Forestry Department
Food and Agriculture Organization of the United Nations

GLOBAL FOREST RESOURCES ASSESSMENT 2010

COUNTRY REPORT

IRELAND

FRA2010/098
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The Forest Resources Assessment Programme

Sustainably managed forests have multiple environmental and socio-economic functions important at the global, national and local scales, and play a vital part in sustainable development. Reliable and up-to-date information on the state of forest resources - not only on area and area change, but also on such variables as growing stock, wood and non-wood products, carbon, protected areas, use of forests for recreation and other services, biological diversity and forests' contribution to national economies - is crucial to support decision-making for policies and programmes in forestry and sustainable development at all levels.

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. This country report forms part of the Global Forest Resources Assessment 2010 (FRA 2010).

The reporting framework for FRA 2010 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes variables related to the extent, condition, uses and values of forest resources, as well as the policy, legal and institutional framework related to forests. More information on the FRA 2010 process and the results - including all the country reports - is available on the FRA Web site (www.fao.org/forestry/fra).

The Global Forest Resources Assessment process is coordinated by the Forestry Department at FAO headquarters in Rome. The contact person for matters related to FRA 2010 is:

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1 Table T1 – Extent of Forest and Other wooded land

1.1 FRA 2010 Categories and definitions

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds *in situ*. It does not include land that is predominantly under agricultural or urban land use.
Other wooded land	Land not classified as "Forest", spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds *in situ*; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not classified as "Forest" or "Other wooded land".
Other land with tree cover (Subordinated to "Other land")	Land classified as "Other land", spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

1.2 National data

1.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National Forest Inventory Department of Agriculture, Fisheries and Food Johnstown Castle Estate, Wexford	H	Area (ha)	2007	Survey year 2004-2006
Official Forest Service Annual Statistics Department of Agriculture, Fisheries and Food Johnstown Castle Estate, Wexford	H	Annual afforestation area (ha).	1980-2007	

1.2.2 Classification and definitions

National class	Definition
Forest	Land with a minimum area of 0.1 hectare, a minimum width of 20 m, trees higher than 5 m and a canopy cover of more than 20% within the forest boundary, or trees able to reach these thresholds *in situ*. Explanatory notes 1. A tree is a woody perennial of a species forming a single main stem or several stems, and having a definitive crown. 2. It includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.1 ha and aminimum width of 20 m. 3. Forest is determined both by the presence of trees/stumps and the absence of other predominant land-uses. Areas under reforestation that

	have not yet reached but are expected to reach a canopy cover of 20% and a minimum tree height of 5 m are included, as are temporarily unstocked areas, resulting from human intervention or natural causes, which are expected to bw restocked. 4. The forest area is determined by the forest boundary. The term forest boundary is defined by any man-made boundary enclosing the forest area or, in the absence of such boundary feature, the boundary of the forest is determined by extending out 1 m from the position of the pith-line of the outermost trees. 5. The forest area includes forest roads, firebreaks and other small open areas on forest land; forest in national parks, nature reserves and other protected areas such as those of specific scientific, historical, cultural or spiritual interest. 6. the forest area excludes tree stands in agricultural production systems, for example in fruit plantations and Christmas tree plantations. 7. The term also includes trees in urban parks and gardens, provided these areas satisfy the forest definition.

Note, the national classification of forest is slightly different from the FRA definition.

1.2.3 Original data

NFI data 2007

Land-use type	Area (1000 ha)
Forest	698
Hedgerow	272
Other Woodland	49
Bareland within Forest Ownership Boundary	38
Deforestation	6
Individual Tree	6
Scrub	88
Grassland	3757
Cropland	379
Bog and Heath	891
Cutover Peat (Domestic)	97
Cutover Peat (Industrial)	69
Bare Rock	76
Bare Soil	17
Stone Wall	3
Quarry	8
Road - Paved	85
Built Land (Rural)	112
Built Land (Urban)	63
Green Space (Rural)	57
Green Space (Urban)	24
Track - Unpaved Access Route	18
Other	2
Water Body	140
Coastal Complex	20
Sea	2
Total	6,976

Source: Forest Service. 2007. *National Forest Inventory - Republic of Ireland - Results*. Forest Service, Department of Agriculture, Fisheries and Food, Johnstown Castle Estate, Co. Wexford.

Official Forest Service Annual Afforestation Statistics 2007

Year	Total (ha)
1990	15,817
1991	19,147
1992	16,699
1993	15,998
1994	19,459
1995	23,710
1996	20,981
1997	11,434
1998	12,928
1999	12,668
2000	15,695
2001	15,464
2002	15,054
2003	9,097
2004	9,739
2005	10,096
2006	8,037
2007	6,947
2008*	7,000
2009*	7,000
2010*	7,000
*Estimated by John Redmond.	

Source: Forest Service. 2007. Official Forest Service Annual Statistics 2007.

1.3 Analysis and processing of national data

1.3.1 Calibration

The total land are figure from the NFI was 6,976,000 ha, compared to 7,027,000 for the official UN area. A calibration factor of 1.007295 (7027/6976.11) was therefore used in computing the data for T1.

1.3.2 Estimation and forecasting

The projected afforestation for 2008, 2009, 2010 is estimated to be 7,000ha per year. The NFI 2007 data was used as the basis for calculating the forest area and was let equal the total forest area in 2006. To obtain the data for requested years, the official Forest Service annual statistics were used. For example, in 2005, the 2006 annual afforestation figure (8,037) was subtracted from the 2006 NFI figure (697,840).

The area of OWL was estimated to be 49,270ha in the 2007 NFI. This figure was used for 2005 in T1 and for the years 1990, 2000 and 2010, a 1% change was estimated for each 5 yr interval.

The calibration increase the forest area by approximately 5,000 ha in the 2000, 2005 and 2010 reporting years.

1.3.3 Reclassification into FRA 2010 categories

The original categories are used directly.

1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	465	635	695	739
Other wooded land	49	49	50	50
Other land	6 375	6 205	6 145	6 099
...of which with tree cover	n.a.	n.a.	n.a.	n.a.
Inland water bodies	138	138	138	138
Total for country	**7027**	**7027**	**7027**	**7027**

1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest	.	The yearly amount of afforestation has ranged from 11 000 to 24 000 ha/year (1988-2000) in Ireland (Department of Agriculture and Food –Forest Service). This explains the continuous increase of the forest area.
Other wooded land	These are groups of trees that do not meet the criteria specified in the forest definition. This category covers areas of trees less than 0.1 ha, or less than 20 m in width, and/or with a canopy cover of less than 20%. Classification was done using air photos, where each pixel is 1m x 1m..	
Other land		
Other land with tree cover		
Inland water bodies	UN official area	

Other general comments to the table

Expected year for completion of ongoing/planned national forest inventory and/or RS survey / mapping	
Field inventory	
Remote sensing survey / mapping	

2 Table T2 – Forest ownership and management rights

2.1 FRA 2010 Categories and definitions

Category	Definition
Public ownership	Forest owned by the State; or administrative units of the public administration; or by institutions or corporations owned by the public administration.
Private ownership	Forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, private religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
Individuals *(sub-category of Private ownership)*	Forest owned by individuals and families.
Private business entities and institutions *(sub-category of Private ownership)*	Forest owned by private corporations, co-operatives, companies and other business entities, as well as private non-profit organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc.
Local communities *(sub-category of Private ownership)*	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development.
Indigenous / tribal communities *(sub-category of Private ownership)*	Forest owned by communities of indigenous or tribal people.
Other types of ownership	Other kind of ownership arrangements not covered by the categories above. Also includes areas where ownership is unclear or disputed.
Categories related to the holder of management rights of public forest resources	
Public Administration	The Public Administration (or institutions or corporations owned by the Public Administration) retains management rights and responsibilities within the limits specified by the legislation.
Individuals/households	Forest management rights and responsibilities are transferred from the Public Administration to individuals or households through long-term leases or management agreements.
Private institutions	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities, private co-operatives, private non-profit institutions and associations, etc., through long-term leases or management agreements.
Communities	Forest management rights and responsibilities are transferred from the Public Administration to local communities (including indigenous and tribal communities) through long-term leases or management agreements.
Other form of management rights	Forests for which the transfer of management rights does not belong to any of the categories mentioned above.

