THE STATE
OF THE WORLD's

FOREST GENETIC RESOURCES

COUNTRY REPORT

HUNGARY

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.

Country Report of Hungary About the State of Forest Genetic Resources (2010)

SECTION I: EXECUTIVE SUMMARY

The forests in Hungary cover about 20% of the total land area which proportion should be increased up to 25% until 2050. Most of the forests are artificially planted/regenerated and are managed. Up to the present about 58% of the forests were in public ownership. This share may decrease in the future due to the new afforestations executed predominantly by the private sector.

The forests are mostly mixed, the associations belong to the thermophile Southeast European oak forest zone, with relatively high number of species. Out of temperate broadleaved tree species various *Quercus* taxa, *Fagus sylvatica*, *Carpinus betulus*, *Populus* spp., *Robinia pseudoacacia* take the largest share. Conifer species are few, only *Pinus sylvestris* and *Pinus nigra* cover larger areas. The pines and black locust (*Robinia pseudoacacia*) are non-native species which were intensively planted in the past first of all in the lowland afforestations.

After the collapse of the totalitarian system (1989) the pressing need of self-sufficiency eased and this fact - combined with growing support for nature conservation - has led to a trend change: the regeneration of native species (especially oaks) increased and exotic conifers are seldomly planted. This did not affect the status of *Robinia* which remains a popular species especially in the private sector. The popularity of this fast growing and honey-yielding species has even increased due to the growing demand for renewable energy. The privatization reached also the nurseries and a strong fragmentation of the production of forest reproductive material (FRM) followed which made the control over the use FRM more unreliable. Compared to earlier decades the importance of FRM declines in traditional forestry due to the growing popularity of natural regeneration methods, at the same time the demand for species and clones used in plantations is growing. These trends are reflected by the species shares and quantities of forest nursery production where broadleaves dominate. FRM is mainly produced and marketed for inland use in traditionally managed forests, timber and energy plantations, but a significant quantity of tree and shrub material is marketed in other EU member states.

The recent breeding programmes have been focusing on *Populus, Salix* and *Robinia* species having a share in the growing market of short rotation coppices and biomass plantations. At

the same time traditional tree breeding of pines and hybrid poplars has significantly declined which affected gene conservation activities of these taxa negatively.

Traditionally, *ex situ* gene conservation maintains a significant role not only in breeding programmes but also in the whole FRM sector. Regulation of conservation/utilization of forest genetic resources (FGR) has a long tradition in Hungary. Legislation covers both institutional and inter-institutional duties and requirements. A permanent government fund supports the maintenance of ex situ plant gene banks and collections.

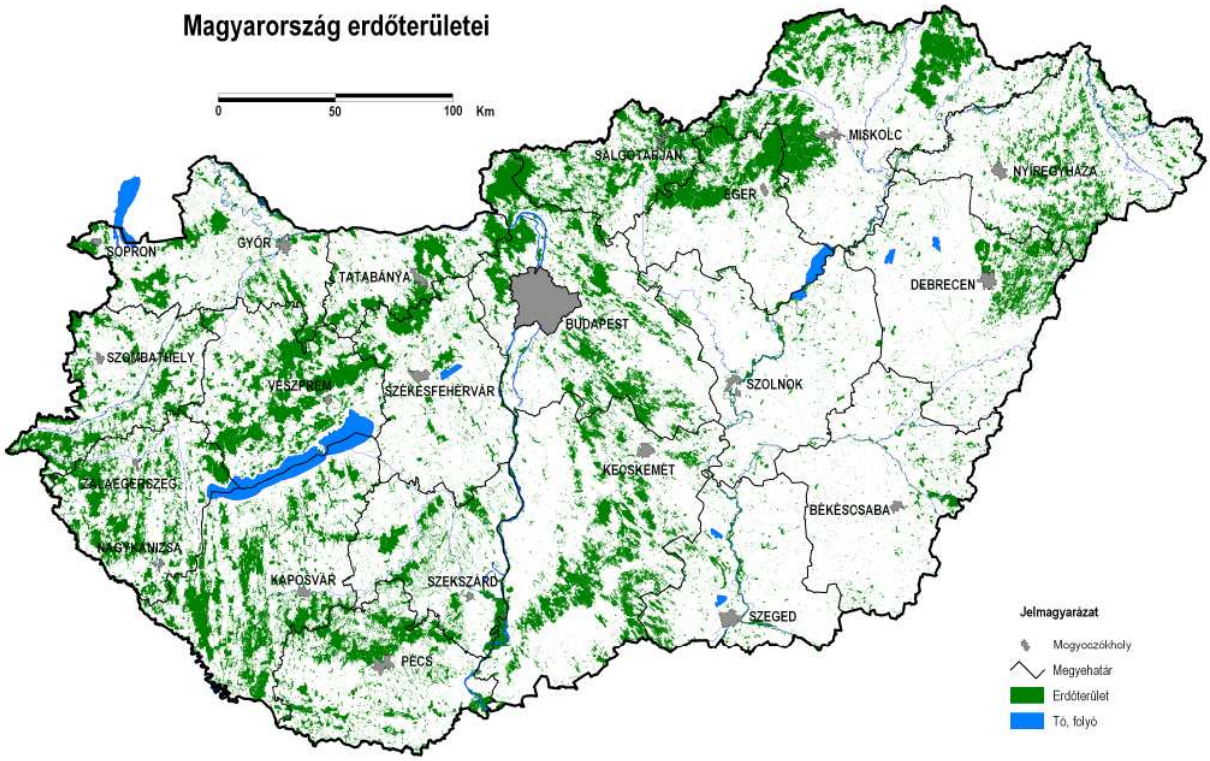
Due to existing legislation of FGRs the institutional structure of ex situ conservation and connected breeding activities is sufficient. In the recent decades international cooperation and networking with regard of gene conservation and FGR use has developed successfully in Hungary as well. For about 20 years the pan-european network EUFORGEN has supported strategies and programmes in Hungary. (The basic principles for activities were laid out in Hungary in 1995) Further development has been promoted by participation in EU projects and cooperations aimed at the better conservation and use of FGR, such as EVOLTREE, FORGER, COST E52, ECHOES and others.

