Criterion 3

MAINTENANCE AND ENCOURAGEMENT OF PRODUCTIVE FUNCTIONS OF FORESTS (WOOD AND NON-WOOD)

Indicator 3.1

Balance between net annual increment and annual fellings of wood on forest available for wood supply

Since the 2010 inventory, NFI is reviewing points inventoried 5 years previously with the aim of estimating felling that occurred over the period. A uniform estimation that is compatible with the NFI biological production estimation will therefore soon be available.
The fellings and biological production calculations and associated data are currently being validated and will soon be officially published. This represents a major enhancement to this indicator because until now comparisons between production and fellings have been based on data from surveys with different definitions. This indicator will be updated with new data for the next ISFM edition.

Indicator 3.1.1

Logging of forests

National results

Forests available for wood supply

ISFM 2005 Edition

Area

Data retrieval year	1989		1994		1999		2004	
Average year	1981		1986		1991		1996	
Logging class	*1 000 ha*	*%*	*1 000 ha*	*%*	*1 000 ha*	*%*	*1 000 ha*	*%*
Easy	8 174	61	8 253	61	8 366	62	8 541	62
Average	1 516	11	1 469	11	1 464	11	1 426	10
Difficult	3 330	25	3 483	26	3 587	26	3 671	27
Very difficult	313	2	239	2	180	1	183	1
Subtotal	**13 333**	**100**	**13 444**	**100**	**13 597**	**100**	**13 821**	**100**
Unspecified	4		127		270		270	
Total	**13 337**		**13 571**		**13 867**		**14 091**	

Source: NFI
Relevant domain: FAWS excluding poplar plantations and including thickets.

Volume

Data retrieval year	1989		1994		1999		2004	
Average year	1981		1986		1991		1996	
Logging class	*Mm^3*	*%*	*Mm^3*	*%*	*Mm^3*	*%*	*Mm^3*	*%*
Easy	1 067	62	1 146	62	1 228	62	1 312	62
Average	193	11	200	11	207	10	216	10
Difficult	428	25	477	26	530	27	568	27
Very difficult	35	2	31	2	26	1	31	1
Total	**1 723**	**100**	**1 854**	**100**	**1 991**	**100**	**2 127**	**100**

Source: NFI.
Relevant domain: FAWS excluding poplar plantations and including thickets.

ISFM 2010 Edition

Area

Data retrieval year	2010		
Survey years	2006 to 2009		
Logging class	*1000 ha*		*%*
Easy	8 916	± 104	58
Average	1 369	± 58	9
Difficult	4 926	± 95	32
Very difficult	108	± 17	1
Total	**15 319**	**± 104**	**100**

Source: NFI
Relevant domain: FAWS.

Volume

Data retrieval year	2010		
Survey years	2006 to 2009		
Logging class	*Volume (Mm^3)*		*%*
Easy	1 414	± 33	58
Average	230	± 17	10
Difficult	760	± 27	31
Very difficult	15	± 5	1
Total	**2 420**	**± 41**	**100**

Source: NFI
Relevant domain: FAWS.

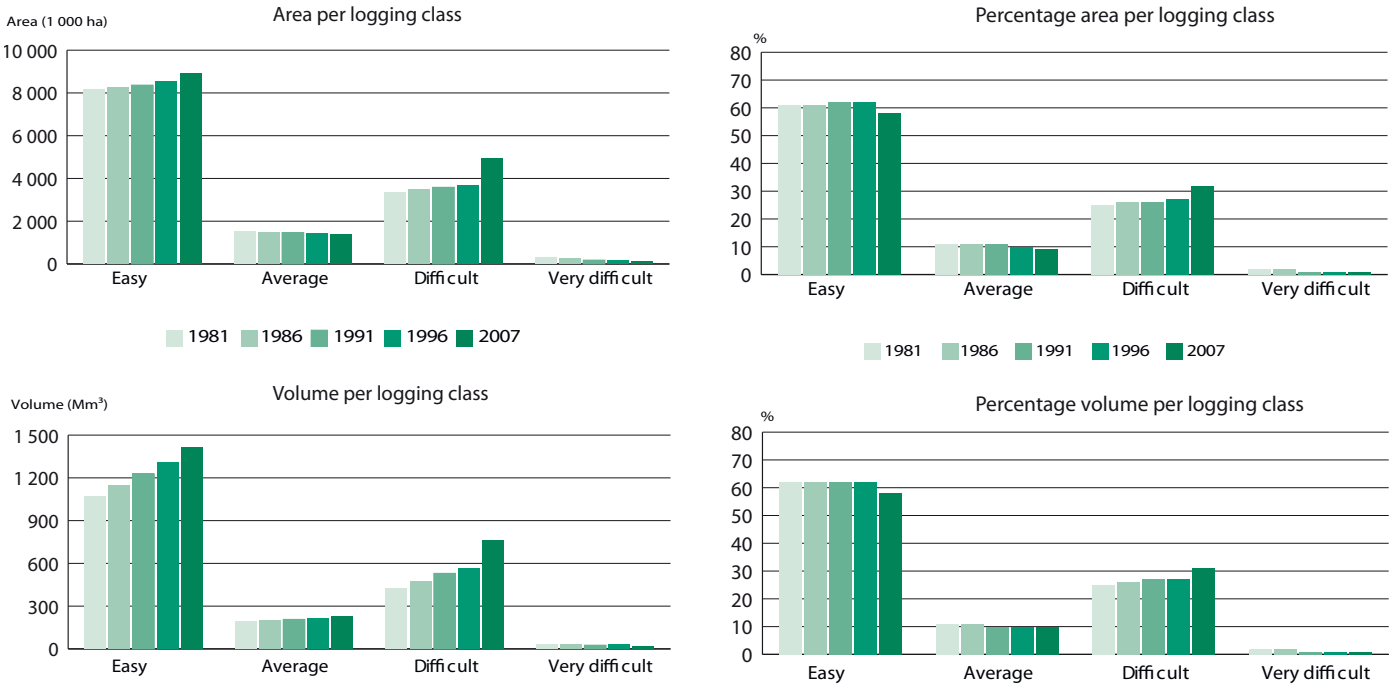


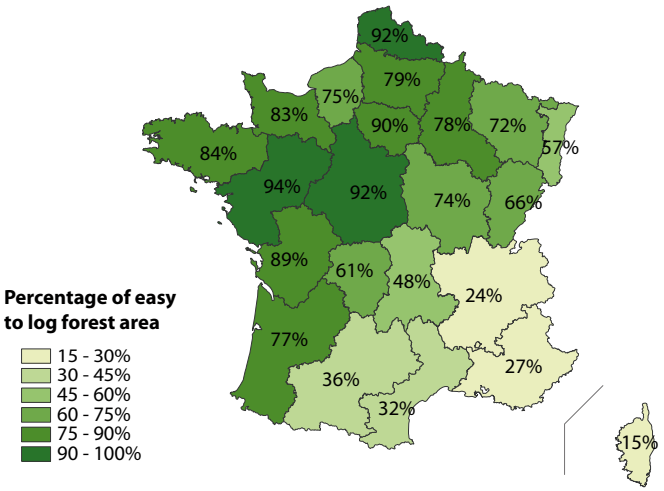
Figure 25: Variations in area and volume by logging class.

Source: NFI.

Logging is based only on physical criteria concerning the immediate stand environment: the existence or the possibility of developing a hauling route, the hauling distance, the ground structure and relief and the hauling slope class (cf. definition in Appendix III). The ecological or economic setting or the forest road system are not taken into account.

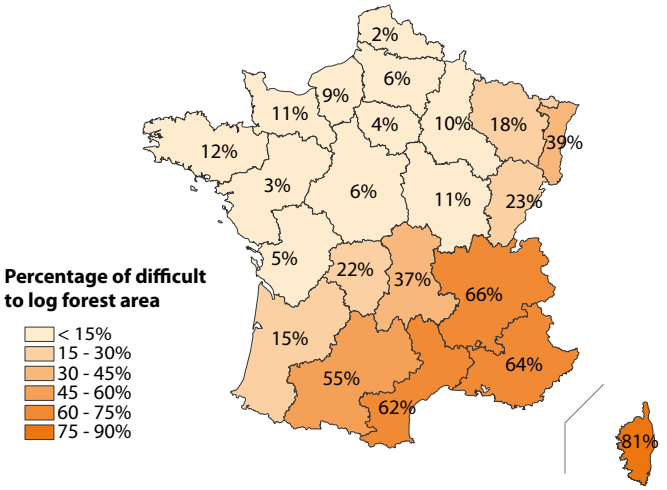
Conditions in nearly 60% of the forest area and growing stock are currently easy for logging. However, a third of the forest area or growing stock is difficult to very difficult to log.

