Compliance of forest policy & practice related to requirements of SFM Pan European criteria 5

SUSTAINABLE FOREST MANAGEMENT, first initiatives

UN conference on environment and development (UNCED), RIO 1992, Earth Summit; Representatives of 172 nations (Governments) present; 2.400 NGO's, 17.000 people participating on parallel forum of NGO's; Governments recognized the need to redirect international and national plans and policies to ensure that all economic decisions fully took into account any environmental impact. And the message has produced results, making eco-efficiency a guiding principle for business and governments alike.

Important documents for forestry:
-Agenda 21, global action plan for all areas related to sustainable development

http://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

-Rio Declaration on Environment and Development, set of principles defining rights and responsibilities of the parties (participating countries)
http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163

-Statement of Forest Principles, emphasizing the need for sustainable forest management worldwide
http://habitat.igc.org/agenda21/forest.htm

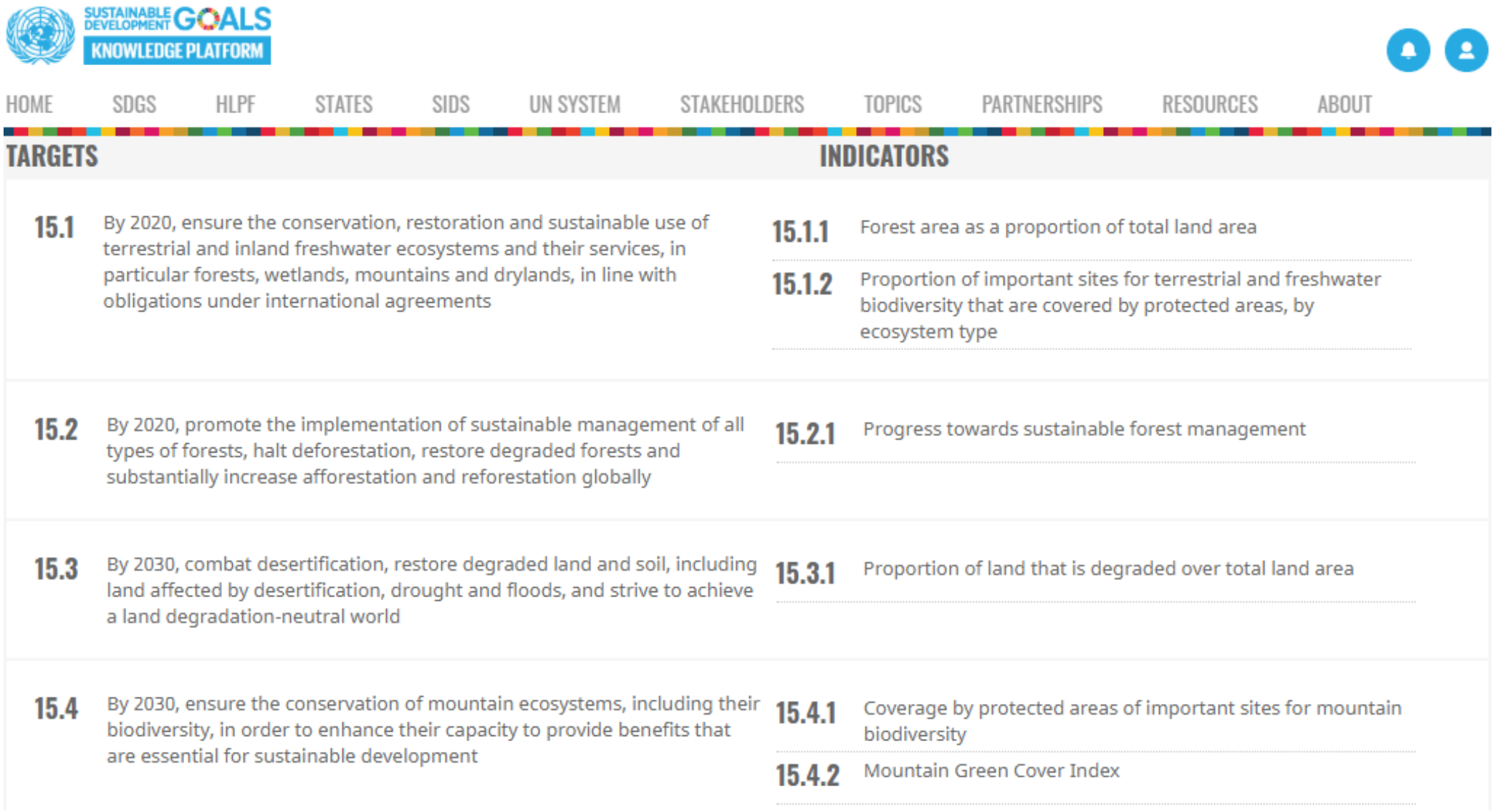
-United Nations Framework Convention on Climate Change;

