



THE STATE
OF THE WORLD'S

FOREST GENETIC RESOURCES

COUNTRY REPORT

ESTONIA

This country report is prepared as a contribution to the FAO publication, The Report on the State of the World's Forest Genetic Resources. The content and the structure are in accordance with the recommendations and guidelines given by FAO in the document Guidelines for Preparation of Country Reports for the State of the World's Forest Genetic Resources (2010). These guidelines set out recommendations for the objective, scope and structure of the country reports. Countries were requested to consider the current state of knowledge of forest genetic diversity, including:

- Between and within species diversity
- List of priority species; their roles and values and importance
- List of threatened/endangered species
- Threats, opportunities and challenges for the conservation, use and development of forest genetic resources

These reports were submitted to FAO as official government documents. The report is presented on www.fao.org/documents as supportive and contextual information to be used in conjunction with other documentation on world forest genetic resources.

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Country Reports
for
The State of the World's
Forest Genetic Resources

PROPOSED TEMPLATE FOR SPECIFIC INFORMATION

The present document provides a proposed template for specific information which could be included in different chapters of the Country Report for The State of the World's Forest Genetic Resources.

SECTION I: EXECUTIVE SUMMARY

SECTION II: INTRODUCTION TO THE COUNTRY AND FOREST SECTOR

The Republic of Estonia is located in Northern Europe on the eastern coast of the Baltic Sea, 57°30' to 59°49' north and 21°46' to 28°13' east. The total area of the country is 45,227 square km, with a distance from north to south of 240 km and from east to west of 360 km. The country's population is 1,340,000 (1 January 2010), making a population density of 30 people per square kilometer. Its relief is mostly flat or gently hilly, with an average height above sea level of 50 meters. The country's highest point is 318 meters above sea level.

The moderate maritime climate is congenial for forest growth, and without the limiting influence of humans, forests would cover most of the mainland. According to long-term measurements the average temperature over the year is 5.2° C (minus 5.7° C in February and plus 16.4° C in July). Average annual precipitation is 630 mm. Due to the cool climate, evaporation (which is relatively limited) and the slow flow of surface water resulting from the flat relief cause excess moisture in many places. These factors hinder the growth of forests and favor paludification.

The Estonian Forest policy says that the long-term objective of forestry is sustainable, even and continued utilization of forests. According to the inventory of the 2010 NFI (National Forest Inventory), Estonia has 2,212,000 hectares of forested land, which represents approximately half of the country.

About 36 % of Estonian forest belongs to the state and is managed by the State Forest Management Centre. 45 % forest land is in private ownership – mainly Estonian families. According to the study „The structure and the use of Estonian private forest ownership 2010“ there are 97 272 private forest owners in Estonia. The number includes 4001 juridical persons (companies).

Distribution of forest land area and growing stock by dominant tree species

Dominant species	tree	Area 1000 ha	Share of dominant tree species (%) from total forest area%	Volume per ha
<i>Pinus sylvestris</i>		743,8	33,6	234
<i>Picea abies</i>		369,5	16,7	218
<i>Betula sp.</i>		680,7	30,8	177
<i>Populus tremula</i>		123,5	5,6	241
<i>Alnus glutinosa</i>		70,6	3,2	230
<i>Alnus incana</i>		186,6	8,4	166

Others	37,3	1,7	173
Total	2212	100	207

By 2010 NFI

Distribution of forest land by forest site types

Group of forest site types	1000 ha	Share of forest site types (%) from total forest area%
Alvar forest	52,6	2,4
Heath forest	8,7	0,4
Mesotrophic forest	497,5	22,5
Mesoeutrophic forest	520,5	23,5
Nemoral forest	240,8	10,9
Herb-rich forest on gley soil	366,5	16,6
Sphagnum paludified forest	13,5	0,6
Grass swamp forest	50,6	2,3
Drained peatland forest	328,3	14,8
Bog moss forest	116,5	5,3
Forest on reclamated pits	16,6	0,8
Total	2 212,0	100

By 2010 NFI

Forest lands by forest categories

Forest categories	1000 ha	Share of forest under protection (%) from total forest area
Protected forest	216,3	9,8
Protection forests	339,7	15,4
Woodland key habitats	6,4	0,3
Total forest under protection	562,4	25,4
Commercial forest	1649,6	74,6
Total	2 212	100

By 2010 NFI

Optimal annual felling volume in Estonia is 12 – 15 million m³. During the peak of fellings at the end of 90s and at the beginning of new millennium the felling volume stabilized for couple of years at about 12 million m³ level and started to decrease considerably afterwards – up to the to the 5–6 million m³ level in 2004–2009 (National Forest Inventory 2009). According to the data of

felling documents the interest for forest management has increased considerably in 2010 and the total volume of planned fellings was 10.47 million m³. Due to the fact that not all of the planned fellings are implemented the estimated total felling volume was about 8 million m³ in 2010. The optimal level of fellings according to the Estonian Forestry Development Plan until the year 2020 is annually 12–15 million m³.

