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**SUSTAINABLE FOREST
MANAGEMENT
IN AUSTRIA**

**AUSTRIAN
FOREST REPORT 2015**

SUSTAINABLE FOREST MANAGEMENT IN AUSTRIA

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FOREST REPORT 2015

LEGAL NOTICE

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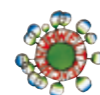
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PREFACE

FORESTS ARE EXTREMELY IMPORTANT IN AUSTRIA: They provide the valuable raw material of wood and protect humans and infrastructures against natural hazards. They provide for clean air and clean water while at the same time capturing carbon and thus a major portion of our CO₂ emissions. Moreover, forests are among the most important areas of recreation for the whole population. Together with the downstream sectors, Austria's forests offer secure jobs to over 300,000 persons and, according to most recent figures, generate a trade surplus of 3.41 billion euros.

Almost 50 percent of our national territory is covered by forests. They are managed by about 145,000 forest owners whose overall concept — sustainable forest management — is exemplary and extraordinarily successful.

The value of forests is continuously rising, both in quantitative and in qualitative terms. The Austrian Forest Report 2015, too, demonstrates this impressively.

Since 2001 its structure pursues the approach of the Pan-European Criteria and Indicators for Sustainable Forest Management, which is of great relevance also in international reporting. In 2005 our country incorporated these parameters also in the national forest programme and added Austria-specific values.

The next major step is the preparation of an Austrian „Forest Strategy 2020“: Sustainable forest management for a liveable Austria!

The Forest Strategy 2020 is intended as an instrument which is to help meet present and future challenges in the best possible way and to ensure the multi-functional services provided by forests for future generations.

2015 is an important year for the forest - the United Nations declared it the International Year of Soils. As regards Austria's forests, we can say: They are firmly anchored both in soils and in the heads of Austrians.



Yours, ANDR  RUPPRECHTER
Federal Minister of Agriculture, Forestry,
Environment and Water Management

TABLE OF CONTENTS

5	Preface
11	Introduction: Sustainable forest management — the Austrian way
13	The philosophy of sustainability for Austria's forests
14	Legal framework
14	Institutional structure
15	Cash flow
15	Public participation
15	Control system
17	Forest Strategy 2020
23	Sustainable forest management in Austria
25	Quantitative Indicators
26	Criterion 1: Maintenance and Appropriate Enhancement of Forest Resources and Their Contribution to Global Carbon Cycles
28	Indicator 1.1: Forest area
31	Indicator 1.2: Growing stock
33	Indicator 1.3: Age structure and diameter distribution
34	Indicator 1.4: Carbon balance of Austrian forests
36	Criterion 2: Maintenance of Forest Ecosystem Health and Vitality
38	Indicator 2.1: Deposition of air pollutants
43	Indicator 2.2: Soil condition
45	Indicator 2.3: Defoliation
46	Indicator 2.4: Forest damage
52	Criterion 3: Maintenance and Encouragement of Productive Functions of Forests (Wood and Non-Wood)
54	Indicator 3.1: Increment and fellings
57	Indicator 3.2: Roundwood
61	Indicator 3.3: Non-wood products
64	Indicator 3.4: Services
67	Indicator 3.5: Forests under management plans
68	Criterion 4: Maintenance, Conservation and Appropriate Enhancement of Biological Diversity in Forest Ecosystems
70	Indicator 4.1: Tree species composition
74	Indicator 4.2: Regeneration
76	Indicator 4.3: Naturalness
79	Indicator 4.4: Introduced tree species

81	Indicator 4.5: Deadwood
82	Indicator 4.6: Genetic resources
84	Indicator 4.7: Landscape pattern
86	Indicator 4.8: Threatened forest species
89	Indicator 4.9: Protected forests
92	Criterion 5: Maintenance and Appropriate Enhancement of the Protective Functions in Forest Management (notably Soil and Water)
94	Indicator 5.1: Protective forests — soil, water and other ecosystem functions
98	Indicator 5.2: Protective forests — infrastructure and managed natural resources
102	Criterion 6: Maintenance of Other Socio-Economic Functions and Conditions
104	Indicator 6.1: Forest holdings
106	Indicator 6.2: Contribution of forest sector to gross domestic product
106	Indicator 6.3: Net revenue
109	Indicator 6.4: Expenditures on services
109	Indicator 6.5: Forest sector workforce
115	Indicator 6.6: Occupational safety and health
116	Indicator 6.7: Wood consumption
117	Indicator 6.8: Trade in wood
119	Indicator 6.9: Energy from wood resources
121	Indicator 6.10: Accessibility for recreation
122	Indicator 6.11: Cultural and spiritual values
124	Criterion 7: Austria's International Responsibility for Sustainable Forest Management
126	Indicator 7.1: Forest-related projects in development cooperation
128	Indicator 7.2: Austria's contribution to international and multilateral forest governance
130	Indicator 7.3: Public funds for forest-relevant, internationally active organisations and for the participation of Austrian experts in forest-related international bodies
131	Indicator 7.4: Austrian contribution to efforts on combatting illegal logging
133	Qualitative Indicators
134	Indicator A.1: National forest programmes and the like
137	Indicator A.2: Institutional framework
140	Indicator A.3: Legal/Statutory framework and international commitments
147	Indicator A.4: Financial instruments/Economic policy
153	Indicator A.5: Information tools

LIST OF FIGURES AND TABLES

13	Figure 1:	Sustainability in Austria	95	Figure 38:	Key functions of the Austrian forest
28	Figure 2:	Development of the forest area	97	Figure 39:	State of hazard zone planning by the Forest Engineering Service in Torrent and Avalanche Control (WLV) 2013
29	Figure 3:	Map of forests in Austria	116	Figure 40:	Wood flows in Austria
31	Figure 4:	Development of growing stock	117	Figure 41:	Foreign trade in wood 2013
32	Figure 5:	Change in growing stock (in %) by growth classes, with regard to the Austrian Forest Inventory (ÖWI) 1992/96 for the periods of 2000/02 and 2007/09	120	Figure 42:	Use of wood and demand for wood as a source of energy
33	Figure 6:	Development of growing stock and number of stems in commercial forests	136	Figure 43:	Cycles of the Forest Dialogue
34	Figure 7:	Annual net carbon balance in Austria's entire land-use sector and in Austrian forests	143	Figure 44:	Policy areas having impacts on forests in Europe
38	Figure 8:	Sulphur inputs in stands on the 16 Level-II intensive monitoring plots from 1997 to 2012	144	Figure 45:	Institutions of relevance to forest policy in/outside the European Union
39	Figure 9:	Nitrogen inputs in stands on the 16 Level II intensive monitoring plots from 1997 to 2012	146	Figure 46:	EFI regional offices and EFICEEC-EFISEE partners
40	Figure 10:	Distribution of the sulphur load in the Austrian bio-indicator grid in 2012	32	Table 1:	Growing stock by forest management system
42	Figure 11:	Distribution of the mercury contents in the first needle set in 2012	89	Table 2:	Assessment guidelines for protected forest areas according to Forest Europe (without Class 3 — Main Management Objective ‚Protective functions‘)
44	Figure 12:	Change in lead content in different soil horizons	90	Table 3:	Overall balance of forests protected in accordance with FE criteria in Austria
46	Figure 13:	Development of wood quantities damaged by bark beetle, storm and snow	94	Table 4:	Protection forest in high forest stands
47	Figure 14:	Development of wood quantities damaged by bark beetle in the Federal Provinces	104	Table 5:	Forest areas and ownership structure — types of ownership according to cadastral map
51	Figure 15:	Austrian Forest Inventory — Time series of the evaluation of forest damage caused by game	105	Table 6:	Enterprises and forest areas according to Agricultural Structure Survey 2010, compared to 1995 and 1999
54	Figure 16:	Growing stock, increment and utilisation in Austria	126	Table 7:	Contracts directly relating to forestry, concluded by ADA (Austrian Development Agency) since 2011
57	Figure 17:	Development of timber harvest and timber price	127	Table 8:	ADA projects funded by the BMLFUW since 2008
58	Figure 18:	Volume of damaged wood and roundwood price	128	Table 9:	Funds of the Federal Ministry of Finance (BMF) to the European Bank for Reconstruction and Development (EBRD) and the Inter-American Development Bank (IDB).
61	Figure 19:	Percentage shares of non-wood products in the total value for 2005	130	Table 10:	Public funds of the Directorate-General for Forestry for forest-relevant, internationally active organisations
64	Figure 20:	Percentage share of services in the total value for 2005	130	Table 11:	Public funds for the participation of experts of the Directorate-General for Forestry in forest-relevant, international bodies and meetings
71	Figure 21:	Forest areas by tree species — Commercial forests	149	Table 12:	Focuses of forest policy measures / Allocation to the measures defined in the Council Regulation
71	Figure 22:	Change in area by tree species in commercial forests			
72	Figure 23:	Shares of forest land by types of mix in commercial forests			
74	Figure 24:	Regeneration on areas requiring regeneration			
75	Figure 25:	Situation of the regeneration of target tree species			
75	Figure 26:	Regeneration and browsing of target tree species			
80	Figure 27:	Time series alien species			
81	Figure 28:	Diameter distribution in deadwood			
81	Figure 29:	Time series deadwood in Austria			
83	Figure 30:	Location and size of gene conservation reserves			
84	Figure 31:	Percentage of forest cover			
86	Figure 32:	Distribution of the biotope type „Common pine forest in the eastern rim of the Alps“			
87	Figure 33:	Risk situation of forest biotope types in Austria			
87	Figure 34:	Number of forest biotope types in Austria per grid cell of Austria's flora map			
89	Figure 35:	Austria's forests in protected areas, classified according to Forest Europe, 2013			
90	Figure 36:	Shares of forest areas protected under nature conservation legislation by FE classes, in Austria's total forest area			
94	Figure 37:	Need for and presence of regeneration			



INTRODUCTION: SUSTAINABLE FOREST MANAGEMENT — THE AUSTRIAN WAY

WE ARE EXPECTING A GREAT DEAL FROM AUSTRIAN FORESTS. THEY ARE TO PROVIDE SUFFICIENT AMOUNTS OF WOOD AS A RAW MATERIAL AND ENERGY SOURCE for expanding markets while at the same time protecting our valleys against avalanches, rockfall, mudflow, and other natural hazards. They are biodiversity refuges which should remain largely undisturbed, but at the same time are to store carbon to combat climate change. They are popular recreational areas and core elements of the landscape whose beauty attracts millions of tourists to Austria every year.

Forests are to provide all that „sustainably“, which means simultaneously, everywhere and forever. This sounds like attempting to square the circle and an elaborate, cleverly thought out plan and sophisticated instruments are needed to allow for all that.

Austria is currently rich in woodlands, but this is not by accident. In the early nineteenth century the Austrian territory was largely deforested and as a consequence of over-exploitation, pastures and litter utilisation the few forests that existed were in most cases in a rather poor condition.

Today's abundance of forests in Austria is due to a brilliant idea and its consistent pursuance and implementation over decades, or even centuries. The concept of „sustainability“ was developed by persons who wanted to save the forest and can look back to 300 years of history in Central Europe.

In 1713, at a time when the timber of forests was simply exploited like ore in mines, Hanns Carl von Carlowitz, the Mines Inspector of the Kingdom of Saxony, adopted a ground-breaking regulation on forest utilisation. His vision was to use the growth potential and reproductive capacity of forests in a way that another generation of

trees would grow in forests after a timber harvest and future generations, too, would be able to use the full potential of forests. The concept of sustainability was born and henceforth has spread far beyond Saxony.

First, of course, attention focused on the sustainability of wood production, which is an important objective even today. Yet soon people realised that reproduction of forests, and thus of timber, would in the long run be possible only if we cooperated with nature and respected the framework conditions of climate and soil. Otherwise, nature would hit back and pests, depleted soils, storms, and other damaging events would take a growing toll. One also realised that forests offer humans much more than merely wood.

Nowadays „sustainable forest management“ is understood as a complex programme which harmonises the diverse demands that the economy, environmental protection and society make on forests and simultaneously ensures the maintenance of forests for the long term.

The net forest area is increasing in Europe, timber is produced sustainably, and also biological diversity is the subject of serious projects and activities.¹ However, enormous demands are placed on forests.

1) „State of Europe's Forests 2011 — Status & Trends in Sustainable Forest Management in Europe“
Ministerial Conference on the Protection of Forests in Europe, Oslo 2011
<http://www.foresteurope.org/state-europes-forests-2011-report>



In the Helsinki Resolution adopted at the Ministerial Conference on the Protection of Forests in Europe (FOREST EUROPE)² 46 European countries defined sustainable forest management as follows:

“The stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality, and their potential to fulfil, now and in the future, relevant ecological, economic, and social functions at local, national and global levels, and that does not cause damage to other ecosystems.”

The concept reflects the spirit of the age, but its implementation packs a punch. It is all but easy to reconcile these requirements. Also in Europe sustainable forest management is thus sensitive to problems and does not always run smoothly. It is a question of timber versus nature conservation, game versus forest, forest utilisation versus carbon sequestration, wood for energy versus wood for paper, business

versus idyll, and so on. It takes sophisticated instruments and good will on the part of all to find a reasonable common ground.

However, for a long time the claim for sustainability has not been limited to forests. Ever since the publication of the Brundtland Report³ in 1987, sustainable development has been requested for all sectors of the economy. Also the forest sector, which invented the idea of sustainability, is on the test stand and is requested to apply modern methods and technologies to show what it has, evidently successfully, delivered for generations. Being a country rich in forests, with a timber management sector that can boast of a strong export capacity and high environmental standards, Austria is in a leading position in this field.

The Austrian Forest Report bears witness of how the concept of sustainable forest management is practised in Austria.

THE PHILOSOPHY OF SUSTAINABILITY FOR AUSTRIA'S FORESTS

Six factors interact to implement sustainable forest management in Austria:

1. A widely recognised commitment to comprehensive sustainability in forests.
2. A sound legal framework.
3. An efficient institutional architecture.
4. A well-balanced financial system.
5. Systematic public participation in policy development and implementation.
6. A wise monitoring and information system.

Austria has expressly committed itself to the understanding of sustainability for forests developed at the FOREST EUROPE Ministerial Conference and even laid this principle down by law.

In Austria, we are therefore definitely obligated to develop all aspects of forests in a sustainable manner. The concept is not static, but is continuously deepened and developed. The „Pan-European Criteria and Indicators for Sustainable Forest Management“⁴ adopted by the FOREST EUROPE countries offer orientation for forest policy-making in Austria and provide the contextual framework for surveys and reporting. They are the points of reference for the Austrian Forest Dialogue and the thematic frame for the Austrian Forest Report.

The Austrian Forest Programme is organised along seven forest-political fields of action: Six of them are derived from the six „Pan-European Criteria for Sustainable Forest Management“ of the FOREST EUROPE Ministerial Conference. The seventh one, „Austria's International Responsibility for Sustainable Forest Management“,

Sustainability in Austria



Figure 1

was added because it is important for a forest and timber country to have an active share in the development of the international environment for forests. Also Austria-specific indicators were added to the pan-European ones to be able to shape sustainability more precisely.

The concept of sustainability for Austria's forests is thus up-to-date, continuously refined and firmly anchored in the heads and processes that are decisive for the maintenance and management of forests.

However, sustainable forest management is not only ensured by the state in Austria. Responsibility for the condition of eighty percent of Austria's forests lies above all with the many private forest owners. Most of them are family-run holdings where forests are passed on from generation to generation.

A key factor for the success of all efforts to promote sustainability in forests is therefore the motivation of forest owners.

2) FOREST EUROPE — Ministerial Conference on the Protection of Forests in Europe
<http://www.foresteurope.org>
RESOLUTION H1
General Guidelines for the Sustainable Management of Forests in Europe — Helsinki 1993
http://www.foresteurope.org/docs/MC/MC_helsinki_resolutionH1.pdf

3) „Brundtland Report“ is another name of a report entitled „Our Common Future“ published in 1987 by the United Nations World Commission on Environment and Development („Brundtland Commission“). Former Norwegian Prime Minister Gro Harlem Brundtland had chaired the Commission. The Report is known for its definition of the term „Sustainable Development“.
http://www.nachhaltigkeit.info/artikel/brundtland_report_1987_728.htm

4) RESOLUTION L2: Pan-European Criteria, Indicators and Operational Level Guidelines for Sustainable Forest Management.
http://www.foresteurope.org/docs/MC/MC_lisbon_resolutionL2.pdf
VIENNA LIVING FOREST SUMMIT DECLARATION — 2003: IMPROVED PAN-EUROPEAN INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT
http://www.foresteurope.org/docs/MC/MC_vienna_declaration.pdf

LEGAL FRAMEWORK

Responsible dealing with forests starts with legal certainty, with ensuring clarity about who has which rights and which duties in respect of forests.

Rights of land tenure and use are clearly regulated in Austria. The Austrian forest law protects forests as such to ensure that they cannot be casually cleared; it includes the obligation of reforestation after the utilisation of

forests as well as detailed provisions regarding their protection, management and use for leisure-time activities.

The nature conservation and hunting laws of the Federal Provinces and other federal and provincial provisions as well as requirements from EU legislation and other international obligations provide a tight set of rules and regulations for forests.

INSTITUTIONAL STRUCTURE

The legal framework defines the scope for acting. However, to promote, develop and verify sustainable forest management several institutions and organisations with specific goals and tasks are active in Austria.

Basically, they have to fulfil three functions:

- Creating laws and shaping policy
- Supporting and supervising compliance with law

- Generating and passing on knowledge (research, development, training and further training, advisory services, information)

Legislation and policy development are the business of the Federal Government and the Provincial Governments, the National Assembly and the Provincial Parliaments, the representations of interest and NGOs. The federal and provincial forest authorities are responsible for the execution of the laws. Research and education institutions from university to the skilled-workers level, Statistics Austria and many more complete the picture. Their effectiveness depends on well-defined objectives as well as on the availability of sufficient technical equipment, funds and staff.



CASH FLOW

The economic potential of forests provides the basis for jobs and income. Timber is the bread and butter of forestry, but of course there are also yields from hunting, from non-wood products and other branches of business. Forests also deliver multiple ecosystem services which, though hardly rewarded by the open market, are of great importance to the national economy.

Forests which are viable for the long term do not come at zero cost. Whilst gaining added value from forest utilisation in the form of income and ecosystem services, investments must be made to keep the system running. At the top of the investments range those for reforest-

ation, forest protection and forest tending that are undertaken by the forestry sector itself. In addition, public investments to ensure vital ecosystem services like the protection against natural hazards and long-term maintenance of biodiversity are necessary. Also public subsidies are granted to stimulate and refine sustainable forest management. In turn, forestry — like any other branch of the economy — has to pay taxes on earnings.

The components of the financial system are delicately tuned to offer incentives for sustainable forest utilisation while at the same time safeguarding all important services provided by forests.

PUBLIC PARTICIPATION

Even though eighty percent of Austria's forest area are privately owned, all forests are of great significance to society. Forests cover half of the Austrian territory and their status is decisive for the environment and for people's quality of life. Many people are also emotionally tied to forests and observe carefully what happens to them. Broad social acceptance for forestry activities and good cooperation

with various other sectors are therefore essential to long-term success.

The Austrian Forest Dialogue⁵, in which more than ninety institutions and organisations interested in forests are involved, offers the platform for participative policy development and cross-sector cooperation in forest matters.

CONTROL SYSTEM

Trust is good, but control is better. In the final end it is not the system that counts but how forests develop, how the three pillars of sustainability — the economic, environmental and social aspects of forests — show themselves and become effective. This needs monitoring and evaluation. Criteria and indicators for sustainable forest management provide the required framework.

In the framework of the Austrian Forest Dialogue the Pan-European Criteria and Indicators were supplemented by parameters that take account of the specific situation in Austria. Furthermore, targets (desired values) have been set for the individual indicators. In this way one can determine how forest management is developing in Austria — towards greater or towards less sustainability.

5) Austrian Forest Dialogue: <http://www.walddialog.at/>

By means of nationally representative random checks in forests the Austrian Forest Inventory⁶ determines the key parameters of forests. The Inventory is accurately enough to permit reliable statements on the development of forests in the individual administrative districts of Austria and for the different size-categories of holdings. In addition, annual surveys of removals as well as various special surveys on forest health, biological diversity, protective effects of forests, the production and the market of timber products are conducted and other socio-economic data are collected.

The Austrian Forest Report is published at regular intervals and, based on the criteria and indicators for sustainable forest management, draws a detailed picture of the state and development of forests. The uniformly structured collection of data on Austrian forests is continuously updated and publicly accessible online.

Other evaluations cast a light at specific issues, for example the annual timber felling report, the game damage report, the forestry test operation grid, the forestry contributions to the Green Report published by the

Austrian agricultural sector as well as Austrian inputs to international reports and statistics.

The private sector, too, tries to establish facts proving the sustainability of its activities and uses privately organised certification systems for this purpose. The major part of the Austrian forest has been certified according to PEFC,⁷ a minor part also according to FSC.⁸

This comprehensive forest monitoring and information system establishes whether the sustainability of Austrian forests is developing favourably or the system needs repair.

So eventually the circle closes, ranging from the starting point of sustainability, the planning process, to the instruments of implementation and, finally, to the evaluation which is the basis of conclusions concerning possible needs to readjust the concept or the instruments. The Austrian way of sustainable forest management is thus not a rigid plan, but a living system.

Ingwald Gschwandtl

FOREST STRATEGY 2020

UNTIL THE END OF 2015 THE „AUSTRIAN FOREST STRATEGY 2020“ IS PREPARED IN THE FRAMEWORK OF THE AUSTRIAN FOREST DIALOGUE — IN COOPERATION WITH ALL STAKEHOLDERS. The Forest Strategy is intended as an instrument to harmonise the multiple interests and demands made on Austrian forests and to find solutions to possible utilisation conflicts. The Forest Strategy 2020 is to provide forest-political cornerstones to ensure and continuously optimise the sustainable management and maintenance of Austria's forests.

The overall objective of the Strategy is to ensure and optimise the ecological, economic and social dimensions of sustainable forest management in a well-balanced way.

Special attention is paid to the added value and the potential of the Austrian forestry and timber sectors for a „liveable Austria“. With this in mind, the Forest Strategy 2020 is to help ensure the multifunctional services rendered by forests for present and future generations.

CONTENT AND STRUCTURE OF THE FOREST STRATEGY 2020

For consistency with the Austrian Forest Report, the Austrian Forest Programme⁹ as well as national and international reporting obligations, the Strategy is going to be structured along the following seven forest-political fields of action (in the present Forest Report referred to as „criteria“):

1. Contribution of Austrian forests to climate protection
2. Health and vitality of Austrian forests
3. Productivity and economic aspects of Austrian forests
4. Biodiversity in Austria's forests
5. Protective functions of Austria's forests

6. Social and economic aspects of Austrian forests
7. Austria's international responsibility for sustainable forest management

First, a vision for the Austrian forest policy will be defined, which may well remain valid beyond 2020. In a second step, strategic goals are to be defined to operationalise the vision. Finally, the strategic directions and forest-political priorities will be identified taking into account present and future challenges in sustainable forest management and the success factors for the strategic goals.

PROCESS AND STRUCTURE OF STRATEGY DEVELOPMENT

The Strategy 2020 is prepared in line with the principles of a transparent, open and participatory policy and administration (good governance) and in accordance with the principles and rules agreed upon in the Austrian Forest Dialogue. To ensure effective and efficient implementation of the strategy process, different panels and working groups have been established (see also Indicator A.1).

The substantive work is carried out in four modules. For in-depth work on selected issues, the module meetings can be supplemented by specific thematic workshops.

6) Austrian Forest Inventory: <http://www.waldinventur.at/>

7) Certification initiative PEFC AUSTRIA: <http://www.pefc.at>

8) FSC certification: <http://www.wwf.at/de/fsc/>

9) The Austrian Forest Programme: <http://www.bmlfuw.gv.at/forst/walddialog/dokumente/walddialog-kurz.html>

- M1: Forests.Economy.International affairs
- M2: Forests.Climate.Ecology
- M3: Forests.Water.Natural hazards
- M4: Forests.Society.Knowledge

Participation in the Austrian Forest Dialogue, and thus in the preparation of the Forest Strategy 2020, is open to all groups, institutions and stakeholders dealing with the Austrian forest. The general public can participate in the work of the Forest Dialogue by means of written statements.

As has been mentioned above, the Forest Strategy 2020 is structured along seven fields of action dealing for example with the contribution of Austria's forests to climate protection, with productivity and economic aspects, and with the protective effect of forests. In 2014, at the celebrations on the 20th anniversary of the State Prize for Exemplary Forest Management, seven committedly working persons from the relevant action fields were honoured in Vienna.

FORESTS AND CLIMATE PROTECTION



Josef Wimmer

All over the world indications suggesting the acceleration of global climate change are becoming more frequent and confront also forests with great challenges. The increase in the concentrations of atmospheric greenhouse gases like methane, ozone, chlorofluorocarbons, di-nitrogen oxide (N₂O), and especially carbon dioxide (CO₂), results in warming of the earth's surface in the long run. These gases wrap

the earth like a blanket and thus impede the escape of the earth's heat.

In view of the threat of climate change it is a key objective of Austria's forest management to promote the stabilisation of forest ecosystems by strengthening sustainable forest management and developing and implementing suitable adaptation measures.

AUSTRIAN FORESTS ARE FULL OF ENERGY



Tobias Ilg

Thanks to the natural conditions in our country, Austria has excellent preconditions for a 100-percent supply with renewable energy.

Presently, the share of renewable energy in the gross end-energy consumption is 32 %. With a share of 13 % of the overall energy consumption, energy generated from the renewable resource of wood is playing an important role.

