



Riparian Forest Corridor (WP 6)



It's better to work for connectivity than against fragmentation.

The idea behind it is to figure out that we could only win if we moved beyond reacting to bad proposals and put forward a positive proposal—a corridor design.

Conceptual steps for designing wildlife corridors (Beier, P. et al.)
(corridordesign.org)

What to connect: defining the analysis area.

Riparian Forest Fitness Check to test viability of riparian forests as ecocorridor from the Black Forest to the Black Sea - ***State of Forests and Sustainable Forest Management***

GAP analysis - to identify bottlenecks in the Danube riparian forest corridor.

GAP - an area where connectivity between wildland areas is at risk.

Improved Pan-European Criteria and Indicators for SFM - quantitative indicators (Lisbon, 1998, Vienna 2002, Madrid, 2015)

C 1: Forest Resources and Carbon

**C 2: Maintenance of Forest Ecosystem Health
and Vitality**

**C 3: Productive Functions of Forests (Wood
and Non-Wood)**

C 4: Biological Diversity in Forest Ecosystems

**C 5: Protective Functions in Forest
Management**

C 6: Socio-economic functions and conditions

34 quantitative indicators
+ 11 qualitative indicators
(total 45 indicators)

Adopted by MCPFE (The Ministerial Conference on the Protection of Forests in Europe)

The current set of C&I represents the consensus achieved by European countries on the most important aspects of SFM and provide guidance for developing policies and help assess progress on sustainable forest management.

Question 1: What is the area of forest and other wooded land and how has it changed over time?

1.1 Forest area

1.2 Area of other wooded land

1.3 Area of other land

1.3.1 ...of which with tree cover

1.4 Inland water bodies

1.5 Total country area

1.6 Forest expansion

1.6.1 ...of which afforestation

1.6.2 ...of which natural expansion of forest

1.7 Deforestation

1.7.1 ...of which human induced

1.8 Reforestation

1.8.1 ...of which artificial

Landscape pattern

Landscape-level spatial
pattern of forest cover

Share of forest in
total/region land area

Fragmentation of forest in
total/region land area
(infrastructure)

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.
Other wooded land (OWL)	Land not defined as “Forest”, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not defined as “Forest” or “Other wooded land”.

Question 2: What is the area of natural and planted forest and how has it changed over time?

2.1 Primary forest

2.2. Other naturally regenerated forest

2.2.1 ...of which introduced species

2.2.1.1 ...of which naturalized

2.3 Planted forest

2.3.1...of which introduced species



Question 2: What is the area of natural and planted forest and how has it changed over time?

Category	Definition
Primary forest	Naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
...of which of introduced species (sub-category)	Other naturally regenerated forest where the trees are predominantly of introduced species.
...of which naturalized (sub-sub category)	Other naturally regenerated forest where the trees are predominantly of naturalized introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
...of which of introduced species (sub-category)	Planted forest, where the planted/seeded trees are predominantly of introduced species.

Question 3: What are the stocks and growth rates of the forests and how have they changed?

- 3.1 Forest growing stock**
 - 3.1.1 ...of which coniferous**
 - 3.1.2 ...of which broadleaved**
- 3.2 Other wooded land growing stock**
 - 3.2.1 ...of which coniferous**
 - 3.2.2 ...of which broadleaved**
- 3.3 Volume of top **x** species**
- 3.4 Net annual increment**
 - 3.4.1 ...of which coniferous**
 - 3.4.2 ...of which broadleaved**
- 3.5 Above-ground biomass**
- 3.6 Below-ground biomass**
- 3.7 Dead wood**
- 3.8 Carbon in above-ground biomass**
- 3.9 Carbon in below-ground biomass**
- 3.10 Carbon in dead wood**
- 3.11 Carbon in litter**
- 3.12 Soil carbon**

Category	Definition
Growing stock	Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches.
Net annual increment (NAI)	Average annual volume of gross increment over the given reference period less that of natural losses on all trees, measured to minimum diameters as defined for "Growing stock".
Above-ground biomass	All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
Below-ground biomass	All biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood	All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in above-ground biomass	Carbon in all living biomass above the soil, including stem, stump, branches, bark, seeds, and foliage.
Carbon in below-ground biomass	Carbon in all biomass of live roots. Fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in litter	Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g. 10 cm), lying dead in various states of decomposition above the mineral or organic soil.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a soil depth of 30 cm.

