



Appendices

APPENDIX 1

List and origins of quantitative SFM indicators in 2005

Topic	N°	Full indicator	Origin
C1: Maintenance and appropriate enhancement of forest resources and their contribution to global carbon cycles			
Forest area	1.1	Area of forest and other wooded land, classified by forest type and by availability for wood supply	MCPFE Vienna
	1.1.1	Forest area gains and losses	ISFM 2000
	1.1.2	Forest area by biogeographical area and elevation class	ISFM 2000
	1.1.3	Forest area by IFN forest structure	ISFM 2000
	1.1.4	Forest area by main tree species	ISFM 2000
Growing stock	1.2	Growing stock on forest and other wooded land, classified by forest type and by availability for wood supply	MCPFE Vienna
	1.2.1	Growing stock by IFN forest structure	ISFM 2000
	1.2.2	Growing stock by tree species	ISFM 2000
Age structure and/or diameter distribution	1.3	Age structure and/or diameter distribution of forest and other wooded land, classified by forest type and by availability for wood supply	MCPFE Vienna
Carbon stock	1.4	Carbon stock of woody biomass and of soils on forest and other wooded land	MCPFE Vienna
	1.4.1	Annual carbon emission levels	ISFM 2000
C2: Maintenance of forest ecosystem health and vitality			
Deposition of air pollutants	2.1	Deposition of air pollutants on forest and other wooded land, classified by N, S and base cations	MCPFE Vienna
	2.1.1	Atmospheric pollutant emission patterns	ISFM 2000
Soil condition	2.2	Chemical soil properties (pH, CEC, C/N, organic C, base saturation) on forest and other wooded land related to soil acidity and eutrophication, classified by main soil types	MCPFE Vienna
Defoliation	2.3	Defoliation of one or more main tree species on forest and other wooded land in each of the defoliation classes: "moderate", "severe" and "dead"	MCPFE Vienna
Forest damage	2.4	Forest and other wooded land with damage, classified by primary damaging agents (abiotic, biotic and human induced) and by forest type	MCPFE Vienna
	2.4.1	Regenerations protected from damage by large ungulates	ISFM 2000
C 3: Maintenance and encouragement of productive functions of forests (wood and non-wood)			
Increment and fellings	3.1	Balance between net annual increment and annual fellings of wood on forest available for wood supply	MCPFE Vienna
	3.1.1	Forest accessibility	ISFM 2000
Roundwood	3.2	Value and quantity of marketed roundwood	MCPFE Vienna
	3.2.1	Cellulose fibre recycling; effective use of derivative products	ISFM 2000
	3.2.2	Marketing wood felled in certified forests	new
Non-wood goods	3.3	Value and quantity of marketed non-wood goods from forest and other wooded land	MCPFE Vienna
Services	3.4	Value of marketed services on forest and other wooded land	MCPFE Vienna
Forests under management plans	3.5	Proportion of forest and other wooded land under a management plan or equivalent	MCPFE Vienna
	3.5.1	Forest area covered by a catalogue of stations and area covered by a simple species guide	ISFM 2000 + suppl.

Topic	N°	Full indicator	Origin
C4: Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems			
Tree species composition	4.1	Area of forest and other wooded land, classified by number of tree species occurring and by forest type	MCPFE Vienna
	4.1.1	Purity of main species stands in basal area	ISFM 2000
Regeneration	4.2	Area of regeneration within even-aged stands and uneven-aged stands, classified by regeneration type	MCPFE Vienna
Naturalness	4.3	Area of forest and other wooded land, classified by "undisturbed by man", "semi-natural" or by "plantations", each by forest type	MCPFE Vienna
	4.3.1	Area of very old regular high forests forming specific habitats	ISFM 2000
Introduced tree species	4.4	Area of forest and other wooded land dominated by introduced tree species	MCPFE Vienna
Deadwood	4.5	Volume of standing and lying deadwood on forest and other wooded land, classified by forest type	MCPFE Vienna
Genetic resources	4.6	Area managed for conservation and utilisation of forest tree genetic resources (<i>in situ</i> and <i>ex situ</i> gene conservation) and area managed for seed production	MCPFE Vienna
Landscape pattern	4.7	Landscape-level spatial pattern of forest cover	MCPFE Vienna
	4.7.1	Per-ha length of forest edges	new
	4.7.2	Per-ha length of forest edges by IFN stand types (replaces fractionation by homogeneous vegetation unit)	ISFM 2000 modified
	4.7.3	Large-scale cuts and clear cuts	ISFM 2000
Threatened forest species	4.8	Number of threatened forest species, classified according to IUCN Red List categories in relation to total number of forest species	MCPFE Vienna
Protected forests	4.9	Area of forest and other wooded land protected to conserve biodiversity, landscapes and specific natural elements, according to MCPFE Assessment Guidelines	MCPFE Vienna
	4.9.1	Deer population densities per 100 ha	ISFM 2000
C5: Maintenance and appropriate enhancement of protective functions in forest management (notably soil and water)			
Protective forests – soil, water and other ecosystem functions	5.1	Area of forest and other wooded land designated to prevent soil erosion, to preserve water resources, or to maintain other forest ecosystem functions, part of MCPFE Class "Protective Functions"	MCPFE Vienna
Protective forests – infrastructure and managed natural resources	5.2	Area of forest and other wooded land designated to protect infrastructure and managed natural resources against natural hazards, part of MCPFE Class "Protective Functions"	MCPFE Vienna

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Topic	N°	Full indicator	Origin
C6: Maintenance of other socioeconomic functions and conditions			
Forest holdings	6.1	Number of forest holdings, classified by ownership categories and size classes	MCPFE Vienna
Contribution of forest sector to GDP	6.2	Contribution of forestry and manufacturing of wood and paper products to gross domestic product	MCPFE Vienna
Net revenue	6.3	Net revenue of forest enterprises	MCPFE Vienna
Expenditures for services	6.4	Total expenditures for long-term sustainable services from forests	MCPFE Vienna
Forest sector workforce	6.5	Number of persons employed and labour input in the forest sector, classified by gender and age group, education and job characteristics	MCPFE Vienna
Occupational safety and health	6.6	Frequency of occupational accidents and occupational diseases in forestry	MCPFE Vienna
Wood consumption	6.7	Per-capita consumption of wood and products derived from wood	MCPFE Vienna
Trade in wood	6.8	Imports and exports of wood and products derived from wood	MCPFE Vienna
Energy from wood resources	6.9	Share of wood energy in total energy consumption, classified by origin of wood	MCPFE Vienna
Accessibility for recreation	6.10	Area of forest and other wooded land where public has access for recreational purposes and indication of intensity of use	MCPFE Vienna
	6.10.1	Population distribution by per-capita forest area segment within a 50 km radius	ISFM 2000
	6.10.2	Proportion of forest area by per-capita forest area segment within a 50 km radius	ISFM 2000
Cultural and spiritual values	6.11	Number of sites within forest and other wooded land designated as having cultural or spiritual values	MCPFE Vienna

Legend:

ISFM 2000: Sustainable forest management indicator from the 2000 edition of this report and not listed by MCPFE

MCPFE: Ministerial Conference on the Protection of Forests in Europe

Inventory methods and definitions

1 Forest inventory methods

1.1 **The SCEES Teruti survey** (Service central des enquêtes et études statistiques du MAP) involves direct annual observation of the physical and functional occupation of many points located throughout metropolitan France.

The results presented in this document are based on the survey method used until 2004, which involves the determination of over 550,000 points generated from a sample of 15,579 aerial photographs taken by the Institut géographique national, which regularly monitors the entire mainland area. Each basic photograph consists of a grid with 36 points. The field survey team locates points to be monitored on the ground and every year determines the physical occupation and functional use for each of the 555,903 points.

Unlike the IFN survey, the Teruti survey covers the entire mainland area every year—thus paragraphs discussing overall changes in wooded land and tree-covered land outside of forests are based on these data.

The years used are 1993, 1998 and 2003, along with the 1997-2003 transition matrix.

In 2005, this survey was tailored to the European specifications of the "Lucas" survey, which EUROSTAT plans to launch in 2007. Hereafter it will be called the "Teruti-Lucas survey".

1.2 **The Inventaire forestier national (IFN)** draws up a permanent inventory of metropolitan forest resources by conducting—until 2004—field surveys in each department every 10-12 years. The method used involves a 3-phase statistical survey with stratification after the first phase. First, the outlines of vegetation types are defined on aerial photographs and then a grid of sampling points is applied, with each point also being photo-interpreted (1 point for 30-40 ha). The physical sampling points are drawn by lot after the sample is stratified (1 point for 140 ha)—these relate to productive forest formations, and a series of observations and measurements are made on their dendrometric, floristic and ecological features. Through this in-depth analysis, IFN can provide detailed and reliable data on French forests, particularly on their extent, volume and increment, broken down by different criteria: specific composition of stands, forest structure, accessibility, cover density, age and diameter classes, etc.

The national data presented in this document represent a sum of the departmental data available on the indicated dates: 1/01/1989, 1/01/1994, 1/01/1999 and 1/01/2004. The different departmental inventories are staggered over time, which means that they respectively relate to the following years: 1981, 1986, 1991 and 1996. This explains the slight discrepancy in the forest areas derived from the Teruti survey and those presented by IFN.

A new systematic annual inventory method was adopted in 2005. The next editions of the present report will thus present annual real data on area, volume, increment, etc., for all of France.

2 Definitions

2.1 *Woodland and forests*

Woodland and forests according to the Teruti survey (physical headings 18-21)

Formations with an apparent forest tree cover of 10% or more or a density of at least 500 future shoots per ha with respect to young trees. The forest area must be over 50 ares.

The year's commercial clearcuts are regarded as "forests and woodland".

Forests (excluding poplar plantations) according to IFN

The term "forests (excluding poplar plantations)" used for IFN data in this document refers to all forest formations in the IFN definition, including thickets (cf. below), unlike Teruti. They consist of plant formations, made up mainly of trees and shrubs, which meet the conditions defining the wooded status:

- trees and shrubs must belong to the forest species featured on a limited list;
- trees and shrubs must have a forest shape, i.e. separate stem, relatively straight, branching only above a certain level (about 1.5 m), unless a different shape is the result of treatment to obtain a specific type of product (pollarding) or natural deformation (wind or snow) which does not inhibit normal use of the trees;
- the apparent forest tree cover eligible for inventory must be at least 10% of the ground area or, for young forest trees not eligible for inventory, the density must be at least 500 well spaced future shoots per ha;
- the stand must have a minimum area of 5 ares with a crown width of over 15 m.

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"Forests available for wood supply (excluding poplar plantations)" refers to forests whose principal function is the production of timber, apart from poplar plantations, and that are accessible to IFN's field survey teams. Among these, certain formations were not inventoried in the field for financial reasons. Certain findings thus only concern "inventoried forests available for wood supply". When poplar plantations are taken into account, the term "including poplar plantations" is added (cf. below).

2.2 **Thickets**

Teruti survey (physical heading 22)

Forest formation (visible forest tree cover of over 10%) with an area of 5-50 ares, of any shape.

IFN

Forest formations according to IFN (cf. above) with an area of 5-50 ares and a crown width of over 15 m. This definition is more specific than that of the Teruti survey, so the area is much smaller, i.e. around 200,000 ha, or 1.3% of the total forest area. However, thickets were not distinguished from forests in the IFN data since thicket data was not recorded in some old inventories and since the actual proportion of IFN thickets was very small.

2.3 **Poplar plantations**

Teruti survey: pure and combined poplar plantations (physical headings 24 and 25)

Pure poplar plantations (or plantations jointly cultivated with another type of agricultural crop) with a standing width of over 10 m and an area of 5 ares or more.

IFN: cultivated poplar plantations

Man-made stands consisting of cultivated poplar clones planted at regular intervals. There must be at least 100 poplars per ha (regularly distributed) of which 50 are still alive when the survey team arrives. These stands must also have at least three rows of poplars and a minimum area of 5 ares with a crown width of over 15 m and an interrow spacing of 10 m at most.

Cultivated poplar plantations are inventoried in the field only in the main producing departments.

2.4 **Heathland, maquis and garrigues (Teruti survey: physical heading 70) = Other wooded lands according to FAO**

Formations generally covering large areas with forest cover representing less than 10% of the total area. Grass is the usual plant cover, but at least 25% of the wooded cover must consist of woody or semi-woody plants, such as ferns, heather, broom, gorse, etc. Maquis and garrigues are terms used to describe heathland in the Mediterranean region. In 1993, they were classified under the same physical heading as heathland (former physical heading 71).

Heathland, maquis and garrigues in the Teruti survey are considered as "other wooded lands" according to FAO.

2.5 **Hedges (Teruti survey: physical heading 72)**

Compact lines of trees or shrubs separating two sections or bordering one, sometimes functioning as windbreaks, 3-5 m wide (real vegetation coverage for bushy hedges or projection of the crown for wooded hedges). The hedge is monitored within a 15 m radius around the point in order to distinguish bushy hedges (absence of trees with crown) from wooded hedges (presence of trees with crown).

2.6 **Scattered trees, including poplars (Teruti survey: physical headings 23 and 26) (**

Forest formations of less than 5 ares, scattered trees (including fruit trees) and trees located in alignments other than hedges. The alignment concept is irrelevant for scattered poplars.

French National Forest Inventory (IFN): dates of field surveys to record data available on 1 January 1989, 1994, 1999 and 2004

Administrative region	Department	Dates of field surveys to record data available on 1 January			
		1989	1994	1999	2004
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
AUVERGNE	47 LOT-ET-GARONNE	1979	1989	1989	2000
	64 PYRENEES-ATLANTIQUES	1985	1985	1995	1995
	03 ALLIER	1987	1987	1987	2001
	15 CANTAL	1977	1989	1989	1989
	43 HAUTE-LOIRE	1979	1991	1991	2002
BASSE-NORMANDIE	63 PUY-DE-DOME	1976	1988	1988	1988
	14 CALVADOS	1987	1987	1987	2001
	50 MANCHE	1975	1987	1987	2001
BOURGOGNE	61 ORNE	1975	1988	1988	2001
	21 COTE-D'OR	1980	1990	1990	1990
	58 NIEVRE	1985	1985	1996	1996
BRETAGNE	71 SAONE-ET-LOIRE	1980	1989	1989	1989
	89 YONNE	1986	1986	1986	1999
	22 COTES-D'ARMOR	1981	1981	1995	1995
	29 FINISTERE	1981	1981	1996	1996
	35 ILLE-ET-VILAINE	1980	1980	1995	1995
CENTRE	56 MORBIHAN	1980	1980	1998	1998
	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
CHAMPAGNE-ARDENNE	45 LOIRET	1979	1979	1992	1992
	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-COMTE	25 DOUBS	1982	1982	1994	1994
	39 JURA	1980	1980	1992	1992
	70 HAUTE-SAONE	1984	1984	1996	1996
HAUTE-NORMANDIE	90 TERRITOIRE DE BELFORT	1984	1984	1984	1996
	27 EURE	1975	1988	1988	2003
	76 SEINE-MARITIME	1976	1989	1989	2002
ILE-DE-FRANCE	75 PARIS ET SA ZONE PERIPHERIQUE	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 HERAULT	1983	1983	1997	1997
	48 LOZERE	1979	1979	1992	1992
	66 PYRENEES-ORIENTALES	1980	1991	1991	1991

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Administrative region	Department	Dates of field surveys to record data available on 1 January			
		1989	1994	1999	2004
LIMOUSIN	19 CORREZE	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
MIDI-PYRENEES	88 VOSGES	1981	1981	1992	1992
	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-PYRENEES	1974	1986	1997	1997
	81 TARN	1979	1992	1992	1992
NORD - PAS-DE-CALAIS	82 TARN-ET-GARONNE	1979	1989	1989	2001
	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 VENDEE	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-SEVRES	1985	1985	1995	1995
	86 VIENNE	1986	1986	1996	1996
PROVENCE-ALPES-COTE D'AZUR	04 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-RHONE	1977	1988	1988	1988
	83 VAR	1986	1986	1986	1999
	84 VAUCLUSE	1986	1986	1986	2001
RHONE-ALPES	01 AIN	1983	1983	1995	1995
	07 ARDECHE	1981	1981	1995	1995
	26 DROME	1982	1982	1996	1996
	38 ISERE	1984	1984	1997	1997
	42 LOIRE	1981	1981	1993	1993
	69 RHONE	1982	1982	1994	1994
	73 SAVOIE	1985	1985	1985	2000
	74 HAUTE-SAVOIE	1975	1987	1987	1998

Summary table of forest areas (in Kha)

The following table summarises the different forest areas referred to in this document.

