

Appendices

Appendix 1. Definitions.....	314
Appendix 2 . Cross-reference between tree species and sub-species in the IGN forest inventory data	320
Appendix 3 . Dates of departmental field surveys under previous forest inventory method	322
Appendix 4 . Dates of aerial photographs used to create the forest mapping	326
Appendix 5 . Nativeness of tree species found in metropolitan forests.....	328
Appendix 6 . Lost of threatened forest species	332
Appendix 7 . Classification and definitions of national protected areas in the FRA, MCPFE and IUCN	340

Appendix 1.

Definitions

Forest management: Mandatory management document for every public forest (State-owned and municipal forests) which, based on an analysis of the natural environment and the economic and social context, sets out the long-term objectives for the forest stands and the action plan (cuts, works, etc.) to be implemented over fifteen to twenty years, in compliance with the forestry policy and sustainable management principles (*source: ONF*).

Dominant trees of quadrats: Tree which is one of the six largest trees in the inventory quadrat and located in the dominant stage of the quadrat, i.e. with privileged access to light and an unrestricted position (*source: IGN*).

Other public forests: See public forest

Other wooded land (or shrubland of more than 50 areas): Land that does not qualify under the 'forest' category which covers an area of over 0.5 ha and is over 20 m wide and contains trees of over 5 m tall with 5-10% tree cover, or trees capable of reaching these levels *in situ*, or mixed cover with over 10% shrubs, saplings or trees. Lands predominantly used for agricultural or urban development purposes are excluded (*source: IGN*).

Other land with tree cover: Land predominantly used for agricultural or urban development purposes with blocks of wooded vegetation covering an area of more than 0.5 hectare with a forest cover of more than 10% of trees capable of reaching 5 meters tall when fully grown. It includes forest and non-forest tree species (*source: FRA 2015*).

Marketed timber: Timber destined to supply a timber primary processing unit or sold to an individual (normally as firewood). This timber is inventoried via the annual forest logging branch surface (*source: SSP*).

Standing deadwood: A tree showing no sign of life taller than 1.3 m but which is still standing, whether or not broken at its stem or crown. By convention, it is considered that all deadwood (with no sign of life above 1.30 m tall) standing at a tilt angle of over 30° relative to the ground surface can be classified in this category. Two age modalities can be used to distinguish between deadwood: deadwood of less than five years (including in the annual mortality calculation) and deadwood of more than five years (excluded from the annual mortality calculation). Windfalls (see windfall) and lying deadwood are not part of the standing deadwood (*source: IGN*).

Lying deadwood: Piece of wood (branch or trunk) detached naturally or artificially from its stump, or dead windfall tree, whether or not in contact with the ground, with all its remaining branches attached, regardless of the age of death (*source: IGN*).

Non-marketed timber = self-consumed wood: Wood for domestic use mainly as firewood. This wood is estimated from the Insee housing survey (*source: SSP*).

Thickets: Thickets are stands with an absolute tree cover rate of over 40%, on an area ranging from 0.05 to 0.5 ha and a width of over 20 m (*source: IGN*).

Activity branch: A branch (or activity branch) groups homogeneous production units, i.e. which manufacture products (or render services) which belong to the same item in economic activity nomenclature in question. Conversely, a sector groups businesses classified according to their main activity (*source: Insee*).

For a business, sales are broken down into its various activities. All business fractions relating to a same activity constitute the branch. Thus, a business falls under as many branches as it carries out activities (*source: SSP*).

Windfall: A windfall is a living or dead tree that is no longer standing following an accident that occurred less than 5 years previously. By convention, it is considered that any living or dead tree standing at a tilt angle of less than 30° relative to the ground surface (due to an accident) is classified in this category (*source: IGN*).

Diameter class: The circumference of trees eligible for inventory is measured in the field to the nearest centimeter at a height of 1.30 m using a tape measure. This circumference is converted into diameter by dividing it by the number π . The diameters can be then be grouped to culminate, for example, in the dimension classes:

- small trees: $7.5 \text{ cm} \leq \text{diameter} < 22.5 \text{ cm}$;
- medium-sized trees: $22.5 \text{ cm} \leq \text{diameter} < 47.5 \text{ cm}$;
- large trees: $47.5 \text{ cm} \leq \text{diameter} < 67.5 \text{ cm}$;
- very large trees: $67.5 \text{ cm} \leq \text{diameter}$

(*source: IGN*).

Apparent consumption: Is defined as the net national production of exports increased by imports (*source: Insee*).

Intermediate consumption: Value of goods and services processed or consumed fully during the production process. The wear of fixed assets used is not taken into account in the intermediate consumption; it is recorded in the fixed capital consumption (*source: Insee*).

Code of Best Forest Practice: Document setting out a presumption of guarantee of sustainable management compliant with the regional forest management scheme, approved in each region by the State representative and relating to private forests not subject to a simple management plan. Prepared by the Regional Forest Ownership Center, the Code of Best Forest Practice lays down, for one or more natural regions, the rules of conduct for each large type of forest stand (*source: Forestry vocabulary, IDF-APT*).

Species: Species normally refers to a species of tree but can sometimes mean a sub-species or variety of special interest or several species (see Appendix 2) (*source: IGN*).

Main species: The main species at a sampling point is considered to be the main species in the layer eligible for inventory, when it is described, or failing that the main species in the layer ineligible for inventory. The main species of each of these layers is considered to be the species with the highest relative free cover in the layer. This rate may be very high (e.g. 100% in a maritime pine plantation) or relatively low (e.g. 20% in a mixed stand with several species) (*source: IGN*).

Roundwood equivalent (EQ): Initial volume of roundwood required to produce a volume of industrial products (e.g. 2 m³ of roundwood for 1 m³ of sawn timber) (*source: Lef, Inra-APT*).

Gross operating surplus (EBE): Indicator of profitability. The gross operating surplus is the balance of the operating account for the companies. It is equal to the added value, reduced by employees' remunerations and other taxes on production (see Taxes on production and imports) and increased by operating subsidies. The balance of the operating account for individual companies is the mixed revenue. The operating surplus can be calculated net by deducting the fixed capital consumption (*source: Insee*).

Logging potential: Five criteria relating to the conditions in which timber can or cannot be logged determine the logging potential of a stand: the hauling distance, the presence of hauling roads, the maximum hauling slope, the bearing capacity and unevenness of the ground (the last two variables are combined into one line "terrain" in the table). These criteria are recorded directly in the field and combined to define four national logging potential classes – easy, average, difficult and very difficult (see table below) (*source: IGN*).

Forest

Before 2005

Forest is a territory covering an area of at least five ares containing trees capable of becoming more than seven meters tall when fully grown *in situ*, with over 10% tree cover and at least 25 meters wide. Sites which are momentarily deforested or being regenerated are classed as forest even if they have less than 10% cover when the inventory is taken.

N.B. : Poplar plantations (more than 75% of relative free cover rate of cultivated poplars) are not included in the forest definition. Walnut and sweet chestnut groves along with cultivated truffle plantations and orchards are also excluded (agricultural productions). Thickets (surface area between 5 and 50 ares) are included in the forest definition.

Since 2005

Forest is a territory covering an area of at least fifty ares containing trees capable of becoming more than five meters tall when fully grown *in situ*, with over 10% tree cover and at least 20 meters wide on average. Sites which are momentarily deforested or being regenerated are classed as forest even if they have less than 10% cover when the inventory is taken.

It excludes land used predominantly for agricultural or urban development purposes.

N.B. : Poplar plantations (more than 75% of relative free cover rate of cultivated poplars) are included in the forest definition. Thickets (surface area between 5 and 50 ares) are not included in the forest definition.

(*source: IGN*).

Logging itinerary	Land	Practicable (even and load bearing)			Impracticable (uneven or soft)		
	Slope	0-15%	15-30%	> 30%	0-15%	15-30%	> 30%
Not necessary or non-existent	Logging distance < 200 m	Easy	Moderate	Difficult	Difficult	Difficult	Difficult
	200-1000 m	Easy	Moderate	Difficult	Difficult	Difficult	Difficult
	1000-2000 m	Moderate	Difficult	Difficult	Difficult	Difficult	Difficult
	> 2000 m	Difficult	Difficult	Difficult	Difficult	Difficult	Difficult
Track to be created	random	Difficult	Difficult	Difficult	Difficult	Difficult	Difficult
Inaccessible	random	Very difficult	Very difficult	Very difficult	Very difficult	Very difficult	Very difficult

Loggability Easy Moderate Difficult Very difficult

Production forest

Before 2005

A forest available for wood supply is a forest where logging is possible (without consideration for the economic viability margin), while being compatible for other possible functions.

Since 2005

The forest available for wood supply is land with a surface area at least equal to 50 ares and at least 20 m wide where trees grow with an absolute cover rate of at least 10% which can be used to produce timber. This means that the land must allow a wood supply without any other use or physical conditions which prevent logging (strict reserve, inaccessible area, etc.).

(source: IGN).

State-owned forest: See public forest

Closed forest: Closed forest corresponds to forest with an absolute tree cover rate of over 40% (source: IGN).

Forest not available for wood supply: Land with a surface area at least equal to 50 ares and at least 20 m wide where trees grow with an absolute cover rate of at least 10% and which is not available to produce timber (see production forest) (source: IGN).

Open forest: Open forest corresponds to forest with an absolute tree cover rate of between 10 and 40% (source: IGN).

Public forest: Land is said to be public when governed by the forestry regulations. Among the public lands, the State-owned lands (State-owned forests) belong to the State. The other public lands normally belong to municipalities (municipal forests) as well as to other local authorities or public establishments (source: IGN).

Private forest: All forest land not governed by the forestry regulations are called private (source: IGN).

Semi-natural forest: Forest not created by planting (source: IGN).

High forest: High forest trees grow from a single seed and only have a single stem. High forest stands have a relative cover rate of high forest trees of at least 75% (source: IGN).

Large ecoregion (GRECO): The 86 silvoecoregions (see silvoecoregion) are grouped into eleven large ecoregions, to which must be added all recent alluvia (source: IGN).

Mortality: Like biological production and fellings, mortality is an annual flow. It is calculated from the volume of dead trees standing for less than five years and coppice trees (which by definition are always less than five years old). It is expressed in volume per year or in number of stems per year, for example.

N.B. : Mortality is assessed from observations and measurements of dead trees. The actual date of death, which is assessed by sight by field agents, remains vague. (source: IGN).

Poplar plantation

Before 2005

In a poplar plantation, cultivated poplars account for at least 75% of the stand's cover. When the majority of trees are ineligible for inventory, there must be at least 100 stems per hectare. The cultivated poplar plantation is a wooded formation made individual by the specific silviculture applied to it (plantation with definitive density and short cycle).

Since 2005

A poplar plantation is land with a surface area of 50 ares or more and at least 20 m wide. Here are grown cultivated poplars, be they planted or from suckers (for a second-generation poplar plantation), with a relative cover rate of at least 75% and where the absolute tree cover rate is more than 10%.

When the majority of trees are ineligible for inventory, there must be at least 100 stems per hectare. The cultivated poplar plantation is a wooded formation made individual by the specific silviculture applied to it (plantation with definitive density and short cycle).

IGN draws up an inventory of popular plantations differently from other forests. Production is not estimated in the same way (no measurement of radial growth). Similarly, there are no ecological and floristic records. They are therefore sometimes excluded from national results despite being forest available for wood supply. However, the poplar plantation inventory protocol tends to be close to that of other forests available for wood supply, which means that they are integrated more frequently with the national results.

(source: IGN).

Plantation

Before 2005

A plantation is a stand in which the seedlings account for more than 75% of the free cover. Plantations with a density of more than 500 seedlings per hectare are deemed to be forest. Wide-spaced plantations (density of more than 300 seedlings per hectare) and very widely-spaced plantations (maples, walnut trees, wild cherries, umbrella pines, etc.) are also deemed to be forest.

Since 2005

During field work, IGN determines in the forest inventory points (including poplar plantations) whether the stand has been formed by planting. The observation relates to a quadrat of 20 ares surrounding the point. The age of the stand is not taken into account and the observation is only made by field observations, without searching in management documents.

(source: IGN).

Simple management plan (PSG): Simplified management document adapted to private forests with a surface area greater than a threshold set at departmental level (between 10 and 25 ha), approved by the *Regional Forest Ownership Center* and targeting sustainable development (source: *Forestry vocabulary, IDF-APT*).

Fellings: Fellings are estimated in forests available for wood supply. They relate to the standing stem volume of living trees eligible for inventory during the campaign t-5 which have been felled between t-5 and t, whether or not cleared away. This involves an overbark volume which includes neither the branches nor potential fellings in trees less than 7.5 cm in diameter at 1.3 m. They are expressed in cubic meters per year (source: IGN).

Annual gross production: The annual gross production relates to the average increase in the overbark timber volume in one year. It relates to the sum of the growth and the annual recruitment. It is calculated over the five years preceding the survey year. It is expressed in cubic meters per year.

The annual growth in volume relates to:

- the growth of trees eligible for inventory, i.e. the annual average gain in volume of trees eligible for inventory;
- the increase in volume brought by the felled trees and windfall trees less than five years old to the stand whilst they were still alive.

The annual recruitment relates to the average gain in the volume of trees which have crossed the eligible for inventory threshold during the five-year period defined above

(source: IGN).

Annual net production: Annual gross production reduced by the mortality (source: IGN).

Sawmill by-products: Products remaining after sawing, i.e. bark, sawdust, shavings and sanding dust, offcuts and edgings (source: *DRAAF Auvergne*).