The very clear increase in difficult to log volume could be partially explained by the capitalisation in the hardest to reach stands, as well as by new afforestations in this category. These new afforestations concern newly afforested areas in agricultural abandonment zones, or the colonisation of heathland or fallows. They also concern areas newly considered as forest due the change in definition, areas located especially in southeastern France which are often difficult to log because access routes are insufficient for these stands, which are not considered to be very productive.



Map 14: Percentage of easy to log forest area.

Source: NFI, survey years 2006 to 2009.



Map 15: Percentage of difficult to log forest area.

Source: NFI, survey years 2006 to 2009.

There are marked differences between regions associated with the local topographical features. Corsica is the region where the area of difficult to very difficult to log area is greatest, i.e. 81% of the forest area and 86% of the growing stock. At least half of the forest area is difficult to log in Rhône-Alpes, PACA, Languedoc-Roussillon and Midi-Pyrénées regions.

In contrast, over 80% of the area is easy to log in lowland regions of western and northern France, i.e. 80-90% of the area in Bretagne, Basse-Normandie and Poitou-Charentes regions, and 90% in Centre, Île-de-France, Nord-Pas-de-Calais and Pays-de-la-Loire.

It should be kept in mind, however, that the national approach adopted for this report is based on identical classification criteria regardless of the considered region. It is therefore not tailored for assessing local difficulties. For instance, in mountain regions where the techniques and equipment are adapted for harsh conditions, in some cases loggers might consider that an area which would be classified as average or difficult to log in a lowland region would be suitable for logging.
In Rhône-Alpes region, access to 36,000 ha (± 10 000) is very difficult, which represents 2% of the total forest area in this region. The corresponding stem volume is 6.7 Mm^3 (± 4.0), or 2% of the total growing stock in this region.

Note: Maps 14 and 15 do not account for stands with an average logging difficulty, so the totals per region do not add up to 100%.

Logging by administrative region

Area

2010	Easy	Average	Rather difficult	Total
Administrative region	*1 000 ha*	*1 000 ha*	*1 000 ha*	*1 000 ha*
Alsace	182 ± 15	n.s.	125 ± 14	320 ± 11
Aquitaine	1 389 ± 36	135 ± 20	270 ± 23	1 794 ± 29
Auvergne	333 ± 23	110 ± 16	256 ± 21	699 ± 22
Basse-Normandie	142 ± 9	n.s.	n.s.	171 ± 8
Bourgogne	727 ± 26	138 ± 17	111 ± 15	977 ± 20
Bretagne	298 ± 17	n.s.	43 ± 9	355 ± 16
Centre	862 ± 23	n.s.	54 ± 10	933 ± 21
Champagne-Ardenne	535 ± 22	85 ± 14	67 ± 12	687 ± 18
Corse	59 ± 16	n.s.	315 ± 32	390 ± 31
Franche-Comté	464 ± 22	81 ± 13	159 ± 18	704 ± 18
Haute-Normandie	161 ± 14	35 ± 8	n.s.	216 ± 13
Île-de-France	234 ± 12	n.s.	n.s.	260 ± 11
Languedoc-Roussillon	368 ± 31	65 ± 14	711 ± 34	1 144 ± 31
Limousin	342 ± 21	97 ± 14	122 ± 15	560 ± 18
Lorraine	620 ± 24	83 ± 14	158 ± 17	861 ± 19
Midi-Pyrénées	476 ± 32	108 ± 17	724 ± 34	1 308 ± 33
Nord-Pas-de-Calais	95 ± 11	n.s.	n.s.	104 ± 11
Pays de la Loire	304 ± 14	n.s.	n.s.	323 ± 13
Picardie	248 ± 16	44 ± 10	n.s.	312 ± 16
Poitou-Charentes	354 ± 19	n.s.	n.s.	396 ± 19
Provence-Alpes-Côte d'Azur	356 ± 30	115 ± 19	830 ± 38	1 301 ± 37
Rhône-Alpes	365 ± 28	149 ± 19	990 ± 37	1 504 ± 35
France	**8 916 ± 104**	**1 369 ± 58**	**5 033 ± 94**	**15 319 ± 104**

The 'rather difficult' category includes areas that are difficult to very difficult to log, since very few areas fall into this latter class and it therefore cannot be differentiated.
Source: NFI, survey years 2006 to 2009.
Relevant domain: FAWS.

Volume

2010	Easy	Average	Rather difficult	Total
Administrative region	*(Mm^3)*	*(Mm^3)*	*(Mm^3)*	*(Mm^3)*
Alsace	42 ± 7	n.s.	37 ± 6	82 ± 8
Aquitaine	152 ± 11	17 ± 4	41 ± 5	210 ± 12
Auvergne	82 ± 10	26 ± 6	56 ± 7	164 ± 11
Basse-Normandie	26 ± 4	n.s.	n.s.	31 ± 4
Bourgogne	130 ± 8	26 ± 5	20 ± 4	176 ± 9
Bretagne	52 ± 6	n.s.	8 ± 3	63 ± 7
Centre	144 ± 8	n.s.	10 ± 2	157 ± 8
Champagne-Ardenne	94 ± 8	16 ± 4	12 ± 4	123 ± 8
Corse	4 ± 2	n.s.	31 ± 6	36 ± 6
Franche-Comté	103 ± 9	19 ± 4	40 ± 7	161 ± 10
Haute-Normandie	30 ± 4	7 ± 2	n.s.	40 ± 4
Île-de-France	42 ± 5	n.s.	n.s.	47 ± 5
Languedoc-Roussillon	33 ± 6	8 ± 4	68 ± 7	109 ± 9
Limousin	63 ± 7	18 ± 5	26 ± 5	107 ± 9
Lorraine	113 ± 9	17 ± 6	37 ± 7	167 ± 11
Midi-Pyrénées	62 ± 7	15 ± 4	102 ± 9	179 ± 10
Nord-Pas-de-Calais	17 ± 4	n.s.	n.s.	18 ± 4
Pays de la Loire	50 ± 6	n.s.	n.s.	53 ± 6
Picardie	46 ± 6	9 ± 3	n.s.	58 ± 6
Poitou-Charentes	42 ± 5	n.s.	n.s.	48 ± 5
Provence-Alpes-Côte d'Azur	26 ± 4	7 ± 3	80 ± 7	113 ± 8
Rhône-Alpes	63 ± 9	26 ± 7	190 ± 14	279 ± 16
France	**1 414 ± 33**	**230 ± 17**	**775 ± 27**	**2 420 ± 41**

The 'rather difficult' category includes areas that are difficult to very difficult to log.
Source: NFI, survey years 2006 to 2009.
Relevant domain: FAWS.

Indicator 3.2

Value and quantity of marketed roundwood

Quantity of marketed roundwood

Usage category	Marketed volume (1 000 m³/year)						
	1983-87	1988-92	1993-97	1998-2002	2003-2007	2008	2009
Marketed construction timber	19 118	22 729	20 794	24 345	21 305	21 135	22 444
Marketed industrial wood	10 004	10 909	10 883	11 575	11 990	11 368	12 347
Marketed fuelwood	1 968	2 669	2 646	2 608	2 664	3 034	3 779
Total	**31 090**	**36 307**	**34 323**	**38 528**	**35 959**	**35 537**	**38 570**

Source: SSP/EAB Exploitation forestière et Scierie, raw data, 5-year means, without correction for logging losses; overbark and underbark volumes depending on the species until 2002, uniformised to overbark volumes since 2003.