2.2 National data

2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National Forest Inventory Department of Agriculture, Fisheries and Food Johnstown Castle Estate, Wexford	H	Area (ha)	2007	Survey year 2004-2006
Official Forest Service Annual Statistics Department of Agriculture, Fisheries and Food Johnstown Castle Estate, Wexford	H	Annual afforestation area (ha).	1980-2007	

2.2.2 Classification and definitions

National class	Definition
Public	Forest land owned by public institutions or publicly owned companies.
Private	Forest land owned by private individuals or companies.

2.2.3 Original data

NFI data 2007

Total forest area by ownership	Area (1000ha)
public	397.46
private	300.38
Total	697.84

Source: Forest Service. 2007. National Forest Inventory - Republic of Ireland - Results. Forest Service, Department of Agriculture, Fisheries and Food, Johnstown Castle Estate, Co. Wexford.

Official Forest Service Annual Afforestation Statistics 2007

Year	State	Private	Total (ha)
1990	6,670	9,147	15,817
1991	7,855	11,292	19,147
1992	7,565	9,134	16,699
1993	6,827	9,171	15,998
1994	6,622	12,837	19,459
1995	6,367	17,343	23,710
1996	4,426	16,555	20,981
1997	851	10,583	11,434
1998	2,926	10,002	12,928
1999	891	11,777	12,668
2000	1,464	14,231	15,695
2001	317	15,147	15,464
2002	319	14,735	15,054
2003	128	8,969	9,097
2004	122	9,617	9,739
2005	64	10,032	10,096
2006	25	8,012	8,037
2007	0	6,947	6,947
2008*		7,000	7,000
2009*		7,000	7,000
2010*		7,000	7,000

*Estimated by John Redmond.

Source: Forest Service. 2007. Official Forest Service Annual Statistics 2007.

2.3 Analysis and processing of national data

2.3.1 Calibration

The total land are figure from the NFI was 6,976,000 ha, compared to 7,027,000 for the official UN area. A calibration factor of 1. 007295 (7027/6976.11) was therefore used in computing the data for T2.

2.3.2 Estimation and forecasting

Forest was calculated for the three years using the same approach as detailed in section 1.3.2.

2.3.3 Reclassification into FRA 2010 categories

Not applicable.

2.4 Data for Table T2

Table 2a - Forest ownership

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	353	399	400
Private ownership	112	236	295
...of which owned by individuals	n.a.	n.a.	n.a.
...of which owned by private business entities and institutions	n.a.	n.a.	n.a.
...of which owned by local communities	n.a.	n.a.	n.a.
...of which owned by indigenous / tribal communities	0	0	0
Other types of ownership	0	0	0
TOTAL	**465**	**635**	**695**

Note: If other types of ownership is reported, please specify details in comment to the table.

Does ownership of trees coincide with ownership of the land on which they are situated?	X	Yes
		No
If **No** above, please describe below how the two differ:		
There are some cases where the answer would be no, but this not very significant.		

Table 2b - Holder of management rights of public forests

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public Administration	353	396	395
Individuals	n.a.	n.a.	n.a.
Private corporations and institutions	0	3.5	5.5
Communities	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.
TOTAL	353	399	400

Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership		
Private ownership		
Other types of ownership		
Management rights	The private corporations and institutions data in Table 2b, refers to land owned by the state forestry company (Coillte) but management is controlled by The Irish Forestry Unit Trust. Data in relation to Individuals, Communities and Other is not available, but would be small in area.	

Other general comments to the table
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3 Table T3 – Forest designation and management

3.1 FRA 2010 Categories and definitions

Term	Definition
Primary designated function	The primary function or management objective assigned to a management unit either by legal prescription, documented decision of the landowner/manager, or evidence provided by documented studies of forest management practices and customary use.
Protected areas	Areas especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.
Categories of primary designated functions	
Production	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Protection of soil and water	Forest area designated primarily for protection of soil and water.
Conservation of biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Social services	Forest area designated primarily for social services.
Multiple use	Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function.
Other	Forest areas designated primarily for a function other than production, protection, conservation, social services or multiple use.
No / unknown	No or unknown designation.
Special designation and management categories	
Area of permanent forest estate (PFE)	Forest area that is designated to be retained as forest and may not be converted to other land use.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.
Forest area under sustain-able forest management	To be defined and documented by the country.
Forest area with management plan	Forest area that has a long-term (ten years or more) documented management plan, aiming at defined management goals, which is periodically revised.

3.2 National data

3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National Forest Inventory Department of Agriculture, Fisheries and Food Johnstown Castle Estate, Wexford	H	Area (ha)	2007	Survey year 2004-2006
Official Forest Service Annual Statistics Department of Agriculture, Fisheries and Food Johnstown Castle Estate, Wexford	H	Annual afforestation area (ha).	1980-2007	

3.2.2 Classification and definitions

National class	Definition
Protected area	Protected areas for FRA 2010 include those areas with IUCN classification. Designations which were recorded in the NFI were re-classified into the IUCN categories I-IV. The NFI designations which were reclassified as Protected areas include: National Heritage Areas; Special Protection Areas; Special Areas of Conservation; National Parks and Nature reserves.

3.2.3 Original data

Table 3a
The primary designated function of lands in the private forest estate is unknown. For the public forest estate (Coillte), it was possible to obtain long-term management objectives from a management planning system for the estate.

Coillte management unit objective data

MANAGEMENT_OBJECTIVE	Area (ha)
Biodiversity	76,027
Christmas Tree Production	72
Conservation	6,855
No active management	43
Non-forest Commercial	1,664
Nursery Production	33
Recreation	507
Seed Stand	738
Timber Production	356,980
	442,919

Table 3b
NFI 2007 designations were reclassified as Protected areas. These original classes include: National Heritage Areas; Special Protection Areas; Special Areas of Conservation; National Parks and Nature reserves.

	Area (1000 ha)
Not protected area	640.18
Protected area	57.66
Total	697.84

Source: Forest Service. 2007. National Forest Inventory - Republic of Ireland - Results. Forest Service, Department of Agriculture, Fisheries and Food, Johnstown Castle Estate, Co. Wexford.

3.3 Analysis and processing of national data

3.3.1 Calibration

The total land are figure from the NFI was 6,976,000 ha, compared to 7,027,000 for the official UN area. A calibration factor of 1. 007295 (7027/6976.11) was therefore used in computing the data for T3a and T3b.

3.3.2 Estimation and forecasting

Forest area was calculated for the four years using the same approach as detailed in section 1.3.2..

3.3.3 Reclassification into FRA 2010 categories

Table 3a

Coillte management unit objectives were reclassified into the Table 3a categories. The Coillte categories 'Biodiversity' and 'Conservation' were reclassified into FRA category 'Conservation of Biodiversity'. The Coillte categories 'Recreation' was reclassified into FRA category 'Social Services'.