Gross domestic product (GDP): Economic indicator measuring the wealth produced within a country. It is the final result of the production activity of resident producing units. It can be defined in three ways:

- the GDP is equal to the sum of gross added values of different institutional sectors or different activity branches, increased by taxes and minus the subsidies on products (which are not allocated to the sectors and activity branches);
- the GDP is equal to the sum of final internal uses of goods and services (actual final consumption, gross formation of fixed capital, stock variations), plus the exports, minus the imports;
- the GDP is equal to the sum of uses of operating accounts of institutional sectors: remuneration of employees, taxes on production and imports minus the subsidies, gross operating surplus and mixed revenue.

(source: Insee).

Artificial regeneration: All forestry interventions in renewing a forest stand by sowing seed or by planting (source: IGN).

Natural regeneration: Spontaneous or assisted natural process whereby a forest stand is renewed by seeds from standing trees or by suckers, when coppice rejuvenation is not included in a separate category (source: IGN).

Standard management regulation (RTG): Sustainable management document compliant with the regional forest management scheme. Approved by the *Regional Forest Ownership Center* in private forests, for forests not subject to a simple management plan, the RTG defines, for one or more natural regions, the rules of conduct for each large type of stand (source: *Forestry vocabulary, IDF-APT*).

Water capacity: Amount of water which can be used by the plants contained in the thickness of the soil that can be explored by the roots. A soil pit is used to find out the pebble load of the soil and the depth and texture of soil horizons. A coefficient is then allocated to each texture to calculate the water capacity (source: IGN).

Restoration of mountain lands: Mountain forestry discipline addressing the sciences and techniques of soil protection (erosion, land movements) and natural risk prevention (torrent correction, avalanches, falling blocks). The actions call on civil and biological engineering (*source: Forestry vocabulary, IDF-APT*).

Activity sector: A sector groups manufacturing, trading or service companies with the same main activity (in terms of the economic activity nomenclature in question). The activity of a sector is therefore not entirely uniform and includes secondary productions or services falling under items in the nomenclature other than in the sector in question. Conversely, a branch groups uniform production units (*source: Insee*).

A company's core activity (APE) is determined from a breakdown of its sales into miscellaneous classes and sub-classes in the French activity nomenclature (NAF) according to rules published in the Official Journal of the French Republic (see NAF rev. 2, 2008 edition). All companies with the same core activity are classed in a whole called a sector. A company belongs to one sector and one only (*source: SSP*).

Forest structure

The forest structure is determined for closed forests only (absolute cover rate of more than 40%). Open forests are therefore by nature "without structure". The forest structure of a stand is determined from the relative cover rates of living high forest and coppice sub-stands and, in cases in which there is less than 25% coppice, the vertical distribution of the high forest. High-forest and coppice sub-stands are defined by the origin of the trees: seed for high forest and sucker for coppice. Trees more than 22.5 cm in diameter, however, (average, large and very large trees) are all counted as high forest, regardless of origin. Only clumps with trees of less than 22.5 cm diameter (small trees) are counted in the coppice.

The potential modalities of this variable are therefore as follows:

- regular high forest: relative cover rate of the coppice less than 25% with a high stage taller than or equal to two-thirds in the high forest;
- irregular high forest: relative cover rate of the coppice less than 25% with a high stage shorter than one-third in the high forest;
- mixed high forest and coppice: both the relative cover rate of the coppice and the relative cover rate of the high forest are at least 25%;
- coppice: relative cover rate of the high forest below 25%.

Care must be taken in using this datum as it describes a stand according to the rules listed above and, under no circumstances, does it relate to information on the forest management of the stand (*source: IGN*).

Subericulture: cork-oak forestry (*Quercus suber*) (*source: Larousse*).

Basal area: The basal area of a tree is defined as its section at 1.3 m above the ground, bark included. This section is calculated on the basis of the circumference measurement of the tree at 1.3 m tall. The calculated values are then used to estimate unit area values according to the quadrat dimensions and the weight of the sampling points (*source: IGN*).

Silvoecoregion (SER): The largest geographical zone on French territory within which factors that determine forest production or the distribution of large types of forest habitat vary uniformly between specific values according to a combination of values that differ from those that characterize adjacent silvoecoregions (*source: IGN*).

Coppice: Coppice trees come from the stump (suckers) and included one or more stems. Coppice stands have a relative cover rate of high forest trees of less than 25% (*source: IGN*).

Stem eligible for inventory: Eligible for inventory means any stem with a circumference of more than 23.5 cm at 1.3 m tall. Mensuration measurements are taken on stems eligible for inventory exclusively (*source: IGN*).

Added value: Financial indicator measuring the wealth created by the activity of a company. It is equal to the production value (turnover) reduced by the intermediate consumption (purchases) (*source: Insee*).

Windbreak: A windbreak is a tree broken by natural phenomena, without human intervention (*source: IGN*).

Appendix 2. Cross-reference between tree species and sub-species in the IGN forest inventory data

Species	Grouped tree species
Pedunculate oak	Pedunculate oak
Sessile oak	Sessile oak
Northern red oak	Northern red oak
Pubescent oak	Pubescent oak
Holm oak	Holm oak
Pyrenean oak	Pyrenean oak
Cork oak	Pseudo cork oak, Cork oak
Beech	Beech
Chestnut	Chestnut
Hornbeam	Hornbeam
Birch	Pubescent birch, Silver birch
Large alder	White alder, Corsican alder, Black alder
Locust tree false acacia	Locust tree false acacia
Large maple	Norway maple, Sycamore maple
Hackberry tree	Hackberry tree
Ash	Common ash, Flowering ash, Narrow-leaved ash
Elm	English elm, White elm, Wych elm
Cultivated poplar	Cultivated poplar
Lime tree	Large-leaved lime, Small-leaved lime
Small maple	Hedge maple, Montpellier maple, Italian maple
Cherry or wild cherry	Cherry, Choke cherry, Wild cherry, Black cherry
Other fruit tree	Almond, Whitebeam, Broadleaved whitebeam, Mougeot's whitebeam, American mountain ash, Common fig, Almond-leaved pear, Common pear, Plum, Plymouth pear, Crab apple, Oak-leaved mountain ash, Rowan, Swedish Rowan
Aspen	Aspen
Willow	Almond willow, Laurel willow, White willow, Gray willow, Eleagnus willow, Daphne Willow, Brittle willow, Pussy willow, Bog willow, Large gray willow, Osier, Red willow
Plane	London plane-tree, American sycamore, Oriental plane
Walnut	Common walnut, Black walnut
Olive	Olive
Other exotic broadleaved species	Other broad-leaved, Tree-of-heaven, Carob tree, Scarlet oak, Pin oak, Catalpa, Manitoba maple, American ash, Casuarina, Sweet gum, Horse chestnut, Mimosa, Date plum, Paulownia, Pistachio, North American lime tree, White lime tree, Green lime tree
Hazelnut	Hazelnut
Hop hornbeam	Hop hornbeam
Non-cultivated poplar	White poplar, Gray poplar, Black poplar
European turkey oak	European turkey oak
Eucalyptus	Eucalyptus
Green alder	Green alder
Large laburnum (common)	Scots laburnum, Common laburnum
Cornelian cherry	Cornelian cherry
Strawberry tree	Strawberry tree
Wild service tree	Wild service tree
Tulip tree	Tulip tree

Species	Grouped tree species
Other indigenous broad-leaved	Azarole hawthorn, English hawthorn, Common hawthorn, Alder buckthorn, Box, Quince, Orange, Citron, Mandarin tree, Judas tree, Tree heath, European spindletree, Narrow-leaved mock privet, Mock privet, Holly, Persimmon, Laurel, White mulberry, Paper mulberry, Black mulberry, Oleaster, Osage orange, Apricot, Briançon apricot, Cherry plum, Mastic, St Lucie cherry, Snow pear, Blackthorn, Turpentine tree, Mediterranean buckthorn, European buckthorn, Alpine buckthorn, Staghorn sumac, Black elderberry, Red elderberry, French tamarisk, African tamarisk, True lacquer tree
Maritime pin	Maritime pin
Scots pine	Scots pine
Corsican pine	Turkish pine, Corsican pine, Salzman pine
Austrian pine	Austrian pine
Umbrella pine	Umbrella pine
Weymouth pine	Weymouth pine
Aleppo pine	Aleppo pine, Turkish (or) Eldar pine
Mountain pine	Mountain pine
Arolla pine	Arolla pine
Creeping pine	Creeping pine
Silver fir	Silver fir
Common spruce	Common spruce
European Larch	European Larch
Douglas fir	Douglas fir
Atlas cedar	Atlas cedar
Cypress	Cypress
Taxus	Taxus
Other exotic conifer	Arizona cypress, Cyprus cedar, Bald cypress, Himalayan cypress, Japanese cedar, Port Orford cedar, Monterey cypress, Serbian spruce, Murray River pine, Monterey Pine, Colorado Fir, Giant Sequoia, Cilician fir, Evergreen Sequoia, Canadian thuja, Giant thuja, Western hemlock, Eastern hemlock, Other conifers
Juniper	Thuriferous juniper, Common juniper, Prickly juniper
Mediterranean fir	Turkish fir, Greek fir, Andalusian fir
Nordmann fir	Nordmann fir
American fir	Noble fir, Vancouver fir
Sitka spruce	Sitka spruce
Exotic larch	Hybrid larch, Japanese larch
Cedar of Lebanon	Cedar of Lebanon
Loblolly pine	Loblolly pine

Appendix 3. Dates of departmental field surveys under previous forest inventory method

Forest available for wood supply excluding poplar plantations

Administrative region (before 2016)	Department		Mean years			
			1981	1986	1991	1996
Dates of field surveys to record data						
ALSACE	67	BAS-RHIN	1979	1989	1989	2002
	68	HAUT-RHIN	1978	1988	1988	1999
AQUITAINE	24	DORDOGNE	1982	1992	1992	1992
	33	GIRONDE	1977	1987	1987	1998
	40	LANDES	1978	1988	1988	1999
	47	LOT-ET-GARONNE	1979	1989	1989	2000
	64	PYRÉNÉES-ATLANTIQUES	1985	1985	1995	1995
AUVERGNE	03	ALLIER	1987	1987	1987	2001
	15	CANTAL	1977	1989	1989	1989
	43	HAUTE-LOIRE	1979	1991	1991	2002
	63	PUY-DE-DÔME	1976	1988	1988	1988
BASSE-NORMANDIE	14	CALVADOS	1987	1987	1987	2001
	50	MANCHE	1975	1987	1987	2001
	61	ORNE	1975	1988	1988	2001
BOURGOGNE	21	CÔTE-D'OR	1980	1990	1990	1990
	58	NIÈVRE	1985	1985	1996	1996
	71	SAONE-ET-LOIRE	1980	1989	1989	1989
	89	YONNE	1986	1986	1986	1999
BRETAGNE	22	CÔTES-D'ARMOR	1981	1981	1995	1995
	29	FINISTÈRE	1981	1981	1996	1996
	35	ILLE-ET-VILAINE	1980	1980	1995	1995
	56	MORBIHAN	1980	1980	1998	1998
CENTRE	18	CHER	1986	1986	1986	1999
	28	EURE-ET-LOIR	1977	1992	1992	1992
	36	INDRE	1973	1988	1997	1997
	37	INDRE-ET-LOIRE	1985	1985	1985	1999
	41	LOIR-ET-CHER	1982	1982	1982	1998
	45	LOIRET	1979	1979	1992	1992
CHAMPAGNE-ARDENNE	08	ARDENNES	1987	1987	1987	1998
	10	AUBE	1983	1983	1994	1994
	51	MARNE	1986	1986	1986	1997
	52	HAUTE-MARNE	1985	1985	1997	1997
CORSE	2A	CORSE-DU-SUD	1977	1988	1988	1988
	2B	HAUTE-CORSE	1977	1988	1988	1988
FRANCHE-COMTÉ	25	DOUBS	1982	1982	1994	1994
	39	JURA	1980	1980	1992	1992
	70	HAUTE-SAÔNE	1984	1984	1996	1996
	90	TERRITOIRE DE BELFORT	1984	1984	1984	1996
HAUTE-NORMANDIE	27	EURE	1975	1988	1988	2003
	76	SEINE-MARITIME	1976	1989	1989	2002