The Service central des enquêtes et études statistiques (SCEES) presents forest areas for real years (1993, 1998, 2003).

Data of the Inventaire forestier national (IFN) available for 1 January 1989, 1994, 1999 and 2004 respectively correspond to the mean years 1981, 1986, 1991 and 1996 due to the method used until present.

Forest areas were also derived from cartographic analyses (prior to application of afforestation rates) or statistical analyses. Finally, as some forests were not surveyed in the field, data for some indicators could not be obtained for the entire forest area.

IFN adopted new systematic annual inventory method in 2005 in order to overcome these different problems.

SCEES/Teruti survey (real year)		1993	1998	2003
woodland and forest area (18-21)		14,592	14,985	15,168
poplar plantation area (24, 25)		219	235	240
Total woodland-forest-poplar plantation area (excl. thickets)		14,811	15,220	15,408

IFN - statistical data		available on	01/01/1989	01/01/1994	01/01/1999	01/01/2004
(mean field survey year)			(1981)	(1986)	(1991)	(1996)
IFN production forests	Not inventoried	By IFN choice	0	127	270	270
		Inaccessible	22	14	7	3
	Subtotal Not inventoried		22	141	277	273
	Inventoried	Unstocked	93	137	139	115
		Not unstocked	13,244	13,307	13,458	13,706
Subtotal Inventoried			13,337	13,444	13,597	13,821
Subtotal IFN production forests			13,359	13,585	13,874	14,094
including forests available for wood supply according to FAO*			13,337	13,571	13,867	14,091
Other forests	Not inventoried		578	607	672	784
	Inventoried		0	0	0	0
Subtotal Other forests			578	607	672	784
All forests (excl. poplar plantations)	Not inventoried		600	748	949	1,057
	Inventoried		13,337	13,444	13,597	13,821
Subtotal All forests (excl. poplar plantations)			13,937	14,192	14,546	14,878
Poplar plantations	Not inventoried		52	49	56	68
	Inventoried		150	153	151	152
Subtotal poplar plantations			202	202	207	220
Total Forests and poplar plantations	Not inventoried		652	797	1,005	1,125
	Inventoried		13,487	13,597	13,748	13,973
Total All forests (including thickets) and poplar plantations			14,139	14,394	14,753	15,098

IFN - cartographic data		available on	01/01/1999	01/01/2004
(mean year of photographs)			(1990)	(1995)
area mapped (before application of afforestation rate)			15,659	16,023

* IFN production forests excl. inaccessible

APPENDIX 5

List of trees found in French forests

⇒ Note : this list was drawn up with the help of Mr Jean-Claude Rameau (ENGREF), based on two sources, i.e. lists of the Inventaire forestier national and the guide "Flore forestière française, guide écologique illustré", by Rameau et al., 1989 and 1993. It was further supplemented by INRA and AFOCEL. This selection overlooks a certain number of exotic species that generally occur in small more or less experimental areas.

List of trees indigenous to France and found in forests

CONIFERS					
1	<i>Abies alba</i>	silver fir	9	<i>Pinus mugo</i>	dwarf mountain pine
2	<i>Juniperus communis</i>	common juniper	10	<i>Pinus nigra laricio corsicana</i>	Corsican pine
3	<i>Juniperus oxycedrus</i>	prickly juniper, cade	11	<i>Pinus laricio salzmannii</i>	Pyrenean pine
4	<i>Juniperus thurifera</i>	Spanish juniper, savin	12	<i>Pinus pinaster</i>	maritime pine
5	<i>Larix decidua</i>	European larch	13	<i>Pinus pinea</i>	stone or umbrella pine
6	<i>Picea abies</i>	common spruce	14	<i>Pinus sylvestris</i>	Scots pine
7	<i>Pinus cembra</i>	arolla pine	15	<i>Pinus uncinata</i>	mountain pine
8	<i>Pinus halepensis</i>	Aleppo pine	16	<i>Taxus baccata</i>	yew
BROADLEAVED					
1	<i>Acer campestre</i>	field maple	30	<i>Pyrus amygdaliformis</i>	almond-leaved pear
2	<i>Acer monspessulanum</i>	Montpellier maple	31	<i>Pyrus pyraeaster</i>	wild pear
3	<i>Acer opalus</i>	Italian maple	32	<i>Quercus cerris</i>	Turkey oak
4	<i>Acer platanoides</i>	Norway maple	33	<i>Quercus ilex</i>	holm oak
5	<i>Acer pseudoplatanus</i>	sycamore	34	<i>Quercus petraea</i>	sessile oak
6	<i>Alnus cordata</i>	Corsican alder	35	<i>Quercus pubescens</i>	pubescent oak
7	<i>Alnus glutinosa</i>	common alder	36	<i>Quercus pyrenaica</i>	Pyrenean oak
8	<i>Alnus incana</i>	grey alder	37	<i>Quercus robur</i>	pedunculate oak
9	<i>Betula pendula</i>	silver birch	38	<i>Quercus suber</i>	cork oak
10	<i>Betula pubescens</i>	hairy birch	39	<i>Salix alba</i>	white willow
11	<i>Carpinus betulus</i>	hornbeam	40	<i>Salix caprea</i>	sallow, goat willow
12	<i>Castanea sativa</i>	sweet chestnut	41	<i>Salix daphnoides</i>	violet willow
13	<i>Cornus mas</i>	cornelian cherry	42	<i>Salix fragilis</i>	crack willow
14	<i>Crataegus monogyna</i>	common hawthorn	43	<i>Salix pentandra</i>	bay-leaved willow
15	<i>Fagus sylvatica</i>	beech	44	<i>Salix viminalis</i>	common osier
16	<i>Fraxinus angustifolia</i>	narrow-leaved ash	45	<i>Sambucus nigra</i>	elder
17	<i>Fraxinus excelsior</i>	common ash	46	<i>Sorbus aria</i>	common whitebeam
18	<i>Fraxinus ornus</i>	manna or flowering ash	47	<i>Sorbus aucuparia</i>	rowan, mountain ash
19	<i>Ilex aquifolium</i>	holly	48	<i>Sorbus domestica</i>	service tree
20	<i>Malus sylvestris</i>	crab apple	49	<i>Sorbus latifolia</i>	service tree of Fontainebleau
21	<i>Olea europaea</i>	olive	50	<i>Sorbus mougeoti</i>	Mougeot service tree
22	<i>Ostrya carpinifolia</i>	hop-hornbeam	51	<i>Sorbus torminalis</i>	wild service tree
23	<i>Populus alba</i>	white poplar	52	<i>Tamarix gallica</i>	tamarisk
24	<i>Populus canescens</i>	grey poplar	53	<i>Tilia argentea</i>	silver-leaved lime
25	<i>Populus nigra</i>	black poplar	54	<i>Tilia cordata</i>	small-leaved lime
26	<i>Populus tremula</i>	aspen	55	<i>Tilia platyphyllos</i>	broad-leaved lime
27	<i>Prunus avium</i>	wild cherry	56	<i>Ulmus glabra</i>	wych elm
28	<i>Prunus briqantina</i>	Briançon apricot	57	<i>Ulmus laevis</i>	European white elm
29	<i>Prunus padus</i>	bird cherry	58	<i>Ulmus minor</i>	lock elm

List of trees acclimatized in France and relatively well represented in forests

An acclimatized tree is one which: 1) was introduced long enough ago to have clearly shown, over more than one generation, that it is well adapted to the environmental and climatic conditions prevailing in France; and which 2) can reproduce naturally in forests, without human intervention.

CONIFERS			BROADLEAVED		
1	<i>Abies nordmanniana</i>	Caucasina fir	1	<i>Juqlans regia</i>	common walnut
2	<i>Cedrus atlantica</i>	Atlas cedar	2	<i>Quercus rubra</i>	red oak
3	<i>Cupressus sempervirens</i>	Italian or funeral cyprus	3	<i>Robinia pseudacacia</i>	false acacia
4	<i>Pinus nigra nigra</i>	Austrian pine			
5	<i>Pinus nigra laricio calabrica</i>	Calabrian pine			
6	<i>Pseudotsuga menziesii</i>	Douglas fir			

List of exotic trees sometimes found in forests

CONIFERS			BROADLEAVED		
1	<i>Abies bornmulleriana</i>	Turkish fir	1	<i>Acacia dealbata</i>	mimosa
2	<i>Abies cephalonica</i>	Greek fir	2	<i>Acer negundo</i>	box elder
3	<i>Abies cilicica</i>	Cilician fir	3	<i>Aesculus hippocastanum</i>	horse chestnut
4	<i>Abies concolor</i>	Colorado fir	4	<i>Ailanthus altissima</i>	tree of heaven
5	<i>Abies grandis</i>	Vancouver fir	5	<i>Celtis australis</i>	nettle tree
6	<i>Abies numidica</i>	Numidian fir	6	<i>Eucalyptus sp</i>	eucalyptus
7	<i>Abies pinsapo</i>	Spanish or hedgehog fir	7	<i>Juglans nigra</i>	black walnut
8	<i>Abies procera</i>	noble fir	8	<i>Gleditschia triacanthos</i>	honey locust
9	<i>Calocedrus decurrens</i>	California incense tree	9	<i>Laburnum anagyroides</i>	laburnum
10	<i>Cedrus brevifolia</i>	Cyprus cedar	10	<i>Liquidambar styraciflua</i>	liquidambar
11	<i>Cedrus deodara</i>	deodar	11	<i>Liriodendron tulipifera</i>	tulip tree
12	<i>Cedrus libani</i>	cedar of Lebanon	12	<i>Platanus hybrida</i>	London plane
13	<i>Chamaecyparis lawsoniana</i>	Lawson cypress	13	<i>Platanus orientalis</i>	Oriental plane
14	<i>Cryptomeria japonica</i>	Japanese red cedar	14	<i>Populus deltoides</i>	eastern cottonwood
15	<i>Cupressocyparis leylandii</i>	Leyland cypress	15	<i>Populus trichocarpa</i>	black cottonwood
16	<i>Cupressus arizonica</i>	Arizona cypress	16	<i>Prunus laurocerasus</i>	cherry laurel
17	<i>Cupressus atlantica</i>	Atlas cypress	17	<i>Prunus lusitanica</i>	Portuguese laurel
18	<i>Cupressus dupreziana</i>	Tassili cypress	18	<i>Prunus serotina</i>	black cherry
19	<i>Cupressus macrocarpa</i>	Monterey cypress	19	<i>Quercus palustris</i>	pin oak
20	<i>Larix eurolepis</i>	Dunkeld larch			
21	<i>Larix kaempferi</i>	Japanese larch			
22	<i>Metasequoia glyptostroboides</i>	dawn redwood			
23	<i>Picea sitchensis</i>	Sitka spruce			
24	<i>Pinus brutia</i>	Turkish pine			
25	<i>Pinus contorta</i>	lodgepole pine			
26	<i>Pinus eldarica</i>	eldarica pine			
27	<i>Pinus radiata</i>	Monterey pine			
28	<i>Pinus rigida</i>	northern pitch pine			
29	<i>Pinus strobus</i>	Weymouth pine			
30	<i>Pinus taeda</i>	incense pine			
31	<i>Sequoia sempervirens</i>	redwood			
32	<i>Sequoiadendron giganteum</i>	wellingtonia, giant sequoia			
33	<i>Taxodium distichum</i>	swamp or bald cypress			
34	<i>Thuja plicata</i>	western red cedar			
35	<i>Tsuga heterophylla</i>	western hemlock			

APPENDIX 6

List of forest species observed by the French National Forest Inventory (IFN) in its dendrometric surveys

A tree is a woody plant with a single stem that is bare at the base, including a trunk and a crown, and which can grow to more than 7 m high in the adult stage.