-United Nations Convention on Biological Diversity

-United Nations Convention on Combating Desertification (1994)

UN Development Goals, 2015

UN Development Goals - Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss



Forest Europe

Forest Europe (Ministerial Conference on the Protection of Forests in Europe) is the pan-European voluntary high-level political process for dialogue and cooperation on forest policies in Europe. Forest Europe develops common strategies for its signatories on how to protect and sustainably manage their forests. Forest Europe has led to achievements such as the guidelines, criteria and indicators for sustainable forest management.

The political decisions and resolutions made under Forest Europe are voluntary, and by endorsing these commitments countries show their willingness and interest to protect and sustainably manage their forests.

Commitments endorsed by the ministers serve as a framework for implementing sustainable forest management in the European countries, adapted to their national circumstances and done in a coherent way with the rest of the region, and strengthen international cooperation at the same time.

A definition of SFM was developed by the Forest Europe in Helsinki, 1993. It defines sustainable forest management as: *“the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.”*

Forest Europe

The Helsinki conference (1993):
-reflected on the European approach to global environmental issues;
-emphasized the protection of biological diversity;
-addressed the consequences of possible climate change for the forest sector;

Forest Europe has recognized the need for global action based on the Agenda 21 objectives and the Statement of forest principles. Therefore, Forest Europe has put in action global efforts on sustainable management of forest by adopting *General Guidelines for SFM in Europe*.

Just after the RIO Earth Summit 1992!

RESOLUTION H1

General Guidelines for the Sustainable Management of Forests in Europe

The Signatory States and the European Community,

A. Recalling that the Signatory States and the European Community have endorsed the Rio Declaration and Agenda 21 and signed the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change at the United Nations Conference on Environment and Development in June 1992 and considering that they therefore recognise the need to reconcile the legitimate and sustainable use of wood and other forest products with all other functions of forests in the ecological and social conditions prevailing in Europe, and that the conservation and appropriate enhancement of biological diversity in all types of forests is an essential element in their sustainable management,

B. Recognising the non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests, as adopted by the 1992 United Nations Conference on Environment and Development, hereafter referred to as the Statement of Forest Principles,

C. Considering the objectives of sustainable management as stated in the Statement of Forest Principles: *viz.* "Forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural and spiritual human needs of present and future generations",

Forest Europe

Multiple roles of forests were broadly discussed and recognized at Lisbon conference 1998, and socio-economic aspects of sustainable forest management were given considerable emphasis.

ANNEX 1 of the resolution, L2 Pan-European Criteria and Indicators for Sustainable Forest Management.

ANNEX 2 of the resolution, L2 Pan-European Operational Level Guidelines for Sustainable Forest Management.

https://foresteurope.org/wp-content/uploads/2016/10/MC_lisbon_resolutionL2_with_annexes.pdf#page=4

Third Ministerial Conference on the Protection of Forests in Europe
2-4 June 1998, Lisbon/Portugal

RESOLUTION L2

Pan-European Criteria, Indicators and Operational Level Guidelines for Sustainable Forest Management

The Signatory States and the European Community,

A. Recalling the resolutions adopted at the Helsinki Ministerial Conference, namely in Resolution H1 "General Guidelines for the Sustainable Management of Forests in Europe" and Resolution H2 "General Guidelines for the Conservation of the Biodiversity of European Forests", and noting that pan-European criteria, indicators and operational level guidelines for sustainable forest management are based on Resolutions H1 and H2,

B. Acknowledging the co-operative work between the European countries and organisations in the formulation of criteria, describing the different aspects of sustainable

CRITERION 5. Maintenance and appropriate enhancement of protective functions in forest management (notably soil and water)