The present general nature conservation strategy, however, still contains static elements, while a more dynamic approach is needed, first of all in order to prepare for challenges of expected climate change. E.g.various endemic forest tree and shrub species and their habitats are protected without any strategy for dynamic gene conservation (incl. monitoring, management etc.) Consequently, although *in situ* conservation has been sufficiently covered by FGR and forest legislation (since 1997), enforcement regarding management of forest gene reserves is still under dispute because of coordination problems with the nature conservation authority.

Due to the described coordination difficulties and the increasing share of private sector in the production, marketing and deployment of FRM, the enforcement of FGR related legislation and their underlying genetic principles is to be improved in Hungarian forestry. The most important deficiencies are: gaps in public awareness and capacity building, fine-tuning the recent legislation (e.g. in situ conservation, patent and property rights related to FGR) and developing effective strategies for the long term conservation and use of FGRs, particularly with regard to expected climatic changes. The majority of these tasks have international implications and therefore further strengthening of cooperation and coordination on international (regional and continental) level is essential.

SECTION II: INTRODUCTION TO THE COUNTRY AND FOREST SECTOR

Forest land (green colored) area distributed in Hungary (2006, Forest Service)



1. **What are the main types of forests and tree resource management systems?**

Table 1. Forest characteristics and areas (FRA)

FRA 2010 Categories	Forest area (1000 hectares)
	2010
Primary forest	0
Naturally regenerated forest	417
Planted forest	1612
Reforestation	Not recorded
Afforestation	Not recorded
Agroforestry	0
TOTAL	**2029**

2. What is the forest ownership in your country?

Table 2. Forest ownership and area (FRA)

FRA 2010 Categories	Forest area (1000 hectares)
	2005
Public ownership	1150
Private ownership	831
...of which owned by individuals	559
...of which owned by private business entities and institutions	138
...of which owned by local communities	134

...of which owned by indigenous / tribal communities	0
Other types of ownership [1.]	2
TOTAL	**1983**

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

As the fundamental socioeconomic reforms have finished by the end of post-communistic era, the basic types of forest ownership have been structurally stabilized, about 58 of the forests owning by public and in a long term aimed no less than 50%. Proportion of economically managed and protected (non-managed) areas has been also stabilized

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

Domestic production of industrially used timber covers roughly the half of the demand. Especially higher quality conifer timber demand is nearly exclusively covered from imports. The broadleaved timber production allows at the same time a significant export. Energy wood is a vigorously growing market which could be met up to now from domestic resources. At present 90% of domestic biomass use for energy comes from the forestry sector.

SECTION III: MAIN BODY OF THE COUNTRY REPORT

Chapter 1: The Current State of Forest Genetic Resources

Diversity within and between forest tree species:

Table 3. Major forest type categories and main tree species. Forest types may be drawn from the categories used in your country or from the list below (Forest Types and Ecological Zone breakdown used in FRA 2000).

Major Forest Types	Area (covered by forest type)	Main species for each type	
		Trees	Other species if applicable
TeDc	1 922 100 ha	Quercus petraea	
		Qu. robur	
		Qu. cerris	
		Fagus sylvatica	
		Carpinus betulus	
		Robinia pseudoacacia	
		Populus sp.	
		Pinus sylvestris	
		Pinus nigra	
		Fraxinus excelsior	
		Salix alba	
		Alnus glutinosa	

Ecological zonation is based on indicator species dominating forest communities/associations: beech, hornbeam, sessile and Turkey oak. At the same time the zones serve for characterisation of regional climate conditions.
Provenance zones are based on information from breeding and genetic experiments (plus trees, progeny and clone tests, mating conditions).

1.1 List priority forest tree and other woody plant species in Hungary and reason for priority (e.g. economic importance, threatened, etc.) (Table 4)

Table 4.

Priority species	**T**ree or **O**ther	**N**ative or **E**xotic	Reasons for priority
Quercus petraea	T	N	Economic and ecological importance
Quercus robur	T	N	Economic and ecological importance
Quercus pubescens	T	N	Economic and ecological importance
Quercus cerris	T	N	Economic and ecological importance
Fagus sylvatica	T	N	Economic and ecological importance
Fraxinus excelsior	T	N	Economic and ecological importance
Fraxinus angustifolia ssp. pannonica	T	N	Economic and ecological importance
Populus nigra	T	N	Ecological importance, threatened
Populus alba	T	N	Economic and ecological importance
Populus x canescens	T	N	Economic and ecological importance
Populus x euramericana / other hybrids	T	E	Economic value
Salix alba	T	N	Ecological importance
Robinia pseudoacacia	T	E	Economic and ecological importance
Pinus sylvestris	T	N/E	Economic value

Pinus nigra	T	E	Economic value
Prunus avium	T	N	Economic and ecological importance
Sorbus torminalis, S. domestica	T	N	Ecological importance, threatened
Ulmus glabra, U. minor, U. laevis	T	N	Ecological importance, threatened
Carpinus betulus	T	N	Economic and ecological importance
Pyrus pyraster and other Pyrus taxa	T	N	Ecological importance, threatened
Picea abies	T	E	Scientific interest
Larix decidua	T	N/E	Economic value
Juglans regia and its hybrids	T	N	Economic value

The main value of forest genetic resources:

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

Species name	**N**ative or **E**xotic	Current uses (code)	If managed, type of management system	Area managed (ha)
Acer campestre	N	123	natural forest	9986,4
Acer platanoides	N	123	natural forest	2132,4
Acer pseudoplatanus	N	123	natural forest	4762,3
Alnus glutinosa	N	123	natural forest	49705,3
Betula pendula	N	123	natural forest	4881,9
Carpinus betulus	N	123	natural forest	95608,3
Castanea sativa	N	14	natural forest, plantation	628,6
Celtis occidentalis	E	236	plantation	2313,0
Elaeagnus angustifolia	E	36	plantation	2058,2
Fagus sylvatica	N	123	natural forest	110025,5
Fraxinus angustifolia ssp. pannonica	N	13	natural forest	10795,6
Fraxinus excelsior	N	13	natural forest	26510,3
Fraxinus ornus	N	3	natural forest	13037,0
Juglans nigra	E	13	plantation	7913,1
Juglans regia	N	134	natural forest	1339,8
Juniperus communis	N	16	natural forest, plantation	1837,5
Larix decidua	N/E	12	natural forest, plantation	3881,5
Picea abies	E	12	natural forest, plantation	17724,2
Pinus nigra	E	12	plantation	64645,2
Pinus strobus	E	12	plantation	507,6
Pinus sylvestris	N/E	12	natural forest, plantation	123502,2
Populus alba	N	12	natural forest, plantation	14319,5
Populus nigra	N	12	natural forest	5826,2
Populus tremula	N	12	natural forest	2204,6
Populus x canescens	N	12	natural forest, plantation	54900,2
Populus x euramericana / other hybrids	E	12	plantation	119976,2
Prunus avium	N	1234	natural forest	1212,2
Prunus serotinus	E	126	plantation	1383,5
Pseudotsuga menziesii	E	12	plantation	407,9
Pyrus pyraster	N	134	natural forest	467,1
Quercus cerris	N	123	natural forest	206319,3
Quercus petraea	N	123	natural forest	183000,6
Quercus pubescens	N	123	natural forest	17754,7
Quercus robur	N	123	natural forest	169902,7

Quercus rubra	E	123	natural forest, plantation	17212,9
Robinia pseudoacacia	E	1234	natural forest, plantation	446831,9
Salix alba	N	12	natural forest	20012,7
Salix caprea	N	12	natural forest	459,2
Salix fragilis	N	12	natural forest	187,1
Sorbus torminalis	N	13	natural forest	95,9
Tilia cordata	N	123	natural forest	9147,5
Tilia platyphyllos	N	123	natural forest	2243,0
Tilia tomentosa	N	123	natural forest	10642,3
Ulmus glabra	N	1	natural forest	65,0
Ulmus laevis	N	123	natural forest	691,5
Ulmus minor	N	123	natural forest	1913,3
Ulmus pumila cultivars	E	36	plantation	2127,4

***Current use:**

1 Solid wood products

2 Pulp and paper

3 Energy (fuel)

4 Non wood forest products (food, fodder, medicine)

5 Used in agroforestry systems

6 Other: aforestation in extreme sites

Table 6. Main tree and other woody forest species in Hungary, providing environmental services or social values. Each species indicated (N or E) whether native or exotic.

Species name	**N**ative or **E**xotic	Environmental service or social value
Acer campestre	N	3
Acer platanoides	N	3
Acer pseudoplatanus	N	3
Alnus glutinosa	N	13
Betula pendula	N	3
Carpinus betulus	N	3
Castanea sativa	N	34
Celtis occidentalis	E	2
Elaeagnus angustifolia	E	2
Fagus sylvatica	N	23
Fraxinus angustifolia ssp. pannonica	N	123
Fraxinus excelsior	N	13
Fraxinus ornus	N	123
Juglans regia	N	34
Pinus nigra	E	12
Pinus sylvestris	N/E	123
Populus alba	N	123
Populus nigra	N	123
Populus tremula	N	13
Populus x canescens	N	123
Prunus avium	N	34
Pyrus pyraster	N	34
Quercus cerris	N	123
Quercus petraea	N	123
Quercus pubescens	N	123

Quercus robur	N	123
Robinia pseudoacacia	E	12
Salix alba	N	123
Sorbus torminalis	N	3
Tilia cordata	N	123
Tilia platyphyllos	N	123
Tilia tomentosa	N	123
Ulmus glabra	N	3
Ulmus laevis	N	13
Ulmus minor	N	13
Ulmus pumila cultivars	E	2

1 Soil and water conservation incl. watershed management
2 Soil fertility
3 Biodiversity conservation
4 Cultural values
5 Aesthetic values
6 Religious values
7 Other

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

This list includes Pannonian, Carpathian endemic and Carpatho-Pannonian sub-endemic speciei. Central European endemic speciei that have wider distribution with notable populations outside of the country are excluded.

Acer acuminatilobum J. PAPP
Crataegus nigra WALDST. et KIT.
Crataegus ovalis KIT.
Crataegus rosaeformis JANKA
Crataegus x degenii ZSÁK
Pyrus magyarica TERPÓ
Rosa facsarii KERÉNYI-NAGY
Rosa gizellae BORBÁS
Rosa kmetiana BORBÁS
Sorbus hazslinszkyana (SOÓ) MÁJOVSKý
Sorbus agamospeciei within the Aria subgenus:
S. danubialis (JÁV.) KÁRP.
S. pannonica KÁRP.
S. sooi (MÁTHÉ) KÁRP.
S. javorkae (SOÓ) KÁRP.
S. buekkensis SOÓ
Sorbus agamospecies between the Aria subgenus and S. torminalis
S. acutiserrata CS. NÉMETH
S. adami KÁRP.
S. andreanszkyana KÁRP.
S. bakonyensis JÁV. em KÁRP.
S. balatonica KÁRP.
S. barthae KÁRP.
S. bodajkensis BARABITS
S. borosiana KÁRP.
S. decipientiformis KÁRP.
S. degenii JÁV.