<u>BROADLEAVED</u>					
02	<i>Quercus robur</i>	pedunculate oak	23	<i>Pirus communis</i>	pear
03	<i>Quercus petraea</i>	sessile oak		<i>Pirus malus</i>	apple
04	<i>Quercus rubra</i>	red oak		<i>Prunus amygdalus</i>	almond
05	<i>Quercus pubescens</i>	pubescent oak		<i>Prunus domestica</i>	plum
06	<i>Quercus ilex</i>	holm oak		<i>Sorbus aria</i>	common whitebeam
07	<i>Quercus pyrenaica</i>	Pyrenean oak		<i>Sorbus aucuparia</i>	rowan, mountain ash
08	<i>Quercus suber</i>	cork oak		<i>Sorbus domestica</i>	service tree
09	<i>Fagus sylvatica</i>	beech		<i>Sorbus latifolia</i>	service tree of Fontainebleau
10	<i>Castanea sativa</i>	chestnut		<i>Sorbus mougeoti</i>	Mougeot service tree
11	<i>Carpinus betulus</i>	hornbeam		<i>Ficus carica</i>	fig
12	<i>Betula pubescens</i>	hairy birch			
	<i>Betula pendula</i>	silver birch	24	<i>Populus tremula</i>	aspen
13	<i>Alnus glutinosa</i>	common alder	25	<i>Salix</i> sp.	willow (all species except creeping or bushy willows)
	<i>Alnus incana</i>	grey alder			
	<i>Alnus cordata</i>	Italian or Corsican alder			
14	<i>Robinia pseudacacia</i>	false acacia	26	<i>Platanus acerifolia</i>	London plane
15	<i>Acer platanoides</i>	Norway maple		<i>Platanus occidentalis</i>	American plane
	<i>Acer pseudoplatanus</i>	sycamore		<i>Platanus orientalis</i>	Oriental plane
16	<i>Celtis australis</i>	nettle tree	27	<i>Juglans regia</i>	common walnut
17	<i>Fraxinus excelsior</i>	common ash		<i>Juglans nigra</i>	black walnut
	<i>Fraxinus angustifolia</i>	narrow-leaved ash	28	<i>Olea europaea</i>	olive
	<i>Fraxinus ornus</i>	manna or flowering ash	29		other exotic hardwoods
18	<i>Ulmus minor</i>	lock elm	30	<i>Morus alba</i>	white mulberry
	<i>Ulmus glabra</i>	wych elm		<i>Morus nigra</i>	black mulberry
	<i>Ulmus levis</i>	European white elm	31	<i>Corylus avellana</i>	hazel
19	<i>Populus nigra, deltoides</i>	cultivated poplars	32	<i>Ostrya carpinifolia</i>	hop-hornbeam
	<i>trichocarpa et hybrides</i>		33	<i>Populus</i> sp.	Italian poplar & various non-cultivated species (e.g. white poplar)
20	<i>Tilia cordata</i>	small-leaved lime			
	<i>Tilia platyphyllos</i>	broad-leaved lime			
21	<i>Acer campestre</i>	field maple	34	<i>Quercus cerris</i>	Turkey oak
	<i>Acer opalus</i>	Italian maple	35	<i>Tamarix</i> sp.	tamarisk
	<i>Acer Monspezzulanum</i>	Montpellier maple	36	<i>Eucalyptus</i> sp.	eucalyptus
22	<i>Prunus avium</i>	wild cherry	37	<i>Alnus viridis</i>	green alder
	<i>Prunus cerasus</i>	cherry	38	<i>Laburnum anagyroides</i>	laburnum
	<i>Prunus padus</i>	bird cherry		<i>Laburnum alpinum</i>	Alpine laburnum
			39	<i>Cornus mas</i>	cornelian cherry
			40	<i>Arbutus unedo</i>	arbutus
			41	<i>Sorbus torminalis</i>	wild service tree
			49		other indigenous broadleaved species
<u>CONIFERS</u>					
51	<i>Pinus pinaster</i>	maritime pine	61	<i>Abies alba</i>	silver fir
52	<i>Pinus sylvestris</i>	Scots pine	62	<i>Picea abies</i>	common spruce
53	<i>Pinus nigra laricio corsicana</i>	Corsican pine	63	<i>Larix decidua</i>	European larch
	<i>Pinus nigra laricio calabrica</i>	Calabrian pine	64	<i>Pseudotsuga menziesii</i>	Douglas fir
	<i>Pinus laricio salzmannii</i>	Pyrenean pine	65	<i>Cedrus atlantica</i>	Atlas cedar
54	<i>Pinus nigra nigra</i>	Austrian pine	66	<i>Cupressus sempervirens</i>	Italian or funeral cypress
55	<i>Pinus pinea</i>	stone or umbrella pine	67	<i>Taxus baccata</i>	yew
56	<i>Pinus strobus</i>	Weymouth pine	68		other exotic conifers
57	<i>Pinus halepensis</i>	Aleppo pine	69	<i>Juniperus thurifera</i>	Spanish juniper, savin
	<i>Pinus brutia (or eldarica)</i>	Turkish pine	71	<i>Abies nordmanniana</i>	Caucasian fir
58	<i>Pinus uncinata</i>	mountain pine	72	<i>Abies grandis</i>	Vancouver fir
59	<i>Pinus cembra</i>	arolla pine	73	<i>Picea sitchensis</i>	Sitka spruce
60	<i>Pinus mugo</i>	dwarf mountain pine	74	<i>Larix leptolepis</i>	Dunkeld larch
			75		Other indigenous conifers

n.b. The numbers indicate the species groupings used in the dendrometric surveys (all species are included in the floristic surveys)

Appendix 7 - IFN logging classification

LOGGING CLASS	LOGGING TRAIL	HAULING DISTANCE	SLOPE	TYPE OF TERRAIN
EASY	None "	< 1000 m < 200 m	< 15% 15 - 30%	level and manageable level and manageable
MEDIUM	None " " "	200 - 1000 m " < 200 m 1000 - 2000 m	15 - 30% < 15% < 30% < 15%	level and manageable rugged or wet rugged or wet level and manageable
DIFFICULT	None " " " " " Trail to build	< 200 m 200 - 1000 m " 1000 - 2000 m " > 2000 m any	> 30% 15 - 30% > 30% < 15% > 15% any any	any rugged or wet any rugged or wet any any any
VERY DIFFICULT	Trail impossible (cable hauling, helitransport,...)	any	any	any

Appendix 8 - Certified sustainably managed forest area

Forest ownership category	Certified forest area in 2004			
	PEFC		FSC	
	ha	% forest area	ha	% forest area
state-owned forest	1,561,800	99.3%	0	0.0%
other public forest governed by forest regulations	847,900	33.9%	0	0.0%
private forest	1,181,500	10.4%	15,300	0.1%
Total	3,591,200	23.3%	15,300	0.1%

(Source: Program for the Endorsement of Forest Certification schemes (PEFC), situation on 30/11/04 and the Forest Stewardship Council (FSC), situation on 10/11/04; forest area according to SCEES/Teruti 2003 classified per property according to IFN data from the last inventory; PEFC and FSC certified forest areas sometimes apply to the same forests)

APPENDIX 9

List of threatened species

Vascular plants outside the Mediterranean region

1) species exclusively or very often found in forests

Bell flower	<i>Campanula cervicaria</i>	Rare
Atlantic polystichum	<i>Dryopteris aemula</i>	Vulnerable
Shield fern	<i>Dryopteris cristata</i>	Endangered
Dame's violet	<i>Hesperis inodora</i>	Vulnerable
Holly fern	<i>Polystichum braunii</i>	Vulnerable

2) species with mixed behaviour, found to an equal extent in forests and open areas

Centaury ssp. aemilii	<i>Centaurea balbisiana aemilii</i>	Vulnerable
Centaury ssp. jordaniana	<i>Centaurea balbisiana jordaniana</i>	Rare
Centaury ssp. verguini	<i>Centaurea balbisiana verguini</i>	Vulnerable
Centaury ssp. albida	<i>Centaurea maculosa albida</i>	Endangered
Cotoneaster delphinensis	<i>Cotoneaster delphinensis</i>	Vulnerable
Delphinium requienii	<i>Delphinium requienii</i>	Vulnerable
Knautia lebrunii	<i>Knautia lebrunii</i>	Endangered
Leucjum fabrei	<i>Leucjum fabrei</i>	Endangered
Senecio ruthienensis	<i>Senecio ruthienensis</i>	Vulnerable

Mammals

1) species exclusively or very often found in forests

Western barbastelle	<i>Barbastella barbastellus</i>	Vulnerable
Northern bat	<i>Eptesicus nilssonii</i>	Rare
Lynx	<i>Lynx lynx</i>	Endangered
Bechstein's bat	<i>Myotis bechsteini</i>	Vulnerable
Lesser mouse-eared bat	<i>Myotis blythii</i>	Vulnerable
Brandt's bat	<i>Myotis brandti</i>	Rare
Geoffrey's bat	<i>Myotis emarginatus</i>	Vulnerable
Large mouse-eared bat	<i>Myotis myotis</i>	Vulnerable
Lesser noctule	<i>Nyctalus leisleri</i>	Vulnerable
Noctule	<i>Nyctalus noctula</i>	Vulnerable
Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>	Vulnerable
Great horseshoe bat	<i>Rhinolophus ferrumequinum</i>	Vulnerable
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	Vulnerable
Brown bear	<i>Ursus arctos</i>	Endangered

2) species with mixed behaviour, found to an equal extent in forests and open areas

European mink	<i>Mustela lutreola</i>	Endangered
Long-fingered bat	<i>Myotis capaccinii</i>	Vulnerable
Alpine shrew mouse	<i>Sorex alpinus</i>	Rare
Parti-coloured bat	<i>Vespertilio murinus</i>	Rare

Birds

1) species exclusively or very often found in forests

Siskin	<i>Carduelis spinus</i>	Rare
Black stork	<i>Ciconia nigra</i>	Vulnerable
White-backed woodpecker	<i>Dendrocopos leucotos</i>	Rare
Pygmy owl	<i>Glaucidium passerinum</i>	Rare
Booted eagle	<i>Hieraetus pennatus</i>	Rare
Three-toed woodpecker	<i>Picoides tridactylus</i>	Vulnerable

2) species with mixed behaviour, found to an equal extent in forests and open areas

Eagle owl	<i>Bubo bubo</i>	Rare
Scarlet grosbeak	<i>Carpodacus erythrinus</i>	Vulnerable
Short-toed eagle	<i>Circus gallicus</i>	Rare
Great spotted cuckoo	<i>Clamator glandarius</i>	Rare
Roller	<i>Coracias garrulus</i>	Rare
Black-shouldered kite	<i>Elanus caeruleus</i>	Vulnerable
Lanius (excubitor) meridionalis	<i>Lanius (excubitor) meridionalis</i>	Vulnerable
Lesser grey shrike	<i>Lanius minor</i>	Endangered
Osprey, bald buzzard	<i>Pandion haliaetus</i>	Vulnerable
Spectacled warbler	<i>Sylvia conspicillata</i>	Vulnerable

Reptiles

1) species exclusively or very often found in forests: none

2) species with mixed behaviour, found to an equal extent in forests and open areas

Pygmy lizard	<i>Algyroides fitzingeri</i>	Rare
<i>Testudo hermanni</i>	<i>Testudo hermanni</i>	Vulnerable

Amphibians

1) species with mixed behaviour, found to an equal extent in forests and open areas: none

2) species with mixed behaviour, found to an equal extent in forests and open areas

Fire-belly toad	<i>Bombina variegata</i>	Vulnerable
European tree frog	<i>Hyla arborea</i>	Vulnerable
<i>Triturus alpestris</i>	<i>Triturus alpestris</i>	Vulnerable
Great water newt	<i>Triturus cristatus</i>	Vulnerable
Marbled newt	<i>Triturus marmoratus</i>	Vulnerable

(Source: Muséum national d'histoire naturelle, working document 2000)

APPENDIX 10

List of arboretums with public access

(Source: ENGREF/Arboretum national des Barres, 2005)

Name	Address	Postal code	Town	public arboretum network affiliation
Jardin botanique de la Mhotte		03210	SAINT-MENOUX	
Arboretum de Balaine		03460	VILLENEUVE-sur-ALLIER	
Jardin botanique des Cordeliers	Collège Maria Borelly	04000	DIGNE-les-BAINS	
Jardin ethnobotanique de Salagon	Prieure de Salagon	04300	MANE	
Jardin alpin du Lautaret	Col du Lautaret	05220	LE MONETIER-les-BAINS	
Jardin botanique de la ville de Nice	78, corniche fleurie	06000	NICE	
Parc floral Phoenix	405, promenade des Anglais	06000	NICE	
Jardin botanique exotique, Villa Val Rameh	Avenue Saint Jacques	06500	MENTON	
Jardin botanique de la villa Thuret	61, boulevard du Cap - BP 2078	06606	ANTIBES Cedex	x
Parc botanique de la Tour Veille	Avenue d'Anduze	30100	ALES EN CEVENNES	
Les Jardins du Nouveau Monde		02300	BLERANCOURT	
L'Ami des Plantes		06220	VALLAURIS	
Arboretum Saint-Antoine		10130	EVRY-le-CHATEL	
Arboretum de Villardebelle		11580	VILLARDEBELLE	
Jardin botanique de la ville de Marseille	48, avenue clot Bey	13008	MARSEILLE	
Jardin botanique de la ville et de l'Université de Caen	5, place Blot	14000	CAEN	
Arboretum de Grimbosq		14220	GRIMBOSQ	
Arboretum d'Arpajon/Cère		15130	ARPAJON/CERE	
Arboretum du Chêne Vert		16150	CHABANAIS	
Parc floral d'Apremont	Apremont-sur-Allier	18150	LA GUERCHE-sur-l'AUBOIS	
Jardin botanique de l'Arquebuse	1, avenue Albert 1er	21033	DIJON	
Les jardins de Kerdalo		22220	TREDARZEC	
La Roche Branlante Jean Laborey	Chemin des douaniers	22270	PLOUMANAC'H	
Arboretum de Neuvic		24190	NEUVIC	
Jardin botanique de la ville et de l'Université de Besançon	Place du Maréchal Leclerc	25000	BESANÇON	
Arboretum d'Harcourt		27800	HARCOURT	
Jardin botanique de Cornouaille	Pont l'Abbé	29120	COMBRIT	
Parc du château de Trevez		29250	SAINT GOAZEC	
Keroniel (M. Jean Lennon)	10, rue Pasteur	29307	ELLIANT	
Jardin exotique de Roscoff	Roc'h Hievec, route de Car Ferry	29680	ROSCOFF	
Arboretum du Poerop	Le Poerop	29690	HUELGOAT	
Bambouseraie de Prafrance		30140	ANDUZE	
Arboretum de la Foux	Forêt domaniale de l'Aigoual	30570	SAINT SAUVEUR DES POURCILS	
Arboretum de l'Hort de Dieu	Forêt domaniale de l'Aigoual	30570	VALERAUGUE	
Jardin des plantes de Toulouse	Allée Frédéric Mistral - 35, allée Jules Guesde	31000	TOULOUSE	
Arboretum de Jouéou		31110	BAGNERES DE LUCHON	
Arboretum Coursiana		32480	LA ROMIEU	
Arboretum de la Bordette		32480	LA ROMIEU	
Jardin botanique de Bordeaux	Terrasses du jardin public, Place Bardineau	33000	BORDEAUX	
Jardin des plantes	163, rue Auguste Broussonnet	34000	MONTPELLIER	
Jardin botanique de la ville de Rennes	5, boulevard de la Duchesse Anne	35000	RENNES	
Jardin botanique de Tours	33, boulevard Tonnelé	37000	TOURS	
Jardin des plantes	Rue Dolomieu	38000	GRENOBLE	
Arboretum de Chevreuil, forêt domaniale de la Joux		39300	SUPT-CHAMPAGNOLE	
Parc botanique de la Fosse		41800	FONTAINE LES COTEAUX	
Arboretum des Grands Murcins		42370	ARCON	
Jardin des plantes	Rue Stanislas Baudry	44000	NANTES	
Parc du Grand Blottereau	Boulevard Auguste-Péneau	44000	NANTES	