5.1 Guidelines for Forest Management Planning
a. Forest management planning should aim to maintain and enhance protective functions of forests for society, such as protection of infrastructure, protection from soil erosion, protection of water resources and from adverse impacts of water such as floods or avalanches.
b. Areas that fulfil specific and recognised protective functions for society should be registered and mapped, and forest management plans or their equivalents should take full account of these areas.
5.2 Guidelines for Forest Management Practices
a. Special care should be given to silvicultural operations on sensitive soils and erosion-prone areas as well as on areas where operations might lead to excessive erosion of soil into watercourses. Inappropriate techniques such as deep soil tillage and use of unsuitable machinery should be avoided on such areas. Special measures to minimise the pressure of animal population on forests should be taken.
b. Special care should be given to forest management practices on forest areas with water protection function to avoid adverse effects on the quality and quantity of water resources. Inappropriate use of chemicals or other harmful substances or inappropriate silvicultural practices influencing water quality in a harmful way should be avoided.
c. Construction of roads, bridges and other infrastructure should be carried out in a manner that minimises bare soil exposure, avoids the introduction of soil into watercourses and that preserve the natural level and function of water courses and river beds. Proper road drainage facilities should be installed and maintained.

Improved Pan-European Indicators for Sustainable Forest Management, Vienna 2002

C 5: Maintenance and Appropriate Enhancement of Protective Functions in Forest Management (notably soil and water)

Indicator 5.1: Area of forest and other wooded land designated to prevent soil erosion, to preserve water resources, or to maintain other forest ecosystem functions, part of MCPFE Class “Protective Functions”

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”

Protective functions of forests include the prevention and mitigation of soil erosion (especially on steep slopes or shallow soils), the protection of drinking water resources, the stabilization of stream banks or sand dunes, the protection of human infrastructures against avalanches and the reduction of noise, dust pollution, heat, winds etc.

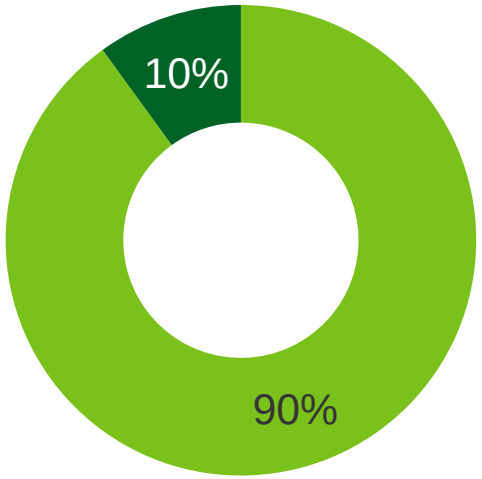
Voluntary based initiatives on global level: forest certification – Level up, NGO's initiative

After Rio Earth Summit there was no immediate response in legally binding instruments for SFM.

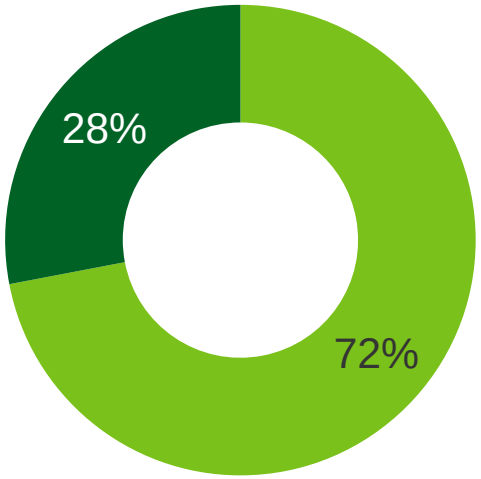
The first global initiative driven by WWF, Greenpeace and other NGO's has initiated process (1993) of voluntary certification for forest managers against global rules for sustainable management in forests – FSC (Forest Stewardship Council). They have presented certificates for the forest managers (sustainable forest management standard) and traceability of products origin for sustainable managed forest (chain of custody standard). Field checks on compliance by Standardisation Bodies accredited by ASI (Accreditation System International, FSC ownership).