Policy measures

The legal basis for sustainable development in Estonia is provided by the Constitution of the Republic of Estonia, which entered force in 1992. The Sustainable Development Act was approved in 1995.

The Estonian Forest Policy, which was adopted by the Riigikogu (the Estonian parliament) in the summer of 1997, expresses the importance of forests in four aspects:

- * Economic aspect – forest as a source of revenue;*
- * Social aspect – forest as an ensurer of employment and provider of recreation;*
- * Ecological aspect – forest as the preserver of the diversity of species;*
- * Cultural aspect – forest as a part of Estonian culture.*

According to the forest policy, Estonian forests are a great natural and ecological resource. Two general objectives have been set for forest management:

1) Sustainable (i.e. homogeneous, continuous and diverse) forest management means the management and use of forests and wooded lands in a way, and at a rate, that maintains their biological diversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, without causing any damage to other ecosystems;

2) Effective management of forests.

Implementation of the Forest Policy was deficient due to the lack of an integral plan of implementation measures. To coordinate the implementation of activities defined in the Forest Policy and the allocation of the required resources, the Ministry of the Environment has compiled two long-term Forestry Development Programmes. The first one for the period of 2002 – 2010 and the second one for 2011 – 2020.

Two main acts that are regulating forest management and protection – Forest Act and Nature Conservation Act.

In the February 2011 Estonian Parliament adopted the Estonian Forest Development Programme until 2011–2020.

Programme sets up the forest sector targets for the decade. The main objective of the development programme is to ensure the viability, productivity, diverse and efficient use of forests. For those purposes:

- wood as a renewable natural resource should be used in timber and energy industries as much as is its long term increment;*
- Half of the regeneration felling areas should be regenerated to sustain forest productivity;*
- to maintain a good status of endangered species and populations inherent to Estonia at least 10% of forest area should be under strict protection and the representativeness of strictly protected forests should be improved.*

Several measures have been taken in recent years to guarantee the sustainable forestry practice in Estonia: quick and easy access has been made available to forest inventory and management data for forest administration and public (see <http://register.metsad.ee/avalik/>), capacity building in forest administration institutions have taken place, cooperation between governmental institutions have been set up to fight illegal activities in forestry, counseling and training of forest owners continuously proceeds. New on-line system for conveyance/transport documents' (certifying the volume and ownership of timber) administration was launched.

Amendments were made into the Income Tax Act which enabled the private forest owners to deduct the costs of forest management activities from taxed income of timber sales or growing stock's cutting sales during the three years after the felling. This provides the possibility to include reforestation works' costs to the overall costs to be deducted from taxed sales' income and guarantees more profitable forest management.

Certified forest products

Two forest management/chain of custody (COC) certificate systems used in Estonia – FSC (Forest Stewardship Council) and PEFC (Programme for the Endorsement of Forest Certification).

There have been issued 3 FSC forest management certificates and 108 FSC chain of custody (COC) certificates in Estonia (16.09.2011).

From year 2007 PEFC certification is available in Estonia. Estonian national PEFC scheme was approved in 4.03.2008. There is 15 PEFC chain of custody certificates in Estonia (31.08.2011) and two forest management certificates. All of the State forests are FSC and PEFC certified.

Wood industry

Wood industry is one of the largest industry sectors in Estonia. Nearly 1,000 enterprises are engaged in wood processing and manufacturing wood products, the volume of production and the number of workforce in wood industry has stabilized after deep fall during economic crisis.

Wood industry output at constant prices has increased more than a quarter and the sales almost one-third in 2010 compared to 2009.

The export of industrial roundwood has more than doubled in 2010 compared to 2009 (1.1 million m³ in 2009 and 2.3 million m³ in 2010). 91% of exported roundwood was pulpwood. The import volume of roundwood stayed at the low level – 0.3 million m³ in 2010 as in 2009. The main export partners were Nordic Countries (Sweden, Finland and Norway) and main importing partner was Latvia in 2010.

1. What are the main forest characteristics and tree resource management systems?

Table 1. Forest characteristics and areas.

Main forest characteristics	Area (ha)
Primary forests	954 381*
Naturally regenerated forests	1 088 364*

<i>Planted forests</i>	169 271
Reforestation	159 373
Afforestation	9 898
Agroforestry systems	0

* according to FAO definitions, updated by NFI 2010

Please give an estimate of the area covered by agroforestry systems (information not requested in FRA reporting)

2. What is the forest ownership in your country?

Table 2. Forest ownership and area

Forest ownership	Area (ha)
Public	881 879*
Private	1 002 262*
Others	327 874*

* according to FAO definitions, updated by NFI 2010

3. What trends in forest conservation and management were observed over the past 10 years? What are their main driving forces?