The volumes are derived from annual surveys of the professional logging industry. As of 2005, only overbark volumes have been recorded. Between 1988 and 2004, both overbark and underbark volumes were declared depending on the species and category. Overbark volumes were converted to underbark volumes using a bark coefficient determined for each type of product.
Fuelwood for self-consumption from forest and non-forest trees is estimated using the French method described at the EUROSTAT forestry statistics working group meeting on 26/11/2009 (cf. EUROSTAT Doc. Forest/2009WG/05). The bark volume is not subtracted since fuelwood is never debarked.

The long-term removals trend was upset over the study period by the storms of December 1999 and January 2009. There was a very sharp increase in removals in 2000, 2001 and 2002 which is reflected in the data for 2000. Conversely, 2003, 2004 and 2005 were marked by a downturn, which is reflected in the 2005 data. It was not until 2007 that there was a return to the removals level of 1999. However, the economic crisis led to a new downturn in 2008 and 2009, but in 2009 there was an added reverse effect of cyclone Klaus, mainly with respect to maritime pine removals.

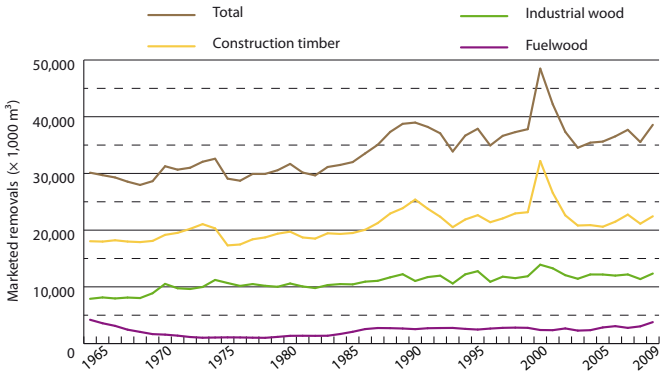


Figure 26: Variations in marketed removals declared to EAB from 1964 to 2009.
Source: SSP.

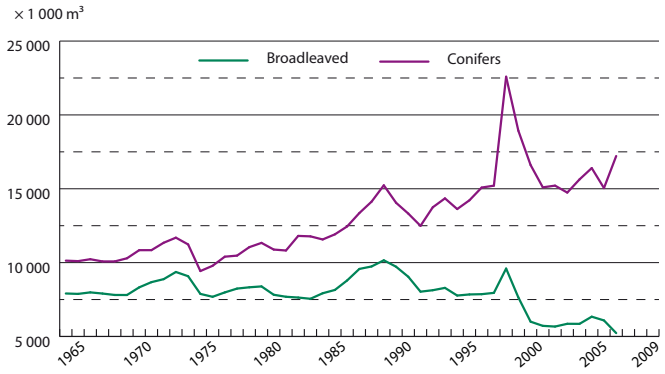


Figure 27: Variations in construction timber removal declared to EAB from 1964 to 2009.
Source: SSP.

The marketable share of fuelwood removals was very small relative to the total fuelwood removal volume. The period is characterised by a regular decline associated with the decline in the number of rural farmers, i.e. traditional fuelwood clients. Progress in the efficiency of heating units has also resulted in a drop in removals. There was an upturn at the end of the period due to the development and implementation of favourable renewable energy policies. Here again, the storms led to a sharp increase in the fuelwood removals data for the years 2000 and 2009.

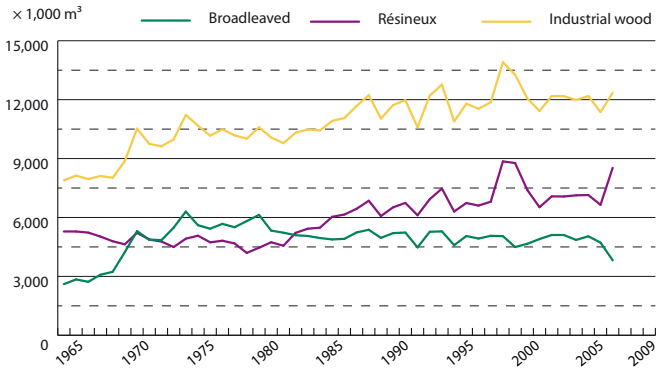


Figure 28: Variations in industrial wood removals declared to EAB from 1964 to 2009.
Source: SSP.

Value of marketed roundwood

Usage category	Wood value after logging (million euros 2002/year)				
	1991-92	1993-97	1998-2002	2003-2007	2010
Marketed construction timber	1 522	1 367	1 359	1 506	1 722
Marketed industrial wood	299	291	241		
Marketed fuelwood	107	99	84	100	159
Total	**1 929**	**1 757**	**1 685**	**1 606**	**1 881**
Wood value in euros/m³	53.7	51.2	43.7	44.7	53.5

As the euro was adopted as the currency of France in 2002, values listed in French francs for 1988 to 2001, and in euros as of 2002, were converted into euros per average year for the intervals (1990, 2000, 2005) by applying the conversion coefficient calculated by INSEE on the basis of the overall consumer price index.
Source: SSP/Agreste, survey on wood values after logging; no data available on wood values prior to 1991.

The unit values are determined from a survey on the final value of logging products. The total value of all industrial roundwood and marketed fuelwood is determined by applying these final values to volumes derived from the logging survey. The total value is identical, irrespective of whether the wood is measured in terms of underbark or overbark volumes, with only the unit value differing.
2010 prices were extrapolated from the 2005 data by applying a present value coefficient of 1.1 for all products and 0.9 for maritime pine (cyclone Klaus).
In constant currency for the considered period, wood prices regularly decreased, in line with the trend for all raw materials. This trend could begin shifting in 2010, but this is still very hypothetical. The fact that there was very little difference between industrial roundwood prices and fuelwood prices seems surprising. However, it should be kept in mind that industrial roundwood includes pulpwood whose unit value is less than that of fuelwood. The average price of industrial wood disguises very substantial price gaps between the different products, but the volumes of all products with a high unit value, i.e. mainly hardwood construction timber, are low.
Wood prices, like volumes, were affected by the storms, but in the reverse direction, thus explaining the price drop in 2000 to 2003. The sharp rise from 2006 to 2007 was quashed by the impact of the 2008 crisis and then by cyclone Klaus. There was an upturn in the situation in late 2009 and early 2010, even though windfalls have disrupted the situation concerning maritime pine.
Contrary to industrial roundwood prices, the storms and the economic crisis have had little effect on fuelwood prices.

Indicator 3.2.1

*Marketing wood felled in certified forests**

Quality	Certified marketed volume**									
	2002		2003		2004		2005		2006	
	1 000 m³	*% ***	*1 000 m³*	*% ***	*1 000 m³*	*% ***	*1 000 m³*	*% ***	*1 000 m³*	*% ***
Construction timber	401	1.8	1 599	7.7	4 300	20.6	6 026	29.3	8 594	40.0
Industrial wood	163	1.3	828	7.2	2 802	23.0	4 772	35.5	5 411	45.1
Fuelwood	98	3.7	247	10.8	492	20.9	557	19.6	886	28.9
Total	**661**	**1.8**	**2 673**	**7.7**	**7 595**	**21.4**	**10 906**	**30.6**	**14 891**	**40.8**

Quality	Certified marketed volume**						Variation 2009/2007	*Windfalls from cyclone Klaus*	% windfalls 2009/total
	2007		2008		2009				
	1 000 m³	*% ***	*1 000 m³*	*% ***	*1 000 m³*	*% ***	*%*	*1 000 m³*	*%*
Construction timber	10 201	44.8	9 614	45.5	14 015	62.4	+ 45.8	7 033	50.2
Industrial wood	5 512	45.2	5 742	50.5	7 891	63.9	+ 37.4	4 114	52.2
Fuelwood	923	33.4	913	30.1	1 522	40.3	+ 66.7	149	9.8
Total	16 636	44.1	16 269	45.8	23 427	60.7	+ 44.0	11 297	48.2

** % of the marketed total.
Source: SSP/EAB, raw data, without correction for bark or logging losses.

The volumetric proportion of certified wood in marketed removals amounts to 60% or 23.4 million m^3. The trend observed—44% increase in volumes between 2007 and 2009—highlights the vitality of the certification process implemented in France, involving forest owners, cooperatives and downstream subsectors.
Construction timber accounts for 60% of all certified wood, while industrial wood represents 33%, proportions that are very consistent with the total marketed volume shares.

