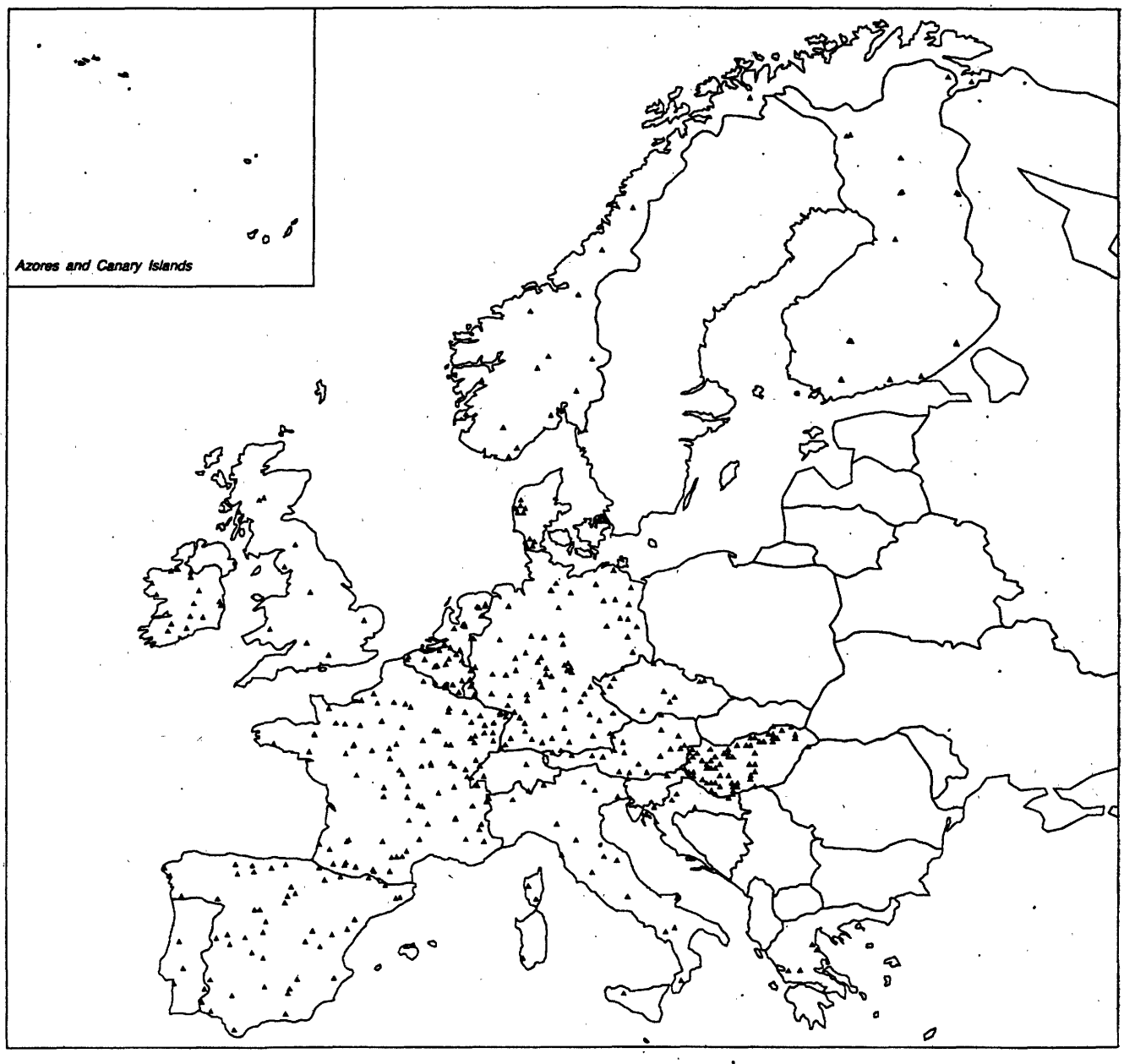
PROTECTION OF FORESTS AGAINST ATMOSPHERIC POLLUTION

EUROPEAN PROGRAMME FOR THE INTENSIVE MONITORING OF FOREST ECOSYSTEMS



General information on the permanent observation plots in Europe (Level II)

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EUROPEAN COMMISSION - DIRECTORATE AGRICULTURE (DG VI)

PROTECTION OF FORESTS AGAINST ATMOSPHERIC POLLUTION
(Regulation (EC) No 3528/86 and its amendments)

EUROPEAN PROGRAMME FOR THE INTENSIVE MONITORING OF FOREST ECOSYSTEMS

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March 1995

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Summary

In order to contribute to a better understanding of air pollution and other factors which may influence forest ecosystems, a programme for intensive and continuous monitoring of forest ecosystems was implemented. In this context 315 permanent observation plots for intensive monitoring of forest ecosystems have been selected and installed in the European Union.

This second level of monitoring intensity is also carried out in several non-EU countries. Croatia, Czech Republic, Hungary, Norway, and Switzerland, where in total 34 plots were selected and installed, have provided the Commission with relevant information.

From in total 349 installed plots in Europe information has been received. A well balanced distribution of species, age, altitude etc. has been achieved. This distribution will lead to many possibilities for further studies.

The intensive monitoring programme contains crown condition assessments, soil and foliar surveys and increment studies on all plots. Deposition measurements are foreseen on 60 to 70 % of the plots and meteorological parameters are expected to be monitored on 30 to 35% plots in the EU.

More effort is needed to include information from additional non-EU countries participating in the European Monitoring Programme in an updated version of the report. A strong support by ICP Forests and the two Programme Coordinating Centres involved will be needed to fulfil this objective.

1 Introduction

The activities of the European Commission in the field of the protection of forests against atmospheric pollution started in 1986 with the adoption of the relevant Council Regulation (Regulation (EEC) N° 3528/86). In close cooperation with the International Cooperative Programme on Assessments and Monitoring of Air Pollution Effects on Forests (ICP Forests of UN/ECE) an extensive systematic large scale network (16 x 16 km) of forests sample points was established. Since 1987 annual crown assessments have been carried out. A forest soil condition survey is currently being implemented (1991-1995) as well as an optional analysis on the chemical content of needles and leaves (1991-1996). The main benefits from the assessment on the large scale gridnet are a more accurate knowledge of the extent, dynamics and spatial distribution of the symptoms of forest damage in Europe, a database for future time series analyses of crown defoliation, information on forest soil conditions and on the nutrient balances in some forest areas. However, the large scale monitoring does not aim at cause-effect relationships.

In order to contribute to a better understanding of the impact of air pollution and other factors which may influence forest ecosystems, the large scale systematic sampling was extended by the intensive and continuous monitoring of forest ecosystems. In this context 315 permanent observation plots for the intensive monitoring of forest ecosystems have been selected and installed in the European Union (Regulation (EC) N° 1091/94 and its amendments). This second level of monitoring intensity is also carried out in several non-EU countries under the framework of the ICP Forests of the UN/ECE. This is as well carried out as a consequence of Resolution N° 1 of the first Ministerial Conference on the Protection of Forests in Europe (Strasbourg, 1990) and of Resolution H1 of the second Ministerial Conference on the Protection of Forests in Europe (Helsinki, 1992)

This second level of monitoring intensity is defined as "intensive monitoring of forest condition aimed at the recognition of factors and processes with special regard to the impact of air pollutants on the more common forest ecosystems in Europe". The intensive monitoring programme contains continuous and intensive surveys such as crown condition assessments, soil and foliar surveys, increment studies, deposition measurements and the observation of meteorological parameters over a period of at least 15 to 20 years.

As most of the plots for the intensive monitoring have now been selected and installed, it is the intention of the European Commission to inform the interested public and the politicians on the progress made and to present the available information.

This report contains only preliminary information on the intensive monitoring programme of the European Union and five non-EU countries. In this respect the European Commission, in close cooperation with the ICP Forests of UN/ECE will present a final report on the implementation of the intensive monitoring programme in all participating European countries early 1996.

2 Establishment of the plots

2.1 Progress of the selection and installation of plots

The progress of the selection and installation of plots will be presented by introducing first the number of plots planned, secondly the number of plots selected and finally the number of plots installed by the participating countries. Reference is made to Table 1.

2.1.1 Number of plots planned

Based on the agreed selection criteria the Member States made plans (by mid 1994) to install a certain number of plots. This number is used as a reference for measuring the progress of the selection and installation of the plots. This 'indicative number of plots' is shown in Table 1. The EU Member States are planning to install in total 439 plots for the intensive monitoring programme. The grand total for the EU and the five non-EU countries (Norway, Switzerland, Czech Republic, Hungary and Croatia) which have submitted information adds up to 555 plots.

2.1.2 Selection of plots

The establishment of a selected plot is considered to be complete if information has been submitted to the Commission specifying the plot number and the correct coordinates. In this way a total of 376 plots have already been selected by the EU Member States. In addition about 104 plots have been selected by five non-EU Member States (as of 23 January 1995). Table 1 shows how the grand total of 480 plots are subdivided over the different EU Member States and non-EU Countries.

2.1.3 Installation of plots

The installation of a plot comprises a detailed description of the plot including the exact location of the plot and a sketch map. General information as specified in the Annex I of Commission Regulation (EC) No 1091/94 shall be collected and reported to the Commission. The following general information for each plot shall be collected during the installation:

- descriptive codes
  - * country
  - * plot number
  - * latitude and longitude
- site data
  - * altitude
  - * orientation
  - * total plot size
  - * number of trees in plot
  - * sub-plot (if any)

Table 1 Overview of the number of plots per Country

		Number of plots intensive monitoring		
EU Member States		Planned* (mid 1994)	Selected (Jan 1995)	Installed** (15/12/1994)
AU	Austria	20	20	16
BL	Belgium – Flanders	12	12	12
BL	Belgium – Wallonie	8	7	0 [1)]
DK	Denmark	16	16	16
DL	Germany	86	80	75
EL	Greece	4	4	4
ES	Spain	50	50	50
FR	France	100	100	100
IR	Ireland	15	15	10
IT	Italy	23	20	0 [1)]
LX	Luxembourg	2	2	2
NL	Netherlands	13	14	0 [1)]
PO	Portugal	4	4	4
PO	Portugal – Azores	4	4	4
SF	Finland	22	18	17
SW	Sweden	50	0	0
UK	United Kingdom	10	10	5
	preliminary EU total	439	376	315
Non– EU Countries				
CR	Croatia	5	5	5
CZ	Czech Republic	8	8	0 [1)]
H	Hungary	71	71	12 [2)]
NO	Norway	17	17	17
CH	Switzerland	15	3	0
	preliminary non– EU total	116	104	34
	preliminary grand total	555	480	349

* from various sources
** criteria: tree species and number of trees specified
1) partially installed
2) information of more plots received and more plots have been installed, but due to criteria for minimal plotsize of 0.25 ha, the number of plots has been limited to plots of at least 0.25 ha in size.

- stand data
  * mean age of dominant storey
  * main tree species
  * yield (estimate)
- other observations
  * history of plot
  * nearby situated other monitoring (or meteo-) station

By the end of 1994, for each installed plot, the Member States forwarded to the Commission the information collected during the installation using a datafile and reports.

The progress of the installation is based on the information received.
The installation of a plot is considered to be completed if a detailed description of the plot has been submitted to the European Commission. This means that the description must at least consist of the general information indicated above under 'stand data' (number of trees in the plot and the main tree species).

As a result of this limitation a total number of 315 plots is considered to be installed by the EU Member States. In addition 34 plots are installed by five non-EU Member States. Table 1 shows how the grand total of 349 installed plots is subdivided over the different EU Member States and non-EU Member States.

Concerning the EU-Member States, only Sweden did not select and install the number of plots planned for reasons given in Chapter 3.
Nearly all other Member States installed over 50% of their plots properly, some partially, while 6 EU-Member States have already finalized the selection and installation of their plots. From several regions of EU-Member States the information received was incomplete.
The five non-EU Member States have selected their plots. Croatia and Norway installed over 50% of the selected plots.

Map 1 shows the geographical distribution of all plots located in the Member States and non-EU Member States.

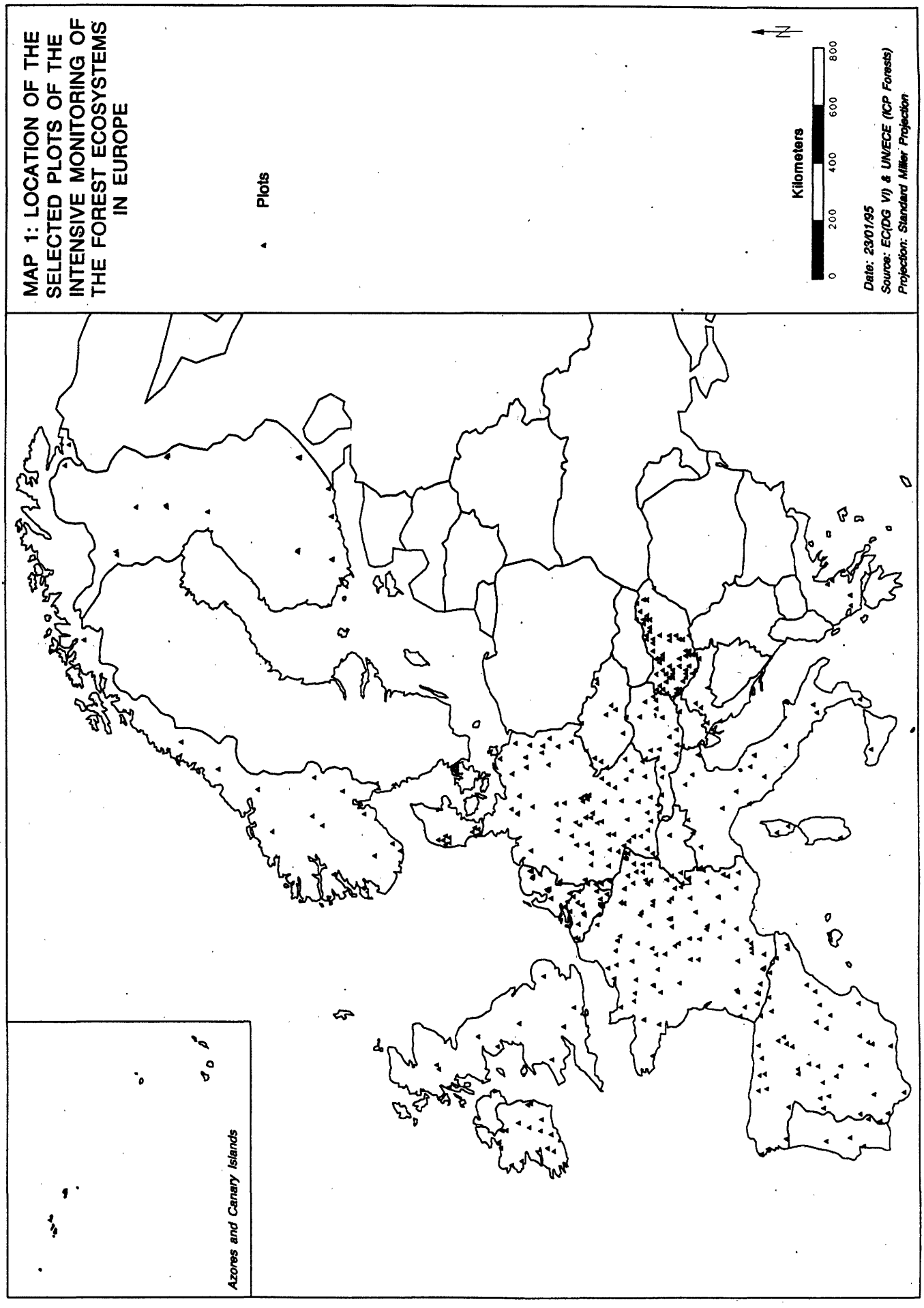
2.1.4 Surveys of the European Programme for the intensive monitoring

In 1994 the EU-Member States have agreed on a common programme for the intensive monitoring of forest ecosystems to be carried out. This common programme consists of a minimum of surveys on all plots:

- crown condition assessment (at least once a year)
- chemical analysis of the contents of needle and leaves (at least every 2 years)
- soil analysis (every 10 years)
- increment studies (every 5 years)

Details on the common methodologies for these surveys such as sampling method, analysis procedures, data format for submission, etc. are stated in Regulation (EC) No 1091/94 (Annex III - VII)

Map 1 The location of the plots of the intensive monitoring



In addition to this programme the Member States decided to complete the monitoring programme with deposition measurements on at least 10% of the plots, and on a voluntary basis to monitor meteorologic parameters on a limited number of plots. In Table 2 an overview is included on the execution of these surveys in the various countries.
In the EU Member States on 433 plots, of which 376 have already been selected, the mandatory surveys will be carried out. On 277 plots (65%) deposition measurements and on 138 plots (32%) meteorological parameters will be monitored. In total with the 5 non-EU countries the surveys indicated as mandatory in the EC Regulation N° 1091/94 will be carried out in 485 plots. The deposition measurements will be carried out in 317 plots (65 %) and the meteorological parameters will be monitored in 159 plots (33%).

Besides the surveys of the common monitoring programme with agreed methodology some countries also execute additional surveys, such as: soil water chemistry, ground vegetation assessment, etc.

2.1.5 Minimum requirements for an intensive monitoring plot

For the proper execution of the mandatory surveys (see 2.1.4), a minimum plotsize of 0.25 hectares is required. In Hungary this requirement for the minimum plotsize leads to a sharp decrease in the number of plots under the column installed, as most plots have a plotsize of less than 0.25 hectares. In Germany the final corrections in this respect for some länder have not yet been completed.

2.2 Criteria for the selection of the plots

The selection of the plots are the responsibility of the participating countries, although certain criteria for the selection should be applied. These criteria are formulated in Annex I, section II, subsection II.1 of Regulation (EC) 1091/94. Main selection criteria are:

- the plots should be located in such a way that the more important forest species and more widespread growing conditions in the respective country are represented,
- the minimum size of a plot shall be 0.25 hectares measured on a horizontal plane.
- to minimize the effects from activities in surrounding areas the plot shall be surrounded by a bufferzone. The actual width of the zone is depending on the type and age of the forest. If the area of the plot and its surroundings is uniform with regard to height and age structure, the width of the bufferzone can be restricted to 5 or 10 m. If the forest area in which the plot is located consists of mixed stands, different species or age structure, the bufferzone shall be enlarged to up to 5 times the potential maximum height of the forest in the plot,
- as the plot will have to be available for long duration monitoring, it is necessary that the corners and/or boundaries are clearly marked and that each sample tree in the plot is numbered in a permanent way,
- the plots should be easily accessible at all times and no restriction with regard to the access and sampling should exist,

Table 2 Overview of the number plots selected, and the number of plots on which the mandatory, deposition and meteorologic surveys are carried out.

	Number of plots intensive monitoring			
EU Member States	Selected plots (Jan '95)	Mandatory surveys*	Deposition measurements	Meteorological observations
AU Austria	20	20	20	[1]
BL Belgium – Flanders	12	12	6	2
BL Belgium – Wallonie	7	8	2	2
DK Denmark	16	16 [2]	16 [2]	2 [2]
DL Germany	80	86	86	71
EL Greece	4	4	4	4
ES Spain	50	50	5–10	5–10
FR France	100	100	25	25
IR Ireland	15	15	3	5
IT Italy	20	20	15	15
LX Luxembourg	2	2	1	1
NL Netherlands	14	14	14	0
PO Portugal	4	4	1	0
PO Portugal – Azores	4	4	1	0
SF Finland	18	18	18	3
SW Sweden [3]	0	50	50	0
UK United Kingdom	10	10	10	3
preliminary EU total	376	433	277	138
Non– EU Countries				
CR Croatia	5	[4]	[4]	[4]
CZ Czech Republic	8	8	8	6
H Hungary	71	12	0	0
NO Norway	17	17	17	0
CH Switzerland	3	15	15	15
preliminary non–EU total	104	52	40	21
preliminary grand total	480	485	317	159

* in accordance to EC Regulation N° 1091/94

[1] to be determined

[2] as in Denmark the 16 plots are located only on 4 sites combined deposition and meteo equipment is used

[3] activities to be started in 1995

[4] no information available

- there should be no differences in the management of the plot, its bufferzone and the surrounding forest (e.g. management operations should be comparable), and disturbances by the monitoring should be kept to a minimum,

- direct pollution from known local sources should be avoided. Plots should not be located in the immediate surrounding of farms, very close to main roads or in the direct vicinity of polluting industries,

- a sufficient number of trees should be available for sampling in or nearby the plot,

- the plots and the buffer zone should be as uniform as possible regarding e.g. species or species mixture, age, size, soil and slope,

- the plots should be located sufficiently far away from the forest edge.

All EU-Member States and non-EU Member States developed their specific national selection criteria, but there are no large deviations from the common methods for the establishment of the network.

Additional criteria that have been applied, can only be derived from descriptions given by the Member States. The selection criteria used and other special points of interest are considered per country, in Chapter 3.

3 Description of monitoring activities by participating Country

Austria

In 1994 Austria started its activities for the intensive monitoring with planning and selecting 20 plots, of which 16 are presently marked and installed. The remaining plots will be installed in spring 1995.

The decision was taken to install the intensive monitoring plots on the grid of the Austrian Forest Damage Monitoring System (534 permanent level I plots). The following criteria were essential for the selection (in accordance to the Regulation (EC) 1091/94):

- Plotsize is 0.25 hectares at least (exclusive of the comparable bufferzone
- The plots include the most important tree species, representative site and growing conditions in Austria.
- The plots, including the bufferzone, are selected with regard to the homogeneity of the site, forest stand and distribution of the tree species (local variation should be minimized)
- The plots are selected in stands that are unlikely to be felled within 20 years and forest management should be continued in the usual way.
- The plots should be accessible throughout the year to enable deposition measurements taken also during the winter period. Therefore higher regions are not represented (the highest plot is located at 1540 m, while the tree border lies between 1800 and 2100 m)
- Regional distribution is reached.

According to the above mentioned criteria, 20 plots were selected. 16 plots are located in coniferous stands, 4 in broadleaves stands. The main tree species represented are *Picea abies* (14 plots), *Fagus sylvatica* (2), *Quercus spp.* (2), *Pinus sylvestris* (1) and *Larix decidua* (1 plot). Additionally several trees of *Abies alba*, *Acer* spp. and *Fraxinus exelcior* are found on the plots.

In order to record the important tree species under various growing conditions additional plots might be required, especially at higher altitudes and in protected forest sites. Owing to the fact that these plots are not accessible during winter periods no deposition measurements can be carried out there.
Furthermore, additional surveys are intended to be carried out, such as; soil water sampling and assessment of litter and seed.

ref: M. Englisch, W. Kilian and F. Mutsch, 1990: The Austrian Forest Soil Monitoring System. Proceedings XIX IUFRO Congress/Montreal, Division 1, Vol 2.
W. Kilian and Ch. Majer, 1990: Österreichische Waldboden-Zustandsinventur - Anleitung zur Feldarbeit und Probenahme FBVA-Berichte, Schriftenreihe der FBVA Wien, Sonderheft.
M. Neumann and R. Themessl, 1995: Neue Ansätze zur Überwachung des Waldzustandes in Österreich. Österr. Forstzeitung 106(1): 19-21.
M. Neumann, 1993: Forest Damage Assessment in Austria. Environmental Monitoring and Assessment 28: 183-188.

Belgium

Flanders

In 1987 the Flemish Region has selected 10 plots for the intensive monitoring. The main objective was to investigate the effects of air pollution in forest ecosystems. Main selection criteria have been the representativity of all Flemish provinces and of the main tree species within these provinces. In a later stage 2 additional plots were installed, in order to cover the more important soil types in the region.
The intensive monitoring will be done on 12 plots. Deposition measurements will be carried out on 6 plots, meteorological measurements on 2 plots. On 1 plot intensive ecosystem research is already carried out with air concentration measurements and nitrate investigations. A second plot is foreseen. In addition root investigations are carried out on 4 plots.

The total number of twelve selected plots have also been installed. The main tree species of the 12 Flemish plots are *Fagus sylvatica* (4 plots), *Quercus robur* (3), *Pinus nigra* and *Pinus sylvestris* (both 2 plots) and finally *Fraxinus excelsior* (1 plot).

ref: Van Den Berge K., Maddelein D., De Vos B., Roskams P., 1992 "Analyse van de luchtverontreiniging en de gevolgen op het bosecosysteem". Werkgroep Sociale en Economsiche Betekenis van het Bos, AMINAL, U.G. Rapport nr. 19, 169 pp. + bijlagen.

