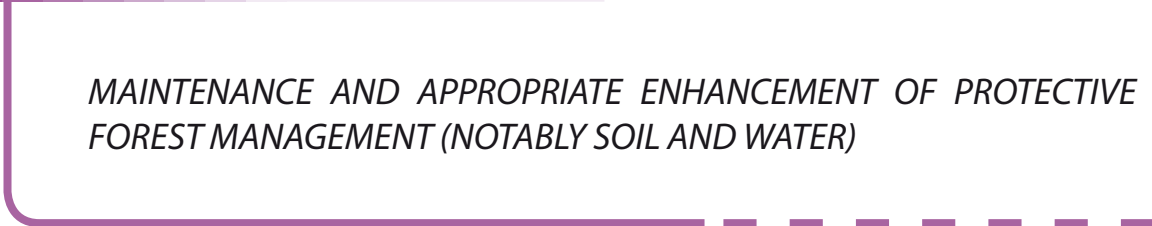







## Criterion 5

*MAINTENANCE AND APPROPRIATE ENHANCEMENT OF PROTECTIVE FUNCTIONS IN FOREST MANAGEMENT (NOTABLY SOIL AND WATER)*



## Indicator 5.1

*Areas of forest and other wooded land designated to prevent soil erosion, to preserve water resources, or to maintain other forest ecosystem functions, part of the MCPFE Class 'Protective Functions'*

A relatively high number of private forests fulfil protective functions, but no specific data are available on this topic. However, only a part of public forests fulfil this role, as a principal function or jointly with production.

### ■ Physical protection (soil and water) in public forests

State-owned areas (including allocated state-owned areas)													
	Total area (1,000 ha)						Forest area (1,000 ha)						Percentage forest 2004
	1990*	1994*	1999*	2004	2005	2009	1990**	1994	1999	2004	2005	2009	
Production and protection	233	238	238	241	247	253	198	202	202	205	207	211	0.85
Protection	132	136	142	144	146	152	78	80	84	85	89	88	0.59
<b>Total</b>	<b>276</b>	<b>373</b>	<b>380</b>	<b>385</b>	<b>393</b>	<b>405</b>	<b>276</b>	<b>282</b>	<b>286</b>	<b>290</b>	<b>296</b>	<b>299</b>	
Areas governed by local communities													
	Total area (1,000 ha)						Forest area (1,000 ha)						Percentage forest 2004
	1990*	1994*	1999*	2004	2005	2009	1990**	1994	1999	2004	2005	2009	
Production and protection	440	461	507	564	568	581	387	406	446	495	499	495	0.88
Protection	144	161	212	236	248	252	95	106	140	156	166	169	0.66
<b>Total</b>	<b>584</b>	<b>622</b>	<b>719</b>	<b>800</b>	<b>816</b>	<b>833</b>	<b>482</b>	<b>512</b>	<b>586</b>	<b>651</b>	<b>665</b>	<b>664</b>	
Total areas governed by forestry regulations													
	Total area (1,000 ha)						Forest area (1,000 ha)						Percentage forest 2004
	1990**	1994*	1999*	2004	2005	2009	1990**	1994	1999	2004	2005	2009	
Production and protection	673	699	744	805	815	834	585	608	648	700	706	706	0.87
Protection	276	296	354	380	394	404	173	186	224	241	255	258	0.63
<b>Total</b>	<b>949</b>	<b>995</b>	<b>1 099</b>	<b>1 185</b>	<b>1 209</b>	<b>1 238</b>	<b>758</b>	<b>794</b>	<b>872</b>	<b>941</b>	<b>961</b>	<b>964</b>	

Data rounded off to thousand ha, extrapolated by ONF agency before consolidation.

\* including state-owned forests allocated to various ministries; application of the afforestation rate in the area of the two concerned series in 2004.

\*\* data obtained by linear extrapolation

Source: ONF, for all wooded land governed by forestry regulations; the percentage of wooded land in the total area for 2004 was applied to the total areas for 1994 and 1999. Data FRT/SER, late March 2010 (2005 data for three agencies in state-owned lands and two agencies in local community lands), revised 2004 data (ex-Corsican state-owned forests accounted for in the forests of local communities and state-owned Chambord establishment accounted for with forests of the local communities from 2010).

Public forests, whose key function is to protect the physical environment, now cover an area of nearly 260,000 wooded ha, two-thirds of which is found on non-state-owned property. These are mainly mountain and coastal forests. This area has increased by 34,000 ha in 10 years, currently accounting for 6.4% of the total wooded area within public forests. The total protection area (wooded and non-wooded) currently covers close to 400,000 ha. It

also has a partial role in the protection of infrastructures and inhabitants against natural hazards, but it is impossible to differentiate these different functions—data presented in Indicator 5.1 thus partially overlap those of Indicator 5.2, for which no detailed data is available.

Public forests also include over 700,000 ha that serve a dual role as a source of wood supply while providing physical protection.

The French government has been rehabilitating mountain land since 1860. Under this policy it has been acquiring highly degraded areas and subsequently reforesting and developing them in order to boost their protective role. The Office national des forêts has set up mountain landscape rehabilitating services (RTMs) in 11 departments located in mountainous regions (Alps and Pyrenees). These RTMs conduct prevention activities in all public forests. They also provide support for local communities (expertise, work planning, technical assistance) and public security authorities.

A major programme to stabilise coastal dunes was also undertaken by the state in the 19<sup>th</sup> century, through afforestation, plant cover and civil engineering works. This large coastal area is currently managed by the Office national des forêts and includes 380 km of coastal dunes and 120 km of rocky coast.