In addition to material exploitation, the use of wood as a source of energy is gaining importance. Wood is virtually unrivalled as a fuel. When burned, a neutral carbon balance is maintained, which means that only such an amount of the greenhouse gas CO₂ is released as the tree has recycled while growing.

FORESTS ARE AREAS FOR LIVING

Of all the species occurring on the Earth, over two thirds are found exclusively in forests. Forests are a



Christine Mooslechner

hotspot of species diversity, a vibrant, species-rich area for living that is unrivalled.

A few international and European forest- and environment-political instruments, for example the Convention on Biological Diversity (CBD) or the EU Strategy on Biological Diversity, aim at protecting and maintaining biodiversity.

OUR FORESTS ARE IN GOOD HANDS



Stanislaus Kofler

Austria is the country of forest farmers. About 145,000 of them take care of Austrian forests as part of their daily routine and dedicate their commitment, their sound training and innovative ideas to our forests.

Approximately 80 % of the forest is privately owned. This is clearly more than in most other European countries. The Austrian Federal Forests own 15 % of the forest area; the remaining 5 % belong to other public institutions.

Some 300,000 persons obtain income from forests. In more than 172,000 enterprises an annual production value of about 12 billion euros is achieved. Timber is a stable element of the economy. With an export surplus of almost 3.7 billion euros the forest and timber industry is, beside tourism, Austria's most important foreign-exchange earner.

HEALTH AND VITALITY OF AUSTRIAN FORESTS



Egidius Petz

Maintaining viable forest ecosystems and the continuity of all forest functions is the paramount objective of Austrian forest management. Active and sustainable forest management contributes vitally to the good status of forests in Austria.

The large-scale forest die-back feared at the beginning of the 1980s did not occur in Austria, yet individual tree species are regionally threatened with dying off.

The status of forests, especially in the light of the fulfilment of its different functions for society, is influenced by many factors. Apart from human activities, these are above all browsing by hoofed game and grazing animals, the occurrence of pests, climate change, storms, forest fires, air pollution, and degraded forest soils.

It is therefore a priority of Austria's forest policy to establish a balance between the requirements of forest protection, the density of hoofed game, animal grazing as well as the private and public interests in forests by means of forest land-use planning.

ENSURING SUSTAINABLE FOREST MANAGEMENT BY TRAINING AND FURTHER TRAINING



Gwendolyne Mayer

Perfectly trained forest managers are the future. They ensure that forests will be able to fulfil their ecological, social and economic functions also in the future.

The education of the persons working in forestry is of fundamental importance for the management and the condition of forests.

Forest managers are to an always greater extent responsible for tasks from the whole field of rural areas. Apart from expert knowledge in forestry, general management qualifications are gaining importance. The challenge facing sustainable forest management is to integrate the economic, ecological and social dimensions in the best possible manner.

AUSTRIA AS A MODEL OF SUSTAINABLE FOREST MANAGEMENT



Josef Konrad

In many of the world's regions forest destruction continues to increase alarmingly. Austrian know-how and commitment can produce relief in this field.

The globalisation of timber markets and the internationalisation of environmental and economic policies, the trade in illegally logged timber, the fight against poverty and hunger, and the striving for an effective protection of the climate and the natural resources are but a few aspects that make clear why the preservation and management of forests have developed from a matter of local concern to a challenge for the whole world.

For a country like Austria which is by international comparison rich in forests, where forestry has a long tradition, the timber industry is export-oriented and high environmental standards apply, international commitment in forest affairs goes quite natural.

Under various regional and global agreements of relevance to forestry Austria has committed itself to accept responsibility for global sustainable forest management.





SUSTAINABLE FOREST MANAGEMENT IN AUSTRIA

AS WAS DONE FOR THE FOREST REPORTS 2001, 2004 AND 2008, ALSO THE PRESENT DOCUMENTATION IS STRUCTURED ACCORDING TO THE PAN-EUROPEAN CRITERIA AND INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT (FOREST EUROPE — Ministerial Conference on the Protection of Forests in Europe) which have been made the standard of international reporting. However, one Austria-specific criterion (Criterion 7) and several Austria-specific indicators have been added.

DEFINITION OF THE CONCEPT OF SUSTAINABLE FOREST MANAGEMENT:

„The stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality, and their potential to fulfil, now and in the future, relevant ecological, economic, and social functions at local, national and global levels, and that does not cause damage to other ecosystems“ (Helsinki-Resolution H1).

The Pan-European Criteria and Indicators for Sustainable Forest Management were developed

in the period from 1994 to 1995 and revised from 2001 to 2002 in order to show to which extent the objective of sustainable forest management outlined in the Helsinki Resolutions were achieved.

The criteria describe the different aspects of sustainability, notably conditions and processes used to assess sustainable forest management. With the help of the indicators the changes over time can be measured and evaluated for each criterion. Indicators show to which extent the requirements set by the criteria have been fulfilled and thus serve as the basis of the reporting system.

QUANTITATIVE INDICATORS

A photograph of a forest path. The path is narrow and appears to be made of dirt or stone, winding through a dense forest. Sunlight filters through the trees, creating a hazy, golden atmosphere. The trees are tall and thin, with green foliage. The overall scene is peaceful and serene.

CRITERION 1: MAINTENANCE AND APPROPRI- ATE ENHANCEMENT OF FOREST RESOURCES AND THEIR CONTRIBU- TION TO GLOBAL CARBON CYCLES

THIS CRITERION FOCUSES ON THE DEVELOPMENT AND CONDITION OF FORESTED AREAS AND GROWING STOCK as well as on their contribution to global carbon cycles as important components of sustainable forest management. Austria's forests provide a large carbon sink, which means that they absorb and retain large amounts of carbon when growing. Crucial factors in the carbon sequestration potential are the forest area, the growing stock as well as age structure and diameter distribution. Both the area covered by forests and the growing stock have increased for decades; as to the age structure, a shift in the distribution of the growing stock towards higher stand development classes has been observed. In terms of climate change, this is a positive trend.

INDICATOR 1.1: FOREST AREA

The forest is a landscape element which is constantly gaining importance in our society. This manifests itself in a growing forest area in Austria, but also in the higher priority that people attach to forests. Also the fact that forests and their sustainable use as well as the maintenance of all their social, economic and ecological functions are becoming an always bigger issue in Austria, the EU and world-wide, demonstrates their importance.

Since the 1960ies the Austrian Forest Inventory (ÖWI) has been carried out; it compiles data which allow for an assessment of the status, and the change in status, of forests. According to the ÖWI 2007/09 3.99 million hectares (ha) of land are covered by forests in Austria. This corresponds to 47.6 % of the overall national territory and exceeds the EU average with 42 % of the total area being covered with forest and equivalent areas (176

million hectares as of 2010). Since the first inventory (ÖFI 1961) a continuous growth in forest areas has been observed in Austria. Compared to the first period of inventory, 1961/70, the forest area has increased by 300,000 hectares. The rate of growth has declined, however: Since 1992 it has slowed down from 7,700 hectares (ÖWI 1992/96) to 5,100 hectares (ÖWI 2000/02) and, meanwhile, to 4,300 hectares per year (Figure 2).

This change in area is only partly due to human interventions like re-forestation or officially approved clearing. To a much greater extent the forest itself (following natural succession, above all the borderline effect) and small natural disasters influences the shift in area. 60 % of the new forest areas grow on areas formerly used for agriculture like alpine pastures, pastures and meadows for mowing, about one third on extreme locations and

Development of the forest area

in million hectares/share in the total area, in percent

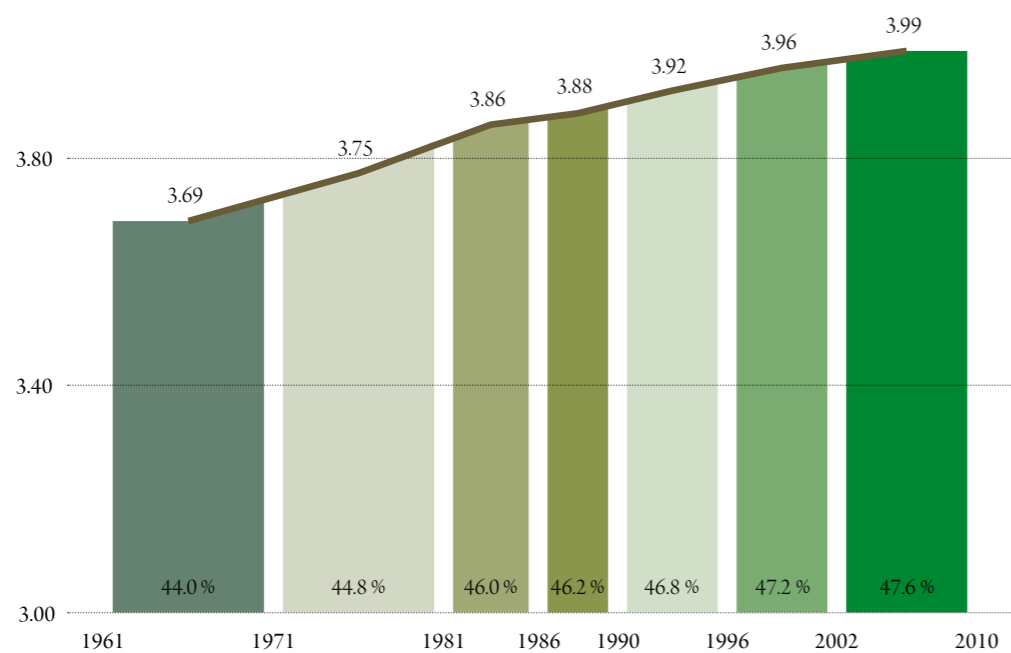


Figure 2 | Source: ÖWI 2007/09, BFW 2014

on natural areas like slickensides, wet locations and fens, rubble and gravel areas, stone pits, and embankments. The remaining new forest areas are former mining areas, landfills and other areas.

AUSTRIAN FOREST MAP

In 2007 a nation-wide forest map was produced and developed at the Federal Research and Training Centre for Forests, Natural Hazards and Landscape using remote sensing methodology and ÖWI data (Figure 3). For this purpose, the results of the Austrian Forest Inventory (2000/02) were matched with the satellite images of the satellite LANDSAT (resolution 30 metres). However, automatic remote sensing allows only for a determination of the land coverage. Each and every area stocked — also parks and gardens — is thus deemed to be a forest and each area that

is unstocked or has a low crown density — like felling areas or forest roads — is eliminated as not being a forest. In order to identify the forested areas in line with the definition of a forest in the Forest Act, the map was reworked manually with the help of an elevation model (resolution 10 metres), various orthophotos (resolution 25 centimetres) and topographic maps (1:50,000; ÖK50).

The forest map serves as a basic dataset for mapping other forest attributes like, for example, species mixtures, felling areas and growing stock. It also helps assess protective forest areas or compile habitat models needed to re-introduce certain animal species. It also offers more detailed information on forest areas for smaller surveying units, especially district forest inspection bodies, than the Austrian Forest Inventory (ÖWI) was able to provide by that time.

Map of forests in Austria

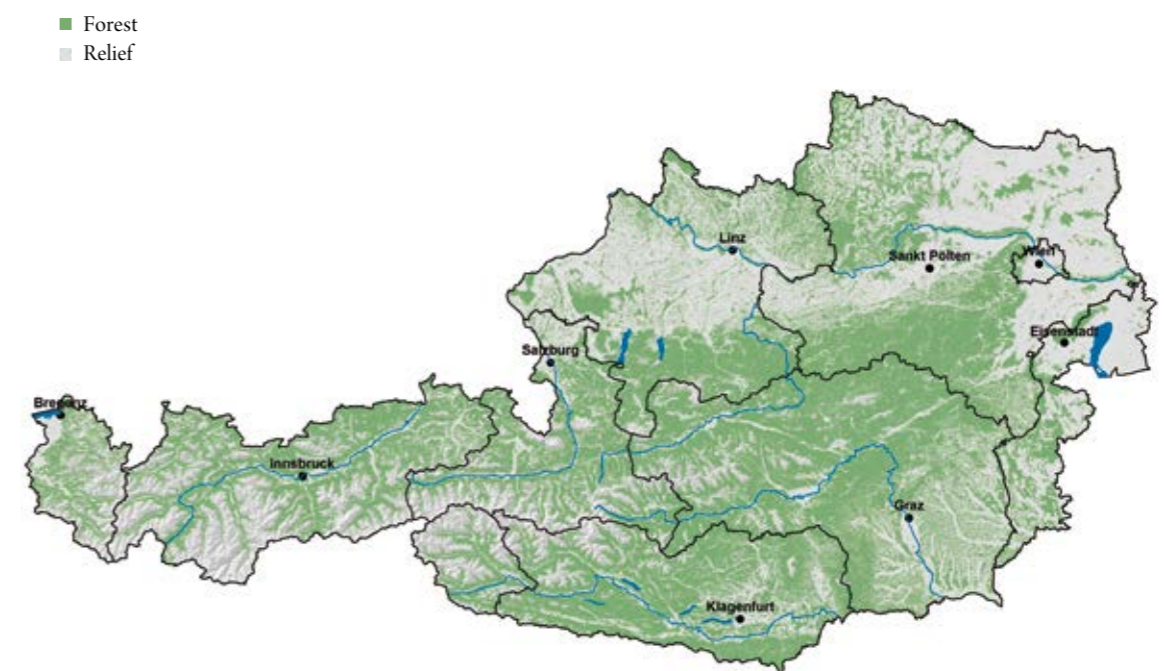


Figure 3 | Source: BFW 2014

AUSTRIAN FOREST INVENTORY

The Austrian Forest Inventory (“Österreichische Waldinventur”) is the most comprehensive monitoring system practiced in Austria’s forests. It focuses on the organisation and conduct of the field surveys, the scientific processing and evaluation of the data, and the establishment of databases. The Institute of Forest Inventory also has to prepare and organise presentations, graphical representations and interpretations of the data, publish them and develop statistical evaluation algorithms.

Objectives of the Forest Inventory

The objective of the Austrian Forest Inventory is to permanently monitor the status of forests with particular focus on any change in that status. This goal requires great objectiveness, accuracy and transparency of the surveys. The surveys and results serve as decision-making tools in forest policy and forest management and provide the basic data for a great number of scientific projects.

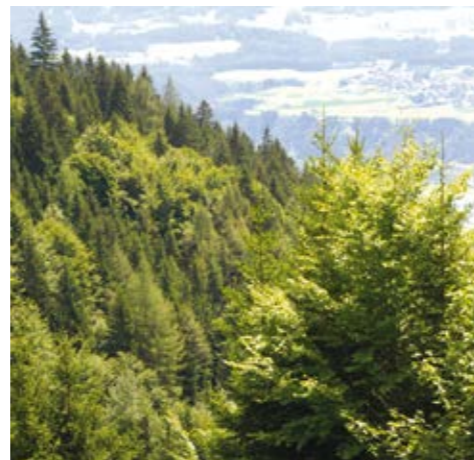
DEVELOPMENT OF THE AUSTRIAN FOREST INVENTORY

Initially, the emphasis of the Austrian Forest Inventory (“Österreichische Forstinventur”, ÖFI 1961/70) was on the objective recording of forested areas, growing stock, increment, and use. In the ÖFI 1971/80, parameters providing a better insight into the internal structure of the forest, such as stand deficits, tending measures, cutting maturity, age class, crown height, and site characteristics, were surveyed as well. For the Forest Inventories of 1981/85 and 1986/90 permanent sample plots were established to pay greater attention to the identification of changes in the forest status. To take account of the environmental issues, parameters for recording forest biodiversity, the effect of protection forests and higher

sustainability were added in the inventory period of 1992/96. Moreover, the inventory was renamed „ÖWI“ („Österreichische Waldinventur“). In the ÖWI 2000/02 the parameters were revised in a way to allow for national statements concerning the Pan-European Criteria and Indicators for Sustainable Forest Management set out by the Third Ministerial Conference on the Protection of Forests in Europe (Lisbon, 1998).

ÖWI 2007/09

In the ÖWI 2007/09 the traditional results of the Inventory were supplemented by aspects like sustainability, biomass, biodiversity and the protective effect of forests. The data gained from the Inventory are particularly important in connection with Austria’s obligations to report to international processes like UNFF¹⁰, FOREST EUROPE, UNFCCC¹¹ and the Kyoto Protocol¹². The endeavours to achieve harmonisation at the international level are taken into account and forest areas and growing stock are surveyed also in line with the FAO definition.



The results of the Austrian Forest Inventory are available on the internet at: <http://www.waldinventur.at>

10) United Nations Forum on Forests: <http://www.un.org/esa/forests/about.html>

11) United Nations Framework Convention on Climate Change: <http://www.unfccc.int>

12) Kyoto-Protokoll: http://unfccc.int/kyoto_protocol/items/2830.php



INDICATOR 1.2: GROWING STOCK

With 1.135 billion cubic metres over bark in commercial forests, the growing stock has reached another record level in Austria’s forests (Figure 4).

Altogether, both the total growing stock and the forest area have seen a continuous upward trend since the start of the forest inventories. Austria-wide and across all ownership types stocks have, over the past 40 years, increased by 13 solid cubic metres over bark (m³ o.b.) per hectare. Table 1 shows the current stocks by forest system. The average per-hectare stock amounts to 337 m³ o.b./ha in Austria.

Since this change is also evident on the hectare basis, the increase in growing stock is not exclusively a consequence of the larger area stocked, but is also due to higher stand densities and a substantial increase in saw logs (Figure 5). The higher numbers of stems lead to less stable stands and higher mortality. Therefore efforts to promote timber mobilisation have been taken for some years, especially in private forests.

The ÖWI 2007/09 shows that these efforts have paid off during the recent period: In private forests the growing

Development of growing stock

Development of growing stock
(in million m³ o.b.) since 1961

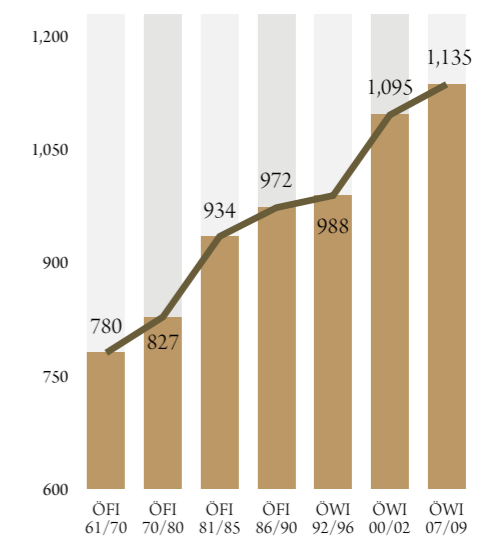


Figure 4 | Source: ÖWI 2007/09, BFW 2014

stock was 20 m³ o.b./ha lower than in the ÖWI 2000/02 period; in large forests (forest enterprises) and in the Österreichischen Bundesforste AG (ÖBf) stocks even decreased (-2.4 and -4.4 m³ o.b./ha).

Change in growing stock (in %) by growth classes, with regard to the Austrian Forest Inventory (ÖWI) 1992/96 for the periods of 2000/02 and 2007/09

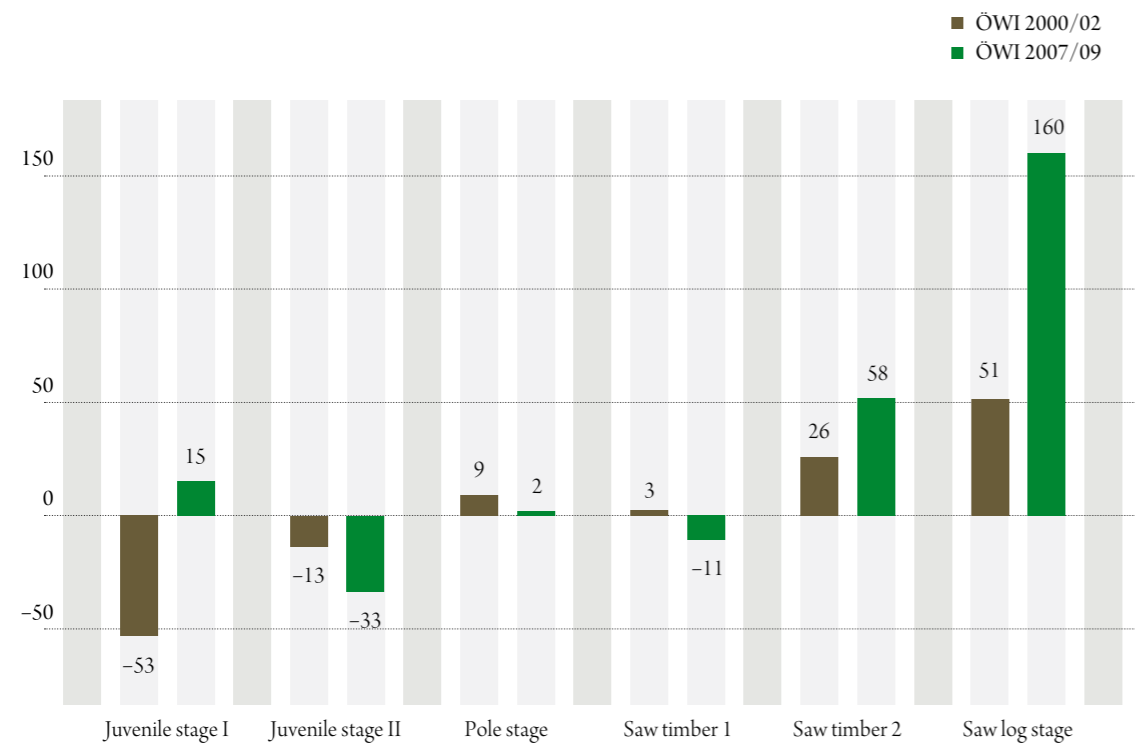


Figure 5 | Source: ÖWI 2007/09, BFW 2014

Growing stock by forest management system

in million cubic metres over bark

	Production forest	Protection forest with yield	Land and wetlands
	High forest	High forest	Coppice stands
Private forest	640,434	31,706	7,162
200–1,000 ha	86,291	13,748	2,990
> 1,000 ha	163,928	19,351	3,434
Regional authorities	21,769	4,115	499
Enterprises	271,988	37,214	6,923
ÖBfAG	117,396	21,667	290
Total	1,029,819	90,587	14,375

Table 1 | Source: ÖWI 2007/09, BFW 2014

INDICATOR 1.3: AGE STRUCTURE AND DIAMETER DISTRIBUTION

The graphics of the growing stock and the number of stems in commercial forests illustrates the distribution of these categories with respect to age classes and shows their development from 1992/96 to 2007/09 (Figure 6). During all periods of inventory the clearly highest number of stems was found in the age class from 21–40 years. From this peak, the number of stems proved to decline continuously with growing age; in the age class of 41–60 rising numbers of stems were

observed over the inventory periods 1992/96, 2000/02 to 2007/09.

In the age class 1 — 20 years the number of stems and the growing stock went down. For all other age classes under 121 years as well as for reserved trees and wolf trees, the growing stock increased compared to the preceding periods of inventory. In the age classes above 121 years, the growing stock decreased slightly.

Development of growing stock and number of stems in commercial forests

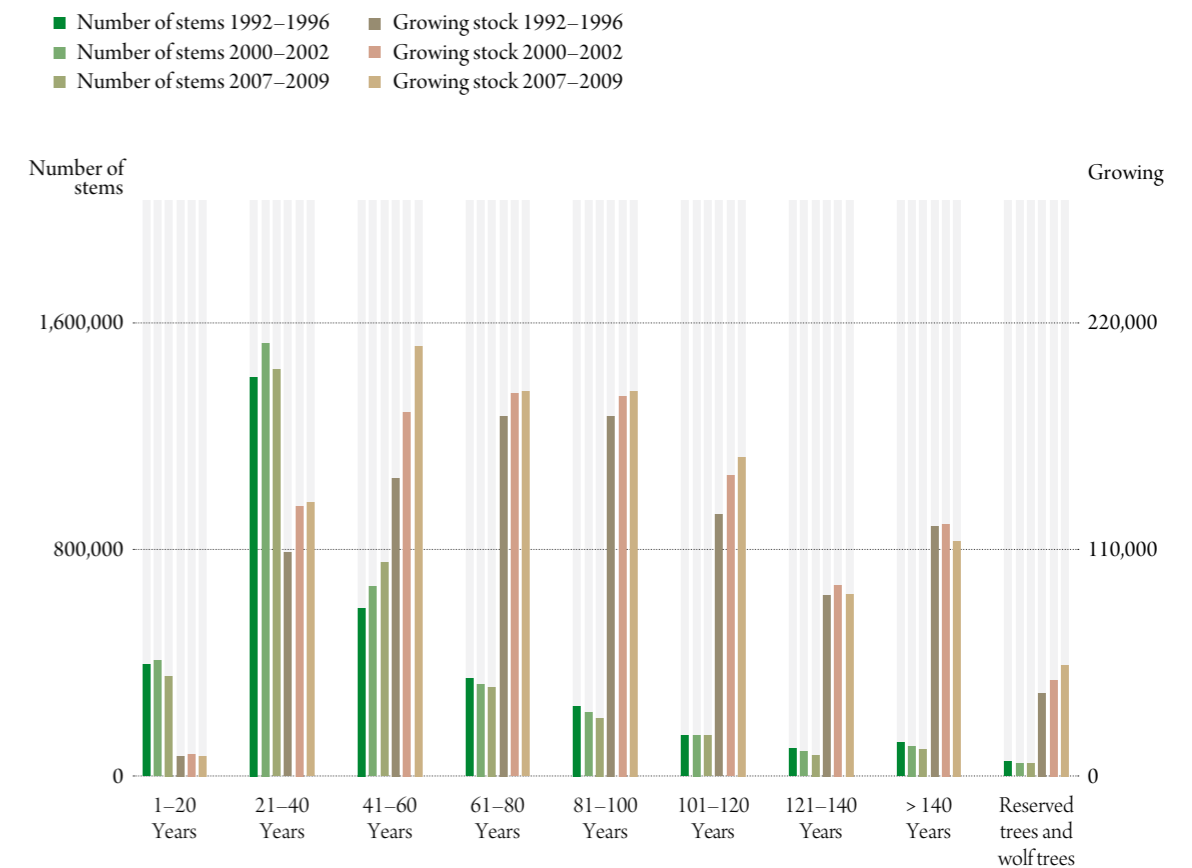


Figure 6 | Source: ÖWI 2007/09, BFW 2014

INDICATOR 1.4: CARBON BALANCE OF AUSTRIAN FORESTS

Every year the signatories to the United Nations Climate Framework Convention have to report a national greenhouse gas emissions balance which comprises also the annual greenhouse gas emissions and sinks from the land-use sector (Sector 5, „Land Use, Land Use Change and Forestry“). The forest (Sector 5.A „Forest Land“) is part of this sector, as are the sub-sectors „Cropland“, „Grassland“, „Wetlands“, „Settlements“ und „Other Land“.