Name	Address	Postal code	Town	public arboretum network affiliation
Jardin des plantes	Route de Saint-Mesmin	45000	ORLEANS	
Arboretum des prés des Culands		45130	MEUNG SUR LOIRE	
Arboretum national des Barres	Domaine des Barres	45290	NOGENT SUR VERNISSON	x
Le Jardin de l'Arbre		45290	VARENNES CHANGY	
Arboretum des Grandes Bruyères		45450	INGRANNES	
Arboretum Gaston Allard	Rue du château d'Orgemont	49000	ANGERS	
La Roche Fauconnière		50100	CHERBOURG	
Jardin botanique de Vauville	Vauville	50440	BEAUMONT SUR HAGUE	
Arboretum d'Amance	INRA, Centre de recherche de Nancy	54280	CHAMPENOUX	x
Conservatoire botanique national de Nancy	Jardin du Montet	54600	VILLIERS LES NANCY	
Jardin botanique	27 ter, rue de Pont-à-Mousson	57950	MONTIGNY LES METZ	
Arboretum de Boulogne	BP 729	62321	BOULOGNE SUR MER	
Arboretum de Royat	33, rue Eugène Gilbert	63000	CLERMONT FERRAND	
Arboretum de Tournay		65190	TOURNAY	
Jardin botanique de l'Université de Strasbourg	28, rue Goethe	67000	STRASBOURG	
Jardin botanique du col de Saverne	RN 4	67700	SAVERNE	
Jardin botanique de Lyon	Parc de la Tête d'Or	69000	LYON	
Arboretum de Pézanin		71970	DOMPIERRE LES ORMES	x
Jardin des plantes du Mans	4, rue de Sinault	72000	LE MANS	
Jardin des Plantes, Museum National d'Histoire Naturelle	57, rue Cuvier	75007	PARIS	
Arboretum de l'Ecole du Breuil	Route de la ferme - Bois de Vincennes	75012	PARIS	
Parc de Bagatelle	Route de Sèvres, Bois de Boulogne	75016	PARIS	
Jardin des plantes de Rouen	114, ter avenue des Martyrs de la résistance	76100	ROUEN	
Jardin Vastérial (uniquement sur RV)		76119	SAINT MARGUERITE SUR MER	
Arboretum du parc de Rouelles	Rouelles	76610	LE HAVRE	
Domaine national de Versailles et du Trianon	Château de Versailles	78000	VERSAILLES	
Arboretum de Chèvreloup	30, route de Versailles	78150	ROCQUENCOURT	x
Arboretum et jardin botanique	Institut national agronomique Paris Grignon	78850	THIVERVAL GRIGNON	
Arboretum du Parc du Château de Rambures		80140	RAMBURES	
Jardin botanique de Samara		80310	LA CHAUSSEE TRIANCOURT	
Jardins méditerranéens du Domaine du Rayol	Avenue du commandant Rigaud	83820	LE RAYOL CANADEL	
Jardin des plantes de Poitiers	Rue du Jardin des Plantes, boulevard Chasseigne	86000	POITIERS	
Jardin botanique de Limoges et jardin de l'évêché	Place de la cathédrale	87000	LIMOGES	
Arboretum de la Jonchère Saint-Maurice		87340	LA JONCHERE SAINT MAURICE	x
Maison des arbres et des oiseaux - Arboretum municipal	Mairie	91370	VERRIERES LE BUISSON	
Réserve naturelle Roger de Vilmorin - Arboretum	1, Voie de l'Aulne	91370	VERRIERES LE BUISSON	
Parc de la Faculté des sciences d'Orsay	3, rue Georges Clémenceau	91405	ORSAY	x
Arboretum de la vallée aux Loups	46, rue de Chateaubriand	92290	CHATENAY MALABRY	
Jardin exotique de Monaco	62, boulevard du jardin exotique	98000	MONACO	

APPENDIX 11

Detailed tables by paragraph (IFN and Teruti data)

Appendix to § 1.1.1 Forest area gains and losses

SCEES/Teruti transition matrix for 1997/2003 per pooled category (units: ha)

Codes	11 - 15	16, 17	18 - 21	22, 23, 26	24, 25	27 - 67	69 - 70	72	68, 73, 84	74 - 83, 85 - 91, 99	Total 2003
11 - 15	934,837	1,694	4,624	3,300	1,703	21,530	3,698	911	3,046	6,891	982,234
16, 17	2,798	790,880	7,485	491	0	16,172	11,369	0	302	697	830,194
18 - 21	6,243	17,352	14,673,903	79,646	9,954	122,051	229,212	7,312	6,747	15,787	15,168,207
22, 23, 26	2,047	497	41,527	796,356	2,101	18,529	19,678	11,199	11,214	5,761	908,909
24, 25	305	0	6,982	1,801	209,287	17,817	3,288	302	300	53	240,135
27 - 67	10,775	35,170	68,024	31,784	5,109	28,710,005	261,343	22,873	50,943	44,985	29,241,011
69, 70	3,645	25,767	78,463	12,335	2,252	326,851	1,760,226	2,292	12,602	16,090	2,240,523
72	2,012	0	8,238	19,398	803	17,637	6,346	545,537	3,758	4,047	607,776
68, 73, 84	2,002	802	11,257	13,767	599	152,816	36,117	6,306	1,209,121	61,120	1,493,907
74 - 83, 85 - 91, 99	3,548	1,297	33,922	12,349	897	190,354	44,880	6,450	68,003	2,844,689	3,206,389
Total 1997	968,212	873,459	14,934,425	971,227	232,705	29,593,762	2,376,157	603,182	1,366,036	3,000,120	54,919,285

Legend:

11 - 15: water and wetlands
 16, 17: soil with outcropping parent rock (rocks, talus, dunes, etc.)
 18 - 21: woodland and forests
 22, 23, 26: thickets and scattered trees
 24, 25: poplar plantations and associated
 27 - 67: farmland in use
 69, 70: heathland (including garrigues and maquis) and fallow land
 72: hedges
 68, 73, 84: grassland, trails and ornamental gardens
 74 - 83, 85 - 91, 99: man-made areas +/- structures, prohibited areas

(Source: Agreste/Teruti n° 157; March 2004)

Appendix to § 1.1.3 Forest area by IFN forest structure

1) Forest stands available for wood production (excluding poplar plantations)

Administrative region	Forest structure	1989		1994		1999		2004		1994-2004 annual variation rate
		ha	%	ha	%	ha	%	ha	%	
ALSACE	regular high forest	230,890	77.1%	248,110	80.7%	248,110	80.7%	253,420	82.4%	0.2%
	irregular high forest	110	0.0%	1,660	0.5%	1,660	0.5%	3,600	1.2%	8.1%
	coppice	23,060	7.7%	18,570	6.0%	18,570	6.0%	12,050	3.9%	-4.2%
	mixed coppice/broadleaved high forest	38,580	12.9%	33,700	11.0%	33,700	11.0%	27,760	9.0%	-1.9%
	mixed coppice/conifer high forest	4,530	1.5%	3,250	1.1%	3,250	1.1%	5,430	1.8%	5.3%
	temporarily unstocked*	2,230	0.7%	2,080	0.7%	2,080	0.7%	5,150	1.7%	9.5%
Total ALSACE		299,400	100.0%	307,370	100.0%	307,370	100.0%	307,410	100.0%	0.0%
AQUITAINE	regular high forest	1,121,550	66.1%	1,099,470	64.8%	1,098,930	64.2%	1,119,680	64.4%	0.2%
	irregular high forest	58,120	3.4%	43,550	2.6%	61,480	3.6%	61,990	3.6%	3.6%
	coppice	170,820	10.1%	147,530	8.7%	143,830	8.4%	139,920	8.1%	-0.5%
	mixed coppice/broadleaved high forest	212,220	12.5%	230,210	13.6%	230,620	13.5%	261,800	15.1%	1.3%
	mixed coppice/conifer high forest	96,010	5.7%	101,300	6.0%	101,420	5.9%	104,580	6.0%	0.3%
	temporarily unstocked*	37,450	2.2%	75,000	4.4%	75,390	4.4%	49,720	2.9%	-4.0%
Total AQUITAINE		1,696,170	100.0%	1,697,060	100.0%	1,711,680	100.0%	1,737,680	100.0%	0.2%
AUVERGNE	regular high forest	302,990	46.6%	342,770	50.4%	342,770	50.4%	376,070	55.2%	0.9%
	irregular high forest	144,460	22.2%	125,490	18.5%	125,490	18.5%	99,830	14.7%	-2.3%
	coppice	74,800	11.5%	56,770	8.4%	56,770	8.4%	53,490	7.9%	-0.6%
	mixed coppice/broadleaved high forest	98,050	15.1%	113,000	16.6%	113,000	16.6%	106,910	15.7%	-0.6%
	mixed coppice/conifer high forest	23,830	3.7%	37,290	5.5%	37,290	5.5%	39,070	5.7%	0.5%
	temporarily unstocked*	5,870	0.9%	4,360	0.6%	4,360	0.6%	5,450	0.8%	2.3%
Total AUVERGNE		650,020	100.0%	679,670	100.0%	679,670	100.0%	680,830	100.0%	0.0%
BASSE-NORMANDIE	regular high forest	63,170	43.5%	77,860	52.9%	77,860	52.9%	101,190	62.7%	2.7%
	irregular high forest	0	0.0%	0	0.0%	0	0.0%	430	0.3%	0.0%
	coppice	17,500	12.1%	15,580	10.6%	15,580	10.6%	19,290	11.9%	2.2%
	mixed coppice/broadleaved high forest	62,450	43.0%	45,140	30.6%	45,140	30.6%	32,280	20.0%	-3.3%
	mixed coppice/conifer high forest	1,500	1.0%	6,820	4.6%	6,820	4.6%	4,390	2.7%	-4.3%
	temporarily unstocked*	480	0.3%	1,910	1.3%	1,910	1.3%	3,900	2.4%	7.4%
Total BASSE-NORMANDIE		145,090	100.0%	147,310	100.0%	147,310	100.0%	161,470	100.0%	0.9%
BOURGOGNE	regular high forest	175,540	18.8%	220,850	23.0%	234,230	24.4%	241,400	25.1%	0.9%
	irregular high forest	37,200	4.0%	22,110	2.3%	19,340	2.0%	23,070	2.4%	0.4%
	coppice	86,790	9.3%	86,380	9.0%	85,910	9.0%	78,300	8.1%	-1.0%
	mixed coppice/broadleaved high forest	606,650	64.8%	594,810	62.0%	584,920	61.0%	583,210	60.6%	-0.2%
	mixed coppice/conifer high forest	25,610	2.7%	31,350	3.3%	30,660	3.2%	32,690	3.4%	0.4%
	temporarily unstocked*	4,280	0.5%	3,940	0.4%	4,050	0.4%	3,860	0.4%	-0.2%
Total BOURGOGNE		936,070	100.0%	959,430	100.0%	959,110	100.0%	962,540	100.0%	0.0%
BRETAGNE	regular high forest	112,840	44.9%	112,840	44.9%	145,610	45.9%	145,610	45.9%	2.6%
	irregular high forest	8,630	3.4%	8,630	3.4%	1,020	0.3%	1,020	0.3%	-19.2%
	coppice	54,850	21.8%	54,850	21.8%	52,440	16.5%	52,440	16.5%	-0.4%
	mixed coppice/broadleaved high forest	48,320	19.2%	48,320	19.2%	84,580	26.6%	84,580	26.6%	5.8%
	mixed coppice/conifer high forest	23,660	9.4%	23,660	9.4%	31,290	9.9%	31,290	9.9%	2.8%
	temporarily unstocked*	3,160	1.3%	3,160	1.3%	2,500	0.8%	2,500	0.8%	-2.3%
Total BRETAGNE		251,470	100.0%	251,470	100.0%	317,450	100.0%	317,450	100.0%	2.4%
CENTRE	regular high forest	202,680	25.4%	225,550	28.0%	264,840	32.4%	325,580	37.7%	3.7%
	irregular high forest	12,090	1.5%	13,360	1.7%	10,410	1.3%	5,990	0.7%	-7.7%
	coppice	142,930	17.9%	133,390	16.6%	124,840	15.3%	121,900	14.1%	-0.9%
	mixed coppice/broadleaved high forest	377,650	47.4%	367,930	45.7%	360,290	44.0%	358,870	41.5%	-0.2%
	mixed coppice/conifer high forest	57,590	7.2%	60,160	7.5%	53,410	6.5%	48,390	5.6%	-2.2%
	temporarily unstocked*	3,480	0.4%	4,040	0.5%	4,590	0.6%	3,580	0.4%	-1.2%
Total CENTRE		796,420	100.0%	804,430	100.0%	818,380	100.0%	864,300	100.0%	0.7%
CHAMPAGNE-ARDENNE	regular high forest	188,550	29.5%	188,550	29.5%	203,140	31.9%	230,680	36.0%	2.0%
	irregular high forest	130	0.0%	130	0.0%	450	0.1%	860	0.1%	21.1%
	coppice	48,410	7.6%	48,410	7.6%	39,220	6.2%	38,070	5.9%	-2.4%
	mixed coppice/broadleaved high forest	383,180	60.0%	383,180	60.0%	375,690	59.0%	353,770	55.3%	-0.8%
	mixed coppice/conifer high forest	15,130	2.4%	15,130	2.4%	15,250	2.4%	14,450	2.3%	-0.5%
	temporarily unstocked*	3,380	0.5%	3,380	0.5%	3,250	0.5%	2,080	0.3%	-4.7%
Total CHAMPAGNE-ARDENNE		638,780	100.0%	638,780	100.0%	637,000	100.0%	639,900	100.0%	0.0%

