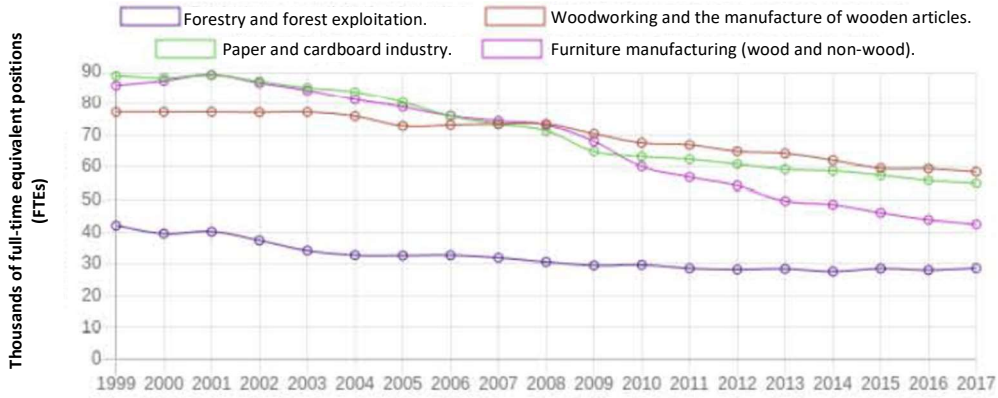


Figure 24 Change in employment by sector (source: IGN report - State and evolution of Mainland French forests - 2020)

In 2017, FTEs accounted for (see figure 24):

- Forestry and logging: 28.3 thousand FTEs
- Manufacture of wood and wood processing: 60.8 thousand FTEs
- Pulp, paper and cardboard sector: 57.3 thousand FTEs
- Furniture manufacturing: 36.1 thousand FTEs[33]

V.3.4. Trade balance

Mainland France

The trade balance of the forest-wood-paper-furniture sector, which is the difference between exported and imported goods, has remained in deficit for several decades, both in volume and value. It deteriorates in volume, with a deficit of around 8 million cubic meters equivalent of roundwood, while the deficit in value remains relatively stable at around 4.6 billion euros. Overall, France has a surplus in low-value-added products (such as roundwood and recycled paper) and a deficit in processed products (especially furniture).[34]

French overseas territories:

French Guyana:

The trade balance of wood products in French Guyana is heavily in deficit, indicating a low capacity of the sector to meet the consumption needs of the territory. In 2015, the overall trade balance was -13,129.30 thousand euros constant.

Only sawn timber shows a positive trade balance between 2003 and 2015, confirming the high potential of the resource. [19]

Réunion:

The forest-wood sector is largely in deficit, with the production of cryptomeria, which is equivalent to Scots pine in terms of commercial value, covering only about 10% of the island's needs. All other products are imported.

[33] https://foret.ign.fr/api/upload/print/IGD-2020-c255.pdf
[34] https://foret.ign.fr/api/upload/print/IGD-2020-c255.pdf

However, it is worth noting that cryptomeria provides almost all the island's needs for litter in the poultry and equine industries.

Mayotte

Without any production of lumber, the timber sector in Mayotte is largely in deficit.

Guadeloupe

Forestry is underdeveloped in Guadeloupe, and the archipelago's needs for furniture, lumber, and panels are largely satisfied through imports, mainly from mainland France. [11]

The timber market is predominantly focused on imports, with approximately 32,000 m³ of sawn wood annually, including 7,000 m³ of tropical wood (equivalent to about 14,000 m³ of roundwood). The importation of wood primarily serves the construction sector, while for the charcoal production sector (using logwood), it is less known as it primarily originates from private forests.[35]

In theory, Guadeloupe could potentially supply 14,000 m³ of tropical wood per year. However, there is no local industrial timber sector (harvesting and sawmilling) to make this possible. Currently, the timber sector is primarily artisanal. The available and mobilizable resource for lumber and wood energy is estimated at 3,000 to 4,000 m³ per year, primarily consisting of West Indian Mahogany. [10]

Martinique:

The forest-wood sector shows a deficit in trade balance, with imports significantly surpassing exports. In 2015, the deficit amounted to over 45 thousand tonnes and 60 million euros. In terms of volume, the deficit is primarily attributed to wood and wooden products (65%), followed by paper products (27%), and furniture (8%). In terms of value, the three categories are more balanced, with pulp, paper, and cardboard dominating (47%) over wood and wooden products (35%) and furniture (19%). More than 90% of imports for each category of products come from mainland France, with the remaining exchanges limited to other French overseas territories (Guyana, the Antilles). The highest exports are in the paper and cardboard sector, particularly in recycled paper. [20]

- Added value of €24.9 billion for the wood industry, i.e., 1.1% of GDP (2017)
- 378,000 direct jobs, including 8% in wood energy.
- 20 billion euros in wealth creation, including 9% from wood energy.
- France's trade balance is in surplus on low value-added products and in deficit on processed products.

[35] ONF - Directive and regional management plan - Guadeloupe

VI. Sustainability criteria for forest biomass

VI.1. Overview of the French forestry policy

VI.1.1. General forestry policy guidelines

The forest policy falls under the jurisdiction of the State. Its objective is to ensure the sustainable management and multifunctionality of woodlands and forests, encompassing economic, social, and environmental aspects.

Therefore, the forest and wood sector directly contribute to adapting our forest heritage to climate change and mitigating its effects. Through the 3 "S" principles of Sequestration, Storage, and Substitution, it plays a crucial role in achieving our carbon neutrality goals by 2050. While preserving biodiversity, it meets the country's needs for timber, as well as industrial and energy wood. Finally, it promotes industrial transformation within the European Union to optimize the benefits of carbon storage.

VI.1.2. Forest policy framework documents

In France, the Forestry Code regulates forests, while the National Forest and Wood Program (PNFB 2016-2026) specifies the guidelines for forest policy for a maximum duration of 10 years. It is approved by decree after the opinion of the High Council for Forests and Wood (CSFB).

Throughout the document, unless specifically stated otherwise, references codified as L., R., and D. refer to the Forestry Code.

In each French region, the PNFB is then implemented through Regional Forest and Wood Programs (PRFB), which are strategic documents that adapt the orientations and objectives of the PNFB at the regional level. They are decided by the Minister in charge of forests after the opinion of the regional Forest and Wood Commission. The PNFB and the PRFB apply to both public and private forests.

Within the framework defined by the PRFB, framework documents establish the objectives, decision criteria, and technical management recommendations applicable at the territorial level: Regional Management Guidelines (DRA) for state forests, Regional Development Plans (SRA) for communal forests, and Regional Forestry Management Plans (SRGS) for private forests. These documents are decided by the Minister in charge of forests.

Finally, the management rules contained in these framework documents are implemented in sustainable management documents, which must be established in accordance with the content of the DRA-SRA-SRGS. Approved by the state, they ensure the sustainable management of the relevant territory.

The PNFB 2016-2026 defines sustainable forest management as follows: "Sustainable forest management ensures their biological diversity, productivity, regenerative capacity, vitality, and capacity to satisfy, currently and in the future, the relevant economic, ecological, and social functions at the local, national, and international levels, without causing harm to other ecosystems."

All these framework documents are subject to environmental assessments and public participation during their development.

These framework documents are also implemented in overseas regions, considering local specificities (naming, status of the communities, stakeholders in the Regional Forest and Wood Commission (CRFB), etc.).

VI.1.3. Sustainable development documents

Various sustainable management documents contribute to the management of France's public and private forest heritage. The management document generally includes a description of the forest and the economic, environmental, and social issues affecting it, as well as management guidelines established for a defined period. In private forests, the *National Centre for Forest Ownership* (CNPF) is responsible for approving documents designed to guarantee and plan sustainable management (mandatory and voluntary simple management plans, standard management regulations, codes of good silvicultural practice). In overseas France, the Prefect fulfils the role of the CNPF (art. L. 371-1, L. 372-2, L. 373-1, L. 374-10, L. 375-1), as the establishment has no overseas branches. In public forests, which may be owned by the State, the Region, the Department or the commune, the management document is called "*Management*" and is drawn up by the National Forestry Office (ONF).

The total surface area of forests in mainland France with an approved sustainable management document was almost 7.9 million hectares in 2018, or **47%** of the surface area of mainland France's forests. The trend is upwards in both public and private forests. In public forests, 4.5 million hectares, i.e., 100% of state forests and 96% of local authority forests under the forestry regime, have a current management document. In private forests, the area covered by management documents (compulsory above 25 ha) has increased significantly over the last ten years (by around 20%), mainly thanks to compulsory and voluntary simple management plans. Almost a third of the area of private forest (3.37 million hectares) is now managed in accordance with a sustainable management document.[36] (See figure 25)

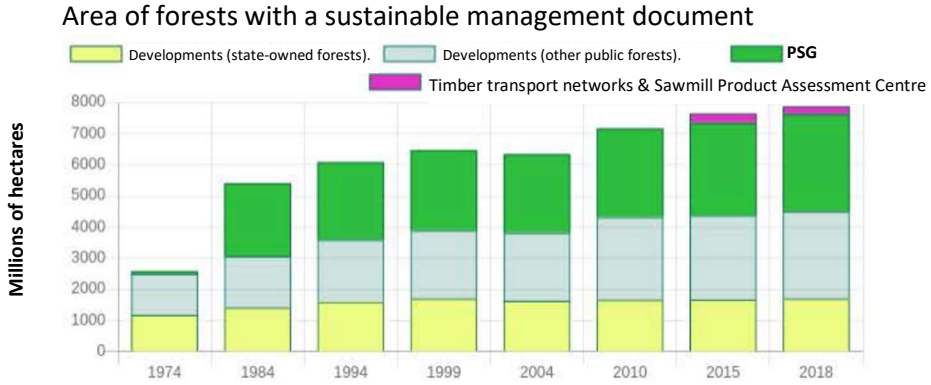


Figure 25 Area of forests with a sustainable management document in Mainland France (source: IGN report)

To provide more recent data regarding private forests, the observation is indeed an increase in the area of private forests covered by management documents, with 3,016,702 hectares in 2014 and 3,475,248 hectares in 2021, according to the CNPF (see figure 26).

[36] IGN Report "State and evolution of metropolitan French forests, Sustainable management indicators 2020" https://foret.ign.fr/IGD/fr/

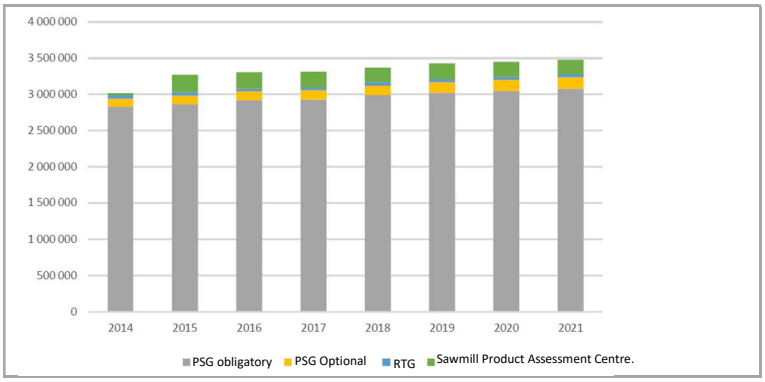


Figure 26 Evolution of forested areas under management document between 2014 and 2021

In Guyana, five forest areas representing more than a third of the Permanent Forest Estate have an approved management plan from 2007 to 2035 (807,788 hectares).[37] 100% of the forested area used for production is PEFC certified.

In Guadeloupe, public forests subject to the forest regime are managed under management plans established between 1979 and 2012, while private forests have no management plans yet. The vast majority of public forests are managed for their ecological or landscape interest, with much less focus on their wood production capacity.[38]

In Martinique, all forests under the forest regime have or are expected to have a sustainable management document. In 2015, 96% of departmental forests had valid or pending management plans. In most cases, ecological, landscape, or public use interests are emphasized.[39]

In Reunion, no private forests have a simple management plan. All public forests in Reunion have a valid or under-revision management document.

In Mayotte, the 5,500 hectares of state and departmental forests were managed between 2014 and 2020. The additional 1,500 hectares recently added to the forest regime (ministerial order of Nov. 2020) are being managed, with strong environmental (drinking water production) and social (need to halt subsistence farming encroachment through strong on-site presence and sustainable agroforestry practice agreements) considerations.

Additionally, a link is established, in accordance with Article L. 124-1 of the Forestry Code, between the guarantee of sustainable management and the effective implementation of cutting and work programs provided for in the sustainable management document. This document is required by the state services in exchange for requests for aid or tax incentives. The guarantee is provided by the state, which, according to Article L121-1 of the Forestry Code, ensures the sustainable management of forests. An instruction DGPE/SDFCB/2020-567 dated September 16, 2020, from the Ministry of Agriculture and Food, provides the conditions for losing the guarantee of sustainable management in the absence of effective implementation of the simple management plan (PSG) on private forests.