In earlier reporting years (1990 to 2011) Austria's forests (Sector 5.A „Forest Land“) represented an annual carbon sink (carbon uptake minus emission > 0) of between 1,410 Gg CO₂ and 19,592 Gg CO₂ (Figure 7). In terms of magnitude, this is equivalent to 2–25 % of

Austria's annual greenhouse gas emissions. A retrospective calculation back to the year 1961, the first year with available forest inventory results, manifests that the Austrian forest biomass provided a carbon sink even before the 1990 period. Figure 7 also shows that the carbon balance of the Austrian forests is the by far most important factor of influence on the greenhouse gas balance of the entire land-use sector.

These estimates for the Austrian forest, illustrated in Figure 7, include the increase and decrease in biomass and deadwood calculated on the basis of the results of the Austrian Forest Inventories of the BFW (Federal Research and Training Centre for Forest, Natural Hazards and Landscape) and, for the first time, also the change

Annual net carbon balance in Austria's entire land-use sector and in Austrian forests

(– sink, + emission)
 in Gg CO₂ equivalents

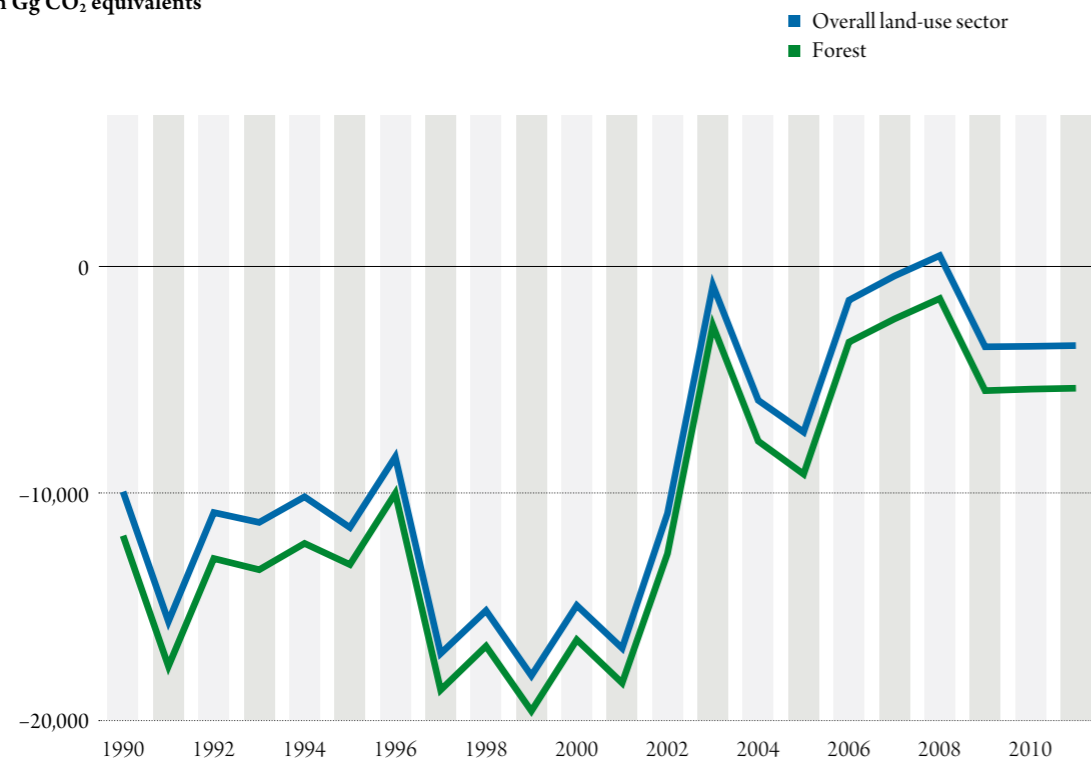


Figure 7 | Source: Federal Environment Agency 2014

in forest soil carbon as determined by a modelling study carried out by the BFW. Carbon losses on areas no longer used for forestry (e.g. deforestation) are not considered in the estimates, as they have to be reported in the sub-sectors of the utilisations succeeding forests.

Due to the higher degree of utilisation, the net sink of Austrian forests has, over the past few years, clearly decreased compared to the figures of the nineteen nineties. However, the use of timber has more than just one impact on the Austrian greenhouse gas balance. It influences

1. the balance of the Austrian forest;
2. the balance of the stocks of timber products from domestic felling (sawnwood, panels, paper), which have increased in recent year and thus represent a sink; and
3. the indirect impacts of timber products on Austria's greenhouse gas balance which are

due to the substitution of products made of other raw materials which involve different greenhouse gas emissions compared to the wood-made products.

In on-going projects conducted by BFW, the University of Natural Resources and Applied Life Sciences (BOKU) and the Federal Environment Agency these different direct and indirect contributions of the Austrian forest to Austria's greenhouse gas balance are quantified for the first time.

Pursuant to the negotiating decisions of the recent climate conferences, the sinks/emissions of forests and timber products from domestic felling must in the second commitment period of the Kyoto Protocol, 2013 to 2020, mandatorily be considered in the balancing for the national reduction target. However, it is not the absolute value of these sinks/emissions that counts, but the difference to a reference value calculated for 2020 using the business-as-usual until 2010. Furthermore, any creditable sink is capped by means of an upper limit.



An aerial photograph of a dense forest of tall, thin trees, likely spruce or fir, covering a hillside. The trees are a vibrant green color, and the perspective is from a high angle, looking down on the forest canopy. The text is overlaid on the upper left portion of the image.

CRITERION 2: MAINTENANCE OF FOREST ECOSYSTEM HEALTH AND VITALITY

THE HEALTH AND VITALITY OF FOREST ECOSYSTEMS DEPEND ON ABIOTIC, BIOTIC AND MAN-MADE DAMAGE EVENTS AND ON ENVIRONMENTAL CHANGE. Indicators of this criterion describe how these factors affect forest ecosystems and allow for an assessment of their damage, respectively their health and vitality. Austria's forests are basically in a good condition, but their health and vitality depend on different factors. Essential indicators include air quality, soil condition and defoliation.

INDICATOR 2.1: DEPOSITION OF AIR POLLUTANTS

In Austria, the air pollutants ozone, nitrogen oxides, sulphur dioxide, inputs of nitrogen, acid and sulphur as well as localised hydrogen fluoride, ammonia and heavy metal inputs place a burden on the forest. The impacts of laughing gas (greenhouse gas) and volatile organic components are less important. The threat posed to forests by pollution has been documented by the results of research work, intensive forest monitoring, the bioindicator network and expert activities of the Federal Research and Training Centre for Forest, Natural Hazards and Landscape (BFW). Measurements of bioindication, air pollutants and deposits show that despite significantly reduced emissions — above all of sulphur — forests are still under stress.

RESULTS OF THE SURVEYS OF DEPOSITION AND AIR QUALITY

Since 1995 the intensive observation plots of the pan-European forest monitoring have provided high-quality and Europe-wide harmonised data on the vitality and adaptability of trees, on nutrient cycles, critical stress rates and the water balance. These data enable statements on climate change, air pollution, biodiversity and the status of forests. Moreover, the studies also provide high-quality data which can be used to assess the environmental situation and the development of forests at the European level. Every year the data are sent to the Programme Coordinating Centre (PCC) of ICP-Forests¹³ and the results are

Sulphur inputs in stands on the 16 Level II intensive monitoring plots from 1997 to 2012

S inputs in stands in kg/ha/a

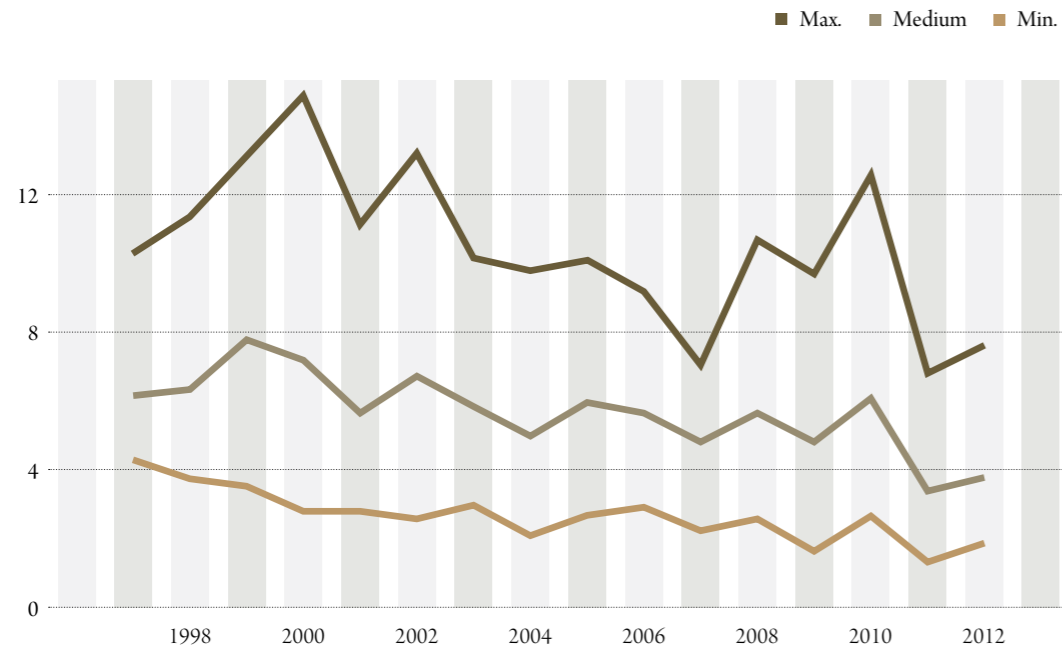


Figure 8 | Source: BFW 2014

published in the joint annual forest condition reports of ICP-Forests and the European Commission.

Most of the intensive observation plots of the European forest damage monitoring are forest sites located at a distance from industrial terrain, where measurements of the overall depositions have been carried out since 1996, both in stands and on nearby open areas (<http://www.waldmonitoring.at>). Since 1997 there has been a clear fall in sulphur inputs both as regards the Austrian average and the minimum and maximum values. The variation in the annual averages in stocks ranges from 12 to less than 2 kg of sulphur per hectare and year. For the overall mean of all plots a reduction by about 1 kg/ha/yr over the observation period is realistic.

The total nitrogen inputs in stocks range between 3.1 and 10 kg N/ha/a; only at the Mondsee plot values

exceeding 29 kg N/ha/a were found in 2012. The overall inputs include nitrogen oxides from incineration and ammonia released from agricultural operations. Due to these agricultural inputs the highest values of nitrogen inputs Austria-wide, over 40 kg of nitrogen per hectare and year, were measured on the open area at Unterpullendorf in the past two years.

In the years surveyed, both the ozone and the nitrogen oxide values of the passive collectors showed a distinct, seasonally contrary development: The highest ozone levels occur in summer — a consequence of the stronger global radiation and also depending on the sea level (Level II plot Murau) whilst, due to the heating season, the levels of nitrogen oxides were highest in winter at locations close to settlements and affected by inversion (Level II plot Müzzuschlag). In all, both the ozone and the nitrogen oxide levels are relatively low. At all plots the sulphur dioxide levels were constantly rather low

Nitrogen inputs in stands on the 16 Level II intensive monitoring plots from 1997 to 2012

N inputs in stands in kg/ha/a

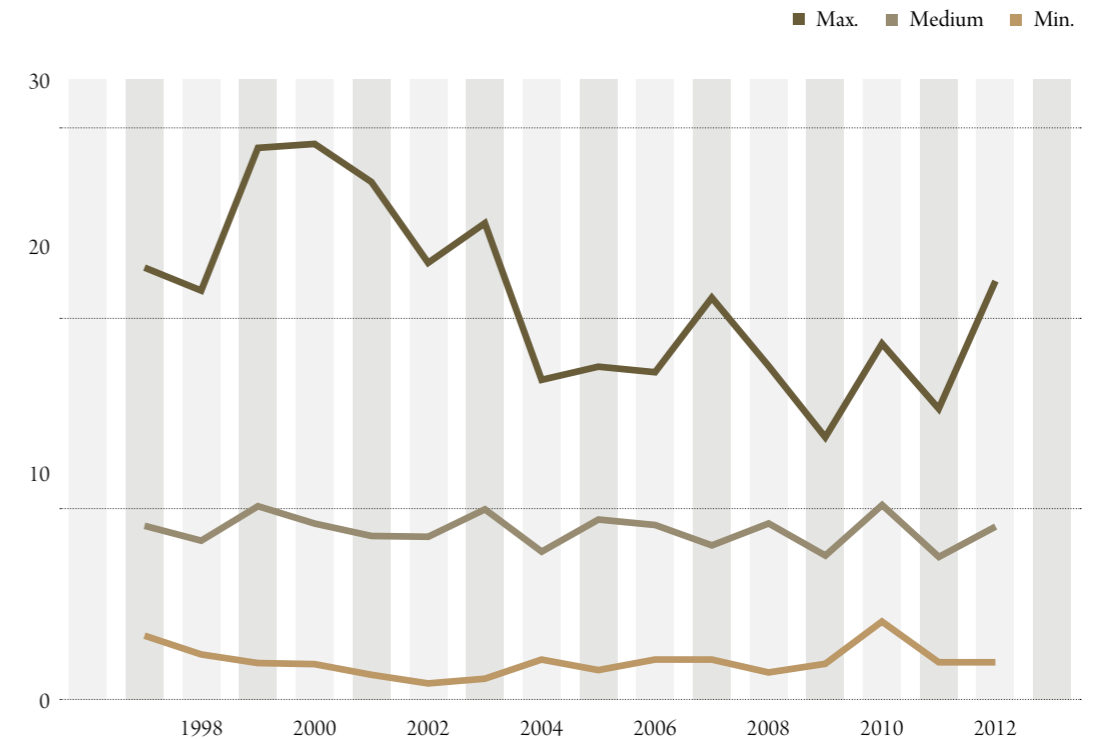


Figure 9 | Source: BFW 2014

13) International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests der UNECE: <http://icp-forests.net>

during the observation period and more than 40 % were even below the detection limit. In view of the very low rates — but also for financial considerations — these measurements were abandoned as from 2011.

ANALYSES OF NEEDLES AND LEAVES (BIO-INDICATION)

All over Austria bio-indication (Austrian Bio-indicator Grid (<http://www.bioindikatornetz.at>) is used to determine the impacts of sulphur, fluoride, chlorine and ammonia pollution as well as the heavy metal inputs on forests and to survey the nutrient supply of forest trees.

The studies carried out in the Austrian Bio-indicator Grid from 1983 to 2012 show that the sulphur limits for spruce needles are still exceeded in parts of Austria (since 2000: 5–10 % of the test sites). Improvements

compared to the time before the year 2000 were found in the north of Austria (Waldviertel) as well as in the south-east of the federal territory. In 2012 impacts of sulphur pollution were noticeable in Burgenland, in the east and south of Styria, in the area around Linz, in the area of Passau, in the Vienna Woods, in the Lavant Valley, and at a few sites of the Inn Valley.

Analyses of the nutrient content of needles showed deficient supply in most cases, notably as regards nitrogen: About 46 % of the sites displayed a nitrogen deficiency in 2012. Furthermore, phosphor deficiency was found at 15 % of the test sites — and the trend has been rising in recent years. All other nutritional elements investigated (K, Ca, Mg, Fe, Mn, and Zn) displayed a deficiency rate of less than 5 %.

For the first time in Austria the mercury level in leaves and needles of forest trees was determined area-wide.

Distribution of sulphur load in the Austrian Bio-indicator grid in 2012

Mercury contents in needle set 1

- Significantly below the limit
- Below the limit
- Above the limit
- Significantly above the limit

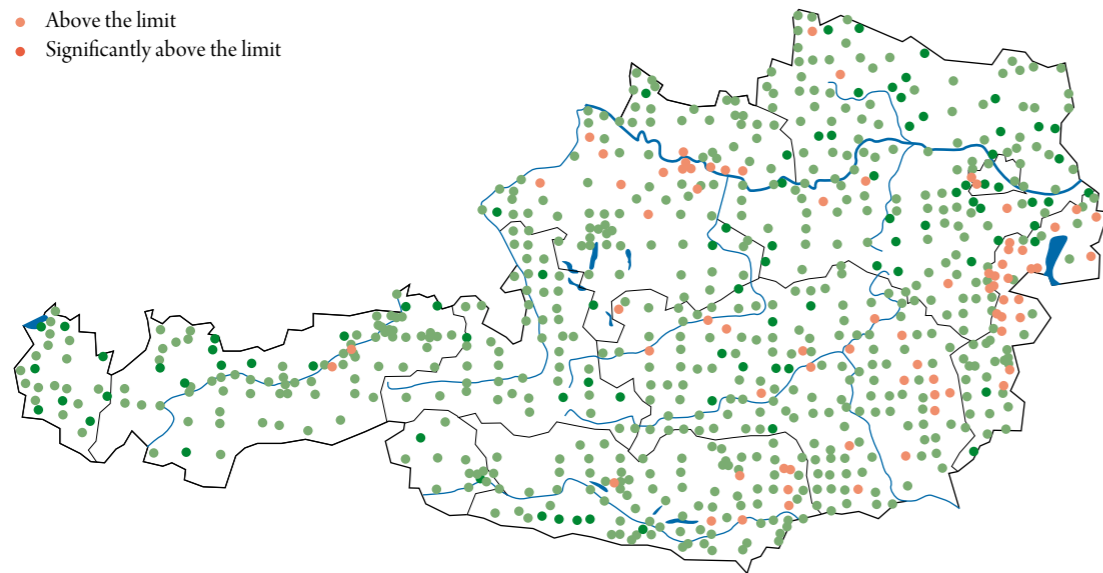


Figure 10 | Source: BFW 2014



The acutely toxic heavy metal is found above all near ore-sintering plants (crude iron extraction), former chlorine-alkali-electrolysis installations, near mercury-containing excavation material from mining (soil outgassing) and close to brick and cement factories. Thanks to the possibility of examining retained laboratory samples of the years 1986 and 1996, a clear reduction of the mercury level was identified.

In addition to the Austria-wide determination of air pollutants through needle/leaf analyses these bio-indication data also provide a vital component for expert forestry opinions of the provincial forest authorities in forest-relevant proceedings as well as in proceedings under the

mining, the waste management and the trade law. Currently 70 industrial enterprises and other emitters are being supervised by local bio-indicator grids to determine any (forest-affecting) air pollution.

STATUTORY PROTECTION OF THE FOREST

The statutory protection of forests against the impacts of pollution is presently inadequate. The Second Ordinance against Forest-Damaging Air Pollutants sets out limits concerning air pollution by sulphur dioxide, hydrogen fluoride, hydrogen chloride and ammonia, but statutory limits for ozone, limits for combination effects from harmful gases, and limits for heavy metal levels in leaves and needles are missing.

Distribution of the mercury contents in the first needle set in 2012

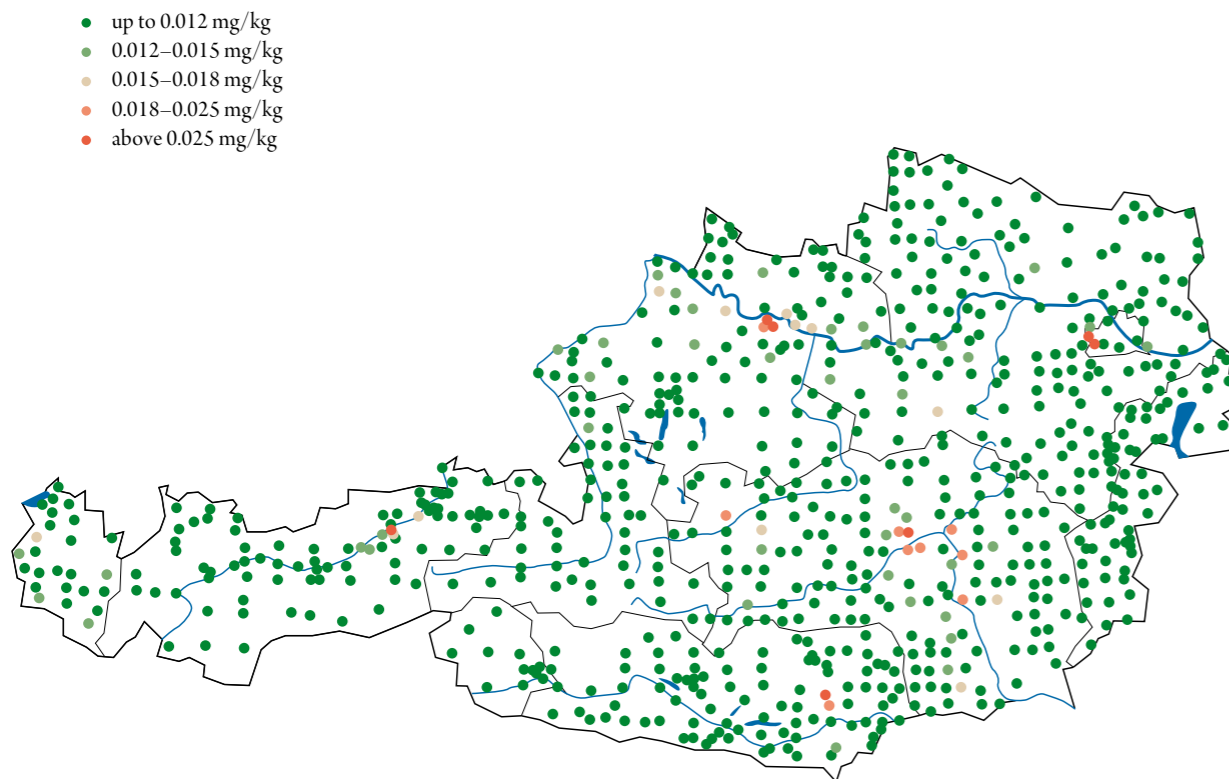


Figure 11 | Source: BFW 2014



INDICATOR 2.2: SOIL CONDITION

The data collated in the Austrian Forest Soil Condition Inventory (“Waldboden-Zustandsinventur”, abbreviated “WBZI”) during the 1987–1989 period still serve as a basis for many questions of a scientific, environmental, political or forestry-related nature. As soil changes very slowly, short- to medium-term surveying intervals (intervals of about two to five years) do not appear to be useful. In addition, the small-scale variability of forest soils is usually very high; therefore

any changes occurring within shorter periods of time are likely to be covered up by the “noise” of this small-scale variability.

At the European level, the EU in 2005, about ten years after the initial survey, commissioned a repeat performance of the European forest soil monitoring within the scope of Forest Focus (Project “BioSoil”). Therefore, all of the 139 Austrian sites included in the European

forest soil network were sampled again in Austria between 2006 and 2007. In terms of environmental policy the primary objective of this pan-European survey was to determine the current condition of forest soils and to identify changes in condition that are taking place very slowly.

The terrain survey and the analyses were conducted using uniform pan-European methods. Comparability of the analysis results with the results of the initial survey was guaranteed by re-analyses of the "old" samples from the initial survey. These and other measures made it possible to perform European forest soil monitoring at a high quality level and with comparability in terms of time and space. The analyses were completed in 2008; the data were published by Mutsch et al. (2013). In order to obtain an overview of the range of the data from chemical analyses in Austria, characteristic statistical values were described by parameter and for different depths, and for this purpose were broken down by soils influenced by silicates and by carbonates.

In a comparison, the pH and the base saturation, a key parameter of soil fertility, indicate more favourable conditions in the topsoil. Other than in the case of heavy metals, the trend thus identified cannot be assigned to a clear cause. Another question that cannot yet be answered relates to the impact of the nitrogen input which still exists. Due to the marked spatial variation it has not been possible to assess the change in the carbon content.

In a comparison with the results of the Forest Soil Condition Inventory („WBZI“) the following has been found: As regards heavy metals, in particular lead and cadmium, a reduction of concentrations was found at virtually all of the sites. This concerned above all the topsoil, i.e. the mineral soils up to a depth of 20 cm. Only for cadmium which, compared to lead is mobile in the soil at higher pH values (pH 6.5), the reduction of the concentration was in some cases proved also in deeper soil layers. These reductions show the positive impact of environmental policies.