Forest area classified as having a 'No/Unknown' primary designated function is the total area of the private forest estate. The forest area classified as 'Production' is calculated by subtracting from the total forest area the remaining designated areas.

Table 3b

Protected areas

Protected areas for FRA 2010 include those areas with IUCN classification. Designations which were recorded in the NFI were re-classified into the IUCN categories I-IV. The NFI designations which were reclassified as Protected areas include: National Heritage Areas; Special Protection Areas; Special Areas of Conservation; National Parks and Nature reserves.

3.4 Data for Table T3

Table 3a – Primary designated function

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	353	399	317	317
Protection of soil and water	n.a.	n.a.	n.a.	n.a.
Conservation of biodiversity	n.a.	n.a.	83	83
Social services	n.a.	n.a.	0.51	0.51
Multiple use	n.a.	n.a.	n.a.	n.a.
Other (please specify in comments below the table)	n.a.	n.a.	n.a.	n.a.
No / unknown	112	236	295	339
TOTAL	**465**	**635**	**695**	**739**

Table 3b – Special designation and management categories

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	465	635	695	739
Forest area within protected areas	n.a.	n.a.	58	58
Forest area under sustainable forest management	465	635	695	739
Forest area with management plan	409	517	548	570

3.5 Comments to Table T3

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production		
Protection of soil and water	There are some areas that fit into this category but no information is available.	
Conservation of biodiversity	There are some areas that fit into this category but no information is available for years 1990 and 2000.	
Social services	There are some areas that fit into this category but no information is available for years 1990 and 2000.	
Multiple use	There are some areas that fit into this category but no information is available.	
Other	There are some areas that fit into this category but no information is available.	
No / unknown designation		
Area of permanent forest estate	As deforestation is not permitted due to national legislation, the permanent forest estate area is the same as the total forest estate area.	
Forest area within protected areas	The NFI data (2007) is used for the 2005 data entered. The 2010 data is estimated.	
Forest area under sustainable forest management	Forest management activities are regulated by the Forest Service, which ensure that all activities are in accordance with SFM principles.	
Forest area with management plan	The entire public forest estate. It is estimated that approx 50% of the private estate has a management plan in place.	

Other general comments to the table

4 Table T4 – Forest characteristics

4.1 FRA 2010 Categories and definitions

Term / category	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Introduced species	A species, subspecies or lower taxon, occurring outside its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
Characteristics categories	
Primary forest	Naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
Other naturally regenerated forest of introduced species *(sub-category)*	Other naturally regenerated forest where the trees are predominantly of introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
Planted forest of introduced species *(sub-category)*	Planted forest, where the planted/seeded trees are predominantly of introduced species.
Special categories	
Rubber plantations	Forest area with rubber tree plantations.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
Bamboo	Area of forest and other wooded land with predominant bamboo vegetation.

4.2 National data

4.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National Forest Inventory Department of Agriculture, Fisheries and Food, Johnstown Castle Estate, Wexford	H	Area (ha)	2007	Survey year 2004-2006
Official Forest Service Annual Statistics Department of Agriculture, Fisheries and Food, Johnstown Castle Estate, Wexford	H	Annual afforestation area (ha).	1980-2007	

4.2.2 Classification and definitions

National class	Definition
Afforestation	Establishment of forest plantations on land that, until then, was not classified as forest. Implies a transformation from Non-Forest to Forest.
Reforestation	Establishment of a forest on temporarily unstocked lands that are considered as forest. Generally identified by the presence of stumps and deadwood on the site.
Semi-natural	Forest land where greater than 80% of the tree species regenerated naturally. Native and non-native tree species are included. This forest land may not be managed in accordance with a formal or an informal plan applied regularly over a sufficiently long period (5 years or more). It generally indicates natural succession type forests.

Native/non-native

Reclassified of tree species into broad species types: native and non-native.
Native tree species include:

Common Name	***Botanical Name***	***Common Name***	***Botanical Name***
Alder	*Alnus glutinosa*	Crab apple	*Malus sylvestris*
Silver birch	*Betula pendula*	Aspen	*Populus tremula*
Downy birch	*Betula pubescens*	Wild cherry	*Prunus avium*
Ash	*Fraxinus excelsior*	Eared willow	*Salix aurita*
Sessile oak	*Quercus petrea*	Goat willow	*Salix cinerea*
Pedunculate oak	*Quercus robur*	Rusty willow	*Salix cinerea ssp. Oleifolia*
Scots pine	*Pinus sylvestris*	Rowan	*Sorbus aucuparia*
Hazel	*Corylus avellana*	Yew	*Taxus baccata*
Holly	*Ilex aquifolium*		

4.2.3 Original data

NFI 2007 data

	non-native	native	Total
afforestation	364.48	42.24	406.72
reforestation	94.67	31.39	126.06
semi-natural	15.04	66.7	81.75
temporarily unstocked			11.22
Forest open area			72.10
Total	474	140	697.85

4.3 Analysis and processing of national data

4.3.1 Calibration

The total land are figure from the NFI was 6,976,000 ha, compared to 7,027,000 for the official UN area. A calibration factor of 1. 007295 (7027/6976.11) was therefore used in computing the data for T4a.

4.3.2 Estimation and forecasting

The data in 4.2.3 for afforestation, reforestation, temporarily restocked and forest open area formed the basic data to be used for the planted forest category. Official afforestation statistics detailed in 1.2.3 were used to estimate the area planted in 1990, 2000 and 2010. For the 1990, 2000 and 2010 areas of introduced species, the 2005 percent of introduced species within the parent forest class was used for the calculation. .

The semi-natural category from the data in 4.2.3 is used for the 'Other naturally regenerated forest' category. The NFI 2007 data of 81.75 ha (1000's) is used for the four reporting years

The area of introduced species within the naturally regenerated forest was only available form NFI 2007, sec 4.2.3. This figure was used for the 2005 data. For the 1990, 2000 and 2010 areas of introduced species, the 2005 percent of introduced species within the parent forest class was used for the calculation.

4.3.3 Reclassification into FRA 2010 categories

Planted forests were identified as the sum of the area which had been classified as Afforestation, Reforestation, Temporary unstocked and Forest open area.

4.4 Data for Table T4

Table 4a

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	0	0	0	0
Other naturally regenerated forest	82	82	82	82
...of which of introduced species	15	15	15	15
Planted forest	383	553	612	657
...of which of introduced species	291	420	466	499
TOTAL	465	635	695	739

Table 4b

FRA 2010 Categories	Area (1000 hectares)			
	1990	2000	2005	2010
Rubber plantations (Forest)	0	0	0	0
Mangroves (Forest and OWL)	0	0	0	0
Bamboo (Forest and OWL)	0	0	0	0

4.5 Comments to Table T4

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Primary forest	No forest areas fitting this description are present in Ireland.	
Other naturally regenerating forest	Those classified as semi-natural in the rotation type attribute.	
Planted forest	Those areas classified as afforestation, reforestation and temporary restocked in the rotation type NFI attribute. Forest open area plots are also included e.g. roads, ridelines, riparian zones, etc.	
Rubber plantations		
Mangroves		
Bamboo		

Other general comments to the table

5 Table T5 – Forest establishment and reforestation

5.1 FRA 2010 Categories and definitions

Term	Definition
Afforestation	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest.
Reforestation	Re-establishment of forest through planting and/or deliberate seeding on land classified as forest.
Natural expansion of forest	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).