Wallonia

The plots are selected from the most important tree species in Wallonia: *Picea abies* (4 plots), *Quercus robur* (1 plot) and *Fagus sylvatica* (3 plots).

Czech Republic

A permanent investigation of several parameters from the intensive monitoring was started in the Czech Republic in the eighties. This programme refers mainly to elements circulation in soil and water, soil biology activity, increment changes of stands (using tree-ring analysis) and foliar analysis. The fact that a lot of plots - investigated for a long time - were found in areas with an intensive immision load is considered as very valuable for the investigations. Most of the plots consist of forest stands younger than 60 or older than 100 years. The number of parameters measured is extended step by step mainly on the plots with continuous automatic monitoring of gaseous deposition and meteorological data. In connection to research programmes of the Forestry and Game Management Research Institute there are plans to start with monitoring in accordance with the European programme from the beginning of 1995 on eight plots. In 1995 it will be decided if, and how many, other plots should be taken into the this programme.

Croatia

Five plots are considered to be selected and installed. The tree species are *Fagus sylvatica* (2 plots), *Quercus petraea*, *Quercus robur* and *Abies alba* (1 plot each).

Denmark

The Danish network of permanent observation plots consists of 4 sites, the Frederiksborg site, the Ulborg site, the Lindet site and the Klosterhede plot. Three of the four sites, Frederiksborg, Ulborg and Lindet are placed in identical even-aged, 30 years old, species trials. In these species trials the following stands have been measured for productivity, deposition levels and nutrient cycling earlier: *Fagus sylvatica*, *Picea abies*, *Picea sitchensis*, *Pseudotsuga menziesii* and *Quercus robur*. The 15 stands are in fact considered as 15 separate plots. The tree species are planted in blocks of 0.25 ha. The plot-sites have been investigated during the period 1985-1994. *Pseudotsuga menziesii* and *Quercus robur* were included in the monitoring programme in 1993. In addition, an old Norway spruce stand (74 years old) has been included in the intensive, continuous monitoring. In this plot, in or near the Klosterhede project, monitoring has been executed since 1983.

The four selected sites for the intensive monitoring in Denmark have been chosen in such a way that:

i) the regional variation of deposition and soil conditions in the country is represented - the loamy soils in the eastern part with higher level of anthropogenic S-deposition and the sandy soils in the western part with the highest N-deposition especially at the plot-site in southern Jutland,
ii) the forest ecosystem of the plot-sites is well described, total comparability between plot-sites exist, and they are simultaneously used for effect studies,
iii) existing time-series of data can be made useful and extended
iv) more intensive research programmes can be carried out (such as detailed studies of nutrient uptake and water consumption in relation to soil parameters, tree species and age, studies of dry deposition, throughfall chemistry, soil water chemistry, nutrient cycling in relation to site quality, tree species and age).

The monitoring is conducted as a cooperative effort between the National Focal Centre and four main research institutions on forestry and environment involved.

All Danish plots have already been selected and installed in the period 1985-1993.

ref: Study of the effect of atmospheric deposition to forest ecosystems and soils.
The element cycling project.
Yearly publication; "De Danske skoves sundhedstilstand"

Finland

The new network currently being established in Finland for intensive, continuous monitoring purposes replaces, to a large extent, the intensive monitoring plots employed earlier in a number of different projects. The new network is distributed throughout the boreal coniferous zone, and the plots are located in stands of the dominant tree species in Finland *Pinus sylvestris* and *Picea abies*. The main criteria used in selecting the stands were regional variation in deposition levels and climatic and soil conditions. The proximity of air quality measuring stations in background areas was also taken into account.

It is planned to have 22 plots in Finland. 18 monitoring plots have been selected, 11 of these in *Pinus sylvestris* and 7 in *Picea abies* stands. Four additional plots representing stands in natural state will be included in the programme in 1995. 17 plots have been installed properly and the remaining plot will be set up in spring 1995.
It is planned to select and install 4 more plots in natural forests.

Inventories of crown, soil and foliar condition, measurement of increment changes and continuous determination of deposition rates will be done on all plots. Continuous meteorological measurements will be made on three of the plots (two in Southern Finland and one in Northern Finland). A two-year pilot study will be carried out on three plots into the seasonal growth variation as well as the suitability of different techniques for monitoring soil water quality. A number of other forest ecosystems components e.g. litterfall, and dynamics of ground vegetation will also be monitored on these plots.

France

As a consequence of the Ministerial Conference on the Protection of Forests in Europe (1990, Strasbourg) France has decided to establish an intensive monitoring programme called RENECOFOR (Réseau National de suivi à long terme des Ecosystèmes Forestiers). The plots were selected in a way that all regions of France and major tree species are represented in the programme. France has decided to work with three levels of intensity for its programme. On all 100 plots crown assessment, soil and foliar surveys and increment measurements are carried out, while on 25 of these plots deposition measurements, meteorological monitoring are taking place. On 15 of the 25 plots soil solution investigations are performed. France has added to its programme several other surveys and parameters (e.g. litterfall quantification, ground vegetation survey, dendrochronological study)

The criteria managed to select the plots are:

- Tree species diversity. The more important forest species are represented in the plots: *Quercus petraea* (21 plots), *Quercus robur* (9), *Fagus sylvatica* (20), *Abies alba* (11), *Picea abies* (11), *Pinus sylvestris* (14), *Pinus maritima* (5), *Pseudotsuga menziesii* (6), *Pinus nigra* (2) and *Larix decidua* (1 plot).
- Homogeneous and uniform stands and soil condition over an area of 0.5 ha (with a comparable bufferzone of 3 to 5 ha); a representative soil nutrient status for the regions with moderate to good soil water drainage. The altitude must be representative for the region considered; maximum slope 30% (which could not be achieved everywhere).
- Age class depending on tree species, from 20-30 years (*Pinus pinaster*) to 70-100 years (*Quercus petraea*).
- Silvicultural treatment preferably high forest ('Hochwald') or coppice with standards ('Mittelwald'); no plots in forest reserves
- No or only slight signs of forest decline
- The yield class and increment are representative for the region
- The plots should preferably have a certain degree of lability.

For the selection of plots France used a list with excluding criteria. For example: no plots are selected in the vicinity of important sources of air pollution (polluting gasses of aerosols), in forest edges, on places with extreme weather conditions, etc.

ref: RENECOFOR, 1993, Reseau National de suivi à long terme des Ecosystèmes Forestiers, Office National des Forêts, Fontainebleau.

Germany

In Germany the responsibility on forest matters are with the 'Länder'. Therefore the intensive monitoring programme in Germany in reality consists of 14[1]) different regional programmes. The overall coordination is ensured by an expert group of representatives of the German 'Länder' and the Federal Ministry of Food, Agriculture and Forestry. The German programme consists of 86 plots.

Main efforts were made to select plots which could be connected with other monitoring programmes under execution. The more important site conditions, tree species and forest regions are well represented in the monitoring programmes of the German Länder.

Table: German Länder with number of plots and start of programme

Länder	Number of plots	Start of programme
Baden-Württemberg	10	1983
Bayern	21	1984
Berlin	3	1986
Brandenburg	6	1994
Hamburg	3	1981
Hessen	7	1984
Mecklenburg-Vorpommern	4	1994
Niedersachsen	7	1981
Nordrhein-Westfalen	7	1981
Rheinland-Pfalz	6	1983
Saarland	1	1989
Sachsen	5	1993
Schleswig-Holstein	1	1995
Thüringen	5	1993

The main tree species represented in the plots are *Picea abies* (29 plots), *Fagus sylvatica* (24), *Pinus sylvestris* (18), *Quercus petraea* and *Quercus robur* (both 4 plots). From 7 plots the tree species have not been specified yet.

ref: Bund-Länder-Arbeitsgruppe "Level II": Intensive Waldzustandsüberwachung auf Dauerbeobachtungsflächen in Deutschland (Allgemeine Forstzeitschrift, München, Nr 22/1994)

Greece

The Greek intensive monitoring programme started in 1994 with the selection and installation of 4 plots. In the selection of the plots special emphasis was put on the importance of the hydrological conditions for the forest condition in Greece. Within four groups of experimental watersheds run by the Forest Research Institute in Athens since 1970, permanent forest plots have been established. There will be one permanent plot per group of watersheds. Each group of watersheds represents important physiographic, bioclimatic and geologic regions of Greece and carries important forest species. The tree species represented in the programme are *Fagus moesiaca*, *Quercus ilex*, *Quercus frainetto* and *Abies borisii-regis*. The programme is

[1] Bremen and Saxony Anhalt do not participate.

carried out by the Forest Research Institute in Athens with its departments of Forest Hydrology, Forest Soils and Forest Management. All 4 plots are selected and properly installed. There are plans for another plot to be established in a stand of *Pinus nigra* in the Northern Pindus area.

ref: Nakos G. and A. Vouzaras. Budgets of selected cations and anions in two forested experimental watersheds in Central Greece. Forest ecology and management 24 (1988) 85-95.

Hungary

Based on the ICP Forests Manual for assessment and monitoring of air pollution effects on forests (1986), 1027 Level I plots were established in 1987 by the Forest Management Planning Service at the intersection points of a 4 x 4 km grid. In accordance with the efforts at international level a national monitoring and research programme was launched for a better understanding of forest decline and for the protection of forests. The multi-level programme accepted the different levels of monitoring and research proposed in the ICP manual, and the responsibility of the level II activities was given tot the Forest Research Institute.

To start a detailed monitoring the level II plots were established in 1989. Based on the 4 x 4 km grid (level I) 64 intersection points were selected using the grid of 16 x 16 km in a systematic way. Altogether 71 sample plots were established with regard to the homogeneity of site and forest stands. At the moment Hungary is working on its intensive monitoring programme and will adapt its actual programme to the relevant chapters of the revised ICP Forests manual (1994).

Ireland

In 1989, Coillte Teoranta, the Irish Forestry Board, installed 25 plots for the intensive monitoring. For 1994 the number of plots was reduced to 12. The allocation of the plots was made bearing in mind the importance of *Picea sitchensis* and *Picea abies* in Irish forestry and the general view held that spruces are a good barometer of pollution, better than pines. *Pinus contorta* is the second most planted species (*Picea sitchensis* is the first). A further reason for a re-evaluation of the network is the recent drive for an intensification in afforestation and forestry-related activities in Ireland. New planting policies, involving a diversification of species, has meant that there will be less activity in some regions, such as the western blanket bog and limestone regions, and a renewed interest in planting Lodgepole pine to accommodate considerable pulpwood commitments to new forest industries.

The plots are distributed evenly over 6 soil regions in Ireland. An important basis for selection for most of the plots has been the availability of data from local meteorological stations.

In 1994 it was decided to add to this Coillte Teoranta programme the 3 intensive monitoring plots established by the University of Dublin (Dep. of Agriculture). The University is carrying out deposition measurements on their 3 plots, while Coillte

Teoranta is responsible for all other research surveys on all 15 Irish plots. The overall coordination of all Irish plots lies with the Department of Agriculture, Food and Forestry in Dublin.

The plots are installed in stands of *Picea sitchensis* (8 plots), *Picea abies* (2 plots), *Pinus contorta* (3 plots) and *Quercus petraea* (2 plots).

Italy

Italy selected 20 plots in such a way that the principal forest ecosystems of the Italian territory are represented. The plots are evenly distributed over the country.

The plots are selected according to Regulations (EC) N° 1091/94. In addition some important criteria are managed:
1) The plots are part of an existing network (fourteen plots),
2) The plots are representative at regional and national scale,
3) The (ecological) environment is homogeneous.
Further important criteria are ownership, a certain degree of protection, the accessibility and the availability of local support (mostly stations of the National Forest Service are selected). The surveys will be carried out using objective methods for sampling and analysis. The National Focal Centre (Ministry of Agriculture, Food and Forest Resources - National Forest Service) will be the coordinating centre of fourteen national research institutions (each one responsible for each survey).

On the plots 17 different studies and surveys will be carried out, starting in June 1995.
The studies include the mandatory surveys such as crown condition, soil inventory, foliage inventory and increment measurements. In addition, also deposition and meteorological measurements are carried out. The first stage of other ecological surveys will be started in 1995 on selected plots: geology and geomorphology, phytosociology (all plots), insects, lichens, bryophytes, plant phenology (10 plots), biodiversity, dendrochronology and vegetation dynamics (10 plots).

The main dominant species are *Fagus sylvatica* (7 plots), *Quercus cerris* (5), *Picea abies* (4), *Quercus ilex* (2), *Quercus petraea* (1), *Carpinus betulus* (1).

Luxemburg

In consideration of the Ministerial Conference on the Protection of Forests in Europe (1990, Strasbourg), Luxemburg decided in 1993 to establish 2 plots for the intensive monitoring. Both plots are covered by stands of *Fagus sylvatica* as this is the main tree species in the Grand-Duchy. The selection criteria and the methodology for analysis and evaluation are closely related to the French programme called RENECOFOR.

On both plots crown assessment, soil and foliar surveys, as well as increment measurements are carried out. In addition deposition measurements are realised in one of the two plots.
It is planned to set up a meteo station on each site in 1995 and 1996.

Netherlands
A total of 14 plots have been selected. Twelve plots have been selected by specialists from three research institutes for an intensive survey in 1990. Of the 14 plots the continuation of one plot is under discussion as the intensive monitoring is in contradiction with the nature reserve status of this area. One plot is a level I plot and part of an integrated monitoring plot.

The plots include the most important tree species in the Netherlands: the conifer species *Pinus sylvestris* (5 plots) and the broadleaves species *Quercus robur* (4 plots). The *Pseudotsuga menziesii* (with 5 plots) has been selected as third species because of the expected increase in area and its importance for silviculture. The distribution of the plots reflects the main forest areas in the Netherlands with a slight overrepresentation of the Northeastern parts and an underrepresentation of the Eastern forest area (due to the very small, scattered and often private forests). All the plots are situated on sandy podsolic soils; these are representative for over 80% of the forest area.
Demarcation of the plots is foreseen for 1995, so the plots have not yet been installed properly.

Norway
A total number of 17 plots have been selected during the years 1986-1988. The plots were selected to represent spruce forest in Norway. Pine and sub-alpine birch forests are underrepresented at the moment. Sixteen plots are located in *Picea abies* forests, and one plot is located in a mature *Pinus sylvestris* forest. They are distributed throughout the country, with a higher density in the south where deposition is high as compared to the north. One of the plots is a part of an integrated monitoring site.

The plots are mostly located well inside mature stands in homogenous natural forests of the bilberry type and surrounded by a buffer zone. The plots are located far away from local sources of air pollution, except one plot which is significantly influenced by emissions form industry in Kola Peninsula.

The plots are mainly established on podsolic soil types. All plots are accessible throughout the year, allowing complete measurements of deposition and other parameters. All mandatory parametres and most optional ones are recorded on all plots. In addition soil water (lysimetres), litter (amount and quality), and vegetation data (ground vegetation, epiphytic lichens and needle endophytes) are collected at most plots.
Monitoring stations for air quality are in most cases situated in the vicinity of the plots.

ref: Horntvedt, R., Aamlid, D., Rørå, A. & Joranger, E. 1992. Monitoring programme for forest damage. An overview of the Norwegian programme. Norwegian Journal of Agricultural Sciences 6:1-17.

Portugal
Portugal selected and installed 4 plots in 1994. The main tree species are *Pinus pinaster*, *Quercus suber*, *Pinus pinea* and *Quercus rotundifolia*. All the plots (1 for each species) are pure stands which are located in the most representative situation for those species in Portugal.

Based upon the excluding criteria in EC Regulation N° 1091/94 the following criteria were developed and used for the selection of the plots:

- Forest area under management of the Instituto Florestal;
- Sufficiently large area to install the plot (0.25 ha) and the required bufferzone;
- Easy access, but remote enough to avoid disturbance caused by people;
- Density is representative for a normal stand of the species in good ecological conditions and well conducted management;
- Mean age depending on the tree species, but with monitoring possibilities for at least 20 years;
- No signs of forest decline;
- Homogenous with regard to soil, climate, altitude and exposure;
- Meteorologic station in the vicinity.

In 1995 soil and foliar sampling will be carried out in the four plots and one deposition monitoring station will be installed in the *Pinus pinaster* plot.

Azores
The four plots will be selected in forest ecosystems which are representative for the forest ecosystems in the Azores. The selection includes *Cryptomeria japonica* (2 plots), *Juniperion brevifoliae* (1 plot), and *Eucalyptus globulus* (1 plot). The plots are located on the islands of São Miguel (2 plots), Terceira (1 plot) and Pico (1 plot).

Spain
Spain selected 50 plots in the years 1992-1994. The twelve main Spanish forest and vegetational regions are represented in this programme for intensive and continuous monitoring. All principal tree species (natural or introduced species) are taken into the programme. Other main criteria for the selection of plots are the orographical situation, the soil conditions and the regional distribution of the plots.

The 50 plots are divided over the main tree species: 24 plots are in conifer stands, 26 in broadleaves stands. The main species represented are *Quercus ilex* (12 plots), *Pinus pinaster* (6 plots), *Pinus halepensis* (4), *Pinus sylvestris* (5), *Quercus suber* (3), *Quercus pyrenaica* (3) and *Pinus nigra* (3 plots). Ten other species make up for the remaining 15 plots. It is being studied whether some extra plots are needed to cover the main forest ecosystems of the Canary Islands.

ref: R. Montoya Moreno y G. Sánchez Peña. El seguimento del estado sanitario de los ecosistemas forestales en España: Red Europea de Nivel II. Servicio de Protección de los Montes contra los Agentes Nocivos - ICONA.

Sweden
Sweden intends to establish a new system of 250 permanent observation plots at the regional level for multifactorial monitoring during 1995-1997. The monitoring activities will be based on the guidelines for the European monitoring programme. The new plot system will to a large extent replace the present ICP Forest level II-plot system in Sweden which comprises more than 420 plots. Therefore, it is not meaningful to present any plot data of the old system in this report. At the end of 1995, complete data sets will be available from at least those 50 permanent observation plots, which will form part of the European Intensive Monitoring Programme.

In 1984, the National Board of Forestry established a net of permanent observation plots for intensive monitoring. This plot system was closely in accordance with the ICP Forest Manual (level II) which was agreed upon a few years later. Additional plots have been established during the subsequent years, mainly by initiative from regional authorities, and today there are more than 420 plots altogether.

For the following reasons, the system of permanent plots is now completely revised:

- some old plots have been disturbed by cuttings in or nearby the plot
- the forests of old plots are often in need of management operations which will disrupt measurements
- due to the subjective selection of plot site and lack of common criteria, the scientific interpretation of results is difficult
- there is a need for better coordination between monitoring activities carried out by different agencies
- there is a need for harmonizing the system with the new manuals of ICP-Forests and the European Union.

As a consequence, most of the existing plots will be terminated and replaced by new plots. Some of the old plots might be maintained, provided that they meet the criteria.

Sweden intends to run a system of 250 forest observation plots at regional level. On 50 of these plots, the complete mandatory monitoring programme will be carried out in full accordance with the EC Commission Regulations and the ICP-Forest Manual. Essentially the same observations and methods will be applied on the other 200 plots, however at a somewhat lower measurement frequency. The reason for this is that 50 plots is not sufficient to get a good representation of the variation in deposition regimes and soil conditions for the major forest types in Sweden. On the other hand, it is too expensive to carry out the very intensive monitoring in more than 50 plots. In order to examine possible relationships between air pollution and forest condition, it is neither necessary to have a continuous monitoring of every factor. The monitoring of temporal changes in air quality, deposition load, nutrient condition of foliage, meteorology, field layer vegetation etc. can be limited to a small number of reference plots. This kind of more general environmental monitoring is already performed in other international and national monitoring programmes.

The procedure of selecting new plots was tested in the summer of 1994 and is now evaluated. After necessary adjustments of the methods, the establishing of the new plot system will start at the beginning of 1995. The distribution of plots within the country is based on the following considerations:

1. Plot density should increase with increasing deposition load of air pollutants i.e. highest density in the south and southwest of Sweden and fewer plots in the north.
2. The plots should represent the major forest types in each region i.e. spruce, pine and to some extent birch forests in the whole country, and beech and oak forests in southern Sweden.
3. In order to facilitate the interpretation of air pollution effects, the plots should fulfil uniform criteria in most other aspects i.e. stand conditions, management regimes, environmental factors, etc.
4. Local variation in the conditions within the plot and in the immediate surroundings should be minimized (=high degree of homogeneity).

5. Considering the aspects already mentioned, the selection of plots should preferably be made by objective methods. This implies a stratified systematic selection of sites within a geographical grid. However, for practical reasons, already existing plots might also be accepted if they meet the necessary requirements.

Switzerland

As a consequence of the Swiss Forest Law as well as due to international commitments such as the Convention on Long-Range Transboundary Air Pollution, United Nations Framework on Climate Change, United Nations Convention on Biological diversity, Agenda 21 and the Helsinki and Strasbourg Resolutions, Switzerland decided to establish an intensive monitoring programme. Originally it was foreseen to install a set of 80 plots throughout Switzerland. Financial restrictions led to a change in monitoring objectives and intensity. The main focus of the "Long-Term Forest Ecosystem Research"-project is the evaluation of potential impacts of environmental changes (e.g., air pollution, climate change) on the observed ecosystems. It is currently planned to establish 15 monitoring plots until 1999 within the "Long-Term Forest Ecosystem Research"-project. The criteria that are used to select these monitoring plots are listed below:

- The plant community should be of economical and ecological significance with respect to their sensitivity to change. A priority list of Swiss plant communities (Ellenberg-Klötzli classification, 1972) has been created. The top priority plant communities are:
  - *Galio odorati-Fagetum typicum; Milio-Fagetum; Galio odorati-Fagetum luzuletosum*
  - *Veronico latifoliae-Piceetum; Sphagno-Piceetum typicum; Sphagno-Piceetum calamagrostietosum villosae*
  - *Larici-Pinetum cembrae; Calamagrostio villosae-Abietetum; Dryopterido-Abietetum; Erico-Pinetum silvestris*
- The monitoring sites should be as homogeneous as possible. It is assumed that aboveground vegetation is an indicator for plot homogeneity. Each plot consists of two areas consisting of 1 ha each. The shape of the plots is no selection criterion, although it was recognized that a useful shape (from practical viewpoint) was 100 x 100 m.
- Whenever possible, priority is given to locating plots in the vicinity of existing monitoring sites.
- To avoid side-effects, the borders of the plots should be at least 500 m apart from sources of disturbance (e.g., highways), if possible.
- Plots of the same plant community should be established in areas with different atmospheric properties and different sensitivities to environmental changes.
- Willingness of local forest managers to help with the project is an important factor influencing the final choice of the plots.

Based on the different criteria, 371 plots had been suggested as possible monitoring plots by the end of 1994. It became apparent that it is very difficult to find a 2 ha homogeneous area in Switzerland. Out of 271 sites that have been visited only 35 meet the necessary first priority criteria. Three plots have been partly installed. In 1995, a total of 5 plots will be established throughout Switzerland.

United Kingdom

The factors influencing the selection of plots can be classified into (a) environmental issues, (b) silvicultural issues and (c) management issues.

- *Environmental issues*
  These include site factors such as geology and soil type, climate (including windiness, rainfall, temperature), pollution climate, altitude, topography, proximity to local (point) sources of pollution.
- *Silvicultural issues*
  These include the specific features of the stand such as; species, or species mixture, age, ground preparation before planting, silvicultural history since planting, suitability of species for site, crop growth and yield, condition and density of crop and surrounding stands, future plans for crop management.
- *Management issues*
  These include issues such as ownership/management of the site, site security, rights of way and other rights, history of environmental/silvicultural monitoring, proximity to pollution and meteorological monitoring stations, proximity to the Research Division stations or outstations, accessibility throughout the year.

Environmental factors were of overriding importance in the selection of representative sites, silvicultural and management factors were used to evaluate the suitablility of sites, once selected, for long term monitoring.

The 369 plots currently monitored under the annual forest condition survey and the UK permanent sample plots used to construct yield data were the basis for selection of the intensive monitoring plots. Site records were examined, firstly to exclude unsuitable site types. Sites judged as unsuitable included sites where: the crop was likely to be felled within 10 years or suffering windthrow, the plot is not surrounded by forest, vandalism was reported, it is close to roads of housing, a poor species-site match was reported, it is due for sale or heavy use for recreation.
For each species (*Pinus sylvestris*, *Picea sitchensis*, *Picea abies*, *Fagus sylvatica* and *Quercus robur*[1]), an age/frequency histogram was constructed, and planting year related to stage of maximal annual increment (MAI) and normal rotation age to identify site where crops were likely to be growing actively for the next three decades. Sites where growth rates were slowing down were excluded by adopting, for each species, a maximum crop age based on MAI.