Change in lead content in different soil horizons

Difference in Pb concentrations (mg/kg) from the analyses of the BioSoil project (2006/2007) and the Forest Soil Condition Inventory (1987/1989)

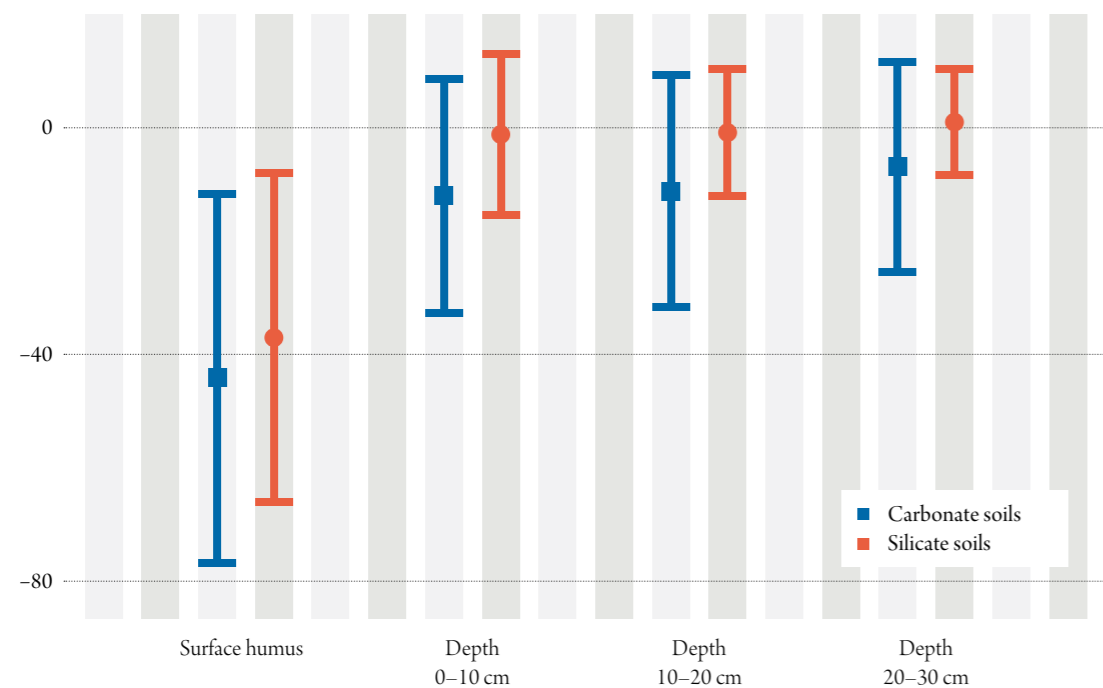
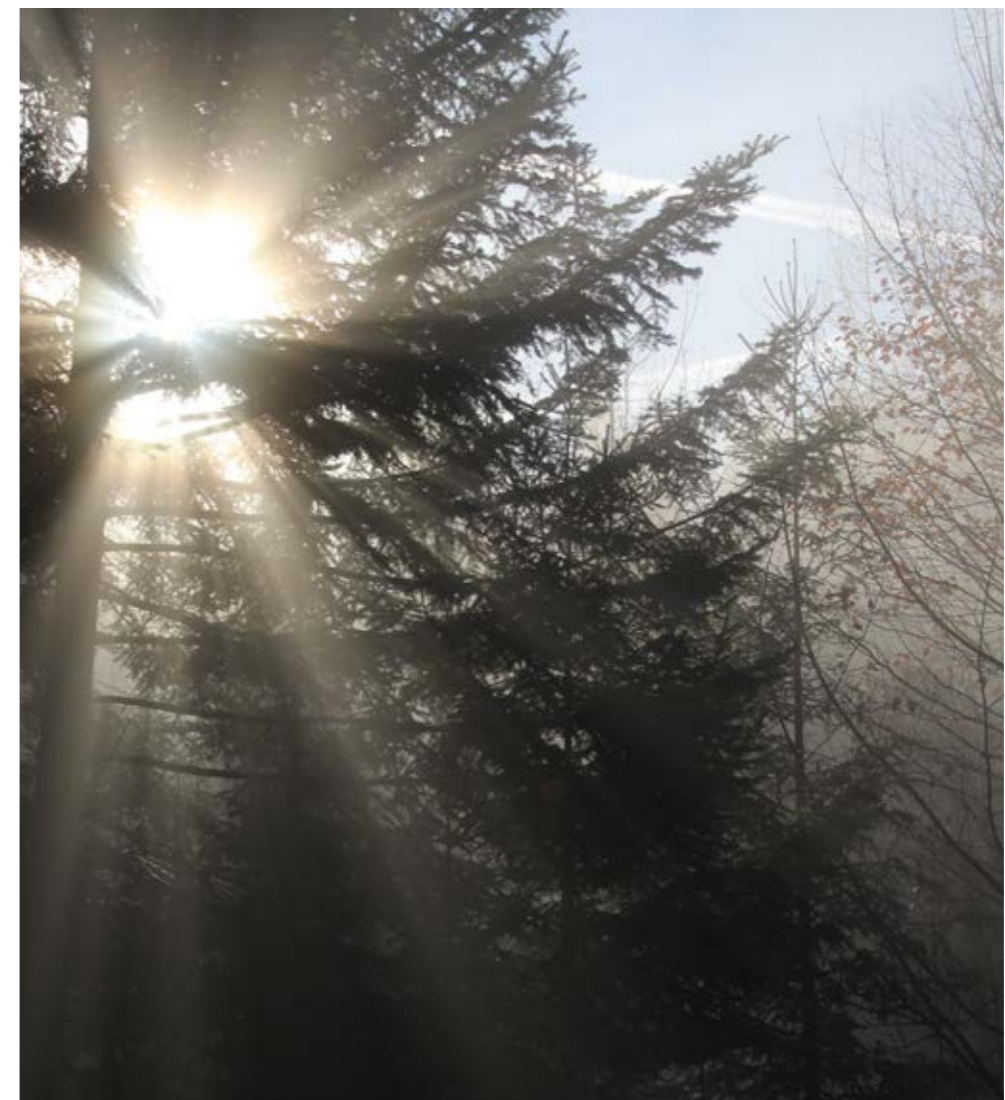


Figure 12 | Source: BFW 2014

INDICATOR 2.3: DEFOLIATION

Surveys of the crown condition (survey of needle and leaf loss) have been conducted in Austria annually since 1984 in the framework of the national monitorings. From 2003 onward, the annual crown condition surveys have been reduced to the transnational grid using a uniform pan-European grid width. In accordance with EU Regulations annual crown condition surveys in the European transnational grid were obligatory for all Member States until 2006. Due to the expiry of EU Regulation no. 2152/2003 and the discontinuation of co-financing associated

therewith, these surveys were stopped as from 2007. In 2010 they were once repeated within the framework of the LIFE+ project „FutMon“. Accordingly, 14.2 % of the trees monitored were classified as „damaged“, „damaged“ being defined as showing a needle/leaf loss of over 25 %; compared to the previous survey, conducted in 2006, this was a minor reduction by 0.8 percentage points, but these results can be interpreted only in a transnational context and cannot be considered as representative of the entire national territory.



INDICATOR 2.4: FOREST DAMAGE

From the point of forest protection, the most significant features of the reporting period were several large-scale forest damage events caused by storms, followed by an increase in damage caused by bark beetle and the rapid spreading of the ash dieback. In addition to the known problems of forest protection, also a few new pests — or pests that had not been found for a longer time — were observed in Austrian forests between 2007 and 2013. Below, we will report on them.

WEATHER AND ABIOTIC DAMAGE

In 2007 the hurricanes „Franz“, „Kyrill“ and „Olli“ caused severe wind throw and windfall damage, especially in Lower Austria, Upper Austria, Salzburg, and Styria.

Austria-wide the abiotic damage totalled over 9 million cubic metres. As a result, forest enterprises were at a stage where the volume of beetle-infested wood decreased slightly but was still at a record high and thus faced a huge challenge. Exactly in the subsequent year, 2008, even more serious damage was caused by storms: In late January and early March the hurricanes „Paula“ and „Emma“ swept across Austria and left 9.8 million cubic metres of damaged wood. The damage caused by late frost, frost draught and freeze-thaw alternation differed between regions; altogether, approximately 2,000 hectares were affected.

In 2009 temperatures were about 1°C above the long-term average in Austria. In winter particularly large quantities of snowfall were observed in the Northern Alps. About 414,000 cubic metres of damaged wood

Development of wood quantities damaged by bark beetle, storm and snow

in million cubic metres (m³) of timber harvested

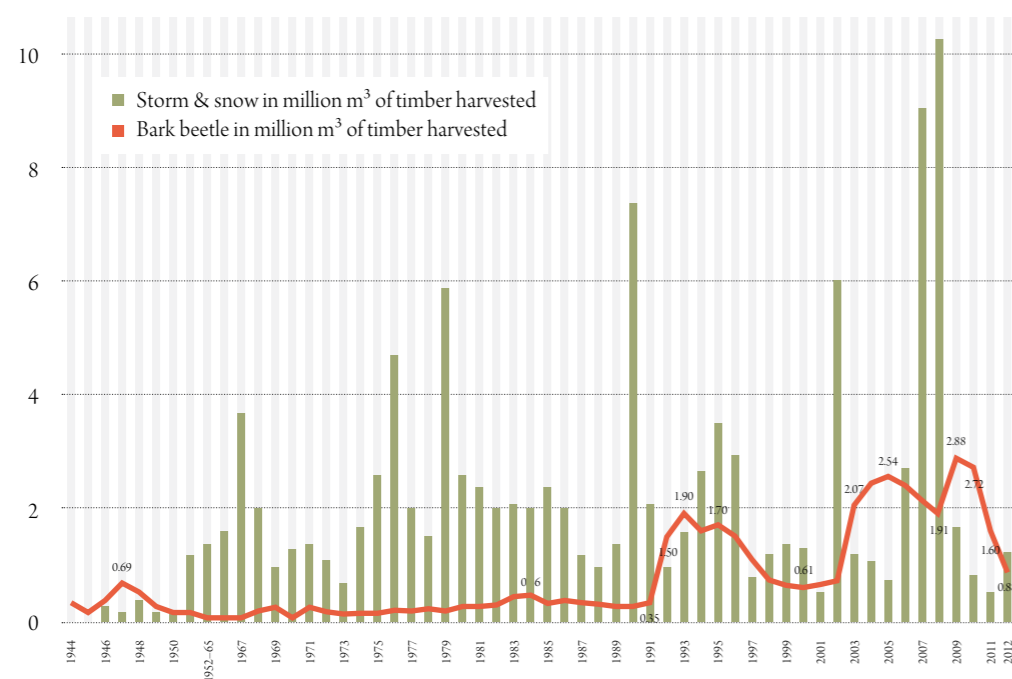


Figure 13 | Source: Documentation of forest damage factors, BFW 2014

were caused by snow breakage; in addition, unusually significant damage (112,000 cubic metres) was caused by avalanches. The damage due to windfall amounted to 1.3 million cubic metres.

2010 was a humid and cool year. The winter 2009/2010 was extremely cold; the snow cover remained for a long time. The damage due to snow and avalanches decreased markedly (155,000 cubic metres). The damage caused by windfall amounted to about 0.7 million cubic metres, thus decreasing far below the record quantities of the years from 2006 to 2008.

According to the „Zentralanstalt für Meteorologie und Geodynamik“, ZAMG (Central Institute of Meteorology and Geodynamics), 2011 was the sixth-warmest year since the temperature records of 1767 with a deviation of 1.2°C and proved to be particularly dry. Frozen soils, combined with low precipitation and high amounts of sunshine led to damage due to frost draught especially in the forest areas north of

the Alps and in Eastern Austria. The dry weather conditions in spring together with temperatures of up to 30°C in April caused high failures in afforestation. In May, temperatures dropped clearly below freezing point in some regions, the consequence being damage caused by late frost, especially in the northern and (south-) eastern parts of the country. Abiotic damage due to snow, avalanches and storm was at the lowest level since over 40 years in 2011. However, thunderstorms led to comprehensive hailstorm damage in forests (about 6,300 hectares) and surrounding cultivated landscapes.

In 2012, abiotic damage considerably increased again: Together, the damage caused by snow and wind amounted to 1.2 million cubic metres. Temperature development showed a plus of 1.1°C above the long-term average. As in the preceding year, late frosts caused considerable loss again in September 2012. February and March were far too dry but taking everything into account total annual precipitation was (very) high. Numerous and strong storms during the vegetation

Development of wood quantities damaged by bark beetle in the Federal Provinces

in cubic metres of timber harvested

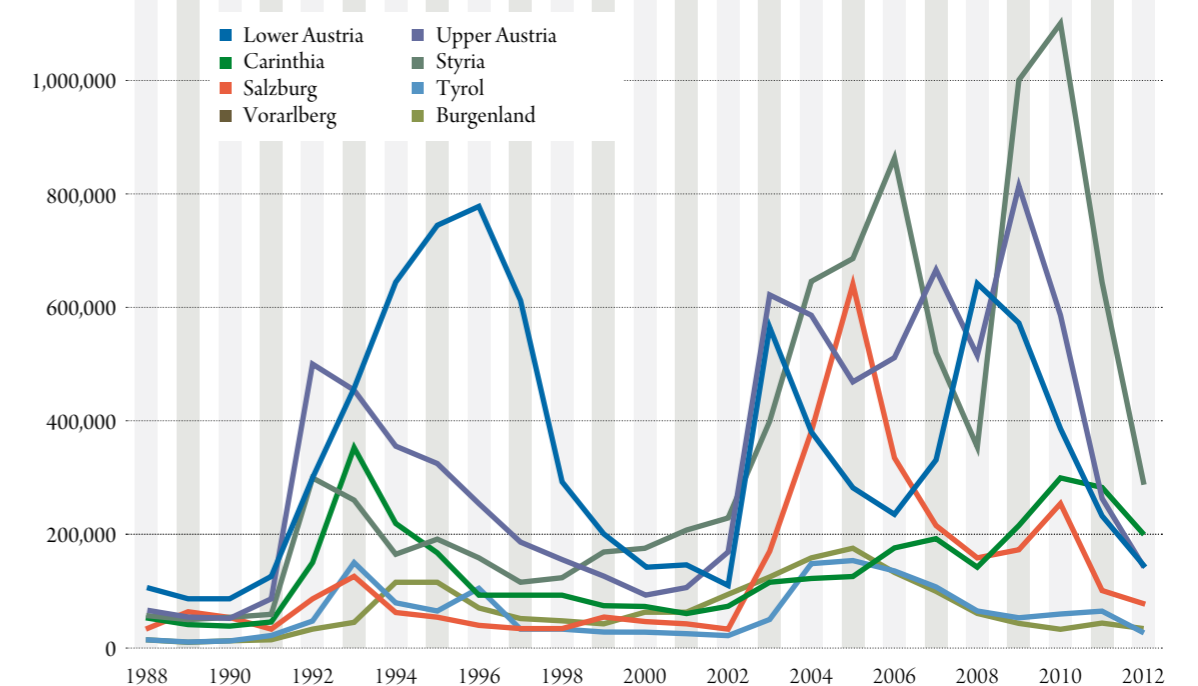


Figure 14 | Source: Documentation of the forest damage factors, BFW 2014

period led to a slight increase in the damage due to hail and to significant increases in the damage caused by mudflow.

2013 was the ninth-warmest year since the start of records 246 years ago; a deviation of plus 0.5°C compared to the multi-year average was measured. Precipitation showed extreme differences over the year. May 2013 was the wettest May since the year 1965; shortly after that, the month of July was the driest July recorded since the start of precipitation measurements in 1858. The wet spring weather had two consequences: On the one hand, the good supply with water strengthened the vitality and the general condition of trees in forests; on the other hand, leaf and needle diseases were frequent and severe. Considerable abiotic damage was caused by summer storms/thunderstorms. In the western Provinces and in Styria a great number of trees were broken by snow at the onset of winter in early October.

BARK-BREEDING AND WOOD-BREEDING BEETLES

Among the forest-damaging insects the most prominent ones were again spruce bark beetles, above all the eight-toothed bark beetle (*Ips typographus*), followed by the copper engraver (*Pityogenes chalcographus*). As late as in 2011 the long-awaited easing of the tense situation was seen. The decline in the quantity of damaged wood to 1.6 million cubic metres was significant. The all-Austrian decline in damage caused by bark beetles continued in 2012; for the first time since 2002 figures fell — with 880,000 cubic metres — below the million level again. The decline might have been due to several factors: After 2008 the volume of wood damaged due to storm and snow proved to be smaller; in 2011 it was with 530,000 cubic metres at the lowest level of the 40 years before. Furthermore, greater use of wood was made over the years before; due to the high level of demand and under the impression of the long-term calamity, greater attention was probably paid to bark beetle control. Last but not least it is also possible that after many years of mass propagation natural 'antagonists' of the beetles responded and had a reducing effect. Other bark beetle species were considerably behind the levels of *Ips typographus* and *Pityogenes chalcographus*.

In 2009 and 2010 the damage caused by fir bark beetle was slightly higher, but decreased again in 2011. Pine bark beetle and large brown pine weevil became increasingly conspicuous over the past years.

The invasive Asian long-horn beetle (*Anaplophora glabripennis*) is considered to be eradicated in Braunau, where no new signs of infestation were detected for four years. However, in 2012 a new incidence of infestation was identified in Upper Austria, near Geinberg (district of Ried im Innkreis), and in fall 2013 a new site of attack with many severely infested trees was detected at Gallschach (district of Grieskirchen).

LEAF- AND NEEDLE-FEEDING INSECTS

In Lower Austria, in parts of Upper Austria as well as in Carinthia, cockchafer species (forest cockchafer — *Melontha hippocastani* and dorbeetle — *Melontha melolontha*) increased. However, they caused problems for forestry only in the eastern parts of Lower Austria and, as a result of mass propagation of *Melontha hippocastani*, in the Danube wetlands near Stockerau and Tulln. In summer 2009 eating damage by fall webworm (*Hyphantria cunea*) was detected. Several times Japanese oak silk moth (*Antheraea yamamai*) was observed in warmer regions of Styria and in Burgenland. In fall 2009 needle discolouration in spruce was detected especially in some regions of Carinthia and Styria as a result of the feeding damage inflicted by the caterpillars of common spruce bell (*Epinotia tedella*). Among the leaf-feeding butterflies the population densities of winter moth species and the species associated with them increased in 2012. However, large areas affected by feeding damage were observed as late as in 2013 only.

The little spruce sawfly (*Pristiphora abietina*) was active in 2011, but saw a decline again after that. In 2012, damage by mountain spruce sawfly (*Pachynematus montanus*) was unexpectedly found in spruce forests. In 2013, a striking mass propagation of the spruce webworm *Cephalcia abietis* occurred on about ten hectares of the Waldviertel region.

Short-rotation areas are more frequently affected by pests, but so far without lasting damage to plantations.



Problems are presently caused by lesser willow sawfly (*Nematus pavidus*) as well as by leaf-eating beetles like red poplar leaf beetle (*Chrysomela populi*) and by leaf rust fungi.

In 2009 and 2010 an increase in the numbers of larch with browning (sometimes as early as in the initial phase) and sparse crowns was observed in some regions of the Provinces of Styria, Salzburg, Carinthia, Upper and Lower Austria. Investigations showed that the damage was due to different clusters of factors. In almost all cases larch-bud gall midge occurred frequently (*Dasineura kellneri*). In addition, larch casebearer moth (*Coleophora laricella*) and larch needle adelgid (*Adelges species*) were involved in the crown thinning. In a second step, larch capricorn (*Tetropium gabrieli*) was able to colonise weakened trees. Other factors of significance were, to different extents, the fungi *Merialaricis*, *Mycosphaerella laricina* and *Hypodermella laricis*, which cause needle shedding, as well as certain climatic factors, above all frost events.

In 2011 beech gall midge (*Mikiola fagi*) occurred frequently in some stands. However, more intense leaf damage materialised only where woolly beech aphid (*Phyllaphis fagi*) and beech leafminer (*Rhynchaenus fagi*), which in some places occurred rather frequently also in 2013 were involved at the same time.

Two North American pests managed to become established in Austria in recent years: Locus gall midge (*Obolodiplosis robiniae*) has already spread heavily in some parts of eastern Austria. Western conifer seed bug (*Leptoglossus occidentalis*) has successfully colonised large parts of the federal territory. In Austria, it has so far been more of a nuisance pest during their search for a place to stay in fall, when many individuals enter residential buildings. So far, the bug has not been active as a real pest infesting seeds and needles in Austria.

DAMAGE CAUSED BY SMALL MAMMALS

Damage due to small mammals is basically found during the entire reporting period — usually in small areas, but often very intensely. Damage is above all caused by voles, dormice, hares, rabbits, but along riversides also

by beavers. Damage by beaver is not only due to feeding; rather, also floods caused by dams they build can give rise to severe damage in forests.

FUNGAL DISEASES

Since 2006 the most prominent fungal disease of forest trees has been the Chalara ash dieback. The fungus (*Hymenoscyphus pseudoalbidus*) is extremely invasive and, by means of airborne spores, has spread over the whole European continent. The dieback occurs in ash trees of all age classes and infests natural stands just as much as plantations. Meanwhile all Austria is hit by the dieback of ash. Fortunately, thanks to a genetically stable resistance hardly affected or unaffected ash trees are found amid stands dying back, even though at different frequencies. In forest management, the recommended practice is the promotion of this natural selection as well as the afforestation with plant material guaranteed to be resistant.

Other fungi occurred in the following hosts:

- Phytophthora disease (*Phytophthora alni*) in black alder (*Alnus glutinosa*) and grey alder (*Alnus incana*)
- Spruce needle rust (*Chrysomyxa rhododendri*) in spruce (*Picea abies*)
- Dothistroma needle blight (*Mycosphaerella pini* as well as *Dothistroma pini*) in European black pine (*Pinus nigra*), Scots pine (*Pinus sylvestris*), mountain pine (*Pinus mugo*) and arolla pine (*Pinus cembra*)
- Diplodia disease of pine (*Sphaeropsis sapinea* = *Diplodia pinea*) in European black pine (*Pinus nigra*) and Scots pine (*Pinus sylvestris*)
- Annosum root rot (*Heterobasidion annosum*) in spruce (*Picea abies*)
- Larch cancer (*Lachnellula willkommii*) in larch (*Larix decidua*)

GAME

According to the Austrian Forest Inventory (ÖWI) game damage has, on average, remained the same at the federal level: It remained stable at a high level. Major problems are the segregation caused by selective browsing, the loss of stabilising species and the increasing regeneration deficit in protection forests.

According to the game impact monitoring almost two thirds of the Austrian districts have a high level of game impact (severe game impact on over 50 % of the areas); in almost one quarter of the districts the level of game impact is very high (severe game impact on over 75 % of the areas). Compared to the survey period 2004–2006 the trend is rising. In one third of the districts the results deteriorated significantly, in one fifth they improved significantly.

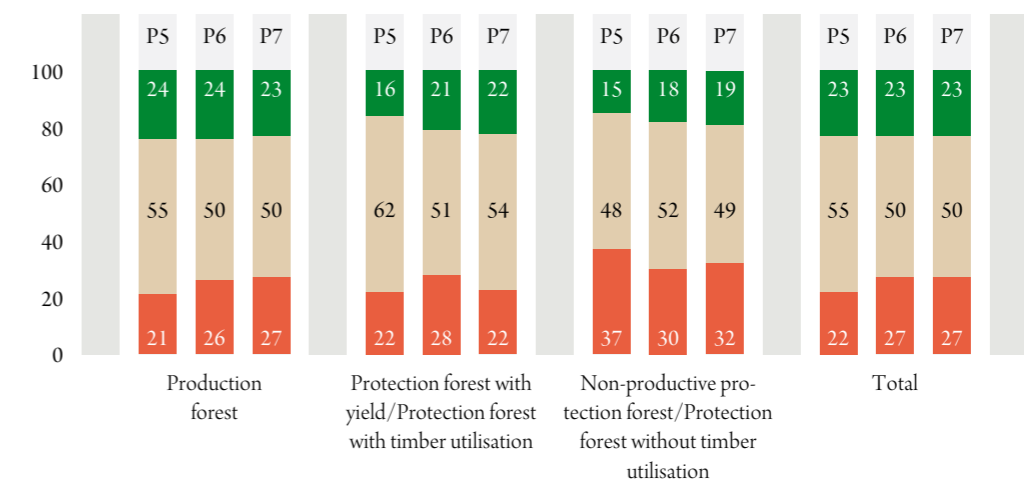
Austrian Forest Inventory — Time series of the evaluation of damage caused by game

in percent

■ No damage by game
 ■ Damage by game from browsing parameters
 ■ Damage by game from target / actual comparison

P5 – ÖWI period 5 (1992–1996)
 P6 – ÖWI period 6 (2000–2002)
 P7 – ÖWI period 7 (2007–2009)

Damage by game by type of management — Regeneration needed and undertaken



Damage by game — Forests where regeneration is required and undertaken

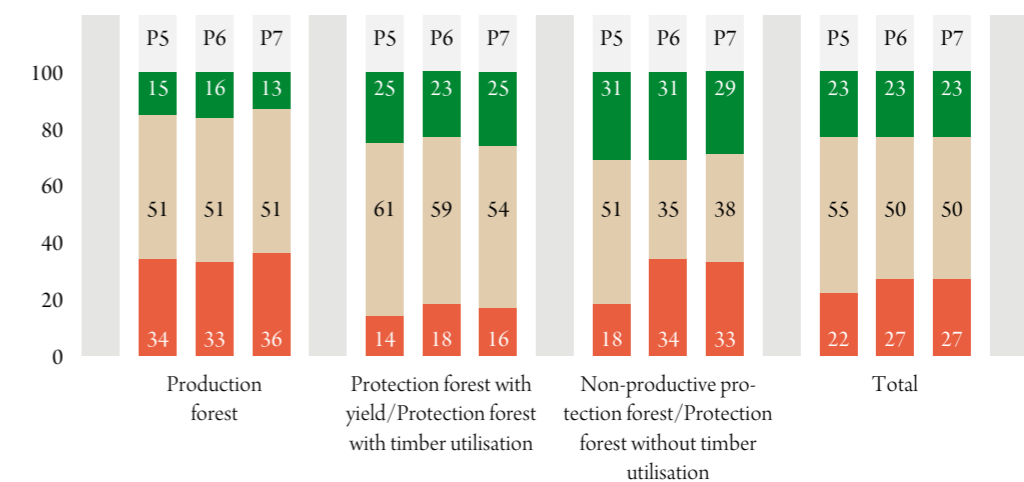



Figure 15 | Source: ÖWI 2007/09, BFW 2014



CRITERION 3:
MAINTENANCE AND
ENCOURAGEMENT OF
PRODUCTIVE FUNCTIONS
OF FORESTS (WOOD AND
NON-WOOD)

THIS CRITERION DEALS WITH THE ECONOMIC BENEFIT OF FOREST RESOURCES.