Increase the quantity of strictly protected forest areas and to have , stablefelling volumes, up to annual optimal from Forest development programme until 2020

4. What roles do forest resources play in meeting the current demands for forest products in your country?

Estonian forests play an essential role in the economy, they are maintaining the ecological balance and carrying out social functions. Forestry is one of the most important branches of the Estonian economy, providing together with timber, furniture and paper industry 3,7% of Estonian GDP.

There are 30 900 employed persons in the forestry, wood, paper, furniture industry sector in Estonia, which represents a significant proportion of the 595 800 persons employed in the country (2008, Statistics Estonia).

SECTION III: MAIN BODY OF THE COUNTRY REPORT

Chapter 1: The Current State of Forest Genetic Resources Diversity and State of Knowledge on Forest Resources?

Please list, in Table 3, the main forest tree species, using scientific names, associated with each major forest type defined in your country. Main species are the species that characterise the forest types; i.e., relatively common and widespread. The number of species listed for each forest type will vary depending on species diversity.

Table 3. Major forest type categories and main tree species. Forest types may be drawn from the list following the table or from the categories used in your country.

Major Forest Types	Area (covered by forest type) ha	Main species for each type	
		Trees	Other species if applicable
Evergreen needleleaf forest	776 995	<i>Pinus sylvestris</i> <i>Picea abies</i>	<i>Betula sp.</i>
Mixed broadleaf/needleleaf forest	600 792	<i>Betula sp.</i> <i>Picea abies</i> <i>Pinus sylvestris</i> <i>Populus tremula</i>	<i>Alnus incana</i> <i>Alnus glutinosa</i> <i>Salix caprea</i> <i>Fraxinus excelsior</i> <i>Quercus robur</i> <i>Padus avium</i> <i>Acer platanoides</i>
Deciduous broadleaf forest	834 229	<i>Betula sp.</i> <i>Populus tremula</i> <i>Alnus incana</i> <i>Alnus glutinosa</i>	<i>Salix caprea</i> <i>Fraxinus excelsior</i> <i>Quercus robur</i> <i>Padus avium</i> <i>Acer platanoides</i>
Total forest land	221 2016		

1.1 List priority forest tree and other woody plant species (for example palms, bamboo, rattan) in your country and reason for priority (e.g. economic importance, threatened, etc.) (Table 4)

Table 4. Priority species (scientific names)

Priority species			Reasons for priority
Scientific name	Tree (T) or other (O)	Native (N) or exotic (E)	
<i>Picea abies</i>	T	N	Economic
<i>Pinus sylvestris</i>	T	N	Economic
<i>Betula pendula</i>	T	N	Economic
<i>Quercus robur</i>	T	N	Social and cultural importance
<i>Fraxinus excelsior</i>	T	N	Biodiversity and cultural importance
<i>Acer platanoides</i>	T	N	Biodiversity and cultural importance
<i>Ulmus laevis</i>	T	N	Threatened
<i>Alnus glutinosa</i>	T	N	Biodiversity
<i>Tilia cordata</i>	T	N	Biodiversity and cultural importance
<i>Juniperus communis</i>	O	N	Social and cultural importance
<i>Sorbus aucuparia</i>	T/O	N	Social and cultural importance

Examples of reasons for priority: Economic, social or cultural importance;
Threatened; Invasive (priority for removal)

1.2 What are the main tree and other forest plant species actively managed for human utilization in your country? (Table 5)

Table 5. Forest species currently used in your country; for each species please indicate (N or E) whether native or exotic (using the codes for uses listed below).

Species (Scientific name)	Native (N) or Exotic (E)	Current uses (code)	If managed, type of management system (e.g. natural forest, plantation, agroforestry)	Area managed if known (ha) *
<i>Picea abies</i>	N	1; 2	natural forest, planted forest	310 445
<i>Pinus sylvestris</i>	N	1; 2	natural forest, planted forest	596 108
<i>Betula pendula</i>	N	1; 2; 3	natural forest	588 977
<i>Betula pubescens</i>	N	2; 3	natural forest	
<i>Populus tremula</i>	N	2; 3	natural forest	104 124
<i>Alnus incana</i>	N	3	natural forest	176 201
<i>Alnus glutinosa</i>	N	3	natural forest	57 611
Other	N/O			32 715
Total				1 866 182

* Forest area (with trees, not strictly protected) by NFI 2010

Current use:

- | | |
|-----------------------|-----------------------------------------------------------|
| 1 Solid wood products | 4 Non wood forest products (food, fodder, medicine, etc.) |
| 2 Pulp and paper | 5 Used in agroforestry systems |
| 3 Energy (fuel) | 6 Other (please specify)_____ |

1.3 What are the main forest tree or other woody plant species actively managed or identified for environmental services in your country (Table 6)?