[37] IGN Guyana Report https://foret.ign.fr/api/upload/190625_guyane.pdf consulted on 16/06/2022
[38] IGN Guadeloupe Report https://foret.ign.fr/api/upload/190722_guadeloupe.pdf
[39] IGN Martinique Report https://foret.ign.fr/api/upload/190722_martinique.pdf

For forests that do not have guarantees of sustainable management, a cutting authorization regime applies (see above).

Furthermore, it should be noted that for all forests, Article L124-1 provides that "they also provide guarantees of sustainable management as soon as they have the management document specific to their situation, the woods and forests:

1. Within the core of a national park or a nature reserve;
2. Classified as protection forests under Article L. 141-1;
3. Managed primarily for the preservation of forest species or environments;
4. Belonging to public entities without falling under Article L. 211-1 and managed in accordance with an approved standard management regulation, to which the owner has committed to apply for a duration and under terms set by decree of the Council of State.

The French Forestry Code provides for the coordination of administrative procedures under the Forestry Code (Article L. 122-7 of the Forestry Code) with environmental and heritage regulations. This coordination ensures that all relevant aspects are carefully considered in sustainable forest management.
The regulations subject to this coordination of procedures are listed in Article L 122-8 of the Forestry Code and include the following:

1. Provisions related to protection forests in Chapter I of Title IV.
2. Provisions related to national parks in Section 1 of Chapter I of Title III of Book III of the Environmental Code.
3. Provisions related to nature reserves in Chapter II of Title III of Book III of the same code.
4. Provisions related to listed and classified sites in Section 1 of Chapter I of Title IV of Book III of the same code.
5. Provisions related to the preservation of biological heritage in Section 1 of Chapter I of Title I of Book IV of the same code.
6. Provisions related to Natura 2000 sites in Section 1 of Chapter IV of Title I of Book IV of the same code.
7. Provisions related to historical monuments, areas around historical monuments, and remarkable heritage sites in Book VI of the Heritage Code.

Therefore, when a landowner has an approved management plan for public forests or a PSG (simple management plan) or RTG (type management plan) for private forests, they can carry out the operations and work specified in these plans without being subject to the formalities provided for by the legislations mentioned in Article L. 122-8 in either of the following cases:

1. The management document complies with the specific provisions jointly established by the administrative authority responsible for forests and the competent administrative authority under one of these legislations, as attached to the regional directives or plans referred to in Article L. 122-2.
2. The management document has obtained explicit approval from the competent administrative authority under these legislations before its approval or accreditation.

It should also be noted that Article L124-3 provides that parts of woodlands and forests located within a Natura 2000 site for which an objectives document has been approved by the administrative authority provide guarantees or presumptions of sustainable management when the owner has a management document mentioned in Article L. 122-3 and falls into one of the following cases:

1. Has adhered to a Natura 2000 charter or concluded a Natura 2000 contract.
2. Has a management document established in accordance with the provisions of Article L. 122-7.

These provisions apply overseas (DROM) with local specificities in Guyana (obligatory thresholds for sustainable management guarantees, Article L. 272-2, 2° of Article L. 372-1, Article L. 372-3, Article R. 272-3, Article D. 272-5, Article R. 372-2) and Mayotte (contractual management by ONF of private forests, Article L. 175-9).

Additionally, in Mayotte, the definition of "woodlands and forests" under the Forestry Code extends to agroforestry assets (Article L. 175-1) and mangroves (Article L. 175-3). Similarly, in Guadeloupe, Martinique, and Saint-Martin, mangroves and woodlands and forests that are part of the State's maritime and lacustrine public domain fall under the forest regime and are subject to management (Article L. 271-2, Article L. 273-2, and Article L. 277-2).

1. Privately-owned forests:

- The *Schéma Régional de Gestion Sylvicole* (Regional Forestry Management Plan - SRGS)[40] is the framework document for the implementation of the sustainable forest management policy in private forests at the regional level. It must be established within the framework defined by the Regional Forest and Wood Program (PRFB), which sets out the regional policy for the sector. It translates the main types of stands into recommendations in terms of sustainable management for the implementation of silviculture in private forests. Its implementation is provided for in the Overseas Departments and Regions, with adaptations for Guyana (D. 172-6). In this capacity, it serves as a reference document for:
  - Examining and approving simple management plans;
  - Drawing up and approving RTGs and CBPSs

- The PSG[41], article R312-1 to R312-10 of the Forestry Code:
  - Details: The PSG or Plan Simple de Gestion is a document that allows forest owners to plan the sustainable management of their forests by analysing the economic, ecological, and social functions of the forest. It includes a program of logging and work. The PSG approved by the public establishment CNPF provides the wood and forests concerned with the guarantee of sustainable management as provided by the Forestry Code.
  - For Whom: The PSG is mandatory for private forest owners who own one or more forest parcels with an area equal to or greater than 25 hectares, in one piece or located in the same geographical area defined by decree. Private forest owners with a forest, whether contiguous or not, with an area between 10 and 25 hectares, have the option to apply for a "voluntary" PSG. This threshold is raised to 100 hectares in Guyana (art. L.372-3).
    Several forest owners can join together to request approval of a concerted PSG.
  - Where to Apply: The request for PSG approval is submitted to the National Forestry Property Centre (CNPF), except in the overseas territories (see V.1.1).

[40] SRGS: https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000223691/ (Consulted on 05/01/2022)
[41] PSG: https://www.mesdemarches.agriculture.gouv.fr/demarches/proprietaire-ou-operateur/demander-une-aideeconomique/article/plan-simple-de-gestion-psg?id_rubrique=42 (Consulted on /01/2022)

- RTG[42], as defined in Article L313-1 of the Forestry Code:
  - Details: The RTG, or Règlement Type de Gestion, is a document that defines the modalities of forest management by major types of stands. It includes information such as the type of cuts, an assessment of the extent and type of proposed harvesting, indications about the rotation periods for harvesting and the ages or diameters at which stands can be harvested, a description of the work necessary for the proper management and, if applicable, regeneration of the stand, and recommendations for or possible tree species according to major types of environments, among others.
  - It is developed by forest cooperatives, the National Forestry Office (ONF), or forestry experts. It is a voluntary commitment through a third party and is addressed only to forest owners with no obligation for a Plan Simple de Gestion (for forests under 25 hectares of a single piece or forests with no significant issues, within the limits set by the Prefect, according to L. 122-5 and R. 312-1 to R. 312-3). This threshold is raised to 200 hectares in French Guyana (see art. R. 372-2).
  - It is approved by the CNPF, except in the overseas territories (see V.1.1).

- The CBPS[43], articles L313-3 and L313-4 of the Forestry Code:
  - Details: The CBPS, or Code of Good Forestry Practices, is a document that contains recommendations by natural region or group of natural regions, accounting for local practices, essential for the management of major types of stands and the conditions necessary for sustainable forest management of a forest parcel. This document is developed by the National Forestry Ownership Centre (CNPF) and approved by the representative of the State in the region, after receiving the opinion of the regional commission for forestry and forest products. Forest owners voluntarily adhere to the CBPS through the CNPF and commit to adhering to it for a duration of 10 years, along with an approved harvesting and work program.
  - It is generally intended for forest owners with small, forested areas.

- Under the framework defined by the Regional Forestry and Wood Program (PRFB), the minister responsible for forests establishes the Regional Development Directives (for state-owned forests) and Regional Development Schemes (for community forests) for woods and forests (articles L122-2 and D122-2 and updates);
- The ***Document d'Aménagement***[44] drawn up in accordance with the DRA and SRA is the roadmap for sustainable management. It is defined by the Forestry Code (article D 212- 1) and it sets the major forestry directions for a forest, whether owned by the state or local authorities, for a duration of approximately 20 years.
  The objective is to manage these forests, which fall under the forest regime, sustainably to allow society to fully benefit from all the services they offer (wood production, well-being, recreational activities, biodiversity, natural risk prevention, etc.). For example, this management plan specifies the preferred tree species, potential plantations, and regeneration measures. It quantifies and plans timber harvests, as well as work to be carried out, taking into consideration the forest's economic, societal, and environmental objectives (public access, biodiversity preservation, natural risk reduction, etc.). This document is developed by the National Forests Office (ONF) in consultation with the owning authority and, for state-owned forests, with all local authorities and stakeholders. It is based on in-depth studies of the natural environment, climate-related risks, stand composition, the socio-economic context of the region, and previous forest management practices. The management plan

[42] RTG: https://ifc.cnpf.fr/n/code-des-bonnes-pratiques-sylvicoles-cbps-et-reglement-type-de-gestion-rtg/n:1902 Consulted on 05/01/2022)
[43] CBPS: https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000025244092/LEGISCTA000025247149/ (Consulted on 05/01/2022)
[44] Forest management: https://www.onf.fr/onf/+/7f6::lamenagement-forestier-le-plan-de-gestion-durable-de-la-foret.html (consulted on 05/01/2022)

for community forests must be approved by a decision of the municipal council before being approved by a prefectural order. In the case of state-owned forests, the development plan is approved by a minister responsible for forests. In Guyana, its content is adapted to account for the territory's specific characteristics (D. 172-5).

A standard management plan is also provided for forests under 25 hectares with no significant ecological interest (Article L212-4 and R212-8). This document is approved by the minister responsible for forests for state-owned forests and by the regional prefect for community forests. The threshold is raised to 200 hectares for Guyana (R. 272-3).

VI.2. Spotlight on DRAAF, DREAL, DDT and OFB

The Regional Directorates for Food, Agriculture, and Forestry[45] (**DRAAF**) are the decentralized services of the Ministry of Agriculture and Food Sovereignty. They are placed under the authority of the Regional Prefect.

Les DRAAF (*Directions Régionales de l'Alimentation, de l'Agriculture et de la Forêt*) are responsible for implementing regional policies related to food, agriculture, and the forest and wood sectors. They oversee various aspects, including the economic organization and structuring of these industries, control over the marketing of forest reproductive materials, and employment in agricultural, agri-food, and forestry fields.

Additionally, they play a role in evaluating the impact of public policies implemented by the Ministry of Agriculture in the region, ensuring the coherence of interventions by public institutions. Furthermore, under the authority of the Minister of Agriculture, the DRAAF has academic authority over technical and higher agricultural education.

The DRAAF also serves as the government commissioner to regional councils for private forest ownership.

They are responsible for upholding the law by pursuing legal actions for offenses and violations committed in forests under the forest regime and in private forests related to clearing land.[46]

The *Directions Régionales, de l'Environnement, de l'Aménagement et du Logement* (**DREAL**) are a unified regional level of the ministries in charge of the environment, planning, risks and energy. Their role is to steer sustainable development policies, resulting from the Grenelle Environment Round Table, at local level. Site protection projects are prepared by DREAL and submitted to the Departmental Commissions for Sites for their opinion.[47]

The *Directions Départementales des Territoires*[48] (**DDT**) oversees the balanced and sustainable development of both urban and rural areas, at the administrative level of the Department. In particular, the DDT is responsible for implementing the State's forestry policy, including criminal law, by recording and investigating forestry offences. In addition to applying procedures for granting state and EU subsidies, monitoring the health of forest stands in conjunction with the ONF and CRPF, and advising forest owners, the DDTs ensure that the Forestry Code is properly applied (e.g., clearing permits, felling regulations, application of PSGs) and the Environmental Code in forestry matters (e.g., Natura 2000).

[45] DRAAF: https://agriculture.gouv.fr/draaf-role-et-fonction (Consulted on 05/01/2022)9
[46] DRAAF: https://www.prefectures-regions.gouv.fr/bourgogne-franche-comte/Region-et-institutions/L-action-de-l-Etat/Agriculture-foret-developpement-rural-et-alimentation/Agriculture-foret- développement-rural-et-alimentation/Forêt et-filière-bois/#titre (Consulted on 05/01/2022)
[47] DREAL: https://www.ecologie.gouv.fr/politique-des-sites (Consulted on 18/05/2022)
[48] DDT: http://www.cote-dor.gouv.fr/les-missions-du-service-forestier-de-la-ddt-a2754.html (Consulted on 05/01/2022)

The DDT forestry department also ensures compliance with commitments made by private individuals in return for tax benefits granted on inheritance, donations, and wealth taxGeneral Tax Code).

DRAAF and DDT play an essential role in controlling management documents in private forests in application of technical instruction DGPE/SDFCB/2015-450 of May 13, 2015.

