



Criterion 5

Protective functions of forests



Criterion summary

Criterion goals

Sustainable management Criterion 5 focuses on the protective functions of forests. Forests, by their very presence and operation, protect the natural resources within them, especially the soils and water which are the foundation of their functioning. Thus, the land protection of forests protects by definition the functions of the ecosystem. The protection level provided by forests is even clearer when they are used to protect human interests (protection of people, infrastructures, crops, etc.) against natural risks (avalanche, erosion, falling blocks, landslides, etc.). Criterion 5 focuses on all the protective functions provided by forests.

Analysis

Some forests set protection as a priority management objective. This is true of forests with surface areas stated in Indicator **5.1**. Given the non-availability of all potentially relevant data, Table 5.1.a includes only forests governed by special protection status (protection forests, forests in nature or coastal areas covered by protection agencies, forests within the drinking water catchment or mountain restoration perimeters).

The 350,000 hectares of forests dedicated to protection are therefore estimated by default: for example, no surface area of non-State-owned forests within a drinking water catchment perimeter is counted despite falling directly under this Indicator. In addition, a certain number of forests have a protection management objective without having a special legal status, but no statistics are available on this topic. For example, some State-owned forests outside mountain land restoration perimeters also play a major protective role. Then, without it being a priority management objective, forests all help to protect ecosystem functions by their very nature (recycling of minerals, absorption of carbonic gas, protection of the water quality, carbon storage, etc.) and to protect against natural risks (soil erosion through runoff, leaching, desertification, etc.).

Outlook

It could be interesting to acquire some information which could potentially feed new indicators: forest areas sensitive to fires and affected by the forest defenses against fire (raging or repeated fires which damage soils and ecosystems), forest areas with soils especially vulnerable to erosion, link between the forest canopy and the quality of water courses, etc.

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Purpose of the indicator

In addition to Indicator 4.9 (forests and wooded lands protected for the biodiversity), Table 5.1.a shows the forest and other wooded lands areas in category 3 according to the definition of the process of Ministerial Conferences on the Protection of Forests in Europe (MCPFE, 2003). Category 3 includes forest areas where the main management objective is either to protect the ecosystem functions (maintaining water and soil quality, etc.) or to protect infrastructures and agricultural resources against natural risks. The protection of people is also considered in constructing this table despite not being mentioned in the MCPFE definition.

Only surfaces meeting this definition but with a protection status are considered here due to a lack of available information on the forests with a main protection management objective without for all that having special status. The forest surfaces falling under each status considered are given in Table 5.1.a.

This indicator is therefore used to assess the actions by the public authorities to protect specifically the ecosystem functions, humans, infrastructures and agricultural resources by maintaining a wooded cover.

Results

5.1.a. Forests dedicated to protecting the ecosystem functions and to protecting property and people against natural risks

MCPFE protection category	Protected areas	2010	2015	2015
		Area (ha)		
		Forests	Woodeed lands	
3	Mountain protection forests	49,952	49,952	n.a.
3	Dune protection forests	13,115	13,115	n.a.
3	Peri-urban protection forests	80,459	80,976	n.a.
3	Natural area protection agencies	n.a.	6,658	906
3	Coastal protection agencies	n.a.	32,604	16,419
3	State-owned forests in the immediate and nearby perimeters of drinking water catchment areas	43,000*	44,800	n.a.
3	State-owned forests in the mountain land restoration perimeters: surface areas at high, medium or low risk		130,000	
3	...including high-risk areas	n.a.	30,000	n.a.
3	...including medium-risk areas	n.a.	45,000	n.a.
3	...including low-risk areas	n.a.	55,000	n.a.

Sources: *Maaf* (2010, 2013) for the protection forests in the meaning of Articles L141-1 to L141-7 of the Forest Code, *INPN and IGN* (2015) for the coastal and natural area protection agencies, *ONF* (2011 and 2015) for State-owned forests in the immediate and nearby perimeters of drinking water catchment areas, *ONF* (2015) for forests in the mountain land restoration perimeters (L142-7 of the Forest Code).

Clarifications:

n.a.: data not available

* The 2010 value for the for drinking water catchment area perimeters is 2011 data.

For the 2015 value of forest areas in the natural area and coastal protection agency sites, the INPN layers dated respectively from 21 December 2011 and 20 February 2015. They are cross referenced with the forest layer formed from the BD Forêt® V2 and "végétation express" as per the departments (all forests and other wooded lands of more than 0.5 ha), mean year for photos 2008 (see Appendix 4). 2015 is therefore a calculation year, as the mean year for data is slightly less.

There is little if any double counting between forests classed as mountain "protection forests" and RTM State-owned forests.

The wooded areas in the drinking water catchment protection perimeters in State-owned forests can include areas which are only slightly wooded, if at all. Surface areas given in the mountain land restoration perimeters are wooded areas.

■ Analysis

Forests in Category 3 of the process of Ministerial Conferences on the Protection of Forests in Europe are those with protection functions as a management priority. However, it has not been possible to identify all metropolitan forests in this situation. Failing that, only those with special protection status are considered: they account for about 350,000 hectares of forest.

