European Forest Genetic Resources Programme

Data of indicator on genetic resources (4.6) of the pan-European criteria and indicators for sustainable forest management

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EUFORGEN Steering Committee
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Indicator 4.6 Genetic Resources

5. Updated set of pan-European Indicators for SFM

Forest policy and governance
1. National Forest Programmes or equivalent
2. Institutional frameworks
3. Legal/regulatory framework: National and International commitments
4. Financial and economic instruments
5. Information and communication

6. Socio-economic
C.6 Policies. institutions & instruments
6.1 Forest holdings
6.2 Contribution of forest sector to GDP
6.3 Net revenue
6.4 Investment in forests and forestry
6.5 Forest sector workforce
6.6 Occupational safety and health
6.7 Wood consumption
6.8 Trade in wood
6.9 Wood energy
6.10 Recreation in forests

1. Forest Resources & CC
C.1 Policies. institutions & instruments
1.1 Forest area
1.2 Growing stock
1.3 Age structure &/or diameter distribution
1.4 Forest carbon

34 QUANTITATIVE INDICATORS & 11 DESCRIPTIVE INDICATORS

5. Protective Functions
C.5 Policies. institutions and instruments
5.1 Protective forests – soil. water and other ecosystem functions - infrastructure and managed natural resources

2. Forest Health
C.2 Policies. institutions & instruments
2.1 Deposition & concentration of air pollutants
2.2 Soil condition
2.3 Defoliation
2.4 Forest damage
2.5 Forest land degradation

3. Productive Functions
C.3 Policies. institutions & instruments
3.1 Increment and fellings
3.2 Roundwood
3.3 Non-wood goods
3.4 Services

4. Biological Diversity
C.4 Policies. institutions & instruments
4.1 Diversity of tree species
4.2 Regeneration
4.3 Naturalness
4.4 Introduced tree species
4.5 Deadwood
4.6 Genetic resources
4.7 Forest fragmentation
4.8 Threatened forest species
4.9 Protected forests
4.10 Common forest bird species

Revised indicator is composed of 4 sub-indicators

1. Dynamic conservation (*in situ* & *ex situ*) of native populations
2. Dynamic conservation (*ex situ*) of non-native populations
3. Static *ex situ* conservation
4. Potential for production of Forest Reproductive Material

1. Dynamic conservation (*in situ* & *ex situ*) of native populations

four verifiers:

Conservation effort
total nb of native populations (GCU) established in the country

Species diversity index (0-1)
nb of species conserved / nb of species within the country

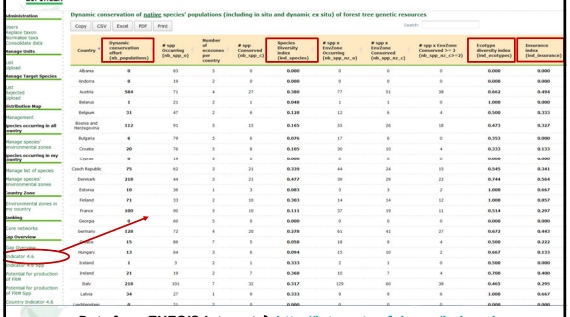
"Ecotype" diversity index (0-1)
nb of "ecotypes" conserved / nb of "ecotypes" within the country (summed over conserved species only)

Insurance index (0-1)
nb of "ecotypes" conserved with a minimum nb of 2 units / nb of "ecotypes" occurring within the country (summed over conserved species only)

1. Dynamic conservation (*in situ* & *ex situ*) of native populations

Testing Countries	Dynamic conservation effort	Species Diversity index	Ecozone diversity index	Insurance index
Denmark	218	0.477	0.744	0.564
Estonia	10	0.083	1	0.667
Finland	71	0.303	1	0.857
France	100	0.111	0.514	0.297
Iceland	1	0.333	0.5	0
Italy	218	0.317	0.465	0.295
Norway	30	0.435	0.6	0.55
Poland	536	0.365	0.619	0.524
Slovenia	40	0.324	0.475	0.153
Spain	43	0.066	0.522	0.348

1. Dynamic conservation (*in situ* & *ex situ*) of native populations



Data from EUFGIS intranet → http://intranet.eufgis.org/index.php

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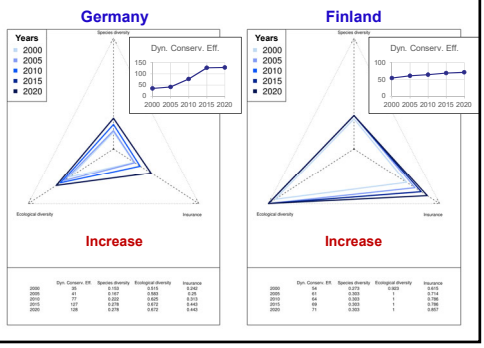

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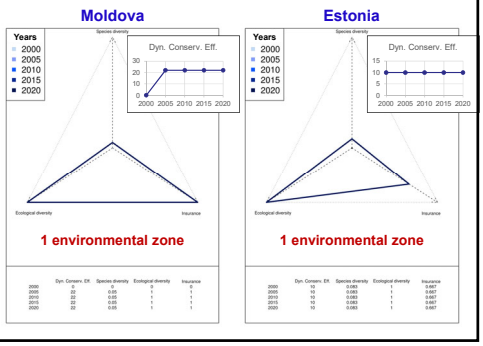