5.2 National data

5.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Official Forest Service Annual Statistics Department of Agriculture, Fisheries and Food, Johnstown Castle Estate, Wexford	H	Annual afforestation area (ha).	1980-2007	
Coillte annual reports Dublin rd, Newtownmountkennedy, Co. Wicklow	H	Reforestation Area (ha)	1989-2007	
Forest and Wildlife Service Annual Reports Department of Agriculture, Fisheries and Food, Johnstown Castle Estate, Wexford	H	Reforestation Area (ha)	1988	

5.2.2 Classification and definitions

National class	Definition
Afforestation	Establishment of forest plantations on land that, until then, was not classified as forest. Implies a transformation from Non-Forest to Forest.
Reforestation	Establishment of a forest on temporarily unstocked lands that are considered as forest. Generally identified by the presence of stumps and deadwood on the site.
Semi-natural	Forest land where greater than 80% of the tree species regenerated naturally. Native and non-native tree species are included. This forest land may not be managed in accordance with a formal or an informal plan applied regularly over a sufficiently long period (5 years or more). It generally indicates natural succession type forests.

5.2.3 Original data

Reforestation data for the forest estate

Year	Public (ha)	Private (ha)
1988	3021	450
1989	3433	450
1990	3682	450
1991	4003	450
1992	3868	450
1993	4421	450
1994	5024	450
1995	5247	450
1996	6003	450
1997	6890	450
1998	6985	450
1999	7724	450
2000	9038	450
2001	8555	450
2002	9058	450
2003	10102	450
2004	9130	450
2005	7801	450
2006	6694	450
2007	6996	450

5.3 Analysis and processing of national data

5.3.1 Calibration

The total land are figure from the NFI was 6,976,000 ha, compared to 7,027,000 for the official UN area. A calibration factor of 1. 007295 (7027/6976.11) was therefore used in computing the data for T5.

5.3.2 Estimation and forecasting

Natural expansion of the forest estate is estimated to be 250 ha annually. Private sector reforestation data is estimated at 450 ha per annum. This is based on average figures for the last four years, outlined below.

Year	clearfell area (ha)
2004	157
2005	1,260
2006	115
2007	417
Average	487

To calculate the area of introduced species for afforestation and reforestation, the following percentage estimates were used. These estimates were derived from official Forest Service records and Coillte planting returns.

Years	% Introduced
1988-1992	0.9525
1998-2002	0.8575
2003-2007	0.7245

5.4 Data for Table T5

FRA 2010 Categories	Annual forest establishment (hectares/year)			...of which of introduced species [1)] (hectares/year)		
	1990	2000	2005	1990	2000	2005
Afforestation	15810	14470	8850	15060	13780	6410
Reforestation	4080	8790	9070	3890	7530	6570
...of which on areas previously planted	4080	8790	9070	3890	7530	6570
Natural expansion of forest	250	250	250	0	0	0

Note: The figures for the reporting years refer to the averages for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

5.5 Comments to Table T5

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Afforestation		
Reforestation		
Natural expansion of forest		

Other general comments to the table

6 Table T6 – Growing stock

6.1 FRA 2010 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm.
Growing stock of commercial species	Growing stock (see def. above) of commercial species.

6.2 National data

6.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National Forest Inventory Department of Agriculture, Fisheries and Food, Johnstown Castle Estate, Wexford	H		2007	Survey year 2004-2006

6.2.2 Classification and definitions

National class	Definition
Growing stock	The living tree component of the standing volume.
Conifer growing stock	The British Forestry Commission (BFC) single tree volume equations were used to estimate standing volume for each tree on the plot with a minimum dbh of 7 cm. The growing stock of the stem is measured from ground to 7 cm top diameter overbark.
Broadleaf growing stock	The BFC single tree volume equations are used to estimate standing merchantable volume for each tree with a minimum dbh of 7 cm. The growing stock is measured from ground to timber height. Timber height concerns merchantable material only, and is the distance from the ground to the highest point on the main stem where the diameter is not less than 7 cm top diameter overbark (Matthews and Mackie, 2006). The spring of the crown is frequently the timber point, but the timber height may extend into the crown if there are merchantable lengths present.

6.2.3 Original data

Commercial growing stock from NFI 2007

	Volume (1000's m^3)
Commercial	68,553
Non-commercial	1,556
	70,109

6.3 Analysis and processing of national data

6.3.1 Calibration

The total land are figure from the NFI was 6,976,000 ha, compared to 7,027,000 for the official UN area. A calibration factor of 1. 007295 (7027/6976.11) was therefore used in computing the data for T6a and T6b.

6.3.2 Estimation and forecasting

Volume per ha estimates

The volume per hectare for the three different ownership categories were taken from the NFI 2007. The NFI 2007 data was used directly for the 2005 values. Values were estimated for 1990, 2000 and 2010 by assessing the impact of afforestation and clearfell of the NFI 2007 values

Growing stock per hectare (m3)	1990	2000	2005	2010
Private grant aided	5	36	41	46
Private non-grant aided	137	137	137	137
Public	160	150	145	145

From the NFI 2007 total stocked forest area was classified into the three ownership categories detail in the above table. area values were 10

Area (1000's ha)	1990	2000	2005	2010
Private grant aided	27	138	190	223
Private non-grant aided	74	74	75	82
Public	318	359	360	360

These stocked forest areas are multiplied by the NFI 2007 mean growing stock per hectare to produce Total growing stock figures for the years, 1990, 2000, 2005 and 2010.

The sub-categories of conifer/broadleaf and the commercial growing stock were calculated by using percentages obtained from the 2005 data. E.g. 2010 conifer volume = (2005 conifer volume/2005 total volume)*2010 total volume.

6.3.3 Reclassification into FRA 2010 categories

Tree species data in the NFI was reclassified into a new attribute called Commerciality. Individual species were classified as either commercial or non-commercial.

6.4 Data for Table T6

Table 6a – Growing stock

FRA 2010 category	Volume (million cubic meters over bark)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Total growing stock	61.5	69.6	70.6	74.30				
... of which coniferous	51.8	58.6	59.5	62.6				
... of which broadleaved	9.7	11.0	11.1	11.7				
Growing stock of commercial species	60.2	68.0	69.1	72.7				

Table 6b – Growing stock of the 10 most common species

FRA 2010 category / Species name			Growing stock in forest (million cubic meters)		
Rank	**Scientific name**	**Common name**	**1990**	**2000**	**2005**
1st	Picea sitchensis	sitka spruce	n.a.	n.a.	42.8
2nd	*Pinus contorta*	lodgepole pine	n.a.	n.a.	7.6
3rd	*Picea abies*	Norway spruce	n.a.	n.a.	2.8
4th	*Pseudotsuga menziesii*	Douglas fir	n.a.	n.a.	1.9
5th	*Fagus sylvatica*	beech	n.a.	n.a.	1.7
6th	*Fraxinus excelsior*	ash	n.a.	n.a.	1.5
7th	Quercus robur	pedunculate oak	n.a.	n.a.	1.4
8th	Larix kaempferi	Japanese larch	n.a.	n.a.	1.4
9th	Betula pubescens	downy birch	n.a.	n.a.	1.2
10th	Quercus petraea	sessile oak	n.a.	n.a.	1.0
Remaining			n.a.	n.a.	7.3
TOTAL			**61.5**	**69.6**	**70.6**

Note: Rank refers to the order of importance in terms of growing stock, i.e. 1st is the species with the highest growing stock. Year 2000 is the reference year for defining the species list and the order of the species.