On January 1, 2020, the merger of the *French Agency for Biodiversity* (AFB) and the National Hunting and Wildlife Office (ONCFS) created the French Office for Biodiversity (**OFB**). The OFB is under the supervision of the Ministry of Ecological Transition and Territorial Cohesion and the Ministry of Agriculture and Food Sovereignty. Its missions are as follows:

- Developing knowledge, research and expertise in biodiversity;
- The exercise of environmental policing and health policing (collection of environmental data, monitoring of territories and offenses, awareness-raising of users);
- Support for public policies to protect water and biodiversity (green frame, blue frame, species protection program);
- management of natural areas;
- training for biodiversity professionals;
- citizen mobilization (technical and financial support for action plans led by society).[49]

In the French overseas departments and territories, the DAAF (Directions de l'Alimentation, de l'Agriculture et de la Forêt) for Martinique/Guadeloupe/Saint-Martin/Mayotte/La Réunion and the DGTM (Direction Générale des Territoires et de la Mer) for French Guyana fulfil the CNPF's role, in the absence of a regional branch of the establishment.

VI.3. Introduction to voluntary certification of sustainable forest management in France:

Recognition of sustainable forest management in France is based on the existence of management documents, developed by forest owners and their managers then approved by the public authorities. Owners can also voluntarily adhere to one or more systems which aim to certify the fact that forest management and the production chain of the resulting wood comply with a standard. This certification is currently supported, in France, by two organizations: FSC and PEFC. Both systems are controlled by an independent body.

PEFC certification, Program for the Endorsement of Forest Certification schemes, is the Forest Certification Recognition Program.

FSC, Forest Stewardship Council, is the “Forest Support Council”.

PEFC certification is granted on the basis of a commitment to continuous improvement in forest management. FSC certification, for its part, is based on a commitment and practice already materialized by a forest management plan.

In 2018, 70,000 owners are members of a certification system and total 5.6 million hectares, i.e., a third of metropolitan forests. Each year the number of members gradually increases as does the surface area. All national forests, belonging to the State, and around half of other public forests are certified. Certified forests provide approximately 21 million cubic meters of wood per year, or 55% of the total marketed harvest.[50]

[49] OFB: https://agriculture.gouv.fr/lofb-loffice-francais-pour-la-sauvegarde-de-la-biodiversite Consulted on 27/01/2022
[50] IGN report "État et évolution des forêts françaises métropolitaines, Sustainable management indicators 2020"

Continuing with voluntary approaches, the ONF has decided to abandon the use of phytopharmaceutical products in the management of public forests from October 14, 2019. Indeed, preserving the environment and biodiversity is one of ONF's top priorities.[51]

In French Guyana, 2.4 million hectares are PEFC certified, representing 100% of the total forest area used for wood production in French Guyana's Permanent Forest Estate. The forested area located to the south of the Permanent Forest Estate is part of the Amazonian Park of French Guyana (including park adhesion areas), where indigenous populations have low forest harvesting activities.
To ensure sustainable forest management practices in line with the principles of Guyanese forest sustainability, a Low Impact Logging (EFI) Charter was established in 2010. It was signed by key stakeholders in the timber industry. A revised version was created in 2016 and has been in effect since 2017. This charter prohibits practices such as clear-logging exceeding 30% of the illuminated area in plots, average extractions of more than 5 stems per hectare, and rotations shorter than 65 years.[52]

[51] ONF: https://www.onf.fr/onf/+/5af::zero-phyto-en-foret-publique.html
[52] http://www1.onf.fr/guyane/++oid++5748/@@display_media.html

VI.4. Biomass sustainability criteria

The criteria below are intended to verify that forest management in France and its framework are sufficient to meet the sustainability criteria for wood energy set out in Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources, known as "RED II".

<table>
<tr><th colspan="4">Criterion 1: The legality of harvesting operations (Article 29 Paragraph 6 a) i) of the Directive)</th></tr>
<tr><th>Applicable laws and regulations and documents or records required by the law</th><th colspan="2">Description (application and control)</th><th>Assessment of the effectiveness of the regulatory/legal framework</th></tr>
<tr><td rowspan="2">• Forestry Code article L122-3 (1)
• Ordonnance N° 2012- 92 of 26 January 2012 relative to the legislative section of the Forestry code (2)
• LAW N° 2014-1170 of 13 October 2014 on the future of agriculture, food and forests (LAAAF) (3)
• Regulation N° 995/10 RBUE, article 2.(h) (4)
• CIRCULAR DGPAAT/SDFB/C2010-3079 of 09 August 2010 (5)
• Technical instruction DGPE/SDFCB/2017-69 23/01/2017 (6)
• Forestry code article L161-4 to L161-7 and special disposition for overseas territories. article L272-1 to L272-12 (7)</td><td colspan="2">The implementation of forest policy has led to the definition of sustainable management documents (see Part VI.1). These documents ensure sustainable forest management and, therefore, contribute to framing the legality of harvesting operations. (1) The list of valid forest management documents, according to the forest type, is described in Article L122-3 of the Forestry Code. The Forestry Code defines the authorized agents to investigate and ascertain forest offenses. (2)

The MAA (Ministry of Agriculture and Food) is the competent authority for the implementation of the European Union Timber Regulation (EUTR) in France. It is responsible for establishing the annual plan for EUTR controls. The EUTR aims to exclude illegally harvested timber and derived products from the EU market. It has been in effect since March 3, 2013.

Through the DRAAF (Regional Directorate for Food, Agriculture, and Forestry), it ensures the monitoring of the regulation by logging companies and wood importers. The controls are carried out by administrative agents. (3)

Under the European Union Timber Regulation (EUTR), operators are required to exercise due diligence when placing timber on the market. This includes collecting and maintaining information about the timber (such as the commercial name and type of product, species, country of harvest (and if possible, the region), quantity, name and address of the supplier and customer, and documents or other information indicating that the timber or derived products are from a legal harvest).
(4)

Logging is regulated in France; there are several cases:</td><td rowspan="2">The World Bank's governance index (1), Transparency International (2) Corruption Perceptions Index, and the Governance indicators defined by Chatham House (3), all affirm that the rule of law and control of corruption are well implemented in France. This provides assurance regarding the legality of timber harvesting. Given these indicators, the risk for this indicator can be considered negligible. (1), (2), (3)

Over the 2017-2019 period, the French competent authority carried out 40 RBUE checks on national timber operators. No infringements were identified.
(4)</td></tr>
<tr><td>
<table>
<tr><th>Presence of a Sustainable Management Document</th><th>Surface area</th><th>Procedure</th></tr>
<tr><td>Yes DGD, cut included in PSG program</td><td>/</td><td>No formality</td></tr>
<tr><td>Yes DGD but extraordinary cut outside the program</td><td>/</td><td>Prior authorization from CNPF (article L.312-5 of the French Forestry Code)</td></tr>
<tr><td>Yes DGD but extraordinary cut outside the program</td><td>/</td><td>Prior declaration (articles L312- 5 and L312-10 of the Forestry Code)</td></tr>
</table>
</td></tr>
</table>

	No DGD	>25ha (forest property area)	Subject to prior authorisation. (L312-9 Forestry Code)	
	No DGD or RTG	Logging >4 hectares in a single stretch	Prefectural authorization (L124-5 Forestry Code)	
	No DGD, classified wooded area (EBC) in PLU or POS	<25 ha	Prior declaration to the town hall (L113- 1 of the Town planning Code)	
	No DGD/ Natura 2000 area	/	Logging application with Natura 2000 impact assessment	
	If the logging area is located in a classified site, registered area, or within the perimeter of a historical monument	/	Contact the Territorial Department of Architecture and Heritage	
	(5). Additionally, if the logging operation is situated in another protected area (such as a spring catchment, biotope protection order, etc.), it must strictly adhere to the specific regulations of these designations. (6)			

Source	Source	Source
(1) Forestry code Article L122-3 - Code forestier – Légifrance (legifrance.gouv.fr) Consulted on 5/01/2021 (2) Legislative section of the Forestry Code Ordonnance http://www.legifrance.gouv.fr/loda/id/JORFTEXT000025213462/ Consulted on 7/12/2021 (3) LOI n° 2014-1170 du 13 octobre 2014 d'avenir pour l'agriculture, l'alimentation et la forêt (1) - Légifrance (legifrance.gouv.fr) EU Regulation EUR-Lex - 32010R0995 – EN EUR-Lex (europa.eu) (4) Technical instruction https://info.agriculture.gouv.fr/gedei/site/bo-agri/instruction- 2017-69 (5) Forestry Code: https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000025244092/LEGISCTA000025246 203/ Consulted on 5/01/2021 (6) Forestry code: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000038846254/ Consulted on 5/01/2021	(1) Sustainable management https://agriculture.gouv.fr/la- gestion-durable-des-forets (Consulted on 06/01/2022) (2) Forestry code: Article L161-4 - Code forestier (nouveau) - Légifrance (legifrance.gouv.fr) Consulted on 5/01/2021 (3) State Services https://agriculture.gouv.fr/les- services-de-letat-en-regions-et-departements-qui fait-quoi (Consulted on 06/01/2022) (4) RBUE https://agriculture.gouv.fr/le-reglement-sur- le-bois-de-lunion-européenne Consulted on 06/01/2022 (5) Logging https://www.laforetbouge.fr/bourgognefranchecomte/reglementation-des-coupes Consulted on 12/01/2022 (6) Logging ht tp://www.sarthe.gouv.fr/lareglementation- sur-les-coupes-de-bois-a4394.html Consulted on 27/01/2022	(1) Worldwide Governance Indicators WGI 2021 Interactive > Interactive Data Access (worldbank.org) (Consulted on 06/01/2022) (2) Transparency International 2020 - CPI - Transparency.org (Consulted on 06/01/2022) (3) Chatam House France | Forest Governance and Legality | Chatham House (Consulted on 06/01/2022) (4) EUTR Analysis 2019 https://ec.europa.eu/environment/forests/pdf/EUTR%20Analysis%202017-2019.pdf (Consulted on 06/01/2022)

Criterion 2: Regeneration of forests in harvest areas (Article 29 Paragraph 6 a) ii) of the directive

Applicable laws and regulations and documents or records required by the law	Description (application and control)	Assessment of the effectiveness of the regulatory/legal framework
• Forestry Code Art. L124-6 (1) • Forestry Code Art. L341-1 to L342-1 and Art.L261-12 of R.341-1 to R.341-9. (2) • Forestry Code Art. L214-13 to L214-14 and R.214-30, R.314-31 (3) • Technical instruction DGPE/SDFCB/2017-712 29/08/2017 (4) Rural code L123-21 and L. 126-1 (5) • Ordonnance N° 2012- 92 of 2012 (section relating to the Forestry Code) (6) • National Forest and Wood Program 2016-2026 (7) • Forestry code art. L. 371-1, L. 372-2, L. 373- 1, L. 374-10, L. 375-1 (8) Decree N° 2018-239 of 3 April 2018 (Exemption for French Guyana) (9)	Logging is regulated in France, as described in the previous paragraph. (1) <u>Regeneration after logging</u>: The Forestry Code in France, as stated in Article L124-6, requires that in a forest area exceeding a specified threshold (defined by department), after any clear-cutting of an area surpassing a set threshold, measures necessary for the renewal of forest stands must be taken within five years if there is no satisfactory natural regeneration or reconstitution. (2) In France, the Forestry Code prohibits clearing without the authorization of the departmental prefect, and it also defines potential sanctions. The concept of clearing is described in Article L.341-1 of the Forestry Code as follows: "Clearing is any voluntary operation that results in the destruction of the wooded state of a plot and puts an end to its forest designation." (3) The application for clearing authorization can only be submitted after completing the procedures related to environmental assessment when the area of the planned clearing is equal to or greater than 0.5 hectares: - For clearings with a surface area between 0.5 and 25 hectares, the applicant must request a case-by-case examination prior to the potential completion of an environmental assessment from the DREAL (Regional Directorate for the Environment, Development, and Housing). In the absence of a response within 35 days, the completion of an impact study is necessary. - For areas below 0.5 hectares, the administration may request a case-by-case examination if the stakes justify it. - An impact study is mandatory for clearings exceeding 25 hectares. In some cases, it must be supplemented by an impact assessment if the clearing is located in or near a Natura 2000 site. This authorization is subject to certain conditions (compensatory afforestation, payment of compensation, etc.). (4) Specificities apply overseas. In Guyana, the threshold for a case-by-case examination is 20 hectares in areas classified as agricultural by a local urban development plan or regional development plan, or 5 hectares in other areas (5).	The 2020 Global Forest Resources Assessment by the Food and Agriculture Organization of the United Nations reveals that France is among the top 10 countries in terms of annual net forest area gain between 2010 and 2020 (+0.50%). (1) According to the report "State and Evolution of Metropolitan French Forests - Sustainable Management Indicators 2020" from IGN (National Institute of Geographic and Forest Information): - The forest area in France increased by 20% from 1985 to 2020, covering 16.8 million hectares this represents a net expansion) - The standing timber volume from 1985 to 2020 grew by 60%, reaching 2.7 billion cubic meters. (2), (3) The IGN report is updated every 5 years. The 2012 and 2020 mementos support this positive trend: 160 m3/ha of standing timber volume were referenced in 2012 and 174m3/ha in 2020. (4) Forests cover 85% of overseas France. French Guiana is almost entirely forested, with 8,002,850 ha of forest, leaving only 3% of the land for agriculture, livestock farming, infrastructure, aquatic environments and savannahs. The forest is therefore inevitably ceding ground as part of the territory's economic development, but nevertheless remains highly preserved and little fragmented. - Net decrease of 4240 ha/year between 1990 and 2012, i.e., 0.05% of forest area - Net decrease of 3420 ha/year between 2015 and 2020, i.e., 0.04% of forest area (5) Guadeloupe is made up of 71.3 thousand hectares of forest (2015). The surface area declined by 13% between 1950 and 1990 as part of the archipelago's economic development, forest now covers almost half the territory, and its surface area is tending to stabilize. Between 2004 and 2010, the forest area gained 10 ha and lost 71 ha. (6) The forest area in Martinique totals 46,273 ha. On average, the gain in forest area between 1951 and 2004 was 138 ha/year, and the loss 169 ha/year. Forests occupy a small half of Martinique's territory and have remained stable over the past 60 years. (7)