It illustrates the wide range of forest products and services offered as well as the sustainable production and harvest. Forest planning is to ensure that future generations will have the same management options as we have today. Forests have to fulfil a great number of functions. A vital one is their economic function which is reflected in the economic productivity. In addition to the classic production of wood, we have to look at the marketing of non-wood products and services.



INDICATOR 3.1: INCREMENT AND FELLINGS

According to the Austrian Forest Inventory (“ÖWI”) 2007/09 the incremental growth in Austria’s forests amounts to about 30.4 million cubic metres over bark (m^3 o.b.) per year. Of this quantity, coniferous wood accounts for 24 million m^3 o.b. (79 %), the species represented most often being spruce with 20.1 million m^3 o.b. (66 %). Broadleaved trees contribute 21 % to the total increment; of this quantity; 1.1 million m^3 o.b. are softwoods and 5.2 million m^3 o.b. are hardwoods. With 52 %, or 2.75 million m^3 o.b., beech accounts for the major part in hardwoods.

Increment faces timber utilisation. According to the ÖWI 2007/09 the annual utilisation amounts to 26 million m^3 o.b. This proves the sustainability in Austrian forests. Data on the actual fellings, on the other hand, are collected annually by the Federal Ministry of Agriculture, Forestry, Environment and Water Management. The required data are obtained directly from forest owners. See the below info box as well as „Indicator 3.2 - Roundwood“.

Growing stock, increment and utilisation in Austria

in million cubic metres over bark

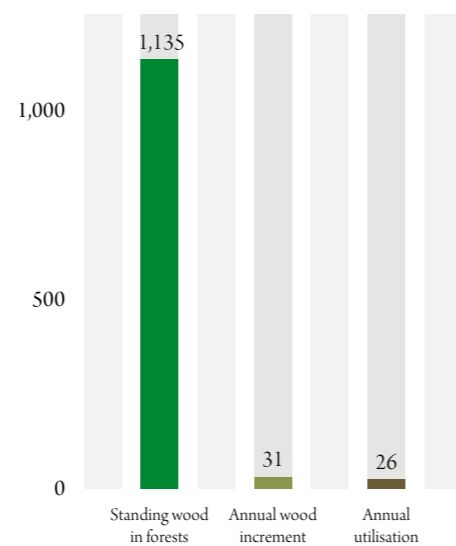


Figure 16 | Source: ÖWI 2007/09, BFW 2014

TIMBER FELLING REPORT

According to section 171 of the Austrian Forest Act the forest authority is obligated to conduct periodic (annual) timber felling surveys. The volume felled has to be reported annually and comprises the quantities of timber felled in the reporting year (between January 1 and December 31) and intended for sale, for own consumption or for the granting of wood supply rights. The data reported relate only to the quantities of timber felled/harvested from forest soils.

SURVEYING METHODS

The quantity of timber felled is surveyed using three different methods:

1) Sample survey

Sample surveys are presently carried out in the Federal Provinces of Carinthia, Lower Austria, Upper Austria, Salzburg, and Styria, in ownership category 1 (enterprises with forest areas < 200 ha). The total sample of which the sample enterprises are drawn comprises all enterprises with between 2 hectares and 200 hectares of forested land from the Agricultural Structure Survey 2010. The sampling plan used was drawn up by Statistics Austria based on the agricultural and forestry enterprises census.

The total sample of the enterprises corresponds to that of the Agricultural Structure Survey 2010.

2) Exhaustive survey

The exhaustive survey is conducted Austria-wide by survey district for all enterprises in ownership category 2 (enterprises with forest areas of 200 hectares or more, except for ÖBfAG); in the Federal Provinces of Tyrol and Vorarlberg exhaustive surveys by survey district are carried out in ownership category 1 as well. Österreichische Bundesforste AG (ÖBfAG) report their data directly to the Federal Ministry of Agriculture, Forestry, Environment and Water Management.

3) Estimate

Estimates of the timber felling report are made separately for the individual survey districts in the Provinces of Burgenland and Vienna, for ownership category 1. They are subject to expert assessments by the bodies of the district forest inspection.

The quantities of timber determined when determining the timber felled are given in cubic metres of timber harvested under bark, the utilisation determined in the ÖWI in cubic metres over bark (m^3 o.b.). These two figures are not directly comparable.





INDICATOR 3.2: ROUNDWOOD

Roundwood is the most important forest product in economic terms. Its production is surveyed by the Federal Ministry of Agriculture, Forestry, Environment and Water Management in the framework of the Timber Felling Report.

In 2013, the total quantity of timber harvested in Austria amounted to 17.39 million cubic metres of timber harvested under bark. It was thus 3.50 % below the value of 2012 (18.02 million m³ under bark), 1.94 % below the five-year average (5-Ø; 2009–2013, 17.73 million m³ under bark) and 5.42 % below the ten-year average (10-Ø; 2004–2013, 18.39 million m³ under bark).

The quantity harvested can be divided into two sectors: The amount serving material exploitation (sawnwood, industrial wood) with 12.43 million m³ timber

harvested under bark, and the amount used for the generation of energy (forest wood chips, fuelwood) with 4.96 million m³ of timber harvested under bark.

Private forest owners (forested area < 200 hectares) felled 10.31 million m³ under bark: 4.7 % less than in 2012. The percentage share of private forests in the total removal was 59.26 %.

In large forests (forest area > 200 hectares, not including ÖBf AG) total removals decreased by 2.5 % compared to the survey year 2012, thus amounting to 5.42 million m³ of timber harvested under bark. The percentage share in the total removal was 31.17 %.

Österreichische Bundesforste AG raised its volume felled by 1.1 % to 1.66 million m³ of timber harvested

Development of timber harvest and timber price

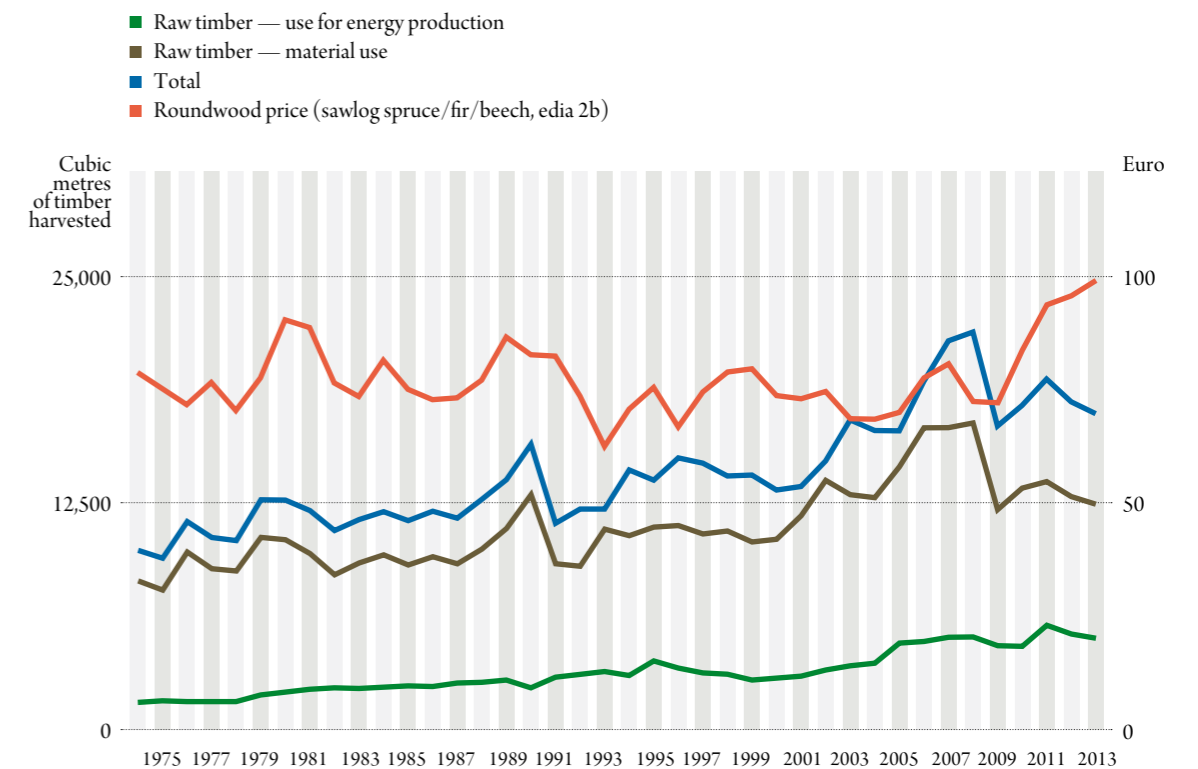


Figure 17 | Source: BMLFUW 2014, Statistics Austria 2014

under bark. The percentage share of the Federal Forests in the total removal was 9.57 %. The share of conifers in the total removal was 82.9 %, the share of damaged wood totalled 19.5 %.

The development of the past few years demonstrates a long-term trend towards a higher share of the removals by small enterprises. Simultaneously a downward trend has been observed for owners of large forests and ÖBfAG.

In Austria's forests there is sufficient potential for increased use of timber. In many cases utilisation is presently not useful in economic terms (locations where haulage is difficult). There are also small forest owners who still consider forests a „savings bank“ which is utilised rather irregularly. Furthermore, the group of urban forest owners is on the increase. These persons frequently live at a distance from their forests and lack emotional links to them, which leads to increments in those forests not being used.

To take account of the growing demand for wood expected for the years to come various strategies of wood utilisation have been developed and implemented in the past (see info box: Wood mobilisation — page 60).

These efforts aim at exhausting the existing utilisation potential and are successful already. Since the 1990ies a constantly rising trend in the development of total removals has been observed. Moreover, in 2007 and 2008 clear top results were recorded for the amounts of timber used. They are above all a consequence of the large quantities of damaged wood caused by the hurricanes Kyrill and Olli and the resulting marked increase in bark beetle calamities.

Taking everything into account, the amount of timber used has considerably increased over the past 40 years, both in the field of material use and, even more, in the field of wood for energy. These figures reflect the success of the wood mobilisation efforts initiated by the

Volume of damaged wood and roundwood price

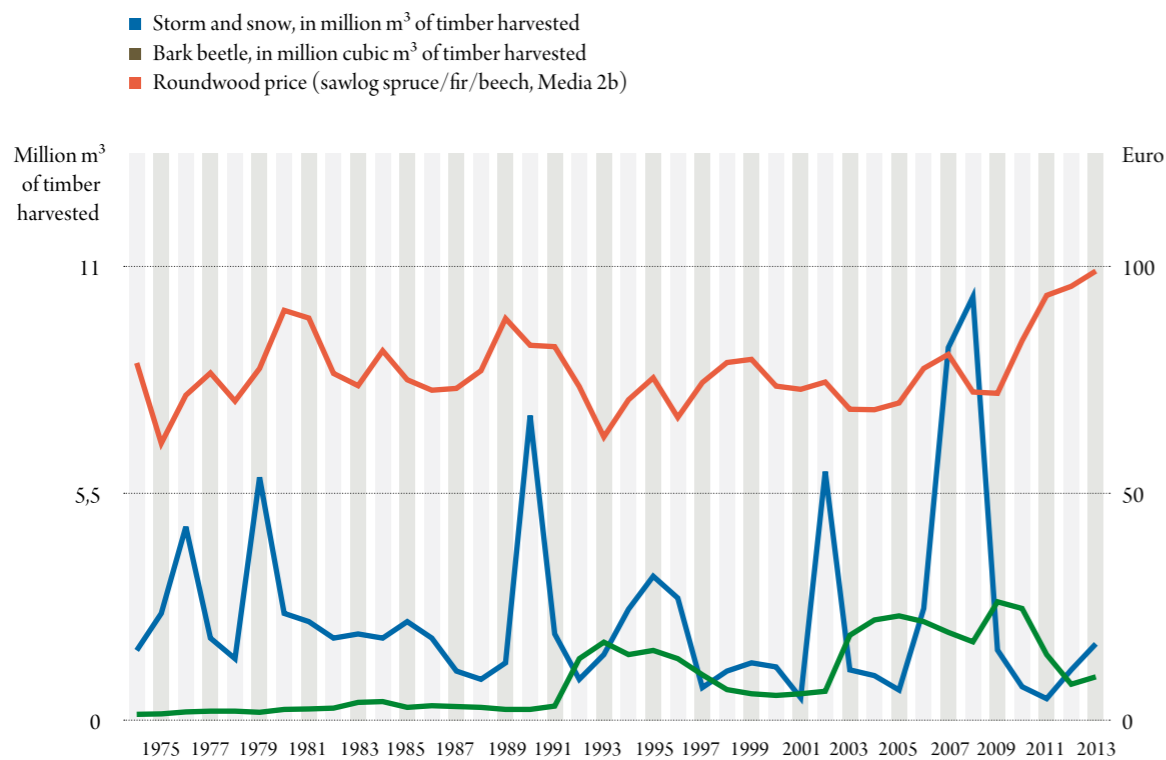


Figure 18 | Source: Documentation of forest damage factors, BFW 2014; Timber Felling Report, BMLFUW 2014

BMLFUW, the Forest Association and other organisations (see info box: Wood mobilisation — page 60). This is particularly important with a view to the EU's „Europe 2020“ target which requires the increase of the share of renewable energy to 20 %.

VOLUME OF DAMAGED WOOD AND ROUNDWOOD PRICE

Especially the past twenty years have shown how tightly damaging events, timber prices and market developments

are linked. Figure 18 shows clearly that, after a damaging event like a hurricane, the (usually rather stable) market is for some time congested with large quantities of wood. The formerly balanced ratio of offer and demand is disturbed, which makes prices fall. After the storm disasters of 2007 the forest sector established wet-storage facilities to avoid that the whole amount of damaged wood overstocks the market at the same time. As a result of this measure and the fact that rarely any damaged wood has been produced since 2008, the roundwood price has reached a maximum at the moment.



WOOD MOBILISATION

Covering the increasing wood demand is a central challenge for the forestry sector. The wood mobilisation actions that were introduced a few years ago are showing success. All parts of the forestry sector — the representations of interest just as much as associations and authorities — have focussed their efforts on this issue. However, as a matter of fact it cannot be disregarded that a major motivation to utilise forests is the timber price.

An overview of the most important measures:

- More intensive on-site support from qualified persons who serve as direct contacts and persons of trust for forest owners
- Intensification of geographical information systems (GIS)
- Focus of financial support for forests on the needs of wood mobilisation
- Awareness-raising with regard to unused incremental growth
- Stronger integration of and cooperation between authorities, chambers, associations and forestry service providers

The greater part of the above-mentioned initiatives focuses on private forests (smaller than 200 hectares).

Below, we present to you the Austrian Forest Association („Waldverband Österreich“), one of the organisations and institutions taking efforts to promote private forests and stimulating the mobilisation of wood from them.

Austrian Forest Association („Waldverband Österreich“): <http://www.waldverband.at>



Forest associations and forest management cooperatives (WWG) are non-profit associations whose major task is to support forest owners in the fields of timber production, timber marketing and forest tending. Their prime objective is to ensure and increase their members' income from forest management. This is achieved above all by joint wood marketing. In all activities and assisting actions the freedom of decision of members has priority.

In cooperation with the chambers of agriculture, forest associations („Waldverbände“) also represent the interest of forest owners on provincial level. Moreover, Waldverband Österreich offers the eight provincial associations a platform for joint activities. In addition to the handling of Austria-wide projects, the main task is to coordinate and represent interests on federal level.



INDICATOR 3.3: NON-WOOD PRODUCTS

Apart from the raw material wood, forests offer a great number of other animal- and plant-based raw materials, such as venison, mushrooms, berries, herbs or resin, and commodities produced from them. Yields from the sale of these products usually fall markedly below those from the sale of timber. However, since many products are above all used for private consumption or because their utilisation is directly or indirectly the basis of other sectors of the economy, it would be wrong to conclude that they are of minor economic importance. To be able to provide concrete data on the role of non-wood products in forestry, the Federal Ministry of Agriculture, Forestry, Environment and Water Management awarded a research contract to the Institute of Silviculture of the University of Natural Resources and Applied Life Sciences. For 2005, the total value of marketed non-wood products amounts to 95 million euros and can be interpreted as added value from forest management.

Percentage shares of non-wood products in the total value for 2005

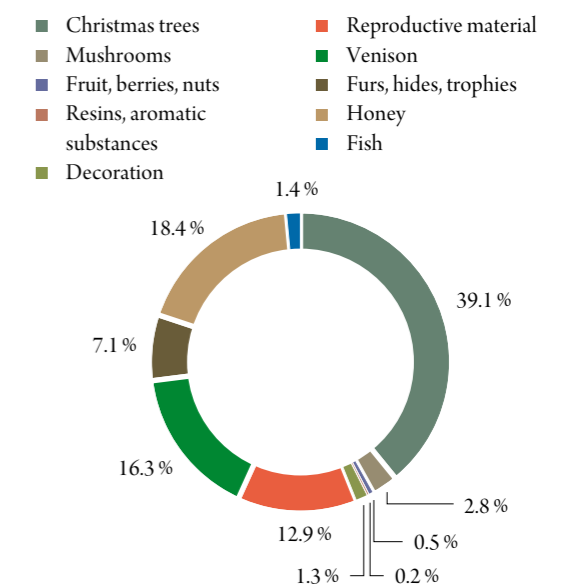


Figure 19 | Source: Institute of Silviculture, University of Natural Resources and Applied Life Sciences 2014

CHRISTMAS TREES

Whilst the importance of Christmas trees harvested from forest soils is decreasing (about 10 % of the Christmas trees sold), a considerable increase in Christmas tree plantations has been recorded. From 1992 to 2005 their surface rose to 2,395 hectares and thus more than doubled. Of the slightly above 2 million trees sold annually, Nordmann fir has become the most important species; it accounts for about 75 % of the Christmas trees produced in Austria. For 2005, the income from sale is reported to amount to about 37 million euros, thus representing the largest share in the total value of non-wood products (39.1 %).

MUSHROOMS

The use of mushrooms is codified in the Forest Act (supplemented by any nature conservation laws of the Federal Provinces) which provides that, basically, collecting up to 2 kg per day and person is permitted.

However, as Civil Law stipulates that the forest owner retains the power of disposition of mushrooms, collecting them within the framework prescribed is permitted only until further notice. The economic importance of domestic mushrooms has clearly decreased since the 1970ies and is considered to account for a market share of about 200 tonnes per year and a total value of approximately 2.6 million euros for 2005. Presently, the major part of the mushrooms marketed is imported.

FRUIT, BERRIES AND NUTS

Wild fruits and nuts from forest woods as well as berries from forest stands are for the greatest part used in processing or directly marketed. It is difficult to assess the size and value of this type of use (about 0.46 million euros), but they are probably much smaller than those from fruit cultivation in orchards. In wholesale, fruit, berries and nuts are of no significance and are replaced by fruit from plantations or by imported products.

RESINS, RAW MATERIALS FOR MEDICAL PURPOSES, AROMATIC AND COLOURING PRODUCTS

The utilisation of resins has continuously lost in significance in Austria over the past few decades. Market opportunities in Austria are poor; in addition, the price and competitive pressure on the global market is high. The production of extracts and essential oils from forest plants is of even smaller significance (except for Swiss pine and mountain pine oil). Considering also herbs, which are predominantly marketed directly, the total value was about 0.23 million euros.

DECORATION

In Austria, the marketing of decoration material concerns above all ornamental brushwood as a coupled product from the use of Christmas trees. Therefore, the quantity marketed of about 1,500 t/year as well as the average total value calculated (1.2 million euros) relates exclusively to the quantities produced in plantations. Other products made of branches, twigs, root wood and cones that are directly marketed have not yet been surveyed.



OTHER PLANT PRODUCTS

Apart from the above-mentioned groups of plant products, mainly reproductive material in the form of forest plants and seed are of relevance. Based on a monitoring conducted by the Federal Forest Office (BFW) a total value of approximately 12.2 million euros was calculated for the reproductive material.

VENISON

Measured against meat consumption in Austria, venison is with 0.5 kg/head playing a minor role. Venison is in this connection defined as meat from wild animals that are subject to hunting law (for the most part roe deer, red deer, fallow deer, sika, furred game, and game birds). In 2005, about 7,500 tonnes of venison with a total value of approximately 15.7 million euros were marketed as raw material. This does not include the growth in added value from the processing into venison products which, however, is increasingly aimed at by companies in the course of new marketing strategies.

HIDES, SKINS AND TROPHIES

Of the category of hides, skins and trophies only the latter are of relevance for marketing. In the course of the past decades domestic hides from hunting have above all been replaced by fur from farmed fur animals and are therefore frequently destroyed. As opposed to this, hunting trophies are of high traditional and cultural importance, both in arts and crafts and in preparation. For 2005, the total value of products marketed in this category amounts to some 6.7 million euros.

FOREST HONEY

Data on domestic honey production is published annually in the supply balance of Statistics Austria. As forest honey is not separately recorded, quantities can only be estimated. According to the Austrian beekeepers association, „Österreichischer Imkerbund“, forest honey accounts for about 50 % of the total production. Based on market prices, the quantity of 3,050 tonnes annually represented a total value of about 17 million euros for 2005. Furthermore, forest honey



is with 18.4 % second-important as regards the total value of non-wood products. Quite often, however, forest owners generate income only by leaving to beekeepers the places for setting up hives.

OTHER ANIMAL PRODUCTS

As animal raw material for medicinal and dying purposes is not of relevance, the only sector to be mentioned in this category is fish production, which comprises both fisheries and fish breeding. The most important fish species are trout, carp, pike, grayling, char, catfish, as well as pike-perch. Data from the Austrian Federal Forests (ÖBf AG) and from an extrapolation based on a survey in agricultural and forestry enterprises indicate that the total amount from fish marketing can be estimated at about 1.3 million euros for 2005.



INDICATOR 3.4: SERVICES

The marketed services associated with forests include hunting and fishing licences, mountain bike tracks and bridle paths, skiing resorts as well as educational adventure and other leisure activities. Also contractual nature conservation schemes in nature conservation and environmental protection as well as cultural offers provided by cooperation with forest enterprises belong to this category. Austrian forest enterprises and forest owners offer a great number of such services. The study described in the chapter „Non-wood products“ investigates also the economic importance of the services provided by forests. According to this study, the total value of services marketed amounts to 125 million euros for 2005. The Institute of Silviculture of the University of Natural Resources and Applied Life Sciences is presently working to update the data for 2010.

Percentage shares of services
in the total value for 2005

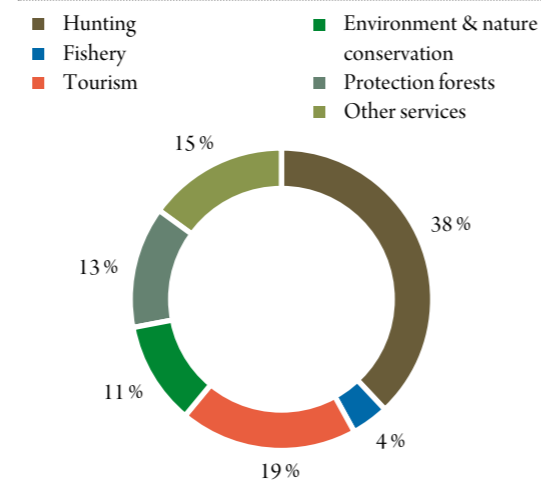


Figure 20 | Source: Institute of Silviculture, University of Natural Resources and Applied Life Sciences 2014

HUNTING

Hunting is of great importance in Austria, both in terms of tradition and culture, and it represents a significant economic factor. In 2005 approximately 110,000 Austrians practising hunting bought a hunting license. Parts of the marketed goods from hunting, like hunting bags, venison, hides, skins and trophies, have already been described under the non-wood products. Unlike these products, Indicator 3.4 deals with the service aspects of hunting. According to calculations by the Central Office of the Austrian Provincial Hunting Associations the total annual turnover from hunting accounts for about 475 million euros, which includes the entire value added. For the category of recreational services, rents for shoots (not including shooting fees) are thus of significance and generate approximately 48 million euros. Consequently, hunting accounts for the greater part (38 %) of the total value of the services recorded.

FISHERIES

Similar to hunting, this category comprises income from fishing licenses and rent for standing and running water bodies. Based on data from the Austrian Federal Forests, earnings of about 5 million euros were generated in Austria in 2005.

TOURISM

In addition to leisure-time, sports and other outdoor and adventure activities (not including alpine skiing), this category includes the renting of huts and houses for tourist purposes and camping. In Austria, the marketing of such offers in forests relies above all on the principles of (i) compensation for infrastructure through cooperations in tourism, (ii) entry fees for offers not freely accessible and (iii) payments for guided tours by forest staff or third persons.





Even though tourism is an important economic phenomenon in Austria, little is known about the many forest-related offers. For 2005, the amount of income from these broad-based business activities was estimated at approximately 24 million euros and, with about 19 %, ranks second in the total value of services.