The second initiative was raised in 1998 by the forest owners in Europe: France, Austria, Germany, Finland, Sweden and other. They have issued global rules for sustainable forest management (based on Forest Europe processes, Global conventions and ISO standardisation) named PEFC (Pan European Forest Certification). Later on, after joining of Canadian and USA stakeholders and recognition of their standards for SFM, PEFC has become global. PEFC (Programme for Endorsement of Forest Certification) is recognizing national standards that complies with global benchmarks of PEFC for sustainability. Field checks on compliance by Standardisation Bodies accredited by national accreditation bureaus, members of IAF (International Accreditation Forum).

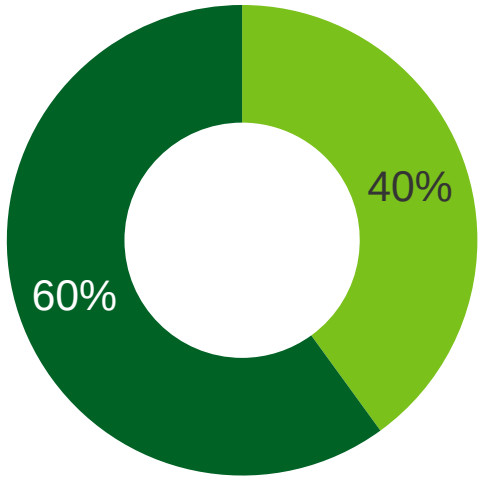
Forest certification globally



Around 10% of forests
in the world are certified



Around 28% of timbers
in the world are certified



60% are PEFC certified
40% are FSC certified

Initiatives that are not created by the Governments proves to work out. Still there is lot to do.

Both standards, PEFC and FSC are marketing tools.

They call on responsible producers, retailers and buyers as end users in supply chain.

The choice of buyers to buy certified products means I care for Earth.

Both PEFC and FSC are acknowledged systems in all public policies on responsible purchasing, such as those **adopted by the EU, Japan, Switzerland** and so forth.

FSC FORESTS FOR ALL FOREVER™

FOR CARDS
FULL OF LOVE,
FROM FORESTS
FULL OF LIFE.

CHOOSE FSC®

FSC

FORESTS FOR ALL
FOREVER
™

PEFC – YOUR ASSURANCE
OF RESPONSIBLE SOURCING




PEFC CHAIN OF CUSTODY

PEFC

PEFC certification recommends	common language	FSC certification recommends
Management plans considers different functions of the managed forest area.		Assess forest environmental values.
Forest protective functions shall be mapped, and management plans and operations shall ensure the maintenance or enhancement of these functions.		The management plan must include targets by which progress of management objectives will be monitored, including: -Water quality and quantity; -Soil erosion, compaction, fertility and carbon content;
In forest areas with water protection functions take special care to avoid adverse effects on the quality and quantity of water resources. Avoid use of chemicals or inappropriate silvicultural practices influencing water quality in a harmful way.		Monitoring to identify and describe the environmental impacts of management activities, including the impacts of infrastructural development, transport activities and silviculture to rare and threatened species, habitats, ecosystems, landscape values, water and soils.
Management, harvesting and regeneration operations shall be carried out at a time, and in a way, that does not reduce the productive capacity of the site, for example by avoiding damage to soil and retained stands and trees.		Identify, assess and prevent the risk of potential impacts of forest activities on the identified environmental values.
Role of forests in erosion control, flood prevention, water purification, climate regulation, carbon sequestration and other regulating or supporting ecosystem services shall be maintained or enhanced.		Prevent, mitigate and repair damages to water courses, water bodies, soils, rare and threatened species, habitats, ecosystems and landscape values by modifying of management activities.

What to do in practice?

Forest planning

Our expert knowledge in forest planning is not enough. Check spatial and other development plans, municipality strategies, community needs, water supply, sport and recreation, hunters, then make prioritization for management of forest resources. It is not only our plan, but many parties are also affected.

Careful planning. Asses the impact to forest resources, soil, water, landscape, tourism, …… Then ask feedback by directly affected stakeholders, consider their needs (opening roads, water supply, protection to settlements, tourism….)