	The Forestry Code defines commissioned and sworn agents authorized to establish and search for forest offenses. (6) Moreover, in public forests, sustainable management is rigorously controlled. Harvesting never exceeds overall growth, with IGN figures allowing for verification. IGN data also track the evolution of management methods, between natural regeneration and planting, between forestry treatments, as well as changes in composition and diversity of species. In public forests, all these indicators have satisfactory values.	In the French overseas regions, the Territorial Communities give the regional councils of Guadeloupe, French Guiana, Martinique, Mayotte and Reunion special responsibility for regional planning and development. (French Guiana and Martinique have a single territorial authority). These regions are required to adopt a regional development plan, the aim of which is to reconcile demographic growth, housing needs, urban amenities, transport, employment, training and health services, while preserving the region's natural and agricultural capital. On La Réunion, the final cuttings of production stands are regenerated, either by planting or by assisted natural regeneration. At the same time, a complementary reforestation program following the major fires of 2010-2011 is underway. As mentioned above, the timber industry is non-existent in Mayotte: the problem of regeneration does not arise for legal harvesting operations, but for illegal clearing activities, which by definition take place outside any framework, hence the introduction of publicly-funded programs to alleviate this difficulty: a major program is underway to reforest the headwaters of watersheds, with the main objective of securing drinking water production, financed by the stimulus plan.
Source	**Source**	**Source**
(1) Forestry code: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000025245853 Consulted on 5/01/2021 (2) Forestry code: https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000025244092/LEGISCTA000025247336/#LEGISCTA000025247670 Consulted on 5/01/2021 (3) Forestry code: https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000025244092/LEGISCTA000025246679/#LEGISCTA000025248098 Consulted on 5/01/2021 (4) Technical instruction https://info.agriculture.gouv.fr/gedei/site/bo-agri/instruction-2017-712 Consulted on 5/01/2021 (5) Rural code https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000027573347/ Consulted on 5/01/2021 (6) Ordonnance N° 2012-92 https://www.legifrance.gouv.fr/loda/id/JORFTEXT000025213462/ Consulted on 5/01/2021 (7) PNFB https://agriculture.gouv.fr/leprogramme-national-de-laforet-et-du-bois-2016-2026 Consulted on 7/12/2021 (8) Forestry code:	(1) Logging https://www.laforetbouge.fr/bourgognefranchecomte/reglementation-des-coupes Consulted on 12/01/2022 (2) Forestry code: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000025245853 Consulted on 5/01/2021 (3) Forestry code: https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000025244092/LEGISCTA000025247336/#LEGISCTA000025247670 Consulted on 5/01/2021 (4) Rules applicable to land clearing https://www.legifrance.gouv.fr/download/pdf/circ?d=42557 Consulted on 06/01/2022(5) Forestry Code: https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000025244092/LEGISCTA000025247428/ (6) Forestry code: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000038846254/ Consulted on 5/01/2021	(1) Global Forest Resources Assessment 2020 – FAO https://www.fao.org/3/ca9825fr/ca9825fr.pdf (Consulted on 06/01/2022) (2) Sustainable management indicators https://agriculture.gouv.fr/sixieme https://edition-des-indicateurs-de-gestioncodes/durable-igd (Consulted on 06/01/2022) (3) IGN Report https://foret.ign.fr/api/upload/print/IGD-2020-c255.pdf (Consulted on 06/01/2022) (4) IGN Memento https://inventairecodes/forestier.ign.fr/spip.php?rubrique219 (Consulted on 25/01/2023) (5) Guyana IGN https://foret.ign.fr/api/upload/190625_guyane.pdf Consulted on 16/06/2022 (6) Guadeloupe IGN https://foret.ign.fr/api/upload/190722_guadeloupe.pdf Consulted on 16/06/2022 (7) Martinique IGN https://foret.ign.fr/api/upload/190722_martinique.pdf Consulted on 16/06/2022

https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000025244092/LEGISCTA000025247428/ (9) Exemption for French Guyana https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000036763100/		

Criterion 3: Regulation of protected areas (Article 29 Paragraph 6 a)iii) of the directive)

<table>
<tr><th>Applicable laws and regulations and documents or records required by the law</th><th>Description (application and control)</th><th>Assessment of the effectiveness of the regulatory/legal framework</th></tr>
<tr><td>• Article L.122-7 to L.122 8 of the Forestry code (1)
• Ordonnance N° 2012- 92 of 26 January 2012 relative to the legislative section of the Forestry code (2)
• Law N° 2016-1087 of 8 August 2016 for restoring biodiversity, nature and landscapes(3)
• Environmental Code, Book III (4)</td><td>In France, the Ministry of Ecology is the main player in the creation of protected areas. It assumes responsibility for the management of most regulatory protection tools, through its public establishments or linked management institutions.

Many cartographic resources are freely available and enable the various protected areas to be visualized, for example:</td><td>The framework provided by the Forestry Code also applies in protected areas.
According to the 2013 IUCN report "Protected areas in France":
In France (metropolitan and overseas) protected areas of all statuses cover almost 20% of terrestrial space. (1)
Figure 26, taken from MTE public statistics, shows France's protected areas (2)
Figure 27 accounts for the surfaces concerned by each protection scheme. The sum of the different surfaces does not allow us to define the overall coverage of protected areas in France, as some surfaces are covered by several schemes (double counting). The figures shown in orange are those recognized as strong terrestrial protections at the time the SNAP was adopted. (3)</td></tr>
<tr><td></td><td>Geoportail(1)</td><td></td></tr>
<tr><td></td><td>GeoIDE interactive mapping (2)</td><td></td></tr>
<tr><td></td><td>Some protected natural areas are managed by the French Biodiversity Office (OFB). Others are managed by separate operators (other public establishments, local authorities, federations, associations, e.g., the ONF manages biological reserves). The OFB is a major player in the implementation of the National Area Strategy
Protégées (SNAP) published in January 2021.
It manages or co-manages protected areas. To lead and manage these areas, the OFB provides human and financial resources as well as its technical support to all networks of protected area managers. To this end, it relies on the Protected Areas Conference (CAP), a body that brings together all the major national networks of protected areas. The strategy aims to protect 30% of the country's natural areas by 2030, including 10% under strong protection. In order to implement this strategy, the OFB supports the Ministry of Ecological Transition at national level, as well as at local level with Prefects and local authorities. (3)
Protected areas are managed at different scales: European, national, regional, departmental, communal and inter-communal. Following is the list of protected area categories in France (relevant to the study):

<table><tr><th>Category of protected areas or species</th><th>Legal basis</th></tr><tr><td>National Park</td><td>Articles L331-1 to L331-28 of the Environmental Code</td></tr><tr><td>Biotope protection order, natural habitat or geotope protection order</td><td>R.411-15 and R.411-1 of the Environmental Code</td></tr></table></td><td>18% of remarkable forest ecosystems are in a favourable state of conservation, according to the Nature France indicator. (4)

The unfavourable state in this study can be linked to several types of causes, but it is mainly future prospects (in connection with the risks associated with climate change) and problems linked to structures and functions that prove to be the most downgrading. What's more, we're talking about remarkable biodiversity. There has been a general collapse in biodiversity, but a slight decline in forests, which remains the least affected sector. This figure does not therefore illustrate the impact of forestry alone: 80% of classified habitats will be destroyed by climate change. (5)

French Guyana: almost half of French Guiana's forests contribute to the conservation of biodiversity and landscapes, with a fairly good territorial coverage, even if certain regions and formations in northern Guiana are less well represented in this network of protected areas. The protected area increased eightfold between 2000 and 2015, mainly due to the official creation of the Amazonian Park of French Guiana in 2007. The permanent forest estate is protected by biological reserves, national nature reserves and biotope decrees. (6).

Guadeloupe: there is a wide range of tools dedicated to the protection of Guadeloupe's forests, which are gradually being extended, testifying to public policymakers' awareness of both the exceptional richness of these natural ecosystems and their great vulnerability. Around 80% of Guadeloupe's forests are now</td></tr>
</table>

	National hunting and Wildlife Reserves	L.422-27 and R.422-93 of the Environmental Code	protected, although this protection remains highly uneven, with Basse Terre enjoying a particularly high level of protection compared with the other islands of the archipelago. (7) **Martinique**: the application of different environmental protection statutes in Martinique reflects the island's rich heritage, particularly in terms of forestry. It also testifies to the island's growing environmental awareness. More than 80% of the island's forests are prominent features of the landscape, and around 12% are strictly protected for biodiversity, notably on the Montagne Pelée and Prêcheur-Grand 'Rivière sites, the Pitons du Carbet and the Caravelle peninsula. (8) **Réunion:** 90% of the public forests managed by ONF form the heart of the Parc National de La Réunion (PNR), a UNESCO World Heritage Site. In addition, the ONF has created 10 biological reserves outside the core zone of the PNR, two of which have been awarded the 2021 IUCN Green List label for the quality of their management and governance. **Mayotte**: The ONF has created two biological reserves in Mayotte. In addition, the Reserve Naturelle Nationale de Mayotte, created by decree on 03/05/2021, covers the island's 2,800 ha of best-preserved forests, with a view to reinforcing protection of the last remnants of natural forests. (9) Several organizations play advisory and/or monitoring roles: The INPN: National Inventory of Natural Heritage is the reference information system for data on Nature and offers documentation on protected areas. (10) The amount of data accessible from the INPN increased by 25% between January 2020 and January 2021. UICN: International Union for Conservation of Nature, whose mission is to establish common worldwide criteria for classifying protected natural areas. (11) MNHN: At the request of the French Ministry of Ecology, the French National Museum of Natural History is responsible for managing knowledge about protected areas. (12)
	National, regional and Corsican nature reserves	Articles L332-1 to L332-27 of the Environmental Code	
	Managed and integral biological reserves	Article L212-2-1 of the Forestry Code	
	Properties of the Coastal and Lakeside Area Conservation Agency	Articles L322-1 to L322-14	
	Sites proposed to the European Commission and sites of Community importance	Articles R. 414-3 to R414-7 of the Environmental Code	
	Natura 2000 site	L124-3 Forestry Code and L414-1 to L414-7 and R414-1 to R414-7 of the Environmental Code “Birds” Directive 1979 and ”Habitats” Directive 1992	
	Regional Natural Parks	Articles L331-1 to L333-3 of the Environmental Code	
	(4)(5)(6)(7) These different areas are regulated in France, and various documents setting out the objectives and procedures to be followed are published in order to carry out real actions to preserve biodiversity. • National Parks: The charters of each national park set out several objectives relating to the protection of biodiversity, grouping together the methods for applying the regulations in the heart of the park and partnership measures. Actions may include forest conservation. (8) • Biotope, geotope or natural habitat protection orders (APB, APG or APHN). Created at the initiative of the department prefect, they aim to preserve the habitats of protected species (biotopes), a site of geological interest (geotope) or a natural habitat as such (APHN). The measures therefore do not relate directly to the species, but rather to the quality of the environment which hosts them (deposition of waste, introduction of plants or animals, burning or grinding of plants, spreading of phytosanitary products, etc.). These environmental management rules to be respected concern in particular forest management and logging. The Order establishing the implementation of zoning defines, on a case-by-case basis, the restrictions or constraints to which activities may be subject: authorization regime, declaration, prohibitions. Forestry activities may naturally be concerned. • When a PSG is approved under article L122-7 of the Forestry code for this		