These results can be directly related to the extent of certified area, which accounted for one third of the forest area in late 2010, for the two certification systems in France: PEFC (Programme for the endorsement of forest certification schemes) and FSC (Forest Stewardship Council): see Indicator 6.1.3.

* wood from certified sustainably managed forests that has been logged by certified enterprises.

Indicator 3.3

Value and quantity of marketed non-wood goods from forest and other wooded land

Non-wood goods	Quantity (t/year)			'Wholesale value' (million € 2009/year)		
	1998-99	2002-03	2008-09	1998-99	2002-03	2008-2009
Venison*	18 392	23 101	25 752	65.8	68.7	203.2
Mushrooms (including truffles)	5	25	9	17.5	12.5	16.0
Cork	5 700 to 8 200	4 700 to 5 700	1 500	1.2 to 1.8	1.4 to 2.2	0.5
Honey	NA	5 600 to 7 100	5 500 to 6 900	NA	19.8 to 30.4	25.0 to 33.9
Gathered plants	4 300 to 5 000	4 300 to 5 000	NA	5.8 to 6.1	5.8 to 6.1	NA
Tree seeds	NA	NA	98	-	-	1.3
Total	**-**	**-**	**-**	**NA**	**108.2 to 119.9**	**NA**

* including self-consumption.
Source: see detailed tables below. All values were converted into 2009 euros. Gathered plant production was considered to have remained stable between 1999 and 2003 as no updated data were available.

Forests provide a variety of different non-wood goods ranging from venison to gathered plants, including mushrooms, honey, tree seeds and even cork in Mediterranean forests. It is generally hard, due to the very marked fluctuations, to assess the quantities harvested and their value (e.g. for mushrooms, honey, gathered plants). The total mean 'wholesale' value of these products ranges from €108 to 120 million per year, which is quite substantial. Venison represents more than half of this total value, with honey representing 20-28% and mushrooms 10-11%, but harvests of these latter two goods can sometimes be very low.

The benefits of these goods go beyond their economic value as they also provide valuable services. For instance, it is now clearly established that cork oak stands are an important element in land-use management and forest fire protection. The importance of the recreational aspect of some plant gathering activities and the key role of bees in maintaining plant biodiversity via pollination are also well known.

Venison

Venison	Quantity (t)				Value (million € 2009)			
	1998-99	2002	2008	2009	1998-99	2002	2008	2009
Red deer	1 617	1 829	2 423	2 454	4.8	5.2	17.9	18.2
Roe deer	4 748	5 540	5 856	6 086	27.9	28.3	69.7	72.4
Wild boar	12 027	15 731	19 895	17 212	33.1	35.2	131.3	112.6
Total	**18 392**	**23 101**	**28 174**	**25 752**	**65.8**	**68.7**	**218.9**	**203.2**

Source: ONCFS, based on kills by multiplying the values by the mean weights estimated on the basis of expert opinion at 50 kg for a red deer, 12 kg for a roe deer and 35 kg for a wild boar. 1998-99 period: value estimated in F 1998 at F16/kg for a red deer, F32/kg for a roe deer and F15/kg for a wild boar. 2002 period: value estimated in € 2002 at €2.5/kg for a red deer, €4.5/kg for a roe deer and €2/kg for a wild boar. 2009 period: value estimated at €7.4/kg for a red deer, €11.9/kg for a roe deer and €6.6/kg for a wild boar. All values have been converted into 2009 €.

The quantity of hunted venison has sharply increased in recent years, rising from 18,000 to 25,000 t in 4 years. Wild boar accounts for two-thirds of the total and the quantity is rising faster than the trend noted for deer. The quantity of red and roe deer venison reached 7,400 t in 2009-2010, and this rise is associated with the yearly increase in kills (see Indicator 2.4.2).

Venison is usually self-consumed. Its value can only be roughly estimated on the basis of expert opinion since this type of game is no longer sold at Rungis market due to current commercial constraints and regulations. It was estimated at over 200 million € for the 2009-2010 period, including 55% for wild boar and 45% for roe deer.

Mushroom harvest

Mushroom category	Marketed quantity (t)								
	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Black Périgord truffles	30	14	35	35	15	39	39	27	15
of which 1/3 harvested in forests	10	5	12	12	5	13	13	9	1
Other truffles (forests)*	NA	NA	NA	NA	NA	12	17	8	5
Boletus	2 120	NA	2 340	1 010	920	NA	NA	NA	NA
Chanterelles	1 850	NA	1 850	1 440	1 070	NA	NA	NA	NA
Other forest mushrooms	870	NA	730	910	500	NA	NA	NA	NA

* summer truffles (a few plantations since the late 1990s) and Bourgogne truffles (plantations started in the 1990s).

Mushroom category	Marketed quantity (t)				'Wholesale' value (million € 2009)		
	2006-07	2007-08	2008-09	2009-10	1997-98	2001-02	2009-10
Black Périgord truffles	28	26	58	32	11.1	6.9	6.0
of which 1/3 harvested in forests	1	1	3	2	3.7	2.3	2.0
Other truffles (forests)*	6	7	6	5	NA	NA	NA
Boletus	NA	NA	NA	NA	9.8	4.6	NA
Chanterelles	NA	NA	NA	NA	3.9	5.6	14.0
Other forest mushrooms	NA	NA	NA	NA	NA	NA	NA

Source: Fédération Nationale des Syndicats Agricoles de Cultivateurs de Champignons, Fédération Française des Trufficulteurs, Forêt Privée Française et Service des Nouvelles du Marché; in 1997, an in-depth study was conducted by FNPC on forest mushrooms. A new survey is under way but the results are not yet available. The per-kg values used are: 1) for truffles: 2,000 F 1997/kg and 400 € 2001/kg - 2001/02 estimate based on 2004-05 rates of SNM evaluated at €490 /kg; 2) for boletus: 25 F 1997/kg or 4 € 2001/kg, also retained for 2001-02 due to a lack of updated data; 3) for chanterelles and other forest mushrooms: 21 F 1997/kg or 3.4 € 2001/kg, also retained for 2001-02 due to a lack of updated data. All values were converted into 2009 euros.

Data on forest mushroom harvests are very incomplete. The last in-depth survey by the Fédération nationale des producteurs de champignons was conducted in 1997 and an update is not yet available.
Harvests fluctuate yearly because mushrooms are very sensitive to climatic variations. Truffle production is relatively steady, or even increasing, mainly due to the gradual set up of productive plantations in recent decades, whereas boletus and chanterelle harvests dropped from 4,000 to 2,000 t between 1997-1998 and 2001-2002. Since then, there have been no records of forest mushroom harvests due to the high self-consumption levels and unauthorised picking.

The main producing regions are the Massif Central, Périgord and northeastern and southwestern France. The total value of the marketed harvest is estimated at €15-20 million per year. This should be supplemented with the production for self-consumption but this is very hard to evaluate.

The economic weight of forest mushrooms is far from insignificant, especially in certain regions. French consumption is much higher than the harvest and this gap, currently filled by imports (particularly from eastern Europe), represents a potential market for the cultivation of forest mushrooms.

The positive role of mycorrhizal mushrooms in the functioning and productivity of forest ecosystems has been known for many years. Continued research on the production of mycorrhizan mushrooms (boletus, saffron milk cap, etc.) and on optimisation of forest management should eventually strike a balance between timber production and edible mushroom production. The latter could provide extra income for forest owners in certain regions, provided that the problem of unauthorized picking can be solved locally.

Cork production

Location	Annual harvest (t/year)			Stumpage (thousand € 2009)		
	1999	2004	2009	1999	2004	2009
Corsica	3 000 to 5 000	2 000 to 2 500	1 200	670 to 1 090	440 to 880	360
Var	2 000 to 2 500	2 000 to 2 500	220	440 to 550	550 to 880	77
Pyrénées-Orientales	700	700	70	110	440	56
Landes	-	-	10	-	-	1
Total	**5 700 to 8 200**	**4 700 to 5 700**	**1 500**	**1 220 to 1 750**	**1 430 to 2 200**	**494**

Sources: Institut Méditerranéen du Liège, based on numbers supplied by ASLGF de la Suberaie Catalane, Le Liège Gascon, l'ASL Suberaie Varoise, l'ONF du Var, l'ODARC, les sociétés Lièges Mélior et À Fleur de Liège, completed by estimates based on expert opinion.