Question 4: What is the status of forest production and how has it changed over time?

4.1 Production forest

4.2 Multiple use forest

4.3 Value of most important commercial NWFP

4.4 Total wood removals (wood consumption)

Area managed for conservation and utilisation of forest tree genetic resources (in situ and ex situ gene conservation) and area managed for seed production.



Question 4: What is the status of forest production and how has it changed over time?

Category	Definition
Production forest	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Multiple use forest	Forest area designated for more than one purpose and where none of these alone is considered as the predominant designated function.
Total wood removals	The total of <u>industrial round wood removals</u> and <u>woodfuel removals</u> .
...of which woodfuel	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

Question 5: How much forest area is managed for protection of soil and water and ecosystem services?

5.1 Protection of soil and water

5.1.1...of which production of clean water

5.1.2...of which coastal stabilization

5.1.3... of which desertification control

5.1.4... of which avalanche control

5.1.5...of which erosion, flood protection or reducing flood risk

5.1.6...of which other

5.2 Ecosystem services, cultural or spiritual values

5.2.1... of which public recreation

5.2.2... of which carbon storage or sequestration

5.2.3... of which spiritual or cultural services

5.2.4... of which other

Number of sites within forest, other wooded land and other land with tree cover designated as having cultural or spiritual values

Protective forests – infrastructure and managed natural resources

Question 5: How much forest area is managed for protection of soil and water and ecosystem services?

Category	Definition
Protection of soil and water	Forest area designated or managed for protection of soil and water.
...of which production of clean water (sub-category)	Forest area primarily designated or managed for water production, where most human uses are excluded or heavily modified to protect water quality.
...of which coastal stabilization (sub-category)	Forest area primarily designated or managed for coastal stabilization.
...of which desertification control (sub-category)	Forest area primarily designated or managed for desertification control
...of which avalanche control (sub-category)	Forest area primarily designated or managed to prevent the development or impact of avalanches on human life, assets or infrastructure.
...of which erosion, flood protection or reducing flood risk (sub-category)	Forest area primarily designated or managed for protecting communities or assets from the impacts of erosion, riparian floods and landslides, or for providing flood plain services.
...of which other (sub-category)	Forest area primarily designated or managed for other protective functions.

Question 6: How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?

6.1 Conservation of biodiversity

6.2 Forest area within protected areas

Number of threatened forest species, classified according to IUCN Red List categories in relation to total number of forest species

Number of threatened forest species, in relation to total number of forest species, in forest

Question 6: How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?

Category	Definition
Conservation of biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.

Question 7: What is the forest area affected by woody invasive species?

7.1 List of woody invasive species

7.2 Area of forest affected by woody invasive species

Example: An appearance of American ash /*Fraxinus americana*.

Question 8: How much forest is damaged each year?

8.1 Total land area burned

8.1.1. ...of which forest area burned

8.2 Number of fires

8.2.1 ...of which forest fires

8.3 Area of forest damaged by outbreak of: insects, diseases and severe weather events

Forest damage by abiotic factors, and by forest type

Forest damage by biotic factors, and by forest type

Forest damage by human, and by forest type



Question 8: How much forest is damaged each year?

Category	Definition
Number of fires	Number of fires per year.
Burned area	Area burned per year.
Outbreaks of insects	A detectable reduction in forest health caused by a sudden increase in numbers of harmful insects.
Outbreaks of diseases	A detectable reduction in forest health caused by a sudden increase in numbers of harmful pathogens, such as bacteria, fungi, phytoplasma or virus.
Severe weather events	Damage caused severe weather events, such as snow, storm, drought, etc.