S. dracofolia CS. NÉMETH
S. eugenii-kelleri KÁRP.
S. gayeriana KÁRP.
S. gerecseensis BOROS et KÁRP.
S. karpatii BOROS
S. latissima KÁRP.
S. majeri BARABITS
S. pseudobakonyensis KÁRP.
S. pseudolatifolia BOROS
S. pseudosemiincisa BOROS
S. pseudovertesensis BOROS
S. redliana KÁRP.
S. semiincisa BORB.
S. simonkaiana KÁRP.
S. tobani CS. NÉMETH
S. vallerubusensis CS. NÉMETH
S. vertesensis BOROS
S. veszpremiensis BARABITS

Sorbus agamospecies between the Aria subgenus and S. aucuparia

S. borbasii JÁV.

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

Table 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)	Average number of trees per ha	Share of the country from the whole distribution range	Distribution in the country (WRL)	Type of threat (code)	Threat category		
						High	Medium	Low
Acer acuminatilobum	*		100	R	16	x		
Alnus viridis	*			R	2,7		x	
Betula pubescens	5,87			R	2,7		x	
Carpinus orientalis	2,35			R	2,7,16	x		
Castanea sativa	628,61			W	11,16		x	
Cotoneaster integerrimus				W	2,4,7			x
Cotoneaster matrensis				R	2,4,7			x
Cotoneaster niger				R	2,4,7			x
Cotoneaster tomentosus				R	2,4,7			x
Crataegus nigra			80	L	2,4,7		x	
Crataegus ovalis	*		100	R	2,4,16	x		
Crataegus rosaeformis	*		100	R	2,4,16	x		
Crataegus x degenii	*		100	R	2,4,16	x		
Daphna cneorum				L	2,4,7		x	
Daphne laureola				R	2,4,7		x	
Daphne mezereum				W	2,4,7			x
Ephedra distachya	8,7			R	4,5,16		x	
Hippophae rhamnoides	5,3			R	4,5,16		x	
Lonicera caprifolium				R	2,7		x	
Malus sylvestris	14,61			W	2,4,7,15,16	x		
Myricaria germanica				R	2,4,7		x	
Populus nigra	5718,15			W	2,4,5,7,15,16		x	
Prunus tenella	*			R	2,7		x	
Pyrus magyarica	*		100	R	2,15,16	x		
Pyrus nivalis	*			R	2,15,16	x		
Pyrus pyraster	467,14			W	2,4,15,16		x	
Quercus pubescens	17692,6			W	2,4,7			x
Quercus virgiliana	62,05			W	2,4,7			x

Rhamnus saxatilis	*		15	R	2,7		x	
Ribeas petraeum	*			R	2,7		x	
Ribes alpinum	*			R	2,7		x	
Ribes nigrum	*			W	2,7		x	
Rosa facsarii	*		100	R	2,7,16	x		
Rosa kmetiana	*		100	R	2,7,16	x		
Rosa pendulina	*			R	2,7,16		x	
Rosa sancti-andreae	*			R	2,7,16	x		
Rubus saxatilis	*			R	2,7	x		
Ruscus aculeatus	*			R	2,7		x	
Ruscus hypoglossum	*			R	2,7		x	
Salix aurita	*			R	2,7		x	
Salix elaeagnos				R	2,7		x	
Salix pentandra				R	2,7		x	
Sorbus aria	*			W	2,16		x	
Sorbus domestica	3,82			W	2,16		x	
Sorbus spp. (see Q 1.4)	*		100	R	2,4,7,16	x		
Spiraea media				W	2,7			x
Ulmus glabra	65			W	2,4,7,11	x		
Ulmus laevis	691,48			W	2,4,5,7,11		x	
Ulmus minor	1913,31			W	2,4,11		x	
Vaccinium oxycoccos	*			R	2,7	x		
Vaccinium vitis-idaea	*			R	2,7			x
Vitis sylvestris	*			R	2,7		x	

1 Forest cover reduction and degradation
2 Forest ecosystem diversity reduction and degradation
3 Unsustainable logging
4 Management intensification
5 Competition for land use
6 Urbanization
7 Habitat fragmentation
8 Uncontrolled introduction of alien species

9 Acidification of soil and water
10 Pollutant emissions
11 Pests and diseases
12 Forest fires
13 Drought and desertification
14 Rising sea level
15 Other (please specify) Introgression with cultivated relatives

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

Yes, but regular assessments do not cover the entire species list mentioned in Q1.5.

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

No information.

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

Yes. Hungary is a member state of the European Union. Consequently, the 1999/105/EC Council Directive for marketing of forest reproductive material has been implemented since 2004 as well. Additionally, Hungary is also member of the OECD Forest Seed Scheme which has been implemented in case of exported/imported material. Nevertheless this system does not cover all movements of FRM especially in the private sector.

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).

Up to the present documentation of FRM origin was part of the stand description in the management plan. This important information is no longer documented (due to simplification of administrative work.
At the same time distinction between native and exotic species is rigorously performed, the latter are strongly withheld from operational use at least in public forests. Within native (autochthonous) species, autochthony is decided on forest region level (mean size approx 50.000 ha).
Provenance zones exist for all commercially important, main tree species. List of seed sources is available at the National Food Chain Safety Office (NEBIH).

Tanle 8a. Volume of seed produced in 2011 (kg)

Species		Total quantity of seeds used (kg)	Quantity of seeds from documented sources (stands and provenance zones) (kg)	Quantity of seeds from tested provenances (provenance trials established and evaluated) (kg)	Quantity that is genetically improved (from seed orchards) (kg)
Scientific name	Native (N) or Exotic (E)				
Acer campestre	N	1279,0	1279,0		
Acer platanoides	N	763,0	763,0		
Acer pseudoplatanus	N	2948,0	2913,0	35,0	
Acer tataricum	N	220,2	220,2		
Alnus glutinosa	N	540,5	540,5		
Betula pendula	N	104,0	104,0		
Carpinus betulus	N	664,0	657,0	7,0	