Table 6. Main tree and other woody forest species providing environmental services or social values. For each species please indicate (x) whether native or exotic.

Species (scientific name)	Native (N) or Exotic (E)	Environmental service or social value (code)
<i>Quercus robur</i>	N	1; 3; 4; 5; 6;
<i>Tilia cordata</i>	N	1; 3; 4; 5; 6;
<i>Picea abies</i>	N	1; 3; 4; 5;
<i>Acer platanoides</i>	N	1; 3; 4; 5;
<i>Sorbus aucuparia</i>	N	3; 4; 5; 6;
<i>Juniperus communis</i>	N	4; 5; 6;

<i>Fraxinus excelsior</i>	N	1; 3; 5;
<i>Ulmus laevis</i>	N	1; 3; 5;
<i>Ulmus glabra</i>	N	1; 3; 5;
<i>Pinus sylvestris</i>	N	1; 3; 5;
<i>Betula pendula</i>	N	1; 4; 5;
<i>Padus avium</i>	N	1; 4; 5;
<i>Malus sylvestris</i>	N	3; 4; 5;
<i>Corylus avellana</i>	N	3; 4; 5;
<i>Alnus glutinosa</i>	N	1; 3;
<i>Betula pubescens</i>	N	1;
<i>Populus tremula</i>	N	1;
<i>Alnus incana</i>	N	1;

Services and values include:

- | | |
|--------------------------------------------------------------|--------------------------------|
| 1 Soil and water conservation including watershed management | 5 Aesthetic values |
| 2 Soil fertility | 6 Religious values |
| 3 Biodiversity conservation | 7 Other (please specify) _____ |
| 4 Cultural values | |

1.4 List forest tree and other woody species (scientific name) which are endemic in your country.

There is no forest tree and other woody species endemic in Estonia

1.5 List tree and other woody forest species identified in your country as being threatened (include documented threatened populations). (Table 7 in p. 31)

1.6 Is there a regular assessment of threatened species in your country?

Regularly assessed such threatened species as Taxus baccata, Sorbus rupicola, Prunus spinosa.

1.7 List the tree species for which there is insufficient information to determine whether or not they are threatened.

There is no information about such species presently.

1.8 Is there a system in your country for documenting forest reproductive material?

Yes, Estonia follows the European Council Directive 1999/105/EC.

1.9 What is the current state of forest reproductive material (native and exotic) identification (seed sources, provenance zones) and utilization (including vegetatively propagated material) in the country? (If available provide volumes of seeds of main species used). (Please fill Table 8a and/or 8b)

Table 8a. Annual quantity of seeds produced and current state of identification of forest reproductive material of the main forest tree and other woody species in the country.

Species		Total quantity of seeds used (Kg)	Quantity of seeds from documented sources (provenance/delimited seed zones)	Quantity of seeds from tested provenances (provenance trials established and evaluated)	Quantity that is genetically improved (from seed orchards)
Scientific name	Native (N) or Exotic (E)				
<i>Picea abies</i> Karst.	N	472	243		229
<i>Pinus sylvestris</i> L.	N	746	624		122
<i>Betula pendula</i> Roth.	N/E	85	82		3
<i>Alnus glutinosa</i> Gaertn.	N	8	8		
<i>Quercus robur</i> L.	N	350	350		
<i>Quercus rubra</i> L.	E	13	13		
<i>Fraxinus excelsior</i> L.	N	23	23		
<i>Larix sibirica</i> Ledeb.	E	1			1

Table 8b. Annual number of seedlings (or vegetative propagules) planted and the state of identification of the reproductive material used for the main forest tree and other woody species in the country.

Species		Total quantity of seedlings planted (1000 pieces)	Quantity of seedlings from documented sources (provenance/delimited seed zones) (1000 pieces)	Quantity of seedlings from tested provenances (provenance trials established and evaluated)	Quantity of vegetative reproductive material used (1000 pieces)	Quantity of seedlings that are genetically improved (1000 pieces)
Scientific name	Native (N) or Exotic (E)					
<i>Picea abies</i> Karst.	N	8697	973			7724
<i>Pinus sylvestris</i> L.	N	4432	874			3558
<i>Betula pendula</i> Roth.	N/E	1629	1547		5	77
<i>Alnus glutinosa</i> Gaertn	N	91	91			
<i>Quercus robur</i> L.	N	6	6			
<i>Larix x eurolepis</i> Henry	E	2				2
<i>Larix kaempferi</i> Carr.	E	2				2
<i>Populus x wettsteinii</i>	E	14			14	

1.10 What is the current state of genetic characterization of the main forest tree and other woody plant species in the country? (Table 9)

Table 9. List forest species for which genetic variability has been evaluated and check each column that applies. Begin with species mentioned in Tables 5 and 6.