Table 6c – Specification of threshold values

Item	Value	Complementary information
Minimum diameter (cm) at breast height[1] of trees included in growing stock (X)	7	
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	7	
Minimum diameter (cm) of branches included in growing stock (W)		Branches Not included
Volume refers to "above ground" (AG) or "above stump" (AS)	AG	

[1] Diameter at breast height (DBH) refers to diameter over bark measured at a height of 1.30 m above ground level or 30 cm above buttresses if these are higher than 1 m.

6.5 Comments to Table T6

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total growing stock		
Growing stock of broadleaved / coniferous	The BFC single tree volume equations are used to estimate standing merchantable volume for each tree with a minimum dbh of 7 cm. The growing stock is measured from ground to timber height. Timber height concerns merchantable material only, and is the distance from the ground to the highest point on the main stem where the diameter is not less than 7 cm top diameter overbark. The spring of the crown is frequently the timber point, but the timber height may extend into the crown if there are merchantable lengths present. As tree components above timber point are excluded, the estimate of broadleaf tree volume is an underestimate of the total volume as it excludes non-merchantable components of tree volume.	
Growing stock of commercial species		
Growing stock composition		

Other general comments to the table
No information is available regarding the volume stock of other wooded land. Growing stock for the 10 most common species is only available for 2005.

7 Table T7 – Biomass stock

7.1 FRA 2010 Categories and definitions

Category	Definition
Above-ground biomass	All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
Below-ground biomass	All biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood	All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.

7.2 National data

7.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
NIR to UNFCCC	M	Biomass (T)	1990-2007	CARBWARE MODEL
National forest inventory	H	Biomass (T)	2005	

7.2.2 Classification and definitions

National class	Definition
Above-ground biomass	All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
Below-ground biomass	All biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood	All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 7 cm in diameter or any other diameter used by the country.

7.2.3 Original data

Analysis based on national inventory report 2007 submitted to UNFCCC in 2008.

7.3 Analysis and processing of national data

Based on CARBWARE models as specifies in NIR 2007 submitted to UNFCCC

7.4 Data for Table T7

FRA 2010 category	Biomass (million metric tonnes oven-dry weight)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Above-ground biomass	25.3	29.1	31.9	36.2	n.a.	n.a.	n.a.	n.a.
Below-ground biomass	6.3	7.3	7.9	9	n.a.	n.a.	n.a.	n.a.
Dead wood	2.88	2.88	2.88	2.88	n.a.	n.a.	n.a.	n.a.
TOTAL	**34.5**	**39.3**	**42.7**	**48.08**	n.a.	n.a.	n.a.	n.a.

7.5 Comments to Table T7

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Above-ground biomass		See UNFCCC NIR 2007
Below-ground biomass	Assumed to represent 20 % of total biomass (IPCC default)	
Dead wood	Coarse dead wood determined in NFI 2005 only	Coarse dead wood assumed to be in steady state no stock change

Other general comments to the table

8 Table T8 – Carbon stock

8.1 FRA 2010 Categories and definitions

Category	Definition
Carbon in above-ground biomass	Carbon in all living biomass above the soil, including stem, stump, branches, bark, seeds, and foliage.
Carbon in below-ground biomass	Carbon in all biomass of live roots. Fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in litter	Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g. 10 cm), lying dead in various states of decomposition above the mineral or organic soil.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series.

8.2 National data

8.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
NIR to UNFCCC	M	Carbon (T)	1990-2007	CARWARE MODEL
National forest inventory	H	Carbon (T)	2005	
Cruickshank, M.M., Tomlinson, R.W., Devine, P.M. and Milne, R.M. 1998. Carbon in the vegetation and soils of Northern Ireland. Biology and Environment: Proc. Roy. Irish Acad. 98, 9-21.				
CLIMATE CHANGE –Land Use, Land-Use Change and Carbon Stocks. (2000-LS-5.1.2a-M1) Synthesis Report. http://www.epa.ie/downloads/pubs/research/climate/EPA_climate_change_land_use_ERTDI47.pdf				

8.2.2 Classification and definitions

National class	Definition
Carbon in above-ground biomass	Carbon in all living biomass above the soil, including stem, branches, bark, seeds, and foliage.
Carbon in below-ground biomass	Carbon in all biomass of , stumps and live roots. Fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 7 cm in diameter or any other diameter used by the country.
Carbon in litter	Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g 7 cm), lying dead in various states of decomposition above the mineral or organic soil.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series.

8.3 Analysis and processing of national data

As above. This method slightly underestimated the biomass pools since it is based on a model.

Methodology for soils is published in NFI, 2007. For trend analysis all mineral soils are assumed to be in steady state (no accumulation or loss of C) peats assume to loose C 0.68 t C ha per year (IPCC default)
Dead wood pool estimated for 2005 only (see NFI, 2007)

8.4 Data for Table T8

FRA 2010 Category	**Carbon (Million metric tonnes)**							
	Forest				**Other wooded land**			
	1990	**2000**	**2005**	**2010**	**1990**	**2000**	**2005**	**2010**
Carbon in above-ground biomass	12.65	14.55	15.95	18.1	n.a.	n.a.	n.a.	n.a.
Carbon in below-ground biomass	3.15	3.65	3.95	4.5	n.a.	n.a.	n.a.	n.a.
Sub-total: Living biomass	***15.8***	***18.2***	***19.9***	***22.6***	n.a.	n.a.	n.a.	n.a.
Carbon in dead wood	1.44	1.44	1.44	1.44	n.a.	n.a.	n.a.	n.a.
Carbon in litter	0.305	0.35	0.38	0.4	n.a.	n.a.	n.a.	n.a.
Sub-total: Dead wood and litter	***1.745***	***1.79***	***1.82***	***1.84***	n.a.	n.a.	n.a.	n.a.
Soil carbon	283.93	282.39	281.45	280.24	n.a.	n.a.	n.a.	n.a.
TOTAL	**301.475**	**302.38**	**303.17**	**304.68**	n.a.	n.a.	n.a.	n.a.

Soil depth (cm) used for soil carbon estimates	30

8.5 Comments to Table T8

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Carbon in above-ground biomass		C stock change underestimated. New system being developed
Carbon in below-ground biomass		
Carbon in dead wood	Assumed to be in steady state	
Carbon in litter		
Soil carbon		

Other general comments to the table

9 Table T9 – Forest fires

9.1 FRA 2010 Categories and definitions

Category	Definition
Number of fires	Average number of vegetation fires per year in the country.
Area affected by fire	Average area affected by vegetation fires per year in the country.
Vegetation fire *(supplementary term)*	Any vegetation fire regardless of ignition source, damage or benefit.
Wildfire	Any unplanned and/or uncontrolled vegetation fire.
Planned fire	A vegetation fire regardless of ignition source that burns according to management objectives and requires limited or no suppression action.

9.2 National data

9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forest Service and Coillte		Forest fire	1993-2004	

9.2.2 Classification and definitions

National class	Definition

9.2.3 Original data

Year	Public	Private*	Area	Area (1000's)	Source
1988	231	100	331	0.331	J. Redmond
1989	270	100	370	0.37	J. Redmond
1990	289	100	389	0.389	J. Redmond
1991	150	100	250	0.25	J. Redmond
1992	60.7	100	160.7	0.1607	J. Redmond
1993			407	0.407	K. Black
1994			455	0.455	K. Black
1995			496.6	0.4966	K. Black
1996			477.91	0.47791	K. Black
1997			305.3	0.3053	K. Black
1998			63	0.063	K. Black
1999			59.22	0.05922	K. Black
2000			304.18	0.30418	K. Black
2001			768.16	0.76816	K. Black
2002			281.41	0.28141	K. Black
2003			1028.02	1.02802	K. Black
2004			793.4	0.7934	K. Black
2005			156.71	0.15671	K. Black
2006			450.72	0.45072	K. Black
2007			225	0.225	K. Black
*Estimated by John Redmond					

9.3 Analysis and processing of national data

9.3.1 Calibration

9.3.2 Estimation and forecasting

The disturbance by fire is reported for forest applying the mean of 1993-1995 for year 1990 and 1998-2002 is used to report year 2000.