Finally plots were selected in *Picea sitchensis*, *Pinus sylvestris* and *Quercus robur*. These are the three most important high forest species in the United Kingdom, representing (in 1980) 28%, 13% and 9% of the forest cover of Great Britain. It is proposed that level II plots are chosen exclusively from these species, in order to increase replication within them. The following breakdown of sites by species are suggested: *Picea sitchensis* 4 plots, *Pinus sylvestris* 3 plots and *Quercus robur* also 3 plots. Finally it was confirmed that the major pollution climates of concern in the UK for these particular species were represented amongst the ten plots. These pollution climates are considered to be high altitudes sites for Sitka spruce and Scots pine at which enhanced scavenging of acid mist and interactions with low temperatures could be threats. Similarly, one Scots Pine plot lies in an area where SO_2 and NO_x concentrations have historically been high and one is in the area of the UK with the lowest rainfall. One of the oak plots lies in the region most likely to experience ozone periods.
In 1994 5 out of 10 plots were selected and installed. Some 5 plots will follow in 1995.

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[1] The coding for *Quercus robur* is used, although these stands are best described as a mixture of *Quercus robur*, *Quercus petraea* and hybrids of the two.

4 Thematic description of the plots

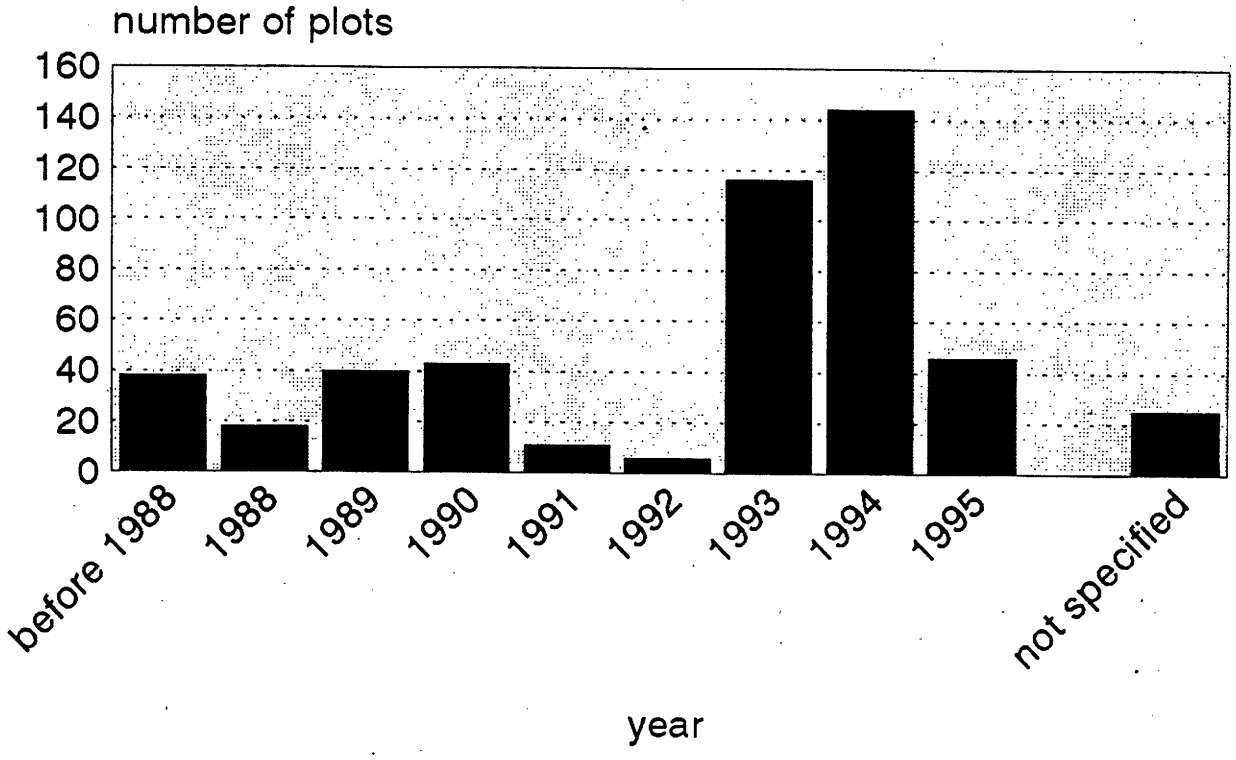
Based on the data received a first evaluation was made with regard to the various parameters reported. In this evaluation, an attempt was made to answer the following question: How are the selected plots distributed with regard to geography, species, age, altitude, etc.?
To enable an easy interpretation of the results, the results are presented in figures and maps, while aditional maps are included in Annex 1 and the tables with more detailed information are included in Annex 2.
A list of all plots, from which information has been received, is included in Annex 3.

4.1 Year of installation

From 487 plots the date of installation has been received. In various cases (44 plots) a rough indication is given for somewhere during 1995, and in other situations this is not specified (24 plots).

In Figure 1 the year of installation of the plot is shown. The majority of the plots was installed in the years 1993 and 1994 (± 70%). It can also be seen that relative many plots were installed in the years 1989 and 1990. This could be due to the use of plots of the systematic survey (16 x 16) that are now "upgraded".

Figure 1 Year of installation of the plots of the intensive monitoring.



4.2 Main tree species

The top-5 main tree species in the plots are according to the information received:

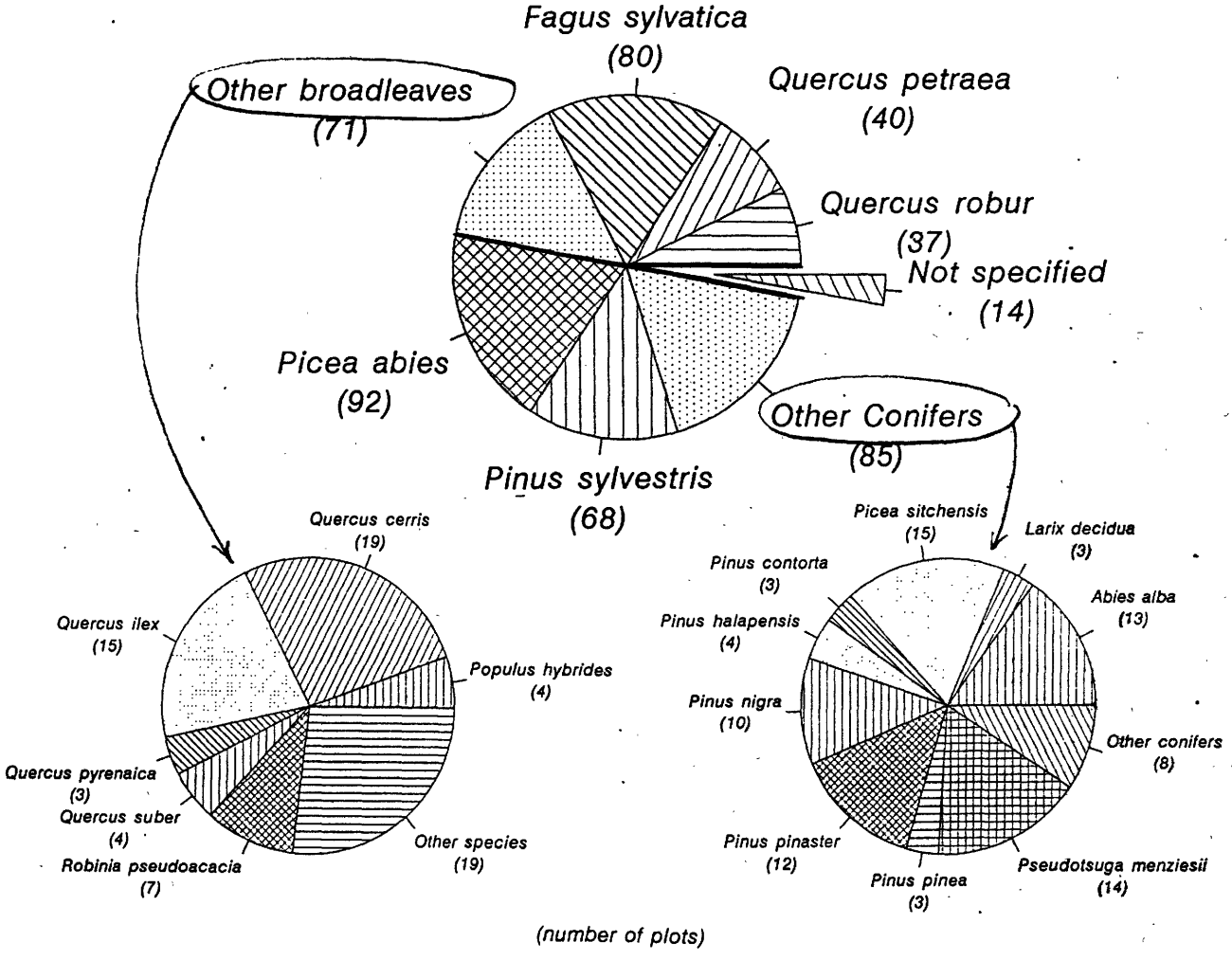
1) *Picea abies* (92 plots),
2) *Fagus sylvatica* (80 plots),
3) *Pinus sylvestris* (68 plots)

and the 2 oak species

4) *Quercus petraea* (40 plots) and
5) *Quercus robur* (37 plots).

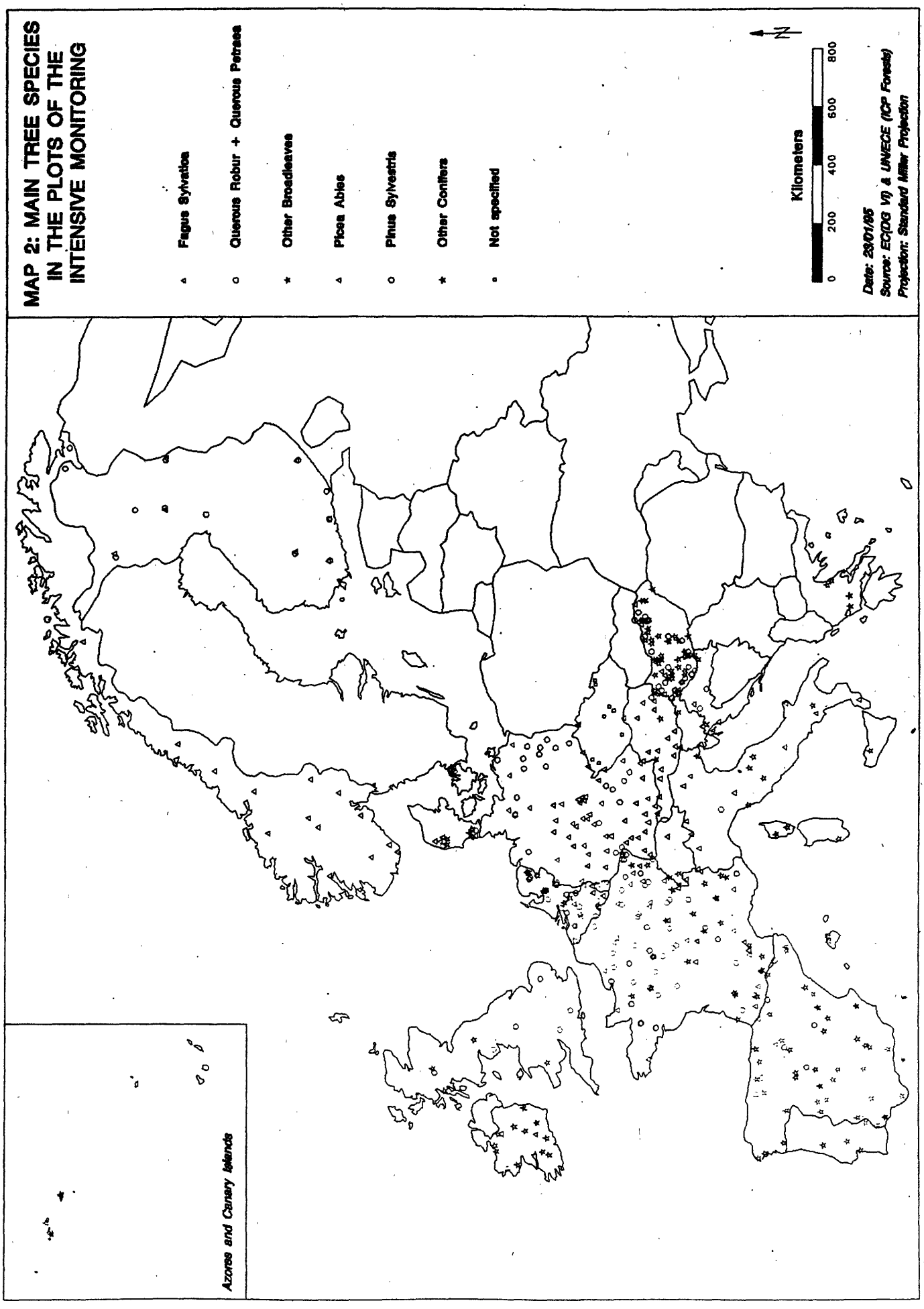
This distribution is indicated in Figure 2.

Figure 2 Distribution of the main tree species in the plots of the intensive monitoring



The two pie segments with "other broadleaves and conifers" have been studied in more detail and the results are presented in the two smaller graphs in Figure 2. It shows that the rest group is very heterogenous and that many species are only represented in a limited number of plots.

Map 2 Geographical distribution of main tree species.

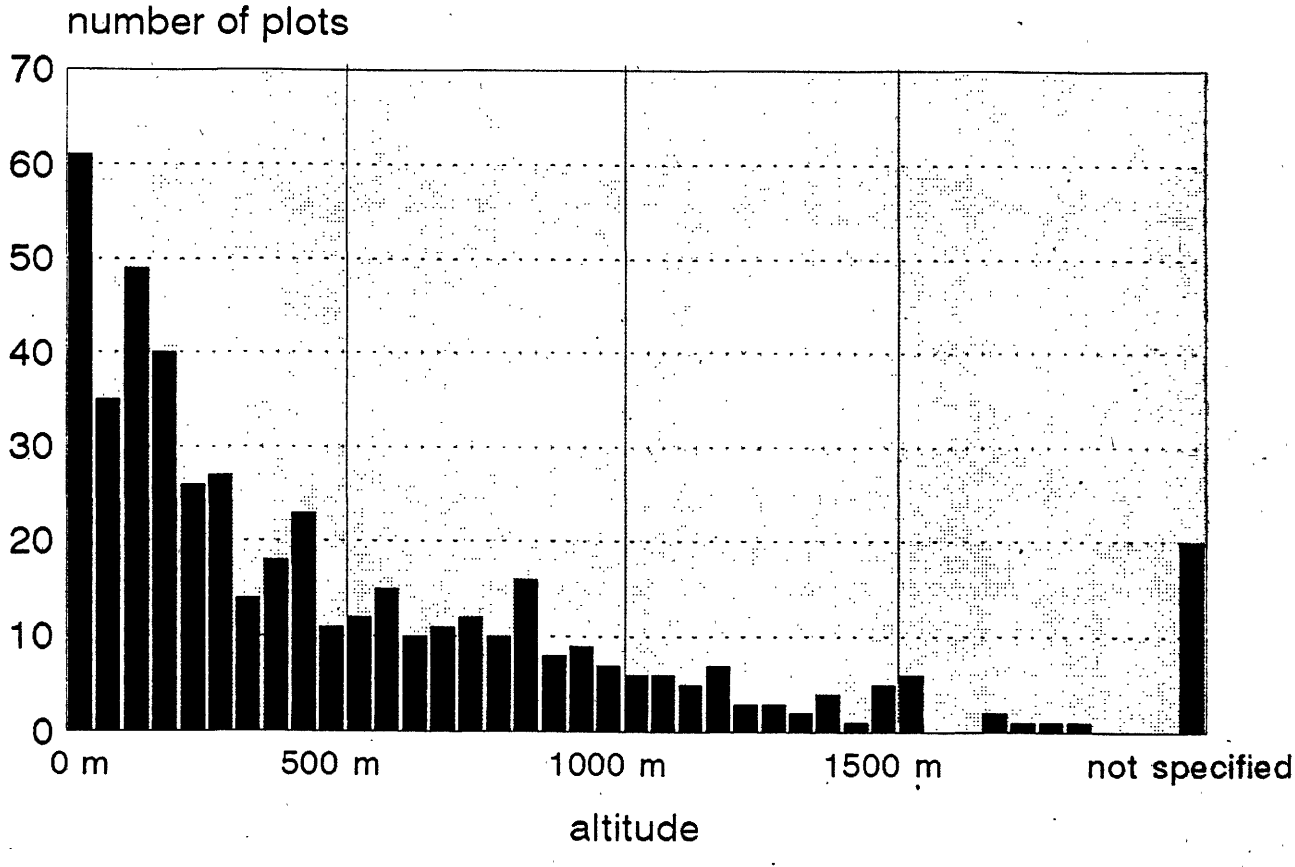


In Map 2 the geographical distribution is shown of the top-5 main tree species. In Annex 1 the maps 2a and 2b are included, showing the plots with broadleaves and conifers separated.
It can be seen that the broadleaves are more concentrated in the central and southern parts of Europe, while the conifers show a fairly even distribution.

4.3 Altitude

From 467 plots the altitude has been made available. In Figure 3 the distribution of the plots over the various altitudes is shown. Most of the plots have been selected in the lower altitudes and the number of plots slowly decreases with higher altitudes.

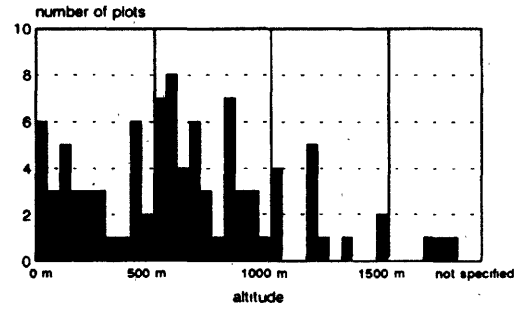
Figure 3 Distribution of the plots over altitude classes.



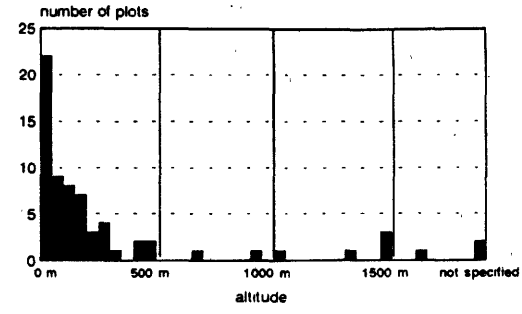
In Figure 4 a set of 5 figures are included that show for the top-5 main tree species, the distribution over the altitude classes. Remarkably is that the *Picea abies* is represented by plots over a long range of altitude classes but that the distribution is very irregular.
The plots of the *Pinus sylvestris*, *Quercus robur* and *Quercus petraea* are concentrated in the lower altitudes, with a few plots in the higher altitudes. The plots of the *Fagus sylvatica* are present in almost all altitude classes up to 1500 metres with one or two plots.
The aspects (exposure) of the plots has also been reported. The various exposures are quite evenly distributed. See Table 3 in Annex 2.

Figure 4 Distribution of the plots over the altitude classes for the top-5 main tree species.

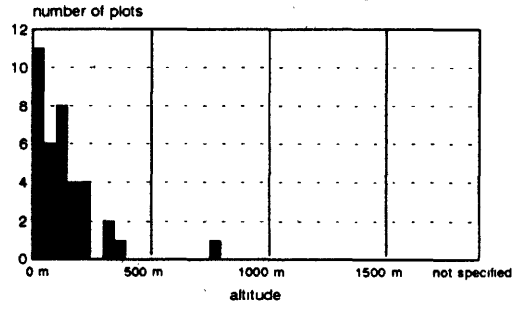
Picea abies



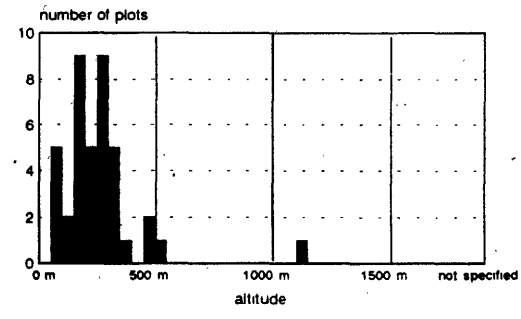
Pinus sylvestris



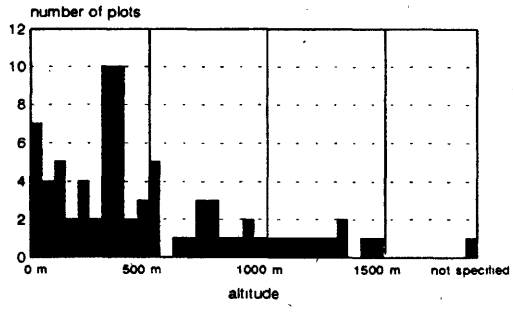
Quercus robur



Quercus petraea



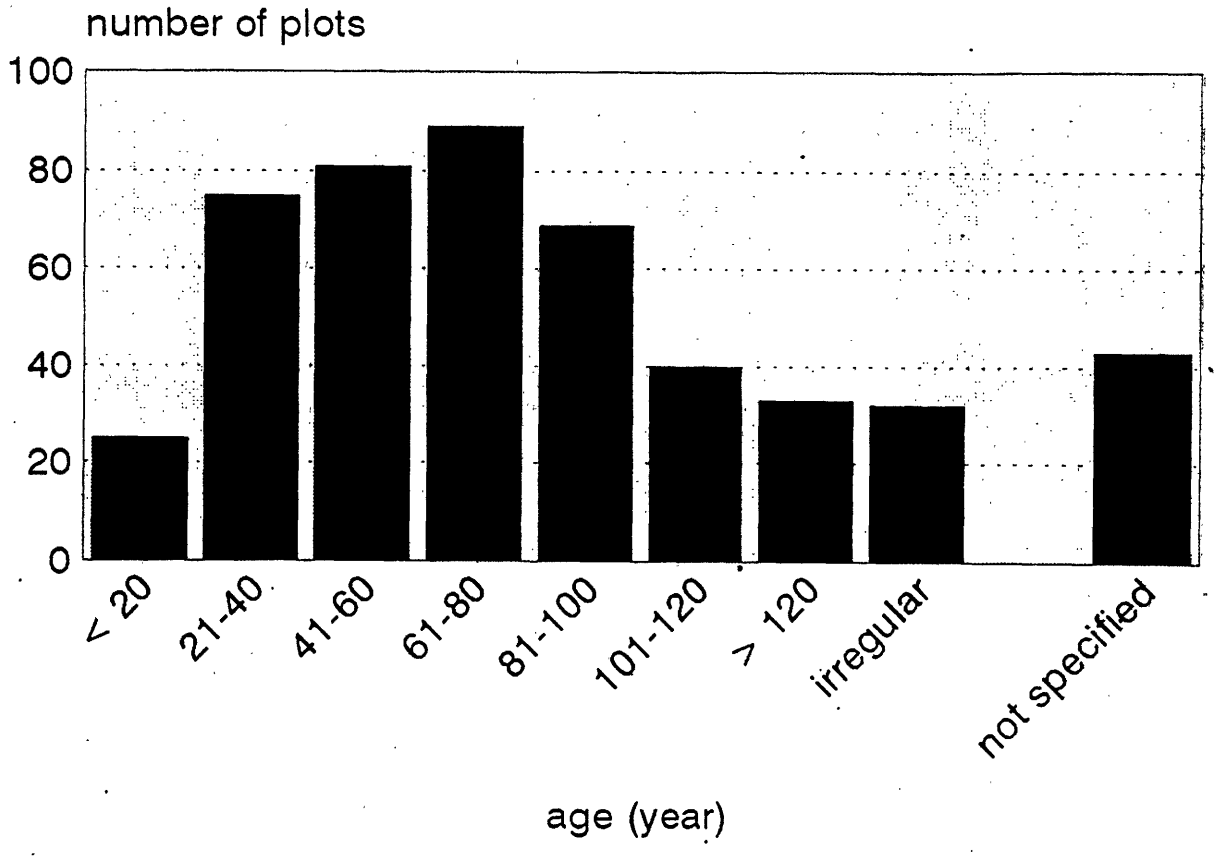
Fagus sylvatica



4.4 Mean age

From most plots the mean age of the trees has been reported. In 43 plots the mean age is not specified yet. In Figure 5 the distribution of the plots over the age classes is presented. The young stands (age class <20 years) are present with only 5%.