Castanea sativa	N	500,0	100,0	400,0	
Fagus sylvatica	N	5701,0	4811,0	890,0	
Fraxinus angustifolia ssp. pannonica	N	2152,0	2152,0		
Fraxinus excelsior	N	2093,0	2093,0		
Fraxinus ornus	N	387,0	387,0		
Juglans nigra	E	63667,0	63667,0		
Larix decidua	N	26,8	12,0		14,8
Malus sylvestris	N	107,7	107,7		
Picea abies	N	28,0	28,0		
Pinus nigra	N	516,4	433,4		83,0
Pinus sylvestris	N	193,8		23,8	170,0
Populus alba	N	41,8	34,8		7,0
Populus nigra	N	71,5	66,0		5,5
Populus tremula	N	3,0	3,0		
Populus x canescens	N	579,2	579,2		
Prunus avium	N	923,0	913,0	10,0	
Pseudotsuga mensiesii var. viridis	E	6,1		6,1	
Pyrus pyraster	N	493,0	493,0		
Quercus cerris	N	101601,0	101601,0		
Quercus petraea	N	116699,0	111799,0	4900,0	
Quercus pubescens	N	1000,0	1000,0		
Quercus robur	N	181556,0	171656,0	9900,0	
Quercus rubra	E	15153,0	14157,0	996,0	
Robinia pseudoacacia	E	6571,2		6236,2	335,0
Sorbus aucuparia	N	15,1	15,1		
Sorbus domestica	N	10,0	10,0		
Sorbus torminalis	N	12,0	12,0		
Tilia cordata	N	285,5	285,5		
Tilia platyphyllos	N	408,0	408,0		
Tilia tomentosa	N	961,0	961,0		
Ulmus laevis	N	143,0	128,0		15,0
Ulmus minor	N	56,7	56,7		
Total Sum:		**508480,5**	**484446,1**	**23404,1**	**630,3**

Table8b. Number of planting material produced in 2011 (in pieces)

Species	Total	Quantity of	Quantity of	Quantity of	Quantity of

Scientific name	Native (N) or Exotic (E)	quantity of seedlings produced	seedlings from documented sources (provenance/ delimited seed zones)	seedlings from tested provenances (provenance trials established and evaluated)	vegetative reproductive material used	seedlings that are genetically improved (from seed orchards)
Acer campestre	N	2 141 220	2 141 220			
Acer platanoides	N	1 690 160	1 680 160	10 000		
Acer pseudoplatanus	N	4 591 320	4 193 320	398 000		
Acer tataricum	N	428 800	428 800			
Alnus glutinosa	N	4 709 500	4 709 500			
Betula pendula	N	727 500	727 500			
Carpinus betulus	N	1 922 000	1 837 000	85 000		
Castanea sativa	N	72 000	37 500	34 500		
Fagus sylvatica	N	8 423 100	6 250 100	2 173 000		
Fraxinus angustifolia ssp. pannonica	N	4 290 840	4 290 840			
Fraxinus excelsior	N	2 991 600	2 991 600			
Fraxinus ornus	N	977 150	977 150			
Juglans nigra	E	1 182 230	1 182 230			
Larix decidua	N	533 900	260 000			273 900
Malus sylvestris	N	1 457 680	1 457 680			
Picea abies	N	2 638 500	2 638 500			
Pinus nigra	N	10 870 500	6 699 500	2 638 700		1 532 300
Pinus sylvestris	N	6 977 600		781 000		6 196 600
Populus alba	N	1 770 000	1 580 000			190 000
Populus nigra	N	1 872 400	1 582 300		290 100	
Populus tremula	N	576 000	576 000			
Populus x canescens	N	16 336 760	16 336 760			
Populus hybrids and varieties		4 429 625			4 429 625	
Prunus avium	N	1 209 200	1 143 200	66 000		
Pseudotsuga mensiesii var mensiesii	E	500	500			
Pseudotsuga mensiesii var. viridis	E	56 400		56 400		
Pyrus pyraster	N	1 982 460	1 982 460			
Quercus cerris	N	9 880 560	9 880 560			
Quercus petraea	N	18 552 620	15 676 010	2 876 610		
Quercus pubescens	N	225 500	225 500			
Quercus robur	N	31 693 870	30 003 370	1 690 500		
Quercus rubra	E	3 009 600	2 527 600	482 000		
Robinia pseudoacacia	E	50 649 379		44 534 010	84 230	6 031 139
Salix alba		367 890			367 890	
Salix viminalis	N	32 000			32 000	

Sorbus aucuparia	N	198 300	198 300			
Sorbus domestica	N	30 200	30 200			
Sorbus torminalis	N	10 200	10 200			
Tilia cordata	N	1 024 900	1 024 900			
Tilia platyphyllos	N	107 550	107 550			
Tilia tomentosa	N	286 630	286 630			
Ulmus laevis	N	1 148 600	850 600			298 000
Ulmus minor	N	511 300	511 300			
Total Sum:		202 588 044				

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 name	**N**ative or **E**xotic	Morphological traits	Adaptive and production traits	Molecular genetics
Castanea sativa	N	x	x	
Fagus sylvatica	N	x	x	x
Fraxinus angustifolia ssp. pannonica	N	x	x	
Fraxinus excelsior	N	x	x	
Juglans nigra	E	x	x	
Juglans regia	N	x	x	
Larix decidua	N/E	x	x	
Picea abies	E	x	x	
Pinus nigra	E	x	x	
Pinus strobus	E	x	x	
Pinus sylvestris	N/E	x	x	x
Populus alba	N	x	x	x
Populus nigra	N	x	x	x
Populus x canescens	N	x	x	x
Populus x euramericana and other hybrid poplars	E	x	x	x
Prunus avium	N	x	x	
Pseudotsuga menziesii	E	x	x	
Pyrus pyraster	N	x	x	
Quercus petraea	N	x	x	x
Quercus pubescens	N	x	x	x
Quercus robur	N	x	x	x
Quercus rubra	E		x	
Robinia pseudoacacia	E	x	x	x
Salix alba	N	x	x	
Sorbus torminalis	N	x	x	x
Ulmus glabra	N	x		
Ulmus laevis	N	x		
Ulmus minor	N	x		
Ulmus pumila cultivars	E		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 information collected.