ÎLE-DE-FRANCE	75	PARIS AND ITS SUBURBS	1979	1979	1994	1994
	77	SEINE-ET-MARNE	1978	1978	1993	1993
LANGUEDOC-ROUSSILLON	11	AUDE	1978	1989	1989	1989
	30	GARD	1982	1982	1993	1993
	34	HÉRAULT	1983	1983	1997	1997
	48	LOZÈRE	1979	1979	1992	1992
	66	PYRÉNÉES-ORIENTALES	1980	1991	1991	1991
LIMOUSIN	19	CORRÈZE	1980	1990	1990	2003
	23	CREUSE	1981	1991	1991	1991
	87	HAUTE-VIENNE	1981	1991	1991	1991
LORRAINE	54	MEURTHE-ET-MOSELLE	1980	1990	1990	1990
	55	MEUSE	1980	1980	1991	1991
	57	MOSELLE	1982	1982	1993	1993
	88	VOSGES	1981	1981	1992	1992
MIDI-PYRÉNÉES	09	ARIEGE	1978	1990	1990	1990
	12	AVEYRON	1981	1981	1994	1994
	31	HAUTE-GARONNE	1975	1987	1987	2000
	32	GERS	1979	1989	1989	2001
	46	LOT	1980	1990	1990	2002
	65	HAUTES-PYRÉNÉES	1974	1986	1997	1997
	81	TARN	1979	1992	1992	1992
NORD-PAS-DE-CALAIS	59	NORD	1986	1986	1986	2000
	62	PAS-DE-CALAIS	1986	1986	1986	2000
PAYS DE LA LOIRE	44	LOIRE-ATLANTIQUE	1985	1985	1985	2000
	49	MAINE-ET-LOIRE	1983	1983	1997	1997
	53	MAYENNE	1983	1983	1983	1999
	72	SARTHE	1984	1984	1984	1999
	85	VENDÉE	1984	1984	1994	1994
PICARDIE	02	AISNE	1977	1991	1991	1991
	60	OISE	1976	1990	1990	2001
	80	SOMME	1976	1989	1989	2002
POITOU-CHARENTES	16	CHARENTE	1983	1983	1993	1993
	17	CHARENTE-MARITIME	1984	1984	1993	1993
	79	DEUX-SÈVRES	1985	1985	1995	1995
	86	VIENNE	1986	1986	1996	1996
PROVENCE-ALPES-CÔTE D'AZUR	40	ALPES-DE-HAUTE-PROVENCE	1984	1984	1984	1999
	05	HAUTES-ALPES	1983	1983	1983	1997
	06	ALPES-MARITIMES	1985	1985	1985	2002
	13	BOUCHES-DU-RHÔNE	1977	1988	1988	1988
	83	VAR	1986	1986	1986	1999
	84	VAUCLUSE	1986	1986	1986	2001
RHÔNE-ALPES	01	AIN	1983	1983	1995	1995
	07	ARDÈCHE	1981	1981	1995	1995
	26	DRÔME	1982	1982	1996	1996
	38	ISÈRE	1984	1984	1997	1997
	42	LOIRE	1981	1981	1993	1993
	69	RHÔNE	1982	1982	1994	1994
	73	SAVOIE	1985	1985	1985	2000
	74	HAUTE-SAVOIE	1975	1987	1987	1998

(contd.)

Poplar plantations

Department	Cycle	Year of reference	Volume inventory
GIRONDE	1	1961	NO
LANDES	1	1961	NO
GERS	1	1962	NO
LOT-ET-GARONNE	1	1962	NO
LOT	1	1963	NO
TARN-ET-GARONNE	1	1963	NO
DORDOGNE	1	1964	NO
MEUSE	1	1964	NO
PUY-DE-DÔME	1	1966	NO
CHARENTE	1	1967	NO
CHARENTE-MARITIME	1	1968	NO
LOIRE	1	1968	NO
LOIR-ET-CHER	1	1969	NO
SAÔNE-ET-LOIRE	1	1969	NO
JURA	1	1970	NO
MEURTHE-ET-MOSELLE	1	1970	NO
TARN	1	1970	NO
VENDÉE	1	1970	NO
CÔTE-D'OR	1	1971	NO
PYRÉNÉES-ATLANTIQUES	1	1971	NO
DEUX-SÈVRES	1	1972	NO
MAYENNE	1	1972	NO
RHÔNE	1	1972	NO
SARTHE	1	1972	NO
AIN	1	1973	NO
INDRE	1	1973	NO
ISÈRE	1	1973	NO
LOIRE-ATLANTIQUE	1	1973	NO
MAINE-ET-LOIRE	1	1973	NO
MOSELLE	1	1973	NO
AUBE	1	1974	NO
CALVADOS	1	1974	NO
DRÔME	1	1974	NO
NORD	1	1974	NO
PAS-DE-CALAIS	1	1974	NO
VIENNE	1	1974	NO
EURE	1	1975	NO
HAUTE-GARONNE	1	1975	NO
HAUTE-MARNE	1	1975	NO
MANCHE	1	1975	NO
ORNE	1	1975	NO
SAVOIE	1	1975	YES
YONNE	1	1975	NO
CHER	1	1976	YES

Department	Cycle	Year of reference	Volume inventory
SEINE-ET-MARNE	1	1978	YES
BAS-RHIN	1	1979	YES
GERS	2	1979	YES
LOIRET	1	1979	YES
LOT-ET-GARONNE	2	1979	YES
PARIS	1	1979	YES
TARN	2	1979	YES
TARN-ET-GARONNE	2	1979	YES
CÔTE-D'OR	2	1980	YES
ILLE-ET-VILAINE	1	1980	YES
JURA	2	1980	YES
LOT	2	1980	YES
MEURTHE-ET-MOSELLE	2	1980	YES
MEUSE	2	1980	YES
SAÔNE-ET-LOIRE	2	1980	YES
AVEYRON	2	1981	YES
CÔTES-D'ARMOR	2	1981	YES
LOIRE	2	1981	YES
DORDOGNE	2	1982	YES
DRÔME	2	1982	YES
LOIR-ET-CHER	2	1982	YES
MOSELLE	2	1982	YES
RHÔNE	2	1982	YES
AIN	2	1983	YES
AUBE	2	1983	YES
CHARENTE	2	1983	YES
MAINE-ET-LOIRE	2	1983	YES
MAYENNE	2	1983	YES
CHARENTE-MARITIME	2	1984	YES
HAUTE-SAÔNE	2	1984	YES
ISÈRE	2	1984	YES
SARTHE	2	1984	YES
TERRITOIRE DE BELFORT	2	1984	YES
VENDÉE	2	1984	YES
CHER	2	1985	YES
DEUX-SÈVRES	2	1985	YES
HAUTE-MARNE	2	1985	YES
INDRE-ET-LOIRE	2	1985	YES
LOIRE-ATLANTIQUE	2	1985	YES
PYRÉNÉES-ATLANTIQUES	2	1985	YES
SAVOIE	2	1985	YES
NORD	2	1986	YES
PAS-DE-CALAIS	2	1986	YES
VIENNE	2	1986	YES

Department	Cycle	Year of reference	Volume inventory
HAUTE-SAÔNE	1	1976	YES
INDRE-ET-LOIRE	1	1976	YES
OISE	1	1976	YES
PUY-DE-DÔME	2	1976	YES
SEINE-MARITIME	1	1976	NO
SOMME	1	1976	YES
TERRITOIRE DE BELFORT	1	1976	NO
AISNE	1	1977	YES
GIRONDE	2	1977	YES
MARNE	1	1977	YES
ALLIER	2	1978	YES
ARDENNES	1	1978	YES
ARIÈGE	2	1978	YES
HAUT-RHIN	1	1978	NO
LANDES	2	1978	YES
GERS	3	1989	YES
LOT-ET-GARONNE	3	1989	YES
SAÔNE-ET-LOIRE	3	1989	YES
SEINE-MARITIME	2	1989	YES
SOMME	2	1989	YES
TARN-ET-GARONNE	3	1989	YES
ARIÈGE	3	1990	YES
CÔTE-D'OR	3	1990	YES
LOT	3	1990	YES
OISE	2	1990	YES
AISNE	2	1991	YES
MEUSE	3	1991	YES
DORDOGNE	3	1992	YES
JURA	3	1992	YES
LOIRET	2	1992	YES
TARN	3	1992	YES
CHARENTE	3	1993	YES
CHARENTE-MARITIME	3	1993	YES
SEINE-ET-MARNE	2	1993	YES
AUBE	3	1994	YES
VENDÉE	3	1994	YES
AIN	3	1995	YES
CÔTES-D'ARMOR	3	1995	NO
DEUX-SÈVRES	3	1995	YES
HAUTE-SAÔNE	3	1995	YES
PYRÉNÉES-ATLANTIQUES	3	1995	YES
DRÔME	3	1996	YES
ARDENNES	2	1987	YES
CALVADOS	2	1987	YES
GIRONDE	3	1987	YES
HAUTE-GARONNE	2	1987	YES
MANCHE	2	1987	YES
MARNE	2	1987	YES
EURE	2	1988	YES
HAUT-RHIN	2	1988	YES

Department	Cycle	Year of reference	Volume inventory
INDRE	2	1988	YES
LANDES	3	1988	YES
YONNE	2	1986	YES
ORNE	2	1988	YES
ALLIER	3	1987	YES
PUY-DE-DÔME	3	1988	YES
BAS-RHIN	2	1989	YES
HAUTE-MARNE	3	1996	YES
VIENNE	3	1996	YES
INDRE	3	1997	YES
ISÈRE	3	1997	YES
MAINE-ET-LOIRE	3	1997	YES
MARNE	3	1997	YES
ARDENNES	3	1998	YES
GIRONDE	4	1998	YES
LOIR-ET-CHER	3	1998	YES
CHER	3	1999	YES
INDRE-ET-LOIRE	3	1999	YES
LANDES	4	1999	YES
SARTHE	3	1999	YES
YONNE	3	1999	YES
BAS-RHIN	3	2000	YES
CALVADOS	3	2000	YES
HAUTE-GARONNE	3	2000	YES
LOIRE-ATLANTIQUE	3	2000	YES
LOT-ET-GARONNE	4	2000	YES
MAYENNE	3	2000	YES
NORD	3	2000	YES
PAS-DE-CALAIS	3	2000	YES
SAVOIE	3	2000	YES
ALLIER	4	2001	YES
GERS	4	2001	YES
MANCHE	3	2001	YES
OISE	3	2001	YES
ORNE	3	2001	YES
EURE	3	2002	YES
SEINE-MARITIME	3	2002	YES
SOMME	3	2002	YES
TARN-ET-GARONNE	4	2002	YES
AISNE	3	2003	YES
PUY-DE-DÔME	4	2003	YES
SAÔNE-ET-LOIRE	4	2003	YES
CÔTE-D'OR	4	2004	YES
PARIS	3	2004	YES
SEINE-ET-MARNE	3	2004	YES

Appendix 4. Dates of aerial photographs used to create the forest mapping

Department	1999*		2008*	
	Date of aerial photo			
01	Ain	2005	(v.2)	
02	Aisne	1999	(v.1)	2010 (v.2)
03	Allier	1997	(v.1)	2008 (v.2)
04	Alpes-de-Haute-Provence	1994	(v.1)	2009 (v.2)
05	Hautes-Alpes	1993	(v.1)	2009 (v.2)
06	Alpes-Maritimes	2004	(v.2)	
07	Ardèche	2007	(v.2)	
08	Ardennes	2005	(v.2)	
09	Ariège	2001	(v.1)	2011 (v.2)
10	Aube	2005	(v.2)	
11	Aude	1999	(v.1)	2012 (v.2)
12	Aveyron	1990	(v.1)	2008 (v.2)
13	Bouches-du-Rhône	1997	(v.1)	2008 (v.2)
14	Calvados	1998	(v.1)	2009 (v.2)
15	Cantal	2000	(v.1)	2010 (v.2)
16	Charente	2002	(v.1)	2011 (v.2)
17	Charente-Maritime	2003	(v.1)	2010 (v.2)
18	Cher	2005	(v.2)	
19	Corrèze	1999	(v.1)	2012 (v.2)
2A	Corse-du-Sud	2000	(v.1)	2011 (v.2)
2B	Haute-Corse	2000	(v.1)	2011 (v.2)
21	Côte-d'Or	2000	(v.1)	2010 (v.2)
22	Côtes-d'Armor	2003	(v.1)	2011 (v.2)
23	Creuse	2000	(v.1)	2010 (v.2)
24	Dordogne	2000	(v.1)	2009 (v.2)
25	Doubs	2000	(v.1)	2010 (v.2)
26	Drôme	2006	(v.2)	
27	Eure	2000	(v.1)	2009 (v.2)
28	Eure-et-Loir	2001	(v.1)	2012 (v.2)
29	Finistère	1993	(v.1)	2005 (v.2)
30	Gard	2000	(v.1)	2012 (v.2)
31	Haute-Garonne	1996	(v.1)	2010 (v.2)
32	Gers	1998	(v.1)	2011 (v.2)
33	Gironde	1995	(v.1)	2009 (v.2)
34	Hérault	2002	(v.1)	2012 (v.2)
35	Ille-et-Vilaine	2003	(v.1)	2010 (v.2)
36	Indre	2004	(v.2)	
37	Indre-et-Loire	2002	(v.1)	2011 (v.2)
38	Isère	1993	(v.1)	2009 (v.2)
39	Jura	2000	(v.1)	2010 (v.2)
40	Landes	1997	(v.1)	2009 (v.2)
41	Loir-et-Cher	2002	(v.1)	2011 (v.2)
42	Loire	2006	(v.2)	
43	Haute-Loire	1999	(v.1)	2010 (v.2)
44	Loire-Atlantique	1996	(v.1)	2009 (v.2)
45	Loiret	2001	(v.1)	2010 (v.2)