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Administrative region	Forest structure	1989		1994		1999		2004		1994-2004 annual variation rate
		ha	%	ha	%	ha	%	ha	%	
CORSE	regular high forest	106,460	50.0%	79,830	51.5%	79,830	51.5%	79,830	51.5%	0.0%
	irregular high forest	7,900	3.7%	9,210	5.9%	9,210	5.9%	9,210	5.9%	0.0%
	coppice	55,330	26.0%	39,920	25.7%	39,920	25.7%	39,920	25.7%	0.0%
	mixed coppice/broadleaved high forest	36,790	17.3%	20,680	13.3%	20,680	13.3%	20,680	13.3%	0.0%
	mixed coppice/conifer high forest	6,110	2.9%	5,350	3.5%	5,350	3.5%	5,350	3.5%	0.0%
	temporarily unstocked*	420	0.2%	80	0.1%	80	0.1%	80	0.1%	0.0%
Subtotal CORSE		213,010	100.0%	155,070	100.0%	155,070	100.0%	155,070	100.0%	0.0%
Unspecified CORSE		0		71,470		71,470		71,470		
Total CORSE		213,010		226,540		226,540		226,540		0.0%
FRANCHE-COMTE	regular high forest	243,980	36.2%	243,980	36.2%	319,740	47.2%	322,610	47.6%	2.8%
	irregular high forest	84,690	12.6%	84,690	12.6%	71,490	10.6%	72,120	10.6%	-1.6%
	coppice	52,710	7.8%	52,710	7.8%	45,060	6.7%	44,340	6.5%	-1.7%
	mixed coppice/broadleaved high forest	272,530	40.5%	272,530	40.5%	221,400	32.7%	220,380	32.5%	-2.1%
	mixed coppice/conifer high forest	17,340	2.6%	17,340	2.6%	17,560	2.6%	16,780	2.5%	-0.3%
	temporarily unstocked*	1,980	0.3%	1,980	0.3%	2,030	0.3%	1,700	0.3%	-1.5%
Total FRANCHE-COMTE		673,220	100.0%	673,220	100.0%	677,270	100.0%	677,930	100.0%	0.1%
HAUTE-NORMANDIE	regular high forest	68,550	33.1%	98,820	44.9%	98,820	44.9%	148,620	68.1%	4.2%
	irregular high forest	0	0.0%	0	0.0%	0	0.0%	90	0.0%	
	coppice	15,230	7.3%	14,010	6.4%	14,010	6.4%	13,950	6.4%	0.0%
	mixed coppice/broadleaved high forest	116,260	56.1%	96,580	43.9%	96,580	43.9%	51,300	23.5%	-6.1%
	mixed coppice/conifer high forest	7,070	3.4%	8,560	3.9%	8,560	3.9%	2,790	1.3%	-10.6%
	temporarily unstocked*	120	0.1%	1,900	0.9%	1,900	0.9%	1,410	0.6%	-3.0%
Total HAUTE-NORMANDIE		207,220	100.0%	219,880	100.0%	219,880	100.0%	218,160	100.0%	-0.1%
ILE-DE-FRANCE	regular high forest	46,450	19.6%	46,450	19.6%	112,200	44.7%	112,200	44.7%	9.2%
	irregular high forest	3,260	1.4%	3,260	1.4%	420	0.2%	420	0.2%	-18.6%
	coppice	54,010	22.8%	54,010	22.8%	21,700	8.6%	21,700	8.6%	-8.7%
	mixed coppice/broadleaved high forest	122,010	51.5%	122,010	51.5%	110,620	44.1%	110,620	44.1%	-1.0%
	mixed coppice/conifer high forest	10,660	4.5%	10,660	4.5%	5,150	2.1%	5,150	2.1%	-7.0%
	temporarily unstocked*	320	0.1%	320	0.1%	850	0.3%	850	0.3%	10.3%
Total ILE-DE-FRANCE		236,700	100.0%	236,700	100.0%	250,940	100.0%	250,940	100.0%	0.6%
LANGUEDOC-ROUSSILLON	regular high forest	342,530	44.0%	360,770	45.7%	388,830	48.4%	388,830	48.4%	0.8%
	irregular high forest	27,550	3.5%	29,720	3.8%	19,320	2.4%	19,320	2.4%	-4.2%
	coppice	325,640	41.8%	316,270	40.0%	307,110	38.3%	307,110	38.3%	-0.3%
	mixed coppice/broadleaved high forest	36,260	4.7%	34,210	4.3%	31,220	3.9%	31,220	3.9%	-0.9%
	mixed coppice/conifer high forest	43,380	5.6%	44,800	5.7%	53,540	6.7%	53,540	6.7%	1.8%
	temporarily unstocked*	3,930	0.5%	4,010	0.5%	2,830	0.4%	2,830	0.4%	-3.4%
Subtotal LANGUEDOC-ROUSSILLON		779,290	100.0%	789,780	100.0%	802,850	100.0%	802,850	100.0%	0.2%
Unspecified LANGUEDOC-ROUSSILLON		0		30,390		108,380		108,380		
Total LANGUEDOC-ROUSSILLON		779,290		820,170		911,230		911,230		1.1%
LIMOUSIN	regular high forest	262,990	50.5%	287,290	51.8%	287,290	51.8%	290,660	52.4%	0.1%
	irregular high forest	14,380	2.8%	23,800	4.3%	23,800	4.3%	10,980	2.0%	-7.4%
	coppice	88,330	17.0%	68,600	12.4%	68,600	12.4%	92,960	16.8%	3.1%
	mixed coppice/broadleaved high forest	131,940	25.3%	140,750	25.4%	140,750	25.4%	121,350	21.9%	-1.5%
	mixed coppice/conifer high forest	16,510	3.2%	27,730	5.0%	27,730	5.0%	28,120	5.1%	0.1%
	temporarily unstocked*	6,420	1.2%	6,510	1.2%	6,510	1.2%	10,380	1.9%	4.8%
Total LIMOUSIN		520,560	100.0%	554,680	100.0%	554,680	100.0%	554,450	100.0%	0.0%
LORRAINE	regular high forest	475,140	56.5%	474,050	56.6%	495,240	59.7%	495,240	59.7%	0.4%
	irregular high forest	9,860	1.2%	10,090	1.2%	12,380	1.5%	12,380	1.5%	2.1%
	coppice	33,730	4.0%	29,980	3.6%	19,060	2.3%	19,060	2.3%	-4.4%
	mixed coppice/broadleaved high forest	310,460	36.9%	312,170	37.3%	288,550	34.8%	288,550	34.8%	-0.8%
	mixed coppice/conifer high forest	9,040	1.1%	7,330	0.9%	9,470	1.1%	9,470	1.1%	2.6%
	temporarily unstocked*	3,430	0.4%	3,210	0.4%	4,610	0.6%	4,610	0.6%	3.7%
Total LORRAINE		841,650	100.0%	836,830	100.0%	829,310	100.0%	829,310	100.0%	-0.1%

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Administrative region	Forest structure	1989		1994		1999		2004		1994-2004 annual variation rate
		ha	%	ha	%	ha	%	ha	%	
MIDI-PYRENEES	regular high forest	432,710	40.2%	468,910	43.0%	488,300	43.6%	485,320	42.4%	0.3%
	irregular high forest	46,530	4.3%	59,480	5.5%	70,510	6.3%	59,070	5.2%	-0.1%
	coppice	321,950	29.9%	300,270	27.5%	299,210	26.7%	311,050	27.2%	0.4%
	mixed coppice/broadleaved high forest	245,910	22.8%	225,000	20.6%	226,590	20.2%	252,030	22.0%	1.1%
	mixed coppice/conifer high forest	26,380	2.4%	32,860	3.0%	31,040	2.8%	34,700	3.0%	0.5%
	temporarily unstocked*	3,400	0.3%	4,360	0.4%	3,520	0.3%	3,150	0.3%	-3.2%
Subtotal MIDI-PYRENEES		1,076,880	100.0%	1,090,880	100.0%	1,119,160	100.0%	1,145,330	100.0%	0.5%
Unspecified MIDI-PYRENEES		0		25,530		25,530		25,530		
Total MIDI-PYRENEES		1,076,880		1,116,410		1,144,690		1,170,860		0.5%
NORD - PAS-DE-CALAIS	regular high forest	41,660	54.4%	41,660	54.4%	41,660	54.4%	50,160	60.9%	1.9%
	irregular high forest	270	0.4%	270	0.4%	270	0.4%	350	0.4%	2.7%
	coppice	5,560	7.3%	5,560	7.3%	5,560	7.3%	6,140	7.5%	1.0%
	mixed coppice/broadleaved high forest	27,910	36.5%	27,910	36.5%	27,910	36.5%	24,820	30.1%	-1.2%
	mixed coppice/conifer high forest	660	0.9%	660	0.9%	660	0.9%	530	0.6%	-2.2%
	temporarily unstocked*	510	0.7%	510	0.7%	510	0.7%	350	0.4%	-3.7%
Total NORD - PAS-DE-CALAIS		76,570	100.0%	76,570	100.0%	76,570	100.0%	82,360	100.0%	0.7%
PAYS DE LA LOIRE	regular high forest	109,970	40.3%	109,970	40.3%	121,740	43.0%	150,320	50.6%	3.2%
	irregular high forest	1,530	0.6%	1,530	0.6%	1,540	0.5%	2,610	0.9%	5.5%
	coppice	64,660	23.7%	64,660	23.7%	59,210	20.9%	55,340	18.6%	-1.5%
	mixed coppice/broadleaved high forest	74,570	27.3%	74,570	27.3%	78,390	27.7%	68,670	23.1%	-0.8%
	mixed coppice/conifer high forest	19,810	7.3%	19,810	7.3%	18,970	6.7%	17,550	5.9%	-1.2%
	temporarily unstocked*	2,390	0.9%	2,390	0.9%	2,960	1.0%	2,490	0.8%	0.4%
Total PAYS DE LA LOIRE		272,930	100.0%	272,930	100.0%	282,810	100.0%	296,970	100.0%	0.8%
PICARDIE	regular high forest	73,730	26.3%	146,670	50.8%	146,670	50.8%	152,580	52.6%	0.4%
	irregular high forest	5,600	2.0%	0	0.0%	0	0.0%	310	0.1%	
	coppice	31,900	11.4%	22,140	7.7%	22,140	7.7%	21,380	7.4%	-0.3%
	mixed coppice/broadleaved high forest	163,370	58.4%	115,480	40.0%	115,480	40.0%	112,770	38.9%	-0.2%
	mixed coppice/conifer high forest	5,190	1.9%	2,270	0.8%	2,270	0.8%	2,310	0.8%	0.2%
	temporarily unstocked*	40	0.0%	2,380	0.8%	2,380	0.8%	840	0.3%	-9.9%
Total PICARDIE		279,830	100.0%	288,940	100.0%	288,940	100.0%	290,190	100.0%	0.0%
POITOU-CHARENTES	regular high forest	92,880	26.6%	92,880	26.6%	102,010	27.5%	102,010	27.5%	0.9%
	irregular high forest	6,460	1.8%	6,460	1.8%	6,660	1.8%	6,660	1.8%	0.3%
	coppice	104,960	30.0%	104,960	30.0%	110,640	29.9%	110,640	29.9%	0.5%
	mixed coppice/broadleaved high forest	115,510	33.0%	115,510	33.0%	123,460	33.3%	123,460	33.3%	0.7%
	mixed coppice/conifer high forest	27,350	7.8%	27,350	7.8%	24,410	6.6%	24,410	6.6%	-1.1%
	temporarily unstocked*	2,460	0.7%	2,460	0.7%	3,250	0.9%	3,250	0.9%	2.8%
Total POITOU-CHARENTES		349,630	100.0%	349,630	100.0%	370,430	100.0%	370,430	100.0%	0.6%
PROVENCE-ALPES-COTE D'AZUR	regular high forest	569,920	52.0%	566,880	51.2%	566,880	51.2%	601,660	50.6%	0.6%
	irregular high forest	42,770	3.9%	45,440	4.1%	45,440	4.1%	80,280	6.8%	5.9%
	coppice	317,190	28.9%	322,150	29.1%	322,150	29.1%	294,490	24.8%	-0.9%
	mixed coppice/broadleaved high forest	20,430	1.9%	20,820	1.9%	20,820	1.9%	36,570	3.1%	5.8%
	mixed coppice/conifer high forest	140,300	12.8%	145,600	13.2%	145,600	13.2%	174,110	14.6%	1.8%
	temporarily unstocked*	5,060	0.5%	5,270	0.5%	5,270	0.5%	1,840	0.2%	-10.0%
Total PROVENCE-ALPES-COTE D'AZUR		1,095,660	100.0%	1,106,160	100.0%	1,106,160	100.0%	1,188,950	100.0%	0.7%
RHONE-ALPES	regular high forest	487,640	37.5%	487,230	37.3%	557,820	43.4%	594,460	46.2%	2.0%
	irregular high forest	217,700	16.7%	218,040	16.7%	189,670	14.8%	167,960	13.1%	-2.6%
	coppice	302,940	23.3%	300,980	23.0%	252,430	19.6%	244,800	19.0%	-2.0%
	mixed coppice/broadleaved high forest	183,520	14.1%	186,500	14.3%	163,680	12.7%	165,900	12.9%	-1.2%
	mixed coppice/conifer high forest	105,580	8.1%	111,250	8.5%	117,240	9.1%	108,570	8.4%	-0.2%
	temporarily unstocked*	2,560	0.2%	3,330	0.3%	4,370	0.3%	5,120	0.4%	4.4%
Subtotal RHONE-ALPES		1,299,950	100.0%	1,307,330	100.0%	1,285,210	100.0%	1,286,800	100.0%	-0.2%
Unspecified RHONE-ALPES		0		0		64,000		64,000		
Total RHONE-ALPES		1,299,950		1,307,330		1,349,220		1,350,810		0.3%
Subtotal France		13,336,510		13,444,110		13,597,250		13,821,330		0.3%
Total Unspecified France		0		127,390		269,390		269,390		
Total France		13,336,510		13,571,500		13,866,630		14,090,720		0.4%

* clearcut or accident within the previous 5 years

(Source: IFN, criterion determined only for inventoried forest stands available for wood supply)

APPENDIX 11

2) Poplar plantations

Administrative region	1989		1994		1999		2004		1994-2004
	ha	%	ha	%	ha	%	ha	%	annual variation rate
ALSACE	2,650	1.3%	3,560	1.8%	3,560	1.7%	3,100	1.4%	-1.4%
AQUITAINE	16,550	8.2%	15,520	7.7%	15,570	7.5%	19,640	8.9%	2.4%
AUVERGNE	1,720	0.8%	2,000	1.0%	2,000	1.0%	2,310	1.0%	1.4%
BASSE-NORMANDIE	2,480	1.2%	3,090	1.5%	3,090	1.5%	4,260	1.9%	3.3%
BOURGOGNE	11,120	5.5%	11,590	5.7%	11,670	5.6%	11,330	5.2%	-0.2%
BRETAGNE	3,640	1.8%	3,640	1.8%	7,460	3.6%	7,460	3.4%	7.5%
CENTRE	20,260	10.0%	21,260	10.5%	20,510	9.9%	20,680	9.4%	-0.3%
CHAMPAGNE-ARDENNE	26,140	12.9%	26,140	13.0%	26,120	12.6%	26,630	12.1%	0.2%
CORSE	50	0.0%	70	0.0%	70	0.0%	70	0.0%	0.0%
FRANCHE-COMTE	4,110	2.0%	4,110	2.0%	3,350	1.6%	3,340	1.5%	-2.1%
HAUTE-NORMANDIE	2,300	1.1%	2,240	1.1%	2,240	1.1%	1,880	0.9%	-1.7%
ILE-DE-FRANCE	10,650	5.3%	10,650	5.3%	12,200	5.9%	12,200	5.6%	1.4%
LANGUEDOC-ROUSSILLON	470	0.2%	560	0.3%	390	0.2%	390	0.2%	-3.6%
LIMOUSIN	1,030	0.5%	980	0.5%	980	0.5%	680	0.3%	-3.6%
LORRAINE	3,500	1.7%	4,140	2.0%	3,960	1.9%	3,960	1.8%	-0.4%
MIDI-PYRENEES	12,200	6.0%	10,630	5.3%	11,400	5.5%	12,530	5.7%	1.7%
NORD - PAS-DE-CALAIS	11,950	5.9%	11,950	5.9%	11,950	5.8%	16,050	7.3%	3.0%
PAYS DE LA LOIRE	11,690	5.8%	11,690	5.8%	15,190	7.3%	18,110	8.2%	4.5%
PICARDIE	34,370	17.0%	32,310	16.0%	32,310	15.6%	32,860	14.9%	0.2%
POITOU-CHARENTES	11,250	5.6%	11,250	5.6%	13,180	6.4%	13,180	6.0%	1.6%
PROVENCE-ALPES-COTE D'AZUR	80	0.0%	80	0.0%	80	0.0%	430	0.2%	18.2%
RHONE-ALPES	14,200	7.0%	14,310	7.1%	9,500	4.6%	8,790	4.0%	-4.8%
Total France	202,400	100.0%	201,750	100.0%	206,790	100.0%	219,870	100.0%	0.9%

(Source: IFN, poplar plantations (landuse 5))