	regulation, it actually incorporates the provisions provided for in the Order. No additional steps are then necessary. • For logging and work not provided for in the PSG or in the absence of a PSG approved under article L122-7, it is then necessary to comply with the provisions provided for in the Order. In this case, you must contact the Departmental Directorate of Territories and the Sea concerned (9) • National Hunting and Wildlife Reserves: All hunting activities are prohibited, as well as any activities that may disturb wildlife. However, the establishment order may provide for the possibility of implementing a hunting plan or a management plan when it is necessary to maintain biological and agro-sylvocynegetic balances. This plan must be compatible with the preservation of game and its tranquillity. The same order may issue measures to protect habitats, with the aim of promoting the protection and restocking of game and may therefore have an impact on the management and exploitation of forest. It is advisable to consult this order before any intervention in the forest. (10). • National, regional and Corsican nature reserves. National Nature Reserves (RNN), Regional Nature Reserves (RNR) and Corsican Nature Reserves (RNC) cover all types of property: private and public, on land and at sea. Their management is entrusted to associations, public establishments or local authorities. The sites are protected from any artificial intervention likely to degrade them, but may be subject to ecological rehabilitation or management measures in line with conservation objectives. Any action that alters their appearance or condition is subject to authorization, and this therefore applies to forestry activities. Nature reserves are made up of numerous forests. Precise monitoring is carried out on their state of conservation. In order to update the inventory of the forest heritage of French nature reserves (RN) a questionnaire was sent to 305 RN managers in 2013 and 2014. The forests of 120 RNs were thus described, representing 53,308 ha in mainland France and 181,153 ha in overseas territories. (11)(12) A GMP must include the list of forest-related regulations mentioned in article L.122-8 of the Forestry Code, which includes nature reserves. • Biological reserves: Biological reserves constitute a specific protection status for areas under the forestry regime. This includes state-owned forests (domanial), forests owned by municipalities,	

	departments, or public entities (Conservatoire du littoral, for example). These reserves are created by a joint decree from the Ministries of Agriculture and Ecology. The oldest biological reserves date back to the 1950s. The decree establishing a biological reserve defines its perimeter and objectives and may prohibit or subject to specific conditions activities that could compromise the achievement of these objectives. (11) The law relating to restoring biodiversity brings some changes to the Forestry Code. It provides a legal framework for "biological reserves" by adding Article L.212-2-1 to the Forestry Code, stipulating that the ONF (National Forestry Office), which develops management documents, may include areas "identified as likely to constitute biological reserves." The law also establishes the procedure for creating such a reserve and for developing the management plan to which it must be submitted. Biological reserves are divided into 2 categories: - The "integral" biological reserve prohibits any forestry exploitation, allowing the forest to evolve and develop naturally. - The "directed" biological reserve allows forestry interventions and other works while preserving the habitats and species that motivated its creation. • Properties of the Coastal and Lakeside Area Conservation Agency The Coastal Conservancy's mission is to acquire coastal parcels threatened by urbanization or degradation and transform them into restored, landscaped, welcoming sites while respecting natural balances. Although the Conservancy owns the acquired sites, it subsequently entrusts their management to regions, departments, municipalities, community groups, joint syndicates, or associations. Partnership is the cornerstone of its policy. (13) • Proposed sites of Community interest Proposals for Sites of Community Importance are the sites proposed by each Member State to the European Commission for inclusion in the Natura 2000 network in application of the "Habitats" directive. • Natura 2000: The Natura 2000 network is structured as follows: Protected Areas Special Protection Areas (SPAs) aim to conserve wild bird species listed in Annex I of the "Birds" directive or that serve as breeding, moulting, wintering, or staging areas for migratory birds. Additionally, there are Special Areas of Conservation (SACs) (or Sites of	

	Community Importance - SCIs) aiming to conserve habitat types and animal and plant species listed in Annexes I and II of the "Habitats" directive. (14) The transposition of the Natura 2000 directive is detailed in a dedicated section of the environmental code (articles L.414-1 to L414-7 and articles R.414-1 to R.414-29). For each Natura 2000 site, a concerted and voluntary approach is planned, including: - A document of objectives (DOCOB) outlining, prioritizing, and scheduling the goals, management guidelines, and means to preserve or restore the conservation status of natural habitats and species on the site. - The establishment of a Steering Committee (Copil) that coordinates the drafting and animation of the DOCOB. - Voluntary commitments for site management (via contracts or Natura 2000 charters). Parallel to this concerted and voluntary approach, the Natura 2000 Impact Assessment Scheme applies, reflecting Article 6 of the "Habitats" directive. This scheme is the regulatory aspect of the Natura 2000 policy (Article L. 414-4 and Article R. 414-4 of the environmental code). In 2019, the Ministry of Agriculture and the Ministry of Ecological Transition jointly developed a technical note on the application of the Natura 2000 Impact Assessment Scheme to forest management orientation and planning documents, as well as logging and other forestry operations. (15) In France, the Natura 2000 network comprises 1,753 sites, with 39% located in forests. Forest owners have the option to commit to specific management measures in exchange for funding through Natura 2000 contracts. They can also join a Natura 2000 charter, a list of unpaid commitments for "best practices," and, in return, benefit from a 61% exemption from the land tax on non-built-up property. (16) The Forestry Code specifically regulates the instruction of Forest Management Plans (DGD) in Natura 2000 sites (Articles L122-7 and 8). The Regional Forestry and Timber Management Centres (CRPF), as the competent authority for instructing DGDs, must verify the compliance of the proposed management with the Natura 2000 green annex if it exists, or with the site's DOCOB when there is no green annex. This procedure ensures that the management aligns with the recommendations of Natura 2000 DOCOBs, guaranteeing the integrity of Natura 2000	

	sites, with or without a green annex. The green annexes are co-signed by the Ministry in charge of forests and the Ministry in charge of the environment. Additionally, outside of the sustainable management document, an impact assessment is carried out under Natura 2000. • Regional Nature Parks Forests cover 40% of their area, compared to the national average of 27%, with a higher proportion of public forests on average in the Parks. (17) In 2017, the 50 parks covered 22% of metropolitan forests. 8 additional parks have been created since then. The Parks have a charter establishing the management and protection orientations for the territory, engaging its signatories in the exercise of their competencies (municipalities, regions, State, optionally departments and EPCI), and defining the action of the mixed syndicate of the Regional Nature Park (PNR). This charter aims to address the challenges of sustainable forest management in accordance with the Forestry Code. To implement it, the parks are involved in local forest policies through partnerships with the National Forestry Office, the National Centre for Forest Ownership, the Regional Union, the Association of Forest Communes, and Fransylva, which contribute to the drafting of local forest charters and participate in Natura 2000 projects. (17)	

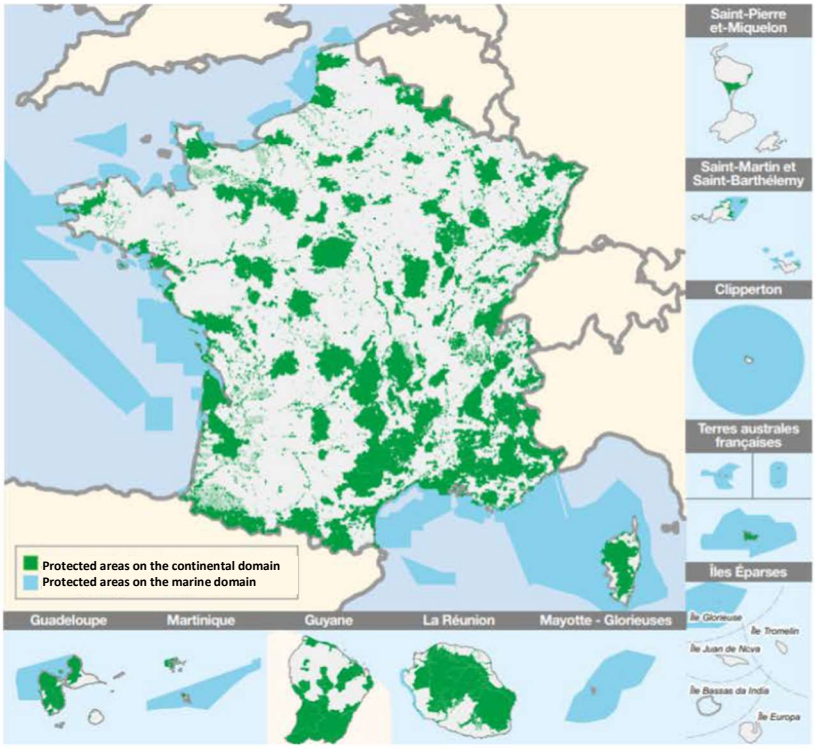


Figure 27 Map of protected areas and nature reserves in France, excluding South Pacific territory (2)

"Source: - C UMS Patrinat and OFB, Protected Areas Database as of March 2021, Natura 2000 Database as of December 2020. Processing SDES, 2021.

Figure 28 Statistics of protected areas (3)

Source	Source	Source
(1) Forestry code https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000025244092/LEGISCTA000025245795/#LEGISCTA000025248712 Consulted on 7/12/2021 (2) Legislative section of the Forest Code ordinance https://www.legifrance.gouv.fr/loda/id/JORFTEXT000025213462/ Consulted on 7/12/2021 (3) Biodiversity law: https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000033016237 Consulted on 7/12/2021 (4) Environmental Code https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000006074220/LEGISCTA000006129024/#LEGISCTA000006129024 Consulted on 7/12/2021	(1) Geoportail https://www.geoportail.gouv.fr/ Consulted on 7/12/221 (2)GeoIde http://catalogue.geo-ide.developpementdurable.gouv.fr/catalogue/srv/fre/catalog.search#/home Consulted on 7/12/2021 (3) SNAP OFB https://ofb.gouv.fr/la-strategienationale-pour-les-aires-protegees Consulted on 7/12/2021 (4) Forestry Code https://www.legifrance.gouv.fr/codes/id/LEGITEXT000025244092/ Consulted on 7/12/2021 (5) Environmental Code https://www.legifrance.gouv.fr/codes/id/LEGITEXT000006074220/ Consulted on 7/12/2021 (6) IUCN Protected Areas Report 2013 https://uicn.fr/wpcontent/uploads/2016/08/Espaces_naturels_proteges-OK.pdf Consulted on 7/12/2021 (7) DREAL Report 2021 http://www.paca.developpementdurable.gouv.fr/IMG/pdf/fiches_syntheses_gfbiodiv_retex.pdf Consulted on 7/12/2021 (8) National Park http://www.parcsnationaux.fr/fr/desconnaissances/biodiversite/conservation-et-gestion Consulted on 04/04/2022 (9) Biotope decree https://www.laforetbouge.fr/occitanie/documents/arrete-prefectoral-de-protection-de-biotope-apb-1 Consulted on 04/04/2022 (10) Hunting reserves https://www.laforetbouge.fr/paca/documents/reserve-nationale-de-chasse-et-de-faune-sauvage-0 Consulted on 04/04/2022 (11) Biological and natural reserves https://www.onf.fr/onf/lonf-agit/+/a3a::lesreserves-biologiques-des-espaces-protegesdexception.html Consulted on 04/04/2022 (12) Nature reserves https://www.reservesnaturelles.org/sites/default/files/librairie/cahier7hd.pdf Consulted on 24/03/2022 (13) Coastal Protection Agency https://www.conservatoire-du-littoral.fr/3-leconservatoire.htm#:~:text=Le%20Conservatoire%20est%20propri%C3%A9taire%20des,%2C%20c'est%20le%20partenariat. Consulted on 04/04/2022 (14) ZPS and ZSC https://www.observatoire-desterritoires.gouv.fr/part-des-zones-de-protectionspeciale-zps-dans-la-superficie-du-territoire Consulted on 04/04/2022 (15) Natura 2000	(1) IUCN Protected Areas Report 2013 https://uicn.fr/wpcodes/content/uploads/2016/08/Espaces_naturels_proteges-OK.pdf Consulted on 7/12/2021 (2) Protected areas map https://www.statistiques.developpement-durable.gouv.fr/les-protections-desespaces-naturels-terrestres-et-marinsloda/en-france-en-2021 Consulted on 05/01/2022 (3) MTE Statistics https://www.statistiques.developpement-durable.gouv.fr/les-protections-desconsultéespaces-naturels-terrestres-et-marins-en-france-en-2021 Consulted on 7/12/2021 (4) NatureFrance conservation status indicator https://naturefrance.fr/indicateurs/etat-de-conservation-des-habitats-forestiers Consulted on 13/09/2022 (5) study Assessing the vulnerability of forest habitats to climate change - The case of the acidiphilous Atlantic collinean beech-oak forest with holly (HIC 9120) by Ceridwen DUPONT-DOARÉ - AgroParisTech internship report. (6) Guyana IGN https://foret.ign.fr/api/upload/190625_guyane.pdf Consulted on 16/06/2022 (7) Guadeloupe IGN https://foret.ign.fr/api/upload/190722_guadeloupe.pdf Consulted on 16/06/2022 (8) Martinique IGN https://foret.ign.fr/api/upload/190722_martinique.pdf Consulted on 16/06/2022 (9) Mayotte https://www.mayotte.gouv.fr/content/download/4924/41778/file/OFDM-PFBDM%20Mayotte_versionFinale.pdf Consulted on 09/08/2022 (10) INPN https://inpn.mnhn.fr/programme/espaces-proteges/presentation Consulted on 7/12/2021 (11) UICN https://uicn.fr/ Consulted on 7/12/2021 (12) MNHN https://inpn.mnhn.fr/programme/espaces-proteges/presentation Consulted on 7/12/2021 Other relevant information can be consulted here: https://inpn.mnhn.fr/espace-synthese https://inpn.mnhn.fr/espace/protege/stats https://inpn.mnhn.fr/telechargement/cartaset-information-geographique

	https://aida.ineris.fr/consultation_document/42484 Consulted on 19/05/2022 (16) Natura 2000 https://www.cnpf.fr/n/natura-lagestion-contractuelle/n:796 Consulted on 28/01/2022 (17) Regional Natural park https://www.parcs-naturelsregionaux.fr/les-enjeux/foret/la-foret-et-la-filierebois-dans-les-parcs-naturels-regionaux-de-france Consulted on 04/04/2022	