Species		Morphological traits	Adaptive and production characters assessed	Molecular characterization
Scientific name	Native (N) or exotic(E)			
<i>Pinus sylvestris</i> L.	N			X
<i>Picea abies</i> Karst.	N			X

1.11. Does your country collect information on forest genetic resources as part of national forest surveys? If yes, please specify what kind of information.

No

1.12. Has your country developed genetic conservation strategies/programmes (including *in situ* and/or *ex situ*) for specific forest tree or other woody plant species? If yes, which ones?

Strategy for conservation of genetic forest resources is under development. The process will be finished in the end of 2012.

7. List of tree and other woody forest species considered to be threatened in all or part of their range from genetic conservation point of view.

Species (scientific name)	*Area (ha) of species' natural distribution in your country if known	Number of trees per hectare, if known	**Proportion of species' natural distribution that is in your country (%)	Distribution in the country: widespread (W), rare (R), or local (L)	Type of threat (Code)	Threat category***		
						High	Medium	Low
<i>Taxus baccata</i>				R	2;7	x		
<i>Prunus spinosa</i>				R	2;7	x		
<i>Sorbus rupicola</i>				R	2;7	x		
<i>Euonymus europaeus</i>				R	2;7	x		
<i>Salix repens</i>				R	2;7	x		
<i>Ulmus laevis</i>				R	2;7			x
<i>Sorbus intermedia</i>				L	2;7			x

Type of threat:

- | | |
|--------------------------------------------------------|-----------------------------------|
| 1 Forest cover reduction and degradation | 9 Acidification of soil and water |
| 2 Forest ecosystem diversity reduction and degradation | 10 Pollutant emissions |
| 3 Unsustainable logging | 11 Pests and diseases |
| 4 Management intensification | 12 Forest fires |
| 5 Competition for land use | 13 Drought and desertification |
| 6 Urbanization | 14 Rising sea level |
| 7 Habitat fragmentation | 15 Other (please specify) _____ |
| 8 Uncontrolled introduction of alien species | |

*Refer to species range maps where they exist to estimate the area in hectares of the species' natural range that is within the borders of your country.

**Considering the full extent of the species' natural range, which proportion is within the borders of your country? For example, an endemic species is 100% within your country. A species that is naturally distributed over approximately equal areas of your country and a neighbouring country, is 50%.

***Threat categories: High – threatened throughout species range within the country; Medium – threatened in at least 50% of range within country; Low – threatened in less than 50% of range within country.

Chapter 2: The State of *in situ* Genetic Conservation

In situ conservation can have different purpose\\$. Here we refer to genetic conservation but do not exclude protected areas that were established for other purposes but also provide protection for genetic resources.

2.1 Has an analysis been conducted in part or all of your country to evaluate genetic conservation of forest tree and other woody plant species in protected areas (national parks, ecological reserves, etc.)? If yes, how? (e.g. viable population sizes, connectivity of populations, designation of areas in different genecological zones of the country?)

No analyses carried out

2.2 What proportion of all native tree and other woody forest species are conserved *in situ*?

In situ are conserved Pinus sylvestris L and Picea abies Karst

What proportion of threatened tree and other woody species is included in conservation programmes?

Conservation programme in under development but the draft version doesn't include the threatened tree and other woody species

2.3 Is there a programme for *insitu* conservation of forest genetic resources in your country? If so, please complete (Table 10).

A programme for insitu conservation of forest genetic resources is under development, by the draft the following species are represented

Table 10. Target forest species included within *in situ* conservation programmes/units.

Species (scientific name)	Purpose for establishing conservation unit	Number of populations or stands conserved	Total Area (ha)
<i>Pinus sylvestris</i> L.	conservation of forest genetic resources	2	656
<i>Picea abies</i> Karst.	conservation of forest genetic resources	3	498

2.4 What are the main constraints to improving *in situ* genetic conservation programmes in the country? (For example, lack of public interest, lack of information/inadequate knowledge, competing use for available land, lack of government resources, people living in conservation areas with unsustainable exploitation of resources)

The main constraints are lack of government resources, lack of public interest, lack of information/inadequate knowledge and competing use for available land.

2.5 What are your country's priorities for future *in situ* conservation actions (research, capacity-building, etc.)?

Priorities for future are research, capacity-building, increase of public interest.

2.6 Please include other relevant information on *in situ* conservation in your country.

*Conservation of Forest Genetic Resources (FGR) started in Estonia in 1985, when Estonia was a part of the Soviet Union. Target species for conservation were and are the most important species from economical and ecological point of view: Scots pine (*Pinus sylvestris*), Norway spruce (*Picea abies*) and Silver birch (*Betula pendula*).*

The institution responsible for conservation of FGR is the Ministry of Environment. Principles of FGR conservation are stated in the Estonian Forest Policy, in the Estonian Forestry Development Programme until 2020 and in the Environmental Action Plan 2007 – 2013. According to update information there are five gene reserves in Estonia altogether comprising 1154 ha.