Figure 5 Distribution of the plots over the age classes.



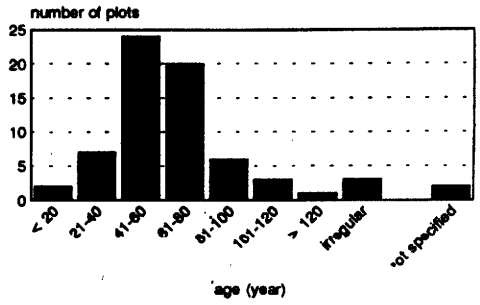
In a Figure 6 the age distribution was worked out for the top-5 main species. It can here be seen that the plots of the *Picea abies* look quite well distributed, but has no young stands at all. The *Pinus sylvestris* plots have a clear concentration in the age classes from 40 to 60 years and from 60 to 80 years. In the plots of the *Quercus petraea* and *Fagus sylvatica* the young stands (<20 years) are completely missing, while there is only one *Quercus robur* plot in the class <20 years.
On the other hand the plots of *Quercus robur* and *Fagus sylvatica* are quite well distributed over the other age classes. It is remarkable that the plots of *Quercus robur* are concentrated around the 60-80 years, while the plots of *Quercus petraea* are located around the 80-100 years

In Map 3 the distribution of the plots is shown with their age classes.

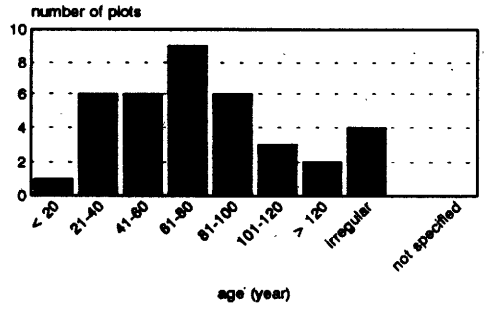
Figure 6 **Distribution of the plots over the age classes for the top-5 main tree species.**

Picea abies

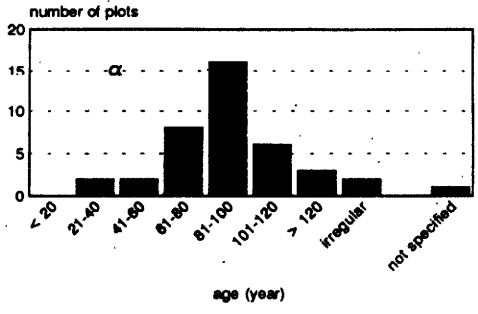
Pinus sylvestris



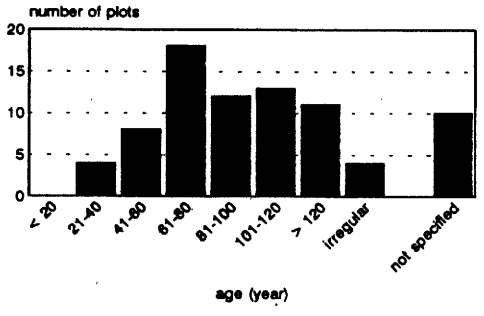
Quercus robur



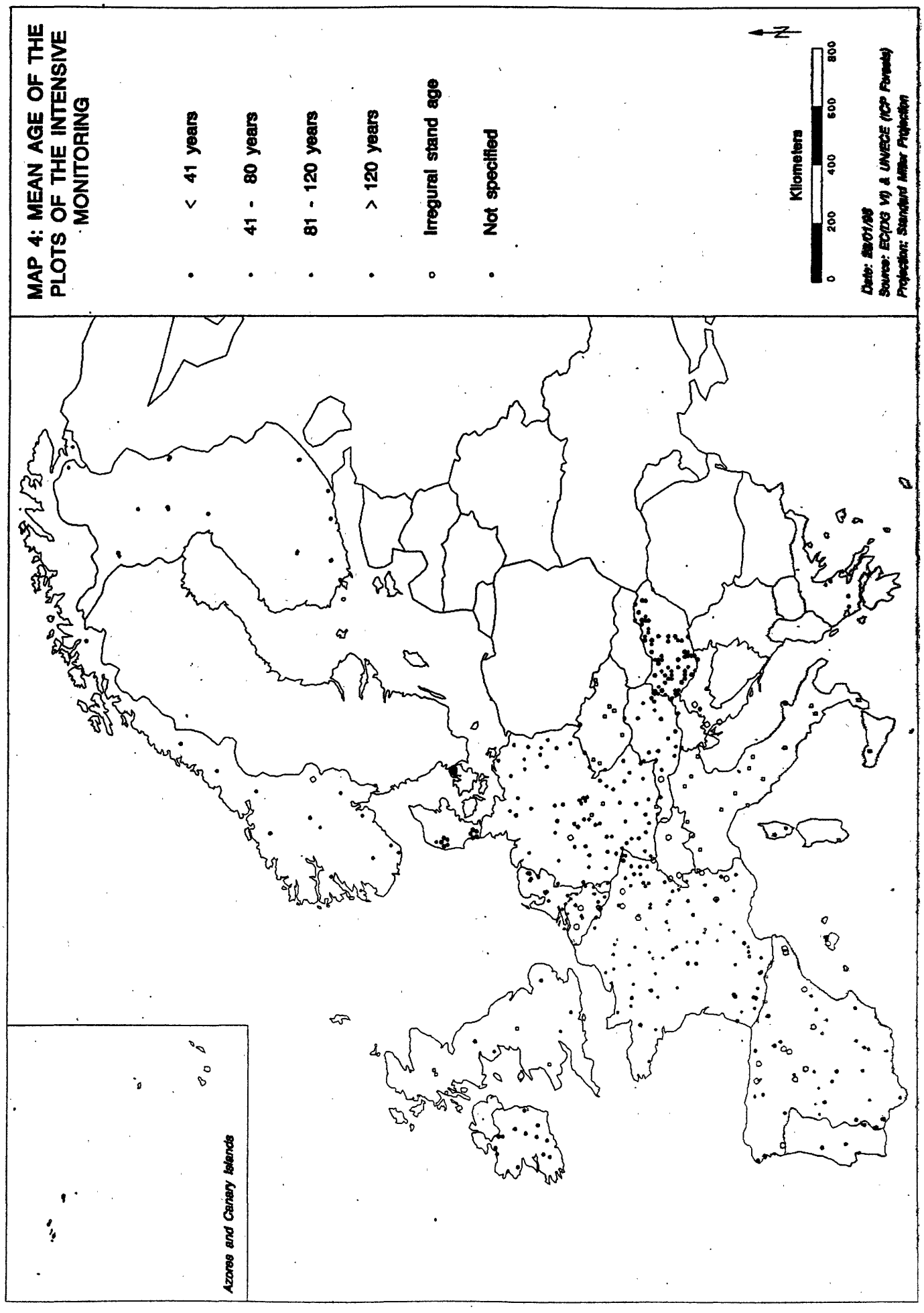
Quercus petraea



Fagus sylvatica



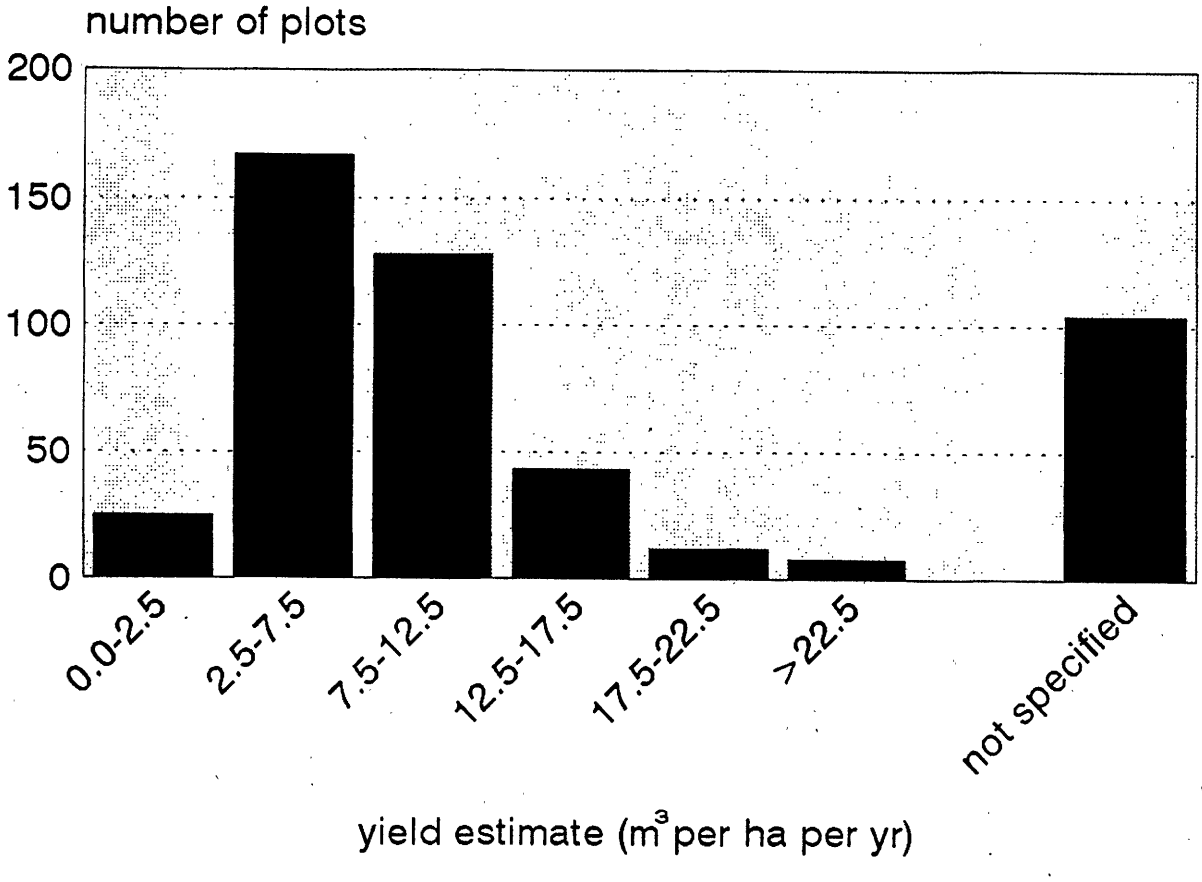
Map 3 Geographical distribution of the plots with their age class.



4.5 Yield estimate

For a majority of plots the estimated yield (in cubic metres per hectare per year) has been received. The yield estimates consist of an absolute and a relative yield estimate. The absolute yield estimate is the estimated average yield over the total life period of the stand. The relative yield indicates whether the absolute yield estimate is considered to be low, normal or high for the stand.
It has to be understood that these figures are based on estimates in the field. In a later stage when the increment studies have been completed, more detailed information will become available.
In Figure 7 the distribution of the plots per yield class is shown.

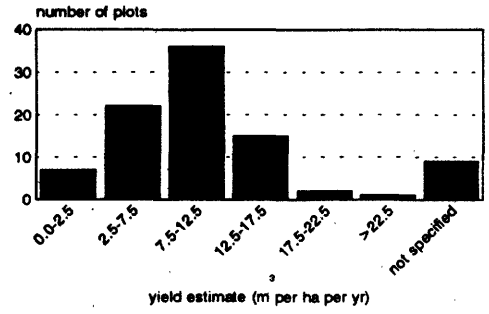
Figure 7 Distribution of the plots over the estimated yield classes.



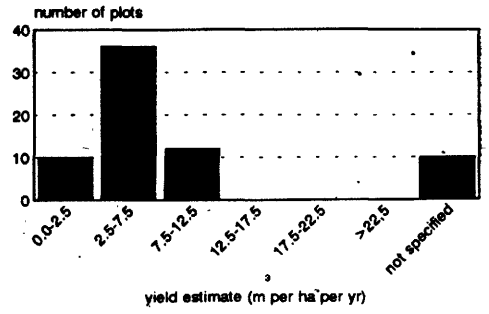
In Figure 8 the distribution of the yield classes for the top-5 main species was further worked out. The *Picea abies* and *Fagus sylvatica* are concentrated in the classes 2.5-7.5 and 7.5-12.5 m^3 with the some plots in the highest classes (17.5-22.5 and 22.5-27.5), while the *Pinus sylvestris* and the two oaks (*Q. robur* and *Q. petraea*) are concentrated in the class 2.5-7.5 m^3

Figure 8 Distribution of the plots over the estimated yield classes for the top-5 main species.

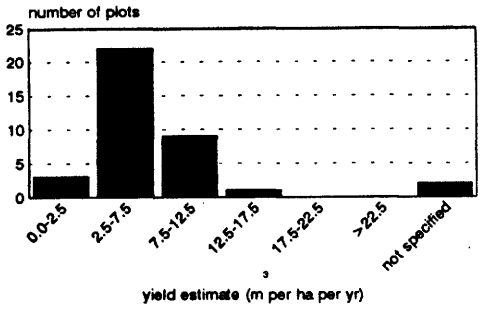
Picea abies



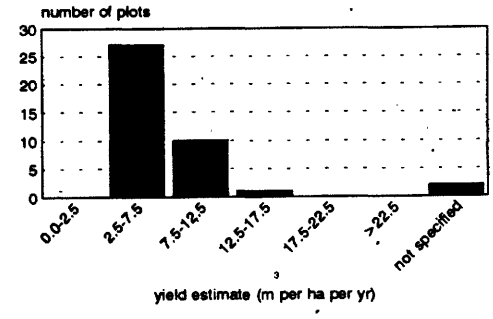
Pinus sylvestris



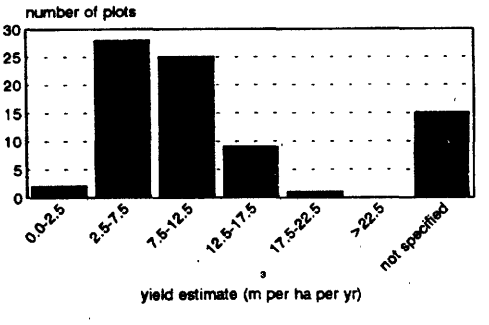
Quercus robur



Quercus petraea

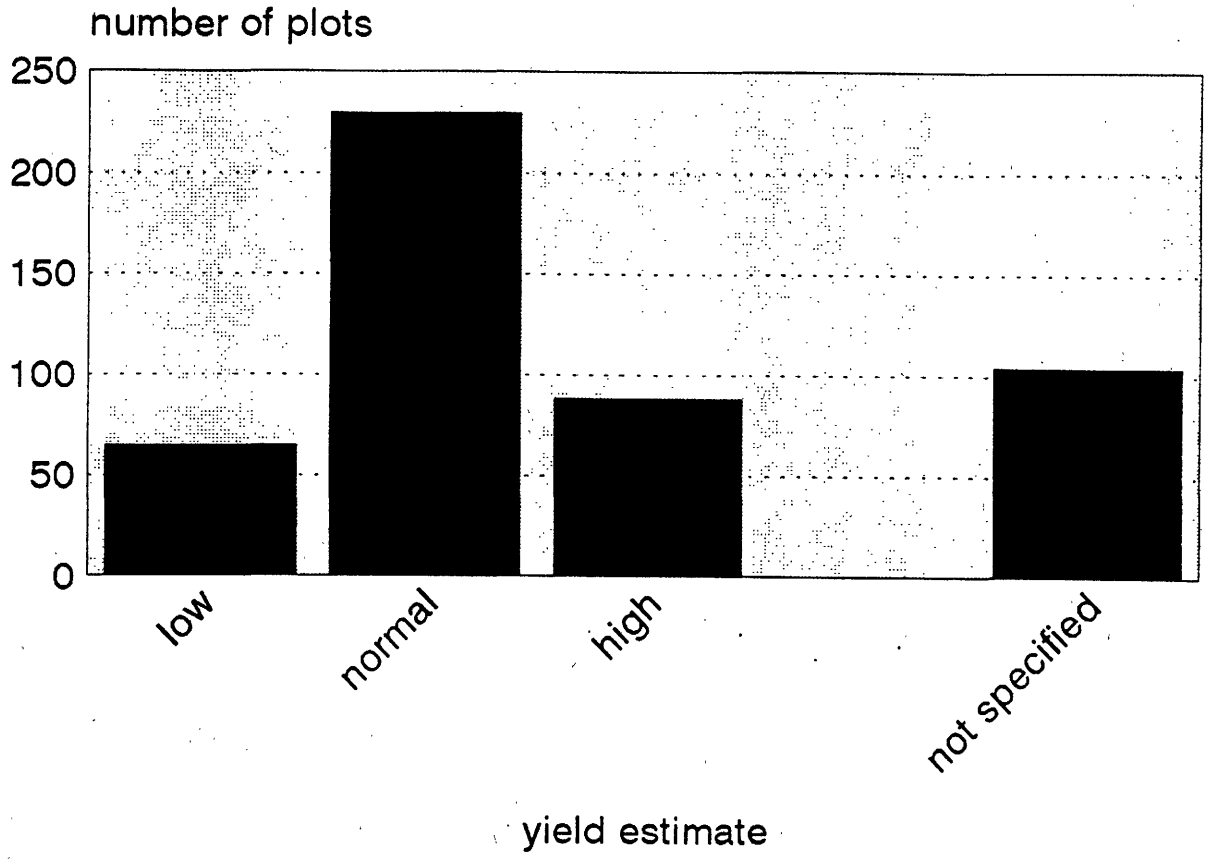


Fagus sylvatica



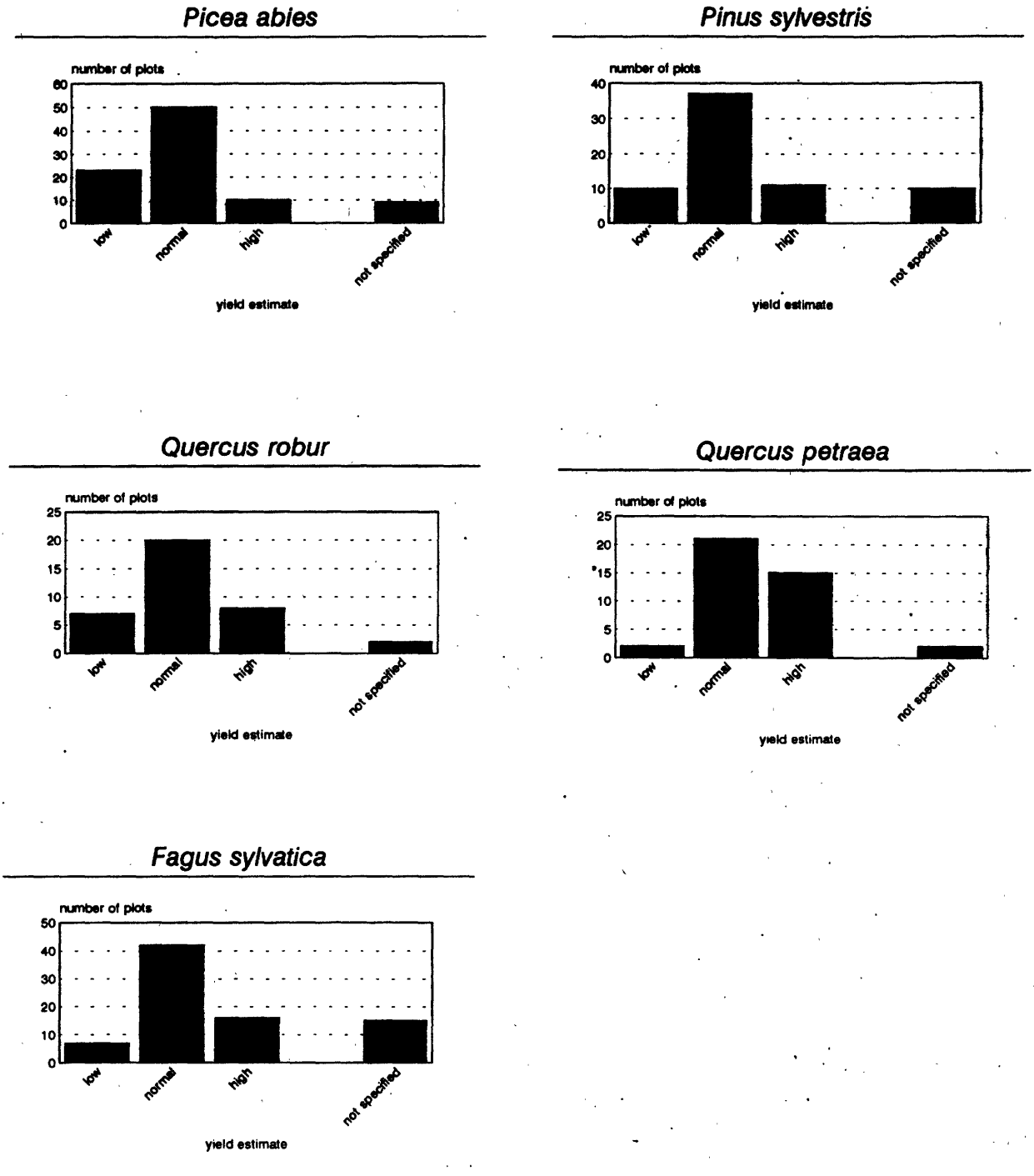
In the same context it was requested to indicate whether the estimated yield was considered as being low, normal or high for these species under these plot conditions. In Figure 9 the distribution of the plots with the relative yields is indicated. It shows that most plots are considered normal.

Figure 9 Distribution of the plots over the relative yield classes.



In Figure 10 the distribution of the relative yield classes for the top-5 main species was further worked out. It can be seen that the relative yield in *Picea abies* is for many plots considered to be relatively low, while the relative yield in the *Quercus petraea* and the *Fagus sylvatica* is considered to be high in a relative high number of plots.

Figure 10 **Distribution of the plots over the relative yield classes over the top-5 main tree species.**

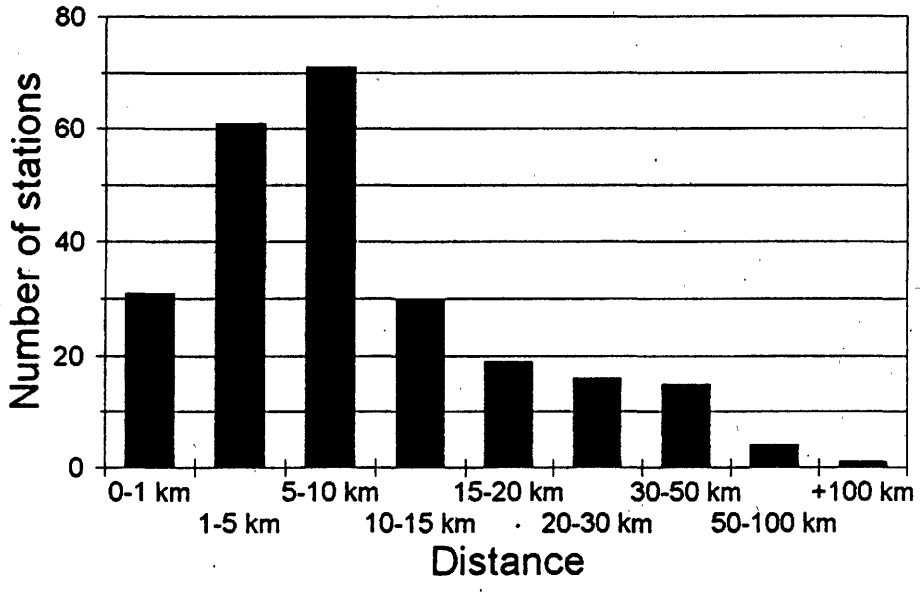


4.6 Distance to nearby monitoring or meteorological station

Ideally the plots should have been selected nearby an existing meteorological or other monitoring station. From 248 plots descriptions with information of nearby stations have been received. Based on the coordinates supplied for these stations the distance has been calculated.