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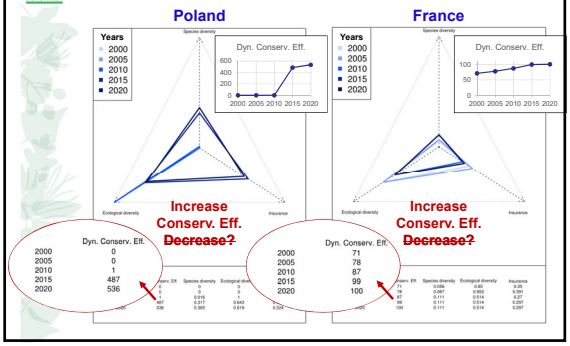

1. Dynamic conservation (*in situ* & *ex situ*) of native populations

- To categorize GCUs in a year class we used the **Population Establishment Year**
- If this data was not present for a GCU we used the **Year of Unit Data Collection**

Please insert the **Population Establishment Year** data in EUFGIS for each GCU if you know it

1. Dynamic conservation (*in situ* & *ex situ*) of native populations

Data presented by species

Testing Species (name)	Dynamic conservation effort	Conservation index	Ecozone diversity index	Insurance Index
Abies alba	325	0.682	0.534	0.362
Castanea sativa	11	0.238	0.093	0.027
Fagus sylvatica	497	0.613	0.425	0.368
Fraxinus excelsior	115	0.474	0.262	0.184
Picea abies	648	0.704	0.494	0.38
Pinus sylvestris	377	0.606	0.38	0.283
Populus nigra	25	0.324	0.134	0.062
Quercus petraea	261	0.676	0.347	0.224
Quercus robur	334	0.605	0.337	0.267

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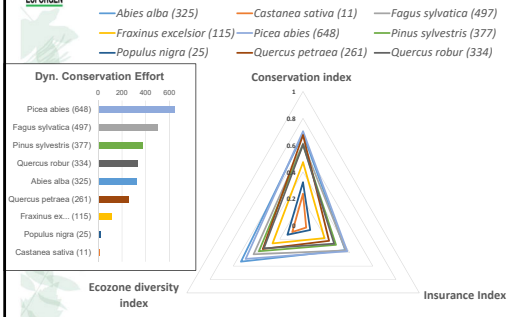

Other 3 sub-indicators

2. **Dynamic conservation (*ex situ*) of non-native populations**
   - *total nb of non native populations (GCU) established in the country*

3. **Static *ex situ* conservation**
   - nb of collections (including clonal archives and gene banks collections meeting the minimum requirements)

4. **Potential for production of Forest Reproductive Material**
   - Total number of FRM production units (for each of the 4 categories: *Source-identified, Selected, Qualified, Tested*)
   - Total number of species for which there is at least 1 FRM production unit

2. Dynamic conservation (*ex situ*) of non-native populations

Testing Countries	Non-native species occurring	Non-native species conserved	Non-native dynamic conservation populations
Denmark	19	2	**3**
Estonia	4	0	**0**
Finland	30	0	**0**
France	28	0	**0**
Iceland	9	0	**0**
Italy	14	3	**6**
Norway	8	0	**0**
Poland	28	6	**79**
Slovenia	16	0	**0**
Spain	15	0	**0**

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4. Potential for production of Forest Reproductive Material

Testing Countries	Total number of FRM production units (for all 4 categories combined)	Total number of species for which there is at least 1 FRM production unit
Denmark	*NA*	*NA*
Estonia	106	9
Finland	645	13
France	13	2
Iceland	*NA*	*NA*
Italy	897	36
Norway	*NA*	*NA*
Poland	64,697	30
Slovenia	185	22
Spain	4,427	31

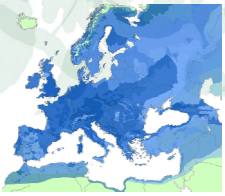
NA: not available

Data of indicator on genetic resources (4.6) of the pan-European criteria and indicators for sustainable forest management

Data sources

Data of indicator on genetic resources (4.6) of the pan-European criteria and indicators for sustainable forest management

Reference list of species



Reference list of species

- All species listed in the Annex 1 of the **COUNCIL DIRECTIVE 1999/105/EC** of 22 December 1999 on the marketing of forest reproductive material
- All species already entered in the **EUFGIS** Information system as of March 2019
- All tree species identified as **model tree species** by the species-Network that were active during **Phase II and III of EUFORGEN**
- All tree species for which JRC has developed **species distribution maps**

Reference list of species

- If an **unlisted species** is extremely relevant for a country, is possible to submit a request to **add that species**.
- Any change in the total number of species per country will affect the calculation of the indicators **retroactively** to allow proper comparison and to monitor real progresses.

Future steps: Data to Forest Europe

June 2019
- The data of indicator 4.6 have to be presented to **Forest Europe** in June 2019

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Before April 20th
- EUFORGEN (me, Silvio) will contact each country, sending to each one the respective **data for a verification**

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Before May 20th
- Countries that need to change the data can **update directly EFUGIS** *(please advise if you do).* If is not possible, please **send back the answer with the changes** to silvio.oggioni@efi.int

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June 2019
- Updated data to **Forest Europe**

Future steps: EUFORGEN

- Present data on the **EUFORGEN website**
- Publish a **EUFORGEN own report** of indicator on genetic resources (4.6) every 5 years

With:
- News in conservation of FGR
- Updated data of the 4 sub-indicators
- Charts of the changes over time by countries (1° indicator)
- Charts by species (1° indicator)

Thank you for your attention

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