2.7 Please list species that are conserved on-farm (*circa situ*) in your country. *Circa situ* means conservation on farms of trees useful in agroforestry systems.

No species conserved on-farm

Chapter 3: The State of *ex situ* Genetic Conservation

3.1 List target forest species included in *ex situ* conservation programmes/units in your country. Please provide information on species and material in germplasm banks by completing Table 11.

Table 11 Ex situ conservation

Species		Field collections				Germplasm bank			
Scientific name	Native (N) or exotic (E)	Collections, provenance or progeny tests, arboreta or conservation stands		Clone banks,		<i>In vitro</i> (including cryo conservation)		Seed banks	
		No. stands	No. acc.	No. banks	No. clones	No. banks	No. acc.	No. Banks	No. acc.
<i>Pinus sylvestris</i> L.	N			8	286				
<i>Betula pendula</i> Roth.	N/E					2	6		
<i>Populus x wettsteinii</i>	E					2	13		
<i>Populus tremula</i> f. <i>gigas</i>	N					1	3		
<i>Populus tremula</i>	N					1	12		

3.2 What are the main constraints to improving *ex situ* conservation in the country? (Examples: lack of resources or infrastructure, field tests not protected or not considered important, too many species with recalcitrant seeds)

Lack of resources

3.3 What are the priorities for future *ex situ* conservation actions (research, capacity- building) in your country?

The priority for ex situ conservation in the future is conservation of selected clones for breeding programme

3.4 Please include other relevant information on *ex situ* conservation in your country.

No other relevant information available

Chapter 4: The State of Use and Sustainable Management of Forest Genetic Resources

4.1 What is the annual quantity of seed transferred internationally? (Table 12)

Table 12. Seed and vegetative propagules transferred internationally per annum (average of last 5 years).

Species		Quantity of seed (Kg)		Number of vegetative propagules (1000 pieces)		Number of seedlings (1000 pieces)		Purpose
Scientific name	Native (N) or Exotic (E) ?	Import	Export	Import	Export	Import	Export	
<i>Picea abies</i> <i>Karst.</i>	N	82,7	17			227	2935	forestry
<i>Pinus sylvestris</i> <i>L.</i>	N	1					16	forestry
<i>Betula pendula</i> <i>Roth.</i>	N	9,1			7	13	52	forestry
<i>Alnus glutinosa</i> <i>Gaertn</i>	N	0,1					7	forestry
<i>Quercus robur</i> <i>L.</i>	N						1	forestry
<i>Larix decidua</i> <i>Mill.</i>	E	0,4					3	forestry

<i>Larix sibirica</i> <i>Ledeb</i>	E	1,1					2	forestry
<i>Populus x</i> <i>wettsteinii</i>							296	forestry
<i>Populus tremula</i> <i>f.gigas</i>					2			forestry

4.2 List the species which are presently subject to tree improvement programmes. (Table 13)

4.3 Specify the main improvement objective (timber, pulpwood, fuel wood, non-wood products, other). (Table 13)

Table 13. Forest improvement programmes. Please check all objectives that apply.

Species		Improvement programme objective					
Scientific name	Native (N) or exotic (E)	Timber	Pulpwood	Energy	MP*	NWFP*	Other
<i>Pinus sylvestris</i>	N	X			X		
<i>Picea abies</i>	N	X			X		

* MP: Multipurpose tree improvement program

**NWFP: Non-wood forest product

4.4 Provide data for each species listed in question 4.2, as applicable, the number of plus trees and genetic tests. (Table 14)

Table 14. Tree improvement trials.

Species		Plus trees*	Provenance trials		Progenies trials		Clonal testing and development			
Scientific name	Native (N) or exotic (E)	Number	No. of trials	No. of prov.	No. of trials	No. of families	No. of tests	No. of clones tested	No. Clones selected	No. Clones used
<i>Pinus sylvestris</i>	N				<i>Establishment will</i>					
					<i>start in 2012</i>					

List number of plus trees if programme is beginning and only first generation seed orchards have been established.

Table 15. Seed orchards.

Species (scientific name)	Seed orchards*		
	Number	**Generation	Area
<i>Pinus sylvestris L.</i>	11	1 st	169,2
<i>Picea abies Karst.</i>	5	1 st	42,8
<i>Betula pendula Roth.</i>	3	1 st	2,5
<i>Alnus glutinosa Gaertn.</i>	2	1 st	0,8
<i>Larix sp</i>	5	1 st	5,8

*Seed orchards are plantations specifically planted and managed for seed production, not natural seed stands.