Department	1999*		2008*	
	Date of aerial photo			
46	Pilot	1999	(v.1)	2012 (v.2)
47	Lot-et-Garonne	1997	(v.1)	2009 (v.2)
48	Lozère	2000	(v.1)	2012 (v.2)
49	Maine-et-Loire	1994	(v.1)	2009 (v.2)
50	Manche	1998	(v.1)	2010 (v.2)
51	Marne	1995	(v.1)	2004 (v.2)
52	Haute-Marne	2006	(v.2)	
53	Mayenne	2006	(v.2)	
54	Meurthe-et-Moselle	2001	(v.1)	2009 (v.2)
55	Meuse	2003	(v.1)	2011 (v.2)
56	Morbihan	2004	(v.2)	
57	Moselle	2001	(v.1)	2009 (v.2)
58	Nièvre	2007	(v.2)	
59	Nord	1998	(v.1)	2009 (v.2)
60	Oise	1999	(v.1)	2010 (v.2)
61	Orne	1998	(v.1)	2010 (v.2)
62	Pas-de-Calais	1998	(v.1)	2009 (v.2)
63	Puy-de-Dôme	2000	(v.1)	2009 (v.2)
64	Pyrénées-Atlantiques	1992	(v.1)	2008 (v.2)
65	Hautes-Pyrénées	2006	(v.2)	
66	Pyrénées-Orientales	1999	(v.1)	2012 (v.2)
67	Bas-Rhin	1997	(v.1)	2007 (v.2)
68	Haut-Rhin	1997	(v.1)	2007 (v.2)
69	Rhône	1990	(v.1)	2008 (v.2)
70	Haute-Saône	2003	(v.1)	2011 (v.2)
71	Saône-et-Loire	1999	(v.1)	2011 (v.2)
72	Sarthe	2005	(v.2)	
73	Savoie	2006	(v.2)	
74	Haute-Savoie	1995	(v.1)	2008 (v.2)
75, 78, 91, 92, 93, 94, 95	Paris and Western Ile-de-France	2000	(v.1)	2011 (v.2)
76	Seine-Maritime	2000	(v.1)	2012 (v.2)
77	Seine-et-Marne	2000	(v.1)	2012 (v.2)
78				2011 (v.2)
79	Deux-Sèvres	2007	(v.2)	
80	Somme	1999	(v.1)	2011 (v.2)
81	Tarn	1987	(v.1)	2006 (v.2)
82	Tarn-et-Garonne	1998	(v.1)	2010 (v.2)
83	Var	1995	(v.1)	2008 (v.2)
84	Vaucluse	2005	(v.2)	
85	Vendée	2006	(v.2)	
86	Vienna	1993	(v.1)	2007 (v.2)
87	Haute-Vienne	2000	(v.1)	2010 (v.2)
88	Vosges	2004	(v.1)	2010 (v.2)
89	Yonne	1996	(v.1)	2007 (v.2)
90	Territoire de Belfort	2002	(v.1)	2013 (v.2)

Clarifications: * In mean year 1999, the national map brought together the departmental maps of versions 1 and 2 (the detail of versions used is given in the table). In mean year 2008, the departmental maps are all version 2.

Appendix 5. Nativeness of tree species found in metropolitan forests

This list was created initially for the SMI 1995 edition with the assistance of Mr Jean-Claude Rameau (AgroParisTech) using two sources: the National Forest Inventory lists and the “French forest flora, an illustrated ecological guide”, published by Rameau et al., 1989 and 1993. It has been supplemented by Inra and FCBA. This choice has resulted in a certain number of exotic species being ignored, normally presented in small, more or less experimental areas.

Indigenous tree species are defined as species which have colonize the metropolitan territory by natural means or thanks to human factors, but where the presence is in all cases confirmed prior to 1492.

For the SMI 2015 edition, the “trees acclimatized in France” and “exotic trees occasionally found in forests” have been renamed respectively “non-indigenous trees frequently planted in forests” and “non-indigenous trees sometimes encountered in forests”, meaning that certain species have changed categories. The laburnum and Portugal laurel have been acknowledged as indigenous, unlike the white lime tree. The Portuguese oak and holm oak have been added. The nomenclature follows the taxonomic and nomenclature baseline of the Flore de France (TaxRef v8, MNHN 2014). Synonyms have been indicated when they are also used commonly. The distinction between Corsican and Turkish pines have been maintained.

■ List of indigenous trees found in metropolitan French forests

◆ Conifers

<i>Abies alba</i> Mill.	Silver fir
<i>Cupressus sempervirens</i> L.	Italian cypress
<i>Juniperus communis</i> L.	Common juniper
<i>Juniperus communis</i> L.	Prickly juniper
<i>Juniperus communis</i> L.	Thuriferous juniper
<i>Larix decidua</i> Mill.	European Larch
<i>Picea abies</i> (L.) H.Karst.	Common spruce
<i>Pinus cembra</i> L.	Arolla pine
<i>Pinus halepensis</i> Mill.	Aleppo pine
<i>Pinus mugo</i> subsp. <i>uncinata</i> (Ramond ex DC.) Domin	Mountain pine
<i>Pinus mugo</i> Turra subsp. <i>mugo</i>	Creeping pine
<i>Pinus nigra</i> subsp. <i>salzmannii</i> (Dunal) Franco	Salzmann pine
<i>Pinus nigra</i> var. <i>corsicana</i> (J.W.Loudon) Hyl.	Corsican pine
<i>Pinus pinaster</i> Aiton	Maritime pine
<i>Pinus cembra</i> L.	Umbrella pine
<i>Pinus sylvestris</i> L.	Scots pine
<i>Taxus baccata</i> L.	Common taxus

◆ Broad-leaved

<i>Acer campestre</i> L.	Hedge maple
<i>Acer monspessulanum</i> L.	Montpellier maple
<i>Acer opalus</i> Mill.	Italian maple
<i>Acer platanoides</i> L.	Norway maple
<i>Acer pseudoplatanus</i> L.	Sycamore maple
<i>Alnus cordata</i> (Loisel.) Duby	Corsican alder
<i>Alnus glutinosa</i> (L.) Gaertn.	Black alder
<i>Alnus incana</i> (L.) Moench	White alder
<i>Arbutus unedo</i> L.	Strawberry tree
<i>Betula pendula</i> Roth	Silver birch
<i>Betula pubescens</i> Ehrh.	Pubescent birch
<i>Carpinus betulus</i> L.	Hornbeam
<i>Castanea sativa</i> Mill.	Chestnut
<i>Cornus mas</i> L.	Cornelian cherry
<i>Crataegus monogyna</i> Jacq.	Common hawthorn
<i>Fagus sylvatica</i> L.	Beech
<i>Fraxinus angustifolia</i> Vahl	Narrow-leaved ash
<i>Fraxinus excelsior</i> L.	Common ash
<i>Fraxinus ornus</i> L.	Flowering ash
<i>Ilex aquifolium</i> L.	Holly
<i>Juglans regia</i> L.	Common walnut
<i>Laburnum anagyroides</i> Medik.	Laburnum
<i>Malus sylvestris</i> Mill.	Crab apple
<i>Olea europaea</i> L.	Olive
<i>Ostrya carpinifolia</i> Scop.	Hop-hornbeam
<i>Populus alba</i> L.	White poplar
<i>Populus nigra</i> L.	Black poplar
<i>Populus tremula</i> L.	Aspen
<i>Populus x canescens</i> (Aiton) Sm.	Gray poplar
<i>Prunus avium</i> (L.) L.	Wild cherry
<i>Prunus lusitanica</i> L.	Portugal laurel
<i>Prunus padus</i> L.	Choke cherry
<i>Pyrus communis</i> L.	Common pear
<i>Pyrus spinosa</i> Forssk.	Almond-leaved pear
<i>Quercus cerris</i> L.	European turkey oak
<i>Quercus ilex</i> L. subsp. <i>ilex</i>	Holm oak
<i>Quercus ilex</i> subsp. <i>ballota</i> (Desf.) Samp. syn. <i>Quercus rotundifolia</i> Lam.	Holm oak (or "soft acorns")
<i>Quercus faginea</i> Lam	Portuguese oak
<i>Quercus petraea</i> Liebl.	Sessile oak
<i>Quercus pubescens</i> Willd.	Pubescent oak
<i>Quercus pyrenaica</i> Willd.	Pyrenean oak
<i>Quercus robur</i> L.	Pedunculate oak
<i>Quercus suber</i> L.	Cork oak
<i>Salix alba</i> L.	White willow
<i>Salix caprea</i> L.	Pussy willow
<i>Salix daphnoides</i> Vill.	Daphne willow
<i>Salix fragilis</i> L.	Brittle willow
<i>Salix pentandra</i> L.	Laurel willow
<i>Salix viminalis</i> L.	Osier
<i>Sambucus nigra</i> L.	Black elderberry
<i>Sorbus aria</i> (L.) Crantz	Whitebeam
<i>Sorbus aucuparia</i> L.	Rowan
<i>Sorbus domestica</i> L.	American mountain ash
<i>Sorbus latifolia</i> (Lam.) Pers.	Broadleaved whitebeam
<i>Sorbus mougeotii</i> Soy.-Will. & Godr.	Mougeot's whitebeam
<i>Sorbus torminalis</i> (L.) Crantz	Wild service tree
<i>Tamarix gallica</i> L.	French tamarisk
<i>Tilia cordata</i> Mill.	Small-leaved lime
<i>Tilia platyphyllos</i> Scop.	Large-leaved lime
<i>Ulmus glabra</i> Huds.	Mountain elm
<i>Ulmus laevis</i> Pall.	White elm
<i>Ulmus minor</i> Mill.	English elm

■ List of frequent non-indigenous trees in metropolitan forests (with presumed date of introduction)

◆ Conifers

<i>Abies nordmanniana</i> (Steven) Spach	Nordmann fir (1900)
<i>Cedrus atlantica</i> (Manetti ex Endl.) Carrière	Atlas cedar (1886)
<i>Larix kaempferi</i> (Lindl.) Carrière	Japanese larch (1900)
<i>Larix x marschlinsii</i> Coaz	Hybrid larch (1960)
<i>Picea sitchensis</i> (Bong.) Carrière	Sitka spruce (1845)
<i>Pinus nigra</i> J.F.Arnold subsp. <i>nigra</i>	Austrian pine (1830)
<i>Pinus nigra</i> var. <i>calabrica</i> (J.W.Loudon) G.Schneid.	Turkish pine (1900)
<i>Pseudotsuga menziesii</i> (Mirb.) Franco	Douglas fir (1842)

◆ Broad-leaved

<i>Populus</i> spp.	Hybrid poplars (late 17th)
<i>Populus deltoides</i> Bartram ex Marshall	Eastern cottonwood (1892)
<i>Populus trichocarpa</i> Torr. & A.Gray ex Hook.	Balsam poplar (1892)
<i>Quercus rubra</i> L.	Northern red oak (18th)
<i>Robinia pseudoacacia</i> L.	Locust tree false acacia (1601)

■ List of rare non-indigenous trees in metropolitan forests

◆ Conifers

<i>Abies bornmuelleriana</i> Mattf.	Turkish fir
<i>Abies cephalonica</i> J.W.Loudon	Greek fir
<i>Abies cilicica</i> (Antoine & Kotschy) Carrière	Cilician fir
<i>Abies concolor</i> (Gordon & Glend.) Lindl. ex Hildebr.	Colorado fir
<i>Abies grandis</i> (Douglas ex D.Don) Lindl.	Vancouver fir
<i>Abies numidica</i> Lannoy ex Carrière	Algerian fir
<i>Abies pinsapo</i> Boiss.	Spanish fir
<i>Abies procera</i> Rehder	Noble fir
<i>Calocedrus decurrens</i> (Torr.) Florin	Incense cedar
<i>Cedrus deodara</i> (Roxb. ex D.Don) G.Don	Himalayan cedar
<i>Cedrus libani</i> A.Rich.	Cedar of Lebanon
<i>Cedrus libani</i> var. <i>brevifolia</i> Hook.f.	Cyprus cedar
<i>Chamaecyparis lawsoniana</i> (A.Murray) Parl.	Port Orford cedar
<i>Cryptomeria japonica</i> (L.f.) D.Don	Japanese cedar
<i>Cupressus arizonica</i> Greene	Arizona cypress
<i>Cupressus atlantica</i> Gaussen	Moroccan cypress
<i>Cupressus dupreziana</i> A.Camus	Saharan cypress
<i>Cupressus macrocarpa</i> Hartw.	Monterey cypress
<i>Cupressocyparis x leylandii</i> (A.B.Jacks. & Dallim.) Dallim. syn <i>Cupressus leylandii</i> Rushforth	Leyland cypress
<i>Metasequoia glyptostroboides</i> Hu & W.C.Cheng	Dawn redwood
<i>Pinus brutia</i> Ten.	Turkish pine
<i>Pinus brutia</i> var. <i>eldarica</i> (Medw.) Silba	Eldar pine
<i>Pinus contorta</i> Douglas ex J.W.Loudon	Twisted pine or Murray River pine
<i>Pinus radiata</i> D.Don	Monterey pine
<i>Pinus rigida</i> Mill.	Pitch pine
<i>Pinus strobus</i> L.	White pine or Weymouth pine
<i>Pinus taeda</i> L.	Incense pine
<i>Populus nigra</i> var. <i>italica</i> Münchh.	Lombardy poplar
<i>Sequoia sempervirens</i> (D.Don) Endl	Evergreen sequoia
<i>Sequoiadendron giganteum</i> (Lindl.) J.Buchholz	Giant sequoia
<i>Taxodium distichum</i> (L.) Rich.	Bald cypress
<i>Thuja plicata</i> D.Don ex Lamb.	Giant thuja
<i>Tsuga heterophylla</i> (Raf.) Sarg.	Western hemlock

◆ Broad-leaved

<i>Acacia dealbata</i> Link	Mimosa
<i>Acer negundo</i> L.	Manitoba maple
<i>Aesculus hippocastanum</i> L.	Horse chestnut
<i>Ailanthus altissima</i> (Mill.) Swingle	Tree of heaven
<i>Celtis australis</i> L.	Hackberry tree
<i>Eucalyptus</i> spp.	Eucalyptus or Gum
<i>Gleditsia triacanthos</i> L.	Honey locust
<i>Juglans nigra</i> L.	Black walnut
<i>Liquidambar styraciflua</i> L.	Sweet gum
<i>Liriodendron tulipifera</i> L.	Tulip tree
<i>Platanus orientalis</i> L.	Oriental plane
<i>Platanus x hispanica</i> Mill. ex Münchh.	Hybrid plane
<i>Prunus serotina</i> Ehrh.	Black cherry
<i>Quercus palustris</i> Münchh.	Pin oak
<i>Tilia tomentosa</i> Moench	White lime tree

The full list of wooded species found in French forests (metropolitan and overseas) can be consulted on the Internet site of the Ministry of Agriculture, Agrifood and Forestry, at the address:
<<http://agriculture.gouv.fr/inventaire-ressources-genetiques-forestieres>>

Appendix 6.