According to the definition of Category 3 of the process of Ministerial Conferences on the Protection of Forests in Europe, Table 5.1.a is intended to be filled in with the surface areas of all forests with this function as a management priority. As this information is unavailable, by default only the surface areas with special legal status (and falling under Category 3) are considered: protection forests in the meaning of the Forest Code, forests in the natural or coastal area protection agency sites and State-owned forests within the drinking water catchment perimeters or the mountain land restoration perimeters.

The legal status of **protection forests** was created in 1922 to combat soil erosion in mountains, natural risks (avalanches, landslides, etc.) and water and sand invasion in coastal areas. The classification reasons, limited originally to combating erosion, defense against avalanches and water and sand invasion, were extended in 1976 to the ecological value of forest ecosystems and to the welfare of populations.

The protection forest classification, governed by the Forest Code, is currently the most solid legal tool for the protection of forests threatened for one reason or another. The classification falls under a centralized procedure of the agriculture Ministry in charge of forests and is decreed in the *Council of State*. It creates a national urban planning easement which is included in the local urban planning scheme. It submits forests to special forestry regulations which restrict the possibilities of land clearance and building of infrastructures. Forest management taking account of issues to be protected is nevertheless possible.

In 2015, the mountain protection forests accounted for nearly 50,000 hectares, dune protection forests covered about 13,000 hectares and peri-urban protection forests nearly 81,000 hectares. They can be public or private forests. The protection forest areas have changed little between 2010 and 2015: only peri-urban forest areas have increased by about 500 hectares after inclusion of the Kreuzwald massif in 2012. The protection from "dune" or "mountain" forests helps to protect the soil and combat natural risks whereas the protection from peri-urban forests is land protection ensuring the survival of other ecosystem functions and thus the welfare of populations.

The State-owned forests in the **mountain land restoration perimeters** known as "RTM" are also included in this indicator. They date back to the end of the 19th century, when the first law on mountain reforestation was promulgated on 28 July 1860, supplemented by the 1864 Law on the re-grassing

of mountains and then the 1882 Law on mountain restoration. The perimeters in question came under a "danger arisen and current", i.e. the active rill erosion threatening people and traditional economic activities. The land was then acquired amicably or expropriated.

To date, nearly 390,000 hectares of land have thus been acquired by the State under the RTM. Voluntary reforestation was staggered from 1860 to the end of the 1970s. Coupled with natural reforestation, the forest stands now cover 240,000 ha, low plant formations (less than 3 meters tall) 80,000 ha and bare land 70,000 ha.

An assessment of the risk faced nowadays by the RTM forests was recently carried out at the request of the Ministry for Forestry. A map cross referencing the hazards with the issues showed that 12% and 19% respectively of RTM State-owned forest stands can play a role in preventing a high and medium risk. The corresponding surface areas of 30,000 and 45,000 ha have been adopted for this purpose in this indicator. Forest stands with a low risk account for 55,000 ha. Lastly, certain forest areas included in the RTM perimeters in fact have no natural risk as some RTM land was reforested under a declaration of public utility for major works to employ local labor and not really to restore land. These surface areas are not included in Table 5.1.a.

The same mapping work of hazards and issues will be extended to all State-owned forests, with some also confronted by high-risk situations with a proven protective role.

Category 3 also includes wooded lands under land protection through the action of **nature or coastal area protection agencies** and areas included in the **drinking water catchment perimeters** in State-owned forests only (lack of information on the other ownership categories). Land protection under the protection agencies is considered to protect the ecosystem functions whereas the drinking water catchment perimeters are clearly dedicated to protecting the water.

■ Data sources and methodology

◆ Producer of data

National Institute of Geographic and Forestry Information (IGN) – <<http://inventaire-forestier.ign.fr>>

National Inventory of the Natural Heritage (INPN/MNHN) – <<https://inpn.mnhn.fr>>

Ministry of Agriculture, Agrifood and Forestry -

<<http://agriculture.gouv.fr/foret-et-industries-du-bois/foret-et-industries-du-bois>>

National Forest Office (ONF) – <<http://www.onf.fr>>

◆ Methodology

For protected areas with a geographical information layer on the website of the *National Inventory of the Natural Heritage* (coastal protection agency sites, sites acquired by natural area protection agencies), the forest and other wooded land areas are calculated by cross referencing it with the IGN forest mapping database. The values in Table 5.1.a therefore involve exclusively the wooded surface areas or heathlands planted with trees on protection agency sites.

For the protection forests in the meaning of the Forest Code, the forest areas are given by the *Ministry of Agriculture, Agrifood and Forestry*. The areas for State-owned forests within the mountain land restoration perimeter or the immediate perimeter and near to drinking water catchment areas are given by the *National Forest Office*. They can sometimes contain elements ancillary to the forest (path, ponds even heathland planted with trees).

The original definition of the process of Ministerial Conferences on the Protection of Forests in Europe is as follows:

MCPFE Class 3: Main Management Objective "Protective Functions"

- *The management is clearly directed to protect soil and its properties or water quality and quantity or other forest ecosystem functions, or to protect infrastructure and managed natural resources against natural hazards*
- *Forests and other wooded lands are explicitly designated to fulfill protective functions in management plans or other legally authorized equivalents*
- *Any operation negatively affecting soil or water or the ability to protect other ecosystem functions, or the ability to protect infrastructure and managed natural resources against natural hazards is prevented*

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