NATURE CONSERVATION ACTIVITIES

Marketed nature conservation services comprise not only gene reserve forests and protected forest areas but also all types of contractual nature conservation where services of relevance to nature conservation

(incl. Natura 2000) are compensated for by private or public funds. Due to the harmonisation of the surveying of all types of protection areas (among them national parks, Natura 2000, natural forest reserves, landscape conservation areas, nature parks) in 2004, it was for the first time possible to determine the share of forests on protected areas: It comprises over 1 million hectares. Differences in the nature conservation instruments and the fragmentation of competences make it difficult to provide a consistent evaluation of current marketing. For 2005, a total value of about 14 million euros was calculated in a first estimate.

PROTECTION FORESTS

As a consequence of the 2002 Amendment to the Forest Act, the category „object-protecting forest“, serving the protection of humans and human infrastructure, was defined in addition to the „site-protecting forest“ (protection of the site). In object-protecting forests forest owners are obligated to take measures only to the extent that the costs are covered by public means or payments from beneficiaries. In Austria, protection forest projects are handled by the Service for Torrent and Avalanche Control which, in addition to various engineering

activities, manages and conducts also area-management projects. In 2005, the total amount of subsidies for area-related measures amounted to 15.6 million euros.

OTHER SERVICES

This category includes payments to forest owners for extraction fees, telecommunication poles, wind energy and power supply facilities. Based on information from the Austrian Federal Forests, a total amount of approximately 19 million euros was calculated for 2005.

INDICATOR 3.5: FORESTS UNDER MANAGEMENT PLANS

The Forest Act provides the legal framework for the management of all Austrian forests. To ensure sustainability, it sets out numerous management restrictions and stipulations, such as the requirement for certain measures to be authorised by the forest authority. Even more stringent regulations apply to protection forests. Under the Forest Act, forest enterprises are not required to draw up management plans. In practice, however, all larger forest enterprises use management plans, so-called „operates“, as a basis for operational control. These operates are usually updated or newly compiled every 10 years in the framework of a forest management:

About half of the Austrian forest is managed by owners of small private forests, usually by forest farmers. The forest is often part of a family-run mixed agricultural and forest management business that is passed on from one generation to the next. Sustainable management by the owner of the forest is very important.

In many cases not written plans but the traditional know-how of sustainable forest management and a good, well-established range of forestry training and education opportunities provide the basis for this management. Every forest owner also has the possibility to receive advice, either from the Chamber of Agriculture or from the local forest authority. The preparation or improvement of

forest-related operational plans or forest utilisation plans is eligible for subsidisation under the national Rural Development Programme. For enterprises with more than 1,000 hectares, the availability of forest-related operational plans is a precondition for the granting of subsidies aimed at improving the economic value of forests.

Forest land-use planning as set out in the Forest Act provides for three planning instruments for the presentation and foresighted planning of the forest conditions: the Forest Development Plan, the Hazard Zone Plan and the Technical Forestry Plan. Whilst the first two have only an indirect impact on forest enterprise level, the Technical Forestry Plan offers forest owners an opportunity to outline and plan certain technical fields within their own spheres of interest. In practical life, however, forest owners have made little use of this possibility so far.

For the review of sustainability on regional and federal level several monitoring instruments are available. The most comprehensive one is the Austrian Forest Inventory, but other surveys such as the annual Timber Felling Report or the test operation grid, which provides information about the earnings situation in forestry, also provide an important decision-making basis for forest policy in order to ensure sustainable management of the Austrian forest.



CRITERION 4:
MAINTENANCE, CONSERVATION
AND APPROPRIATE ENHANCEMENT
OF BIOLOGICAL DIVERSITY IN
FOREST ECOSYSTEMS

SUSTAINABLE FOREST MANAGEMENT COMPRISES ALSO THE MAINTENANCE OF BIOLOGICAL DIVERSITY. This criterion describes the multitude and the conservation status of the species occurring in forest habitats, their genetic diversity, the role they are playing in the environment, their types of use, the structures within landscapes as well as the management of protection. The data from the latest Forest Inventory confirm the results of the intensified efforts of forest owners in this field. For example, spruce has seen a marked reduction in favour of broadleaved tree species and shrubs in forests. Furthermore, both the share of natural regeneration and that of deadwood, which is playing an important role in the forest ecosystem, increased continuously. The maintenance of biodiversity also requires sufficient genetic resources and the placing under protection of certain forest areas.



INDICATOR 4.1: TREE SPECIES COMPOSITION

Due to the different climate zones, altitudes, soil types and topographic characteristics many different forest communities are found in Austria and, in them, about 70 different tree species.

According to the Austrian Forest Inventory 2007/09 („ÖWI 2007/09“) coniferous forests stock on 2.14 million hectares of land in Austria. This corresponds to 64 % of the total forested area. Broadleaved forests grow on 0.82 million hectares of land, which corresponds to 24 % of the forest area. On the remaining 12 % of the forest area there are fillers in smaller gaps (240,000 hectares), shrubs intermingling with forest stands (73,000 hectares), unstocked areas (69,000 hectares), and areas covered with shrubs (25,000 hectares) (Figure 21).

In coniferous forests, spruce accounts for 81 % of the trees. It covers 1.7 million hectares of land and thus 51 % of the productive forest area in Austria.

Larch and Scots pine each stock on 7 % of the coniferous areas. These two coniferous trees each account for about 150,000 hectares of land and, together, account for 10 % of the productive forest area. Fir is with 18,000 hectares represented on 2 % of the productive forest area

and on 4 % of the coniferous areas, whereas black pine stocks on only 21,000 hectares, thus accounting for 1 % of Austria’s coniferous area. Arolla pine grows on 15,000 hectares, thus accounting for less than 1 percent of the coniferous area in Austria.

As regards broadleaved species, red beech is with 336,000 hectares of land stocked the most prominent species (41 % of the area under broadleaved forests). This corresponds to 10 % of the productive forest area. The second most common broadleaved tree species in Austria is oak, which stocks on 69,000 hectares of land, thus accounting for 2 % of the productive forest area. Other hardwood species (hornbeam, maple, ash, chestnut, etc.) grow on 275,000 hectares. This corresponds to 34 % of the area under broadleaved forests or 8 % of the forest area in yield. The entire softwoods (poplar, lime, willow, alder, etc.) account for 17 % of the area under broadleaved species and with 142,000 hectares covers 4 % of the productive forest area.

The types of trees present in Austria’s forests are subject to constant change. Figure 22 gives a clear picture of this change. Based on the inventory ÖWI 1992/96, the change in area (in 1,000 hectares) occurring in

Forest areas by tree species — Commercial forests

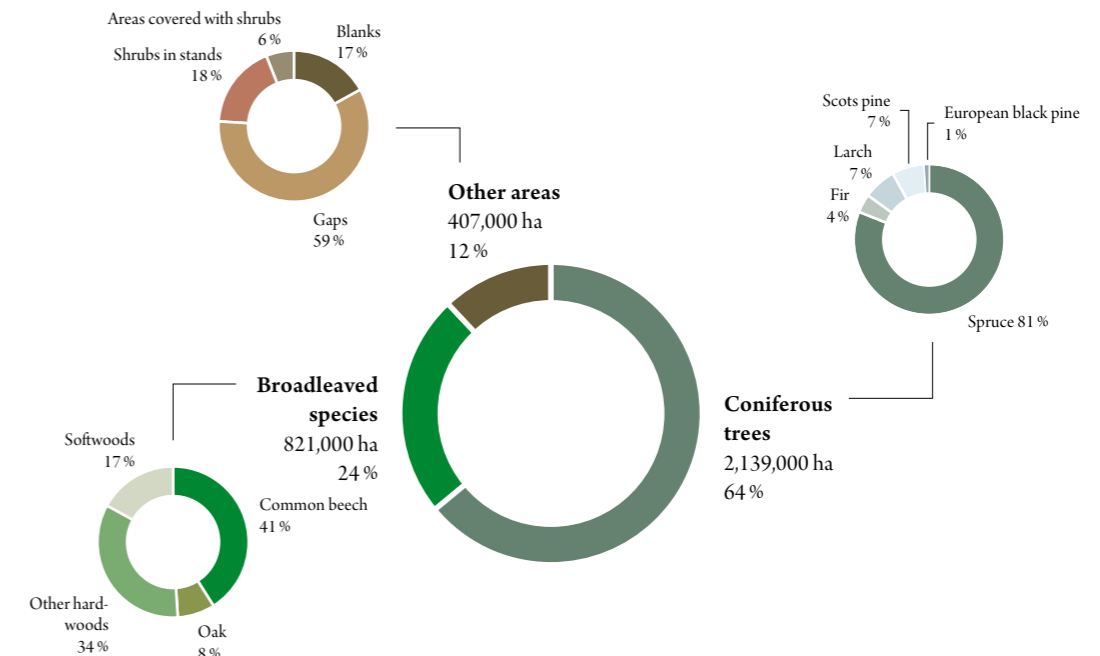


Figure 21 | Source: ÖWI 2007/09, BFW 2014

Change in area by tree species in commercial forests

Change over 1992/96 in 1,000 hectares

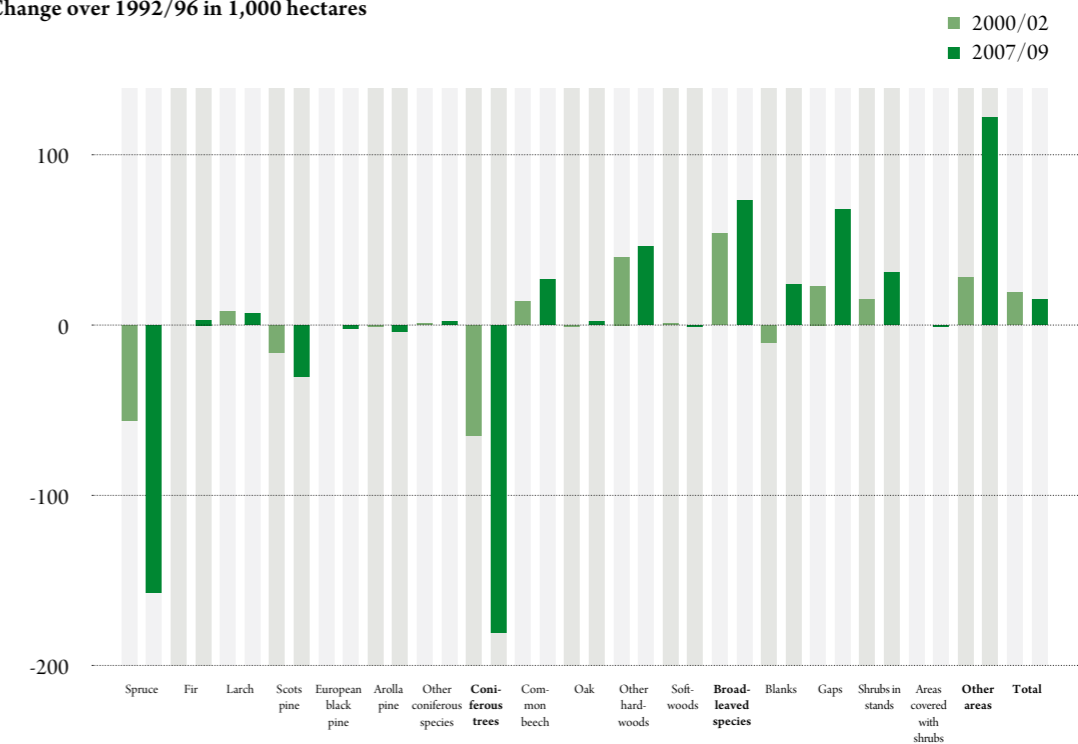


Figure 22 | Source: ÖWI 2007/09, BFW 2014

the periods of ÖWI 2000/02 and ÖWI 2007/09 is illustrated in a diagram. The graphic representation shows that spruce declined considerable in favour of broadleaved forests, shrubs in forest stands and fillers in smaller gaps. However, also blanks increased by 24,000 hectares since ÖWI 1992/96.

The continuous trend of fir decline observed in the past has reversed since 1992/96. Today, fir is growing on an additional 3,000 hectares; fir stocks thus appear to further stabilise. There are still problems as regards browsing in fir. Also Larch as the second coniferous species saw an increase altogether, but lost 1,000 hectares of land again since 2000/02. The trend of declining arolla pine has continued, however. Altogether, it stocks on 15,000 hectares of land, which corresponds to a decline by 4,000 hectares since 1992/96.

Another important indicator for the quality of Austrian forests in addition to the postulated areas stocked by the individual tree species is the association and mix within stands.

To determine the mix in the Austrian forest, four types of mix depending on the share of conifers and

broadleaved trees were distinguished in the present evaluation of the Austrian Forest Inventory: Pure stands with more than 80 % of conifers or broadleaved trees, whereby pure conifer stands with more than 80 % spruce were reported separately as pure spruce stands, and mixed forest stands with a predominant share of conifers respectively broad-leaved trees.

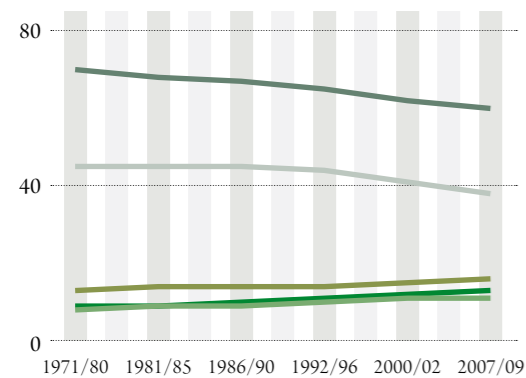
Compared to the preceding period, 2000/02, the trend of declining conifer stands and simultaneously increasing broadleaved stands and mixed forest stands continued. The area covered by pure conifer stands decreased by 133,000 hectares, of which the major part is due to the marked decline in pure spruce stands (-123,000 hectares). Pure broadleaved stands increased by 10,000 hectares, mixed stands by another 28,000 hectares.

The comparison with the latest period of inventory illustrates the development observed since 1971/80. Forestry in Austria shows a trend towards a forest management which is closer to nature. As a result, the share of broadleaved trees and shrubs has increased, pure spruce stands have decreased and a trend towards mixed stands is observed.

Shares of forest land by types of mix in commercial forests

in percent

- Pure coniferous stands
- Pure spruce stands
- Mixed coniferous/broadleaved stands
- Stands with broadleaved trees only
- Mixed broadleaved/coniferous stands



	1971/ 80	1981/ 85	1986/ 90	1992/ 96	2000/ 02	2007/ 09
Pure coniferous stands	70	68	67	65	62	60
Pure spruce stands	45	45	45	44	41	38
Mixed coniferous/ broadleaved stands	13	14	14	14	15	16
Stands with broad- leaved trees only	9	9	10	11	12	13
Mixed broadleaved/ coniferous stands	8	9	9	10	11	11

Figure 23 | Source: ÖWI 2007/09, BFW 2014



INDICATOR 4.2: REGENERATION

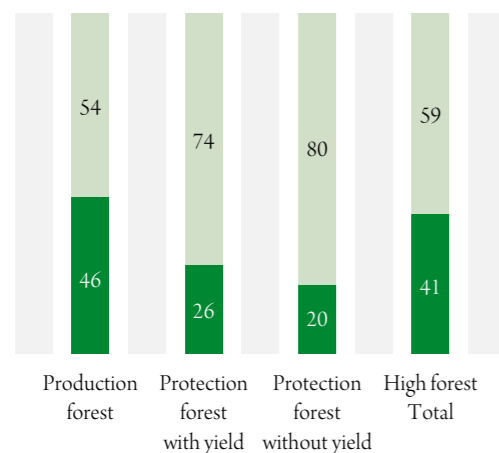
Forest regeneration, both by means of natural regeneration and through afforestation, is the basis of sustainability and therefore the precondition for future generations being able to benefit from forests as ours can today.

Regeneration on areas requiring regeneration

in percent

■ Exists
 ■ Not existing

Regeneration required



Regeneration not required

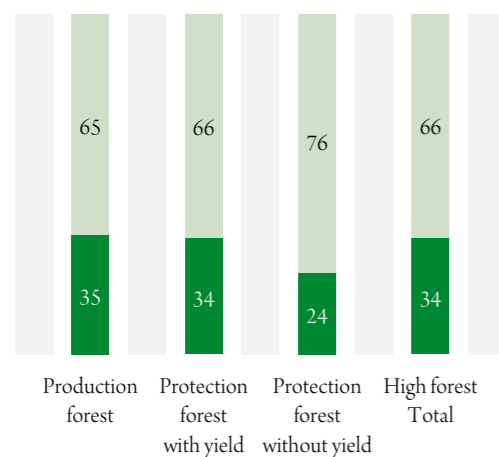


Figure 24 | Source: ÖWI 2007/09, BFW 2014

Establishing stable, productive and high-quality forest stands therefore lays the foundation for future (forest) generations.

Regeneration in Austrian forests is recorded as part of the Austrian Forest Inventory (ÖWI). A distinction is made as to whether or not an area requires regeneration and as to whether or not regeneration exists on these areas. It appears that in production forests regeneration exists on almost half of the areas requiring regeneration. With 20 %, respectively 26 %, regeneration is dramatically less frequent in protection forests without yield and in protection forests with yield. As has been mentioned in connection with Indicator 1.3, over-mature stands are simultaneously increasing in protection forests. Due to these two components protection forests are less and less often able to fulfil their functions in the best possible way. To maintain sustainability, there is particularly urgent need for action in this field.

On altogether 555,000 hectares of high forest stands classified as being in need of regeneration, regeneration actually exists. An analysis of this regeneration area shows that only on 298,000 hectares the number of young plants is sufficient for the establishment of the next forest generation. One positive point is, however, that this area has considerably increased since 1992. Of these 298,000 hectares, sufficient numbers of undamaged individuals are found on only 190,000 hectares; on only 92,000 hectares the number of target trees is sufficient. These two figures, too, indicate clearly that these areas are continuously growing. However, it is alarming that only on an area of 77,000 hectares regeneration of the target trees was found to be sufficient for the next forest generation. This means that, taking everything into account, on only 6 % of the area covered by high forest stands and requiring regeneration such regeneration actually exists to an extent that is sufficient in terms of quality and quantity.

Situation of the regeneration of target tree species

in 1,000 hectares

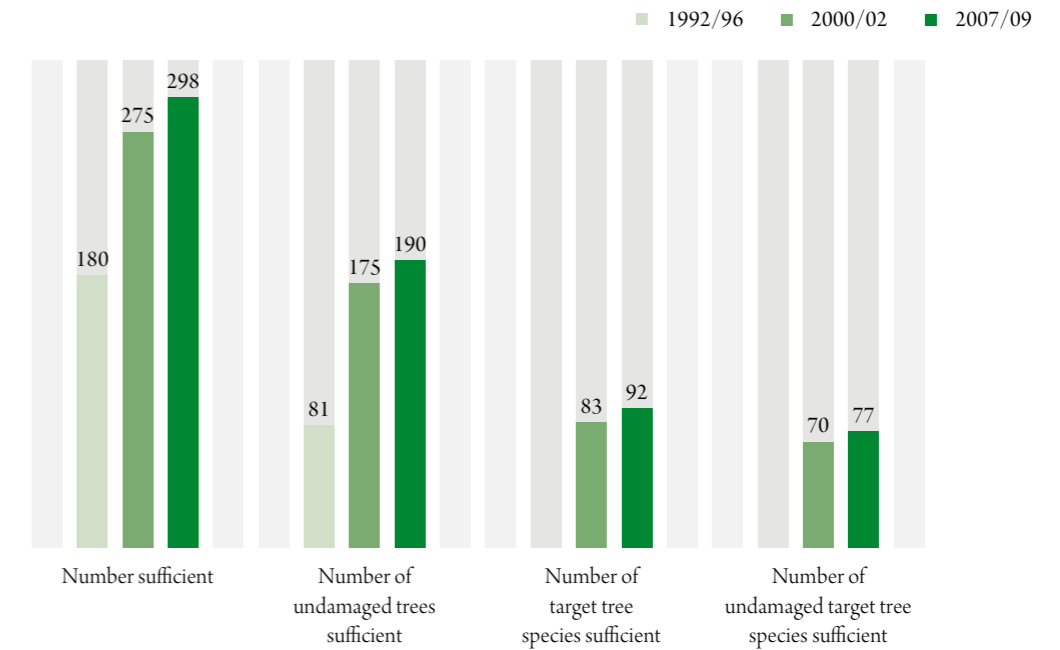


Figure 25 | Source: ÖWI 1992/96 to ÖWI 2007/09, BFW 2014

The survey of regeneration by the Austrian Forest Inventory refers also to the inhibiting factors that lead to the absence of the necessary regeneration. Important factors inhibiting regeneration are soil vegetation, lack of light, browsing by game, erosion, forest grazing, or the type of humus. In this list, one has to note that competition from ground vegetation is often only a secondary factor affecting regeneration. In thinned stands young forest plants are often more severely damaged by game than other types of soil vegetation are. For this reason, excessive numbers of game may shift the natural balance between young trees and the competing vegetation: The competing vegetation becomes denser and thus obstructs the required regeneration. Browsing is therefore a particularly important factor inhibiting regeneration.

The graphical representation presented below (Figure 26) shows that only 8 percent of the areas that require regeneration and have actually been regenerated are not affected by game. Moreover, one can see that since 1992 the area on which newly stocked trees are damaged by browsing has continuously increased.

Regeneration and browsing of target tree species

in 1,000 hectares

■ Without browsing damage
 ■ With browsing damage

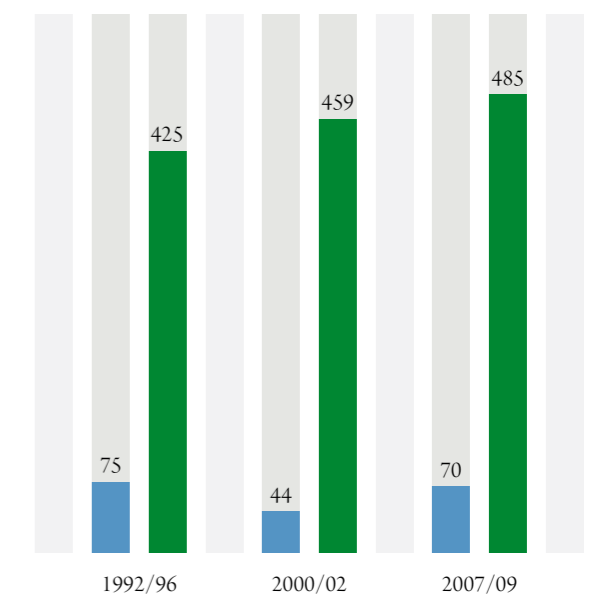


Figure 26 | Source: ÖWI 1971/80 to ÖWI 2007/09, BFW 2014



INDICATOR 4.3: NATURALNESS

As the naturalness of Austrian forests has for a long time been a controversial issue in the discussion of the different stakeholders, a comprehensive study was carried out in the period from 1992–1997 to lift the topic on a scientific level and provide an objective assessment of the situation

This study, entitled „Hemerobie Österreichischer Waldökosysteme“ („The hemeroby of Austrian forest ecosystems“) was conducted by the Vienna University in cooperation with the Federal Ministry of Agriculture, Forestry, Environment and Water Management and the Federal Research Centre for Forests. The results of the

study showed that Austrian forests could be subdivided according to 5 degrees of naturalness.

- **Artificial forests**, which accounted for 7 % of the Austrian forest area, were above all made up of non-indigenous tree species and did not show any similarities to the potential natural forest community.
- **Strongly altered forests** were intensively managed and made up 27 % of Austria’s total forest land. The species composition did not correspond to that of the potentially natural forest community. Where deadwood occurred, it was stumps remaining from harvesting.
- With 41 %, **moderately altered forests** were definitely the type of forest occurring most frequently in the Austrian forest area. These forests were all intensively exploited, but some residual elements of the potentially natural vegetation existed. The structure of forest stands was distinctly altered by harvesting and frequently also by the impacts of grazing.
- **Semi-natural forests** accounted for 22 % of the surface. These forests were the result of a management close to nature. They showed only slight deviations from the potentially natural forest community. However, in most cases disintegration phases with corresponding volumes of deadwood, one of the typical features of the natural forest, were missing.
- **Natural forests** were found on three percent of Austria’s forest-covered area. Only forest-covered areas not showing any human impact or areas whose utilisation was so far in the past that it was no longer visible in the forestry of that time were assigned to this category.

Based on these results and the ongoing ÖWI surveys the present situation in Austria’s forests can now be assessed.

It can be assumed that naturalness has increased since the 1992–1997 period. This assumption relies on the following facts:

- **Increase in deciduous forests and mixed broadleaved/coniferous forests with simultaneous decrease in pure stands of spruce and pure stands of coniferous trees** (see Indicator 4.1)
 For the evaluation of naturalness, the existing tree species composition was compared with the potential natural forest community. Especially in artificial and strongly altered forest areas secondary coniferous forests and pure spruce stands were disproportionately frequent. We can assume that the degree of naturalness increased as a result of the increase in broadleaved forests and broadleaved/coniferous mixed forests.
- **Growing share of deadwood** (see Indicator 4.5)
 In natural forests the share of deadwood amounted to 0.5–6 % of the biomass, depending on the level of succession. Furthermore, studies furnish prove that the share of deadwood in strongly altered forest areas increases markedly after a stop of exploitation. For this reason the share of deadwood was an important factor in the evaluation of naturalness





also in the research project „Hemerobie Österreichischer Waldökosysteme“. As the share of deadwood in forest biomass shows a clear upward trend in Austria, naturalness in Austrian forests appears to improve in this respect as well.