Appendix to § 1.3 Growing stock by diameter distribution

Forest stands available for wood supply

IFN stem volume (7 cm top diameter)

group	species	diameter class	1989		1994		1999		2004		1994-2004 annual variation rate
			growing stock (K m³)	% growing stock	growing stock (K m³)	% growing stock	growing stock (K m³)	% growing stock	growing stock (K m³)	% growing stock	
Broadleaved	oaks	10-25 cm	141,450	32.6%	149,393	32.0%	155,360	31.1%	153,789	29.3%	0.3%
		30-55 cm	239,753	55.2%	259,255	55.5%	274,354	54.9%	290,790	55.4%	1.2%
		60-85 cm	49,604	11.4%	54,818	11.7%	65,769	13.2%	75,511	14.4%	3.3%
		90-115 cm	3,040	0.7%	3,293	0.7%	3,884	0.8%	4,354	0.8%	2.8%
		120 cm and over	422	0.1%	383	0.1%	428	0.1%	394	0.1%	0.3%
	Total oaks		434,269	100.0%	467,141	100.0%	499,795	100.0%	524,837	100.0%	1.2%
	beech	10-25 cm	67,683	31.6%	69,118	31.0%	72,710	30.9%	75,012	31.0%	0.8%
		30-55 cm	110,388	51.6%	115,583	51.9%	122,458	52.1%	125,048	51.7%	0.8%
		60-85 cm	33,085	15.5%	35,149	15.8%	36,709	15.6%	38,491	15.9%	0.9%
		90-115 cm	2,722	1.3%	2,697	1.2%	2,900	1.2%	3,002	1.2%	1.1%
		120 cm and over	112	0.1%	136	0.1%	195	0.1%	174	0.1%	2.5%
	Total beech		213,990	100.0%	222,683	100.0%	234,972	100.0%	241,727	100.0%	0.8%
	other broadleaved	10-25 cm	301,738	72.9%	316,547	71.8%	338,552	70.4%	361,357	68.8%	1.3%
		30-55 cm	96,037	23.2%	107,236	24.3%	123,782	25.7%	143,413	27.3%	2.9%
		60-85 cm	11,250	2.7%	12,955	2.9%	14,481	3.0%	16,006	3.0%	2.1%
		90-115 cm	3,323	0.8%	3,130	0.7%	3,003	0.6%	3,129	0.6%	0.0%
		120 cm and over	1,574	0.4%	1,225	0.3%	1,287	0.3%	1,173	0.2%	-0.4%
	Total other broadleaved		413,922	100.0%	441,093	100.0%	481,105	100.0%	525,078	100.0%	1.8%
Total broadleaved			1,062,181		1,130,917		1,215,873		1,291,641		1.3%
Conifers	white conifers	10-25 cm	72,770	26.7%	87,159	29.7%	102,263	31.8%	105,006	30.5%	1.9%
		30-55 cm	162,341	59.6%	166,794	56.9%	177,003	55.0%	191,165	55.6%	1.4%
		60-85 cm	35,597	13.1%	37,147	12.7%	39,763	12.4%	44,846	13.0%	1.9%
		90-115 cm	1,810	0.7%	2,118	0.7%	2,702	0.8%	2,737	0.8%	2.6%
		120 cm and over	79	0.0%	97	0.0%	62	0.0%	60	0.0%	-4.6%
	Total white conifers		272,597	100.0%	293,315	100.0%	321,792	100.0%	343,814	100.0%	1.6%
	maritime pine	10-25 cm	53,967	32.8%	52,966	28.6%	52,444	28.0%	49,302	24.7%	-0.7%
		30-55 cm	104,401	63.5%	123,948	66.9%	126,474	67.4%	138,945	69.6%	1.1%
		60-85 cm	5,961	3.6%	8,057	4.3%	8,437	4.5%	11,242	5.6%	3.4%
		90-115 cm	161	0.1%	264	0.1%	264	0.1%	219	0.1%	-1.9%
		120 cm and over	0	0.0%	0	0.0%	0	0.0%	15	0.0%	
	Total maritime pine		164,490	100.0%	185,234	100.0%	187,619	100.0%	199,724	100.0%	0.8%
	Douglas fir	10-25 cm	9,532	10.2%	16,899	17.5%	22,998	23.2%	26,766	26.3%	4.7%
		30-55 cm	5,292	5.6%	9,760	10.1%	16,497	16.7%	24,428	24.0%	9.6%
		60-85 cm	617	0.7%	1,304	1.4%	1,745	1.8%	2,366	2.3%	6.1%
		90-115 cm	8	0.0%	11	0.0%	17	0.0%	59	0.1%	18.2%
		Total Douglas fir		15,449	16.5%	27,974	29.0%	41,256	41.7%	53,619	52.6%
	other red conifers	10-25 cm	93,842	45.3%	96,537	44.8%	99,037	44.3%	101,858	42.7%	0.5%
		30-55 cm	104,641	50.5%	109,765	50.9%	115,292	51.6%	126,145	52.9%	1.4%
		60-85 cm	8,040	3.9%	8,413	3.9%	8,441	3.8%	9,454	4.0%	1.2%
		90-115 cm	743	0.4%	723	0.3%	729	0.3%	778	0.3%	0.7%
		120 cm and over	91	0.0%	124	0.1%	132	0.1%	166	0.1%	2.9%
	Total other red conifers		207,356	100.0%	215,562	100.0%	223,631	100.0%	238,400	100.0%	1.0%
Total conifers			659,893		722,086		774,298		835,557		1.5%
Subtotal			1,722,074		1,853,003		1,990,171		2,127,198		1.4%
unspecified			476		727		693		3		
Total			1,722,550		1,853,730		1,990,864		2,127,201		1.4%

(Source: IFN, excluding poplar plantations, only for inventoried forest stands available for wood supply, based on overbark stem volume for trees with 7 cm top diameter and more than 7.5 cm trunk diameter at breast height (1.30 m); the A diameter class refers to stems with a diameter ranging from A-2.5 cm to A+2.5 cm)

APPENDIX 11

Appendix to § 2.1 Variations in atmospheric deposition under the forest canopy (throughfall) in the RENECOFOR network

Plot	Period	Mean annual deposition												Mean precipitation under the forest canopy (mm/year)
		H+	Cl	S-SO4	N-NO3	Na	N-NH4	K	Mg	Ca	Fe	Al	Mn	
		kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	g/ha/yr	g/ha/yr	g/ha/yr	
CHP 40	1993-1998	22.20	59.41	10.89	2.44	30.53	3.03	39.33	5.98	12.93	64.11	102.64	376.54	844.58
CHP 40	1999-2003	12.07	55.57	9.02	2.43	28.62	4.17	39.34	5.74	12.08	105.11	92.74	442.93	810.82
	Variation	-10.13	-3.84	-1.87	-0.01	-1.91	1.15	0.00	-0.25	-0.86	40.99	-9.90	66.39	33.76
	Variation in %	-45.64	-6.47	-17.17	-0.40	-6.26	37.81	0.01	-4.10	-6.61	63.93	-9.64	17.63	4.00
CHP 59	1993-1998	60.21	24.72	13.18	2.75	11.99	8.84	34.24	4.29	11.41	79.96	102.00	1284.90	738.15
CHP 59	1999-2003	30.14	22.85	9.50	2.88	10.62	11.94	43.30	4.17	9.90	119.54	95.70	1228.59	850.45
	Variation	-30.08	-1.87	-3.68	0.13	-1.36	3.09	9.06	-0.12	-1.51	39.58	-6.30	-56.32	-112.30
	Variation in %	-49.95	-7.56	-27.93	4.79	-11.38	34.97	26.45	-2.78	-13.23	49.50	-6.18	-4.38	-15.21
CHS 35	1993-1998	13.06	35.69	7.45	2.79	16.94	8.12	25.82	3.42	6.07	67.66	73.23	1611.09	590.29
CHS 35	1999-2003	8.79	32.62	5.10	2.35	15.73	7.01	24.75	3.18	6.23	94.54	57.72	1472.97	637.10
	Variation	-4.26	-3.07	-2.35	-0.44	-1.21	-1.11	-1.07	-0.25	0.15	26.88	-15.51	-138.12	-46.82
	Variation in %	-32.66	-8.61	-31.58	-15.65	-7.16	-13.70	-4.15	-7.27	2.54	39.73	-21.18	-8.57	-7.93
CHS 41	1993-1998	19.95	19.23	5.48	2.48	7.50	2.96	19.78	2.13	8.57	65.80	79.73	1564.37	524.22
CHS 41	1999-2003	13.46	16.02	3.74	2.79	7.21	3.54	18.80	2.18	7.91	73.51	59.14	1225.59	634.22
	Variation	-6.49	-3.21	-1.74	0.31	-0.28	0.59	-0.98	0.05	-0.66	7.72	-20.59	-338.78	-110.00
	Variation in %	-32.52	-16.69	-31.77	12.60	-3.78	19.81	-4.94	2.28	-7.75	11.73	-25.83	-21.66	-20.98
CPS 77	1993-1998	19.28	18.83	7.13	2.94	7.05	4.63	21.15	2.56	12.43	74.24	108.66	2008.28	508.97
CPS 77	1999-2003	10.34	15.87	4.75	3.07	6.32	5.06	19.64	2.86	11.27	126.14	106.67	1937.41	552.45
	Variation	-8.94	-2.95	-2.38	0.12	-0.73	0.43	-1.51	0.30	-1.16	51.90	-2.00	-70.86	-43.48
	Variation in %	-46.37	-15.69	-33.42	4.15	-10.37	9.34	-7.12	11.92	-9.34	69.91	-1.84	-3.53	-8.54
DOU 71	1993-1998	152.66	23.32	9.49	9.26	13.90	5.20	13.00	3.14	8.75	43.42	167.97	697.29	1178.61
DOU 71	1999-2003	76.65	22.32	6.88	9.05	12.86	5.45	12.38	3.19	8.04	77.22	160.39	827.36	1121.97
	Variation	-76.02	-0.99	-2.61	-0.21	-1.04	0.24	-0.63	0.06	-0.72	33.81	-7.58	130.07	56.64
	Variation in %	-49.79	-4.25	-27.53	-2.31	-7.50	4.64	-4.84	1.77	-8.20	77.86	-4.51	18.65	4.81
EPC 08	1993-1998	389.38	34.13	24.73	12.21	17.62	11.64	32.22	2.90	14.97	144.74	329.18	2157.96	947.44
EPC 08	1999-2003	158.45	29.18	14.29	10.30	15.70	9.16	23.78	2.88	9.44	163.58	484.18	1845.94	1107.62
	Variation	-230.92	-4.95	-10.44	-1.91	-1.92	-2.48	-8.44	-0.02	-5.53	18.84	154.99	-312.02	-160.17
	Variation in %	-59.31	-14.52	-42.22	-15.61	-10.89	-21.28	-26.19	-0.61	-36.96	13.02	47.08	-14.46	-16.91
EPC 63	1993-1998	46.75	16.17	6.38	4.81	7.54	2.94	13.70	2.70	9.14	74.39	304.44	654.97	537.22
EPC 63	1999-2003	29.25	15.98	4.24	4.40	8.07	2.61	12.92	2.58	6.93	102.95	236.48	569.61	508.08
	Variation	-17.50	-0.19	-2.14	-0.41	0.53	-0.33	-0.78	-0.12	-2.21	28.57	-67.95	-85.37	29.14
	Variation in %	-37.44	-1.16	-33.53	-8.60	7.02	-11.21	-5.70	-4.38	-24.17	38.41	-22.32	-13.03	5.42
EPC 74	1993-1998	133.34	7.68	7.22	6.04	2.88	4.37	14.63	1.42	10.91	100.99	200.80	199.85	860.99
EPC 74	1999-2003	72.63	7.50	4.96	7.27	3.04	5.26	13.24	1.53	10.81	126.68	200.62	208.28	1004.37
	Variation	-60.71	-0.18	-2.26	1.23	0.15	0.89	-1.39	0.11	-0.10	25.69	-0.18	8.43	-143.38
	Variation in %	-45.53	-2.33	-31.30	20.38	5.34	20.34	-9.48	7.44	-0.93	25.44	-0.09	4.22	-16.65
EPC 87	1993-1998	44.52	27.78	7.01	4.63	14.09	3.18	23.03	3.01	6.45	34.32	194.95	314.07	808.80
EPC 87	1999-2003	24.57	27.75	6.25	5.34	13.96	4.39	26.46	3.13	6.96	89.99	211.85	350.87	783.79
	Variation	-19.94	-0.03	-0.76	0.72	-0.12	1.21	3.43	0.12	0.51	55.67	16.91	36.80	25.00
	Variation in %	-44.80	-0.12	-10.86	15.46	-0.88	38.22	14.89	4.05	7.88	162.19	8.67	11.72	3.09
HET 30	1993-1998	288.77	38.08	18.44	8.57	21.86	6.99	26.54	3.94	20.60	57.91	399.23	618.87	2449.89
HET 30	1999-2003	130.71	32.39	12.80	8.47	19.01	7.39	17.28	3.59	19.74	149.16	175.72	607.15	2036.22
	Variation	-158.06	-5.69	-5.64	-0.09	-2.85	0.40	-9.26	-0.35	-0.86	91.25	-223.51	-11.72	413.67
	Variation in %	-54.74	-14.95	-30.58	-1.11	-13.05	5.72	-34.89	-8.91	-4.18	157.56	-55.98	-1.89	16.89
HET 64	1993-1998	43.52	33.26	11.38	5.16	17.09	4.58	20.47	3.36	13.11	20.45	111.27	398.36	905.88
HET 64	1999-2003	19.07	27.70	9.11	4.96	13.92	4.26	19.02	2.83	10.66	53.59	74.47	384.38	913.72
	Variation	-24.45	-5.56	-2.27	-0.20	-3.17	-0.32	-1.45	-0.52	-2.45	33.14	-36.81	-13.98	-7.84
	Variation in %	-56.18	-16.73	-19.94	-3.89	-18.54	-7.01	-7.10	-15.61	-18.65	162.10	-33.08	-3.51	-0.87
PL 20	1993-1998	93.86	112.33	12.36	3.95	64.00	0.86	12.75	9.44	20.17	66.79	661.87	454.95	1095.09
PL 20	1999-2003	51.77	99.11	10.46	3.92	56.03	0.76	12.67	8.65	21.24	124.08	598.46	340.26	1058.99
	Variation	-42.09	-13.22	-1.89	-0.03	-7.96	-0.10	-0.08	-0.79	1.07	57.30	-63.41	-114.69	36.09
	Variation in %	-44.85	-11.77	-15.31	-0.79	-12.45	-11.26	-0.61	-8.34	5.32	85.80	-9.58	-25.21	3.30
PM 17	1993-1998	73.00	114.07	9.19	3.72	64.69	2.06	9.79	9.14	10.30	25.38	85.41	128.66	573.87
PM 17	1999-2003	97.08	142.64	10.03	3.62	78.60	2.35	7.46	10.70	11.36	55.14	95.03	133.30	716.52
	Variation	24.08	28.57	0.84	-0.10	13.91	0.29	-2.34	1.56	1.06	29.76	9.62	4.64	-142.65
	Variation in %	32.99	25.05	9.16	-2.76	21.50	14.07	-23.85	17.06	10.25	117.24	11.26	3.61	-24.86
PM 40c	1993-1998	43.44	39.51	7.23	2.06	21.24	1.70	17.21	5.61	10.02	29.63	214.54	77.84	683.27
PM 40c	1999-2003	60.57	39.23	5.28	2.79	19.45	2.37	13.25	5.03	10.45	71.08	237.57	91.22	629.14
	Variation	17.13	-0.29	-1.96	0.73	-1.79	0.68	-3.97	-0.57	0.43	41.44	23.03	13.38	54.12
	Variation in %	39.44	-0.73	-27.03	35.68	-8.43	39.87	-23.05	-10.21	4.28	139.85	10.73	17.19	7.92
PM 72	1993-1998	38.26	30.56	6.99	5.29	15.80	8.42	12.14	2.85	6.86	27.23	97.45	304.35	610.86
PM 72	1999-2003	22.56	35.09	6.07	6.10	18.27	9.19	12.39	3.35	6.87	68.03	114.04	433.47	730.07
	Variation	-15.70	4.53	-0.92	0.81	2.47	0.77	0.25	0.50	0.01	40.80	16.60	129.13	-119.21
	Variation in %	-41.04	14.84	-13.14	15.32	15.60	9.09	2.08	17.40	0.11	149.83	17.03	42.43	-19.52
PM 85	1993-1998	42.31	235.09	15.94	6.43	128.78	7.04	14.03	17.71	15.44	45.11	62.81	82.38	507.87
PM 85	1999-2003	66.23	238.99	15.27	4.39	133.42	3.66	15.67	17.80	12.85	76.91	71.07	111.66	591.12
	Variation	23.92	3.90	-0.67	-2.04	4.64	-3.39	1.64	0.09	-2.59	31.80	8.26	29.28	-83.25
	Variation in %	56.53	1.66	-4.19	-31.70	3.60	-48.08	11.68	0.53	-16.75	70.49	13.15	35.54	-16.39