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?

The Forestry Committee of Plant Gene Bank Council compiled the list of woody species that are relevant to gene conservation; has set up priorities for future activities; has developed and published the national strategy of forest gene conservation (see Chapter 8.).
In accordance with the Strasbourg Resolution S2, national forest gene conservation strategy gives high priority to in situ conservation measures. In 2004 the Forestry Committee of PGBC proposed candidate stands for conservation units (gene reserves) of the national beech and oak (Fagus sylvatica, Quercus petreae and Qu. robur) in situ conservation networks. The 99 candidate stands, totaling 2288 hectares, cover the local distribution of the target species, as well as geographic, ecological and presumably, genetic variation. The proposal includes detailed description and management plan of each stand.
Ex situ conservation measures complement in situ gene reserves when a rare or valuable resource is endangered in its original site. Basically, existing ex situ collections (clonal banks, family/provenance collections, etc.) originate from previous research or breeding activities and include also material of foeign origin.

The list of taxa included the strategy

Acer campestre
Acer platanoides
Acer pseudoplatanus
Alnus glutinosa
Betula pendula
Carpinus betulus
Castanea sativa
Fagus sylvatica
Fraxinus angustifolia ssp. pannonica
Fraxinus excelsior
Fraxinus ornus
Hippophae rhamnoides
Juglans nigra
Juglans regia
Larix decidua
Malus sylvestris
Picea abies
Pinus nigra
Pinus strobus
Pinus sylvestris
Populus alba
Populus nigra
Populus tremula
Prunus avium
Pseudotsuga menziesii
Pyrus spp.

Quercus cerris
Quercus petraea
Quercus pubescens
Quercus robur
Quercus rubra
Robinia pseudoacacia
Salix alba
Salix fragilis
Sorbus spp.
Tilia cordata
Tilia platyphyllos
Tilia tomentosa
Ulmus glabra
Ulmus laevis
Ulmus minor
Ulmus pumila cultivars

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

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, there has not been any analysis. Due to the static character of nature conservation areas, conditions for dynamic genetic conservation cannot be maintained in these areas.

2.2 What proportion of all native tree and other woody forest species are conserved *in situ?* What proportion of threatened tree and other woody species is included in conservation programmes?

In case of native species represented in designated in situ gene reserves, the proportion is less than 1% of the total occurence.

2.3 Is there a programme for *in situ* conservation of forest genetic resources in your country?

The in situ gene conservation programme has already been developed and fully documented but not approved yet due to lacking coordination with the nature conservation authority. (Detailed in 1.12.)

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)

Lack of concensus (between both governmental and non-governmental organizations) and lack of agreement on competence to manage conservation units by forestry experts. Different approaches to the proper mode of conservation (static or dynamic) and lack of concensus at authority level of proper adaptation to challenges of climate change effects. The difficulty is exacerbated by the lack of public interest and appropriate information, lack of governmental resources and capacity.

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

The most important challenge is the proper preparation to projected climatic shifts which will threaten the existence of a large part of in situ conservation units. Research in international cooperation started.

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.

Table 11. Ex situ gene conservation by species

Scientific name	**N**ative or **E**xotic	Collections, provenance or progeny tests, arboreta, conservation stands		Clone banks,		*In vitro* (including cryo conservation)		Seed banks	
		No. stands	No. acc.	No. banks	No. clones	No. banks	No. acc.	No. Banks	No. acc
Castanea sativa	N	1	386						
Fagus sylvatica	N	1	36						
Fraxinus angustifolia	N			1	15				
Juglans regia	N	22		2	118				
Larix decidua	N/E	9	222	3	300				
Picea abies	E	1	1100	4	265				
Pinus nigra	N/E	5	75	3	200				
Pinus sylvestris	N/E	20	321	4	750				
Populus nigra	N	2	1250	6	2183				
Populus alba	N	1	7	1	45				
Prunus avium	N	1	14	2	130				
Pseudotsuga menziesii	E	3	125	2	15				
Pyrus spp.	N			2	120				
Quercus petraea	N	1	80	2	130				
Quercus robur	N	2	184	5	310				
Robinia pseudoacaia	E	2	18	9	240				
Salix alba	N			3	250				
Salix viminalis	N			1	19				
Sorbus torminalis	N			2	128				
Sorbus domestica	N			1	25				
Ulmus laevis	N	1	302						
Ulmus minor	N	2	488						
Ulmus pumila	E	1	345	1	9				

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)

There are no real constraints regarding ex situ conservation except of financial and capacity problems.

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

In order to improve the current status of ex situ conservation
a.) the research activities should be focused on developing more effective technics for propagation,
b.) and some capacity-building carried out both in public and private forestry sector

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

Since the 1990s there is a governmental found which is annually providing financial contributions for proposals to maintain and improve gene bank activities. The requirements of the applications are specified based on priorities determined by Plant Gene Bank Council (detailed above in 1.12.). Forest tree species are eligible in this system.

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

Genetic improvement programmes and their implementation:

4.1 What is the annual quantity of seed transferred internationally?

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

Species		Quantity of seed (kg)		Number of vegetative propagulae		Number of seedlings		Purpose
Scientfic name	**N**ative or **E**xotic	Import	Export	Import	Export	Import	Export	
Abies cephalonica	E	1,0						
Abies grandis	E	25,0						
Acer campestre	N		8492,0					
Acer platanoides	N	5,0	8432,0					
Acer pseudoplatanus	N	42,8	3137,0					
Acer tataricum	N		54,8					
Alnus glutinosa	N	2,0	232,8					
Betula pendula	N		355,7					
Carpinus betulus	N	7,0	8185,0					
Castanea sativa	N		2260,0					
Cerasus avium	N	50,0	6761,0					
Fagus sylvatica	N	16976,0	476,9					
Fraxinus angustifolia	N		115,5					
Fraxinus excelsior	N	64,0	115,0					
Fraxinus ornus	N		323,0					
Juglans nigra	E		10041,0					
Larix decidua	N		2,0					
Malus sylvestris	N		144,0					
Picea abies	N	60,0	83,0					
Pinus nigra	N	400,0	24,0					
Pinus sylvestris	N		20,0					
Populus x canescens	N		1,0					
Pseudotsuga menziesii	E	65,3						
Pyrus pyraster	N	1,0	184,6					
Quercus cerris	N		1346,0					
Quercus petraea	N	311592,7	16571,0					
Quercus pubescens	N	36700,0						
Quercus robur	N	695904,5	2460,0					
Quercus rubra	N	940,0	4960,0					
Robinia pseudoacacia	E		1354,5					
Sorbus aucuparia	N		434,3					
Sorbus domestica	N	1,0	52,8					
Sorbus torminalis	N	1,0	654,7					
Tilia cordata	N	11,0	970,5					
Tilia platyphyllos	N	1,0	3843,0					
Tilia tomentosa	N		835,0					

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

Table 13. Forest improvement programmes.

Species name	**N**ative or **E**xotic	Improvement programme objective					
		Timber	Pulpwood	Energy	MP	NWFP	Other
Castanea sativa	N				x	x	
Cedrus atlantica	E	x					x
Fagus sylvatica	N	x					
Fraxinus excelsior	N	x					
Juglans regia	N	x					
Larix decidua	N/E	x					
Picea abies	E	x					
Pinus nigra	E	x	x				
Pinus sylvestris	N/E	x	x				
Populus alba	N	x					
Populus nigra	N	x					
Populus x canescens	N	x					
Populus x euramericana and other hybrids	E	x	x	x			x
Prunus avium	N	x					
Pseudotsuga menziesii	E	x					
Quercus petraea	N	x					
Quercus robur	N	x					
Quercus rubra	E	x					
Robinia pseudoacacia	E	x		x	x		
Salix alba	N	x		x			
Salix viminalis	N			x	x		
Ulmus pumila cultivars	E	x					x

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

Table 14. Tree improvement

Species name	**N**ative or **E**xotic	Plus trees	Provenance trials		Progeny trials		Clonal testing and development			
		Number	No. of trials	No. of prov.	No. of trials	No. of families	No. of trials	No. of clones tested	No. of clones selected	No. of clones used
Castanea sativa	N				1	16				
Cedrus atlantica	E	36								
Fagus sylvatica	N		1	36						
Fraxinus excelsior	N		1	12						
Juglans regia	N	118					22			
Larix decidua	N/E	300	3	62	6	160				
Picea abies	E	265	1	1100						
Pinus nigra	E	200	2	33	3	42				
Pinus sylvestris	N/E	750	4	89	16	232				
Populus alba	N	58	1	7			3	10		
Populus nigra	N	175	2	54						
Populus x canescens	N	12								
Populus x euramericana and other hybrids	E	800					82	786	69	27
Prunus avium	N	22			1	18				
Pseudotsuga menziesii	E	15	3	125						
Quercus petraea	N		1	80						
Quercus robur	N	27	1	40	1	144				
Robinia pseudoacacia	E	200			1	8	4	193		
Salix alba	N	56								
Salix viminalis	N	19					4	4		
Ulmus pumila cultivars	E	9			1	345				

Table 15. Seed orchards

Species	Seed Orchard		
	Number	Generation	Total area (ha)
Cedrus atlantica	1	1	1
Cerasus avium	2	1	5
Larix decidua	3	1	17
Larix decidua	2	2	10,1
Pinus sylvestris	4	1	24,2
Pinus sylvestris	5	2	52
Pinus nigra	2	2	3,4
Populus alba	1	1	2,2
Populus nigra	2	1	16,8
Quercus robur	4	1	26,2
Quercus petraea	2	1	10,4
Robinia pseudoacacia	7	1	13,6
Ulmus minor	2	1	2,8
Ulmus laevis	1	1	0,9
Sorbus domestica	1	1	1,5
Sorbus torminalis	2	1	6,5
Ulmus minor	2	1	2,8
Ulmus laevis	1	1	0,9

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

National-level information system on tree breeding programmes has not been established. Breeders, research institutes keep their own records, databases of breeding programmes. These records may include geo-referenced provenance data, pedigrees, field trials&observations data sets (yield, site tolerance, susceptibility/resistance, phenology, seed production, timber quality, etc) and molecular data.

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)

Species (Scientific name)	Type material	Available for national requests only		Available for international requests	
		Commercial	Research	Commercial	Research
Larix decidua	seed				
Larix decidua	scions				60 genotypes
Pinus nigra	scions				60 genotypes
Pinus sylvestris	seed				
Pinus sylvestris	scions				150 genotypes
Populus alba	cuttings				30 genotypes
Populus nigra	cuttings				30 genotypes
Populus x canescens	cuttings				
Populus x euramericana and other hybrids	cuttings				50 genotypes
Robinia pseudoacacia	seed				
Salix alba	cuttings				30 genotypes

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)?

The National Forest Programme has been adopted in 2004. Although, the conservation of forest biodiversity is mentioned among the goals and is covered by one of the actions, but the genetic diversity or forest genetic resources is not addressed explicitly. Programmes targeted for FGRs have not been adressed yet.

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

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

Name of Institution	Type of Institution	Activities or Programs	Contact Information
Forest Research Institute	public body	Forest gene conservation	Várkerület 30/a, Sárvár, 9600 Hungary, tel: +36 95 320 070, fax: +36 95 320 2552, www.erti.hu, erti@erti.hu
University of West Hungary, Faculty of Forestry	public body	Forest gene conservation	Ady E. u. 5, Sopron, 9400 Hungary, www.emk.nyme.hu
National Food Chain Safety Office	designated authority	Forest gene conservation	Keleti K. u. 24. Budapest, 1024 Hungary, www.nebih.gov.hu
Forestry Committee of the Plant Gene Bank Council	public body	Coordination and strategy of forest gene conservation affairs	Secretary: Sándor BORDÁCS, Keleti K. u. 24. Budapest, 1024 Hungary, BordacsS@nebih.gov.hu

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

Yes, it has been done.