Forest management for minimizing water pollution:

- Compulsory use of biodegradable chainsaw lubricants and oils in hydraulic machines in forests (Košir 2006);
- Prohibition of washing, maintenance and repair of forest mechanization in a forest (Trontelj 2006);
- Storage facilities for fuel and oil should be kept away from water courses and other water bodies (Mulkey 1980);
- Selective thinning should be performed in narrow riparian zones of forest to remove old and unstable trees. Strip of riparian vegetation (including trees and shrubs) should be established and maintained to prevent or mitigate pesticide and other pollutants in the freshwater (Binkley and Macdonald 1994).
- High concentrations of ash and dust must be avoided in close distance of water courses (Mulkey 1980).
- Use of heavy machinery on erodible soils should be minimized or avoided, in the riverbed prohibited (Mulkey 1980).

What to do in practice?

Use of appropriate techniques to minimize runoff:

- Promotion of uneven aged forest stands with dense canopy cover, diverse vertical structure and even distribution of growth-phases where it is possible (Frehner et al. 2005);
- Areas of bare land including areas under forest regeneration younger than 10 years should be less than 25% of the drainage basin (Twery and Hornbeck 2001);
- The canopy cover of all forest stands should be more than 70% in the whole drainage basin as well as in the riparian cone (Twery and Hornbeck 2001);

Flood development should be minimized through the precautionary forestry management approach. Precautionary measures for water retention in forests must consider the various site conditions, meteorological events, and the present state of the soil water balance. The efficiency of retention measures varies according to precipitation events and site features (e.g. intensive or continuous rainfall on dry soils with further water storage capacity vs. saturated soils, or on sites with dominantly deep percolation vs. subsurface flow).

Forest management appropriate activities for enabling quantity of drinking water

- Bann for clear cutting in the drainage basin of main sources;
- Bann for skidding and transport through the river streams;
- Frequency, intensity and technique of harvesting to be adopted to main forest purpose;
- Tree species composition, crown density, cover percentage, distribution of growth classes, vertical and horizontal stand structure to be adopted to enable more quantity of drinking water;

What to do in practice?

Use of appropriate activities to minimize erosion and sediment:

- Surface of the whole catchment area should be covered with vegetation. In areas with bare soils pioneer vegetation should be established; (Frehner et al. 2005)
- Continuous presence of natural regeneration, developing under shelter of adult trees; (Frehner et al. 2005)
- Old, unstable trees, fallen trunks, uprooted stumps should be removed from the riverbed and its immediate vicinity to prevent blocking the channel and flooding in the case of high waters; (Frehner et al. 2005)
- Landslides can be prevented with planting of tree species having deep root system to stabilize the soils as well as draining excessive water (ash, oak, maple, black alder); (Frehner et al. 2005)
- In the event of erosion, urgent preventive measures should be taken: no cutting, burning or damaging of upper soil layer at least 100 years after the event; (Twery and Hornbeck 2001)
- Working in dry weather (in spring or summer) can significantly decrease the risk of erosion near watercourses and drinking water collectors. (Nisbet 2001)
- With consent of local communities, water supply can be temporarily suspended if large-scale activities are performed in forest, thus preventing pollution of drinking water;

What to do in practice?

Recommendations related to erosion and sediments

- Principles of Eco-DRR to be used in erosion and torrent control.
- For erosion control everywhere where is it possible to be used native materials as: rock, gravel, sand, wood, straw, wood fibers, other or products by native materials as wattles, fascines, gabions, bags, blankets, straw rolls, mesh etc.
- Taking in consideration forecasted climate changes and negative consequences, for afforestation of bare land to be used fire resistant species.

What to do in practice? Parts of Macedonian PEFC standard for SFM (2020 revised version)!

Thematic area: Maintenance of forest resources in quantity, quality and structure	
Criterion No.	1.4.
Criterion description	Forest management techniques and practices in the medium and long term shall safeguard the quantity and quality of the forest resources to the level that is economically, ecologically and socially desirable. Maintenance of the balance of the forest resources is secured through application of adequate silviculture measures and techniques for work in forest that minimize direct or indirect damage to forest, soil and water resources.
Indicators	2. Selection of silviculture measures and performance techniques contribute to minimize the damage towards forest, soil and water resources.

Thematic area: Restrictions	
Criterion No.	2.3.
Criterion description	During forest harvesting, skidding and transport in forests, the risk of oil spillage is strictly avoided and indiscriminate disposal of waste. Non-organic waste is collected, temporary stored on designated locations for this purpose and later on disposed on locations designated for that purpose.
Indicators	1. Prescribed rules and measures for minimizing the risk of oil spillage and waste disposal are provided to conductors of forest operations and are implemented. 3. The existence of materials and absorbents for oil in the cutting area and in the forest machinery that is in use in forest operations.