Lost of threatened forest species

■ Vascular plants: species classed as threatened or extinct in the National Red List of threatened species in France

(as per IUCN methodology)

Extinct species: **EX**: extinct worldwide; **EW**: extinct in the wild; **RE**: extinct regionally.

Threatened species: **CR**: critically endangered; **EN**: endangered; **VU**: vulnerable.

◆ 1) Strictly forest species or found more frequently in forests

Trees

Scientific name	Common name	Category France
<i>Acer obtusatum</i>	Syrian maple	EN
<i>Quercus crenata</i>	Pseudo cork oak	EN
<i>Creeping pine</i>	Mountain pine	VU

Herbaceous

Scientific name	Common name	Category France
<i>Chimaphila umbellata</i>	Pipsissewa	RE
<i>Cypripedium calceolus</i>	Lady's slipper orchid	VU
<i>Dryopteris cristata</i>	Crested wood fern	VU
<i>Gagea spathacea</i>	Belgian gagea	VU
<i>Polystichum braunii</i>	Braun's shield fern	VU

◆ 2) Species with mixed behavior, found more or less equally in forests and open areas

Shrubs

Scientific name	Common name	Category France
<i>Genista aetnensis</i>	Mount Etna broom	CR
<i>Helichrysum arenarium</i>	Dwarf everlast	CR
<i>Lavatera trimestris</i>	Annual mallow	CR
<i>Cistus inflatus</i>	Cistus inflatus	EN
<i>Daphne striata</i>	Daphne striata	EN
<i>Erica lusitanica</i>	Portuguese heath	EN
<i>Erinacea anthyllis</i>	Blue broom	EN
<i>Helianthemum lunulatum</i>	Helianthemum lunulatum	EN
<i>Nerium oleander</i>	Oleander	EN
<i>Phyllodoce caerulea</i>	Blue heath	EN
<i>Plagius flosculosus</i>	Plagius flosculosus	EN
<i>Polygonum scoparium</i>	Polygonum scoparium	EN
<i>Teucrium fruticans</i>	Tree germander	EN
<i>Anagyris foetida</i>	Anagyris foetida	VU
<i>Anthyllis cytisoides</i>	Anthyllis cytisoides	VU
<i>Artemisia arborescens</i>	Tree wormwood	VU
<i>Astragalus tragacantha</i>	Astragale de Marseille	VU
<i>Cotoneaster delphinensis</i>	Cotoneaster delphinensis	VU
<i>Cytisus ardoini</i>	Cytisus ardoini	VU
<i>Echinopartum horridum</i>	Echinopartum horridum	VU
<i>Erica erigena</i>	Irish heath	VU
<i>Euphorbia corsica</i>	Euphorbia corsica	VU
<i>Genista delphinensis</i>	Genista delphinensis	VU
<i>Genista linifolia</i>	Flax broom	VU
<i>Genista radiata</i>	Rayed broom	VU
<i>Hormathophylla lapeyrousiana</i>	Hormathophylla lapeyrousiana	VU
<i>Hormathophylla pyrenaica</i>	Hormathophylla pyrenaica	VU
<i>Limoniastrum monopetalum</i>	Limoniastrum monopetalum	VU

Scientific name	Common name	Category France
<i>Limonium strictissimum</i>	Limonium strictissimum	VU
<i>Potentilla fruticosa</i>	Shrubby cinquefoil	VU
<i>Prasium majus</i>	White hedge nettle	VU
<i>Prunus lusitanica</i>	Portugal laural	VU
<i>Prunus prostrata</i>	Prostrate cherry	VU
<i>Rhododendron hirsutum</i>	Hairy alpenrose	VU
<i>Silene velutina</i>	Silene velutina	VU
<i>Staphylea pinnata</i>	European bladdernut	VU
<i>Teucrium brachyandrum</i>	Teucrium brachyandrum	VU
<i>Teucrium pseudochamaepitys</i>	Teucrium pseudochamaepitys	VU
<i>Thymelaea ruizii</i>	Thymelaea ruizii	VU
<i>Viola arborescens</i>	Tree violet	VU

Herbaceous

Scientific name	Common name	Category France
<i>Filago neglecta</i>	Filago neglecta	EX
<i>Viola cryana</i>	Cry violet	EX
<i>Bromus bromoideus</i>	Brome of the Ardennes	EW
<i>Tulipa aximensis</i>	Tulipa aximensis	EW
<i>Tulipa marjolleti</i>	Tulipa marjolleti	EW
<i>Tulipa mauriana</i>	Tulipa mauriana	EW
<i>Allium trifoliatum</i>	Pink garlic	RE
<i>Anacamptis collina</i>	Anacamptis collina	RE
<i>Androsace chamaejasme</i>	Sweet flower rock jasmine	RE
<i>Botrychium lanceolatum</i>	Lance-leaf grapefern	RE
<i>Botrychium multifidum</i>	Leathery grapefern	RE
<i>Bromus grossus</i>	Bromus grossus	RE

Herbaceous (continued)

Scientific name	Common name	Category France
<i>Cuscuta monogyna</i>	Cuscuta monogyna	RE
<i>Diphysastrum complanatum</i>	Creeping jenny	RE
<i>Gastridium scabrum</i>	Gastridium scabrum	RE
<i>Linaria triphylla</i>	Linaria triphylla	RE
<i>Linum nodiflorum</i>	Linum nodiflorum	RE
<i>Minuartia stricta</i>	Bog stitchwort	RE
<i>Rumex tuberosus</i>	Rumex tuberosus	RE
<i>Saxifraga cuneata</i>	Saxifraga cuneata	RE
<i>Saxifraga seguieri</i>	Saxifraga seguieri	RE
<i>Scirpus radicans</i>	Scirpus radicans	RE
<i>Succisella inflexa</i>	Succisella inflexa	RE
<i>Allium suaveolens</i>	Allium suaveolens	CR
<i>Allium tenuiflorum</i>	Allium tenuiflorum	CR
<i>Anchusa crispa</i>	Anchusa crispa	CR
<i>Armeria belgicensis</i>	Armeria belgicensis	CR
<i>Artemisia insipida</i>	Artemisia insipida	CR
<i>Asplenium cuneifolium</i>	Asplenium cuneifolium	CR
<i>Astragalus epiglottis</i>	Astragalus epiglottis	CR
<i>Bellevia trifoliata</i>	Bellevia trifoliata	CR
<i>Carex glacialis</i>	Glacial sedge	CR
<i>Carpesium cernuum</i>	Carpesium cernuum	CR
<i>Cyclosorus pozoi</i>	Cyclosorus pozoi	CR
<i>Cyperus flavidus</i>	Yellow flatsedge	CR
<i>Dryopteris pallida</i>	Dryopteris pallida	CR
<i>Ephedra negrii</i>	Ephedra negrii	CR
<i>Eryngium pusillum</i>	Eryngium pusillum	CR
<i>Eryngium viviparum</i>	Eryngium viviparum	CR
<i>Filago carpetana</i>	Filago carpetana	CR
<i>Geranium bohemicum</i>	Geranium bohemicum	CR
<i>Gladiolus imbricatus</i>	Gladiolus imbricatus	CR
<i>Jacobaea personii</i>	Jacobaea personii	CR
<i>Lathyrus amphicarpos</i>	Lathyrus amphicarpos	CR
<i>Lathyrus inconspicuus</i>	Lathyrus inconspicuus	CR
<i>Limonium dubyi</i>	Limonium dubyi	CR
<i>Lysimachia tyrrenia</i>	Lysimachia tyrrenia	CR
<i>Nigella arvensis</i>	Nigella arvensis	CR
<i>Notobasis syriaca</i>	Syrian thistle	CR
<i>Primula halleri</i>	Primula halleri	CR
<i>Ranunculus sylviae</i>	Ranunculus sylviae	CR
<i>Romulea arnaudii</i>	Romulea arnaudii	CR
<i>Rouya polygama</i>	Rouya polygama	CR
<i>Saxifraga hieraciifolia</i>	Saxifraga hieraciifolia	CR
<i>Saxifraga hirculus</i>	Marsh saxifrage	CR
<i>Silene muscipula</i>	Silene muscipula	CR
<i>Stachys maritima</i>	Stachys maritima	CR
<i>Stipa parviflora</i>	Stipa parviflora	CR
<i>Tanacetum annuum</i>	Blue tansy	CR
<i>Trifolium squarrosum</i>	Squarrose clover	CR
<i>Tulipa didieri</i>	Didier's tulip	CR
<i>Tulipa montisandrei</i>	Tulipa montisandrei	CR
<i>Tulipa planifolia</i>	Tulipa planifolia	CR
<i>Tulipa platystigma</i>	Tulipa platystigma	CR
<i>Tulipa rubidusa</i>	Tulipa rubidusa	CR
<i>Vicia glauca</i>	Vicia glauca	CR
<i>Viola hispida</i>	Viola hispida	CR
<i>Woodsia ilvensis</i>	Oblong woodsia	CR

Scientific name	Common name	Category France
<i>Woodwardia radicans</i>	Chain fern	CR
<i>Acis nicaeensis</i>	Winter snowflake	EN
<i>Alkanna lutea</i>	Alkanna lutea	EN
<i>Allium consimile</i>	Allium consimile	EN
<i>Antinoria agrostidea</i>	Antinoria agrostidea	EN
<i>Aristolochia clusii</i>	Green-flowered birthwort	EN
<i>Armeria soleirolii</i>	Armeria soleirolii	EN
<i>Asplenium lepidum</i>	Spleenwort	EN
<i>Astragalus alopecuroides</i>	Astragalus alopecuroides	EN
<i>Bifora testiculata</i>	European bishop	EN
<i>Biscutella divionensis</i>	Biscutella divionensis	EN
<i>Biscutella rotgesii</i>	Biscutella rotgesii	EN
<i>Bromus fasciculatus</i>	Bromus fasciculatus	EN
<i>Bupleurum subovatum</i>	Lanceleaf thorn-wax	EN
<i>Calamagrostis stricta</i>	Slim-stem small reed grass	EN
<i>Campanula cervicaria</i>	Bristly bellflower	EN
<i>Carduus fasciculiflorus</i>	Carduus fasciculiflorus	EN
<i>Carex buxbaumii</i>	Club sedge	EN
<i>Carex chordorrhiza</i>	Creeping sedge	EN
<i>Carex heleonastes</i>	Hudson Bay sedge	EN
<i>Centaurium chloodes</i>	Centaurium chloodes	EN
<i>Centaurium favargerii</i>	Centaurium favargerii	EN
<i>Centaurium scilloides</i>	Perennial Centaury	EN
<i>Centranthus trinervis</i>	Centranthus trinervis	EN
<i>Cerastium comatum</i>	Mouse-ear chickweed	EN
<i>Cerinthe tenuiflora</i>	Cerinthe tenuiflora	EN
<i>Cheilanthes guanchica</i>	Cheilanthes guanchica	EN
<i>Cirsium italicum</i>	Cirsium italicum	EN
<i>Cynomorium coccineum</i>	Maltese mushroom	EN
<i>Danthonia alpina</i>	Danthonia alpina	EN
<i>Diphysastrum issleri</i>	Issler's clubmoss	EN
<i>Diphysastrum zeilleri</i>	Diphysastrum zeilleri	EN
<i>Draba incana</i>	Hoary whitlow grass	EN
<i>Elatine bronchonii</i>	Elatine bronchonii	EN
<i>Elatine triandra</i>	Elatine triandra	EN
<i>Fuirena pubescens</i>	Fuirena pubescens	EN
<i>Gagea pomeranica</i>	Gagea pomeranica	EN
<i>Galium rubioides</i>	European bedstraw	EN
<i>Galium trifidum</i>	Threepetal bedstraw	EN
<i>Garidella nigellastrum</i>	Garidella nigellastrum	EN
<i>Geum heterocarpum</i>	Geum heterocarpum	EN
<i>Gladiolus palustris</i>	Sword lily	EN
<i>Hammarbya paludosa</i>	Bog orchid	EN
<i>Helianthemum aegyptiacum</i>	Helianthemum aegyptiacum	EN
<i>Herniaria litardierei</i>	Herniaria litardierei	EN
<i>Hymenophyllum wilsonii</i>	Wilson's filmy fern	EN
<i>Hypocoum imberbe</i>	Sicklefruit hypocoum	EN
<i>Ipomoea sagittata</i>	Saltmarsh morning glory	EN
<i>Isatis alpina</i>	Isatis alpina	EN
<i>Isoetes boryana</i>	Isoetes boryana	EN
<i>Juncus fontanesii</i>	Juncus fontanesii	EN
<i>Kadenia dubia</i>	Kadenia dubia	EN
<i>Lactuca quercina</i>	Wild lettuce	EN
<i>Limonium bonifaciense</i>	Limonium bonifaciense	EN
<i>Limonium duriusculum</i>	European sea lavender	EN
<i>Limonium humile</i>	Lax-flowered sea lavender	EN
<i>Limonium patrimonense</i>	Limonium patrimonense	EN
<i>Limonium portovecchiense</i>	Limonium portovecchiense	EN