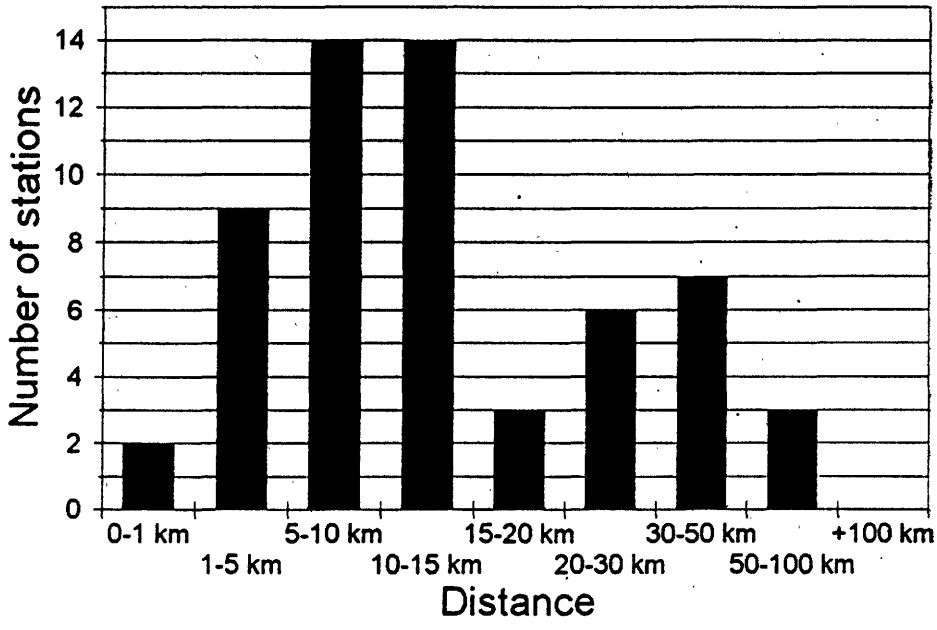
In Figure 11 the distribution of the distance between the plot and the nearest station(s) is shown. It can be seen that the majority is located within 10 km of the plot.

Figure 11 The distribution of the distance between plot and nearby stations



In 58 situations it was indicated that the station was a meteorological station. In Figure 12 the distribution of the distance between the plot and the nearest meteorological station is shown.

Figure 12 **The distribution of the distance between plot and meteorological stations**



5 Conclusions and Recommendations

- In the beginning of 1994 the Member States of the European Union agreed, in accordance with Resolution S1 of the Ministerial Conference on the protection of forests in Europe (Strasbourg, 1990) and Council Regulation (EEC) N° 2157/92, to set-up permanent observation plots for the intensive and continuous monitoring of forest ecosystems. This second level of monitoring intensity is also carried out in several non-EU countries under the framework of ICP Forests of UN/ECE.

- The intensive and continuous monitoring programme has the objective:
  - to conduct an intensive and continuous monitoring of the forest ecosystem in relation to the damage caused by atmospheric pollution and other factors influencing forest condition,
  - to improve the understanding of the causal relationships between changes in forest ecosystem and the factors influencing it, especially atmospheric pollution, by concentrating at a single location various measurements and monitoring of forest ecosystems and its components,
  - to obtain relevant information on the evolution of a number of forest ecosystems in the Europe.

- During 1994 the participating countries started with the selection and installation of their plots and submitted the available general plot data by the end of 1994. More than 80% of the selected plots have been installed properly in the European Union. It is expected that the installation of the remaining plots will be completed this year for all EU-Member States and several non-EU countries.

- The selection of plots is made in such a way that the objectives and the selection criteria laid down in Regulation (EC) N° 1091/94 are fulfilled. The achieved distribution over species, age, altitude etc. is well balanced. This will lead to many possibilities for further studies.

- In many plots (65%) deposition is measured and meteorological parameters are monitored in 30-35% of the plots.
  Plots are often located nearby (meteorological) stations.

- The first surveys will be carried out in 1995 on the plots, so that the first results will be available by the end of this year.

- More effort is needed to present information from additional non-EU countries participating in the European Monitoring Programme. A strong support by ICP Forests and its two Programme Coordinating Centres involved will be needed to fulfil this objective and to include data of these countries in the final version of this report, which is foreseen for January 1996.

6 References

EUROPEAN UNION:

EC COUNCIL REGULATION N° 3528/86 on the protection of forest against atmospheric pollution. Official Journal N° 326 of 21.11.1986, p.2, Brussels.

EC COUNCIL REGULATION N° 2157/92 on the protection of forest against atmospheric pollution. Official Journal N° 217 of 31.7.1992, p.1, Brussels.

EC COMMISSION REGULATION N° 1091/94. Official Journal N° L 125 of 18.5.1994, p.1, Brussels.

EC COMMISSION REGULATION N° (amendment of Regulation N° 1091/94, not yet published).

UNITED NATIONS:

INTERNATIONAL COOPERATIVE PROGRAMME ON ASSESSMENT AND MONITORING OF AIR POLLUTION EFFECTS ON FORESTS

Manual on methodologies and criteria for harmonized sampling,assessment, monitoring and analysis of the effects of air pollution on forests, third edition. Hamburg/Geneva/Prague: PCC's, UN/ECE 1994.

MINISTERIAL CONFERENCE ON THE PROTECTION OF FORESTS IN EUROPE

Report on the follow-up of the Strasbourg Resolutions, Ministery of Agriculture and Forestry, Conference Secretariat June 1993, ISBN 951-47-7632-1

Ministerial conference on the protection of the forests in Europe, 16-17 June 1993 in Helsinki, ISBN 951-47-8561-4

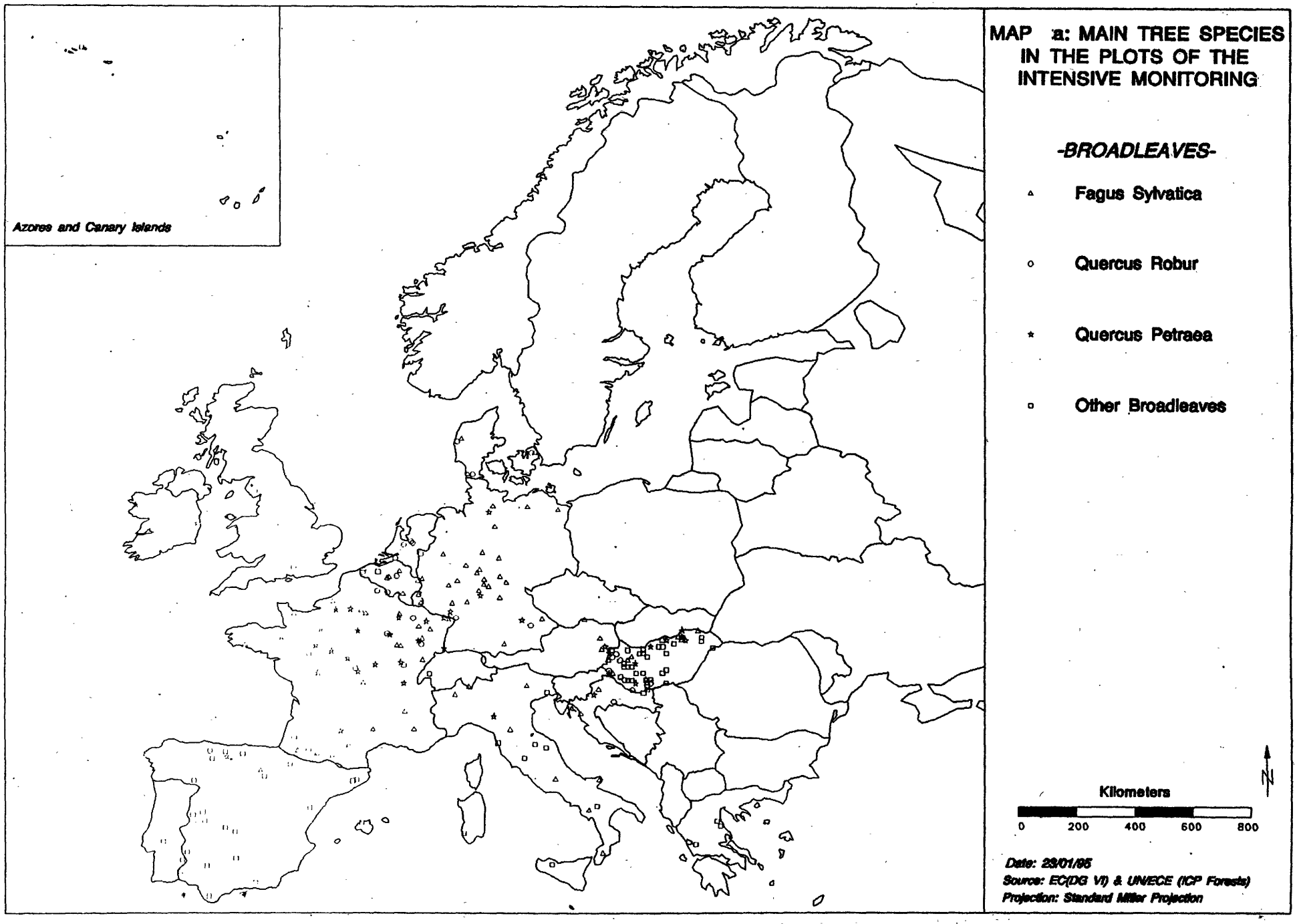
Annexes

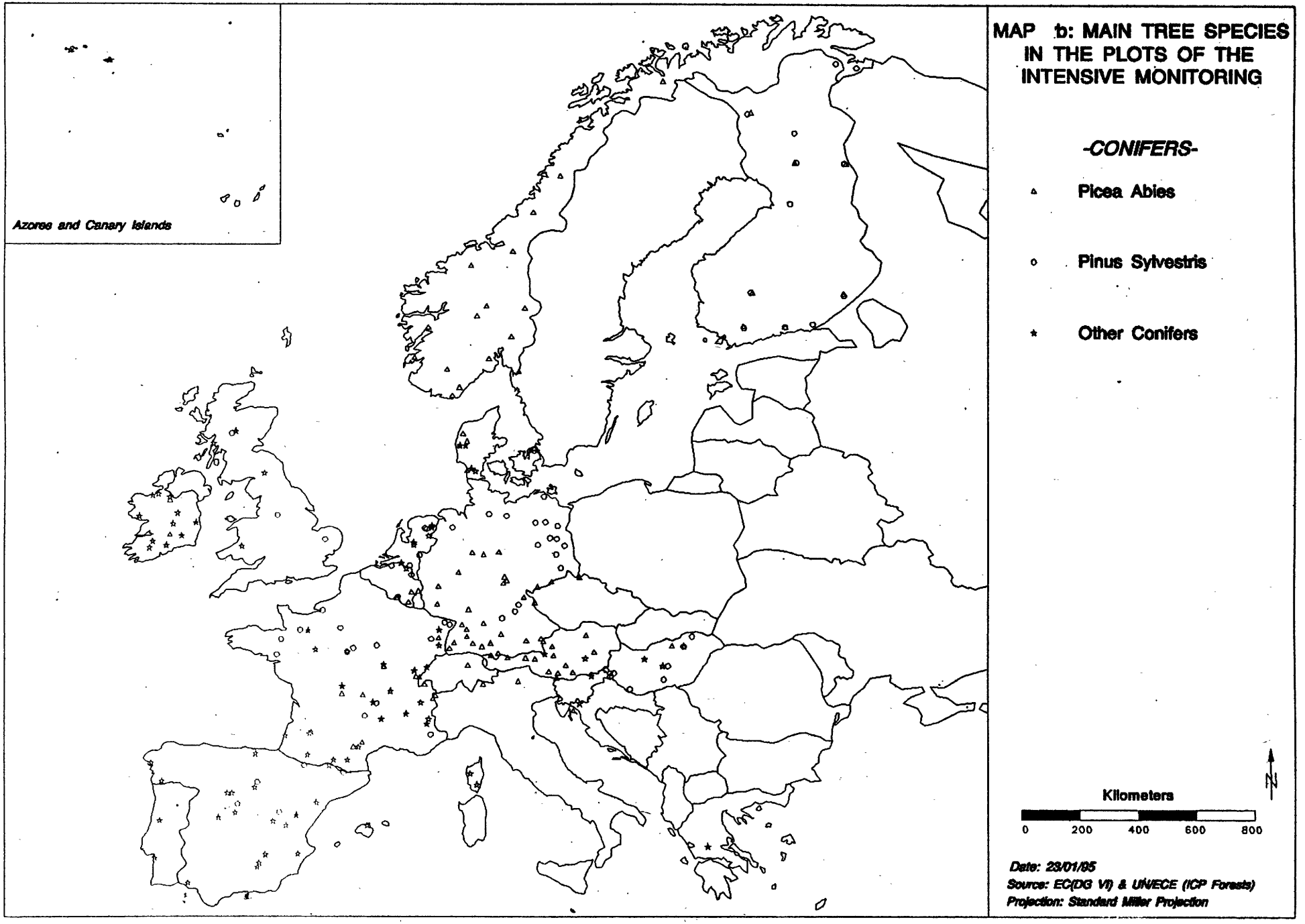
Annex 1

Map of the plots with the main tree species

A Map of the plots (broadleaves)

B Map of the plots (conifers)


Azores and Canary Islands
MAP a: MAIN TREE SPECIES IN THE PLOTS OF THE INTENSIVE MONITORING
-BROADLEAVES-
Fagus Sylvatica
Quercus Robur
Quercus Petraea
Other Broadleaves
N
Kilometers
0
200
400
600
800
Date: 29/01/95
Source: EC(DG VI) & UN/ECE (ICP Forests)
Projection: Standard Miller Projection


Azores and Canary Islands
MAP b: MAIN TREE SPECIES IN THE PLOTS OF THE INTENSIVE MONITORING
-CONIFERS-
Picea Abies
Pinus Sylvestris
Other Conifers
Kilometers
0
200
400
600
800
N
Date: 23/01/95
Source: EC(DG VI) & UNECE (ICP Forests)
Projection: Standard Miller Projection

Annex 2

Tables with thematic information

1. Main species
2. Altitude
3. Exposure
4. Mean age
5. Yield

Table 1. **Overview of the main species in the plots of the intensive monitoring per country**

		EU Member States															TOTAL	Non-EU Countries					GRAND
CODE	TREE SPECIES	AU	BL	DK	DL	EL	ES	FR	IR	IT	LX	NL	PO	SF	SW	UK	EU	CH	CR	CZ	HG	NO	TOTAL
20	Fagus sylvatica	3	7	3	24	0	2	20	0	7	2	0	0	0	0	0	68	1	2	0	9	0	80
48	Quercus petraea	2	0	0	4	0	1	21	2	1	0	0	0	0	0	0	31	0	1	0	8	0	40
51	Quercus robur	0	4	3	4	0	1	9	0	0	0	4	0	0	0	3	28	0	1	0	8	0	37
41	Quercus cerris	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	5	0	0	0	14	0	19
46	Quercus ilex	0	0	0	0	1	12	0	0	2	0	0	0	0	0	0	15	0	0	0	0	0	15
56	Robinia pseudoacacia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7
33	Populus hybrides	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
54	Quercus suber	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	4
17	Eucalyptus spec.	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	3
50	Quercus pyrenaica	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3
7	Alnus glutinosa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
32	Populus canescens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
43	Quercus faginea	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
13	Carpinus betulus	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1
15	Castanea sativa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
18	Fagus moesiaca	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
22	Fraxinus excelsior	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
44	Quercus frainetto	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
49	Quercus pubescens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
52	Quercus rotundifolia	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
53	Quercus rubra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
57	Salix alba	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
99	Other broadleaves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
118	Picea abies	13	4	4	29	0	0	11	2	4	0	0	0	7	0	0	74	1	0	0	1	16	92
134	Pinus sylvestris	0	2	0	18	0	5	14	0	0	0	5	0	11	0	3	58	0	0	0	9	1	68
120	Picea sitchensis	0	0	3	0	0	0	0	8	0	0	0	0	0	0	4	15	0	0	0	0	0	15
136	Pseudotsuga menziesii	0	0	3	0	0	0	6	0	0	0	5	0	0	0	0	14	0	0	0	0	0	14
100	Abies alba	1	0	0	0	0	0	11	0	0	0	0	0	0	0	0	12	0	1	0	0	0	13
130	Pinus pinaster	0	0	0	0	0	6	5	0	0	0	0	1	0	0	0	12	0	0	0	0	0	12
129	Pinus nigra	0	2	0	0	0	3	2	0	0	0	0	0	0	0	0	7	0	0	0	3	0	10
125	Pinus halepensis	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
116	Larix decidua	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3
124	Pinus contorta	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	3
131	Pinus pinea	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	3
101	Abies borisii-regis	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
112	Juniperus oxycedrus	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
115	Juniperus thurifera	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
132	Pinus radiata	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
135	Pinus uncinata	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
199	Other conifers	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	3
	not specified	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6	0	0	8	0	0	14
	TOTAL	20	20	16	86	4	50	100	15	20	2	14	8	18	0	10	383	3	5	8	71	17	487

CH = Switzerland
CR = Croatia
CZ = Czech Republic
HG = Hungary
NO = Norway

Table 2. **Overview of the altitudes of the plots of the intensive monitoring per country**

CODE	ALTITUDE	EU Member States															TOTAL	Non-EU Countries					GRAND
		AU	BL	DK	DL	EL	ES	FR	IR	IT	LX	NL	PO	SF	SW	UK	EU	CH	CR	CZ	HG	NO	TOTAL
1	<50 m	0	7	16	13	0	1	4	0	1	0	13	0	3	0	1	59	0	0	0	0	2	61
2	51-100 m	0	3	0	7	0	0	7	3	0	0	1	1	4	0	1	27	0	1	0	6	1	35
3	101-150 m	0	2	0	2	0	2	12	3	1	0	0	1	4	0	2	29	0	0	0	18	2	49
4	151-200 m	0	0	0	1	0	1	10	4	1	0	0	0	2	0	0	19	0	1	0	17	3	40
5	201-250 m	0	1	0	0	0	1	6	1	0	0	0	1	1	0	0	11	0	0	0	13	2	26
6	251-300 m	1	0	0	0	0	4	7	0	0	0	0	1	2	0	1	16	0	0	0	9	2	27
7	301-350 m	0	0	0	2	0	0	5	2	0	0	0	0	2	0	0	11	0	0	0	3	0	14
8	351-400 m	1	2	0	2	1	0	7	2	0	1	0	0	0	0	0	16	0	0	0	1	1	18
9	401-450 m	1	2	0	13	0	2	2	0	0	1	0	0	0	0	0	21	0	0	0	2	0	23
10	451-500 m	2	0	0	3	0	3	2	0	0	0	0	0	0	0	0	10	0	0	0	0	1	11
11	501-550 m	0	1	0	9	0	0	1	0	0	0	0	0	0	0	0	11	0	0	0	0	1	12
12	551-600 m	1	1	0	5	0	0	4	0	0	0	0	1	0	0	0	12	0	0	0	1	2	15
13	601-650 m	1	0	0	3	0	3	3	0	0	0	0	0	0	0	0	10	0	0	0	0	0	10
14	650-700 m	1	0	0	4	0	0	4	0	2	0	0	0	0	0	0	11	0	0	0	0	0	11
15	701-750 m	1	0	0	3	1	4	1	0	1	0	0	1	0	0	0	12	0	0	0	0	0	12
16	751-800 m	0	0	0	2	0	4	0	0	2	0	0	1	0	0	0	9	1	0	0	0	0	10
17	801-850 m	1	0	0	6	0	3	3	0	1	0	0	1	0	0	0	15	0	1	0	0	0	16
18	851-900 m	2	0	0	0	1	4	0	0	0	0	0	0	0	0	0	7	0	0	0	1	0	8
19	901-950 m	2	0	0	1	0	1	2	0	2	0	0	0	0	0	0	8	1	0	0	0	0	9
20	951-1000 m	0	0	0	0	0	2	3	0	1	0	0	0	0	0	0	6	0	1	0	0	0	7
21	1001-1050 m	2	0	0	2	0	0	2	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6
22	1051-1100 m	0	0	0	0	0	2	3	0	1	0	0	0	0	0	0	6	0	0	0	0	0	6
23	1101-1150 m	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	5	0	0	0	0	0	5
24	1151-1200 m	1	0	0	1	1	0	1	0	2	0	0	0	0	0	0	6	1	0	0	0	0	7
25	1201-1250 m	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3
26	1251-1300 m	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3
27	1301-1350 m	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
28	1351-1400 m	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
29	1401-1450 m	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
30	1451-1500 m	2	0	0	1	0	1	0	0	1	0	0	0	0	0	0	5	0	0	0	0	0	5
31	1501-1550 m	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	0	1	0	0	0	6
32	1551-1600 m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	1601-1650 m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	1651-1700 m	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
35	1701-1750 m	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1
36	1751-1800 m	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1
37	1801-1850 m	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
ns	not specified	0	1	0	6	0	0	0	0	0	0	0	0	0	0	5	12	0	0	8	0	0	20
	TOTAL	20	20	16	86	4	50	100	15	20	2	14	8	18	0	10	383	3	5	8	71	17	487

CH = Switzerland
CR = Croatia
CZ = Czech Republic
HG = Hungary
NO = Norway

Table 3. **Overview of the exposures of the plots of the intensive monitoring per country**

CODE	EXPOSURE	EU Member States															TOTAL	NON – EU Countries					GRAND
		AU	BL	DK	DL	EL	ES	FR	IR	IT	LX	NL	PO	SF	SW	UK	EU	CH	CR	CZ	HG	NO	TOTAL
1	N	1	0	0	8	2	5	4	0	5	0	0	1	3	0	0	29	0	0	0	6	0	35
2	NE	2	2	0	7	1	8	6	0	2	0	0	0	0	0	0	28	1	1	0	5	3	38
3	E	2	1	0	2	1	3	4	5	0	0	0	0	1	0	0	19	0	1	0	7	0	27
4	SE	2	0	0	9	0	9	6	3	2	0	0	0	0	0	1	32	0	0	0	1	1	34
5	S	1	1	0	6	0	3	4	3	1	0	0	2	2	0	1	24	1	1	0	3	1	30
6	SW	2	0	0	2	0	6	8	2	0	0	0	0	1	0	1	22	0	1	0	4	2	29
7	W	2	1	0	5	0	2	10	0	5	0	0	1	2	0	0	28	1	0	0	7	2	38
8	NW	4	3	0	7	0	7	13	0	3	1	0	1	0	0	0	39	0	0	0	2	2	43
9	flat	4	11	16	29	0	7	45	2	2	1	14	3	9	0	2	145	0	1	0	36	6	188
	not specified	0	1	0	11	0	0	0	0	0	0	0	0	0	0	5	17	0	0	8	0	0	25
	TOTAL	20	20	16	86	4	50	100	15	20	2	14	8	18	0	10	383	3	5	8	71	17	487

CH = Switzerland
CR = Croatia
CZ = Czech Republic
HG = Hungary
NO = Norway

Table 4. **Overview of the mean ages of the trees in the plots of the intensive monitoring per country**

CODE	MEAN AGE OF DOMINANT STOREY	EU Member States															TOTAL	Non-EU Countries					GRAND
		AU	BL	DK	DL	EL	ES	FR	IR	IT	LX	NL	PO	SF	SW	UK	EU	CH	CR	CZ	HG	NO	TOTAL
1	<20 years	0	0	0	0	0	2	2	2	0	0	0	2	0	0	1	9	0	0	0	16	0	25
2	21 – 40 years	0	1	15	0	0	10	14	11	0	0	1	3	1	0	1	57	0	0	0	17	1	75
3	41 – 60 years	4	8	0	7	1	8	21	0	0	0	9	1	8	0	2	69	0	0	0	9	3	81
4	61 – 80 years	3	2	1	25	1	6	25	0	0	0	4	0	6	0	1	74	0	0	0	14	1	89
5	81 – 100 years	3	1	0	16	2	9	20	0	0	1	0	0	1	0	0	53	0	0	0	13	3	69
6	101 – 120 years	5	0	0	18	0	0	8	1	0	1	0	1	1	0	0	35	0	0	0	2	3	40
7	>120 years	4	4	0	10	0	3	2	1	0	0	0	1	1	0	0	26	0	2	0	0	5	33
8	irregular stand	1	3	0	1	0	12	8	0	0	0	0	0	0	0	0	25	3	3	0	0	1	32
	not specified	0	1	0	9	0	0	0	0	20	0	0	0	0	0	5	35	0	0	8	0	0	43
	TOTAL	20	20	16	86	4	50	100	15	20	2	14	8	18	0	10	383	3	5	8	71	17	487

CH = Switzerland
CR = Croatia
CZ = Czech Republic
HG = Hungary
NO = Norway

Table 5. **Overview of the absolute yield estimates in the plots of the intensive monitoring per country**