5.4 If yes, describe its structure and main functions.

The Ministry of Agriculture established the Plant Gene Bank Council (PGBC) to organize and coordinate the activity of gene conservation according to international standards, to develop the management of domestic gene reserves and provide effective allocation of state funds supporting gene conservation. The Forestry Committee of PGBC (founded in 1996) includes representatives of forest research, education, management, administration, as well as nature conservation.
The committee compiled the list of woody species that are relevant to gene conservation, set up priorities for future activities; developed the national strategy of forest gene conservation; published guidelines for gene conservation of rare and endangered

species; provided background studies, expert opinions on legislation and funding aspects of gene conservation; coordinated the establishment of the national in situ gene conservation network for oaks and beech; delegated experts as national representatives for the EUFORGEN networks.

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?

On the one hand the public and professional support for conservation of forest genetic resources and the general acceptance of such activities have been increased, but, on the other hand the governmental support decreased due to the less regular and reduced budget of application grants.

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?

The average governmental budget for FGR is about 100 000 Euro/year. The FGR budget is separated from the forestry budget.

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

University of West Hungary, Faculty of Forestry	Sciences to be studied
BS, MS courses on forestry	Forest Genetics
MS course on environmental engineering	Genetics
PhD Schools	Forest Gene Conservation, Tree Improvement, Ecological genetics

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?

1. genetic inventoring of native forest tree species
2. climate change effects and consequences regarding forest gene conservation
3. methods and guidelines for human aided migration/transfer of forest reproductive material to mitigate projected climate change effects

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?

Legislation has been implemented in Hungary which are relevant to FGRs

National Forest Law (2009/37. Parliamentary Act): 24.§ (2)
Ministerial Decree for plant genetic resources (95/2003. (VIII.14.) FVM): 3-7.§
Ministerial Decree for marketing of forest reproductive material (110/2003. (X.21.) FVM): 1-3.§, 9.§, 23-24.§

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

No, there is no legal framework for forest genetic resources' strategies and programmes. Any recommendations and guidelines have been stated in some paragraphs of the Ministerial Decrees (95/2003 and 110/2003) detailed in 5.9 but no existing strategy for FGRs.

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			
	Not applicable	Low	Moderate	High
Improve forest genetic resources legislation			X	
Improve reporting requirements		X		
Consider sanction for non-compliance	X			
Create forest genetic resources targeted regulations (aimed the Forest Law)			X	
Improve effectiveness of 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?

There is no governmental decision to improve the public awareness of FGRs.

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

The Forestry Committee of the Plant Gene Bank Council published 2 publications (1998 and 1999) regarding the use and future roles/perspectives of forest genetic resources. The publications have been targeted and dispersed for forestry stakeholders, public institutions and as well as NGOs.

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 and priorities

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 Collaboration

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).

No information available

International Collaboration regarding FGRs

6.2 Describe your country's current international collaboration

For about 20 years the pan-european network EUFORGEN has supported strategies and programmes in Hungary. (The basic principles for activities were laid out in Hungary in 1995) Hungary has been also participated in the EUFGIS database. Further development has been promoted by participation in EU projects and cooperations aimed at the better conservation and use of FGR, such as EVOLTREE, FORGER, COST E52, ECHOES and others.

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)

Network name	Activities *	*Genus/species involved (scientific names)*
EUFORGEN	Information exchanges, Development of technical guidelines, Establishment of gene conservation strategies	*Taxa of Acer, Fagus, Pinus, Picea, Populus, Quercus,*
EUFGIS	Information exchanges Development of shared databases	*Taxa of Acer, Fagus, Pinus, Picea, Populus, Quercus,*
FORGER	Developing genetic bases for effective dynamic conservation of FGR	*Pinus, Picea, Fagus, Quercus*
COST ECHOES	Development of adaptive forest management including genetic princples	*general*
COST MaP	Conservation and utilization of marginal and peripheral populations in the Mediterranean	*Mediterranean and SE European broadleaved and conifer species*

*** 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.

International Networks:

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 *in situ* management and conservation				X
Enhancing *ex situ* 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, there is no any regulation to access or share forest genetic resources

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

No, there is no any legislation to limit access or movement of FGRs into/out of the country.

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, there are no mechanisms regarding intellectual property rights of FGRs

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

No mechanisms have been established.

Chapter 8: The Contribution of Forest Genetic Resource Management to Food Security, Poverty Alleviation and Sustainable Development

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

Species		**Use for food security**	**Use for poverty reduction**
Scientific name	**Native (N) or exotic (E)**		
Genus *Prunus, Malus, Pyrus*	N	FGRs for fruit plant breeding	
Robinia pseudoacacia	E	Honey production	Use for biomass plantations
Genus *Populus and Salix*	N		Use for biomass plantations

Sources of Information

Please list sources of information used for this report

The report was compiled by the member of Forestry Committee of Plant Gene Bank Council (PGBC). The authors listed see below.
The basic forest and forestry data (Introduction and Chapter 1.) were compiled by the Forestry Directorate of National Food Chain Safety Office (NFCSO) using the Hungarian Forest Inventory Database.
Data related to forest reproductive materials and (in situ/ex situ) forest genetic resources (FGRs) in Chapter 1., 2., 3. and 4. were analysed by Department of Forest and Biomass Reproductive Material of NFCSO using the National List of Basic Materials and FRM Inventory Database.
The data related to (in situ/ex situ) gene conservation strategy and breeding programmes in Chapter 1., 2., 3., 4. and 5. were compiled by experts of Forestry Committee of PGBC using gene conservation strategy for forestry compiled and published by PGBC.
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Relevant data and information related to national legislation were compiled by the Ministry of Rural Development and the NFCSO.
The data related to international cooperation and networks were provided by the PGBC and the national coordinator of EUFORGEN.

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