Herbaceous (continued)

Scientific name	Common name	Category France
<i>Linnaea borealis</i>	Twinflower	EN
<i>Lolium parabolicae</i>	Lolium parabolicae	EN
<i>Lolium temulentum</i>	Darnel	EN
<i>Lythrum thesioides</i>	Lythrum thesioides	EN
<i>Malcolmia nana</i>	Malcolmia nana	EN
<i>Malope malacoides</i>	Hairy mallow	EN
<i>Matthiola valesiaca</i>	Matthiola valesiaca	EN
<i>Medicago rugosa</i>	Rugose medic	EN
<i>Mercurialis corsica</i>	Mercurialis corsica	EN
<i>Minuartia setacea</i>	Minuartia setacea	EN
<i>Morisia monanthos</i>	Morisia monanthos	EN
<i>Nepeta agrestis</i>	Nepeta agrestis	EN
<i>Odontites cebennensis</i>	Odontites cebennensis	EN
<i>Ononis diffusa</i>	Ononis diffusa	EN
<i>Ophrys aveyronensis</i>	Ophrys aveyronensis	EN
<i>Ophrys eleonora</i>	Ophrys eleonora	EN
<i>Orobanche bartlingii</i>	Orobanche bartlingii	EN
<i>Polycnemum arvense</i>	Field needleleaf	EN
<i>Potamogeton praelongus</i>	Long-stalked pondweed	EN
<i>Potentilla multifida</i>	Potentilla multifida	EN
<i>Ranunculus lateriflorus</i>	Ranunculus lateriflorus	EN
<i>Rhaponcticoides alpina</i>	Rhaponcticoides alpina	EN
<i>Romulea ligustica</i>	Romulea ligustica	EN
<i>Senecio rosinae</i>	Senecio rosinae	EN
<i>Senecio ruthenensis</i>	Senecio ruthenensis	EN
<i>Senecio sarracenicus</i>	Broadleaved ragwort	EN
<i>Seseli praecox</i>	Seseli praecox	EN
<i>Silene coelirosa</i>	Rose of Heaven	EN
<i>Silene requienii</i>	Silene requienii	EN
<i>Sisymbrium polyceratium</i>	Sisymbrium polyceratium	EN
<i>Stachys brachyclada</i>	Stachys brachyclada	EN
<i>Sternbergia colchiciflora</i>	Sternbergia colchiciflora	EN
<i>Subularia aquatica</i>	Water awlwort	EN
<i>Tephrosia palustris</i>	Swamp ragwort	EN
<i>Tulipa agenensis</i>	Tulip of Agen	EN
<i>Tulipa clusiana</i>	Lady tulip	EN
<i>Tulipa lortetii</i>	Tulipa lortetii	EN
<i>Tulipa raddii</i>	Tulipa raddii	EN
<i>Verbena supina</i>	Trailing verbena	EN
<i>Veronica longifolia</i>	Speedwell	EN
<i>Viola pumila</i>	Meadow violet	EN
<i>Achillea atrata</i>	Black yarrow	VU
<i>Achillea moschata</i>	Simple-leaved milfoil	VU
<i>Acis fabrei</i>	Acis fabrei	VU
<i>Adonis pyrenaica</i>	Adonis pyrenaica	VU
<i>Aethionema thomasianum</i>	Aethionema thomasianum	VU
<i>Agrostis durieui</i>	Agrostis durieui	VU
<i>Agrostis tenerrima</i>	Agrostis tenerrima	VU
<i>Allium corsicum</i>	Allium corsicum	VU
<i>Allium lineare</i>	Allium lineare	VU
<i>Allium moly</i>	Golden garlic	VU
<i>Allium nigrum</i>	Black garlic	VU
<i>Allium siculum</i>	Sicilian honey garlic	VU
<i>Althenia filiformis</i>	Althenia filiformis	VU
<i>Alyssum cuneifolium</i>	Alyssum cuneifolium	VU
<i>Alyssum loiseleurii</i>	Alyssum loiseleurii	VU

Scientific name	Common name	Category France
<i>Alyssum robertianum</i>	Alyssum robertianum	VU
<i>Ambrosina bassii</i>	Ambrosina	VU
<i>Ampelodesmos mauritanicus</i>	Mauritanian grass	VU
<i>Anacamptis longicornu</i>	Long-spurred orchid	VU
<i>Anarrhinum laxiflorum</i>	Anarrhinum laxiflorum	VU
<i>Androsace lactea</i>	Milkwhite rock jasmine	VU
<i>Androsace septentrionalis</i>	Pygmy flower rock jasmine	VU
<i>Andryala ragusina</i>	Andryala ragusina	VU
<i>Anemone palmata</i>	Yellow anemone	VU
<i>Anthemis secundiramea</i>	Prostrate Chamomile	VU
<i>Antinoria insularis</i>	Antinoria insularis	VU
<i>Aquilegia litardierei</i>	Aquilegia litardierei	VU
<i>Arenaria bertolonii</i>	Arenaria bertolonii	VU
<i>Arenaria ligericina</i>	Arenaria ligericina	VU
<i>Aristolochia tyrrhena</i>	Mountain thrift	VU
<i>Armeria malinvaudii</i>	Armeria malinvaudii	VU
<i>Armeria pungens</i>	Spiny thrift	VU
<i>Artemisia atrata</i>	Dark Alpine wormwood	VU
<i>Artemisia molinieri</i>	Molinier's wormwood	VU
<i>Arundo plinii</i>	Pliny's reed	VU
<i>Asperula capillacea</i>	Asperula capillacea	VU
<i>Asplenium balearicum</i>	Asplenium balearicum	VU
<i>Asplenium fissum</i>	Asplenium fissum	VU
<i>Asplenium sagittatum</i>	Mule's spleenwort	VU
<i>Aster pyrenaicus</i>	Michaelmas daisy	VU
<i>Aster willkommii</i>	Aster willkommii	VU
<i>Astragalus boeticus</i>	Yellow milk vetch	VU
<i>Astragalus glaux</i>	Astragalus glaux	VU
<i>Astragalus leontinus</i>	Astragalus leontinus	VU
<i>Atractylis humilis</i>	Atractylis humilis	VU
<i>Bassia laniflora</i>	Bassia laniflora	VU
<i>Bellis pappulosa</i>	Bellis pappulosa	VU
<i>Biscutella neustriaca</i>	Biscutella neustriaca	VU
<i>Botrychium matricariifolium</i>	Chamomile grapefern	VU
<i>Botrychium simplex</i>	Little grapefern	VU
<i>Brassica insularis</i>	Brassica insularis	VU
<i>Buglossoides gastonii</i>	Buglossoides gastonii	VU
<i>Bupleurum gerardi</i>	Bupleurum gerardi	VU
<i>Calla palustris</i>	Water arum	VU
<i>Campanula albicans</i>	Campanula albicans	VU
<i>Campanula baumgartenii</i>	Bellflower	VU
<i>Campanula jaubertiana</i>	Campanula jaubertiana	VU
<i>Cardamine chelidonia</i>	Cardamine chelidonia	VU
<i>Cardamine crassifolia</i>	Cardamine crassifolia	VU
<i>Cardamine graeca</i>	Southern bitter cress	VU
<i>Carduus aurosicus</i>	Carduus aurosicus	VU
<i>Carex atrofusca</i>	Dark brown sedge	VU
<i>Carex firma</i>	Carnation grass	VU
<i>Carex fritschii</i>	Carex fritschii	VU
<i>Carex grioletii</i>	Carex grioletii	VU
<i>Carex melanostachya</i>	Carex melanostachya	VU
<i>Carex microglochis</i>	Fewseeded bog sedge	VU
<i>Carex mucronata</i>	Carex mucronata	VU
<i>Carex vaginata</i>	Sheathed sedge	VU
<i>Carlina Biebersteinii</i>	Carlina Biebersteinii	VU
<i>Carthamus caeruleus</i>	Carthamus caeruleus	VU

Scientific name	Common name	Category France
<i>Centaurea corymbosa</i>	Centaurea corymbosa	VU
<i>Centaurea napifolia</i>	Centaurea napifolia	VU
<i>Cephalaria transylvanica</i>	Cephalaria transylvanica	VU
<i>Cerastium ligusticum</i>	Large-flowered mouse ear	VU
<i>Cerastium soleirolii</i>	Cerastium soleirolii	VU
<i>Chaerophyllum nodosum</i>	Chaerophyllum nodosum	VU
<i>Cheilanthes hispanica</i>	Cheilanthes hispanica	VU
<i>Chenopodium foliosum</i>	Leafy goosefoot	VU
<i>Cirsium echinatum</i>	Hill thistle	VU
<i>Cirsium glabrum</i>	Cirsium glabrum	VU
<i>Colchicum corsicum</i>	Autumn crocus	VU
<i>Coleanthus subtilis</i>	Coleanthus	VU
<i>Consolida hispanica</i>	Eastern larkspur	VU
<i>Corispermum gallicum</i>	Corispermum gallicum	VU
<i>Cortusa matthioli</i>	Alpine bells	VU
<i>Cosentinia vellea</i>	Cosentinia vellea	VU
<i>Crepis rhaetica</i>	Crepis rhaetica	VU
<i>Crocus ligusticus</i>	Fall crocus	VU
<i>Cyclamen balearicum</i>	Wild cyclamen	VU
<i>Cynoglossum pustulatum</i>	Cynoglossum pustulatum	VU
<i>Cyperus serotinus</i>	Tidalmarsh flat sedge	VU
<i>Cystopteris diaphana</i>	Greenish bladder fern	VU
<i>Delphinium montanum</i>	Zigzag larkspur	VU
<i>Delphinium pictum</i>	Spotted larkspur	VU
<i>Delphinium staphisagria</i>	Lice-bane	VU
<i>Dianthus gyspergerae</i>	Dianthus gyspergerae	VU
<i>Dioscorea pyrenaica</i>	Yam	VU
<i>Diphasiastrum oellgaardii</i>	Diphasiastrum oellgaardii	VU
<i>Diphasiastrum tristachyum</i>	Blue clubmoss	VU
<i>Doronicum clusii</i>	Doronicum clusii	VU
<i>Draba hoppeana</i>	Whitlow grass	VU
<i>Draba loiseleurii</i>	Draba loiseleurii	VU
<i>Draba subnivalis</i>	Draba subnivalis	VU
<i>Dracocephalum austriacum</i>	Dracocephalum austriacum	VU
<i>Dryopteris ardechensis</i>	Dryopteris ardechensis	VU
<i>Echium calycinum</i>	Creten viper's bugloss	VU
<i>Echium sabulicola</i>	Sand viper's bugloss	VU
<i>Elatine hydropiper</i>	Eight-stamen waterwort	VU
<i>Elytrigia corsica</i>	Elytrigia corsica	VU
<i>Endressia pyrenaica</i>	Endressia pyrenaica	VU
<i>Erigeron paolii</i>	Erigeron paolii	VU
<i>Erodium laciniatum</i>	Cutleaf Heron's bill	VU
<i>Erodium rodiei</i>	Erodium rodiei	VU
<i>Euphorbia cuneifolia</i>	Euphorbia cuneifolia	VU
<i>Euphorbia peplis</i>	Purple spurge	VU
<i>Festuca breistrofferi</i>	Festuca breistrofferi	VU
<i>Festuca lahonderei</i>	Festuca lahonderei	VU
<i>Fritillaria orientalis</i>	Slender fritillary	VU
<i>Gagea mauritanica</i>	Gagea mauritanica	VU
<i>Gagea minima</i>	Gagea minima	VU
<i>Gagea polidorii</i>	Gagea polidorii	VU
<i>Gagea x luberonensis</i>	Luberon Gagea	VU
<i>Galium caprarium</i>	Galium caprarium	VU
<i>Galium minutulum</i>	Galium minutulum	VU
<i>Gentianella ramosa</i>	Gentianella ramosa	VU
<i>Geranium argenteum</i>	Silvery crane's bill	VU
<i>Geranium divaricatum</i>	Fanleaf geranium	VU
<i>Geranium endressii</i>	Crane's bill geranium	VU