French cork oak production stands are mainly found in four regions: Corsica, Var, Pyrénées-Orientales and Landes. In the latter, the cork sector is being restructured with the support of local enterprises. Harvested cork quantities, which have been evaluated at around 1,500 t/year in France, have declined considerably in the last 6 years due to cyclical (disease and pest problems in Var region, private land issues in Corsica, etc.) and economic (decline in cork demand, excessive stocks, too low purchase prices for refuse corkwood) factors. The trend is currently towards an abandonment of cork resources because of the lack of land investment by professional organizations.

Stumpage of cork has decreased to the same extent as the harvested volumes. Total sales for this sector must now therefore be under €500,000/year but this is hard to evaluate because average prices estimated on the basis of expert opinion integrate a broad range of qualities and situations.

In Corsica, there is no organised market for cork. Commercial stakeholders, who are mostly Sardinians, purchase cork from local producers who negotiate with owners. Purchase prices, which were artificially high 5-6 years ago, have dropped considerably in the last 2 years. This has resulted in a decline in forest cork sales and many stockpiles have not been sold and producers are having difficulty disposing of this cork. The ODARC technical service estimates that 1,200 t were harvested in 2009 (but the figures were lower for 2010), with a mean stumpage price of around €0.30/kg. A forestry cooperative (Corsica furesta) was founded in 2010 especially to enhance cork market management.

In private forests in Var region, following the emergence of problems in the Maure massif caused by Platypus cylindrus, a wood-eating pest insect, the cork oak producers' association ASL Suberaie Varoise (120 owners; 4,580 ha) and CRPF PACA decided in 2003 to freeze cork sales. Sixteen tonnes were still harvested by ASL Suberaie Varoise in 2009. In public forests, and under the supervision of ONF Var, around 30 t of cork were harvested in the communal forest of Muy in 2008 and sold to a Sardinian stakeholder for a price ranging from €0.20 to 0.65/kg depending on the quality.

In addition to these two one-off operations, a regular quantity (evaluated at 170 to 250 t), is harvested annually in Maure massif and purchased by two local commercial stakeholders.

In Pyrénées-Orientales region, the main operator is ASLGF de la Suberaie Catalane (60 owners; 2,000 ha), whose harvested tonnage has been sharply dropping since 2009, due to:

– a silviculture-related factor because, after several substantial harvest years of over 30 t, there were 2 years of slump, with very little sufficiently thick reproduction cork available for harvesting (note however the first harvests of PEFC certified cork in 2009 and 2010);

– a more worrisome economic factor due to the increased difficulty in marketing average to low quality cork to cork stopper dealers.

In addition to these organised sales, a few independent cork harvesters are working in the department, with an annual harvest volume of around 50 t. The average stumpage price is €0.80/kg, with a maximum of €1.10.

In addition, unproductive cork (virgin or burnt) is harvested yearly by ASLGF de la Suberaie Catalane (90 ha since 2007). However, this cork, for which there are currently no local market outlets, is left in the forest unmarketed. There is hope that these rehabilitated cork plots will generate better cork harvests in the future. These unprofitable harvests are conducted using funds obtained for cork oak production stand rehabilitation, through credits obtained within the framework of DFCI development plans, supplemented by self-financing by owners.

In Landes region, slightly less than 10 t of cork (low quality due to a lack of harvesting in the last 40 years, i.e. virgin or over-thick) is harvested by the association Le Liège Gascon, and used locally by member companies. This cork is sold at a token stumpage price of €0.10/kg, and this price has remained constant since 2006.

The slump in the world cork stopper market in the last 20 years has resulted in an overtonnage market worldwide, leading to a severe drop in cork prices over the last 5 years. As commercial stakeholders have high cork stocks, considerable quantities of unsold cork are stockpiled in warehouses and in forests in all producing countries.

However, as the market for high quality cork stoppers is thriving, it is essential to enhance the cork production quality in forests. It is especially crucial to carry out research on the cork worm (*Corœbus undatus*), the larval form of a beetle that has been widely identified as one of the main damaging pests of cork (note however that Corsican cork is worm-free).

Moreover, the popular trend in favour of cork as an environment-friendly material in the building industry, and more generally in sectors other than the cork stopper sector, is promising for the future development of a market for non-stopper grade cork, but this is yet to be the case in France considering the complete absence of this type of industry to date.

Forest honey production

Species	Mean quantity marketed (t)				Mean price (€/kg)				'Wholesale' value (k€)			
	2004		2010		2004		2010		2004		2010	
	low	high	low	high	low	high	low	high	low	high	low	high
Acacia	3 000 to 4 000		2 500 to 3 000		3.50 to 4.50		4.50 to 5.00		10 500 to 18 000		11 250 to 15 000	
Chestnut	1 500 to 2 000		1 500 to 2 000		3.00 to 3.50		4.50 to 4.50		4 500 to 7 000		6 750 to 9 000	
Linden	500 to 500		600 to 700		3.00 to 3.60		4.00 to 4.20		1 500 to 1 800		2 400 to 2 940	
Fir	600 to 600		400 to 500		5.50 to 6.00		6.00 to 7.00		3 300 to 3 600		2 400 to 3 500	
Heather	NA		100 to 150		NA		6.00 to 7.00		NA		600 to 1 050	
Heath	NA		100 to 150		NA		4.50 to 5.00		NA		450 to 750	
Strawberry tree	NA		50 to 100		NA		4.50 to 5.00		NA		225 to 500	
Honeydew and forest plants	NA		250 to 300		NA		3.50 to 4.00		NA		875 to 1 200	
Total	**5 600 to 7 100**		**5 500 to 6 900**		**-**		**-**		**19 800 to 30 400**		**24 950 to 33 940**	

Source: Coopérative France Miel 2004 and 2010; mean current production estimated on the basis of expert opinion due to a lack of more accurate statistical data.

The quantity of marketed forest honey ranges from 5,500 to 6,900 t per average year. Acacia honey accounts for nearly half of this volume and chestnut honey represents a little less than 30% of the marketed quantities. This production, although relatively stable over 5 year intervals, can fluctuate substantially, particularly as a result of weather conditions: production can sometimes be null, especially for fir honey. Forest honey accounts for 30% of the total honey production in France, which amounts to 20,000 t in 2010, versus 30,000 to 40,000 t in 2004. The marked decrease in total production over the last 5 years could be due to the abnormally high rate of bee mortality noted in recent years. However, this has had relatively little impact on forest honey production.
The total value of forest honey ranged from €25 to 34 million in 2010 and has increased with the rise in the unit price, which is due to the general decline in honey production for all honey types. Fir and heather honey are the most sought-after types, with a 'wholesale' value of €6-7/kg.

Forest seed production

Nature	Marketed quantity (batches or kg)						Value* (en k€)					
	2005	2006	2007	2008	2009	2010	2005	2005	2007	2008	2009	2010
Number of batches	970	1 070	-	-	-	-	907	907	1 275	1 265	932	983
Conifer seeds	NA	NA	1 087	1 935	1 619	840						
Acorns and chestnuts	NA	NA	72 168	94 153	44 877	60 933						
Other broadleaved seeds	NA	NA	3 348	2 196	1 596	2 415						

* total sales for the activity in public forests, including transportation and auxiliary services.
Source: ONF, 2010.

Public forests represent a key source of forest seeds in France. They therefore contribute significantly to supplying public and private nurseries with forest breeding material of high genetic value collected in a diverse range of sites and seed orchards.

Gathered plants

Plant type	1997 production (t/year)	2005 production (t/year)	Value (million € 2005)
Lichen (perfumery and cosmetics)	2 000 to 2 500	NA	0.3 to 0.4
Butcher's broom leaves	200	NA	0.4
Butcher's broom rhizomes (pharmacy)	150 to 200	NA	0.3 to 0.5
Rock-rose leaves and branches (perfumery)	800	NA	1.1
Bilberries (cosmetics and pharmacy)	1 000	NA	2.6
Linden leafy bracts and flowers	80	NA	0.5
Ash leaves	100	NA	0.2
Total	**4 330 to 4 880**	**4 605**	**5.3 to 5.6**

Source: ONIPPAM (Office national interprofessionnel des plantes à parfum, aromatiques et médicinales) 1997 production data, except for butcher's broom leaves, i.e. 1989 data, due to a lack of available updated data for 2004; 1997 values converted into 2005 euros, due to number inaccuracies (no recent data available).