CODE	YIELD ESTIMATE (ABSOLUTE)	EU Member States															TOTAL	Non–EU Countries					GRAND
		AU	BL	DK	DL	EL	ES	FR	IR	IT	LX	NL	PO	SF	SW	UK	EU	CH	CR	CZ	HG	NO	TOTAL
0	0,0– 2,5 M3 PER HA.YEAR	1	0	0	2	0	0	6	0	0	0	1	3	8	0	0	21	0	0	0	0	4	25
1	2,5– 7,5 M3 PER HA.YEAR	7	9	2	33	4	0	55	2	0	2	8	4	8	0	3	137	0	1	0	20	9	167
2	7,5–12,5 M3 PER HA.YEAR	9	6	2	26	0	1	31	1	0	0	5	1	2	0	1	85	0	4	0	37	2	128
3	12,5–17,5 M3 PER HA.YEAR	3	3	4	7	0	0	5	7	0	0	0	0	0	0	0	29	0	0	0	12	2	43
4	17,5–22,5 M3 PER HA.YEAR	0	0	2	1	0	0	3	3	0	0	0	0	0	0	1	10	0	0	0	2	0	12
5	>22,5 M3 PER HA.YEAR	0	0	6	0	0	0	0	2	0	0	0	0	0	0	0	8	0	0	0	0	0	8
	not specified	0	2	0	17	0	49	0	0	20	0	0	0	0	0	5	93	3	0	8	0	0	104
	TOTAL	20	20	16	86	4	50	100	15	20	2	14	8	18	0	10	383	3	5	8	71	17	487

Overview of the relative yield estimates in the plots of the intensive monitoring per country

CODE	YIELD ESTIMATE (RELATIVE)	EU Member States															TOTAL	Non–EU Countries					GRAND
		AU	BL	DK	DL	EL	ES	FR	IR	IT	LX	NL	PO	SF	SW	UK	EU	CH	CR	CZ	HG	NO	TOTAL
1	LOW	4	3	5	18	0	1	10	0	0	0	1	4	0	0	2	48	0	0	0	7	10	65
2	NORMAL	15	12	7	40	3	0	69	11	0	2	13	3	18	0	3	196	0	5	0	22	7	230
3	HIGH	1	3	4	11	1	0	21	4	0	0	0	1	0	0	0	46	0	0	0	42	0	88
	not specified	0	2	0	17	0	49	0	0	20	0	0	0	0	0	5	93	3	0	8	0	0	104
	TOTAL	20	20	16	86	4	50	100	15	20	2	14	8	18	0	10	383	3	5	8	71	17	487

CH = Switzerland
CR = Croatia
CZ = Czech Republic
HG = Hungary
NO = Norway

Annex 3

List of all plots

Country	plot number	Altitude code	description	Orientation code	description	Installation date	Total plot area	Number of trees	Subplot area	Mean age code	description	Tree species code	description	Yield absolute code	description	Yield relative code	description
Austria																	
14	1	8	351-400 m	3	E	000494	0.2500	126	0.2500000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
14	2	6	251-300 m	9	Flat	000494	0.2500	87	0.2500000	4	61-80 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
14	3	19	901-950 m	2	NE	001094	0.2500	176	0.2500000	3	41-60 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
14	4	24	1151-1200 m	3	E	.....	0.2500	0	0.2500000	3	41-60 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	2	normal
14	5	15	701-750 m	4	SE	.....	0.2500	0	0.2500000	6	101-120 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	2	normal
14	6	18	851-900 m	9	Flat	000594	0.2500	97	0.2500000	5	81-100 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
14	7	10	451-500 m	6	SW	000494	0.2500	300	0.2500000	4	61-80 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	1	low
14	8	12	551-600 m	7	W	000594	0.2500	111	0.2500000	6	101-120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
14	9	10	451-500 m	2	NE	000594	0.2500	325	0.2500000	3	41-60 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
14	10	9	401-450 m	9	Flat	000594	0.2500	113	0.2500000	6	101-120 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
14	11	17	801-850 m	4	SE	001194	0.2500	93	0.2500000	7	> 120 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	2	normal
14	12	18	851-900 m	8	NW	000595	0.2500	133	0.2500000	7	> 120 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
14	13	13	601-650 m	8	NW	000694	0.2500	193	0.2500000	5	81-100 year	100	*Albies alba*	2	7.5 - 12.5 m3 per ha per year	2	normal
14	14	19	901-950 m	7	W	.....	0.2500	0	0.2500000	7	> 120 year	116	*Larix decidua*	3	12.5 - 17.5 m3 per ha per year	3	high
14	15	14	651-700 m	5	S	000594	0.2500	210	0.2500000	3	41-60 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
14	16	30	1451-1500 m	1	N	.....	0.2500	0	0.2500000	6	101-120 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
14	17	21	1001-1050 m	9	Flat	001094	0.2500	215	0.2500000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
14	18	21	1001-1050 m	8	NW	001094	0.2500	143	0.2500000	7	> 120 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
14	19	30	1451-1500 m	6	SW	001094	0.2500	308	0.2500000	8	Irregular stand	118	*Picea abies*	0	to be completed	1	low
14	20	27	1301-1350 m	8	NW	001094	0.2500	133	0.2500000	6	101-120 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
Belgium																	
2	11	1	< 50 m	9	Flat	110388	0.2500	79	0.0000000	4	61-80 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
2	12	2	51-100 m	5	S	210488	0.2500	66	0.0000000	8	Irregular stand	51	*Quercus robur*	.	to be completed	.	to be completed
2	13	3	101-150 m	7	W	080488	0.2500	187	0.0000000	3	41-60 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
2	14	1	< 50 m	9	Flat	040588	0.2500	131	0.0000000	3	41-60 year	129	*Pinus nigra*	3	12.5 - 17.5 m3 per ha per year	3	high
2	15	1	< 50 m	9	Flat	140488	0.2500	179	0.0000000	3	41-60 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	3	high
2	16	1	< 50 m	8	NW	040288	0.2500	80	0.0000000	8	Irregular stand	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
2	17	1	< 50 m	9	Flat	100388	0.2500	25	0.0000000	7	> 120 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
2	18	1	< 50 m	9	Flat	150488	0.2500	115	0.0000000	4	61-80 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	1	low
2	19	2	51-100 m	9	Flat	230388	0.2500	117	0.0000000	3	41-60 year	129	*Pinus nigra*	3	12.5 - 17.5 m3 per ha per year	2	normal
2	20	2	51-100 m	9	Flat	260488	0.2500	167	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
2	21	3	101-150 m	8	NW	290491	0.2500	41	0.0000000	5	81-100 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
2	22	1	< 50 m	9	Flat	290491	0.2500	91	0.0000000	8	Irregular stand	22	*Fraxinus excelsior*	1	2.5 - 7.5 m3 per ha per year	2	normal
2	1	9	401-450 m	2	NE	94	0.5000	0	0.0000000	2	21-40 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
2	2	12	551-600 m	3	E	94	0.5000	0	0.0000000	3	41-60 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
2	3	9	401-450 m	9	Flat	94	0.5000	0	0.0000000	3	41-60 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	3	high
2	4	11	501-550 m	9	Flat	94	0.5000	0	0.0000000	3	41-60 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
2	5	8	351-400 m	9	Flat	94	0.5000	0	0.0000000	7	> 120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	1	low
2	6	8	351-400 m	9	Flat	94	0.5000	0	0.0000000	7	> 120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
2	7	0	unknown	0	unknown	95	0.0000	0	0.0000000	0	unknown	20	*Fagus sylvatica*	.	to be completed	.	to be completed
2	8	5	201-250 m	9	Flat	94	0.5000	0	0.0000000	7	> 120 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	1	low
Danmark																	
8	11	1	< 50 m	9	Flat	010385	0.2500	680	0.0000000	2	21-40 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	2	normal
8	12	1	< 50 m	9	Flat	010385	0.2500	494	0.0000000	2	21-40 year	120	*Picea sitchensis*	5	22.5 - 27.5 m3 per ha per year	2	normal
8	13	1	< 50 m	9	Flat	011093	0.2500	401	0.0000000	2	21-40 year	136	*Pseudotsuga menziesii*	5	22.5 - 27.5 m3 per ha per year	2	normal
8	14	1	< 50 m	9	Flat	010385	0.2500	881	0.0000000	2	21-40 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
8	15	1	< 50 m	9	Flat	011093	0.2500	797	0.0000000	2	21-40 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
8	21	1	< 50 m	9	Flat	010388	0.2500	414	0.0000000	2	21-40 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	1	low
8	22	1	< 50 m	9	Flat	010388	0.2500	313	0.0000000	2	21-40 year	120	*Picea sitchensis*	4	17.5 - 22.5 m3 per ha per year	1	low
8	23	1	< 50 m	9	Flat	011093	0.2500	277	0.0000000	2	21-40 year	136	*Pseudotsuga menziesii*	5	22.5 - 27.5 m3 per ha per year	1	low
8	24	1	< 50 m	9	Flat	010388	0.2500	382	0.0000000	2	21-40 year	20	*Fagus sylvatica*	3	12.5 - 17.5 m3 per ha per year	2	normal
8	25	1	< 50 m	9	Flat	011093	0.2500	593	0.0000000	2	21-40 year	51	*Quercus robur*	2	7.5 - 12.5 m3 per ha per year	1	low
8	31	1	< 50 m	9	Flat	010385	0.2500	367	0.0000000	2	21-40 year	118	*Picea abies*	5	22.5 - 27.5 m3 per ha per year	3	high

Country	plot number	Altitude code	description	Orientation code	description	Installation date	Total plot area	Number of trees	Subplot area	Mean age code	description	Tree species code	description	Yield absolute code	description	Yield relative code	description
	8	32	1 < 50 m	9	Flat	010388	0.2500	290	0.0000000	2	21-40 year	120	*Picea sitchensis*	5	22.5 - 27.5 m3 per ha per year	3	high
	8	33	1 < 50 m	9	Flat	011093	0.2500	247	0.0000000	2	21-40 year	136	*Pseudotsuga menziesii*	5	22.5 - 27.5 m3 per ha per year	2	normal
	8	34	1 < 50 m	9	Flat	010385	0.2500	345	0.0000000	2	21-40 year	20	*Fagus sylvatica*	4	17.5 - 22.5 m3 per ha per year	3	high
	8	35	1 < 50 m	9	Flat	011093	0.2500	512	0.0000000	2	21-40 year	51	*Quercus robur*	3	12.5 - 17.5 m3 per ha per year	3	high
	8	41	1 < 50 m	9	Flat	010683	0.2500	99	0.0000000	4	61-80 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
Germany																	
	4	101	0 unknown	0	unknown	.	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
	4	201	2 51-100 m	1	N	010682	1.8000	0	0.1000000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	202	2 51-100 m	2	NE	010682	4.3000	0	0.1000000	6	101-120 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	3	high
	4	203	1 < 50 m	2	NE	010682	1.8000	0	0.1000000	6	101-120 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	3	high
	4	301	3 101-150 m	9	Flat	010190	0.7700	410	0.2500000	6	101-120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	302	12 551-600 m	5	S	010177	1.0000	1290	0.2500000	3	41-60 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	303	14 651-700 m	9	Flat	010187	1.0000	950	0.2500000	3	41-60 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	304	11 501-550 m	9	Flat	010968	1.0000	216	0.2500000	7	> 120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	305	11 501-550 m	9	Flat	010968	1.0000	473	0.2500000	6	101-120 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	306	9 401-450 m	9	Flat	010181	2.0000	658	0.2500000	6	101-120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	307	1 < 50 m	9	Flat	011293	1.0000	1000	0.2500000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	501	1 < 50 m	8	NW	310395	0.2500	101	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	3	high
	4	502	1 < 50 m	0	unknown	310395	0.5000	54	0.2500000	6	101-120 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	3	high
	4	503	2 51-100 m	0	unknown	311081	0.8800	173	0.0000000	6	101-120 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	3	high
	4	504	9 401-450 m	8	NW	310395	0.3250	148	0.0750000	3	41-60 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	505	11 501-550 m	4	SE	310395	0.5000	121	0.0000000	8	Irregular stand	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	506	14 651-700 m	4	SE	311082	0.5525	206	0.0000000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	507	9 401-450 m	1	N	310395	0.4500	92	0.0000000	7	> 120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	601	9 401-450 m	1	N	010195	1.3000	32	0.2500000	7	> 120 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	602	9 401-450 m	7	W	010195	3.3000	32	0.2500000	4	61-80 year	20	*Fagus sylvatica*	3	12.5 - 17.5 m3 per ha per year	2	normal
	4	603	11 501-550 m	5	S	010195	5.3000	32	0.2500000	6	101-120 year	20	*Fagus sylvatica*	3	12.5 - 17.5 m3 per ha per year	2	normal
	4	604	9 401-450 m	8	NW	010195	9.9999	32	0.2500000	7	> 120 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	605	9 401-450 m	2	NE	010195	8.3000	32	0.2500000	7	> 120 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	606	9 401-450 m	8	NW	010195	3.3600	204	3.3600000	7	> 120 year	20	*Fagus sylvatica*	3	12.5 - 17.5 m3 per ha per year	2	normal
	4	607	8 351-400 m	3	E	010195	9.9999	32	0.2500000	7	> 120 year	20	*Fagus sylvatica*	3	12.5 - 17.5 m3 per ha per year	2	normal
	4	701	13 601-650 m	8	NW	010991	9.9999	449	5.0000000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	702	12 551-600 m	4	SE	211082	5.5000	604	2.0000000	5	81-100 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	703	12 551-600 m	9	Flat	150891	5.0000	792	2.0000000	4	61-80 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	704	8 351-400 m	1	N	150891	9.9999	256	5.0000000	6	101-120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	705	11 501-550 m	4	SE	140886	9.9999	212	5.0000000	7	> 120 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	706	3 101-150 m	9	Flat	150891	9.9999	224	4.0000000	5	81-100 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	801	12 551-600 m	2	NE	251082	0.2500	72	0.2500000	6	101-120 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	802	11 501-550 m	7	W	300583	0.2500	77	0.2500000	5	81-100 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	803	15 701-750 m	9	Flat	070483	0.2500	74	0.2500000	6	101-120 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	804	13 601-650 m	9	Flat	190483	0.2500	112	0.2500000	5	81-100 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	805	21 1001-1050 m	2	NE	140683	0.2500	42	0.2500000	6	101-120 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	806	17 801-850 m	5	S	280294	0.2500	132	0.2500000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	807	14 651-700 m	7	W	080394	0.2500	82	0.2500000	5	81-100 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	3	high
	4	808	14 651-700 m	9	Flat	090394	0.2500	149	0.2500000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	809	11 501-550 m	4	SE	300394	0.2500	144	0.2500000	5	81-100 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	810	12 551-600 m	9	Flat	280394	0.2500	174	0.2500000	5	81-100 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	901	9 401-450 m	9	Flat	010191	0.2756	264	0.2756000	5	81-100 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	902	9 401-450 m	9	Flat	010692	0.2032	234	0.2032000	4	61-80 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	2	normal
	4	903	17 801-850 m	5	S	.	0.0000	0	0.0000000	0	unknown	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	4	904	30 1451-1500 m	2	NE	011092	0.2098	39	0.2098000	7	> 120 year	116	*Larix decidua*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	905	10 451-500 m	9	Flat	010192	0.3189	135	0.3189000	6	101-120 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	906	11 501-550 m	9	Flat	010191	0.2373	147	0.2373000	4	61-80 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	3	high
	4	907	9 401-450 m	8	NW	.	0.0000	0	0.0000000	0	unknown	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	4	908	17 801-850 m	1	N	.	0.3019	160	0.3019000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	1	low
	4	909	16 751-800 m	7	W	.	0.2370	87	0.2370000	5	81-100 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	1	low

Country	plot number	Altitude code	description	Orientation code	description	Installation date	Total plot area	Number of trees	Subplot area	Mean age code	description	Tree species code	description	Yield absolute code	description	Yield relative code	description
	4	910	7 301-350 m	9	Flat	010492	0.2071	126	0.2071000	5	81-100 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	911	21 1001-1050 m	8	NW	010191	0.2403	98	0.2403000	6	101-120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	912	9 401-450 m	2	NE	010694	0.2975	166	0.2975000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	913	10 451-500 m	5	S	010191	0.2338	176	0.2338000	6	101-120 year	48	*Quercus petraea*	2	7.5 - 12.5 m3 per ha per year	3	high
	4	914	10 451-500 m	3	E	.	0.2420	286	0.2420000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	3	high
	4	915	16 751-800 m	9	Flat	010793	0.2435	97	0.2435000	4	61-80 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	3	high
	4	916	24 1151-1200 m	1	N	010994	0.0000	0	0.0000000	0	unknown	118	*Picea abies*	.	to be completed	.	to be completed
	4	917	11 501-550 m	6	SW	011093	0.2460	183	0.2460000	4	61-80 year	118	*Picea abies*	4	17.5 - 22.5 m3 per ha per year	3	high
	4	918	0 unknown	0	unknown	.	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
	4	919	0 unknown	0	unknown	.	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
	4	920	0 unknown	0	unknown	.	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
	4	921	0 unknown	0	unknown	.	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
	4	1001	7 301-350 m	5	S	010181	1.0000	600	0.2500000	6	101-120 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	1101	2 51-100 m	9	Flat	010894	1.5000	1500	0.0900000	7	> 120 year	134	*Pinus sylvestris*	0	0.0 - 2.5 m3 per ha per year	1	low
	4	1102	2 51-100 m	9	Flat	010894	1.5000	3000	0.0900000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	1	low
	4	1103	1 < 50 m	9	Flat	010894	1.5000	2250	0.0900000	4	61-80 year	134	*Pinus sylvestris*	0	0.0 - 2.5 m3 per ha per year	1	low
	4	1201	1 < 50 m	9	Flat	290894	0.3200	235	0.1600000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	1202	1 < 50 m	9	Flat	250894	0.3200	189	0.1600000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	1203	1 < 50 m	9	Flat	260894	0.3200	119	0.1600000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	1204	1 < 50 m	9	Flat	240894	0.3200	237	0.1600000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	1205	1 < 50 m	9	Flat	230894	0.3200	212	0.1600000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	1206	1 < 50 m	9	Flat	220894	0.3134	159	0.1600000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	4	1301	1 < 50 m	0	unknown	010495	5.5800	100	0.2582000	4	61-80 year	134	*Pinus sylvestris*	.	to be completed	.	to be completed
	4	1302	2 51-100 m	0	unknown	010495	5.0400	110	0.7975000	4	61-80 year	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	4	1303	2 51-100 m	4	SE	010495	9.7400	103	0.3694000	6	101-120 year	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	4	1304	1 < 50 m	0	unknown	010495	6.9800	104	0.1168000	3	41-60 year	134	*Pinus sylvestris*	.	to be completed	.	to be completed
	4	1401	17 801-850 m	9	Flat	010793	0.3000	142	0.3000000	4	61-80 year	118	*Picea abies*	.	to be completed	.	to be completed
	4	1402	15 701-750 m	1	N	011094	0.2500	0	0.2500000	6	101-120 year	118	*Picea abies*	.	to be completed	.	to be completed
	4	1403	9 401-450 m	1	N	010793	0.2500	590	0.1800000	5	81-100 year	118	*Picea abies*	.	to be completed	.	to be completed
	4	1404	0 unknown	0	unknown	.	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
	4	1405	4 151-200 m	9	Flat	011094	0.2500	0	0.2500000	5	81-100 year	134	*Pinus sylvestris*	.	to be completed	.	to be completed
	4	1601	13 601-650 m	7	W	181090	7.6400	117	0.2000000	5	81-100 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	1602	17 801-850 m	4	SE	080992	1.8400	133	0.2000000	5	81-100 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	1603	15 701-750 m	4	SE	080992	2.9600	172	0.2000000	4	61-80 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	1604	17 801-850 m	6	SW	120891	2.6500	109	0.2000000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
	4	1605	19 901-950 m	4	SE	151294	1.7500	125	0.2000000	5	81-100 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
Greece																	
	9	1	8 351-400 m	1	N	100494	0.2743	817	0.0000000	3	41-60 year	46	*Quercus ilex*	1	2.5 - 7.5 m3 per ha per year	3	high
	9	2	15 701-750 m	3	E	230993	0.2624	214	0.1009000	4	61-80 year	44	*Quercus frainetto*	1	2.5 - 7.5 m3 per ha per year	2	normal
	9	3	18 851-900 m	2	NE	230993	0.2733	137	0.0841000	5	81-100 year	18	*Fagus moesaica*	1	2.5 - 7.5 m3 per ha per year	2	normal
	9	4	24 1151-1200 m	1	N	210993	0.2990	95	0.1800000	5	81-100 year	101	*Abies borisii-regis*	1	2.5 - 7.5 m3 per ha per year	2	normal
España																	
	11	1	10 451-500 m	2	NE	220794	0.2500	48	0.0000000	8	Irregular stand	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	2	3 101-150 m	6	SW	190894	0.2500	50	0.0490000	7	> 120 year	130	*Pinus pinaster*	.	to be completed	.	to be completed
	11	3	28 1351-1400 m	8	NW	020894	0.2500	26	0.0000000	7	> 120 year	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	11	4	6 251-300 m	2	NE	080894	0.2500	66	0.0000000	8	Irregular stand	54	*Quercus suber*	.	to be completed	.	to be completed
	11	5	31 1501-1550 m	6	SW	060994	0.2500	162	0.0000000	8	Irregular stand	134	*Pinus sylvestris*	.	to be completed	.	to be completed
	11	6	17 801-850 m	1	N	020894	0.2500	162	0.0000000	3	41-60 year	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	7	5 201-250 m	9	Flat	190794	0.2500	30	0.0000000	2	21-40 year	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	8	15 701-750 m	4	SE	100894	0.2500	53	0.0000000	4	61-80 year	125	*Pinus halepensis*	.	to be completed	.	to be completed
	11	9	4 151-200 m	9	Flat	210894	0.2500	109	0.0000000	1	<20 year	17	*Eucalyptus sp.*	.	to be completed	.	to be completed
	11	10	1 < 50 m	9	Flat	190894	0.2500	101	0.0000000	2	21-40 year	131	*Pinus pinea*	.	to be completed	.	to be completed
	11	11	9 401-450 m	4	SE	200794	0.2500	53	0.0000000	5	81-100 year	54	*Quercus suber*	.	to be completed	.	to be completed
	11	12	13 601-650 m	8	NW	170894	0.2500	18	0.0000000	7	> 120 year	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	13	16 751-800 m	2	NE	210794	0.2500	102	0.0000000	5	81-100 year	51	*Quercus robur*	.	to be completed	.	to be completed