What to do in practice? Parts of Macedonian PEFC standard for SFM (2020 revised version)!

Thematic area: Forestry activities and forest infrastructure	
Criterion No.	3.2.
Criterion description	Forest silviculture and regeneration measures are conducted by use of adequate techniques and technologies, in time and manner that support maintenance of productive capabilities of the forest habitat by avoiding un-necessary damage towards remaining forest trees in the stand as well towards soil layer in the forest. Usage of tools, mechanization and forest technique during activities in harvesting, extraction and transport are conducted with due attention to avoid unnecessary damage to trees remaining in the forest stand, soil and water flows. Activities are conducted according to provisions of operational plans, while their content depends on the size of the forest property.
Indicators	3. Utilization of the skidding technique that minimize the damage on soil layer. 4. Skidding is performed on network of skidding roads described in AEP.

What to do in practice? Parts of Macedonian PEFC standard for SFM (2020 revised version)!

Thematic area:: Forestry activities and forest infrastructure	
Criterion No.	3.3.
Criterion description	Construction of forest infrastructure (roads for transport and skidding, bridges and other objects) is performed in accordance with FMPs and their equivalents. Natural field configuration is used for avoiding unnecessary removal of soil layer and its spilling in water courses. During the construction of forest infrastructure measures are applied to preserve the natural level and function of water resources. Maintenance of the infrastructure is adequate and according with conditions and needs, with minimal negative impact on environment. Maintenance and drainage of forest roads is conducted according to plans and in accordance with the category of forest road. Therefore, more importance is given in rare, sensitive and representative ecosystems or genetic reserve stands, and on the pathways of migration of key or endangered animal species.
Indicators	1. Plan for construction and maintenance of forest road and other infrastructure with focus on the possible influence on ecosystem and migration corridors.

What to do in practice? Parts of Macedonian PEFC standard for SFM (2020 revised version)!

Thematic area: Forest protective functions	
Criterion No.	5.1.
Criterion description	Forest management planning shall aim to maintain and enhance protective forest functions, such as erosion protection; wind protection; protection of water resources; protection from harmful effect of water (floods, avalanches); and infrastructure protection. Forest of protective purposes are registered and mapped in Forest Management Plans or their equivalents. Silviculture and protection measures are adapted to maintain their protective function.
Indicators	1. Selection of silviculture and regeneration measures is in function of criterion request. 2. Existence of maps of forest areas with protective purpose. 3. Categorization of forest according to their main purpose.

What to do in practice? Parts of Macedonian PEFC standard for SFM (2020 revised version)!

Thematic area: Forest protective functions	
Criterion No.	5.2.
Criterion description	In forests exposed on risk from soil erosion, selection and implementation of measures for forest protection and silviculture is appropriate with their purpose and is aimed at protecting of the soil. In forest with water protection functions, special attention is given to implementation of forest practices in order to avoid negative impact on the water quantity and quality. Inappropriate chemical and harmful substances which has negative impact on the water quality are prohibited for use during activities in forests. In principle, forest management shall at least sustain and where possible aiming to improve identified forest ecosystem services relevant for the forest area.
Indicators	1. Selection of silviculture and regeneration measures in forests with protective purpose is in line with the criterion requirement. 2. Usage of adequate technology is in line with the criterion requirement. 3. Clear cut is forbidden in forests with a protective function, except in cases for forest rehabilitation due to extraordinary phenomena (fire, calamities, etc.) 4. It is prohibited the use of invasive techniques or use of heavy machinery which rupture and damage the soil layer in forests that are at risk of soil erosion or forests are of protective function. 5. Forest ecosystem services are recognized for the area and they are maintained.

What to do in practice?