Coastal environments are subject to very rapid natural dynamics (erosion, vegetation successions, etc.) and to considerable human pressure (urbanisation, tourism, etc.). Their management is no longer solely focused on dune protection, it also includes biodiversity and landscape protection initiatives.

Since 1975, the Conservatoire de l'espace littoral et des rivages lacustres has been actively acquiring highly threatened coastal sites.

Note: The steady increase in area managed with a focus on protection illustrates that the protection of inhabitants and infrastructures against natural hazards is being accounted for to an increasing extent. However, the 'protection' or 'protection and production' series do not solely concern physical protection, they also include forests classified as protection forests with respect to landscape and inhabitants' well-being (data cannot be differentiated), thus leading to a slight overestimation of this increase over the 1990-2009 period.

## ■ Drinking and mineral water quality protection

In 1994, around 200,000 ha of forest were found in drinking water reservoir protection zones that are clearly delineated in the landscape and have special easements. Moreover, almost 600,000 ha of forest are located within mineral water spring protection zones and thus have a specific role in water quality protection, without any special forest management requirements.

In December 2010, 60.5% of water extraction facilities at around 34,000 water reservoirs have protection areas that were delineated by a public utility declaration decree, representing 68.9% of the extracted water volume (18.5 Mm<sup>3</sup> of water is extracted per day).



Photo: J. Puseux/NFI

Mountain pine and Scots pine stands in Moudang valley (Hautes-Pyrénées region) serving to preserve water quality.

### Indicator 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'*

The proportion of forests specifically designated for the protection of infrastructures and managed natural resources against natural hazards is currently unknown. These forests are partially accounted for in Indicator 5.1 since erosion control, especially in mountain regions, also provides protection for infrastructures and inhabitants against potential floods and landslides, etc.

Since 1995, the French Ministry of the Environment has been drawing up predictable natural hazard prevention plans (PPRN). Under these PPRNs, natural hazard zones are mapped and regulations are enforced for all existing and future urbanism, construction and management initiatives: 'red zones' where new constructions are prohibited and 'blue zones' where they are allowed subject to special requirements. Prevention, protection and safety measures to be taken by inhabitants and territorial communities are also drawn up. Although flooding is the most prevalent natural hazard in France, PPRNs can take all potential hazards into account (including landslides, avalanches, earthquakes, forest fires, etc.).

On 1 January 2010, 7,500 PPRNs were approved in France, including 80% for flood hazards, for 12,000 set out. In addition, the French Ministry of the Environment is coordinating the development of mountain hazard databases along with permanent avalanche monitoring systems.

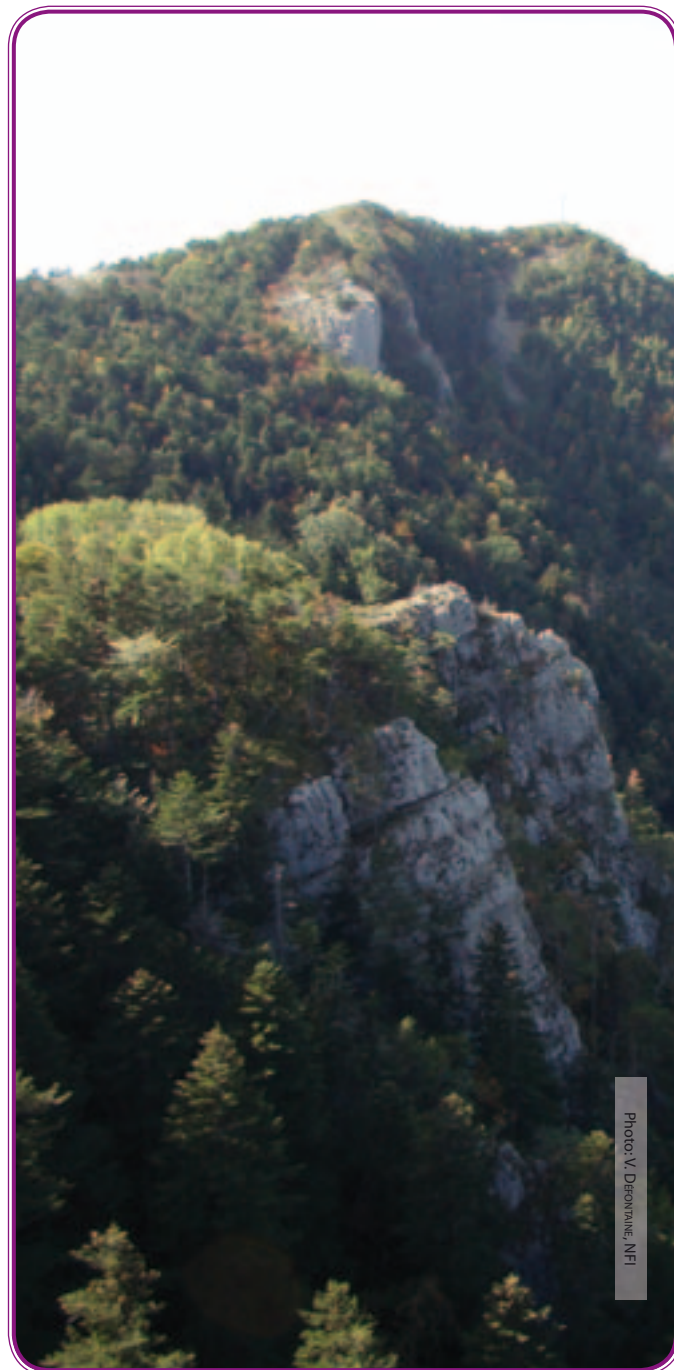


Photo: V. DEFRAYNE, NFI

A forest stand in the Alps with a natural hazard protection role.