Country	plot number	Altitude code	description	Orientation code	description	Installation date	Total plot area	Number of trees	Subplot area	Mean age code	description	Tree species code	description	Yield absolute code	description	Yield relative code	description
	11	14	15 701-750 m	4	SE	050794	0.2500	28	0.0000000	4	61-80 year	112	*Juniperus oxycedrus*	.	to be completed	.	to be completed
	11	15	18 851-900 m	3	E	010894	0.2500	27	0.0000000	5	81-100 year	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	11	16	6 251-300 m	2	NE	180894	0.2500	44	0.0000000	3	41-60 year	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	17	9 401-450 m	2	NE	220894	0.2500	67	0.0000000	5	81-100 year	54	*Quercus suber*	.	to be completed	.	to be completed
	11	18	17 801-850 m	7	W	090894	0.2500	50	0.0452000	8	Irregular stand	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	19	10 451-500 m	4	SE	090894	0.2500	125	0.0000000	8	Irregular stand	125	*Pinus halepensis*	.	to be completed	.	to be completed
	11	20	6 251-300 m	9	Flat	180894	0.2500	50	0.0380000	1	<20 year	17	*Eucalyptus sp.*	.	to be completed	.	to be completed
	11	21	31 1501-1550 m	6	SW	150794	0.2500	110	0.0000000	8	Irregular stand	134	*Pinus sylvestris*	.	to be completed	.	to be completed
	11	22	29 1401-1450 m	4	SE	140794	0.2500	98	0.0000000	5	81-100 year	129	*Pinus nigra*	.	to be completed	.	to be completed
	11	23	20 951-1000 m	2	NE	010894	0.2500	50	0.0162000	2	21-40 year	43	*Quercus faginea*	.	to be completed	.	to be completed
	11	24	28 1351-1400 m	8	NW	020894	0.2500	190	0.0000000	5	81-100 year	134	*Pinus sylvestris*	.	to be completed	.	to be completed
	11	25	16 751-800 m	8	NW	020994	0.2500	102	0.0000000	3	41-60 year	125	*Pinus halepensis*	.	to be completed	.	to be completed
	11	26	13 601-650 m	7	W	070994	0.2500	28	0.0000000	4	61-80 year	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	27	31 1501-1550 m	8	NW	090894	0.2500	177	0.0000000	5	81-100 year	129	*Pinus nigra*	.	to be completed	.	to be completed
	11	28	30 1451-1500 m	6	SW	090994	0.2500	111	0.0000000	5	81-100 year	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	29	20 951-1000 m	5	S	030894	0.2500	136	0.0000000	8	Irregular stand	115	*Juniperus thurifera*	.	to be completed	.	to be completed
	11	30	22 1051-1100 m	9	Flat	040894	0.2500	123	0.0000000	8	Irregular stand	134	*Pinus sylvestris*	.	to be completed	.	to be completed
	11	31	26 1251-1300 m	5	S	030894	0.2500	50	0.0531000	2	21-40 year	50	*Quercus pyrenaica*	.	to be completed	.	to be completed
	11	32	18 851-900 m	3	E	260794	0.2500	70	0.0000000	8	Irregular stand	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	33	23 1101-1150 m	3	E	260794	0.2500	50	0.0824000	3	41-60 year	48	*Quercus petraea*	.	to be completed	.	to be completed
	11	34	23 1101-1150 m	4	SE	200794	0.2500	50	0.0522000	2	21-40 year	50	*Quercus pyrenaica*	.	to be completed	.	to be completed
	11	35	18 851-900 m	1	N	290794	0.2500	117	0.0000000	2	21-40 year	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	36	15 701-750 m	9	Flat	270794	0.2500	57	0.0000000	8	Irregular stand	131	*Pinus pinea*	.	to be completed	.	to be completed
	11	37	16 751-800 m	9	Flat	250794	0.2500	45	0.0000000	3	41-60 year	130	*Pinus pinaster*	.	to be completed	.	to be completed
	11	38	18 851-900 m	2	NE	210794	0.2500	158	0.0000000	3	41-60 year	50	*Quercus pyrenaica*	.	to be completed	.	to be completed
	11	39	13 601-650 m	1	N	060794	0.2500	92	0.0000000	4	61-80 year	130	*Pinus pinaster*	.	to be completed	.	to be completed
	11	40	16 751-800 m	4	SE	300894	0.2500	50	0.0346000	8	Irregular stand	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	41	3 101-150 m	8	NW	260894	0.2500	138	0.0000000	2	21-40 year	125	*Pinus halepensis*	.	to be completed	.	to be completed
	11	42	25 1201-1250 m	6	SW	120794	0.2500	114	0.0000000	4	61-80 year	129	*Pinus nigra*	.	to be completed	.	to be completed
	11	43	22 1051-1100 m	2	NE	140794	0.2500	150	0.0000000	3	41-60 year	130	*Pinus pinaster*	.	to be completed	.	to be completed
	11	44	15 701-750 m	8	NW	280794	0.2500	162	0.0000000	2	21-40 year	43	*Quercus faginea*	.	to be completed	.	to be completed
	11	45	6 251-300 m	1	N	030894	0.2500	65	0.0000000	2	21-40 year	132	*Pinus radiata*	2	7.5 - 12.5 m3 per ha per year	1	low
	11	46	19 901-950 m	4	SE	110894	0.2500	115	0.0000000	4	61-80 year	130	*Pinus pinaster*	.	to be completed	.	to be completed
	11	47	31 1501-1550 m	6	SW	040894	0.2500	89	0.0000000	5	81-100 year	134	*Pinus sylvestris*	.	to be completed	.	to be completed
	11	48	31 1501-1550 m	1	N	030894	0.2500	123	0.0000000	3	41-60 year	135	*Pinus uncinata*	.	to be completed	.	to be completed
	11	49	17 801-850 m	5	S	260794	0.2500	50	0.0280000	2	21-40 year	46	*Quercus ilex*	.	to be completed	.	to be completed
	11	50	10 451-500 m	4	SE	200894	0.2500	50	0.0824000	8	Irregular stand	130	*Pinus pinaster*	.	to be completed	.	to be completed
France																	
	1	1	3 101-150 m	9	Flat	010193	0.4970	217	0.0000000	8	Irregular stand	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	2	4 151-200 m	8	NW	010193	0.4958	806	0.0000000	4	61-80 year	51	*Quercus robur*	0	0.0 - 2.5 m3 per ha per year	2	normal
	1	3	1 < 50 m	2	NE	010193	0.5002	159	0.0000000	3	41-60 year	51	*Quercus robur*	2	7.5 - 12.5 m3 per ha per year	2	normal
	1	4	2 51-100 m	6	SW	010193	0.5036	339	0.0000000	4	61-80 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	5	5 201-250 m	9	Flat	010193	0.5134	695	0.0000000	8	Irregular stand	51	*Quercus robur*	0	0.0 - 2.5 m3 per ha per year	1	low
	1	6	3 101-150 m	9	Flat	010193	0.5000	225	0.0000000	4	61-80 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	7	8 351-400 m	4	SE	010193	0.5018	233	0.0000000	2	21-40 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	8	5 201-250 m	9	Flat	010193	0.5000	643	0.0000000	3	41-60 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	9	4 151-200 m	9	Flat	010193	0.4900	600	0.0000000	4	61-80 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	10	6 251-300 m	9	Flat	010193	0.4940	211	0.0000000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	3	high
	1	11	6 251-300 m	9	Flat	010193	0.4800	262	0.0000000	6	101-120 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	3	high
	1	12	4 151-200 m	9	Flat	010193	0.4970	227	0.0000000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	13	4 151-200 m	9	Flat	010193	0.4947	319	0.0000000	4	61-80 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	14	5 201-250 m	9	Flat	010193	0.4970	232	0.0000000	5	81-100 year	48	*Quercus petraea*	2	7.5 - 12.5 m3 per ha per year	2	normal
	1	15	4 151-200 m	9	Flat	010193	0.4970	343	0.0000000	4	61-80 year	48	*Quercus petraea*	2	7.5 - 12.5 m3 per ha per year	2	normal
	1	16	2 51-100 m	9	Flat	010193	0.4937	184	0.0000000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	3	high
	1	17	3 101-150 m	9	Flat	010193	0.4800	217	0.0000000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	18	4 151-200 m	5	S	010193	0.4935	188	0.0000000	8	Irregular stand	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal

Country	plot number	Altitude code	description	Orientation code	description	Installation date	Total plot area	Number of trees	Subplot area	Mean age code	description	Tree species code	description	Yield absolute code	description	Yield relative code	description
1	19	7	301-350 m	2	NE	010193	0.5054	319	0.0000000	4	61-80 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	20	7	301-350 m	8	NW	010193	0.5079	191	0.0000000	6	101-120 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	3	high
1	21	6	251-300 m	6	SW	010193	0.5000	438	0.0000000	4	61-80 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	22	2	51-100 m	9	Flat	010193	0.4900	319	0.0000000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	23	5	201-250 m	4	SE	010193	0.4882	454	0.0000000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	24	6	251-300 m	9	Flat	010193	0.5096	257	0.0000000	8	Irregular stand	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	1	low
1	25	4	151-200 m	9	Flat	010193	0.4945	596	0.0000000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	26	6	251-300 m	4	SE	010193	0.4998	112	0.0000000	6	101-120 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	27	3	101-150 m	8	NW	010193	0.5005	425	0.0000000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	28	7	301-350 m	9	Flat	010193	0.5231	315	0.0000000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	29	7	301-350 m	5	S	010193	0.5032	451	0.0000000	4	61-80 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	3	high
1	30	2	51-100 m	9	Flat	010193	0.4970	223	0.0000000	5	81-100 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	31	13	601-650 m	7	W	010193	0.5100	318	0.0000000	2	21-40 year	136	*Pseudotsuga menziesii*	4	17.5 - 22.5 m3 per ha per year	2	normal
1	32	14	651-700 m	5	S	010193	0.4900	179	0.0000000	3	41-60 year	136	*Pseudotsuga menziesii*	4	17.5 - 22.5 m3 per ha per year	3	high
1	33	8	351-400 m	3	E	010193	0.4871	370	0.0000000	2	21-40 year	136	*Pseudotsuga menziesii*	4	17.5 - 22.5 m3 per ha per year	3	high
1	34	9	401-450 m	2	NE	010193	0.5812	213	0.0000000	2	21-40 year	136	*Pseudotsuga menziesii*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	35	11	501-550 m	7	W	010193	0.4800	383	0.0000000	2	21-40 year	136	*Pseudotsuga menziesii*	3	12.5 - 17.5 m3 per ha per year	2	normal
1	36	13	601-650 m	6	SW	010193	0.5000	611	0.0000000	2	21-40 year	136	*Pseudotsuga menziesii*	3	12.5 - 17.5 m3 per ha per year	2	normal
1	37	10	451-500 m	9	Flat	010193	0.5244	331	0.0000000	2	21-40 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	38	21	1001-1050 m	9	Flat	010193	0.4900	839	0.0000000	2	21-40 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	3	high
1	39	20	951-1000 m	4	SE	010193	0.4970	211	0.0000000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	3	high
1	40	25	1201-1250 m	7	W	010193	0.5000	368	0.0000000	6	101-120 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
1	41	19	901-950 m	9	Flat	010193	0.5120	588	0.0000000	2	21-40 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	2	normal
1	42	12	551-600 m	4	SE	010193	0.4998	257	0.0000000	3	41-60 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	2	normal
1	43	34	1651-1700 m	8	NW	010193	0.5210	330	0.0000000	8	Irregular stand	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
1	44	24	1151-1200 m	7	W	010193	0.5037	253	0.0000000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	3	high
1	45	17	801-850 m	1	N	010193	0.5039	209	0.0000000	3	41-60 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	46	13	601-650 m	7	W	010193	0.5040	678	0.0000000	2	21-40 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	2	normal
1	47	14	651-700 m	6	SW	010193	0.4912	204	0.0000000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	48	3	101-150 m	9	Flat	010193	0.4970	205	0.0000000	3	41-60 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	49	12	551-600 m	1	N	010193	0.4900	209	0.0000000	4	61-80 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	3	high
1	50	26	1251-1300 m	1	N	010193	0.6485	212	0.0000000	4	61-80 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	3	high
1	51	25	1201-1250 m	6	SW	010193	0.5274	179	0.0000000	6	101-120 year	20	*Fagus sylvatica*	0	0.0 - 2.5 m3 per ha per year	1	low
1	52	2	51-100 m	9	Flat	010193	0.4846	202	0.0000000	4	61-80 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	53	8	351-400 m	2	NE	010193	0.4970	176	0.0000000	4	61-80 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	54	12	551-600 m	7	W	010193	0.4970	520	0.0000000	4	61-80 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	3	high
1	55	27	1301-1350 m	7	W	010193	0.4999	191	0.0000000	5	81-100 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	56	1	< 50 m	9	Flat	010193	0.4863	384	0.0000000	3	41-60 year	20	*Fagus sylvatica*	0	0.0 - 2.5 m3 per ha per year	1	low
1	57	28	1351-1400 m	6	SW	010193	0.4915	283	0.0000000	5	81-100 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	58	9	401-450 m	9	Flat	010193	0.4970	201	0.0000000	5	81-100 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	59	7	301-350 m	3	E	010193	0.5000	215	0.0000000	5	81-100 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	60	8	351-400 m	9	Flat	010193	0.5005	141	0.0000000	5	81-100 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	61	5	201-250 m	9	Flat	010193	0.5000	145	0.0000000	4	61-80 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	3	high
1	62	3	101-150 m	9	Flat	010193	0.4900	326	0.0000000	3	41-60 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	63	8	351-400 m	8	NW	010193	0.5175	383	0.0000000	3	41-60 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	64	17	801-850 m	8	NW	010193	0.4871	115	0.0000000	6	101-120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	65	5	201-250 m	9	Flat	010193	0.4900	118	0.0000000	4	61-80 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	66	14	651-700 m	9	Flat	010193	0.5040	76	0.0000000	6	101-120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	67	8	351-400 m	7	W	010193	0.5129	417	0.0000000	3	41-60 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	68	37	1801-1850 m	2	NE	010193	0.4871	232	0.0000000	6	101-120 year	116	*Larix decidua*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	69	22	1051-1100 m	8	NW	010193	0.5000	151	0.0000000	7	> 120 year	129	*Pinus nigra*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	70	3	101-150 m	9	Flat	010193	0.4935	413	0.0000000	3	41-60 year	129	*Pinus nigra*	1	2.5 - 7.5 m3 per ha per year	2	normal
1	71	17	801-850 m	8	NW	010193	0.4930	517	0.0000000	3	41-60 year	130	*Pinus pinaster*	2	7.5 - 12.5 m3 per ha per year	3	high
1	72	1	< 50 m	6	SW	010193	0.5005	320	0.0000000	2	21-40 year	130	*Pinus pinaster*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	73	3	101-150 m	9	Flat	010193	0.4980	302	0.0000000	1	<20 year	130	*Pinus pinaster*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	74	3	101-150 m	9	Flat	010193	0.5005	253	0.0000000	1	<20 year	130	*Pinus pinaster*	2	7.5 - 12.5 m3 per ha per year	2	normal
1	75	4	151-200 m	9	Flat	010193	0.4890	299	0.0000000	2	21-40 year	130	*Pinus pinaster*	2	7.5 - 12.5 m3 per ha per year	3	high

Country	plot number	Altitude code	description	Orientation code	description	Installation date	Total plot area	Number of trees	Subplot area	Mean age code	description	Tree species code	description	Yield absolute code	description	Yield relative code	description
	1	76	1651-1700 m	5	S	010193	0.5187	531	0.0000000	4	61-80 year	134	*Pinus sylvestris*	0	0.0 - 2.5 m3 per ha per year	3	high
	1	77	951-1000 m	9	Flat	010193	0.4800	322	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	78	51-100 m	9	Flat	010193	0.4806	379	0.0000000	2	21-40 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	79	101-150 m	9	Flat	010193	0.4947	450	0.0000000	2	21-40 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	80	< 50 m	9	Flat	010193	0.4830	360	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	81	101-150 m	9	Flat	010193	0.4954	549	0.0000000	3	41-60 year	134	*Pinus sylvestris*	0	0.0 - 2.5 m3 per ha per year	2	normal
	1	82	251-300 m	9	Flat	010193	0.4988	255	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	1	low
	1	83	701-750 m	8	NW	010193	0.4900	200	0.0000000	5	81-100 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	84	151-200 m	9	Flat	010193	0.5160	334	0.0000000	4	61-80 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	2	normal
	1	85	251-300 m	9	Flat	010193	0.4903	262	0.0000000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	86	51-100 m	9	Flat	010193	0.4970	221	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	1	low
	1	87	151-200 m	9	Flat	010193	0.4900	380	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	88	451-500 m	3	E	010193	0.5078	168	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	89	101-150 m	9	Flat	010193	0.5000	318	0.0000000	4	61-80 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	2	normal
	1	90	1351-1400 m	2	NE	010193	0.5553	236	0.0000000	8	Irregular stand	100	*Albies alba*	2	7.5 - 12.5 m3 per ha per year	3	high
	1	91	1251-1300 m	7	W	010193	0.4860	217	0.0000000	5	81-100 year	100	*Albies alba*	1	2.5 - 7.5 m3 per ha per year	1	low
	1	92	1051-1100 m	8	NW	010193	0.5035	178	0.0000000	7	> 120 year	100	*Albies alba*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	93	901-950 m	1	N	010193	0.5128	234	0.0000000	4	61-80 year	100	*Albies alba*	2	7.5 - 12.5 m3 per ha per year	3	high
	1	94	951-1000 m	8	NW	010193	0.5000	305	0.0000000	8	Irregular stand	100	*Albies alba*	2	7.5 - 12.5 m3 per ha per year	2	normal
	1	95	1101-1150 m	7	W	010193	0.4847	218	0.0000000	8	Irregular stand	100	*Albies alba*	1	2.5 - 7.5 m3 per ha per year	2	normal
	1	96	1051-1100 m	3	E	010193	0.5133	204	0.0000000	4	61-80 year	100	*Albies alba*	2	7.5 - 12.5 m3 per ha per year	3	high
	1	97	551-600 m	4	SE	010193	0.5200	496	0.0000000	3	41-60 year	100	*Albies alba*	2	7.5 - 12.5 m3 per ha per year	2	normal
	1	98	351-400 m	8	NW	010193	0.4629	261	0.0000000	3	41-60 year	100	*Albies alba*	2	7.5 - 12.5 m3 per ha per year	2	normal
	1	99	1001-1050 m	6	SW	010193	0.4800	212	0.0000000	5	81-100 year	100	*Albies alba*	2	7.5 - 12.5 m3 per ha per year	3	high
	1	100	651-700 m	8	NW	010193	0.4317	196	0.0000000	5	81-100 year	100	*Albies alba*	1	2.5 - 7.5 m3 per ha per year	1	low
Ireland																	
	7	1	351-400 m	3	E	240394	0.2500	152	0.0000000	2	21-40 year	120	*Picea sitchensis*	3	12.5 - 17.5 m3 per ha per year	2	normal
	7	2	151-200 m	3	E	170594	0.2500	78	0.0000000	6	101-120 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
	7	3	301-350 m	3	E	220394	0.2500	315	0.0000000	2	21-40 year	120	*Picea sitchensis*	3	12.5 - 17.5 m3 per ha per year	3	high
	7	4	101-150 m	4	SE	190494	0.2500	181	0.0000000	2	21-40 year	120	*Picea sitchensis*	5	22.5 - 27.5 m3 per ha per year	2	normal
	7	5	301-350 m	6	SW	270494	0.2500	289	0.0000000	2	21-40 year	120	*Picea sitchensis*	3	12.5 - 17.5 m3 per ha per year	2	normal
	7	6	351-400 m	5	S	260494	0.2500	243	0.0000000	2	21-40 year	124	*Pinus contorta*	2	7.5 - 12.5 m3 per ha per year	2	normal
	7	7	101-150 m	9	Flat	250594	0.2500	0	0.0000000	2	21-40 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	2	normal
	7	8	151-200 m	5	S	260594	0.2500	607	0.0000000	1	<20 year	120	*Picea sitchensis*	5	22.5 - 27.5 m3 per ha per year	3	high
	7	9	51-100 m	9	Flat	190594	0.2500	214	0.0000000	2	21-40 year	124	*Pinus contorta*	3	12.5 - 17.5 m3 per ha per year	2	normal
	7	10	101-150 m	3	E	290894	0.2000	0	0.0000000	2	21-40 year	120	*Picea sitchensis*	3	12.5 - 17.5 m3 per ha per year	2	normal
	7	11	51-100 m	4	SE	300894	0.2000	0	0.0000000	7	> 120 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	2	normal
	7	12	151-200 m	5	S	010994	0.2500	0	0.0000000	1	<20 year	124	*Pinus contorta*	3	12.5 - 17.5 m3 per ha per year	2	normal
	7	13	201-250 m	3	E	100694	0.2500	0	0.0000000	2	21-40 year	120	*Picea sitchensis*	4	17.5 - 22.5 m3 per ha per year	2	normal
	7	14	51-100 m	4	SE	070694	0.2500	260	0.0000000	2	21-40 year	118	*Picea abies*	4	17.5 - 22.5 m3 per ha per year	3	high
	7	15	151-200 m	6	SW	090694	0.2500	257	0.0000000	2	21-40 year	120	*Picea sitchensis*	4	17.5 - 22.5 m3 per ha per year	3	high
Italy																	
	5	1	1451-1500 m	1	N	300694	0.5000	0	0.0000000	0	unknown	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	5	2	1101-1150 m	1	N	300694	0.5000	0	0.0000000	0	unknown	41	*Quercus cerris*	.	to be completed	.	to be completed
	5	3	901-950 m	4	SE	301094	0.5000	0	0.0000000	0	unknown	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	5	4	1151-1200 m	8	NW	300694	0.5000	0	0.0000000	0	unknown	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	5	5	151-200 m	9	Flat	300694	0.5000	0	0.0000000	0	unknown	48	*Quercus petraea*	.	to be completed	.	to be completed
	5	6	951-1000 m	1	N	300694	0.5000	0	0.0000000	0	unknown	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	5	7	< 50 m	9	Flat	300694	0.5000	0	0.0000000	0	unknown	13	*Carpinus betulus*	.	to be completed	.	to be completed
	5	8	801-850 m	8	NW	301094	0.5000	0	0.0000000	0	unknown	118	*Picea abies*	.	to be completed	.	to be completed
	5	9	651-700 m	7	W	300694	0.5000	0	0.0000000	0	unknown	41	*Quercus cerris*	.	to be completed	.	to be completed
	5	10	1151-1200 m	2	NE	300694	0.5000	0	0.0000000	0	unknown	118	*Picea abies*	.	to be completed	.	to be completed
	5	11	751-800 m	4	SE	300694	0.5000	0	0.0000000	0	unknown	41	*Quercus cerris*	.	to be completed	.	to be completed
	5	12	1101-1150 m	7	W	300694	0.5000	0	0.0000000	0	unknown	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	5	13	751-800 m	7	W	301094	0.5000	0	0.0000000	0	unknown	20	*Fagus sylvatica*	.	to be completed	.	to be completed