Stream cross – avoid disturbance of natural water stream

Safety in manipulation with oil and fuel

Use biodegradable oil

Avoid use of heavy machinery

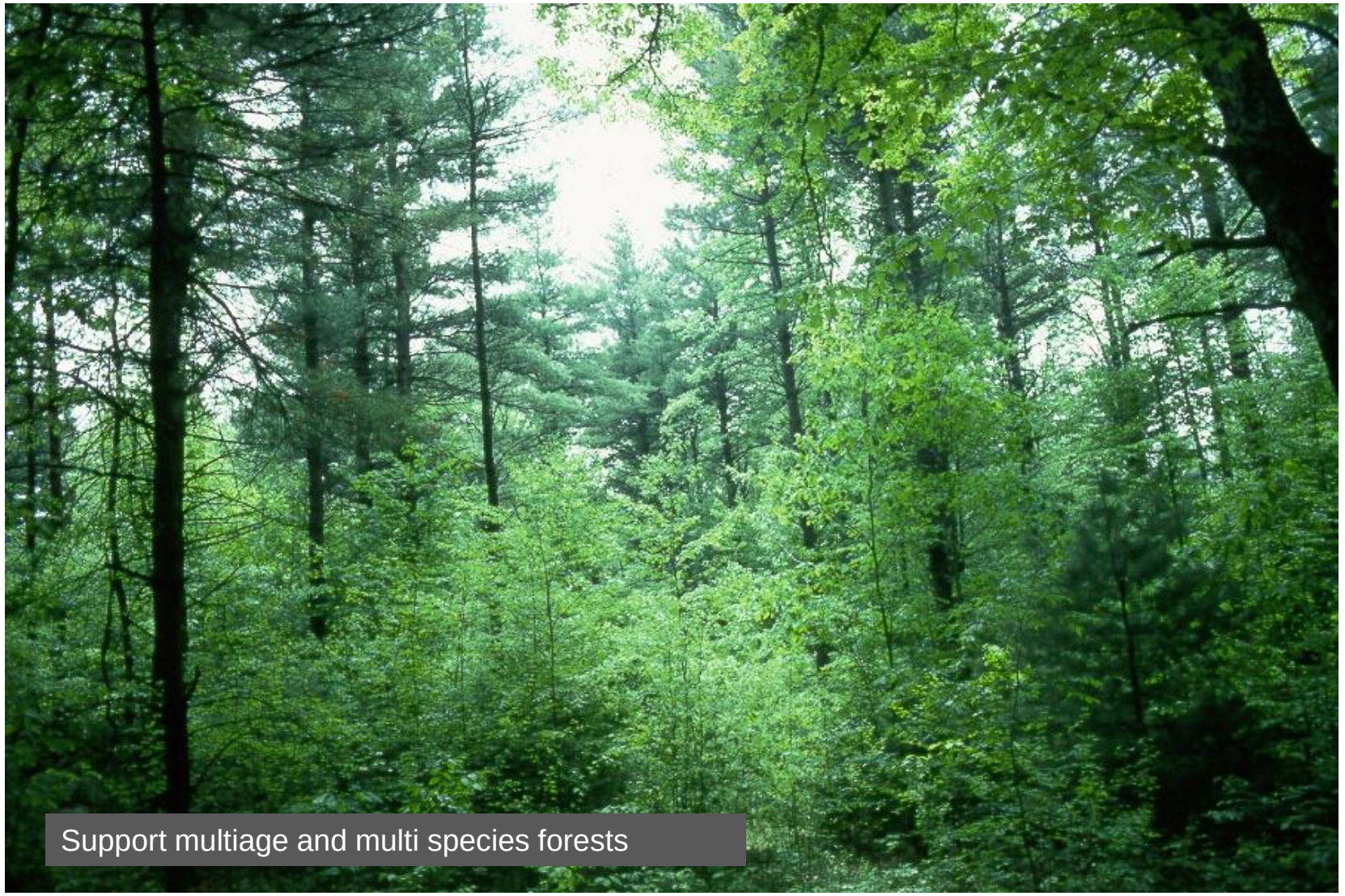
Avoid soil compaction

What to do in practice?

Use cable logging when possible

Plan and maintain roads network

What to do in practice?



.. “old" forest soils have a well-draining pore system with a high infiltration rate, with good water conductivity and therefore with a low tendency to surface runoff and with slow interflow (Huemann et al 2011).

A permanent forest cover composed of a structured successional mosaic of trees decreases the risk of runoff (BREDEMEIER and SCHÜLER 2004).

It is essential to mimic the permanent cover principle of a mosaic cycle in close-to-nature silviculture management with horizontally and vertically structured forest stands using site-adapted tree species (EDER 1997).

Thank you for your attention