9.3.3 Reclassification into FRA 2010 categories

9.4 Data for Table T9

Table 9a

FRA 2010 category	Annual average for 5-year period					
	1990		2000		2005	
	1000 hectares	number of fires	1000 hectares	number of fires	1000 hectares	number of fires
Total land area affected by fire	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
... of which on forest	0.30	n.a.	0.30	n.a.	0.53	n.a.
... of which on other wooded land	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
... of which on other land	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Table 9b

FRA 2010 category	Proportion of forest area affected by fire (%)		
	1990	2000	2005
Wildfire	100	100	100
Planned fire	0	0	0

Note: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively

9.5 Comments to Table T9

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Area affected by fire		
Number of fires		
Wildfire / planned fire		

Other general comments to the table

10 Table T10 – Other disturbances affecting forest health and vitality

10.1 FRA 2010 Categories and definitions

Term	Definition
Disturbance	Damage caused by any factor (biotic or abiotic) that adversely affects the vigour and productivity of the forest and which is not a direct result of human activities.
Invasive species	Species that are non-native to a particular ecosystem and whose introduction and spread cause, or are likely to cause, socio-cultural, economic or environmental harm or harm to human health.
Category	**Definition**
Disturbance by insects	Disturbance caused by insect pests.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi, phytoplasma or virus.
Disturbance by other biotic agents	Disturbance caused by biotic agents other than insects or diseases, such as wildlife browsing, grazing, physical damage by animals, etc.
Disturbance caused by abiotic factors	Disturbances caused by abiotic factors, such as air pollution, snow, storm, drought, etc.

10.2 National data

10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Source: COFORD and Coillte		Estimated annual volume and area of windthrow in state forests	1955-2004	

10.2.2 Original data

Year	Windthrow area (ha)
1988	337
1989	370
1990	557
1991	267
1992	417
1993	307
1994	517
1995	140
1996	317
1997	213
1998	1,297
1999	3,007
2000	3,030
2001	1,330
2002	780
2003	377
2004	210
2005	250*
2006	250*
2007	250*
2008	250*

* Estimated by John Redmond

10.3 Analysis and processing of national data

10.3.1 Calibration

10.3.2 Estimation and forecasting

Data for 1988 to 2004 was taken from the FRA 2005 report. The data for 2005-2007 was estimated based on previous trends.

10.4 Data for Table T10

Table 10a – Disturbances

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	0	0	0
Disturbance by diseases	0	0	0
Disturbance by other biotic agents	0	0	0
Disturbance caused by abiotic factors	0.39	1.89	0.27
Total area affected by disturbances	0.39	1.89	0.27

Notes: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

The total area affected by disturbances is not necessarily the sum of the individual disturbances as these may be overlapping.

Table 10b – Major outbreaks of insects and diseases affecting forest health and vitality

Description / name	Tree species or genera affected (scientific name)	Year(s) of latest outbreak	Area affected (1000 hectares)	If cyclic, approx. cycle (years)

Note: Area affected refers to the total area affected during the outbreak.

Table 10c – Area of forest affected by woody invasive species

Scientific name of woody invasive species	Forest area affected 2005 (1000 hectares)
	n.a.
	n.a.
	n.a.
	n.a.
	n.a.
Total forest area affected by woody invasive species	n.a.

Note: The total forest area affected by woody invasive species is not necessary the sum of the values above, as these may be overlapping.

10.5 Comments to Table T10

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Disturbance by insects	There were no disturbance by insects to record.	
Disturbance by diseases	There were no disturbance by diseases to record.	
Disturbance by other biotic agents	There were no disturbance by diseases to record.	
Disturbance caused by abiotic factors	Disturbances recorded only in State forests. This disturbance relates to the area windblown.	
Major outbreaks	There were no major outbreaks to record.	
Invasive species	Rhododendron ponticum is an issue in some forest areas. However no information is available about the extent of this area.	

Other general comments to the table

11 Table T11 – Wood removals and value of removals

11.1 FRA 2010 Categories and definitions

Category	Definition
Industrial roundwood removals	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel).
Woodfuel removals	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

11.2 National data

11.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Coillte and Forest Service reports	H	Volume m^3	1988-2007	
Forest Service Felling Licence data	H	Area (ha)	2004-2007	

11.2.2 Original data

Volume of removals

	Public vol (m^3)	Private (m^3)	Total Volume (m^3)	Woodfuel removals (m^3)	Industrial roundwood (m^3)
1988	1,076,854 [4]	137,500 [2]	1,214,354	50,000 [3]	1,214,354
1989	1,503,000 [4]	137,500 [2]	1,640,500	50,000 [3]	1,640,500
1990	1,444,000 [4]	137,500 [2]	1,581,500	50,000 [3]	1,581,500
1991	1540,000 [4]	137,500 [2]	1,494,500	50,000 [3]	1,494,500
1992	1,840,000 [4]	137,500 [2]	1,977,500	50,000 [3]	1,977,500
1993	1,854,000 [4]	137,500 [2]	1,991,500		1,991,500
1994	2,050,000 [4]	137,500 [2]	2,187,500		2,187,500
1995	2,140,000 [4]	137,500 [2]	2,277,500		2,277,500
1996	2,190,000 [4]	137,500 [2]	2,362,500		2,362,500
1997	2,060,000 [4]	137,500 [2]	2,197,500		2,197,500
1998	2,360,000 [4]	137,500 [2]	2,497,500	73,000 [3]	2,497,500
1999	2,510,000 [4]	137,500 [2]	2,647,500	73,000 [3]	2,647,500
2000	2,730,000 [4]	137,500 [2]	2,867,500	73,000 [3]	2,867,500
2001	2,550,000 [4]	137,500 [2]	2,687,500	32,000 [3]	2,687,500
2002	2,710,000 [4]	137,500 [2]	2,847,500	34,000 [3]	2,847,500
2003	2,660,000 [4]	137,500 [2]	2,797,500	30,100 [3]	2,797,500
2004	2,660,000 [4]	158,200 [1]	2,818,200 [1]	20,000 [1]	2,818,200
2005	2,730,000 [1]	185,569 [1]	2,913,869 [1]	21,450 [1]	2,913,869
2006	2,700,000 [1]	237,883 [1]	2,938,294 [1]	18,596 [1]	2,938,294
2007	2,600,000 [1]	403,823 [1]	2,980,823 [1]	35,054 [1]	2,980,823

[1] These figures have been reported to EUROSTAT / UNECE / FAO by Eoin O'Driscoll (eoin@drima.com)