Plot	Period	Mean annual deposition												Mean precipitation under the forest canopy (mm/year)
		H+	Cl	S-SO4	N-NO3	Na	N-NH4	K	Mg	Ca	Fe	Al	Mn	
		g/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	kg/ha/yr	g/ha/yr	g/ha/yr	g/ha/yr	
PS 44	1993-1998	79.64	83.44	10.53	3.94	45.21	8.03	19.17	6.39	7.16	45.11	245.69	179.51	594.20
PS 44	1999-2003	73.50	80.89	8.38	3.50	43.53	6.49	19.19	6.06	6.38	73.61	219.06	219.33	700.89
	Variation	-6.14	-2.55	-2.15	-0.43	-1.68	-1.54	0.02	-0.33	-0.78	28.51	-26.63	39.82	-106.70
	Variation in %	-7.72	-3.06	-20.40	-11.02	-3.71	-19.20	0.11	-5.18	-10.84	63.21	-10.84	22.18	-17.96
PS 67a	1993-1998	165.07	12.61	10.84	7.27	5.17	8.17	17.51	1.90	9.37	60.08	336.43	1672.12	507.80
PS 67a	1999-2003 (sauf 2000)	95.23	12.18	6.21	6.83	5.75	10.42	11.87	1.37	6.34	67.77	176.40	867.72	589.14
	Variation	-69.84	-0.43	-4.63	-0.44	0.58	2.25	-5.64	-0.53	-3.03	7.70	-160.03	-804.40	-81.34
	Variation in %	-42.31	-3.40	-42.75	-6.02	11.24	27.54	-32.21	-28.06	-32.35	12.81	-47.57	-48.11	-16.02
PS 76	1993-1998	685.04	90.80	34.87	5.74	49.77	6.33	27.26	7.56	17.41	107.84	907.07	2516.18	586.54
PS 76	1999-2003	282.07	63.08	17.92	6.19	35.43	7.40	14.62	5.34	10.08	84.35	343.77	1261.86	691.65
	Variation	-402.97	-27.72	-16.96	0.44	-14.34	1.07	-12.64	-2.22	-7.34	-23.50	-563.30	-1254.32	-105.11
	Variation in %	-58.82	-30.53	-48.62	7.74	-28.82	16.96	-46.36	-29.40	-42.14	-21.79	-62.10	-49.85	-17.92
SP 05	1993-1998	4.33	5.97	4.54	0.29	1.62	0.44	29.83	1.98	12.88	53.75	249.14	89.19	622.07
SP 05	1999-2003	2.90	5.43	3.94	0.69	1.56	0.79	31.38	2.26	13.95	71.94	236.37	106.39	611.00
	Variation	-1.43	-0.54	-0.60	0.39	-0.06	0.35	1.55	0.28	1.07	18.19	-12.77	17.20	11.06
	Variation in %	-32.98	-9.11	-13.16	134.28	-3.98	80.77	5.20	13.87	8.32	33.83	-5.12	19.29	1.78
SP 11	1993-1998	55.11	24.95	11.15	4.37	12.70	2.51	30.28	2.80	15.27	106.78	229.76	234.64	826.18
SP 11	1999-2002	27.13	26.42	9.12	3.64	13.19	2.24	36.90	2.94	13.60	137.22	258.87	254.94	826.69
	Variation	-27.97	1.47	-2.03	-0.73	0.49	-0.28	6.63	0.14	-1.67	30.45	29.11	20.30	-0.52
	Variation in %	-50.76	5.88	-18.24	-16.70	3.86	-10.94	21.88	5.01	-10.93	28.51	12.67	8.65	-0.06
SP 25	1993-1998	100.03	14.95	9.03	6.51	6.86	5.23	24.27	2.00	12.39	74.13	254.71	406.79	1228.86
SP 25	1999-2003	110.58	14.86	6.97	6.93	7.20	4.60	19.14	2.13	12.62	143.47	146.57	377.90	1522.95
	Variation	10.55	-0.09	-2.06	0.41	0.34	-0.63	-5.13	0.14	0.23	69.34	-108.14	-28.88	-294.09
	Variation in %	10.55	-0.61	-22.85	6.35	5.01	-12.03	-21.14	6.85	1.85	93.54	-42.46	-7.10	-23.93
SP 38	1993-1998	71.06	6.11	6.41	1.73	1.72	1.91	19.22	0.94	7.40	56.60	158.59	828.03	1003.48
SP 38	1999-2003	32.33	5.83	5.31	1.72	1.76	1.94	19.47	1.50	8.31	86.93	161.92	1147.00	1106.89
	Variation	-38.72	-0.27	-1.11	-0.01	0.04	0.03	0.25	0.56	0.92	30.33	3.33	318.97	-103.42
	Variation in %	-54.50	-4.45	-17.26	-0.47	2.40	1.43	1.31	59.58	12.37	53.59	2.10	38.52	-10.31
SP 57	1993-1998	158.79	13.80	11.24	5.38	5.52	3.67	23.07	1.14	7.81	58.13	206.80	3146.66	734.12
SP 57	1999-2003	91.36	12.61	6.94	5.35	5.55	3.73	19.01	1.38	7.19	95.18	150.75	2368.91	811.38
	Variation	-67.43	-1.19	-4.30	-0.03	0.03	0.06	-4.06	0.24	-0.62	37.05	-56.05	-777.75	-77.26
	Variation in %	-42.46	-8.61	-38.25	-0.61	0.56	1.63	-17.61	20.78	-7.94	63.74	-27.10	-24.72	-10.52
SP 68	1993-1998	93.42	10.07	6.03	4.23	4.74	2.98	18.34	1.56	5.83	46.93	221.99	190.37	656.52
SP 68	1999-2003	53.15	8.58	4.44	5.98	4.00	3.65	17.41	1.36	5.81	68.69	190.47	246.82	755.31
	Variation	-40.27	-1.48	-1.59	1.75	-0.74	0.67	-0.92	-0.20	-0.01	21.77	-31.52	56.45	-98.78
	Variation in %	-43.10	-14.74	-26.40	41.36	-15.53	22.59	-5.03	-12.79	-0.25	46.38	-14.20	29.66	-15.05
	Mean 1993-1998	112.96	43.56	10.97	4.81	22.95	4.84	21.49	4.23	11.29	62.75	234.86	853.78	812.53
	Mean 1999-2003	63.56	41.95	7.96	4.81	22.26	4.99	20.05	4.14	10.27	96.40	190.62	733.15	857.79
	Variation	-49.40	-1.61	-3.01	0.00	-0.69	0.15	-1.44	-0.08	-1.02	33.65	-44.24	-120.63	-45.26
	Variation in %	-43.73	-3.70	-27.42	-0.03	-3.02	3.18	-6.70	-1.94	-9.07	53.63	-18.84	-14.13	-5.57

APPENDIX 11

Appendix to § 4.7: Landscape-level spatial pattern of forest cover

administrative region	area class	1999				2004			
		number of forest units	total mapped area			number of forest units	total mapped area		
			mean area mapped per forest unit (ha)	ha	%		mean area mapped per forest unit (ha)	ha	%
ALSACE	4-25 ha	343	10	3,550	1.1%	384	10	3,755	1.1%
	25-50 ha	81	37	2,993	0.9%	87	35	3,069	0.9%
	50-100 ha	53	71	3,768	1.2%	48	71	3,394	1.0%
	100-500 ha	72	226	16,239	5.0%	71	195	13,863	4.2%
	500-1,000 ha	24	639	15,344	4.7%	22	672	14,788	4.5%
	1,000-5,000 ha	17	1,705	28,981	9.0%	20	1,839	36,776	11.2%
	5,000-10,000 ha	2	7,125	14,251	4.4%	1	6,562	6,562	2.0%
	over 10,000 ha	4	59,621	238,483	73.7%	4	61,660	246,639	75.0%
Total ALSACE		596	543	323,608	100.0%	637	516	328,847	100.0%
AQUITAINE	4-25 ha	2,914	11	31,644	1.7%	3,151	10	32,972	1.8%
	25-50 ha	572	35	20,102	1.1%	623	35	21,931	1.2%
	50-100 ha	388	68	26,295	1.4%	392	68	26,674	1.4%
	100-500 ha	363	198	71,869	3.9%	380	196	74,516	4.0%
	500-1,000 ha	45	630	28,333	1.5%	47	641	30,114	1.6%
	1,000-5,000 ha	37	1,836	67,948	3.7%	37	1,845	68,273	3.7%
	5,000-10,000 ha	6	3,651	21,903	1.2%	5	3,993	19,965	1.1%
	over 10,000 ha	9	173,705	1,563,344	85.4%	9	174,540	1,570,861	85.1%
Total AQUITAINE		4,334	423	1,831,437	100.0%	4,644	397	1,845,305	100.0%
AUVERGNE	4-25 ha	2,000	11	21,597	2.9%	2,117	10	20,856	2.7%
	25-50 ha	420	35	14,648	2.0%	414	34	14,160	1.8%
	50-100 ha	231	68	15,778	2.1%	210	67	14,076	1.8%
	100-500 ha	234	218	50,942	6.9%	223	207	46,263	6.0%
	500-1,000 ha	35	680	23,817	3.2%	41	656	26,905	3.5%
	1,000-5,000 ha	32	1,961	62,766	8.5%	24	1,896	45,504	5.9%
	5,000-10,000 ha	6	5,948	35,690	4.8%	5	4,740	23,699	3.1%
	over 10,000 ha	3	170,521	511,563	69.4%	6	95,947	575,680	75.0%
Total AUVERGNE		2,961	249	736,802	100.0%	3,040	252	767,143	100.0%
BASSE-NORMANDIE	4-25 ha	1,386	9	12,870	8.9%	1,667	9	15,711	9.9%
	25-50 ha	232	34	7,969	5.5%	265	35	9,300	5.9%
	50-100 ha	129	69	8,876	6.1%	160	70	11,139	7.0%
	100-500 ha	164	203	33,316	23.1%	173	210	36,404	22.9%
	500-1,000 ha	20	614	12,279	8.5%	26	609	15,829	10.0%
	1,000-5,000 ha	15	1,915	28,725	19.9%	17	2,008	34,133	21.5%
	5,000-10,000 ha	2	6,524	13,048	9.0%	1	7,805	7,805	4.9%
	over 10,000 ha	2	13,635	27,270	18.9%	2	14,227	28,455	17.9%
Total BASSE-NORMANDIE		1,950	74	144,351	100.0%	2,311	69	158,777	100.0%
BOURGOGNE	4-25 ha	2,481	10	25,984	2.6%	2,762	10	27,286	2.8%
	25-50 ha	516	34	17,728	1.8%	514	35	17,804	1.8%
	50-100 ha	298	69	20,617	2.1%	286	70	20,011	2.0%
	100-500 ha	419	205	85,981	8.7%	408	200	81,733	8.3%
	500-1,000 ha	83	635	52,728	5.3%	90	635	57,147	5.8%
	1,000-5,000 ha	75	1,959	146,943	14.8%	72	1,951	140,502	14.3%
	5,000-10,000 ha	15	5,446	81,697	8.2%	14	5,908	82,716	8.4%
	over 10,000 ha	20	27,981	559,613	56.5%	20	27,792	555,832	56.5%
Total BOURGOGNE		3,907	254	991,290	100.0%	4,166	236	983,032	100.0%
BRETAGNE	4-25 ha	3,788	10	37,034	11.6%	3,790	10	37,046	11.6%
	25-50 ha	595	35	21,038	6.6%	593	35	20,980	6.6%
	50-100 ha	350	70	24,341	7.7%	350	69	24,293	7.6%
	100-500 ha	359	197	70,900	22.3%	359	197	70,640	22.2%
	500-1,000 ha	43	728	31,284	9.8%	44	719	31,638	9.9%
	1,000-5,000 ha	48	1,806	86,678	27.2%	48	1,806	86,678	27.2%
	5,000-10,000 ha	2	7,975	15,950	5.0%	2	7,975	15,950	5.0%
	over 10,000 ha	2	15,444	30,887	9.7%	2	15,444	30,887	9.7%
Total BRETAGNE		5,187	61	318,112	100.0%	5,188	61	318,112	100.0%