The gathered plant harvest estimated in 1997 was 4,000 to 5,000 t, for a value of €5 to 6 million, mainly taking place in the French mountain massifs, i.e. Vosges, Alpes, Pyrénées and especially the Massif Central (Cévennes, Auvergne, Limousin). According to the Office national interprofessionnel des plantes à parfum, aromatiques et médicinales (ONIPPAM), most of these harvests are declining, except for lichens for perfumery and cosmetics, where production has remained stable.
However, the annual gathered plant harvest is hard to estimate because this sector is loosely organised and the activity is often marginal. No updated data is currently available to distinguish between gathered forest plants and crops. The Comité des plantes à parfum, aromatiques et médicinales (CPPARM) nevertheless has accurate data on quantities harvested by cooperatives located in Corsica, Ardèche and Puy-de-Dôme regions which obtain supplies from independent gatherers of plants throughout France depending on the seasons (cf. table below). However, no data is available on the value of these harvests.

Species	Harvested parts	Fresh weight (kg)	Dry weight (kg)
Sweet woodruff	whole plant	NA	3
Hawthorn	flowers and leaves	2 062	3 080
White birch	leaves, bark, sap	1 815	1 702
Box tree	leafed branchlets	NA	470
Bearberry	leafed branchlets	898	NA
Chestnut	leaves and fruit (especially)	5 516	2 281
Meadow saffron	bulbs	23	NA
Douglas fir	leafed branchlets	400	NA
Ash	leaves	6 000	1 603
Scotch broom	leafed and flowered branchlets	NA	130
Juniper	leafed branchlets	3	NA
Beech	buds	4 871	1
Ivy	leafed branchlets	23	NA
Lily of the valley	whole flowered plant	113	NA
Common European myrtle	leafed branchlets	15 013	NA
Bilberry	tips and berries	9 892	3 034
Hazelnut tree	bark	10	52
Corsican pine	needles	2 006	NA
Scots pine	buds and branchlets	2 470	NA
Mastic tree	leafed and flowered branchlets	3 005	NA
Primrose	whole plant	NA	4
Silver fir	buds	6	NA
Common elder	flowered tops	1 946	416
Total		**56 072**	**12 776**

Source: CPPARM, 2009; values for cooperatives located in Corsica, Ardèche and Puy-de-Dôme.

Indicator 3.4

Value of marketed services on forest and other wooded land

Marketed services	Ownership category	Value (million € 2008)				
		1993	1998	2003	2005	2008
Hunting licences	state-owned forest	32.2	32.8	34.6	43.5	42.2
	other public forest governed by forest regulations	18.2	19.6	18.9	19.0	19.5
	private forest	26.1	NA	26.5	NA	NA
Total hunting		**76.5**	**NA**	**80.0**	**NA**	**NA**
Fishing licences	state-owned forest	0.2	0.3	0.3	0.3	0.4
Royalties and rental charges (concessions)	state-owned forest	9.4	9.0	9.3	13.1	15.2
	other public forest governed by forest regulations	7.6	7.4	6.9	NA	NA
Total royalties and rental charges		**17.0**	**15.0**	**14.7**	**NA**	**NA**
All services	state-owned forest	41.8	42.1	44.2	56.9	57.8
	other public forest governed by forest regulations	25.8	24.5	25.8	NA	NA
	private forest	26.1	NA	26.5	NA	NA
Total all services		**93.7**	**NA**	**96.5**	**NA**	**NA**
		€6.3/ha	**NA**	**€6.3/ha**	**NA**	**NA**

Source: public forest: ONF, 2003 to 2008 sustainable development reports; private forest: SCEES/Enquêtes sur la structure de la forêt privée, ESSES 1976-83 and 1999 for the leased area; estimation of the mean 2003 hunting licence fee in private forests by applying the increase noted in state-owned forests during the 1993-2003 period to the 1993 value. All numbers have been converted into 2008 euros; they refer to gross income, without deducting management and maintenance expenditures.

Forests represent a setting for many services, some of which generate income for the forest owner. This includes hunting and fishing licences, as well as royalties and rental charges in public forests.

State-owned forest

Hunting licences

In metropolitan France, 1.75 million ha of state-owned forest, or 4% of the hunting area (lowlands and woodlands), hosts around 100,000 hunters (for a total of 1.3 million licences). Different hunting methods are practiced: firearm hunting, including bow hunting, individually (hunting by stalking or from a hide) or in groups (drives with or without dogs), hunting on horseback with hounds (especially in large state-owned forests), underground burrow hunting or occasionally falcon hunting.
Most hunting plots rented in state-owned forests are allocated by public tender, otherwise plots are generally allotted on a licensing or friendly basis. The increase in income from hunting as of 2005 is due to the relocation of hunting leases (for 12 years) which took place during the first half of 2004.

Concessions

Concessions, which account for barely 1% of the managed state-owned forest area, concern specific services that are generally of public interest (power transmission systems, open-pit mines, beach access plan in Aquitaine, etc.). These time-limited concessions always include clauses that the concerned ecosystems must be returned to their initial state, and may even include countervailing measures.
The increase in income from concessions since 2005 is mainly due to the rehabilitation of revenue-generating concessions (camp grounds, telephone or power facilities, etc.).

Fishing licences

ONF is responsible for the management of lakes, ponds and rivers of the State private sector in state-owned forests, while also managing fishing rights. This involves 3,350 km of shoreline and 1,610 ha of ponds and lakes. Plots are generally leased for 6 years, with fishing controlled by licence, public collective management, or in a reserve setting.

Case of the other public forests governed by public regulations

Hunting licences

The forestry code does not include a special framework for the allocation of hunting rights in community forests governed by forestry regulations. The owner community with hunting rights is solely responsible for setting the hunting conditions in its forest.
Hunting rights, which are seldom reserved, are allocated under different conditions: public auction leases, calls for tender, written or oral informal leases, incorporation into a certified communal hunting association (ACCA), etc.
Income generated by hunting licences varies depending on the selected options and is sometimes nil (free access).

Special case of Alsace-Moselle
Under local regulations, communal forest regulations incorporate communal hunting, and managed by the Mayor for all owners within the administered area. Hunting licences are generally allotted by public auction or calls for tender. A lease may also be passed on from a prior leaseholder.

Fishing licences

Owner communities, like the situation with hunting, are solely responsible for managing fishing rights.

Private forest

It is hard to estimate the value of hunting licences for private forests since conditions vary widely with respect to hunting in these forests.
A survey on private forest structures conducted by the Service central des enquêtes et études statistiques (SCEES) in 1999 revealed that more than half of the surveyed owners were voluntarily or obligatorily attached to an authorised communal and intercommunal hunting association (ACCA or AICA). This situation concerned 45% of the forest area. A quarter of these owners provide their relatives, friends or local hunting groups with free hunting access to their forests, especially in southern France.

Paid hunting leases apply to 13% of the forest area, but only 2% of private owners. This generally concerns large-scale properties (51 ha on average) belonging to corporate bodies. Only 8% of private owners (16% of the area) maintain exclusive hunting rights in their forests.