**Generation refers to 1st, 2nd, 3rd, etc., breeding cycle

4.5 Has any information system been established on tree breeding programmes? If yes, what information is collected and stored?

No

4.6 List species of which quantities of improved seed, pollen, scions and/or other reproductive materials can be made available, at request. (Table 16)

Table 16. Type of reproductive material available.

Species (scientific name)	Type of material	Available for national requests only		Available for international requests	
		Commercial	Research	Commercial	Research
<i>Pinus sylvestris L.</i>	seed	x	x		x
<i>Betula pendula Roth.</i>	seed	x	x		x
<i>Pinus sylvestris L.</i>	seedling	x	x		x
<i>Betula pendula Roth.</i>	seedling	x	x		x
<i>Picea abies Karst.</i>	seedling	x	x		x
<i>Alnus glutinosa Gaertn</i>	seedling	x	x		x

Chapter 5: The State of National Programmes, Research, Education, Training and Legislation

National programmes

5.1 Does your country have a national forest programme? If yes, does the national forest programme include forest genetic resources? If yes, how are they mentioned in the programme (general terms / specific actions)?

By the Estonian Forestry Development Program until 2020 the creation of status for conservation and use of forest genetic resources in situ as well the selection of proper stands is started.

5.2 List and identify the type of institutions (government, university, private, etc.) actively engaged in conservation and sustainable use of forest genetic resources. Please provide contact information. (Table 17)

Table 17. Institutions involved with conservation and use of forest genetic resources.

Name of Institution	Type of Institution	Activities or Programs	Contact Information
The Ministry of the Environment of the Republic of Estonia		No active programs presently	Maret Parv Senior Officer Forest Department The Ministry of the Environment of the Republic of Estonia Narva mnt 7a Tallinn Estonia Maret.Parv@envir.ee Phone +372 6260726
The Environmental Board	Governmental authority	No active programs presently	Jaanus Kala Head of the Forest Department Environmental Board Narva mnt 7a 15172 Tallinn Estonia Jaanus.Kala@keskkonnaamet.ee Phone +372 7990915
Estonian University of Life Sciences	University	No active programs presently	Tiit Maaten Specialist, Institute of Forestry and Rural Engineering Estonian University of Life Sciences Kreutzwaldi 5, Tartu 51014 Estonia Tiit.Maaten@emu.ee Phone +372 7313150

5.3 Has your country established a national coordination mechanism to include different institutions or a national programme for forest genetic resources?

No

5.4 If yes, describe its structure and main functions.

5.5 Have the trends in support for forest genetic resources changed over the past 10 years (become stronger, declined, remained about the same)? Is programme funding increasing, decreasing or stable?

Trends have been moved towards positive side. Strategy for conservation of Forest Genetic resources is under development, in the near future will start selection of appropriate areas. Progress in practice will hopefully increase funding for research.

Research, Education and Training

5.6 Estimate the budget allocated to forest genetic resource research in the country. What proportion of the forestry budget goes to forest genetic resources?

No information available

5.7 In which courses and universities are forest genetic resources explicitly covered in your country? At Bachelor's level? Masters? PhD?

It's covered at master level by the Tree breeding subject at the Institute of Forestry and Rural Engineering of the Estonian University of Life Sciences.

5.8 What are your country's needs and priorities for research, education and training to support the conservation and sustainable use of forest genetic resources?

Increase of awareness among researchers as well among different stakeholders. It will help to enhance budget for research and implement conservation strategies in practice.

National Legislation:

5.9 What legislation or regulations that are relevant to forest genetic resources (phytosanitary, seed production, community rights, patent legislation, other) exist in your country?

Forest Act and its subordinate legislation and Plant Propagation and Plant Variety Rights Act and its subordinate legislation

5.10 Has your country established a legal framework for forest genetic resources strategies, plans and programmes? If yes, describe the framework.

Development of the framework started in the end of 2011, no details available yet.

5.11 What are the identified needs in your country for developing or strengthening forest genetic resources legislation? (Table 18)

Table 18. Needs for developing forest genetic resources legislation.

Needs	Priority level
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	Not applicable	Low	Moderate	High
Improve forest genetic resources legislation				X
Improve reporting requirements			X	
Consider sanction for non-compliance				
Create forest genetic resources targeted regulations				X
Improve effectiveness of forest genetic resources regulations	X			
Enhance cooperation between forest genetic resources national authorities			X	
Create a permanent national commission for conservation and management of forest genetic resources	X			
Other (Please specify)				

Public Awareness:

5.12 What initiatives are necessary for greater visibility for forest genetic resources in your country?

It's necessary to reveal cases in practice by which importance of genetic aspects has been underestimated and obvious results of misuse are visible.