Question 9: What is the forest area with reduced canopy cover?

9.1 Area of forest with reduced canopy cover

Canopy cover below **70%** can be considered as reduced.

Defoliation of one or more main tree species on forest, other wooded land and other land with tree cover in each of the defoliation classes “moderate”, “severe” and “dead”

Question 10: What forest policy and regulatory framework exists to support implementation of SFM?

10.1 Policies supporting sustainable forest management

10.1.1 ...of which in publicly owned forests

10.1.2 ...of which in privately owned forests

10.2 Legislation and regulations supporting sustainable forest management

10.2.1 ...of which in publicly owned forests

10.2.2 ...of which in privately owned forests

Question 11: Is there a national or local platform that promotes stakeholder participation in forest policy and decision making?

11.1 National or local stakeholder platform.



Question 12: What is the forest area intended to be in permanent forest land use and how has it changed?

12.1 Forest area intended to be in permanent forest land use

12.1.1 ...of which permanent forest estate

Question 12: What is the forest area intended to be in permanent forest land use and how has it changed?

Category	Definition
Forest area intended to be in permanent forest land use	Forest area that is designated or expected to be retained as forest and is highly unlikely to be converted to other land use.
...of which permanent forest estate (sub-category)	Forest area that is designated by law or regulation to be retained as forest and <u>may not</u> be converted to other land use.

Question 13: How does your institution measure and report progress toward SFM at the level of protected area?

13.1 National forest inventory monitoring forest area

13.2 Other field assessments monitoring forest area

13.3 Updates to other sources monitoring forest area

13.4 National expert estimate monitoring forest area

13.5 Types of forest reporting progress used at protected area scale

13.5.1 Criteria and indicators reporting

13.5.2 Periodic state of the forest reporting

13.5.3 Other

13.5.4 None

Question 14: What is the area of forest under a forest management plan and how is this monitored?

14.1 Forest area with management plan

14.1.1 ...of which for production

14.1.2 ...of which for conservation

14.2 Monitoring of forest management plans

14.2.1 Soil and water management

14.2.2 High conservation value forest delineation

14.2.3 Social consideration/community involvement

14.3 Percent of area under forest management plan that is monitored annually

Question 15: How are stakeholders involved in the management decision making for publicly owned forests?

15.1 Type of stakeholder inputs

15.1.1 Planning phase

15.1.2 Operations phase

15.1.3 Review of operations

Stakeholder involvement is defined as significant inputs into at least one aspect of forest management at the operational scale.

Question 16: What is the area of forest under an independently verified forest management certification?

16.1 Area of forest certified under an international scheme

16.1.1 ...of which for FSC

16.1.2 ...of which for PEFC

16.2 Domestic forest management certification



Question 16: What is the area of forest under an independently verified forest management certification?

Category	Definition
FSC certification	Forest area certified under the Forest Stewardship Council certification scheme.
PEFC certification	Forest area certified under the Programme for the Endorsement of Forest Certification scheme.
Other international forest management certification	Forest area certified under an international forest management certification scheme with published standards and is independently verified by a third-party, excluding FSC and PEFC certification.
Certified forest area using a domestic forest management certification scheme	Area certified under a forest management certification scheme with published standards that are nationally recognized and independently verified by a third-party.

Question 17: How much money do governments collect from and spend on forests?

17.1 Forest revenue

17.2 Public expenditures on forests



Question 17: How much money do governments collect from and spend on forests?

Category	Definition
Forest revenue	<p>All government revenue collected from the domestic production and trade of forest products and services. For this purpose revenue include:</p> <p><u>Goods</u>: roundwood; sawnwood; biomass; wood-based panels; pulp and paper; and non-wood forest products.</p> <p><u>Services</u>: including concession fees and royalties, stumpage payments, public timber sales revenue, taxes and charges based on forest area or yield, taxes on domestic trade and export of forest products, special levies on forestry activities and payments into forest-related funds, other miscellaneous inspection, licence and administrative fees levied by forest administrations, permit and licence fees for recreation and other forest related activities</p>
Public expenditure on forestry	All government expenditure on forest related activities.