Indicator 3.5

Proportion of forest and other wooded land under a management plan or equivalent

Formal management plans

Ownership category		Units	Managed area					
			1974	1984	1994	1999	2004	2010
State-owned forest*		*ha*	1 184 400	1 421 000	1 610 100	1 704 500	1 633 000	1 669 700
		%	71.0	82.3	90.5	93.3	89.1%	98.1
Other public forest governed by forest regulations		*ha*	1 316 400	1 650 800	1 983 700	2 197 700	2 193 000	2 655 533
		%	54.4	66.1	75.0	80.9	78.9	89.7
Total all forests governed by forest regulations		**ha**	**2 500 800**	**3 071 800**	**3 593 800**	**3 902 200**	**3 826 000**	**4 325 233**
		%	**61.2**	**72.7**	**81.2**	**85.9**	**83.0**	**92.8**
Private forest	**Compulsory simple management plan****	*ha*	94 900	2 345 900	2 479 800	2 551 700	2 487 000	2 764 628
		%	2.8	71.2	73.9	75.9	73.1	80.5
	Voluntary simple management plan	*ha*	-	-	16 700	26 400	35 200	81 737
	Total	**ha**	**94 900**	**2 345 900**	**2 496 501**	**2 578 101**	**2 522 201**	**2 846 419**
		%	**-**	**23.8**	**24.0**	**24.1**	**23.4**	**27.2**
Total		**ha**	**2 595 700**	**5 417 700**	**6 090 301**	**6 480 301**	**6 348 201**	**7 171 652**
		%	**-**	**38.5**	**41.1**	**42.6**	**41.2**	**46.8**

* For 2010, excluding state-owned land managed by other ministries (79,000 ha), state-owned forests in Corsica (50,000 ha) which were transferred to the Collectivité territoriale de Corse in 2003, and the Domaine de Chambord (5,000 ha), all of which are classified under 'Other public forest governed by forest regulations'.
** presented % are relative to the area prior to implementation of a simple management plan in compliance with the law (see Box 4).
Source: ONF for state-owned forests and other public forests governed by forest regulations, based on current management plans; CNPF for private forests with an approved current simple management plan, including voluntary management plans; the percentage of all managed metropolitan forests is calculated on the basis of Teruti survey areas (headings 18 to 21, 24, 25) 1983 (old data series), 1993, 1998, 2003 and Teruti-Lucas 2008 (new data series); managed areas were established for 1st January of the concerned year.

The French forest area for which a 'formal' management plan has been drawn up is currently over 7 million ha, or 45.1% of the overall area. This area increased by 640,000 ha in 10 years, two thirds of which account for public forests. The decline noted in 2004 is due to damage incurred by the 1999 storms, which resulted in a revision of many managed areas and simple management plans. Cyclone Klaus in January 2009 also explains the low relative increase in managed area in private forests. This lack of progress also reflects the limbo-like situation in which some owners have found themselves as a result of financial and technical uncertainties encountered with respect to the rehabilitation of their forests.

A high proportion of public forests are managed, i.e. 98% of state-owned forests and 89.7% of other public forests governed by public regulations. In 2009 and 2010, the approval by the French Forestry Minister of the new Directives Nationales d'Aménagement et de Gestion (state-owned forests) and the new Orientations Nationales d'Aménagement et de Gestion (communal forests) reaffirms the multifunctional aspect of sustainable forest management, while confirming the aim to 'produce more wood while striving to enhance biodiversity preservation' and integrating the assumed potential impacts of climate change predicted in the 21st century. Forest management plans are now systematically based on assessments of issues associated with the main functions of forests managed locally: wood production, ecology, social function and natural risk protection.

For private forests, 80.5% of forests whose owners were obliged to draw up a simple forest management plan, i.e. Simple Management Records (PSG : plan simple de gestion), have an authorized PSG in 2010. Under the agriculture and fisheries modernisation law of July 2010, the conditions concerning the obligation to draw up a PSG were recently modified, which now applies when the cumulated area of the largest forest plot and isolated forest plots located in the same community and in the territory of adjacent

communities is 25 ha or more. Isolated forest plots of under 4 ha are not considered. The slight decline noted in 2004 was directly due to the storms of December 1999, which sharply increased the number of pending obligatory PSGs. Nine years later, cyclone Klaus wreaked further havoc amongst forest owners. Faced with massive stand destruction, clean-up and marketing difficulties and uncertainty with respect to obtaining reconstruction credit, many of these owners preferred to postpone their PSG renewal until the situation settled. However, voluntary PSGs are still constantly increasing, with their area expanding by more than twofold over the last 5 years.

In addition, the proportion of managed French forests is much higher than that of forests under a 'formal' management plan, especially with respect to private forests. A survey on private forest structures carried out by the Service central des enquêtes et études statistiques (SCEES) in 1999 provided an assessment of the level of involvement of owners in forest development. A quarter of private forest owners, holding around 60% of the forest area, sought information or called in external assistance to enhance management of their forest properties. These proportions increased as the forest size increased: 89% of owners with 100 ha or more were concerned (91% of the area), as compared to 19% of owners with less than 10 ha (24% of the area). Finally, 560,000 owners were active in maintaining, felling, etc., their stands, alone or with the help of their relatives. Their work time is estimated at 20 days per year and per owner, representing more than 11 million work days.

Box 4: Management records required by the French forest law of 9 July 2001

Four management record categories are stipulated under the French forest law of 9 July 2001 (Loi d'orientation forestière du 9 juillet 2001):

- management records
- simple management plans
- model management regulations
- codes of good silvicultural practices.

These records must be drawn up in compliance with regional development directives (DRA) for state-owned forests, regional management schemes (SRA) for other public forests governed by forest regulations, and regional silvicultural management schemes (SRGS) for private forests. DRA, SRA and SRGS are defined in the regional forest guidelines (ORF), which in turn are drawn up by regional commissions for forests and forest goods, with the participation of concerned partners.

For public forests, the management record is generally a detailed management record. It can be replaced by a model management regulation (RTG), i.e. a simple record, for forests with a low economic potential and ecological interest.

For private forests, a simple management plan (PSG) is compulsory for forested properties with an uninterrupted area that is equal to or higher than the threshold set for the administrative department, ranging from 10 to 25 ha. An owner with a forest area under the preset departmental threshold but equal to or above 10 ha can submit a voluntary PSG. Compulsory and voluntary PSG records are comparable to public forest management documents.

Private forest owners with properties that do not qualify under this category can concur to a model management regulation (RTG) drawn up by a common forest management and logging organisation or a forest expert. They can also comply with a code of good silvicultural practices (CBPS) drawn up by the Centre régional de la propriété forestière and approved by the prefect of the regions. The CBPS contains key sustainable forest management guidelines classified by region or group of natural regions.

Forests managed in compliance with these four management record categories are confirmed as being sustainably managed forests, conditional to a 10-year (minimum) commitment by the owner when they qualify under RTG and CBPS. These sustainable management commitments are required to obtain government subsidies.

Indicator 3.5.1

Forest area covered by a catalogue of forest stations or by a simple species guide

Coverage	Forest area covered by a catalogue of forest stations (1 000 ha)						Forest area covered by a simple guide (1 000 ha)					
	2000		2005		2010		2000		2005		2010	
	Forested	*Total*	*Forested*	*Total*	*Forested*	*Total*	*Forested*	*Total*	*Forested*	*Total*	*Forested*	*Total*
Complete	5 636	18 128	6 742	22 326	6 754	22 485	3 100	9 617	5 104	15 375	5 920	18 180
Partial	453	2 257	584	2 596	583	2 290	232	1 135	365	1 425	453	1 853
Total	**6 089**	**20 385**	**7 326**	**24 922**	**7 337**	**24 775**	**3 332**	**10 752**	**5 468**	**16 750**	**6 373**	**20 033**
% total France	**43.2 %**	**37.1 %**	**52.0 %**	**45.4 %**	**52.1 %**	**45.1 %**	**23.6 %**	**19.6 %**	**38.8 %**	**30.6 %**	**45.2 %**	**36.5 %**