Scientific name	Common name	Category France
<i>Geranium macrorrhizum</i>	Perennial geranium	VU
<i>Geropogon hybridus</i>	Goat's beard	VU
<i>Geum hispidum</i>	Geum hispidum	VU
<i>Glinus lotoides</i>	Lotus sweetjuice	VU
<i>Halimione pedunculata</i>	Pedunculate sea-purslane	VU
<i>Heliotropium supinum</i>	Dwarf heliotrope	VU
<i>Helosciadium crassipes</i>	Helosciadium crassipes	VU
<i>Heracleum alpinum</i>	Alpine cow parsnip	VU
<i>Heteropogon contortus</i>	Spear grass	VU
<i>Hierochloa odorata</i>	Holy grass	VU
<i>Hippocrepis multisiliquosa</i>	Many-flowered horseshoe vetch	VU
<i>Hyoseris scabra</i>	Annual hyoseris	VU
<i>Hypecoum pendulum</i>	Nodding hypecoum	VU
<i>Hypericum corsicum</i>	Hypericum corsicum	VU
<i>Hypochaeris uniflora</i>	Hypochaeris uniflora	VU
<i>Iberis carnosa</i>	Pruit's candytuft	VU
<i>Inula helenioides</i>	Inula helenioides	VU
<i>Iris aphylla</i>	Stool iris	VU
<i>Iris xiphium</i>	Spanish iris	VU
<i>Isoetes echinospora</i>	Spiny quillwort	VU
<i>Isoetes setacea</i>	Iberian quillwort	VU
<i>Jacobaea uniflora</i>	Haller's ragwort	VU
<i>Juncus littoralis</i>	Mountain rush	VU
<i>Knautia lebrunii</i>	Knautia lebrunii	VU
<i>Kosteletzkya pentacarpos</i>	Seashore mallow	VU
<i>Kundmannia sicula</i>	Kundmannia	VU
<i>Laser trilobum</i>	Horse caraway	VU
<i>Legousia scabra</i>	Legousia scabra	VU
<i>Lens ervoides</i>	Lens ervoides	VU
<i>Lens lamottei</i>	Lens lamottei	VU
<i>Lepidium villarsii</i>	Lepidium villarsii	VU
<i>Leucanthemopsis tomentosa</i>	Leucanthemopsis tomentosa	VU
<i>Leucanthemum burnatii</i>	Leucanthemum burnatii	VU
<i>Leucanthemum meridionale</i>	Leucanthemum meridionale	VU
<i>Limonium companyonis</i>	Sea lavender	VU
<i>Limonium diffusum</i>	Limonium diffusum	VU
<i>Limonium dubium</i>	Limonium dubium	VU
<i>Limonium normanicum</i>	Alderney sea lavender	VU
<i>Limonium obtusifolium</i>	Limonium obtusifolium	VU
<i>Linaria micrantha</i>	Linaria micrantha	VU
<i>Linaria spartea</i>	Ballast toadflax	VU
<i>Lindernia palustris</i>	Lindernia palustris	VU
<i>Liparis loeselii</i>	Fen orchid	VU
<i>Lobelia dortmanna</i>	Water lobelia	VU
<i>Loeflingia hispanica</i>	Loeflingia hispanica	VU
<i>Lomelosia simplex</i>	Lomelosia simplex	VU
<i>Lysimachia ephemerum</i>	Willow-leaved loosestrife	VU
<i>Malva cretica</i>	Cornish mallow	VU
<i>Marsilea strigosa</i>	Marsilea strigosa	VU
<i>Medicago ciliaris</i>	Ciliate medick	VU
<i>Medicago polyceratia</i>	Medicago polyceratia	VU
<i>Medicago secundiflora</i>	Medicago secundiflora	VU
<i>Medicago soleirolii</i>	Medicago soleirolii	VU
<i>Medicago tenoreana</i>	Medicago tenoreana	VU
<i>Melilotus siculus</i>	Melilotus siculus	VU
<i>Melomphis arabica</i>	Melomphis arabica	VU
<i>Merendera filifolia</i>	Merendera filifolia	VU
<i>Mesembryanthemum crystallinum</i>	Ice plant	VU

Herbaceous (continued)

Scientific name	Common name	Category France
<i>Moehringia lebrunii</i>	Moehringia lebrunii	VU
<i>Myosotis soleirolii</i>	Myosotis soleirolii	VU
<i>Myosotis speluncicola</i>	Myosotis speluncicola	VU
<i>Nanantea perpusilla</i>	Nanantea perpusilla	VU
<i>Narcissus minor</i>	Dwarf daffodil	VU
<i>Narduroides salzmannii</i>	Narduroides salzmannii	VU
<i>Neotinea conica</i>	Neotinea conica	VU
<i>Nepeta latifolia</i>	Catmint	VU
<i>Nigella gallica</i>	Nigella gallica	VU
<i>Nonea echioides</i>	Nonea echioides	VU
<i>Odontites glutinosus</i>	Odontites glutinosus	VU
<i>Omphalodes linifolia</i>	Venus' navelwort	VU
<i>Ononis aragonensis</i>	Ononis aragonensis	VU
<i>Ononis mitissima</i>	Mediterranean restharrow	VU
<i>Ononis ornithopodioides</i>	Bird restharrow	VU
<i>Onopordum acaulon</i>	Stemless thistle	VU
<i>Onopordum eriocephalum</i>	Onopordum eriocephalum	VU
<i>Onosma helvetica</i>	Onosma helvetica	VU
<i>Ophrys speculum</i>	Mirror orchid	VU
<i>Ophrys tenthredinifera</i>	Sawfly orchid	VU
<i>Orchis pauciflora</i>	Sparse-flowered orchid	VU
<i>Oreochloa disticha</i>	Oreochloa disticha	VU
<i>Orobanche pubescens</i>	Hairy broomrape	VU
<i>Orobanche sanguinea</i>	Bloody broomrape	VU
<i>Oxytropis foucaudii</i>	Oxytropis foucaudii	VU
<i>Papaver lapeyrousianum</i>	Sierra Nevada poppy	VU
<i>Papaver occidentale</i>	Arctic poppy	VU
<i>Papaver pinnatifidum</i>	Mediterranean poppy	VU
<i>Pedicularis recutita</i>	Beakless red lousewort	VU
<i>Pericaria salicifolia</i>	Willow-leaved knotgrass	VU
<i>Phalaris brachystachys</i>	Confused canary-grass	VU
<i>Phelipanche lavandulacea</i>	Phelipanche lavandulacea	VU
<i>Phleum subulatum</i>	Phleum subulatum	VU
<i>Phyla nodiflora</i>	Frogfruit	VU
<i>Phyteuma cordatum</i>	Phyteuma cordatum	VU
<i>Picris rhagadioloides</i>	Picris rhagadioloides	VU
<i>Pilularia minuta</i>	Dwarf pillwort	VU
<i>Pimpinella lutea</i>	Pimpinella lutea	VU
<i>Pimpinella siifolia</i>	Pimpinella siifolia	VU
<i>Plantago cornutii</i>	Plantago cornutii	VU
<i>Polygonum robertii</i>	Polygonum robertii	VU
<i>Potamogeton compressus</i>	Grass-wrack pondweed	VU
<i>Potentilla delphinensis</i>	Potentilla delphinensis	VU
<i>Primula allionii</i>	Allioni's primrose	VU
<i>Prospero corsicum</i>	Prospero corsicum	VU
<i>Pteris cretica</i>	Cretan brake fern	VU
<i>Puccinellia foucaudii</i>	Puccinellia foucaudii	VU
<i>Pulicaria sicula</i>	Pulicaria sicula	VU
<i>Ranunculus angustifolius</i>	Ranunculus angustifolius	VU
<i>Ranunculus bullatus</i>	Autumn buttercup	VU
<i>Ranunculus clethrphilus</i>	Ranunculus clethrphilus	VU
<i>Ranunculus garganicus</i>	Gargano buttercup	VU
<i>Ranunculus macrophyllus</i>	Large-leaved Buttercup	VU
<i>Ranunculus rionii</i>	Water crowfoot	VU
<i>Rhaponticum cynaroides</i>	Rhaponticum cynaroides	VU
<i>Rhinanthus pseudoantiquus</i>	Rhinanthus pseudoantiquus	VU
<i>Roemeria hybrida</i>	Violet horned poppy	VU
<i>Romulea assumptionis</i>	Romulea assumptionis	VU

Scientific name	Common name	Category France
<i>Romulea florentii</i>	Romulea florentii	VU
<i>Rumex aquaticus</i>	Scottish dock	VU
<i>Rumex aquitanicus</i>	Rumex aquitanicus	VU
<i>Rumex rupestris</i>	Shore dock	VU
<i>Saponaria bellidifolia</i>	Alpine soapwort	VU
<i>Saponaria caespitosa</i>	Tufted soapwort	VU
<i>Saponaria lutea</i>	Saponaria lutea	VU
<i>Sarcocapnos enneaphylla</i>	Sarcocapnos enneaphylla	VU
<i>Saussurea discolor</i>	Saussurea discolor	VU
<i>Saxifraga bulbifera</i>	Bulbous saxifrage	VU
<i>Saxifraga florulenta</i>	Saxifraga florulenta	VU
<i>Saxifraga hariotii</i>	Saxifraga hariotii	VU
<i>Saxifraga mutata</i>	Encrusted saxifrage	VU
<i>Saxifraga rosacea</i>	Irish saxifrage	VU
<i>Saxifraga valdensis</i>	Saxifraga valdensis	VU
<i>Scabiosa corsica</i>	Scabiosa corsica	VU
<i>Scandix stellata</i>	Stellate shepherd's needle	VU
<i>Schismus barbatus</i>	Common Mediterranean grass	VU
<i>Scolymus grandiflorus</i>	Large-flowered golden thistle	VU
<i>Scorzonera parviflora</i>	Scorzonera parviflora	VU
<i>Securigera securidaca</i>	Goat pea	VU
<i>Sedum amplexicaule</i>	Sedum amplexicaule	VU
<i>Sedum litoreum</i>	Sedum litoreum	VU
<i>Selaginella helvetica</i>	Selaginella helvetica	VU
<i>Serapias nurrica</i>	Serapias nurrica	VU
<i>Serratula lycopifolia</i>	Serratula lycopifolia	VU
<i>Seseli djianeae</i>	Seseli djianeae	VU
<i>Sesleria insularis</i>	Sesleria insularis	VU
<i>Sesleria ovata</i>	Sesleria ovata	VU
<i>Silene bellidifolia</i>	Silene bellidifolia	VU
<i>Silene borderei</i>	Pyrenean catchfly	VU
<i>Silene neglecta</i>	Silene neglecta	VU
<i>Silene petrarcae</i>	Silene petrarcae	VU
<i>Silene sedoides</i>	Hairy catchfly	VU
<i>Sinapis pubescens</i>	Sinapis pubescens	VU
<i>Sisymbrium strictissimum</i>	Sisymbrium strictissimum	VU
<i>Smyrnium perfoliatum</i>	Perfoliate Alexanders	VU
<i>Soldanella villosa</i>	Soldanella villosa	VU
<i>Spergularia diandra</i>	Alkali sand spurry	VU
<i>Spiranthes aestivalis</i>	Summer lady's-tresses	VU
<i>Stachys marrubiifolia</i>	Stachys marrubiifolia	VU
<i>Stachys ocymastrum</i>	Hairy woundwort	VU
<i>Succowia balearica</i>	Succowia balearica	VU
<i>Tanacetum audibertii</i>	Tanacetum audibertii	VU
<i>Taraxacum bessarabicum</i>	Taraxacum bessarabicum	VU
<i>Taraxacum cucullatum</i>	Taraxacum cucullatum	VU
<i>Taraxacum serotinum</i>	Taraxacum serotinum	VU
<i>Tephrosieris balbisiana</i>	Tephrosieris balbisiana	VU
<i>Teucrium aristatum</i>	Teucrium aristatum	VU
<i>Thalictrum tuberosum</i>	Thalictrum tuberosum	VU
<i>Thesium humile</i>	Field bastard toadflax	VU
<i>Tofieldia pusilla</i>	Scottish asphodel	VU
<i>Trifolium diffusum</i>	Diffuse clover	VU
<i>Trifolium pannonicum</i>	Hungarian clover	VU
<i>Trifolium phleoides</i>	Trifolium phleoides	VU
<i>Trifolium retusum</i>	Teasel clover	VU
<i>Trifolium saxatile</i>	Trifolium saxatile	VU
<i>Trisetum conradiae</i>	Trisetum conradiae	VU

Herbaceous (continued and end)

Scientific name	Common name	Category France
<i>Trisetum gracile</i>	Trisetum gracile	VU
<i>Tulipa billietiana</i>	Tulipa billietiana	VU
<i>Umbilicus horizontalis</i>	Horizontal navelwort	VU
<i>Urginea fugax</i>	Urginea fugax	VU
<i>Utricularia intermedia</i>	Flatleaf bladderwort	VU
<i>Utricularia stygia</i>	Arctic bladderwort	VU
<i>Valantia hispida</i>	Hairy valantia	VU
<i>Valeriana celtica</i>	Alpine valerian	VU
<i>Valeriana echinata</i>	Valeriana echinata	VU
<i>Veratrum nigrum</i>	Black false hellebore	VU
<i>Vicia argentea</i>	Silvery vetch	VU
<i>Vicia cusnae</i>	Vicia cusnae	VU

Scientific name	Common name	Category France
<i>Vicia laeta</i>	Vicia laeta	VU
<i>Viola pinnata</i>	Finger-leaved violet	VU
<i>Viola pseudomirabilis</i>	Viola pseudomirabilis	VU
<i>Viola roccabrunensis</i>	Viola roccabrunensis	VU
<i>Xatardia scabra</i>	Xatardia scabra	VU
<i>Zannichellia obtusifolia</i>	Zannichellia obtusifolia	VU
<i>Zannichellia peltata</i>	Zannichellia peltata	VU

According to IUCN France, FCBN, MNHN, 2012. Red List of threatened species in France - Chapter on vascular flora in metropolitan France: first results for 1,000 species, sub-species and varieties.

■ Butterflies: species classed as threatened or extinct in the National Red List of threatened species in France

(as per IUCN methodology)

Extinct species: **EX**: extinct worldwide; **EW**: extinct in the wild; **RE**: extinct regionally.

Threatened species: **CR**: critically endangered; **EN**: endangered; **VU**: vulnerable.