--- **Increase in big-diameter logs**
(see Indicator 1.2)

The number of trunks with a diameter of over 35 cm is significantly increasing. This has two positive effects on the degree of naturalness: On the one hand, the increase in thick trunks gives rise to the conclusion that these forests are less intensively used and are therefore more natural.

On the other hand one can assume that, due to the higher number of big-diameter trunks, more ‚veteran trees‘ can develop. Veteran trees are trees which have reached the end of their natural life cycle and thus contain deadwood and holes. As a result of their habitat features, these trees are of great ecological value for biodiversity.

--- **Increase in nature conservation areas**
The number and size of nature conservation areas (Natura 2000, national parks, biosphere parks, etc.) have significantly

increased since the hemeroby study. This indicates that the naturalness of Austrian forest-covered land continues to spread and improve.

--- **Decrease in artificial regeneration**

It should be pointed out in this context that sales figures of forest plant material have considerably declined over the past years. This indicates that Austria’s forest managers practice increasingly natural regeneration in their forests. As these sales figures reflect the common type of forest management, this aspect, too, can be used to assume an increase in naturalness, although we have to bear in mind that natural regeneration does not automatically mean a regeneration of the potential natural forest community.

Summing up, one can say that the degree of naturalness in Austrian forests shows a positive development. This means that the shares of land show a shift towards moderately altered and semi-natural forest areas. Moreover, it should be emphasised that forestry per se does not affect naturalness but, due to centuries of development, plays an important part in it. Recent years have shown that close-to-nature forest management enhances the degree of naturalness of forests. This trend is expected to continue.

INDICATOR 4.4: INTRODUCED TREE SPECIES

In our globalised world also the migration channels of plants and animals have clearly changed. World-wide trade, tourism, but also the changing climate allow many species to reach and colonise regions which in the past, if possible at all, required very long periods of time as part of slowly-acting geological and evolutionary processes. The process of the spreading and accidental introduction of non-indigenous species occurs wittingly and intentionally just as much as

unwittingly and unintentionally. The effects these species have on Austrian ecosystems are often not yet foreseeable and, in some cases, may have serious impacts.

ALIEN SPECIES IN FOREST ECOSYSTEMS

In Austrian forest ecosystems neophytes are common above all in wetlands along riversides and in warmer areas.

Time series alien species

Area in ha

- Invasive species
- Introduced species total

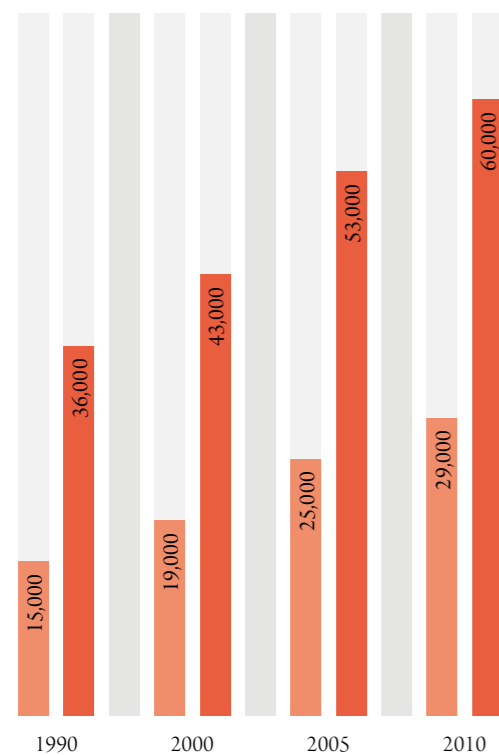


Figure 27 | Source: BMLFUW 2014

Several neophyte woods tend to grow wild and spread increasingly in Austrian forests. Among them are in particular robinia and tree of heaven. These two species occur increasingly in oak forests of the Pannonian region of eastern Austria and have severe impacts on the ecosystems. Robinia is particularly competitive on dry sites. On the one hand, it replaces native species, on the other hand it is able to enrich its site with nitrogen (symbiosis with Rhizobium bacteria) and thus to change it completely. Tree of heaven, which is among the 100 most problematic invasive species in Europe, also causes severe damage in urban areas and, due to its competitiveness, replaces domestic (tree) species. In wetlands, ash-leaved maple and green ash are increasingly invading ecosystems. The area covered by invasive tree species

is continuously rising and amounts to 29,000 hectares at the moment (Figure 27).

Also herbaceous plants like the small balsam and copper tops, giant goldenrot, Japanese knotweed, Indian false strawberry or American false ragwort influence Austria's ecosystems. Most of the plants appear locally, though sometimes also area-covering; they cause changes in the vegetation and in some cases obstruct the natural regeneration of indigenous trees.

These economic, ecological and health effects that neobiota have on Austrian ecosystems are considered to be a major cause of the loss of biodiversity. To slow down and prevent this, different strategies are pursued on national as well as on international level.

MEASURES AND STRATEGIES

In 2004, the Austrian action plan on alien species (neobiota) was published in Austria. It had been prepared by order of the Federal Ministry of Agriculture, Forestry, Environment and Water Management and adopted by the national Biodiversity Commission. Its supreme goal is to stop the introduction of further alien species. For this purpose, objectives and measures for information and awareness raising, research and monitoring as well as for the legal and organisational implementation are proposed. In the annex all known invasive and potentially invasive species that cause economic, ecological or health problems are listed.

Other measures aim at developing the capacities required for improved national and international cooperation.

With the EU Biodiversity Strategy 2020 also the European Union takes account of the great importance of neobiota in the EU area. „Target 5“ of the Strategy deals with the fight against invasive alien species („Combat invasive alien species“). Its objective: „Invasive Alien Species (IAS) and their pathways are identified and prioritised, priority species are controlled or eradicated, and pathways are managed to prevent the introduction and establishment of new species“.

INDICATOR 4.5: DEADWOOD

Deadwood is playing a significant role in the forest ecosystem. It has an influence on natural material cycles (nutrients, carbon) and on the stand climate. It can be the cradle of natural regeneration, tree stumps as well as trunks lying perpendicular to the fall line can protect against avalanches and erosion, and deadwood promotes the diversity of species. Many plant and animal species that adjusted to this habitat in the course of evolution depend on deadwood. It is decisive also in which form deadwood exists. For example, the tree species, the dimension, age and stage of degradation have major impacts on the appearance of various organisms.

Tree species like birch and poplar usually take twenty to thirty years to degrade, while others like oak or beech take much longer periods for complete remineralisation. This is important especially for slowly growing organisms as they cannot develop on rapidly weathering deadwood. The dimension is an essential factor, as it also has significant impacts on potential colonisation. Big-diameter trunks are more attractive for many animal species as the dimension has a great influence on the micro-climate inside the trunk. Heat equalisation and the protection against extreme temperatures are clearly better in thick trunks than in thin ones. Moreover, bigger species can often colonise only thicker trunks. Thicker deadwood is therefore of higher ecological value. In Austria, about one third of the existing deadwood presently has a diameter of less than 20 cm, another third has diameters between 20 and 35 cm, and only 11 % show a diameter of over 50 cm (Figure 28).

In Austria, a continuous upward trend in the share of deadwood is observed. According to the Austrian Forest Inventory ÖWI 2007/09 8.4 cubic metres over bark (m³ o.b.) of deadwood are found per hectare of forest area; this corresponds to 2.5 % of the total stocks. Since the inventory period 1992/96 the percentage of deadwood almost doubled. Remarkably, the share of deadwood in protection forests (4.1 % of the total

stocks in protection forests) is considerably higher than it is in commercial forests (2.3 % of the volume of timber in commercial forests). This observation furnishes proof of the problem of over-mature stands in protection forests as a result of the failure of management (Figure 29).

Diameter distribution in deadwood

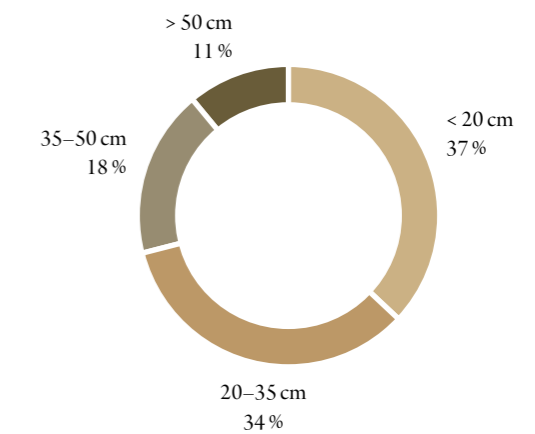


Figure 28 | Source: ÖWI 2007/09, BFW 2014

Time series deadwood in Austria

in cubic metres over bark

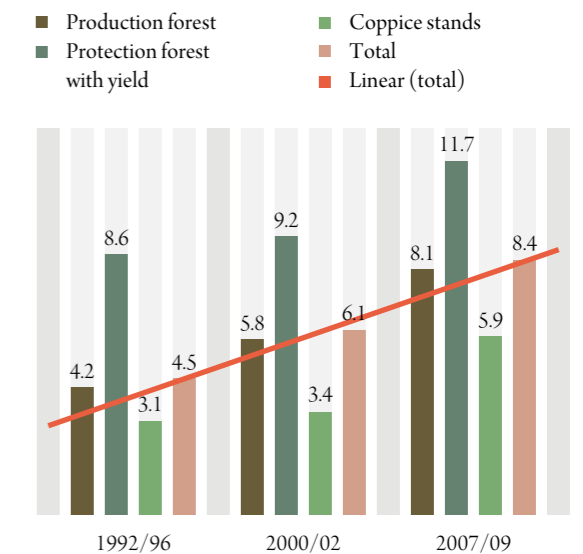


Figure 29 | Source: ÖWI 1992/96 to ÖWI 2007/09, BFW 2014

INDICATOR 4.6: GENETIC RESOURCES

Maintaining a high genetic diversity of our forest tree species is imperative if we want to ensure their adaptability and adaptedness, especially in view of the changing climate. The management of genetic resources is thus an important element of sustainable forest management. Forest stands of high genetic values should be represented as much as possible in all growth areas and their survival must be guaranteed for the long term. An effective measure to ensure comprehensive adaptability of a tree species is the in situ conservation of genetic material. This necessitates preserving a tree species at its natural site in such a way that the constant genetic adaptation processes are disturbed as little as possible. In particular, in situ conservation measures are to ensure that the genetic information is passed from one generation to the next using natural regeneration.

In Austria, there are presently (as of 2013) 335 forest stands with particularly valuable genetic resources (= gene conservation reserves). They cover a total area of 9,720 hectares. The identification of these gene conservation reserves is subject to the following criteria: Representativeness, naturalness of stocking, minimum size, adaptedness, conditions for natural regeneration, and boundary-adjusted site. The popularity of these forests with particularly valuable genetic resources is to be enhanced both in the forest environment and in the general public.

The genetic quality of seed collection stands or plantations is crucial for the adaptability of the new forest generation. The performance, that is, the phenotypic quality (mass output, form properties, health status), is therefore particularly important if seed collection stands are to be approved. Seed collection stands should have a superior quality as regards these properties in the relevant growth area. In addition, also the selection criteria applying to gene reserves are used.

A rather large share of the seed used in Austria is still imported from abroad. In the period from 2003

to 2011, for example, approximately two, respectively five, tonnes were imported in the case of mountain maple and red beech. Compared to the quantities of domestic seeds, this is a very big share.

In mountainous Austria spruce will remain the “bread-winning species” of the forestry sector; at the same time low-lying stands that are unstable due to the climate change are gradually to be converted into deciduous stands. The deciduous species oak, beech, mountain maple and bird cherry will benefit most from this conversion. Oak cultivation (common oak or chestnut oak, depending on the region) is expected to increase significantly. Between 2003 and 2011, a total of 36 tonnes of seed were harvested from oaks in Austria. Another 7 tonnes of seed were imported during this period. The frequent use of foreign oak seed in Austria shows that also in the case of oak species the demand for seed is currently covered by domestic seed to a too low extent. Lacking information about the performance and suitability of oak of Austrian origin, the fact that they are not widely known, and the low incentives for independent harvesting by the forest nurseries are among the reasons for preferring imported seed. In the long run, the share of foreign material should become smaller.

In the future, the existing seed collection stands in Austria are to be used more efficiently. As the identification of seed collection stands does not necessarily lead to the utilisation of valuable genetic resources and, in the past, few seed collection stands were often used to an unproportionately high extent, a more balanced harvesting of those stands should ensure the existing genetic diversity of Austria’s genetic resources for the long term. The utilisation of domestic forest genetic resources should therefore be more balanced in the future.

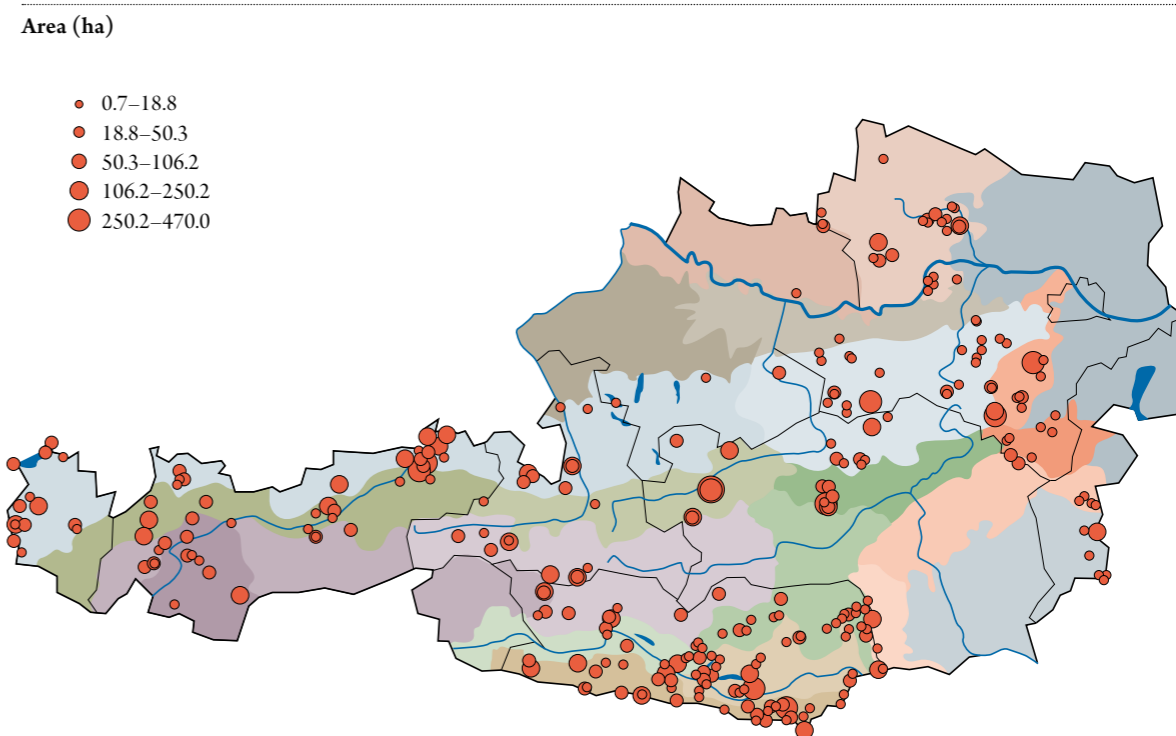
In addition to seed collection stands and in situ measures, special actions (ex situ conservation measures) are being taken to preserve forest gene resources. Presently, there are 51 conservation and seed plantations

for 17 tree species, which cover a total area of 71.8 hectares. Most of these plantations were established in the nineties and fructify regularly. For the main species of economic importance — spruce, white fir and red beech — the primary measures are in situ actions (natural regeneration) as well as ex situ seeding and planting. For larch, seed plantations of the so-called second generation are being prepared. They are expected to be ready for establishment in 2018 and will then provide reproductive material of superior quality for the marginal areas of the Alps. Also the future of spruce (high stands) and fir is largely secured by seed plantations. Endangered stocks of European silver fir are additionally protected via ex situ measures. Most of the secondary species of economic importance (genera of maple [*Acer*], ash [*Fraxinus*], Rosaceae [*Prunus*], alder [*Alnus*], lime [*Tilia*], hornbeam [*Carpinus*]) have already been protected by the registration of in situ stands and the establishment of seed plantations. Larger stocks, e.g. of *Pinus cembra*, are additionally preserved by in situ measures.

For other tree species of economic relevance (e.g. common birch, Norway maple, narrow-leaved ash) that are subject to the Forest Reproductive Materials Act of 2002 as amended, seed stocks and/or new plantations will be established in the future.

Plantations have been established to preserve, protect and provide seeds for the rare species of the genera apple (*Malus*), pear (*Pyrus*), whitebeam (*Sorbus*) and elm (*Ulmus*). Regional marketing of the seeds of these rare tree species was stepped up in the future to create corridors especially by cultivation in hedges and fields and to rejoin the frequently splintered populations in order to permit the necessary genetic exchange between populations. These measures will continue in the future. At the Federal Research and Training Centre for Forest, Natural Hazards and Landscape (BFW) 224 black poplar (*Populus nigra*) clones are preserved under the European Forest Genetic Resources Programme (EUFORGEN); this material, too, is available for renaturation measures.

Location and size of gene conservation reserves



As of: 12/2013

Figure 30 | Source: BFW 2014

INDICATOR 4.7: LANDSCAPE PATTERN

The fragmentation of landscapes and habitats is considered to be a major cause of the decline in animal and plant species and of the threat to species diversity.

The obstruction or prevention of migration and other exchange functions between organisms can lead to genetic isolation and even to the extinction of various species.

The splintering of forest areas into isolated, too small surfaces already jeopardises the long-term survival of certain forest types. In the Austrian Forest Programme Goal 2 (*Expansion of forest areas in regions with low forest cover, paying attention to ecological, economic and social compatibility and with special consideration to provisions of forest land-use planning*) and Principle 14 (*Conservation and protection of native forest biotope types and related plant and animal species and their genetic diversity, with special attention to the goal*

agreed upon at the international level: "Stop the loss of biological diversity in Austria by 2010") focus on this problem.

The geographical pattern of the forest cover on landscape level provides information about the size, shape and special distribution of forests in a landscape by reflecting a landscape's potential to provide forest habitats.

In Austria, thanks to the satellite-aided remote surveying for assessing the forest area (Gallaun et al. 2007, Gallaun & Linser 2008, Joanneum Research 2007) also statements about the landscape pattern are possible. Within the scope of the „Forest Monitoring“ project of the European Space Agency (ESA), Joanneum Research in close cooperation with the Federal Environment Agency and in coordination with the Federal Ministry of Agriculture, Forestry, Environment and Water Management provided various data on landscape patterns for

Percentage of forest cover

for units of 100 ha (1 km x 1 km) for all Austria

- < 10 %
- 10 %–30 %
- 30 %–50 %
- 50 %–70 %
- 70 %–90 %
- 90 %–100 %



Figure 31 | Source: Joanneum Research 2014



surveying units of 100 hectare grids on a nation-wide level, e.g. forest cover percentage, number of forest surfaces, number of forest- and non-forest surfaces, length of forest perimeters per hectare of forest area (Gallaun & Linser 2006, Gallaun et al. 2007, Joanneum Research 2007). The method applied provides information about the extent, the shape and the distribution of forest and non-forest surfaces in a landscape and illustrates the forest habitats found in a landscape.

To be able to extract these data a high-resolution forest/non-forest map was created for Austria using

satellite pictures (Gallaun et al. 2007, Gallaun & Linser 2008). In view of the international reporting requirements the forest surfaces were identified in a standardised manner based on the definition of the forest from the United Nations Food and Agriculture Organisation (FAO).

The evaluation of satellite image data at regular intervals enables us to monitor the change in landscape structure and to verify achievement of the goals set by the landscape principles required by the Austrian Sustainability Strategy.

INDICATOR 4.8: THREATENED FOREST SPECIES

The target “*Conservation and promotion of rare and jeopardised indigenous tree and shrub species*” has been anchored in the Austrian Forest Programme.

Since the nineteen-seventies, red lists have been a common instrument in the area of nature conservation. So far there is no forest-specific evaluation of the red lists of endangered plant and animal species in Austria, but since 2001 red lists for endangered biotope types have been available. For this purpose, a red list of endangered forest biotope types has been drawn up in Austria. This red list describes every type of forest biotope in detail and shows the distribution of the forest biotope types on grid maps.

The danger situation was assessed by means of danger indicators (area loss, rarity, loss of quality) that describe the quantitative and qualitative danger to the biotope

types. This classification proposal was then reviewed and corrected in coordination with experts. The danger to biotope types was classified on regional as well as on national level.

RESULTS

Basically, Austria has a very diverse forest landscape. The catalogue of biotope types contains 93 different forest biotope types. Of these, 53 (= 57 %) are endangered. So far no forest biotope type has been destroyed completely in Austria. A total of 22 forest biotope types (= 24 %) are not endangered. Another 18 forest biotope types (= 19 %) were classified as “not particularly worth protection” and were therefore not evaluated.

Differences can be seen in the analysis of regional endangerment. Generally, forest habitats in intensively

utilised low zones are more endangered. In the high zones of the Alps, endangerment is significantly less serious. Forest types that are particularly endangered are flood-plain forests. More than 80 % of the endangered biotope types have no or little potential for regeneration. The situation is particularly striking in the case of biotope types characterised by typical site conditions that can hardly be restored or whose restoration takes a very long period of time, such as peat, swamp or marsh forests.

Many widespread biotope types are endangered in terms of quality, for example beech or oak forests. In their case the analysis of the causes of danger shows that there is need for protection due to the intensive utilisation in the lower zones.

Figure 34 clearly shows that the greatest diversity of forest biotope types can be found in the lower regions of the foothills of the Alps and along the major rivers, i.e. in flood-plain forests.

Risk situation of forest biotope types in Austria

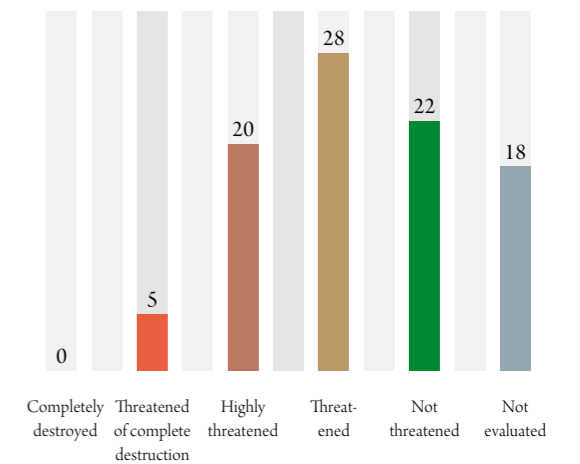


Figure 33 | Source: Federal Environment Agency 2014

Distribution of the biotope type „Common pine forest of the eastern rim of the Alps“

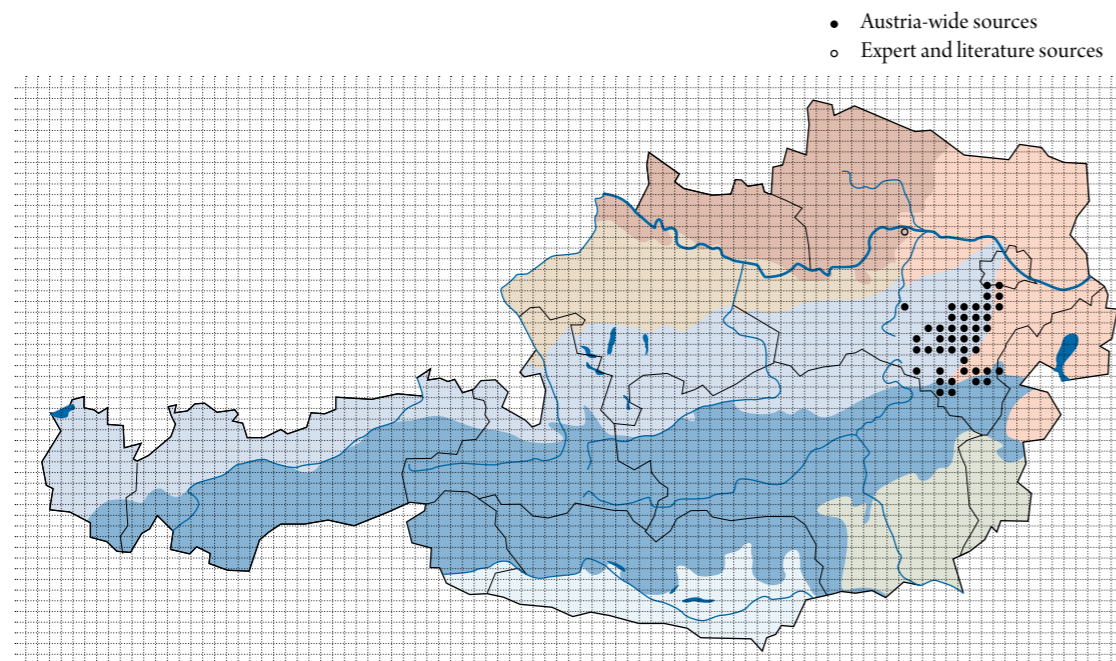


Figure 32 | Source: Federal Environment Agency 2014

Number of forest biotope types in Austria per grid cell of Austria's flora map

Unit of the grid cell: approx. 35 km²

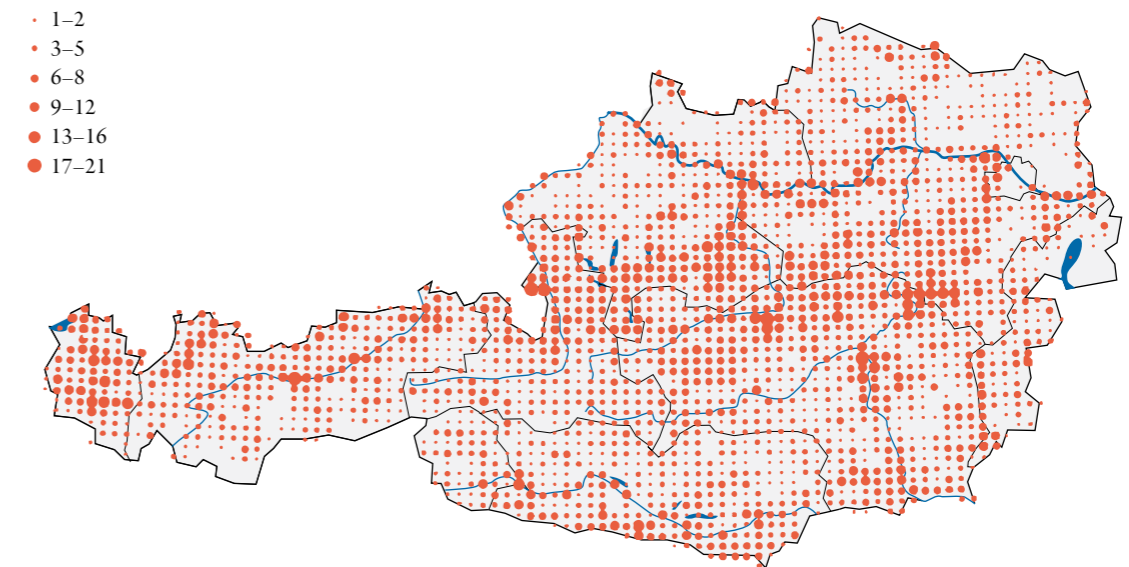


Figure 34 | Source: Data base of Austria's biotope types at the Federal Environment Agency (Umweltbundesamt), Federal Environment Agency 2014



INDICATOR 4.9: PROTECTED FORESTS

Nature conservation law protects forests and other wooded areas, among other things in order to preserve the biological and landscape diversity as well as specific natural components. FOREST EUROPE elaborated classification guidelines for these protected forest areas.