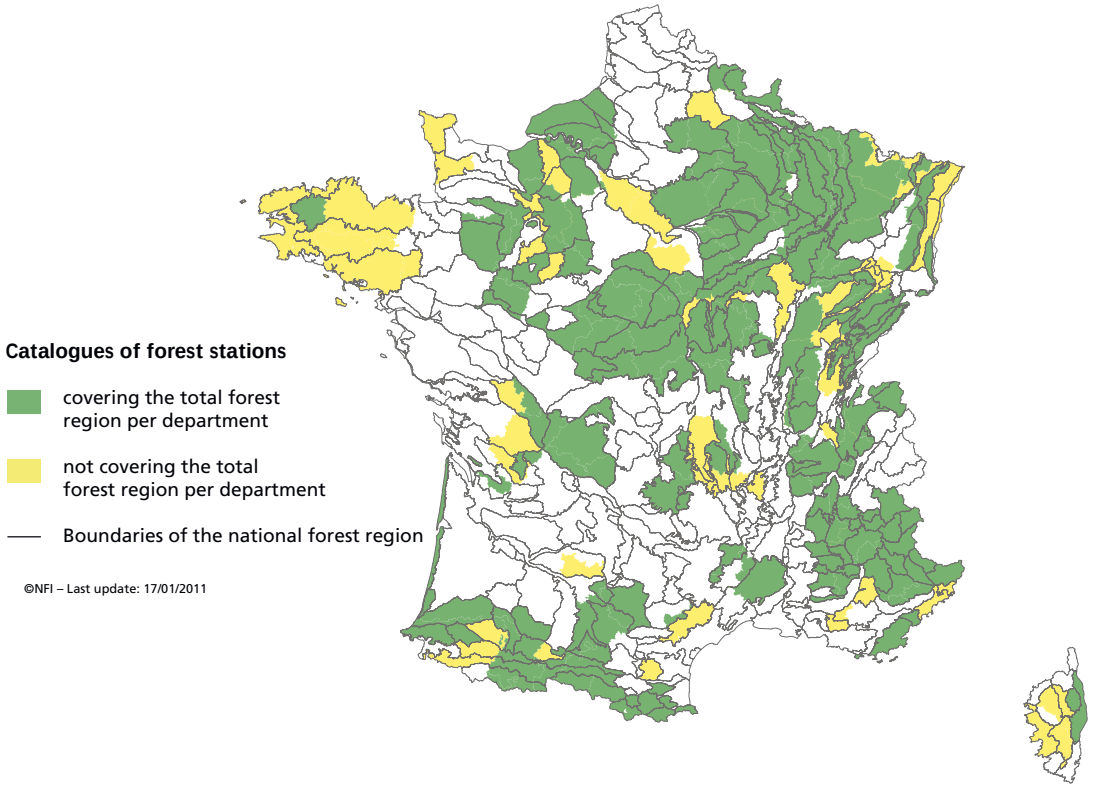
Source: NFI; calculations were done per NFI departmental forest region while only taking the area actually covered within each region into consideration; areas covered per region could be determined by this method. However, the scope of validity of the documents is usually greater.

Due to the lack of sufficient accuracy concerning the edges of the area covered by field site classification documents, especially in the oldest documents, and the absence of referencing with respect to the boundaries of forest regions defined by NFI, their incorporation into a GIS would be useless. For each document, the areas covered (forested or total) were thus assessed with respect to the compliance of the boundaries in the text with those of the forest regions.
Moreover, since 1992, NFI has been recording ecological and floristic field data. In 2002, NFI was tasked by the French Forest Ministry to permanently oversee, provide expertise and operational coordination in the field of forest station classification. Areas actually covered by a descriptive record of forest stations were thus recalculated and refined on national forest region and departmental forest region scales. Data generated by this more accurate method overrule the data series published in the year 2000 edition of the present document. The method was used to determine the status of the situation on 01/01/2000, while taking the newly published guides into consideration, which are the only documents likely to be used on a daily basis by public and private forest managers. The slight decrease in forest area covered by the catalogues between 2005 and 2010 is due to the fact that NFI's ongoing verification of the field site classification documents since 2002 has led to the recovery of some old original documents. It is thus possible to specify areas that had been overevaluated in the past. This decrease was not entirely offset by publication of the new catalogues, which in turn declining in favour of simple guides.

Catalogues of forest stations include, amongst other elements, a description and a key for identifying different forest ecosystems in a natural region. They are developed by scientists or academics, generally on the basis of the results of analyses of the topography and landforms, climatic characteristics, types of rock, soil, humus and vegetation composition. It was felt that these catalogues should be transformed into clear and easy to use tools that could help forest managers in making accurate ecological analyses of their forest stations—a prerequisite for sustainable management. Guides were thus drawn up to facilitate identification of forest stations and species—they summarise knowledge in the form of site units with known potentials for the main forest species of one or several natural regions. These practical guides (attractive presentation, small size, simple and detailed scientific concepts), can provide forest managers with access to enhanced knowledge on natural production factors concerning their forests, thus facilitating decision making on the best species to plant in their forests stands. These guides are the only reference documents available for some regions when no catalogue of forest stations has been drawn up. The findings of studies carried out before these documents were drawn up and studies on the potentials of one (or several) species have also been published. A detailed updated list is presented on the NFI website, and most of the published documents can be downloaded at:
www.ifn.fr/spip/?rubrique160

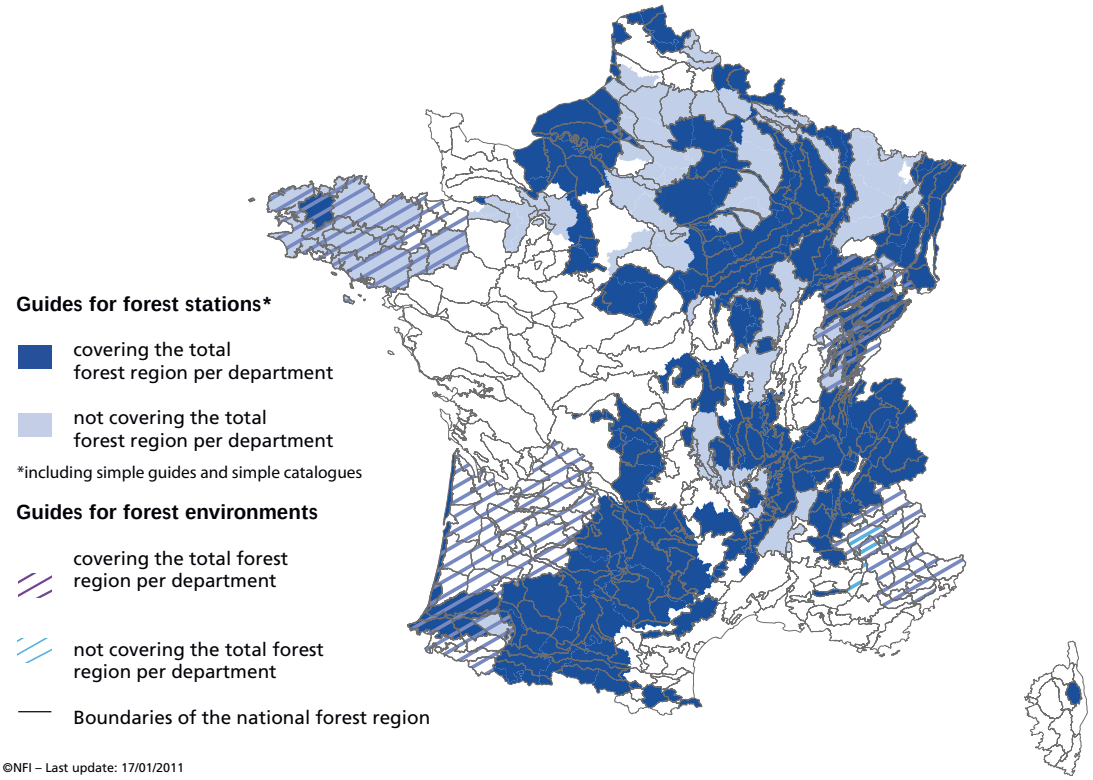
Half of the forest area in France, i.e. 7.3 million ha, is currently covered by a catalogue of forest stations (20% increase in 10 years), while more than 45% of the area is covered by a simple guide (91% increase over the same period). The guides are thus being published at a much faster pace than the catalogues, which is very encouraging with respect to applying sustainable development concepts in the field. This progress has been more substantial in regions with the harshest forest production conditions, i.e. mountain areas, the Mediterranean region, or areas with a low afforestation rate: northern France.

However, regions for which a forest station classification is available generally have a mean forest cover of 30%, which is higher than the national average. This trend indicates that—apart from the Gascogne region, for instance, for which no classification tool is available to date—the interest generated by the forest station catalogues is generally higher in the most forested regions. This clearly highlights the willingness of public and private managers to conduct ecological analyses as part of their everyday forest management activities.



Map 16: Catalogues of stations available per forest region. Situation in late 2010.

Source: NFI.



Map 17: Simple species guides available per forest region. Situation in late 2010.

Source: NFI.