Criterion 4: Preservation of biodiversity (Article 29 Paragraph 6 a)iv) of the directive)

Applicable laws and regulations and documents or records required by the law	Description (application and control)	Assessment of the effectiveness of the regulatory/legal framework
• Forestry Code article L. 212-2-1 (1) • Ordonnance N° 2012- 92 of 26 January 2012 relative to the legislative section of the Forestry code (2) • LAW N° 2014-1170 of 13 October 2014 on the future of agriculture, food and forestry (LAAAF) (3) • LAW N° 2016-1087 of 8 August 2016 for recovering biodiversity, nature and landscapes (4) • Decree N° 2017-155 of February 8, 2017, approving the national forest and wood program (5)	In accordance with the LAAAF The National Forest and Wood Plan (PNFB 2016-2026) sets the directions for forest policy in both public and private forests, in mainland France and overseas, over a ten-year period This program is implemented at the regional level as the Regional Forest and Wood Program (1), then into SRGS, DRA, and SRA (see Part V.1). The management rules in these framework documents are detailed in the sustainable management documents, which must comply with the content of the DRA-SRA-SRGS ; thus, they obtain the "sustainable management" guarantee. Biodiversity preservation is a priority in sustainable management, along with economic and societal issues. DREAL (Regional Directorate for the Environment, Planning, and Housing) is the regional service of the Ministries of Ecological Transition and Solidarity (MTES) and Territorial Cohesion (MCT). It participates in the implementation and coordination of state public policies in its fields of competence, particularly regarding environmental policies applicable to forest areas. The National Biodiversity Strategy (SNB) translates, at the national level, the objectives defined by the Convention on Biological Diversity (CBD) during the Nagoya Summit in 2010. It aims to achieve the 20 goals set to preserve, restore, strengthen, enhance biodiversity, and ensure its sustainable and equitable use. In 2021, the new SNB3 is being developed to establish objectives that contribute to the preservation of ecosystems and species, as well as our health and quality of life for the next 10 years. (2) The law aimed at recovering biodiversity, nature, and landscapes strengthens the consideration of biodiversity by all stakeholders and creates a French Agency for Biodiversity (AFB). The merger of AFB and the National Office for Hunting and Wildlife (ONCFS) has formed the French Office for Biodiversity (OFB). (3) The law has set the objective of reducing to zero the net loss of biodiversity. The Biodiversity Plan aims to implement this objective and accelerate the implementation of the National Biodiversity Strategy. Action 46 particularly aims to integrate biodiversity into forest management, especially through green annexes to the Regional Sylvicultural Management Plan (SRGS) in cases where a	According to the report 'State and Evolution of Metropolitan French Forests - Sustainable Management Indicators 2020' by IGN (1) • The average local richness in forest tree species is 5 species per 0.2 hectares in metropolitan France. (Intermediate between boreal and tropical forests). • 87% of forests have a semi-natural character (not derived from plantations). • The proportion of trees with a diameter greater than 47.5 cm in the total volume increased from 20% to 26% between 1981 and 2015. • 93% of the forest area is dominated by native species. • On average, French forests have nearly 16 m3/ha of deadwood on the ground and 7 m3/ha of standing deadwood. • 2% of the metropolitan French forest is subject to strong regulatory protection and management focused on biodiversity conservation. 18.5% of the metropolitan forest area, or 3.3 million hectares, is integrated into the Natura 2000 network. The IGN report is updated every 5 years. Additionally, the STOC index (common birds) shows that in forest environments, the abundance of these species has not decreased, unlike in other areas. This tends to indicate that forest management practices in France do not degrade biodiversity. (2) The ongoing negotiations for the European regulation on nature restoration (Annex VI) also rely on this set of indicators. (3) Enacted by the "Grenelle 1" law, the National Biodiversity Observatory (ONB) was officially launched in 2011 with the aim of monitoring the state and trends of biodiversity and its interactions with society. The ONB specifically monitors the effects of the National Biodiversity Strategy by identifying and making robust indicators accessible to all. A specific effort by the ONB on the theme "Biodiversity and Forest" has been undertaken in synergy with the reflections led by the Ministry of Agriculture on sustainable forest management indicators. (4) • The cumulative volume of deadwood and very large trees remains stable or increases in all major ecological regions: +25 million m3 of wood in 2020. • 20% of remarkable ecosystems are in a favourable conservation state (5).

	Natura 2000 area is located on a forest property. (4) The "green annexes" are defined by Article L122-7 of the Forestry Code as a tool attached to regional directives or plans. They allow approval of the management document under Article L122-7 without requiring explicit agreement from the competent administrative authority under legislation covered by the green annex (DREAL for a Natura 2000 green annex). In private forests, general clauses for the sale of standing and block cuts are also implemented. In the case of public forests, the INS 18 T 97 instruction, an INTERNAL document of the ONF, sets requirements for biodiversity conservation in state forests and provides guidelines for community forests. These requirements guide ONF agents in promoting ONF's biodiversity preservation policy to owners. Some of the requirements and guidelines in this instruction (which is detailed in tools dedicated to drafting developments or establishing documents governing cuts and works) are based on the principle of additionality to existing regulations. (5) In each managed forest in French Guiana, 60% of the area is designated as non-production, encompassing ecological interest series (for the protection of diverse forest habitat, representative samples of biodiversity, and the conservation of notable environments and species) or series for the physical and general protection of environments and landscapes (protecting water catchment areas, headwaters, riverbanks, and steep slopes for erosion control). (6) In cases of logging or clearing subject to impact assessment (described in the preceding paragraph), a section is dedicated to the impact on biodiversity, outlining notable direct and indirect effects. The CNPEF, or National Notebook of Forest Exploitation Prescriptions, applies to all stakeholders involved in public forests for forest exploitation works and is updated annually (7). Prescriptions addressing biodiversity issues are outlined in paragraph 2.1 of the CNPEF 2020, such as the preservation of "habitat trees," limiting the risks of introducing or developing invasive exotic species and enhancing genetic resources. The National Forest Exploitation Regulation (RNEF) preceded the CNPEF and applies to contracts initiated before 2020. The National Notebook of Prescriptions for Forest Works and Services (CNPTSF) applies to works and forest services. Similarly, it was preceded by the National Regulation of Works and Forest	An annual assessment is conducted by the ONB (National Biodiversity Observatory) Organizations such as CNPF (National Centre for Forest Ownership) or ONF (National Forestry Office) also provide advice and support. Regarding overseas territories, ONF (National Forestry Office), in partnership with various organizations such as botanical conservatories, universities, associations, and research institutes, has been undertaking in-depth work for years in terms of species and habitat knowledge. This monitoring and protection are essential due to the development of invasive species in **Réunion.** It primarily involves, according to a strategy defined with the State and National Parks, moving towards early detection and control. However, in connection with the degree of infestation, more extensive and long-term actions, involving all ecological engineering techniques, are often required. (6) Approximately 80% of French biodiversity resides in overseas regions. **Guyana**: The local specific richness of Guyana's forests varies greatly depending on the sites and species, ranging from 10 tree species per hectare in mangroves to over 200 in certain formations. (7) The Guyanese forest, which is part of the Amazon rainforest, is home to approximately 10,000 plant species, 1,200 vertebrates, and 400,000 insects (representing 10% to 20% of the species inventoried worldwide). (8) **Guadeloupe**: The local richness in forest tree species, mainly deciduous, is high in Guadeloupe, with the archipelago hosting approximately 400 tree species. Swamp forests and mangroves have a low richness in tree species while constituting unique ecosystems that support the development of a highly diverse fauna. (9) **Martinique** is an island rich in tree species, with nearly 400 tree species. The forest formations in Martinique are particularly diverse: from mangroves with a small number of tree species but rare, complex ecosystems rich in unique fauna; to the xerophytic forests in the south with numerous threatened woody species; the seasonal evergreen forests, wetter (1,000 to 2,500 mm of annual precipitation) and rich in tree species and animal species; and the complex montane rainforest or rainforest (2,000 to 5,000 mm per year), hosting the majority of the island's endemic tree species.(1)

	Services (RNTSF), valid for contracts initiated before 2020. The ONF (National Forest Office), public forest owners, and all stakeholders have technical reference documents consistent with regulatory requirements and certifications. This enables better consideration of environmental and safety issues and improves the quality of forest exploitation sites. Technical instructions for biodiversity are developed by the ONF in public forests. The ADEME (French Environment and Energy Management Agency) also provides guides on sustainable wood harvesting for the production of forest chips, detailing biodiversity-related challenges. (8) Voluntary certifications like PEFC and FSC also allow commitments to the preservation of biodiversity. For instance, PEFC prohibits the use of fertilizers near protected areas and remarkable habitats, recommending the retention of old wood or dead trees in the forest. It particularly favours intervention periods that avoid harming species during their reproductive periods. Moreover, France is committed to numerous international and European agreements to protect biodiversity, such as: - The "Habitats" and "Birds" Directive (92/43/EEC) (9). - CITES Convention on International Trade in Endangered Species of Wild Fauna and Flora (10). The forest's good health is a prerequisite for maintaining biodiversity. The roadmap from the Forest and Wood Summit relies on proactive measures to anticipate the impacts of climate change and make forest stands more resilient. Legal logging ensures a minimum consideration of biodiversity. Training and awareness initiatives are also conducted for owners and forestry companies.	**Mayotte**: Mayotte is a volcanic island in the Indian Ocean with a humid tropical climate, and it is home to a rich biodiversity. On an area of less than 400 square kilometres, the island hosts 610 native species of vascular plants. Mayotte has a variety of forests adapted to different environmental conditions, greatly influenced by rainfall. These forests represent a high level of biodiversity, where endemic, native, and exotic tree species intermingle. (11)
Source	**Source**	**Source**
(1) Forestry code: https://www.legifrance.gouv.fr/codes/id/LEGITEXT000025244092/ Consulted on 7/12/2021 (2) Legislative section of the Forest Code ordinance https://www.legifrance.gouv.fr/loda/id/JORFTEXT000025213462/ Consulted on 7/12/2021 (3) LAAAF: https://www.legifrance.gouv.fr/loda/id/JORFTEXT000029573022/	PNFB https://agriculture.gouv.fr/le-programmenational-de-la-foret-et-du-bois-2016-2026 Consulted on 7/12/2021 SNB https://www.ecologie.gouv.fr/sites/default/files/Strat%C3%A9gie%20nationale%20pour%20la%20biodiversit%C3%A9%202011-2020.pdf Consulted on 21/01/2022	(1) IGN Report https://foret.ign.fr/IGD/rapports/derniere_edition Consulted on 7/12/2021 (2) Stoc Index https://www.notreenvironnement.gouv.fr/themes/biodiversite/la-connaissance-de-la-biodiversiteressources/article/les-oiseaux-communs (3) European regulation