5.13 Has your country developed any specific awareness programme for forest genetic resources? If so, describe it and any products obtained.

No

5.14 What are your country's needs and priorities for raising awareness of forest genetic resources issues? (Table 19)

Table 19. Awareness raising needs.

Needs	Priority level			
	Not applicable	Low	Moderate	High
Prepare targeted forest genetic resources information			X	
Prepare targeted forest genetic resources communication strategy		X		
Improve access to forest genetic resources information				X
Enhance forest genetic resources training and education			X	
Improve understanding of benefits and values of forest genetic resources			X	
Other (Specify)				

Chapter 6: The State of Regional and International Agreements and Collaboration

International Agreements

Information will be retrieved from official sources regarding international agreements, treaties, conventions, or trade agreements relevant to the sustainable use, development and conservation of forest genetic resources that your country has signed.

6.1 Briefly describe the impact of any international conventions, treaties or agreements that your country has signed with regard to the conservation and sustainable use of forest genetic resources in your country (For example CBD, CITES).

Majority of treaties, conventions and agreements were agreed after the Estonian independence in 1991. As the process of development of legislation for the state started straight after that, principles from treaties etc have been taken over gradually and they

have had and have straight impact on forestry and nature protection as well conservation issues in Estonia. Republic of Estonia has signed for example CBD, CITES, MCPFE resolutions. Because of difficulties in a young independent state it has happened that not all agreed principles have implemented in practice as quickly as needed.

International Collaboration

6.2 Describe your country's current international collaboration.

Estonia has current international collaboration with European Forest Genetic Resources Programme (EUFORGEN) and with the AdapCar project/network (2011 – 2015) supported by SNS (Nordic Forest Research Co-operation Committee)

6.3 What regional or sub-regional forest genetic resources-based or thematic networks for forest genetic resources does your country participate in? (Table 20)

Table 20. Overview of the main activities carried out through networks and their outputs

Network name	Activities *	Genus/species involved (scientific names)
EUFORGEN	Information exchange	
SNS AdapCar	Information exchange	

*** Examples of activities:**

- Information exchanges
- Development of technical guidelines
- Development of shared databases
- Establishment of genetic conservation strategies
- Germplasm exchange
- Elaboration, submission and execution of joint research projects.
- Other (Please specify) _____

6.4 What are your country's needs and priorities for future international collaboration? (Table 21)

Table 21. Awareness raising needs/ Needs for international collaboration and networking

Needs	Level of priority			
	Not applicable	Low	Medium	High
Understanding the state of diversity				X
Enhancing <i>in situ</i> management and conservation				X
Enhancing <i>ex situ</i> management and conservation		X		
Enhancing use of forest genetic resources			X	
Enhancing research				X
Enhancing education and training				X
Enhancing legislation				X

Enhancing information management and early warning systems for forest genetic resources.				X
Enhancing public awareness			X	
Any other priorities for international programmes				

Chapter 7: Access to Forest Genetic Resources and Sharing of Benefits Arising out of their Use

Access to forest genetic resources:

7.1 Are there any regulations with respect to access and benefit sharing of forest genetic resources in your country?

No

7.2 Does any legislation in your country limit access and movement of forest genetic resources into or out of the country?

7.3

Estonia follows the European Council Directive 1999/105/EC. Additional limitation to access and movement of forest genetic resources into or out of the country according the Estonian legislation is not regulated.

7.3 If yes, what can be done to improve access?

Sharing of benefits arising out of the use of forest genetic resources:

7.4 Has your country established mechanisms for recognizing intellectual property rights related to forest genetic resources? If so, please specify.

No

7.5 Has your country established mechanisms of sharing benefits arising out of the use of forest genetic resources? If so, please specify.

No

Chapter 8: Contribution of Forest Genetic Resources to Food Security and Poverty Reduction

Estonia does not have tree species or other woody species for poverty reduction or food security.

Table 22. List tree and other woody species that are important in your country for food security or livelihoods

Species		Use for food security	Use for poverty reduction
Scientific name	Native (N) or exotic (E)		

Sources of Information

1. 2009 NFI, 2010 NFI (*National Forest Inventory*)
2. *Estonian Forestry 2011* (<http://www.keskkonnainfo.ee/main/index.php/et/vaeljaanded-ja-uelevaated/vaeljaanded-ja-uelevaated>)
3. *The Study „The structure and the use of Estonian private forest ownership 2010“*
4. *Estonian University of Life Sciences*
5. *Estonian Environment Information Centre, Department of the National Forest Inventory, Department of Environmental Monitoring*
6. *The Environmental Board, Forest Department*
7. 2008, *Statistics Estonia*
8. *Estonia country market statement 2011*
(<http://www.unece.org/fileadmin/DAM/timber/country-info/Estonia.pdf>)