[2] Estimated by John Redmond

[3] These figures have been taken from FAOSTAT data

[4] Available from Coillte annual reports

Value of removals

	Public Revenue	Private Revenue	Total Revenue	Currency	Total Euro Revenue	Unit value, €
1988	20,216,848	2,581,424	22,798,271	Irish pounds	28,947,877	24
1989	27,290,000	2,496,590	29,786,590	Irish pounds	37,821,225	23
1990	31,600,000	3,009,003	34,609,003	Irish pounds	43,944,435	28
1991	34,400,000	3,071,429	37,471,429	Irish pounds	47,578,972	28
1992	34,500,000	2,578,125	37,078,125	Irish pounds	47,079,578	24
1993	31,520,000	2,337,648	33,857,648	Irish pounds	42,990,410	22
1994	45,300,000	3,038,415	48,338,415	Irish pounds	61,377,219	28
1995	52,700,000	3,386,098	56,086,098	Irish pounds	71,214,762	31
1996	55,350,000	3,475,171	58,825,171	Irish pounds	74,692,673	32
1997	55,490,000	3,703,823	59,193,823	Irish pounds	75,160,765	34
1998	59,440,000	3,463,136	62,903,136	Irish pounds	79,870,627	32
1999	61,860,000	3,388,745	65,248,745	Irish pounds	82,848,942	31
2000	84,470,000	4,254,441	88,724,441	Irish pounds	88,724,441	31
2001	75,360,000	4,063,529	79,423,529	Euro	100,847,232	38
2002	72,280,000	3,667,343	75,947,343	Euro	96,433,380	34
2003	91,200,000	4,714,286	95,914,286	Euro	121,786,205	44
2004	91,833,000	5,461,647	97,294,647	Euro	123,538,905	44
2005	92,228,000	6,269,105	98,497,105	Euro	125,065,715	43
2006	93,595,000	8,246,170	101,841,170	Euro	129,311,807	44
2007	106,457,000	16,534,533	122,991,533	Euro	156,167,269	52
[1] Provided by Coillte Teo						
[2] Estimated by John Redmond						

11.3 Analysis and processing of national data

11.3.1 Estimation and forecasting

Volume of removals

For the private forest estate information about the area of forest granted a thinning licence and clearfell licence in the years 2004-2007 was available. Using an estimated clearfell volume of 300m^3/ha and a thinning volume of 50m^3/ha, total volume estimates were derived.
In order to provide estimates for the years 1988-2003 for the private forest estate, the thinning (1,250 ha) and clearfell area (250ha) were estimated and multiplied by the volumes specified above to give annual estimate of 137,500 m^3 for private sector wood removals.

Value of removals

Value of wood removals data for the public estate was available (11.2.2). Private wood removal value was estimated by multiplying the average unit price for the public estate by the estimated volume of wood removed for the private estate.
In 2000 the unit currency changed from Irish pounds to Euro. This caused difficulty in getting an average for 2001. To overcome this total revenue was converted to euro, using a conversion factor of 1 Ir pound = 1.26974. Raw data is given in 11.2.2.

11.4 Data for Table T11

FRA 2010 Category	Industrial roundwood removals			Woodfuel removals		
	1990	2000	2005	1990	2000	2005
Total volume (1000 m^3 o.b.)	1 618	2 710	2 890	50	57	25
... of which from forest	1 618	2 710	2 890	n.a.	n.a.	n.a.
Unit value (local currency / m^3 o.b.)	25	33	45	n.a.	n.a.	n.a.
Total value (1000 local currency)	41 074	89 745	131 174	n.a.	n.a.	n.a.

Note: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

	1990	2000	2005
Name of local currency	euro	euro	euro.

11.5 Comments to Table T11

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total volume of industrial roundwood removals		
Total volume of woodfuel removals		
Unit value		
Total value	It was not possible to provide roadside estimates for the value of removals. Estimates include revenue from standing, roadside and mill gate sources.	

Other general comments to the table

12 Table T12 – Non-wood forest products removals and value of removals

Data in relation to NWFP is limited in Ireland. The most significant product in this category for Ireland is forest foliage. However, as forest foliage is harvested from forest land and also foliage from cultivated forest species, it is not possible to provide information for table 12 as it refers to forest land only

13 Table T13 – Employment

13.1 FRA 2010 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment	Includes all persons in paid employment or self-employment.
Paid employment	Persons who during a specified reference period performed some work for wage or salary in cash or in kind.
Self-employment	Persons who during a specified reference period performed some work for profit or family gain in cash or in kind (e.g. employers, own-account workers, members of producers' cooperatives, contributing family workers).

13.2 National data

13.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Central Statistics Office	H	Employment in forestry, logging and related services	2000 and 2005	

13.2.2 Original data

The data for 2000 and 2005 comes directly from Ireland's Quarterly National Household Survey (QNHS) which began in 1997 (http://www.cso.ie/).

	q1	q2	q3	q4	Ave
2005	1.8	2.1	2.4	2.0	2.1
2000	2.6	2.5	2.4	2.4	2.5

13.3 Analysis and processing of national data

13.3.1 Estimation and forecasting

In 1990 employment in the public forest estate was 2,087 (Coillte Annual Report 1990). There are no data available to estimate private sector employment. As there was significant afforestation programme being undertaken at this time in the private sector, it is estimated that 1000 FTE were involved in the primary production of goods. Therefore the total is 3.1.

13.4 Data for Table T13

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods	n.a.	n.a.	n.a.
...of which paid employment	3.1	2.5	2.1
...of which self-employment	n.a.	n.a.	n.a.
Employment in management of protected areas	n.a.	n.a.	n.a.

13.5 Comments to Table T13

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Employment in primary production of goods		
Paid employment / self-employment	No information is available for the self-employment sector, but is significant nationally. Approximately 15,000 farmers and private individuals are engaged in forestry. However it is not possible to calculate the FTE involved in this work.	
Employment in management of protected areas	No information is available for employment in these areas. As protected areas are not very significant, this number would be small.	

Other general comments to the table

14 Table T14 – Policy and legal framework

14.1 FRA 2010 Categories and definitions

Term	Definition
Forest policy	A set of orientations and principles of actions adopted by public authorities in harmony with national socio-economic and environmental policies in a given country to guide future decisions in relation to the management, use and conservation of forest and tree resources for the benefit of society.
Forest policy statement	A document that describes the objectives, priorities and means for implementation of the forest policy.
National forest programme (nfp)	A generic expression that refers to a wide range of approaches towards forest policy formulation, planning and implementation at national and sub-national levels. The national forest programme provides a framework and guidance for country-driven forest sector development with participation of all stakeholders and in consistence with policies of other sectors and international policies.
Law (Act or Code) on forest	A set of rules enacted by the legislative authority of a country regulating the access, management, conservation and use of forest resources.

14.2 Data for Table T14

Indicate the existence of the following (2008)			
Forest policy statement with national scope		X	Yes
			No
If Yes above, provide:	Year of endorsement	1996	
	Reference to document	Growing for the Future http://www.agriculture.gov.ie/forestservice/publications/	
National forest programme (nfp)		X	Yes
			No
If Yes above, provide:	Name of nfp in country	Growing for the Future	
	Starting year	1996	
	Current status		In formulation
		X	In implementation
			Under revision
			Process temporarily suspended
	Reference to document or web site	http://www.agriculture.gov.ie/forestservice/publications/	
Law (Act or Code) on forest with national scope		X	Yes, specific forest law exists
			Yes, but rules on forests are incorpo-rated in other (broader) legislation
			No, forest issues are not regulated by national legislation
If Yes above, provide:	Year of enactment	1946	
	Year of latest amendment	2000	
	Reference to document	Forestry Act 1946http://www.irishstatutebook.ie/	

In case the responsibility for forest policy- and/or forest law-making is decentralized, please indicate the existence of the following and explain in the comments below the table how the responsibility for forest policy- and law-making is organized in your country.		
Sub-national forest policy statements		Yes
	X	No
If Yes above, indicate the number of regions/states/provinces with forest policy statements		
Sub-national Laws (Acts or Codes) on forest		Yes
	X	No
If Yes above, indicate the number of regions/states/provinces with Laws on forests		

14.3 Comments to Table T14

Variable / category	**Comments related to data, definitions, etc.**
Forest policy statement with national scope	
National forest programme (nfp)	
Law (Act or Code) on forest with national scope	The 1946 forestry act is the main forestry act. There were amendments and additions to forestry law in two subsequent acts; the 1956 and 1988 forestry acts. A draft of a new Forestry Bill that was approved by cabinet on March 10th 2009 and will now be sent for final drafting. This will repeal the Forestry Act of 1946.
Sub-national forest policy statements	
Sub-national Laws (Acts or Codes) on forest	

Other general comments to the table

15 Table T15 – Institutional framework

15.1 FRA 2010 Categories and definitions

Term	Definition
Minister responsible for forest policy-making	Minister holding the main responsibility for forest issues and the formulation of the forest policy.
Head of Forestry	The Head of Forestry is the Government Officer responsible for implementing the mandate of the public administration related to forests.
Level of subordination	Number of administrative levels between the Head of Forestry and the Minister.
University degree	Qualification provided by University after a minimum of 3 years of post secondary education.