◆ 1) Strictly forest species or found more frequently in forests

Scientific name	Common name	Category France
<i>Neptis rivularis</i>	Hungarian glider	RE
<i>Coenonympha hero</i>	Scarce heath	CR
<i>Euphydryas maturna</i>	Scarce fritillary	EN
<i>Euphydryas intermedia</i>	Asian fritillary	VU

According to

IUCN France, MNHN, OPIE, SEF, 2012. Red List of threatened species in France - Chapter on rhopalocera in metropolitan France.

■ Freshwater crustaceans: species classed as threatened or extinct in the National Red List of threatened species in France

(as per IUCN methodology)

Extinct species: **EX**: extinct worldwide; **EW**: extinct in the wild; **RE**: extinct regionally.

Threatened species: **CR**: critically endangered; **EN**: endangered; **VU**: vulnerable.

◆ 2) Species with mixed behavior, found more or less equally in forests and open areas

Scientific name	Common name	Category France
<i>Austropotamobius torrentium</i>	Stone crayfish	CR
<i>Astacus astacus</i>	European crayfish	EN
<i>Austropotamobius pallipes</i>	White-clawed crayfish	VU

According to

IUCN France, MNHN, 2012. Red List of threatened species in France - Chapter on fresh water crustaceans in metropolitan France.

■ Amphibians: species classed as threatened or extinct in the National Red List of threatened species in France

(as per IUCN methodology)

Extinct species: **EX**: extinct worldwide; **EW**: extinct in the wild; **RE**: extinct regionally.

Threatened species: **CR**: critically endangered; **EN**: endangered; **VU**: vulnerable.

◆ 2) Species with mixed behavior, found more or less equally in forests and open areas

Scientific name	Common name	Category France
<i>Bombina variegata</i>	Yellow-bellied toad	VU

According to

IUCN France, MNHN, SHF, 2009. Red List of threatened species in France - Chapter on reptiles and amphibians in metropolitan France. Paris, France. 8 p.

■ Birds: species classed as threatened or extinct in the National Red List of threatened species in France

(as per IUCN methodology)

Extinct species: **EX**: extinct worldwide; **EW**: extinct in the wild; **RE**: extinct regionally.

Threatened species: **CR**: critically endangered; **EN**: endangered; **VU**: vulnerable.

◆ 1) Strictly forest species or found more frequently in forests

Scientific name	Common name	Category France
<i>Ciconia nigra</i>	Black stork	EN
<i>Hieraetus pennatus</i>	Booted eagle	VU
<i>Pyrrhula pyrrhula</i>	Eurasian bullfinch	VU
<i>Glaucidium passerinum</i>	Eurasian pygmy owl	VU
<i>Bonasa bonasia</i>	Hazel grouse	VU
<i>Muscicapa striata</i>	Spotted flycatcher	VU

Scientific name	Common name	Category France
<i>Tetrao urogallus</i>	Western capercaillie	VU
<i>Dendrocopos leucotos</i>	White-backed woodpecker	VU
<i>Picus canus</i>	Grey-headed woodpecker	VU
<i>Phylloscopus sibilatrix</i>	Wood warbler	VU
<i>Sitta whiteheadi</i>	Corsican nuthatch	VU

◆ 2) Species with mixed behavior, found more or less equally in forests and open areas

Scientific name	Common name	Category France
<i>Lanius minor</i>	Lesser grey shrike	CR
<i>Elanus caeruleus</i>	Black-winged kite	EN
<i>Sylvia conspicillata</i>	Spectacled warbler	EN
<i>Lanius excubitor</i>	Great gray shrike	EN
<i>Pandion haliaetus</i>	Osprey	VU
<i>Circus pygargus</i>	Montagu's harrier	VU

Scientific name	Common name	Category France
<i>Hippolais icterina</i>	Icterine warbler	VU
<i>Carduelis cannabina</i>	Common linnet	VU
<i>Milvus milvus</i>	Red kite	VU

According to

IUCN France, MNHN, LPO, SEOF, ONCFS, 2011. Red List of threatened species in France - Chapter on birds in metropolitan France. Paris, France. 28 p.

■ Reptiles: species classed as threatened or extinct in the National Red List of threatened species in France

(as per IUCN methodology)

Extinct species: **EX**: extinct worldwide; **EW**: extinct in the wild; **RE**: extinct regionally.

Threatened species: **CR**: critically endangered; **EN**: endangered; **VU**: vulnerable.

◆ 2) Species with mixed behavior, found more or less equally in forests and open areas

Scientific name	Common name	Category France
<i>Testudo hermanni</i>	Hermann's tortoise	VU

According to IUCN France, MNHN, SHF, 2009. Red List of threatened species in France - Chapter on reptiles and amphibians in metropolitan France. Paris, France. 8 p.

■ Mammals: species classed as threatened or extinct in the National Red List of threatened species in France

(as per IUCN methodology)

Extinct species: **EX**: extinct worldwide; **EW**: extinct in the wild; **RE**: extinct regionally.

Threatened species: **CR**: critically endangered; **EN**: endangered; **VU**: vulnerable.

◆ 1) Strictly forest species or found more frequently in forests

Scientific name	Common name	Category France
<i>Ursus arctos</i>	Brown bear	CR
<i>Lynx lynx</i>	Eurasian lynx	EN

◆ 2) Species with mixed behavior, found more or less equally in forests and open areas

Scientific name	Common name	Category France
<i>Mustela lutreola</i>	European mink	EN
<i>Ovis gmelinii</i>	Mouflon	VU
<i>Myotis capaccinii</i>	Long-fingered bat	VU

According to IUCN France, MNHN, SFEPM, ONCFS, 2009. Red List of threatened species in France - Chapter on mammals in metropolitan France. Paris, France. 12 p.

Appendix 7. Classification and definitions of national protected areas in the FRA, MCPFE and IUCN

Protected areas	FRA 2015 use class	MCPFE protection class	IUCN class (source: INPN site)	Availability of geographical information data (or other in brackets)
Strict biological reserves	Conservation of the biodiversity and Forest areas inside protected areas	1.2	Ia for RBI	yes
Strict parts of nature reserves	Conservation of the biodiversity and Forest areas inside protected areas	1.2	not completed	yes
National parks: core areas	Conservation of the biodiversity and Forest areas inside protected areas	1.2	II	yes
Sensitive natural sites	Conservation of the biodiversity and Forest areas inside protected areas	1.3	not completed	no
Biosphere reserves, central area	Conservation of the biodiversity and Forest areas inside protected areas	1.3	not completed	yes
Managed biological reserves	Conservation of the biodiversity and Forest areas inside protected areas	1.3	IV	yes
National nature reserves	Conservation of the biodiversity and Forest areas inside protected areas	1.3	III or IV	yes
Regional nature reserves	Conservation of the biodiversity and Forest areas inside protected areas	1.3	III or IV	yes
Corsican nature reserves	Conservation of the biodiversity and Forest areas inside protected areas	1.3	III or IV	yes
Biotope protection prefectural orders	Conservation of the biodiversity and Forest areas inside protected areas	1.3	IV	yes
National hunting and wildlife reserves	Conservation of the biodiversity and Forest areas inside protected areas	1.3	not completed	yes
Ramsar sites	Conservation of the biodiversity and Forest areas inside protected areas	1.3	not completed	yes
Ecological protection forests	Conservation of biodiversity	1.3	not completed	no (figures)
Special protection areas (SPA)	Conservation of biodiversity	1.3	not completed	yes
Special areas of conservation (SAC)	Conservation of biodiversity	1.3	not completed	yes
Classified and registered sites	Multiple-use forest	2	not completed	no
Biosphere reserves, buffer zone	Multiple-use forest	2	not completed	yes
National parks: surrounding areas	Multiple-use forest	2	V	yes
Regional nature parks	Multiple-use forest	2	V	yes
Mountain/dune protection forests	Protection of soil and water	3	not completed	no (figures)
Peri-urban protection forests	Multiple-use forest	3	not completed	no (figures)
Natural area protection agencies	Multiple-use forest	3	IV and V	yes
Coastal Protection Agency	Multiple-use forest	3	not completed	yes
State-owned forests in the immediate and nearby perimeters of drinking water catchment areas	Protection of soil and water	3	not completed	no (figures)
State-owned forests in the mountain land restoration perimeters: surface areas at high, medium or low risk (exclusion of surfaces with zero risk)*	Protection of soil and water	3	not completed	no (figures)

*According to the FRA and SoEF reports, the State-owned forests in the mountain land restoration perimeters have been added to the MCPFE category 3, whilst the surface areas in the biosphere reserve peripheral areas have been deleted from category 3.

■ Definitions of the Forest Resource Assessment (FRA) survey 2015

Definitions	FRA tables
<p>Primary designated function The primary function or management objective assigned to a management unit either by legal prescription, documented decision of the landowner/manager, or evidence provided by documented studies of forest management practices and customary uses.</p> <p>Explanatory notes:</p> <ol style="list-style-type: none"> 1. In order to be considered primary, the designated function should be significantly more important than other functions. 2. Nationwide functions established in general clauses of national legislation or policies (e.g. "all forest land should be managed for production, conservation and social purposes") should not be considered as designations. 	Tables 4a, 5a and 6
<p>Production forest Forest area designated primarily for production of wood, fiber, bio-energy and/or non-wood forest products.</p> <p>Explanatory note(s):</p> <ol style="list-style-type: none"> 1. Includes areas for subsistence collection of wood and/or non-wood forest products. 	Table 4a
<p>Multiple-use forest Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function.</p> <p>Explanatory notes:</p> <ol style="list-style-type: none"> 1. Includes any combination of: production of goods, protection of soil and water, conservation of biodiversity and provision of social services and where none of these alone is considered as the predominant function. 2. Clauses in national legislation or policies stating an overarching objective of multiple use (such as e.g. "all forest land should be managed for production, conservation and social purposes") should not generally be considered as designated for multiple use 	Table 4a
<p>Protection of soil and water Forest area designated or managed for protection of soil and water.</p> <p>Explanatory notes:</p> <ol style="list-style-type: none"> 1. It may include areas that are primarily managed for other values such as timber production. 2. National or state legislation or regulations often provide for the protection of soil and water values through land use zoning or prescriptions in management plans or other mechanisms for best practices. Areas covered by such regulations and plans should be considered as designated or managed for protection of soil and water. 	Table 5a
<p>Ecosystem services, cultural or spiritual values Forest area designated or managed for selected ecosystem services or cultural or spiritual values.</p> <p>Explanatory note:</p> <ol style="list-style-type: none"> 1. These areas may overlap with other designation or management functions. 	Table 5b
<p>Conservation of biodiversity Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.</p>	
<p>Protected areas Areas especially dedicated to the protection and maintenance of biological diversity and of natural and associated cultural resources, and managed through legal or other effective means.</p>	Table 6
<p>Forest areas within the protected areas Forest area within formally established protected areas, independently of the purpose for which the protected areas were established.</p> <p>Explanatory notes:</p> <ol style="list-style-type: none"> 1. Includes IUCN Categories I - IV. 2. Includes IUCN Categories V - VI. 	

Source: Terms and definitions, FRA 2015

■ Definitions of MCPFE categories

Definitions	Forest Europe tables
<p>MCPFE Class 1.1: Main Management Objective Biodiversity “No Active Intervention”</p> <ul style="list-style-type: none"> • The main management objective is biodiversity • No active, direct human intervention is taking place • Activities other than limited public access and non-destructive research not detrimental to the management objective are prevented in the protected area 	
<p>MCPFE Class 1.2: Main Management Objective Biodiversity “Minimum Intervention”</p> <ul style="list-style-type: none"> • The main management objective is biodiversity • Human intervention is limited to a minimum • Activities other than listed below are prevented in the protected area: <ul style="list-style-type: none"> • Ungulate/game control • Control of diseases/insect outbreaks • Public access • Fire intervention • Non-destructive research not detrimental to the management objective • Subsistence resource use / 	Table 4.9
<p>MCPFE Class 1.3: Main Management Objective Biodiversity “Conservation Through Active Management”</p> <ul style="list-style-type: none"> • The main management objective is biodiversity • A management with active interventions directed to achieve the specific conservation goal of the protected area is taking place • Any resource extraction, harvesting, silvicultural measures detrimental to the management objective as well as other activities negatively affecting the conservation goal are prevented in the protected area 	
<p>MCPFE Class 2: Main Management Objective “Protection of Landscapes and Specific Natural Elements”</p> <ul style="list-style-type: none"> • Interventions are clearly directed to achieve the management goals landscape diversity, cultural, aesthetic, spiritual and historical values, recreation, specific natural elements • The use of forest resources is restricted • A clear long-term commitment and an explicit designation as specific protection regime defining a limited area is existing • Activities negatively affecting characteristics of landscapes or/and specific natural elements mentioned are prevented in the protected area 	
<p>MCPFE Class 3: Main Management Objective “Protective Functions”</p> <ul style="list-style-type: none"> • The management is clearly directed to protect soil and its properties or water quality and quantity or other forest ecosystem functions, or to protect infrastructure and managed natural resources against natural hazards • Forests and other wooded lands are explicitly designated to fulfill protective functions in management plans or other legally authorized equivalents • Any operation negatively affecting soil or water or the ability to protect other ecosystem functions, or the ability to protect infrastructure and managed natural resources against natural hazards is prevented 	Table 5

Source: MCPFE 2003 repeated in Forest Europe 2015

■ Definitions of IUCN categories

Category Ia: Strict nature reserve

Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphical features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.

Category Ib: Wilderness area

Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

Category II: National park

Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational and visitor opportunities.

Category III: Natural monument or feature

Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

Category IV: Habitat/species management area

Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

Category V: Protected landscape or seascape

A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