Question 18: Who owns and manages the forest and how has this changed?

18.1 Public ownership

18.1.1 ...of which owned by the state at national scale

18.1.2 ...of which owned by the state at the sub-national government scale

18.2 Private ownership

18.2.1 ...of which owned by individuals

18.2.2 ...of which owned by private business entities and institutions

18.2.3 ... of which owned by local, tribal and indigenous communities

18.3 Unknown ownership

18.4 Holder of management rights of public forests -Public administration

18.5 Holder of management rights of public forests - Individuals

18.6 Holder of management rights of public forests -Private companies

18.7 Holder of management rights of public forests -Communities

18.8 Holder of management rights of public forests -Other

Category	Definition
Public ownership	Forest owned by the State; or administrative units of the public administration; or by institutions or corporations owned by the public administration.
...of which owned by the state at national scale (sub-category)	Forest owned by the State at the <u>national scale</u> ; or administrative units of the public administration; or by institutions or corporations owned by the public administration.
...of which owned by the state at the sub-national government scale (sub-category)	Forest owned by the State at the <u>sub-national government scale</u> ; or administrative units of the public administration; or by institutions or corporations owned by the public administration.
Private ownership	Forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, private religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
...of which individuals (sub-category)	Forest owned by individuals and families.
...of which private business entities and institutions (sub-category)	Forest owned by private corporations, co-operatives, companies and other business entities, as well as private non-profit organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc.
...of which local, tribal and indigenous communities (sub-category)	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area or forest owned by communities of indigenous or tribal people. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development.
Unknown ownership	Forest area where ownership is unknown, includes areas where ownership is unclear or disputed.

Question 19: How many people are directly employed in forestry?

19.1 Employment in forestry

19.1.1 ...of which female

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment in forestry	Employment in activities related to production of goods derived from forests. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

Question 20: What is the contribution of forestry to Gross Domestic Product (GDP)?

20.1 Gross value added from forestry

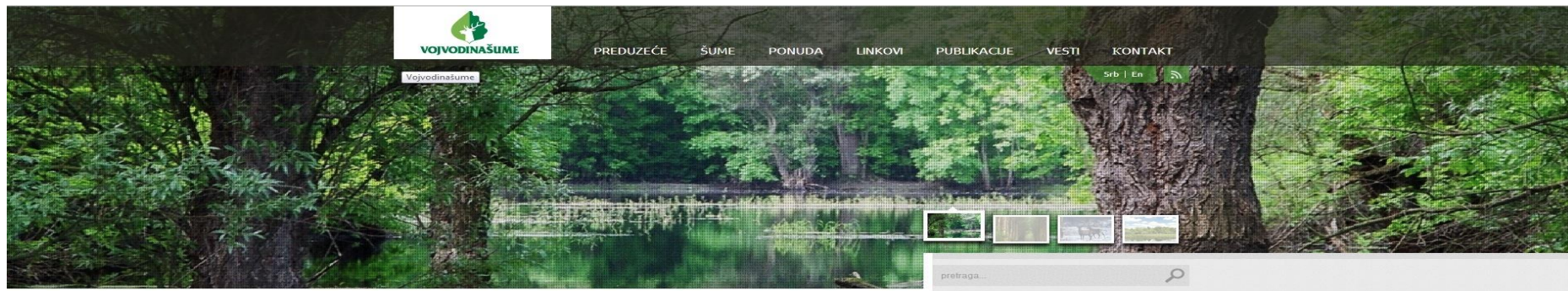
Category	Definition
Gross value added from forestry (at basic prices)	This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging)

Question 21: What is forest area likely to be in the future?

21.1 Government targets/aspirations for forest area in 2020 and 2030

21.2 Forest area earmarked for conversion

Category	Definition
Government target/aspiration for forest area	Government target/aspiration for forest area for a specific year.
Forests earmarked for conversion	Forest area that is allocated/classified or scheduled to be converted into non-forest uses.



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