Country	plot number	Altitude code	description	Orientation code	description	Installation date	Total plot area	Number of trees	Subplot area	Mean age code	description	Tree species code	description	Yield absolute code	description	Yield relative code	description
5	14	14	651-700 m	5	S	151294	0.5000	0	0.0000000	0	unknown	46	*Quercus ilex*	.	to be completed	.	to be completed
5	15	19	901-950 m	1	N	301094	0.5000	0	0.0000000	0	unknown	41	*Quercus cerris*	.	to be completed	.	to be completed
5	16	3	101-150 m	1	N	301094	0.5000	0	0.0000000	0	unknown	46	*Quercus ilex*	.	to be completed	.	to be completed
5	17	36	1751-1800 m	2	NE	301094	0.5000	0	0.0000000	0	unknown	118	*Picea abies*	.	to be completed	.	to be completed
5	18	15	701-750 m	8	NW	301094	0.5000	0	0.0000000	0	unknown	41	*Quercus cerris*	.	to be completed	.	to be completed
5	19	35	1701-1750 m	7	W	301094	0.5000	0	0.0000000	0	unknown	118	*Picea abies*	.	to be completed	.	to be completed
5	20	22	1051-1100 m	7	W	301094	0.5000	0	0.0000000	0	unknown	20	*Fagus sylvatica*	.	to be completed	.	to be completed
Luxembourg																	
12	1	9	401-450 m	8	NW	010193	0.5671	181	0.0000000	6	101-120 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
12	2	8	351-400 m	9	Flat	010193	0.5202	164	0.0000000	5	81-100 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
The Netherlands																	
3	1139	1	< 50 m	9	Flat	280686	0.2500	25	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
3	39	1	< 50 m	9	Flat	280390	0.2500	25	0.0000000	3	41-60 year	136	*Pseudotsuga menziesii*	2	7.5 - 12.5 m3 per ha per year	2	normal
3	58	1	< 50 m	9	Flat	290390	0.2500	25	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
3	61	1	< 50 m	9	Flat	290390	0.2500	25	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
3	82	1	< 50 m	9	Flat	290390	0.2500	25	0.0000000	2	21-40 year	136	*Pseudotsuga menziesii*	2	7.5 - 12.5 m3 per ha per year	2	normal
3	106	1	< 50 m	9	Flat	280390	0.2500	25	0.0000000	4	61-80 year	136	*Pseudotsuga menziesii*	2	7.5 - 12.5 m3 per ha per year	2	normal
3	128	1	< 50 m	9	Flat	290390	0.2500	25	0.0000000	3	41-60 year	51	*Quercus robur*	0	0.0 - 2.5 m3 per ha per year	1	low
3	129	1	< 50 m	9	Flat	290390	0.2500	25	0.0000000	4	61-80 year	136	*Pseudotsuga menziesii*	2	7.5 - 12.5 m3 per ha per year	2	normal
3	174	1	< 50 m	9	Flat	080390	0.2500	25	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
3	175	1	< 50 m	9	Flat	080390	0.2500	25	0.0000000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
3	226	1	< 50 m	9	Flat	070390	0.2500	25	0.0000000	3	41-60 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
3	1012	1	< 50 m	9	Flat	060390	0.2500	25	0.0000000	4	61-80 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
3	1040	1	< 50 m	9	Flat	060390	0.2500	25	0.0000000	4	61-80 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
3	1111	2	51-100 m	9	Flat	000095	0.2500	0	0.0000000	3	41-60 year	136	*Pseudotsuga menziesii*	2	7.5 - 12.5 m3 per ha per year	2	normal
Portugal																	
10	1	16	751-800 m	7	W	060694	0.2500	373	0.0000000	2	21-40 year	130	*Pinus pinaster*	1	2.5 - 7.5 m3 per ha per year	2	normal
10	2	3	101-150 m	9	Flat	220694	0.2500	29	0.0000000	6	101-120 year	54	*Quercus suber*	0	0.0 - 2.5 m3 per ha per year	1	low
10	3	6	251-300 m	9	Flat	210694	0.2500	40	0.0000000	2	21-40 year	52	*Quercus rotundifolia*	0	0.0 - 2.5 m3 per ha per year	1	low
10	4	2	51-100 m	9	Flat	220694	0.2500	38	0.0000000	3	41-60 year	131	*Pinus pinea*	1	2.5 - 7.5 m3 per ha per year	1	low
10	5	17	801-850 m	1	N	090595	0.2500	35	0.0000000	7	> 120 year	199	*Other conifers*	0	0.0 - 2.5 m3 per ha per year	1	low
10	6	5	201-250 m	8	NW	160595	0.2500	50	0.0000000	2	21-40 year	17	*Eucalyptus sp.*	2	7.5 - 12.5 m3 per ha per year	3	high
10	7	15	701-750 m	5	S	230595	0.2500	500	0.1000000	1	<20 year	199	*Other conifers*	1	2.5 - 7.5 m3 per ha per year	2	normal
10	8	12	551-600 m	5	S	250595	0.2500	500	0.1000000	1	<20 year	199	*Other conifers*	1	2.5 - 7.5 m3 per ha per year	2	normal
Finland																	
15	1	2	51-100 m	1	N	95	0.0000	0	0.0900000	6	101-120 year	134	*Pinus sylvestris*	0	0.0 - 2.5 m3 per ha per year	2	normal
15	2	7	301-350 m	5	S	95	0.2700	175	0.0900000	3	41-60 year	134	*Pinus sylvestris*	0	0.0 - 2.5 m3 per ha per year	2	normal
15	3	7	301-350 m	7	W	95	0.2700	240	0.0900000	4	61-80 year	118	*Picea abies*	0	0.0 - 2.5 m3 per ha per year	2	normal
15	4	4	151-200 m	9	Flat	95	0.2700	293	0.0900000	3	41-60 year	134	*Pinus sylvestris*	0	0.0 - 2.5 m3 per ha per year	2	normal
15	5	4	151-200 m	1	N	95	0.2700	445	0.0900000	2	21-40 year	134	*Pinus sylvestris*	0	0.0 - 2.5 m3 per ha per year	2	normal
15	6	5	201-250 m	1	N	95	0.2700	460	0.0900000	4	61-80 year	118	*Picea abies*	0	0.0 - 2.5 m3 per ha per year	2	normal
15	7	6	251-300 m	9	Flat	95	0.2700	258	0.0900000	7	> 120 year	118	*Picea abies*	0	0.0 - 2.5 m3 per ha per year	2	normal
15	8	6	251-300 m	5	S	95	0.2700	182	0.0900000	4	61-80 year	134	*Pinus sylvestris*	0	0.0 - 2.5 m3 per ha per year	2	normal
15	9	2	51-100 m	9	Flat	95	0.2700	155	0.0900000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
15	10	3	101-150 m.	9	Flat	95	0.2700	102	0.0900000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
15	11	3	101-150 m	9	Flat	95	0.2700	234	0.0900000	3	41-60 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	2	normal
15	12	3	101-150 m	9	Flat	95	0.2700	182	0.0900000	3	41-60 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	2	normal
15	13	3	101-150 m	9	Flat	95	0.2700	163	0.0900000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
15	14	1	< 50 m	7	W	95	0.2700	311	0.0900000	3	41-60 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
15	15	1	< 50 m	9	Flat	95	0.2700	177	0.0900000	3	41-60 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
15	16	2	51-100 m	6	SW	95	0.2700	247	0.0900000	4	61-80 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
15	17	2	51-100 m	3	E	95	0.2700	102	0.0900000	4	61-80 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
15	18	1	< 50 m	9	Flat	95	0.2700	112	0.0900000	5	81-100 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal

Country	plot number	Altitude code	description	Orientation code	description	Installation date	Total plot area	Number of trees	Subplot area	Mean age code	description	Tree species code	description	Yield absolute code	description	Yield relative code	description
United Kingdom																	
6	715	1	< 50 m	9	Flat	220994	0.3030	588	0.1207000	2	21-40 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	1	low
6	517	3	101-150 m	6	SW	061094	0.2954	78	0.1000000	4	61-80 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
6	919	6	251-300 m	4	SE	201094	0.2988	650	0.1157000	1	<20 year	120	*Picea sitchensis*	4	17.5 - 22.5 m3 per ha per year	2	normal
6	512	2	51-100 m	9	Flat	020694	0.2916	327	0.1090000	3	41-60 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
6	516	3	101-150 m	5	S	301194	0.3222	572	0.1150000	3	41-60 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	1	low
6	716	0	unknown	0	unknown	95	0.0000	0	0.0000000	0	unknown	134	*Pinus sylvestris*	.	to be completed	.	to be completed
6	717	0	unknown	0	unknown	95	0.0000	0	0.0000000	0	unknown	134	*Pinus sylvestris*	.	to be completed	.	to be completed
6	920	0	unknown	0	unknown	95	0.0000	0	0.0000000	0	unknown	120	*Picea sitchensis*	.	to be completed	.	to be completed
6	921	0	unknown	0	unknown	95	0.0000	0	0.0000000	0	unknown	120	*Picea sitchensis*	.	to be completed	.	to be completed
6	922	0	unknown	0	unknown	95	0.0000	0	0.0000000	0	unknown	120	*Picea sitchensis*	.	to be completed	.	to be completed
Croatia																	
23	101	2	51-100 m	9	Flat	151194	1.0000	586	0.0000000	7	> 120 year	51	*Quercus robur*	2	7.5 - 12.5 m3 per ha per year	2	normal
23	102	4	151-200 m	3	E	150894	1.0000	403	0.0000000	7	> 120 year	48	*Quercus petraea*	2	7.5 - 12.5 m3 per ha per year	2	normal
23	103	20	951-1000 m	5	S	.10994	0.3600	194	0.0000000	8	Irregular stand	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	2	normal
23	104	17	801-850 m	6	SW	.51094	1.0000	762	0.0000000	8	Irregular stand	100	*Albies alba*	2	7.5 - 12.5 m3 per ha per year	2	normal
23	105	31	1501-1550 m	2	NE	251094	0.2500	468	0.0000000	8	Irregular stand	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
Czech Republic																	
24	1	0	unknown	0	unknown	.....	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
24	2	0	unknown	0	unknown	.....	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
24	3	0	unknown	0	unknown	.....	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
24	4	0	unknown	0	unknown	.....	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
24	5	0	unknown	0	unknown	.....	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
24	6	0	unknown	0	unknown	.....	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
24	7	0	unknown	0	unknown	.....	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
24	8	0	unknown	0	unknown	.....	0.0000	0	0.0000000	0	unknown	0	*Not specified*	.	to be completed	.	to be completed
Hungary																	
21	190	9	401-450 m	7	W	070490	0.1600	135	0.0000000	5	81-100 year	41	*Quercus cerris*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	350	5	201-250 m	2	NE	060789	0.0400	92	0.0000000	4	61-80 year	48	*Quercus petraea*	1	2.5 - 7.5 m3 per ha per year	1	low
21	370	3	101-150 m	9	Flat	060789	0.0625	68	0.0000000	4	61-80 year	41	*Quercus cerris*	1	2.5 - 7.5 m3 per ha per year	1	low
21	570	2	51-100 m	9	Flat	190989	0.2500	48	0.0000000	5	81-100 year	51	*Quercus robur*	2	7.5 - 12.5 m3 per ha per year	3	high
21	580	4	151-200 m	3	E	190989	0.0400	66	0.0000000	2	21-40 year	20	*Fagus sylvatica*	3	12.5 - 17.5 m3 per ha per year	3	high
21	640	2	51-100 m	9	Flat	200989	0.0225	46	0.0000000	1	<20 year	7	*Alnus incana*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	440	3	101-150 m	9	Flat	010889	0.0500	22	0.0000000	3	41-60 year	32	*Populus canescens*	2	7.5 - 12.5 m3 per ha per year	2	normal
21	121	5	201-250 m	6	SW	070590	0.0100	61	0.0000000	2	21-40 year	134	*Pinus sylvestris*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	122	6	251-300 m	6	SW	070590	0.0100	35	0.0000000	2	21-40 year	129	*Pinus nigra*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	240	5	201-250 m	9	Flat	070490	0.0400	154	0.0000000	2	21-40 year	41	*Quercus cerris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	90	12	551-600 m	7	W	260490	0.0625	35	0.0000000	5	81-100 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	3	high
21	432	4	151-200 m	9	Flat	130689	0.2500	87	0.0000000	6	101-120 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	431	4	151-200 m	9	Flat	130689	0.2500	117	0.0000000	6	101-120 year	51	*Quercus robur*	2	7.5 - 12.5 m3 per ha per year	3	high
21	30	5	201-250 m	2	NE	020590	0.0100	44	0.0000000	2	21-40 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	310	3	101-150 m	9	Flat	111289	0.2500	128	0.0000000	5	81-100 year	51	*Quercus robur*	2	7.5 - 12.5 m3 per ha per year	3	high
21	160	4	151-200 m	6	SW	060490	0.0000	0	0.0000000	1	<20 year	41	*Quercus cerris*	1	2.5 - 7.5 m3 per ha per year	1	low
21	280	8	351-400 m	3	E	030789	0.0900	99	0.0000000	4	61-80 year	20	*Fagus sylvatica*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	410	3	101-150 m	9	Flat	220989	0.1000	44	0.0000000	2	21-40 year	33	*Populus hybrides*	3	12.5 - 17.5 m3 per ha per year	2	normal
21	540	4	151-200 m	9	Flat	190789	0.0400	196	0.0000000	1	<20 year	56	*Robinia pseudoacacia*	3	12.5 - 17.5 m3 per ha per year	3	high
21	140	18	851-900 m	5	S	090490	0.0400	43	0.0000000	3	41-60 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	3	high
21	200	3	101-150 m	9	Flat	231089	0.0100	62	0.0000000	1	<20 year	56	*Robinia pseudoacacia*	2	7.5 - 12.5 m3 per ha per year	2	normal
21	610	3	101-150 m	9	Flat	190789	0.0625	152	0.0000000	2	21-40 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	250	4	151-200 m	9	Flat	231089	0.2500	109	0.0000000	4	61-80 year	51	*Quercus robur*	2	7.5 - 12.5 m3 per ha per year	3	high
21	20	6	251-300 m	5	S	030590	0.0625	26	0.0000000	5	81-100 year	48	*Quercus petraea*	2	7.5 - 12.5 m3 per ha per year	3	high
21	630	2	51-100 m	9	Flat	020689	0.2500	121	0.0000000	5	81-100 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	530	4	151-200 m	9	Flat	180789	0.1225	93	0.0000000	2	21-40 year	99	*Other broadleaves*	3	12.5 - 17.5 m3 per ha per year	3	high

Country	plot number	Altitude code	description	Orientation code	description	Installation date	Total plot area	Number of trees	Subplot area	Mean age code	description	Tree species code	description	Yield absolute code	description	Yield relative code	description
21	460	4	151-200 m	3	E	180789	0.1225	86	0.0000000	4	61-80 year	41	*Quercus cerris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	52	6	251-300 m	3	E	260490	0.0225	65	0.0000000	2	21-40 year	41	*Quercus cerris*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	51	5	201-250 m	3	E	260490	0.0225	56	0.0000000	2	21-40 year	48	*Quercus petraea*	2	7.5 - 12.5 m3 per ha per year	3	high
21	560	3	101-150 m	9	Flat	110989	0.0225	31	0.0000000	1	<20 year	32	*Populus canescens*	2	7.5 - 12.5 m3 per ha per year	2	normal
21	450	4	151-200 m	7	W	230790	0.0500	48	0.0000000	2	21-40 year	56	*Robinia pseudoacacia*	2	7.5 - 12.5 m3 per ha per year	2	normal
21	490	3	101-150 m	9	Flat	171089	0.0000	0	0.0000000	1	<20 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	340	3	101-150 m	9	Flat	171089	0.0000	0	0.0000000	1	<20 year	129	*Pinus nigra*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	481	5	201-250 m	7	W	130689	0.2500	174	0.0000000	3	41-60 year	48	*Quercus petraea*	3	12.5 - 17.5 m3 per ha per year	3	high
21	482	5	201-250 m	7	W	130689	0.2500	181	0.0000000	3	41-60 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	390	4	151-200 m	1	N	040789	0.1600	54	0.0000000	4	61-80 year	41	*Quercus cerris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	300	7	301-350 m	7	W	030789	0.2500	54	0.0000000	5	81-100 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	3	high
21	620	2	51-100 m	9	Flat	310790	0.1000	57	0.0000000	1	<20 year	33	*Populus hybrides*	2	7.5 - 12.5 m3 per ha per year	2	normal
21	80	4	151-200 m	1	N	260490	0.0625	30	0.0000000	5	81-100 year	48	*Quercus petraea*	2	7.5 - 12.5 m3 per ha per year	3	high
21	600	3	101-150 m	7	W	200789	0.0500	45	0.0000000	1	<20 year	56	*Robinia pseudoacacia*	2	7.5 - 12.5 m3 per ha per year	2	normal
21	210	4	151-200 m	9	Flat	.	0.0000	0	0.0000000	2	21-40 year	56	*Robinia pseudoacacia*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	10	6	251-300 m	8	NW	030590	0.0625	36	0.0000000	3	41-60 year	20	*Fagus sylvatica*	3	12.5 - 17.5 m3 per ha per year	3	high
21	330	3	101-150 m	9	Flat	241089	0.0500	116	0.0000000	1	<20 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	360	4	151-200 m	9	Flat	040789	0.1600	94	0.0000000	3	41-60 year	41	*Quercus cerris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	70	3	101-150 m	9	Flat	250790	0.0000	0	0.0000000	1	<20 year	56	*Robinia pseudoacacia*	4	17.5 - 22.5 m3 per ha per year	3	high
21	60	6	251-300 m	1	N	250490	0.0900	17	0.0000000	5	81-100 year	20	*Fagus sylvatica*	3	12.5 - 17.5 m3 per ha per year	3	high
21	510	2	51-100 m	9	Flat	270689	0.0500	35	0.0000000	1	<20 year	33	*Populus hybrides*	4	17.5 - 22.5 m3 per ha per year	3	high
21	150	3	101-150 m	9	Flat	250790	0.0400	27	0.0000000	3	41-60 year	53	*Quercus rubra*	3	12.5 - 17.5 m3 per ha per year	3	high
21	420	4	151-200 m	3	E	130689	0.1600	107	0.0000000	4	61-80 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	180	7	301-350 m	1	N	100490	0.0225	216	0.0000000	2	21-40 year	48	*Quercus petraea*	2	7.5 - 12.5 m3 per ha per year	3	high
21	320	4	151-200 m	9	Flat	140290	0.2500	106	0.0000000	4	61-80 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	3	high
21	170	4	151-200 m	2	NE	270490	0.1600	87	0.0000000	4	61-80 year	41	*Quercus cerris*	1	2.5 - 7.5 m3 per ha per year	1	low
21	130	5	201-250 m	8	NW	080590	0.0400	44	0.0000000	3	41-60 year	41	*Quercus cerris*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	290	5	201-250 m	9	Flat	.	0.0000	0	0.0000000	1	<20 year	51	*Quercus robur*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	550	3	101-150 m	9	Flat	200789	0.0625	115	0.0000000	2	21-40 year	51	*Quercus robur*	2	7.5 - 12.5 m3 per ha per year	3	high
21	100	6	251-300 m	2	NE	090490	0.1600	82	0.0000000	4	61-80 year	48	*Quercus petraea*	2	7.5 - 12.5 m3 per ha per year	3	high
21	400	6	251-300 m	1	N	110989	0.2500	68	0.0000000	4	61-80 year	134	*Pinus sylvestris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	110	4	151-200 m	3	E	090490	0.0000	0	0.0000000	1	<20 year	56	*Robinia pseudoacacia*	3	12.5 - 17.5 m3 per ha per year	3	high
21	521	5	201-250 m	2	NE	190989	0.0500	36	0.0000000	4	61-80 year	20	*Fagus sylvatica*	2	7.5 - 12.5 m3 per ha per year	3	high
21	522	5	201-250 m	6	SW	190989	0.0500	57	0.0000000	4	61-80 year	49	*Quercus pubescens*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	381	7	301-350 m	9	Flat	050789	0.0625	69	0.0000000	5	81-100 year	41	*Quercus cerris*	1	2.5 - 7.5 m3 per ha per year	1	low
21	382	6	251-300 m	4	SE	050789	0.1225	70	0.0000000	5	81-100 year	41	*Quercus cerris*	1	2.5 - 7.5 m3 per ha per year	1	low
21	590	6	251-300 m	5	S	200989	0.0400	20	0.0000000	5	81-100 year	48	*Quercus petraea*	2	7.5 - 12.5 m3 per ha per year	3	high
21	470	5	201-250 m	1	N	130689	0.2500	111	0.0000000	4	61-80 year	20	*Fagus sylvatica*	3	12.5 - 17.5 m3 per ha per year	3	high
21	40	2	51-100 m	9	Flat	250790	0.0400	33	0.0000000	1	<20 year	57	*Salix alba*	3	12.5 - 17.5 m3 per ha per year	2	normal
21	220	3	101-150 m	9	Flat	270490	0.2000	76	0.0000000	1	<20 year	33	*Populus hybrides*	2	7.5 - 12.5 m3 per ha per year	2	normal
21	260	5	201-250 m	9	Flat	110490	0.1600	109	0.0000000	3	41-60 year	41	*Quercus cerris*	2	7.5 - 12.5 m3 per ha per year	3	high
21	230	9	401-450 m	9	Flat	120490	0.2000	129	0.0000000	5	81-100 year	41	*Quercus cerris*	1	2.5 - 7.5 m3 per ha per year	2	normal
21	501	3	101-150 m	9	Flat	140689	0.0900	104	0.0000000	2	21-40 year	51	*Quercus robur*	2	7.5 - 12.5 m3 per ha per year	3	high
21	502	3	101-150 m	9	Flat	140689	0.0900	78	0.0000000	2	21-40 year	7	*Alnus incana*	2	7.5 - 12.5 m3 per ha per year	3	high
21	270	3	101-150 m	9	Flat	110490	0.0600	166	0.0000000	2	21-40 year	129	*Pinus nigra*	1	2.5 - 7.5 m3 per ha per year	1	low
Norge																	
19	1	4	151-200 m	9	Flat	210586	0.2700	149	0.1118	6	101-120 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
19	2	5	201-250 m	9	Flat	150586	0.3500	109	0.1500	5	81-100 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
19	3	6	251-300 m	7	W	100888	0.2700	142	0.0981	6	101-120 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	2	normal
19	4	8	351-400 m	2	NE	250888	0.2500	121	0.0630	7	> 120 year	118	*Picea abies*	0	0.0 - 2.5 m3 per ha per year	2	normal
19	5	1	< 50 m	6	SW	200686	0.2500	98	0.1160	4	61-80 year	134	*Pinus sylvestris*	0	0.0 - 2.5 m3 per ha per year	1	low
19	6	3	101-150 m	4	SE	070686	0.2500	110	0.1191	5	81-100 year	118	*Picea abies*	2	7.5 - 12.5 m3 per ha per year	2	normal
19	7	12	551-600 m	9	Flat	220587	0.5600	391	0.3133	8	Irregular stand	118	*Picea abies*	0	0.0 - 2.5 m3 per ha per year	1	low
19	8	11	501-550 m	2	NE	070787	0.2500	126	0.1634	7	> 120 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
19	9	4	151-200 m	9	Flat	080688	0.2500	102	0.0998	6	101-120 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	2	normal
19	10	10	451-500 m	7	W	110687	0.2500	178	0.0870	5	81-100 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low

Country	plot number	Altitude code	description	Orientation code	description	Installation date	Total plot area	Number of trees	Subplot area	Mean age code	description	Tree species code	description	Yield absolute code	description	Yield relative code	description
	19	11	12 551-600 m	6	SW	030686	0.2500	196	0.0985	7	> 120 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
	19	12	5 201-250 m	9	Flat	120587	0.2500	168	0.0810	2	21-40 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	2	normal
	19	13	1 < 50 m	8	NW	240687	0.2500	94	0.0682	3	41-60 year	118	*Picea abies*	3	12.5 - 17.5 m3 per ha per year	1	low
	19	14	2 51-100 m	5	S	030687	0.2500	119	0.0588	3	41-60 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	2	normal
	19	15	6 251-300 m	9	Flat	290688	0.2700	138	0.1023	7	> 120 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
	19	16	3 101-150 m	2	NE	170687	0.2700	144	0.1190	7	> 120 year	118	*Picea abies*	0	0.0 - 2.5 m3 per ha per year	1	low
	19	17	4 151-200 m	8	NW	150686	0.2500	146	0.0746	3	41-60 year	118	*Picea abies*	1	2.5 - 7.5 m3 per ha per year	1	low
Switzerland																	
	20	1	24 1151-1200 m	7	W	311194	1.0000	0	0.0000000	8	Irregular stand	118	*Picea abies*	.	to be completed	.	to be completed
	20	2	16 751-800 m	2	NE	311194	2.0000	0	0.0000000	8	Irregular stand	20	*Fagus sylvatica*	.	to be completed	.	to be completed
	20	3	19 901-950 m	5	S	311194	2.0000	0	0.0000000	8	Irregular stand	15	*Castanea sativa*	.	to be completed	.	to be completed

Annex 4

Latin names with translations

MAIN SPECIES REFERRED TO IN THE TEXT

Latin	English	German	French	Spanish	Italian	Dutch	Danish	Portuguese	Greek
Fagus sylvatica	Common beech	Rotbuche	Hêtre	Haya	Faggio	Beuk –	Bøg	Faia	Οξυά δασική
Quercus petraea	Sessile oak	Traubeneiche	Chêne rouvre	Roble albar	Rovere	Wintereik	Vintereg	Carvalho branco Americano	Δρυς απόδισκος
Quercus robur	European oak	Stieleiche	Chêne pédonculé	Roble común	Farnia	Zomereik	Stilkeg	Carvalho roble	Δρυς ποδισκοφόρος
Quercus ilex	Holm oak	Steineiche	Chêne vert	Encina	Leccio	Steeneik	Steneg	Azinheira	Αριά
Quercus suber	Cork oak	Korkeiche	Chêne liège	Alcornoque	Sughera	Kurkeik	Korkeg	Sobreiro	Φελλοδρύς
Pinus sylvestris	Scots pine	Gemeine Kiefer	Pin sylvestre	Pino silvestre	Pino commune	Grove den	Skovfyr	Pinheiro silvestre	Δασική πεύκη
Pinus nigra	Corsican/Austrian black pine	Schwarzkiefer	Pin noir	Pino laricio	Pino nero	Oostenrijkse/ Corsicaanse zwarte den	Østrisk fyr	Pinheiro Austríaco	Μαύρη πεύκη
Pinus pinaster	Maritime pine	Seestrandkiefer	Pin maritime	Pino negral	Pino marittimo	Zeeden	Strandfyr	Pinheiro bravo	Θαλασσία πεύκη
Pinus halepensis	Aleppo pine	Aleppokiefer	Pin d'Alep	Pino carrasco	Pino d'Aleppo	Aleppo den	Aleppofyr	Pinheiro de alepo	Χαλέπιος πεύκη
Picea abies	Norway spruce	Rotfichte	Epicéa commun	Abeto rojo	Picea comune	Fijnspar	Rødgran	Picea	Ερυθρελάτη υψηλή
Picea sitchensis	Sitka spruce	Sitkafichte	Epicéa de Sitka	Picea de Sitka	Picea di Sitka	Sitkaspar	Sitkagran	Picea de Sitka	Ερυθρελάτη
Abies alba	Silver fir	Weißtanne	Sapin pectiné	Abeto común	Abete bianco	Zilverden	Ædelgran	Abeto branco	Λευκή ελάτη
Larix decidua	European larch	Europäische Lärche	Mélèze d'Europe	Alerce	Larice europeo	Europese lariks	Lærk	Larício Europeu	Λάριξ ευρωπαϊκή

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Projection: Standard Miller Projection
Plot location of the intensive monitoring

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