administrative region	area class	1999				2004			
		number of forest units	total mapped area			number of forest units	total mapped area		
			mean area mapped per forest unit (ha)	ha	%		mean area mapped per forest unit (ha)	ha	%
CENTRE	4-25 ha	4,486	10	43,948	4.9%	4,462	10	44,124	4.8%
	25-50 ha	767	35	26,756	3.0%	785	35	27,468	3.0%
	50-100 ha	452	69	31,172	3.5%	449	69	31,160	3.4%
	100-500 ha	462	197	91,013	10.1%	464	199	92,370	10.0%
	500-1,000 ha	70	638	44,642	5.0%	66	639	42,181	4.6%
	1,000-5,000 ha	69	1,856	128,044	14.2%	72	1,773	127,656	13.8%
	5,000-10,000 ha	10	7,100	71,001	7.9%	11	6,930	76,228	8.2%
	over 10,000 ha	11	42,056	462,611	51.4%	12	40,383	484,601	52.3%
Total CENTRE		6,327	142	899,188	100.0%	6,321	146	925,789	100.0%
CHAMPAGNE-ARDENNE	4-25 ha	2,030	10	20,032	2.9%	2,029	10	20,025	2.9%
	25-50 ha	349	35	12,079	1.8%	349	35	12,050	1.8%
	50-100 ha	219	70	15,262	2.2%	220	69	15,228	2.2%
	100-500 ha	260	198	51,398	7.5%	261	198	51,644	7.6%
	500-1,000 ha	43	613	26,347	3.9%	43	613	26,347	3.9%
	1,000-5,000 ha	54	1,676	90,500	13.3%	54	1,685	90,975	13.4%
	5,000-10,000 ha	12	6,451	77,418	11.4%	11	6,979	76,767	11.3%
	over 10,000 ha	22	17,634	387,954	57.0%	22	17,634	387,954	57.0%
Total CHAMPAGNE-ARDENNE		2,989	228	680,990	100.0%	2,989	228	680,990	100.0%
CORSE	4-25 ha	200	12	2,446	0.6%	238	12	2,864	0.6%
	25-50 ha	63	36	2,277	0.6%	58	36	2,111	0.4%
	50-100 ha	61	71	4,335	1.1%	44	68	2,995	0.6%
	100-500 ha	58	233	13,497	3.5%	42	229	9,611	2.0%
	500-1,000 ha	10	624	6,242	1.6%	12	683	8,193	1.7%
	1,000-5,000 ha	14	2,283	31,961	8.4%	6	2,124	12,746	2.7%
	5,000-10,000 ha	1	7,967	7,967	2.1%				
	over 10,000 ha	3	104,428	313,285	82.0%	2	220,029	440,057	92.0%
Total CORSE		410	932	382,011	100.0%	402	1,190	478,577	100.0%
FRANCHE-COMTE	4-25 ha	657	10	6,883	1.0%	657	10	6,883	1.0%
	25-50 ha	122	36	4,353	0.6%	122	36	4,353	0.6%
	50-100 ha	87	69	5,998	0.9%	88	69	6,086	0.9%
	100-500 ha	96	204	19,616	2.8%	95	206	19,529	2.8%
	500-1,000 ha	31	605	18,762	2.7%	31	605	18,762	2.7%
	1,000-5,000 ha	27	1,997	53,906	7.7%	28	1,961	54,908	7.8%
	5,000-10,000 ha	6	5,262	31,575	4.5%	5	6,115	30,573	4.3%
	over 10,000 ha	7	80,448	563,134	80.0%	7	80,448	563,134	80.0%
Total FRANCHE-COMTE		1,033	682	704,226	100.0%	1,033	682	704,226	100.0%
HAUTE-NORMANDIE	4-25 ha	883	10	8,518	3.8%	902	10	8,701	3.9%
	25-50 ha	156	34	5,346	2.4%	171	35	6,050	2.7%
	50-100 ha	130	69	8,943	4.0%	115	69	7,936	3.5%
	100-500 ha	152	213	32,307	14.3%	145	202	29,230	13.0%
	500-1,000 ha	28	600	16,806	7.4%	30	609	18,261	8.1%
	1,000-5,000 ha	29	1,748	50,706	22.5%	30	1,842	55,253	24.5%
	5,000-10,000 ha	5	6,169	30,844	13.7%	5	6,237	31,185	13.8%
	over 10,000 ha	3	24,068	72,205	32.0%	3	22,961	68,882	30.5%
Total HAUTE-NORMANDIE		1,386	163	225,675	100.0%	1,401	161	225,497	100.0%
ILE-DE-FRANCE	4-25 ha	897	10	8,972	3.2%	1,038	10	10,357	3.6%
	25-50 ha	165	34	5,572	2.0%	209	34	7,161	2.5%
	50-100 ha	101	69	6,936	2.5%	102	69	6,987	2.4%
	100-500 ha	130	204	26,570	9.4%	159	193	30,668	10.6%
	500-1,000 ha	35	646	22,616	8.0%	28	608	17,025	5.9%
	1,000-5,000 ha	28	2,030	56,841	20.2%	31	1,972	61,124	21.2%
	5,000-10,000 ha	2	3,014	6,029	2.1%	3	4,664	13,993	4.9%
	over 10,000 ha	3	49,356	148,069	52.6%	4	35,202	140,807	48.9%
Total ILE-DE-FRANCE		1,361	207	281,604	100.0%	1,574	183	288,124	100.0%

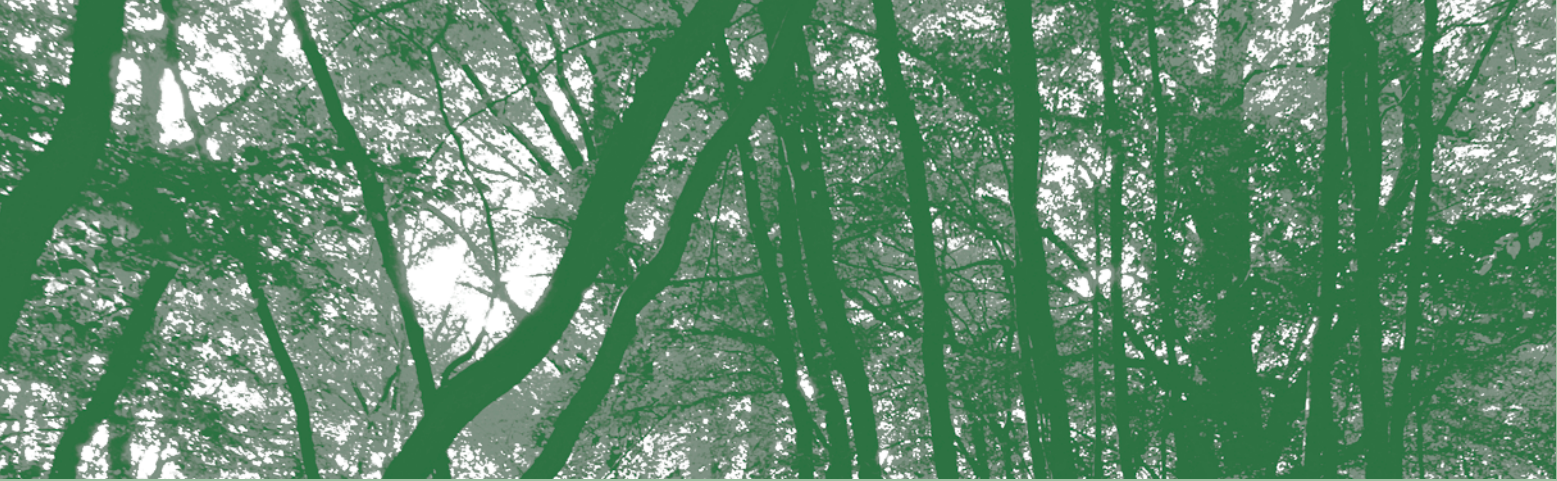
APPENDIX 11

administrative region	area class	1999				2004			
		number of forest units	total mapped area			number of forest units	total mapped area		
			mean area mapped per forest unit (ha)	ha	%		mean area mapped per forest unit (ha)	ha	%
LANGUEDOC-ROUSSILLON	4-25 ha	1,054	10	10,660	0.9%	1,110	10	11,271	0.9%
	25-50 ha	201	35	7,130	0.6%	232	35	8,136	0.7%
	50-100 ha	157	69	10,907	0.9%	149	69	10,280	0.8%
	100-500 ha	154	202	31,035	2.7%	137	202	27,646	2.3%
	500-1,000 ha	13	688	8,948	0.8%	11	718	7,900	0.7%
	1,000-5,000 ha	14	2,275	31,855	2.7%	15	2,227	33,407	2.8%
	5,000-10,000 ha	2	3,470	6,941	0.6%	3	4,190	12,569	1.0%
	over 10,000 ha	2	525,784	1,051,568	90.7%	2	550,697	1,101,393	90.8%
Total LANGUEDOC-ROUSSILLON		1,597	726	1,159,043	100.0%	1,659	731	1,212,602	100.0%
LIMOUSIN	4-25 ha	1,812	11	20,337	3.8%	2,011	10	19,690	3.4%
	25-50 ha	427	34	14,503	2.7%	322	35	11,198	2.0%
	50-100 ha	230	66	15,194	2.9%	253	67	16,956	3.0%
	100-500 ha	199	203	40,363	7.6%	168	197	33,173	5.8%
	500-1,000 ha	23	625	14,386	2.7%	24	693	16,634	2.9%
	1,000-5,000 ha	14	2,450	34,302	6.4%	16	2,139	34,230	6.0%
	5,000-10,000 ha	4	3,334	13,337	2.5%	4	3,809	15,234	2.7%
	over 10,000 ha	3	126,523	379,570	71.3%	3	141,464	424,392	74.3%
Total LIMOUSIN		2,712	196	531,992	100.0%	2,801	204	571,507	100.0%
LORRAINE	4-25 ha	987	10	10,030	1.2%	1,042	10	10,650	1.2%
	25-50 ha	245	35	8,555	1.0%	251	35	8,847	1.0%
	50-100 ha	168	71	11,875	1.4%	161	71	11,415	1.3%
	100-500 ha	266	212	56,384	6.6%	262	211	55,344	6.5%
	500-1,000 ha	70	690	48,284	5.7%	72	676	48,695	5.7%
	1,000-5,000 ha	65	1,942	126,211	14.8%	62	1,923	119,203	13.9%
	5,000-10,000 ha	9	6,458	58,119	6.8%	10	6,410	64,100	7.5%
	over 10,000 ha	20	26,533	530,653	62.4%	19	28,284	537,400	62.8%
Total LORRAINE		1,830	465	850,110	100.0%	1,879	455	855,655	100.0%
MIDI-PYRENEES	4-25 ha	4,466	10	46,802	3.7%	4,963	10	48,323	3.7%
	25-50 ha	780	35	27,534	2.2%	715	35	25,346	1.9%
	50-100 ha	481	68	32,573	2.6%	446	68	30,514	2.3%
	100-500 ha	404	192	77,542	6.1%	393	197	77,559	5.9%
	500-1,000 ha	64	663	42,418	3.4%	65	683	44,400	3.4%
	1,000-5,000 ha	35	1,932	67,630	5.4%	37	1,908	70,591	5.4%
	5,000-10,000 ha	7	6,549	45,846	3.6%	6	6,362	38,170	2.9%
	over 10,000 ha	8	115,262	922,093	73.0%	8	121,982	975,858	74.4%
Total MIDI-PYRENEES		6,245	202	1,262,438	100.0%	6,633	198	1,310,762	100.0%
NORD-PAS-DE-CALAIS	4-25 ha	827	10	8,234	9.3%	1,078	10	10,509	11.0%
	25-50 ha	149	35	5,243	5.9%	179	34	6,080	6.3%
	50-100 ha	109	68	7,389	8.4%	116	68	7,854	8.2%
	100-500 ha	91	213	19,422	22.0%	101	210	21,216	22.1%
	500-1,000 ha	11	709	7,801	8.8%	14	731	10,229	10.7%
	1,000-5,000 ha	10	1,670	16,696	18.9%	9	1,776	15,984	16.7%
	5,000-10,000 ha	3	7,431	22,293	25.3%	3	7,606	22,817	23.8%
	over 10,000 ha	1	1,194	1,194	1.4%	1	1,255	1,255	1.3%
Total NORD-PAS-DE-CALAIS		1,201	73	88,273	100.0%	1,501	64	95,944	100.0%
PAYS DE LA LOIRE	4-25 ha	3,129	10	30,984	10.9%	3,729	9	35,407	11.8%
	25-50 ha	479	34	16,413	5.8%	543	34	18,679	6.2%
	50-100 ha	256	69	17,729	6.2%	296	69	20,296	6.7%
	100-500 ha	248	197	48,844	17.1%	260	198	51,353	17.1%
	500-1,000 ha	34	658	22,373	7.8%	37	680	25,142	8.4%
	1,000-5,000 ha	33	2,030	67,001	23.5%	33	2,060	67,977	22.6%
	5,000-10,000 ha	6	6,601	39,606	13.9%	6	6,614	39,683	13.2%
	over 10,000 ha	2	21,078	42,156	14.8%	2	21,078	42,156	14.0%
Total PAYS DE LA LOIRE		4,187	68	285,106	100.0%	4,906	61	300,692	100.0%

administrative region	area class	1999				2004			
		number of forest units	total mapped area			number of forest units	total mapped area		
			mean area mapped per forest unit (ha)	ha	%		mean area mapped per forest unit (ha)	ha	%
PICARDIE	4-25 ha	1,675	10	16,912	5.3%	1,733	10	17,302	5.4%
	25-50 ha	344	34	11,858	3.7%	373	35	12,892	4.0%
	50-100 ha	249	69	17,294	5.4%	231	71	16,311	5.1%
	100-500 ha	262	199	52,095	16.3%	280	202	56,685	17.7%
	500-1,000 ha	39	638	24,897	7.8%	31	661	20,481	6.4%
	1,000-5,000 ha	28	1,909	53,441	16.7%	33	1,888	62,294	19.4%
	5,000-10,000 ha	3	6,917	20,752	6.5%				
	over 10,000 ha	3	40,782	122,345	38.3%	4	33,671	134,683	42.0%
Total PICARDIE		2,603	123	319,594	100.0%	2,685	119	320,648	100.0%
POITOU-CHARENTES	4-25 ha	3,253	10	33,359	9.3%	3,252	10	33,330	9.3%
	25-50 ha	637	35	22,237	6.2%	635	35	22,225	6.2%
	50-100 ha	356	67	23,913	6.7%	356	67	23,764	6.6%
	100-500 ha	336	202	67,956	18.9%	338	201	68,106	19.0%
	500-1,000 ha	60	662	39,691	11.1%	60	662	39,691	11.1%
	1,000-5,000 ha	37	1,985	73,451	20.5%	37	1,985	73,451	20.5%
	5,000-10,000 ha	6	5,262	31,572	8.8%	6	5,262	31,572	8.8%
	over 10,000 ha	2	33,324	66,647	18.6%	2	33,344	66,687	18.6%
Total POITOU-CHARENTES		4,687	77	358,827	100.0%	4,686	77	358,827	100.0%
PROVENCE-ALPES-COTE D'AZUR	4-25 ha	678	11	7,234	0.5%	766	11	8,062	0.5%
	25-50 ha	158	35	5,572	0.4%	152	34	5,185	0.3%
	50-100 ha	84	72	6,012	0.4%	95	70	6,684	0.4%
	100-500 ha	92	209	19,258	1.2%	77	205	15,784	1.0%
	500-1,000 ha	19	709	13,467	0.9%	19	684	12,997	0.8%
	1,000-5,000 ha	11	1,343	14,777	0.9%	10	1,520	15,204	1.0%
	5,000-10,000 ha	2	5,489	10,978	0.7%	2	5,783	11,565	0.7%
	over 10,000 ha	2	744,194	1,488,387	95.1%	2	749,150	1,498,300	95.2%
Total PROVENCE-ALPES-COTE D'AZUR		1,046	1,497	1,565,686	100.0%	1,123	1,401	1,573,782	100.0%
RHONE-ALPES	4-25 ha	2,407	10	23,422	1.4%	2,411	10	23,473	1.4%
	25-50 ha	451	34	15,411	0.9%	450	34	15,451	0.9%
	50-100 ha	254	67	17,075	1.0%	255	67	17,172	1.0%
	100-500 ha	257	200	51,307	3.0%	255	200	50,975	3.0%
	500-1,000 ha	42	663	27,843	1.6%	43	651	28,011	1.6%
	1,000-5,000 ha	21	1,644	34,516	2.0%	21	1,643	34,499	2.0%
	5,000-10,000 ha	5	5,366	26,829	1.6%	4	5,099	20,397	1.2%
	over 10,000 ha	4	380,506	1,522,025	88.6%	5	305,690	1,528,451	88.9%
Total RHONE-ALPES		3,441	499	1,718,428	100.0%	3,444	499	1,718,428	100.0%

(Source: IFN 1999 and 2004, for all forests and poplar plantations of over 4 ha, according to IFN cartographic data, considering that a gap of 200 m does not interrupt the continuity of a forest unit. The forest areas monitored were greater than those derived from statistical data because they were from cartographic analyses (cf. Appendix 3). Forest units overlapping two regions were counted twice, so the data could not be totalled)





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