Consulted on 7/12/2021 (4) Biodiversity law: https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000033016237 Consulted on 7/12/2021 (5) PNFB Decree: https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000034020467 Consulted on 7/12/2021	OFB https://agriculture.gouv.fr/lofb-loffice-francaispour-la-sauvegarde-de-la-biodiversite Consulted on 27/01/2022 Biodiversity Plan https://www.ecologie.gouv.fr/sites/default/files/18xxx_Plan-biodiversite-04072018_28pages_FromPdf_date_web_PaP.pdf Consulted on 7/12/2021 Green annexes and instruction https://www.paca.developpementdurable.gouv.fr/IMG/pdf/fiches_syntheses_gfbiodiv_retex.pdf Consulted on 18/05/2022 Protection series http://www1.onf.fr/guyane/sommaire/guyane/missions/gestion/20131016-142623-958893/@@index.html Consulted on 16/06/2022 CNPEF https://www.onf.fr/onf/conditionsgenerales-de-vente/+/63f::cahier-national-desprescriptions-dexploitation-forestiere-cnpef.html Consulted on 7/12/2021 ADEME Guide https://librairie.ademe.fr/produireautrement/4196-recolte-durable-de-bois-pour-laproduction-de-plaquettes-forestieres-9791029714474.html Consulted on 04/04/2022 Habitat Directive https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000000339498 Consulted on 7/12/2021 CITIES https://cites.org/fra Consulted on 7/12/2021	https://eurlex.europa.eu/legalcontent/EN/TXT/?uri=COM:2022:304:FIN (4) ONB (National Biodiversity Observatory) http://docs.gipecofor.org/public/bgf/BGF_Synthese2-Indicateurs.pdf Consulted on 27/01/2022 (5) Indicators ONB https://naturefrance.fr/Consulted on 27/01/2022 (6) Guyana IGN https://foret.ign.fr/api/upload/190625_guyane.pdf Consulted on 16/06/2022 (7) https://www.jardinsdefrance.org/exuberantes-forets-tropicales/ Consulted on 21/06/2022 (8) ONF (National Forestry Office) https://www.onf.fr/onf/forets-etespaces-naturels/+/20::les-forets-denos-territoires.html Consulted on 21/06/2022 (9) Guadeloupe IGN https://foret.ign.fr/api/upload/190722_guadeloupe.pdf Consulted on 16/06/2022 (10) Martinique IGN https://foret.ign.fr/api/upload/190722_martinique.pdf Consulted on 16/06/2022 (11) Mayotte https://www.mayotte.gouv.fr/content/download/4924/41778/file/OFDMPFBDM%20Mayotte_versionFinale.pdf Consulted on 09/08/2022

Criterion 5: Preservation of soil quality (Article 29 Paragraph 6 a)iv) of the directive)

Applicable laws and regulations and documents or records required by the law	Description (application and control)	Assessment of the effectiveness of the regulatory/legal framework
• Forestry Code: articles L112-1 4° (1), L121-2 (2) • Ordonnance N° 2012- 92 of 26 January 2012 relative to the legislative section of the Forestry code (3) • LAW N° 2014-1170 of 13 October 2014 on the future of agriculture, food and forests (LAAAF) (4)	Article L112-1 4° of the Forestry Code specifies that "Forests, woods, and trees are placed under the safeguard of the Nation, without prejudice to collective and specific titles, rights, and usages. Recognized as being of general interest: 4 The preservation of the quality of forest soils, especially with regard to biodiversity issues, as well as soil stabilization, especially in mountainous areas, by forests;" (1) Article L121-2 of the same code states that "The State ensures the coherence of forest policy with other public policies, including rural development, territorial planning, soil and water protection, and natural risk prevention." (2) Article L121-2 of the Forestry Code favours an incentive and contractual policy. The PNFB (in accordance with the Law of the Future) at the national level, followed by the PRFB at the regional level, include soil preservation as one of their objectives. (3) Similarly, SRGS (Regional Forest Management Scheme) includes reminders about the 6 Helsinki criteria and some of their practical implications, one of these criteria focusing on the "appropriate maintenance and improvement of protective functions in forest management (including soils and water)." The SRGS also contains technical recommendations aimed at optimizing soil preservation (Preserving the physical fertility of soils by preventing soil compaction and erosion. Preserving the chemical fertility of soils and preserving the biological fertility of soils). The CNPEF, or National Book of Forest Exploitation Requirements, is mandatory for all parties involved in public forests for forest exploitation work and is updated annually. The same applies to the CNPTSF for forestry work (see Criterion 4). The CNPEF is valid in mainland France and overseas regions. Non-compliance with the requirements may result in sanctions specified in the contract. The instructions are verified by the person responsible for the site (territorial forest technician), but ONF personnel may also be involved in the inspection, depending on the agency's organization.(4)	The ability of the French forest to regenerate reflects the overall good condition of its soils. According to the report 'State and Evolution of Metropolitan French Forests - Sustainable Management Indicators 2020' by IGN (1) • Chemical properties of forest soils: +7.1‰ per year for the carbon/nitrogen ratio in the soil. • +4.2‰ per year carbon sequestration rate measured over 15 years in forest soils. The IGN report is updated every 5 years. A tool has been developed for long-term soil monitoring: the RMQS or... Soil Quality Monitoring Network. This is a program that brings together the ministries responsible for agriculture and ecology, along with INRA, ADEME, and IRD. Since 2000, 2,240 sites evenly distributed across French territory, including overseas territories, have been sampled every 15 years. (2) Monitoring programs are established, as with the long-term monitoring of forest ecosystems in the RENECOFOR network, which was created by the ONF in 1992.(3) Additionally, additional plans are in progress: A soil action plan, developed by the Ministry and entrusted to ADEME, aims to be deployed in July 2023 to promote best practices and identify ways to improve soil considerations. Some organizations monitor and promote sustainable forest management, especially with regards to soil: The CNPF is a public institution created to promote sustainable management of private forests (4). L'IGN has the mission of describing the surface of the national territory and its land use, as well as developing and updating the permanent inventory of national forest resources. It produces numerous maps accessible to all, detailing soil types and land use (5). Regarding the overseas territories, the 4 for 1000 project examines carbon storage in agricultural and forest soils in these regions (6).

	Paragraph 2.3 is dedicated to the challenges of forest soils. It provides the following instructions: "With their logging equipment and vehicles, the operator must only use the extraction compartments and drainage roads or routes marked on the ground or designated before the intervention by the ONF agent." Forestry compartments cannot be used during logging operations. In the case of non-existent or insufficient equipment, the operator must adapt their logging technique based on the physical capabilities of the soils and with an overall concern for preservation, in consultation with the ONF agent. Each compartment must be established prior to the intervention. Furthermore, the operator must neither destroy peatland areas nor engage in the extraction of heather soil, peat, or humus. To ensure sustainable forest management in the Guyanese forest, a low-impact logging charter was established in 2010 and signed by the main stakeholders in the timber industry. A new version was created in 2016 This charter addresses, among other things, the measures for protecting the soil during logging operations. (5) In private forests, general clauses for the sale of timber in block and standing sales are also established between the seller and the buyer. These clauses include a section on soil restoration. Guides of best practices for soil and forest-friendly logging are also available: - such as the PROSOL guide published by the ONF and FCBA (Forêt Cellulose Bois-construction Ameublement) in 2009. It provides information on the sensitivity of forest soils and how to diagnose them. It also provides practical solutions for managing forest plots to harvest wood while preserving the soil capital more effectively. (6) - The *Pratic'sols* guide, published by the ONF and the FNEDT (National Federation of Territorial Entrepreneurs), was released in 2021. It addresses a national issue aimed at promoting wood mobilization while preserving the practicality of exploitation compartments. (7) - The GERBOISE guide on the Sustainable Management of Biomass Harvest, published by ADEME in 2018, aims to provide recommendations and advice to stakeholders in the wood energy sector (8). This guide has also led to the	

	publication of a guide on the sustainable harvesting of wood for wood chip production, which details soil preservation, including precautions to be taken during the collection of small wood (diameter <7 cm) and stumps, to minimize foliage export, prevent soil compaction, and soil erosion (9). Voluntary certifications like PEFC and FSC also emphasize soil protection within their standards. They consider soil as the productive capital of the forest owner, which must be preserved. The PEFC standards for forest operators, which include 7 commitments related to soil and water preservation, specify that they must use equipment suitable for soil sensitivity and environmental fragility.	
Source	**Source**	**Source**
(1) Forestry code https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000043975456 Consulted on 7/12/21 (2) Forestry code https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000029595610/ Consulted on 7/12/2021 (3) Legislative section of the Forestry Code ordinance https://www.legifrance.gouv.fr/loda/id/JORFTEXT000025213462/ Consulted on 7/12/2021 (4) LAAAF: https://www.legifrance.gouv.fr/loda/id/JORFTEXT000029573022/ Consulted on 7/12/2021	(1) Forestry code https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000043975456 Consulted on 7/12/21 (2) Forestry code https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000029595610/ Consulted on 7/12/2021 (3) PNFB DECREE: https://agriculture.gouv.fr/le-programmenational-de-la-foret-et-du-bois-2016-2026 Consulted on 7/12/2021 (4) CNPEF https://www.onf.fr/onf/conditionsgenerales-de-vente/+/63f::cahier-national-desprescriptions-dexploitation-forestiere-cnpef.html Consulted on 7/12/2021 (5) Guyana IGN http://www1.onf.fr/guyane/++oid++5748/@@display_media.html Consulted on 19/09/2022 (6) PROSOL Guide https://www.onf.fr/produitsservices/+/18b::prosol-guide-pour-uneexploitation-forestiere-respectueuse-des-sols-etde-la-foret.html Consulted on 14/02/2022 (7) Pratic'sols Guide https://www.onf.fr/produitsservices/+/192::praticsols-guide-sur-praticabilitedes-parcelles-forestieres.html Consulted on 14/02/2022 (8) ADEME Library https://librairie.ademe.fr/energiesrenouvelables-reseaux-et-stockage/892-gerboise-gestion-raisonnee-de-la-recolte-de-boisenergie.html consulté le 19/05/2022 Consulted on 19/05/2022 (9) ADEME Guide Récolte durable de bois pour la production de plaquettes forestières - La librairie ADEME Consulted on 13/06/2022	(1) IGN Report https://foret.ign.fr/IGD/rapports/derniere_edition Consulted on 7/12/2021 (2) RMQS https://www.gissol.fr/legis/programmes/rmqs-34 Consulted on 28/01/2022 (3) RENECOFOR http://www1.onf.fr/renecofor/sommaire/renecofor Consulted on 7/12/2021 (4) CNPF https://www.cnpf.fr/actualite/voir/959/le-sol-forestier-element-cle-pour-lechoix-des-essences-et-la-gestiondurable/n:170 Consulted on 7/12/2021 (5) IGN https://inventaireforestier.ign.fr/?lang=fr Consulted on 7/12/2021 (6) 4 for 1000 https://www.etude-4p1000-outre-mer.fr/projet Consulted on 19/09/2022

Criterion 6: Maintaining the long-term production capacity of the forest

(Article 29, Paragraph 6, a)(v) of the directive)