15.2 National data

15.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forest Service	H	Staff number	2000, 2005 and 2008	

15.2.2 Original data

Number of administrative staff

	2000		2005		2008	
	Male	Female	Male	Female	Male	Female
Total staff	13	32	20	46	29	69
Staff with University degree or equivalent.	3	2	5	4	5	4

Number of inspectorate staff

	2000		2005		2008	
	Male	Female	Male	Female	Male	Female
Total staff	31	0	34	1	36	1
Staff with University degree or equivalent.	31	0	34	1	36	1

15.3 Data for Table T15

Table 15a – Institutions

FRA 2010 Category	2008	
Minister responsible for forest policy formulation : please provide full title	Minister for Agriculture, Fisheries and Food at present Mr. Brendan Smith	
Level of subordination of Head of Forestry within the Ministry		1st level subordination to Minister
		2nd level subordination to Minister
	X	3rd level subordination to Minister
		4th or lower level subordination to Minister
Other public forest agencies at national level	Coillte Teoranta	
Institution(s) responsible for forest law enforcement	Forest Service	

Table 15b – Human resources

FRA 2010 Category	Human resources within public forest institutions					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Total staff	**76**	**42**	**101**	**47**	**135**	**52**
...of which with university degree or equivalent	**36**	**6**	**39**	**13**	**41**	**12**

Notes:
1. Includes human resources within public forest institutions at sub-national level
2. Excludes people employed in State-owned enterprises, education and research, as well as temporary / seasonal workers.

15.4 Comments to Table T15

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Minister responsible for forest policy formulation		
Level of subordination of Head of Forestry within the Ministry		
Other public forest agencies at national level		
Institution(s) responsible for forest law enforcement		
Human resources within public forest institutions		

Other general comments to the table

16 Table T16 – Education and research

16.1 FRA 2010 Categories and definitions

Term	Definition
Forest-related education	Post-secondary education programme with focus on forests and related subjects.
Doctor's degree (PhD)	University (or equivalent) education with a total duration of about 8 years.
Master's degree (MSc) or equivalent	University (or equivalent) education with a total duration of about five years.
Bachelor's degree (BSc) or equivalent	University (or equivalent) education with a duration of about three years.
Technician certificate or diploma	Qualification issued from a technical education institution consisting of 1 to 3 years post secondary education.
Publicly funded forest research centers	Research centers primarily implementing research programmes on forest matters. Funding is mainly public or channelled through public institutions.

16.2 National data

16.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Colleges and research organisations.	H		2000, 2005 and 2008	

16.2.2 Original data

All institutions involved in education and research were contacted and the relevant information requested.

16.3 Data for Table T16

FRA 2010 Category	Graduation [1] of students in forest-related education					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Master's degree (MSc) or equivalent	12	17%	4	25%	4	0%
Bachelor's degree (BSc) or equivalent	4	25%	28	4%	28	7%
Forest technician certificate / diploma	30	0%	11	18%	11	0%
FRA 2010 Category	**Professionals working in publicly funded forest research centres [2]**					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Doctor's degree (PhD)	15	13%	20	20%	28	21%
Master's degree (MSc) or equivalent	16	19%	19	16%	28	11%
Bachelor's degree (BSc) or equivalent	13	62%	15	53%	29	34%

Notes:

1. Graduation refers to the number of students that have successfully completed a Bachelor's or higher degree or achieved a certificate or diploma as forest technician.
2. Covers degrees in all sciences, not only forestry.

16.4 Comments to Table T16

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Graduation of students in forest-related education	Two institutions involved in forest education are not included as there was no response to the questionnaire, they were GMIT and UL.	
Professionals working in public forest research centres	Two institutions involved in forest research are not included as there was no response to the questionnaire, they were GMIT and UL.	

Other general comments to the table

17 Table T17 – Public revenue collection and expenditure

17.1 FRA 2010 Categories and definitions

Category	Definition
Forest revenue	All government revenue collected from the domestic production and trade of forest products and services. For this purpose, forest products include: roundwood; sawnwood; wood-based panels; pulp and paper; and non-wood forest products. As far as possible, this should include revenue collected by all levels of government (i.e. central, regional/provincial and municipal level), but it should exclude the income of publicly owned business entities.
Public expenditure	All government expenditure on forest related activities (further defined below).
Operational expenditure *(sub-category to Public expenditure)*	All government expenditure on public institutions solely engaged in the forest sector. Where the forest administration is part of a larger public agency (e.g. department or ministry), this should only include the forest sector component of the agency's total expenditure. As far as possible, this should also include other institutions (e.g. in research, training and marketing) solely engaged in the forest sector, but it should exclude the expenditure of publicly owned business entities.
Transfer payments *(sub-category to Public expenditure)*	All government expenditure on direct financial incentives paid to non-government and private-sector institutions, enterprises communities or individuals operating in the forest sector to implement forest related activities.
Domestic funding	Public expenditure funded from domestic public financial resources, including: retained forest revenue; forest-related funds; and allocations from the national budget (i.e. from non-forest sector public revenue sources).
External funding	Public expenditure funded from grants and loans from donors, non-governmental organisations, international lending agencies and international organisations, where such funds are channelled through national public institutions.

17.2 National data

17.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forest Service	H	Euro	2005	

17.2.2 Original data

The data presented in T17 was prepared by the finance section of the Forest Service. The raw data is managed by this section.

17.3 Data for Table T17

Table 17a - Forest revenues

FRA 2010 Categories	Revenues (1000 local currency)	
	2000	2005
Forest revenue	n.a.	n.a.

Table 17b - Public expenditure in forest sector by funding source

FRA 2010 Categories	Domestic funding (1000 local currency)		External funding (1000 local currency)		Total (1000 local currency)	
	2000	2005	2000	2005	2000	2005
Operational expenditure	n.a.	17 385	n.a.	0	n.a.	17 385
Transfer payments	n.a.	40 228	n.a.	59 131	n.a.	99 359
Total public expenditure	n.a.	57 613	n.a.	59 131	n.a.	116 744

If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply.		Reforestation
	X	Afforestation
		Forest inventory and/or planning
		Conservation of forest biodiversity
		Protection of soil and water
	X	Forest stand improvement
		Establishment or maintenance of protected areas
		Other, specify below

17.4 Comments to Table T17

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest revenue	Unavailable, too broad a request	
Operational expenditure	Information unavailable for 2000	
Transfer payments	Information unavailable for 2000	

Other general comments to the table