Applicable laws and regulations and documents or records required by the law	Description (application and control)	Assessment of the effectiveness of the regulatory/legal framework
• Forestry Code Articles L151-1 and 2 (1) • Forestry Code Articles L122-3 and L124-6 (2) • Forestry Code Article L121-1 (3) • Ordinance No. 2012-92 of January 26, 2012, relating to the legislative section of the Forestry Code (4) • National Forest and Wood Program 2016-2026 (5)	The concepts of adaptation and resilience of the forest are introduced in Article L121-1 of the Forestry Code, which states, among other things, that the State must ensure the adaptation of forest species and the regeneration of forest stands. Furthermore, wooded land, especially in public forests, is highly protected under the forest regime. Indeed, state-owned forests are inalienable, and communal forests can only be transferred after obtaining authorization to remove them from the forest regime, which is granted by the state, and appropriate compensation. The National Forest and Wood Program 2016-2026 (PNFB), introduced by the Law of the Future for Agriculture, Food, and Forestry, establishes several objectives, including "creating value in France by sustainably mobilizing resources" and "combining forest mitigation and adaptation to climate change. (1) The Minister of Agriculture and Food has requested the development of a roadmap for adapting French forests to climate change. So, a document was prepared and published in December 2020 by the stakeholders in the forest and wood sector, which materializes the ambition set by the PNFB. Nine priorities have been defined, translated into an action plan: - Strengthening scientific cooperation and knowledge for the adaptation of forests and the forest-wood sector to climate change. - Disseminate and adopt acquired knowledge, develop and centralize diagnostic and decision support tools for adaptation to climate risks. - Promote forestry practices that enhance resilience, reduce risks, and mitigate the impact of crises. - Mobilize financial tools to enable forest owners to invest in adapting their forests. - Strengthen monitoring and health surveillance and organize crisis management. - Strengthen and expand prevention and control measures against abiotic risks, especially forest fire defence (DFCI). - Prepare and support the adaptation of the upstream sector of the industry by	For more than a century, the forest area in mainland France has been increasing. Since 1985, when forest covered 14.1 million hectares, growth has been sustained at a rate of almost 80,000 hectares per year. In 2020, the forest will represent 17 million hectares: 31% of the country's metropolitan surface area. The growth continues today. (1) On average, 60% net of the wood produced by the growth of trees is harvested. This rate, which varies according to species and region but overall is less than 100%, reflects a situation of capitalisation of wood resources in forests, explaining the increase in standing volumes. (2) With regard to the "forest renewal" measure, provided for by France relance: For private and communal forests, by the end of 2021 €102m worth of aid applications had been submitted, representing 4,147 applications for a total of 24,400 ha. The measure will continue in 2022 under the same management and technical arrangements as for 2021. For state-owned forests, the recovery plan is governed by a framework agreement between the State and the ONF. In 2021, the ONF has been allocated a budget of €30m to cover work corresponding to a minimum of 5,662 hectares. With regard to France 2030, at the close of the Round Table on Forests and Wood, the French Minister of Agriculture and Food announced that the France 2030 scheme would follow on from France Relance and that €200m would be earmarked for forest renewal operations, continuing the France Relance scheme with the introduction of additional criteria to encourage the grouping of players, contracting between links in the industry and enhanced environmental criteria (diversification of tree species, forest certification with changes to the reference system). The scheme is due to come into force on 1 January 2023. A new scientific commission dedicated to the species of the future has been set up following the Round Table on Forests and Wood.

	developing extended industry solidarity to prepare for future forest resources. - Prepare and support the adaptation of downstream businesses in the industry. - Strengthen dialogue and consultation, develop facilitation and mediation between stakeholders within territories. (2) There are existing tools or tools in development to assist forest owners in adapting tree species to climate change. Climessence can be mentioned, this tool, like others, is made available to all professionals. The RMTAFORCE provides summary sheets on struggling species and those to prioritize. (3) ONF has also developed a new concept to succeed in adapting forests to climate change, the "mosaic forest." The goal is to enhance species diversification through experiments conducted in future stands and vary forestry methods. (4) Permanent monitoring is in place: In France, an annual assessment is conducted by the IGN Article L151-1 of the Forestry Code states that the permanent inventory of national forest resources is conducted independently of any ownership questions. The Permanent Forest Inventory aims to provide data that allows understanding the state, evolution over time, and potential of the French forest. Measurements and descriptions of the forest's state necessary for this purpose (basic data) are collected using a standardized method. The definition of methods, overall monitoring of inventory work, data processing and analysis, and their dissemination are carried out by the Statistical Information Service for Forests and the Environment of IGN.(5) Various sustainable management documents contribute to the sustainable management of the French forest heritage. (see. Section VI.1)(6) It is prohibited in France to carry out clearing without authorization (see Criterion 2). The Forestry Code also requires that in a forest massif of a certain extent, after any clear-cutting and in the absence of satisfactory natural regeneration or reconstitution, measures necessary for the renewal of forest stands must be taken.(7) Faced with the issues related to the resilience of forest stands to climate change and health issues, the French government has	The press release of 1 December 2022 "Ecological planning "forest" roadmap": collective action for a protected and more resilient forest" by France Nation Verte, announces the areas of work developed from the 25 measures resulting from the Round Table on Forests and Wood, which include "adapting the forest to climate change" and "sustainable forest management".

	implemented a "Recovery Plan" related to the forest. The recovery plan allocates resources to initiate forest renewal in the context of climate change, encouraging forest owners to invest in adapting their forests or improving their contribution to climate change mitigation. This aid is conditional on the diversification of tree species (minimum diversification rate of 20% from 10 ha). To this end, the French government has allocated a budget of €200 million to the forestry and timber industry, broken down as follows: - 150m for forest renewal. - 22 million to acquire Lidar (laser remote sensing) data. - €20 million to support the wood processing industry. - €5.5 million to support the seeds and seedlings sector (8) The resources put in place are not one-offs, but ongoing. Their continuity is ensured by France 2030, an investment plan that dedicates €500 million to French forests. Thus, with the France 2030 plan, additional funds will be released to guarantee the sustainability, resilience and production capacity of French forests, equivalent to the planting of several tens of millions of trees between now and 2030, in addition to the €50 million initiated as part of France Relance between now and 2024. At the same time, funds will be earmarked to develop a high-performance, innovative production chain. (9) From October 2021 to March 2022, a forest and timber conference was held, bringing together NGOs, elected representatives, upstream and downstream players, and producing action sheets. The overseas territories also took part in the work. Action sheet 1.2 in particular concerns the continuation and sustainability of aid for forest renewal, with the announcement of permanent funding dedicated to forest renewal of 100 to 150 million euros each year, to be implemented from 2024. (10)	
Source	**Source**	**Source**
(1) Forestry code: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000025246120/inventaire Consulted on 5/01/2021 (2) Forestry code: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000025245786/ Consulted on 5/01/2021 (3) Forestry code: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000043975443 Consulted on 18/05/2022 (4) Ordonnance N° 2012-92	(1) PNFB https://agriculture.gouv.fr/le-programme-national-de-la-foret-et-du-bois-2016-2026 Consulted on 5/01/2021 (2) Roadmap https://agriculture.gouv.fr/planfrance-relance-une-feuille-de-route-au-service-de-la-filiere-foret-bois-face-au-defi-du Consulted on 24/02/2022 (3) Essences https://climessences.fr/ Consulted on 19/05/2022 (4) Mosaic forest	(1) IGN Memento 2020 https://inventaireforestier.ign.fr/IMG/pdf/memento_2021.pdf Consulted on 5/01/2021 (2) IGN Report https://foret.ign.fr/IGD/rapports/derniere_edition Consulted on 7/12/2021

https://www.legifrance.gouv.fr/loda/id/JORFTEXT000025213462/ Consulted on 5/01/2021 (5) PNFB https://agriculture.gouv.fr/le-programme-national-de-laforet-et-du-bois-2016-2026 Consulted on 7/12/2021	https://www.onf.fr/onf/+/8e4::infographie-la-foret-mosaique-une-nouvelle-sylviculture-face-auchangement-climatique.html Consulted on 24/05/2022 (5) Forest Inventory https://inventaire-forestier.ign.fr/spip.php?rubrique149 Consulted on 5/01/2021 (6) Management documents https://agriculture.gouv.fr/telecharger/123421?token=4beb18b0c9c5ea4e439b9eded3e4ef1c580be84ff171a6cb981f35ef6a01fa7f Consulted on 5/01/2021 (7) Forestry Code Art. L341-1 to L342-1 and Art.L261-12 of R.341-1 to R.341-9 Forestry Code Art. L214-13 to L214-14 and R.214-30, R.314-31) (8) France Relance https://www.onf.fr/+/94e::planfrance-relance-lancement-du-volet-forestier.html Consulted on 28/01/2022 (9) Plan France 2030 https://agriculture.gouv.fr/le-plandinvestissement-france-2030-au-service-de-lafiliere-foret-bois Consulted on 19/05/2022 (10) Meetings https://agriculture.gouv.fr/cloture-desassises-de-la-foret-et-du-bois Consulted on 19/05/2022	

Criterion 7: Land use, land-use change, and forestry: CO2 emissions and absorptions (Article 29 Paragraph 7 a) of the directive)		
Is the Pars accord ratified?	X Yes	No
NDC submission?	X Yes	No
Description of how agriculture, forestry, and land use are considered in the NDC:	France and the European Union are signatories of the Paris Agreement (1). Europe has submitted NDCs (Nationally Determined Contributions) that take into account the CO2 emissions and removals from agriculture, forestry, and land use, with a comprehensive accounting framework based on activities or land. The NDCs were submitted on October 5, 2016. The updated version was submitted to the UNFCCC on December 17, 2020 (2). It mentions the objectives and accounting methods applicable within the framework of the LULCF Regulation 2018/841. This NDC is based on long-term strategies, including that of France. (The "national low-carbon strategy"), detailing the directions taken regarding the LULCF sector, and based on data from the national forest inventory mentioned above. (3) The total emissions related to land use, land-use change, and forestry are negative in France. The LULCF Sector traps more greenhouse gases (GHGs) than it emits. This is mainly due to the growth of forests. (4) The National Low-Carbon Strategy plans to increase timber harvesting. This will be done within the framework of the Forestry Code, ensuring sustainable management while considering the biological production of forests and their regeneration. The increase in harvesting is evident because there is increased dieback, but replanting accelerates adaptation to climate change: Illustrated by the evolution of ONF's harvest between early 2018 and late 2021: accidental products in the harvest share increased from 10% to 50% for softwoods and from 5% to 20% for hardwoods.	
Source		
(1) UNTC United Nations Treaty Collection https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=_en (Consulted in November 2021) (2) UNFCCC: CDN Register https://www4.unfccc.int/sites/NDCStaging/pages/Party.aspx?party=FRA (Consulted in November 2021) (3) Long-term strategies submitted to the UNFCCC: https://unfccc.int/process/the-paris-agreement/long-term-strategies (Consulted in May 2022) (4) Greenhouse gas emissions visualization interface from the European Environment Agency: https://www.eea.europa.eu/dataand-maps/data/data-viewers/greenhouse-gases-viewer (Consulted in May 2022)		

VII. Risk assessment, additional French sustainability initiatives.

This risk assessment examines the legislation, regulations in place, their implementation, monitoring bodies, and indicators in metropolitan France and overseas regions regarding the sustainability criteria of Directive RED II (EU) 2018/2001 Article 29(6) and (7), namely:

- The legality of harvesting operations
- The regeneration of forests in harvest areas
- Regulation of protected areas
- Preservation of biodiversity
- Preservation of soil quality
- Maintaining the long-term production capacity of the forest
- Land use, land-use change, and forestry: CO2 emissions and absorptions

All sustainability criteria of the directive are considered, leading to the conclusion of low and negligible risk of non-compliance with these requirements. The sustainability of forest management is regulated by law, well monitored and enforced, and positive developments in the state of the forests can be identified. This risk analysis will be updated every 5 years to ensure that regulations, practices and indicators are monitored.

VIII. Outcome of public consultations:

The consortium that prepared this analysis includes: CIBE, CNPF, FNCOFOR, COPACEL, FNEDT, EFF, FEDENE, FNB, Fransylva, ONF, ONF Energie Bois, SER, UCFF, with the support of Agro-Energy consulting firms. Conseil et Obbois organized a public consultation that lasted for 4 weeks (opened on 09/28/2022, closed on 10/26/2022). 3 answers were obtained from:

- Canopée Forêts Vivantes –The forest climate campaign manager
- WWF France – The forest advocacy expert
- ADCOFOR – President

Canopée Forêts Vivantes and WWF provided the same answers.

Several remarks were made. The consortium endeavoured to respond to them. All the elements provided have been verified and validated by the Ministry and ADEME for inclusion in this new version.

Following is a list of paragraphs added after the public consultation:

The last paragraph in section V.2.2, "Wood Use Category,"	Paragraph BI BE
Paragraph VI.1.3 “Sustainable Management Documents”	Paragraph and figure 26
Criterion 2: Regeneration of the Forest in the “Description” column, paragraph, “Regeneration After Harvest”	Article details
Criterion 2: Regeneration of the Forest in the “Assessment of Effectiveness” column	Adding an indicator
Criterion 3: protected Areas in the “Assessment of Legal Effectiveness” column	Addition of an explanation of the “Favourable Conservation Status" indicator

Criterion 3: “Description" column, "Natura 2000" paragraph	Details of management documents in Natura 2000 areas
Criterion 4: biodiversity “Assessment of Effectiveness" column	Adding an indicator
Criterion 4: “Description" column,	Paragraph
Criterion 5: “Description" column	Forestry code information added
Criterion 5: “Assessment" column	Extra items were added
Criterion 6: long-term production, “Description" column	Paragraph on existing tools
Criterion 6: long-term production, “Assessment" column	Details on workstreams
Criterion 7 LULUCF	Details

In conclusion, many of the points made in the contributions need to be qualified.

A real dynamic has already been set in motion on certain points for improvement, and discussions are underway to address the issues of resilience, professional training, and improved practices.

However, the current French framework is considered to be protective, and resources are in place to enforce it and control the risks of non-compliance.

The initial conclusion drawn from the risk analysis presented to the public consultation can therefore be maintained: the risk of non-compliance with RED II criteria is negligible.