Austria is endeavoured and under the obligation to implement these goals. Since nature conservation already has a long tradition in Austria and the management of forests is characterised by a long-term forestry policy that takes the issues of biodiversity conservation into account, the status quo regarding protected areas in Austria was surveyed in a study of the Federal Environmental Agency from 2004. In 2009, this study was updated for the first time;

Assessment guidelines for protected forest areas according to Forest Europe (without Class 3 — Main Management Objective ‚Protective Functions‘)

Forest Europe Classes		
1	Main Management Objective: ‚Biodiversity‘	1.1 No Active Intervention
		1.2 Minimum Intervention
		1.3 Conservation Through Active Management
2	Main Management Objective: ‚Protection of Landscapes and Specific Natural Elements‘	

Table 2 | Source: Forest Europe 2014

Austria’s forests in protected areas, classified according to Forest Europe, 2013

- Forest area
- Class 1.2
- Class 1.3
- Class 2

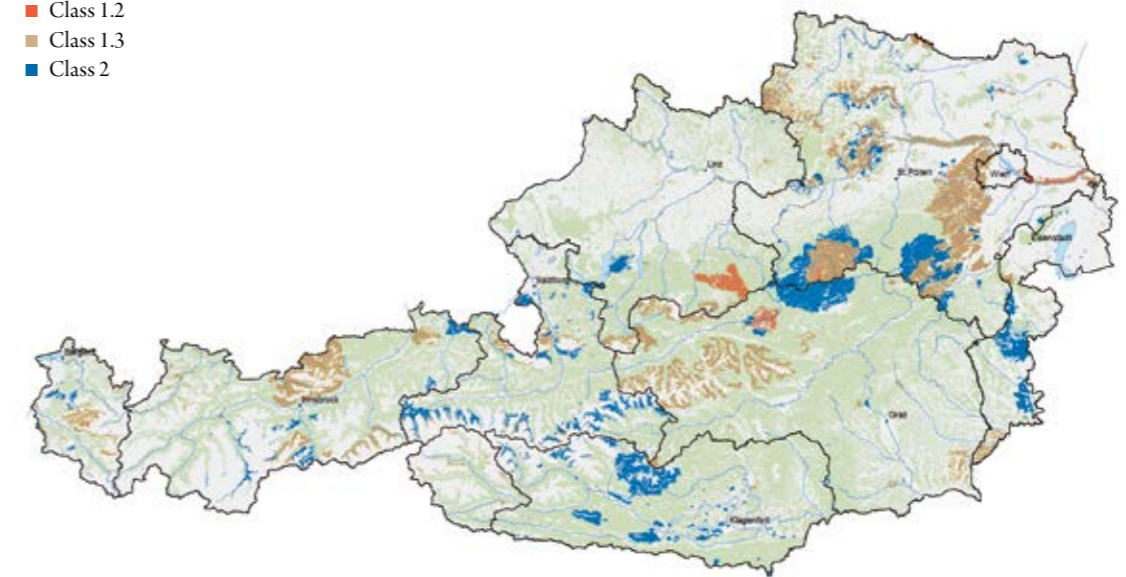


Figure 35 | Source: Federal Environment Agency 2014

Overall balance of forests protected in accordance with FE criteria in Austria

FE Class	Forest area (hectares)	Share (%) in	
		Areas of forests protected acc. to FE	Total forest area
1.2	29,804.4	3.6 %	0.8 %
1.3	471,823.9	56.5 %	12.1 %
2	333,153.2	39.9 %	8.6 %
Sum	834,781.5	100.0 %	21.5 %

Table 3 | Source: Federal Environment Agency 2014

meanwhile results from 2013 are available. These results are also the subject of international, periodic reporting obligations, in particular for FOREST EUROPE.

The results were balanced for each individual Federal Province and presented cartographically for the basic study.

In 2013, over 830,000 hectares of forest area located in areas identified under nature conservation law were designated as Class 1 and Class 2 according to the criteria of Forest Europe (see Figure 36). This is equivalent to about 21.5 % of Austria's total forest area (see Table 3).

RESULTS

--- No protected area in Austria meets the criteria for Class 1.1. Due to the small-scale structures in Central Europe, refraining from any form of intervention (Class 1.1) — including game stock control — would presumably result in major changes to the natural (forest) vegetation in the long term.

Shares of forest areas protected under nature protection legislation by FE classes, in Austria's total forest area

in hectares, not including natural forest reserves, development since 2002



Figure 36 | Source: Federal Environment Agency 2014

--- The greater share of forest areas in Class 1.2 is located in national parks that were established in the past few decades.

--- The forest areas in the “classical” nature conservation zones are found primarily in Class 1.3. They are usually characterised by concrete provisions with regard to forest management, but forest utilisation is in most cases not prohibited.

--- The designation and establishment of European protected areas of the Natura 2000 network in recent years has led to a marked enlargement of Class 1.3 (from about 89,000 hectares in 2002 to about 470,000 hectares at present). Even though these, often very large, areas are in most cases not characterised by concrete and/or (statutory) legal restrictions on forest management, there are frequently targets providing for example for the maintenance of semi-natural forest stands which justify their assignment to this class. The decisive factor for the positive development of forest biodiversity will be the area-covering and long-term implementation of these target

provisions through other instruments of nature conservation.

--- Slightly less than 80 percent of Austria's forest land are not subject to any general restrictions on forest management set out under nature conservation law.

As a consequence of the results of the baseline study of 2002 and in view of the targets of FOREST EUROPE, but also of nature conservation in general, an important step towards further activities to safeguard forest biodiversity was made within the Austrian Forest Dialogue:

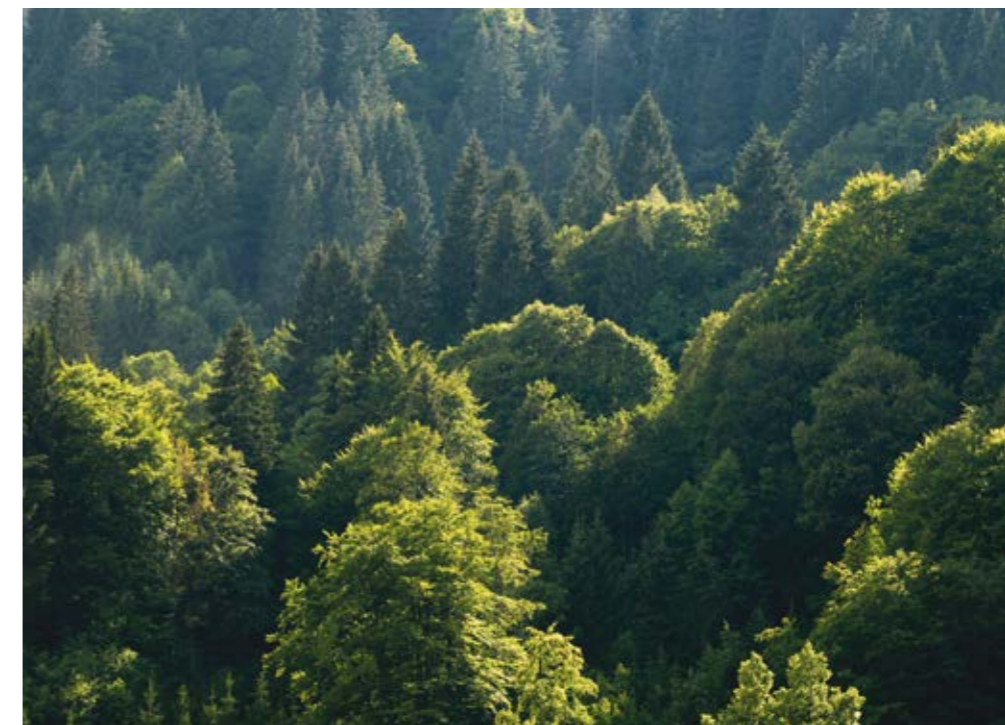
When defining the indicators, the following targets were proposed for indicator no. 22, Protected Forests, and adopted by the Forest Forum in autumn 2007:


--- **Increase in the percentage of land of class 1.2 to 1 % of the total forest area.** The current survey does show a positive trend — from about 21,700 hectares in 2002

to presently 29,800 hectares — but more efforts are required to reach the target of placing 1 % of the forest area (almost 39,000 hectares) under strict biodiversity conservation regulations.

--- **Increase in the percentage of land of class 1.3 to 4 % of the total forest area.** The target of about 156,000 hectares (4 %) of forest in Class 1.3 was far exceeded, above all due to the establishment of European protected areas (2013: 470,000 hectares). In any case concrete implementation of the target provisions in these areas should be fostered in order to safeguard forest biodiversity.

In the course of the preparation of an aid programme for the EU's rural development subsidisation period 2014–2020 also an Austrian eco-programme for forests („Österreichisches Waldökoprogramm“, ÖWÖP) was elaborated. One of its objectives is to maintain and enhance forest biodiversity.





CRITERION 5:
MAINTENANCE AND APPROPRIATE
ENHANCEMENT OF PROTECTIVE
FUNCTIONS IN FOREST MANAGE-
MENT (NOTABLY SOIL AND WATER)

THE PROTECTIVE FUNCTIONS OF FORESTS ARE VITAL ESPECIALLY NEAR SETTLEMENT AREAS. This criterion outlines the functions of forests in respect of drinking water, protection against air pollution, erosion and avalanches, or for the direct protection of people, for example against noise or as a visual cover. All forests fulfil these functions to some extent, but for some forests it is the main management objective.

INDICATOR 5.1: PROTECTIVE FORESTS — SOIL, WATER AND OTHER ECOSYSTEM FUNCTIONS

Protection forest in high forest stands

	Area (ha)	%
Protection forest with yield	320,000	8.0
Protection forest without yield	500,000	12.5
Total	820,000	20.5

Table 4 | Source: ÖWI 2007/09, BFW 2014

In Austria's alpine landscape, protection forests are particularly important as a safeguard for human habitats. The Austrian Forest Act places these forests under special protection and the owners of protection forests must "manage them in such a manner under the local conditions that their preservation as a stable vegetation with a strong inner structure and timely regeneration is guaranteed". Since its 2002 amendment, the Act has made a distinction between site protection forests and object protection forests.

In the Austrian Forest Inventory (ÖWI), protection forests are surveyed in analogy to section 21 of the

Need for and presence of regeneration

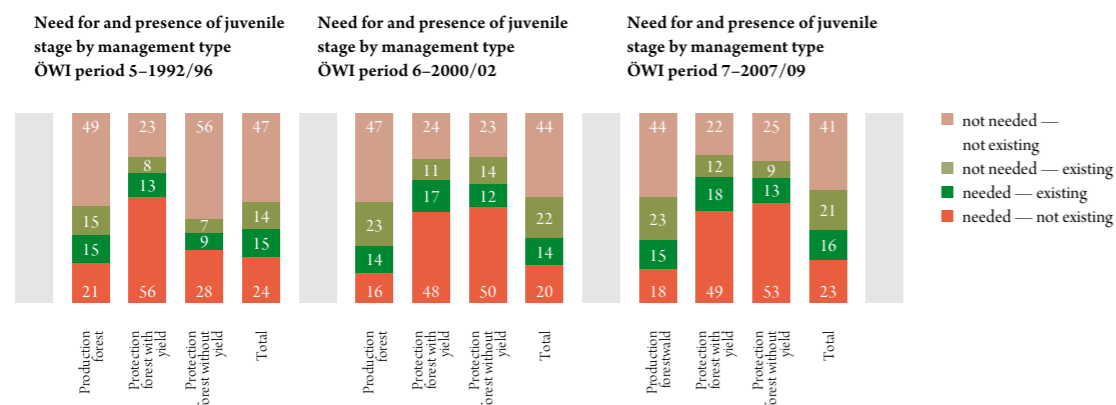


Figure 37 | Source: ÖWI 2007/09, BFW 2014

Forest Act 1975 prior to its 2002 amendment. ÖWI thus defines protection forests as forests requiring protection whose site is threatened by the erosive forces of wind, water and gravity, and which require special treatment to protect the soil and growth, as well as to ensure reforestation. The category "object protection forests" newly introduced by the 2002 amendment to the Forest Act is not taken into account in the surveys. Table 4 shows the area distribution of protection forests.

In the rural development subsidisation period 2007–2013 the initiative „Protection through Forests“ (see info box) was launched. Its objective is to safeguard and improve the performance of object-protecting forests in a cost-effective way. In an Austria-wide survey of protection forest stands eligible for subsidisation 384,000 hectares of object-protecting forests were identified.

PROBLEM: AGEING PROTECTION FORESTS AND LACKING REGENERATION

To ensure that protection forests are able to fulfil their function to the full, their age structure must be mixed;

stable permanent stocking is not possible otherwise. Therefore, it is important to regenerate older stands within good time before their protective function is lost. For protection forests with yield the ÖWI 2007/09 reports a very high need for regeneration: On two thirds of the land regeneration is necessary. However, on over 70 % of this area no regeneration exists. Also in protection forests without yield two thirds of the land require regeneration. In these forests there is no regeneration

in even 80 % of the cases. The inhibiting factors that obstruct adequate regeneration are browsing and forest pasturing, erosion or too dense ground vegetation. Under the Austrian Forest Programme rehabilitation and timely regeneration as well as the elimination of inhibiting factors have therefore been set as targets.

More comprehensive information on the complex theme of protection forests is available on the pages of the Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW) at <http://www.waldinventur.at>.

FOREST LAND-USE PLANNING IN AUSTRIA

The broad spectrum of effects provided by forests ranges from the protection of objects, the protection against soil loss and erosion, their function as a water reservoir and their air filtering capacity to the provision of resources, of areas for leisure and recreation as well as of habitats for plants and animals. To be able to avoid conflicts of interest between the many forest "users", interdisciplinary planning and control are a necessity. Forest land-use planning is trying to meet this requirement with its three key planning instruments: the Forest Development Plan, the Hazard Zone Plan and the Technical Forestry Plan.

Forest Development Plan

Presenting and describing the whole of Austria's forests, the Forest Development Plan currently provides the most important tool for assessing forest functions of public interest. In the Forest Development Plan the four effects of forests are assessed and described:

Forests in which the **economic function** is identified as the so-called „key function“ (presently 61.9 % in Austria) are forests in which the production of timber as a raw material is predominant and where thus none of the so-called non-market functions is of high significance.

Key functions of the Austrian forest

According to the Forest Development Plan

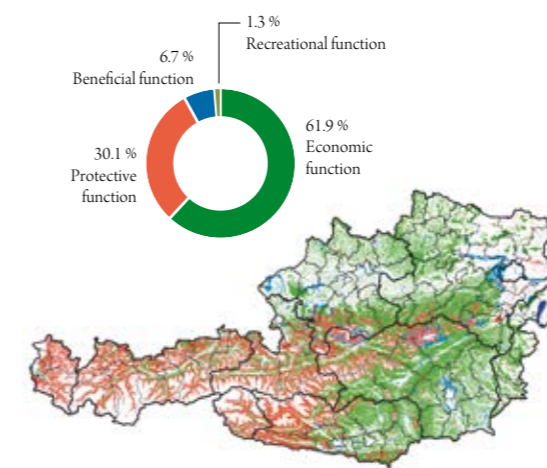


Figure 38 | Source: BMLFUW 2014

Forest areas on which the **protective function** dominates (presently about 30.1 %) can be subdivided into two different groups as regards the type of protection desired:

In forests with a predominant **beneficial function** (presently about 6.7 % Austria-wide, with a rising trend) the influence of forests on the environment, notably on balancing the climate and the water regime, as well as on the purification and renewal of air and water has priority.

The **recreational function** (in all Austria 1.3 %) is identified as the predominant function in the relevant Forest Development Plan only where there is evidence

that the effect of the forest as a recreational area on visitors to the forest is the major function. This means that the recreational effect must not exclusively be concluded from the location amid a settlement area or an industrial area.

Where forests are too heavily frequented, regulatory measures are required and need to be adopted to ensure the maintenance of forests and of its recreational effect for the long term.

A description of the respective functional area is provided in the text section of the Forest Development Plan. If necessary, measures are defined to enhance the relevant key function or to ensure it for the long term. Since 1990 the Forest Development Plan has been available for all Austria and has been open for inspection by the public at all district administrative authorities, at the provincial forest administrations as well as at the Ministry of Agriculture, Forestry, Environment and Water Management (Unit for Forest Land Use Planning).

In addition to the analogue publication of the sub-plans of the Forest Development Plan, the spatial data of the functional areas, the descriptions and the planning data are fed directly into an information system of the Provinces (GIS) and displayed in maps. Since January 2014 all Forest Development Plans are available also digitally. The technically sound and transparent comparison of existing and desired forest functions makes it possible to illustrate appropriate tending and enhancement measures, their degree of urgency and the expected costs. The application of the GIS allows a faster exchange of data and, not least, interdisciplinary cooperation.

More detailed information on the Technical Forestry Plan:
<http://www.bmlfuw.gv.at/forst/oesterreich-wald/raumplanung/waldentwicklungsplan.html>

Technical Forestry Plan

Whilst the Forest Development Plan and the Hazard Zone Plan are mandatory and prepared directly by the competent forest authorities, the Technical Forestry Plan as the third instrument

of forest land use planning is optional and is usually prepared at the initiative of forest managers. For the authorities, it becomes a binding component of forest land-use planning only if a respective application is filed by the authorised party. Between 1975 and 2001 only very few Technical Forestry Plans were prepared in Austria.

As a consequence of the increase in „horizontal angles on the topic“ in the course of the accession to the European Union, there is growing demand for specific management plans, for which the Technical Forestry Plan is particularly well suited. In recent years the Federal Ministry of Agriculture, Forestry, Environment and Water Management, in close cooperation with practitioners, has developed some practical and far-sighted pilot projects to elaborate concrete models. As a guideline, a draft outline for the Technical Forestry Plan was prepared. It serves to simplify the task and provide orientation both for simple themes and for highly complex issues requiring intensive planning. Since 2002, more than 35 pilot projects have been initiated at suitable sites. In the years to come the wide use of „management plans“ in the forest sector will also be more comprehensively adjusted to the Rural Development Programme 2014/20.

More detailed information:
<http://www.bmlfuw.gv.at/forst/oesterreich-wald/raumplanung/waldfachplan.html>

Hazard Zone Plan

In Austria, areas for living are in many fields affected by natural hazards. Floods, mudflow, avalanches or rockfall can become a menace to humans, the environment, property and economic assets. Knowing the extent of this threat is essential for the sustainable development of Austrian regions; for this reason particularly high priority is given to hazard zone planning.

A forest land use plan which is of special importance to a mountainous country like Austria is therefore the Hazard Zone Plan which has for

almost 40 years been prepared by the agencies of the Forest Engineering Service in Torrent and Avalanche Control. The Hazard Zone Plan („Gefahrenzonenplan“) is an area-based expert opinion on the risks due to torrents, avalanches and erosion in municipalities. It serves as a basis for the planning of control measures and for the assessment of their urgency. It helps the local building authorities, the local and regional area planning and the security sector. By 2015, all municipalities for which hazard zone plans of the WLV have to be prepared according to the requirements of the 1975 Forest Act must have a hazard zone plan.

The Hazard Zone Plan does not only consider individual events but presents the sum of all events that may occur and thus the sum of all possible hazards to which living and transport areas are exposed. Taking into account the state of the art, the preparation of the plan requires comprehensive interdisciplinary assessment of the natural conditions prevailing in the area under survey. In addition to the „historical“ approach (analysis of earlier events) and the evaluation of traces bearing „silent witness“ to events of nature, modern methods (e.g. numerical

simulations) are increasingly applied. The provision of the Forest Act which requires that these draft plans have to be open for inspection by the public also assures the participation of the population concerned in the four-step review and approval procedure (development and internal coordination of the plan, preliminary technical review and review at the Ministry). The Hazard Zone Plan has to be updated and adjusted in particular if the conditions in a catchment area or in the area of the municipality change, if there are new findings as a result of disasters, or after the implementation of control measures.

Since 2012, information on the Hazard Zone Plan is also available in digital form: At the website (see below) one can search for addresses, click on digital hazard maps and, with various zoom settings, check the risk for one's own house or real estate.

More detailed information: <http://www.naturgefahren.at>

Data of the forest land-use planning in INSPIRE

The INSPIRE Directive of the European Union, Directive 2007/2/EC („INSPIRE“ = Infrastructure for Spatial Information in the European Community), serves the development of a geodata infrastructure in the European Union. The purpose of the Directive is above all to make electronic and standardised geodata (and their metadata) accessible and usable for the public. In Austria, this Directive has been implemented both by the Federal Government (Geodata Infrastructure Act, Federal Law Gazette I No. 14/2010) and by the Provinces. This implementation also concerns the Forest Development Plan, which is therefore also mentioned under the geodata topic „Bodennutzung“ (soil utilisation) in the Austrian monitoring list as „WEP-AUSTRIA-DIGITAL“. Since December 2013 the Forest Development Plan is accessible to the public (shp. GIS file or wms Service) digitally under the link <http://inspire-geoportal.ec.europa.eu/discovery/> (Search: Waldentwicklungsplan)

Detailed information on the Forest Development Plan:
<http://www.bmlfuw.gv.at/forst/oesterreich-wald/raumplanung/waldentwicklungsplan.html>

State of hazard zone planning by the Forest Engineering Service in Torrent and Avalanche Control (WLV) 2013

- Municipalities not requiring identification of hazards under the Forestry Act 1975 or municipalities not having a valid hazard zone plan as provided for in the Forestry Act 1975 at the moment.
- Municipalities having a hazard zone plan approved by the Ministry according to the Forestry Act 1975.



Figure 39 | Source: Forest Engineering Service in Torrent and Avalanche Control (WLV) 2014

INDICATOR 5.2: PROTECTIVE FORESTS — INFRASTRUCTURE AND MANAGED NATURAL RESOURCES

The vital significance of the complex theme of protection forests is reflected for example in the broad and well-founded discussion on the topic in the Austrian Forest Dialogue; Subsequently numerous concrete proposals for action were included in the Austrian Forest Programme and were made objectively verifiable by means of a set of indicators (<http://www.walddialog.at>).

Maintaining and improving the protective effects of forests as cost-efficiently as possible is one of the most important elements of Austrian forestry policy. For forests that protect humans, human settlements, facilities or cultivated land in particular against natural hazards or damaging environmental impacts, and which require special treatment to obtain and safeguard their protective or beneficial effects, the 2002 amendment to the Forest Act introduced the new category of the “object protection forest” (section 21, paragraph 2, of the Forest Act as amended) in addition to the existing categories of the “site protection forest” and the “protective forest”.

PROTECTION FOREST PLATFORMS

Based on the output of the provincial protection forest concepts, an even more targeted use of the necessary funds and, above all, an even stronger regional anchoring of themes of relevance to protection forests were agreed upon in January 2002. For this purpose, representatives of ministries, provincial governments and representations of interest of the forest owners, territorial bodies, industry and the hunting sector codified their common will in the Austrian Protection Forest Strategy. Since then protection forest platforms have worked to explain and harmonise the required measures for protection forests in the Provinces and municipalities and to create a fair balance of interests. Special importance is attached to the necessary regulations concerning forests and pastures and to a form of game management which is in line with the requirements of protection forests. Meanwhile protection forest platforms have been set

up in most Federal Provinces. The Federal Protection Forest Forum established by the Ministry of Agriculture, Forestry, Environment and Water Management serves primarily as a service agency for the initiatives of the Federal Provinces.

The Ministry of Agriculture, Forestry, Environment and Water Management initiated and has also participated in some international EU-assisted projects that deal with modern protection forest management. In these projects special attention is paid to the effects and functions which forests are expected to fulfil.

There have been numerous awareness-building activities both at the federal level and in the Provinces under the motto “The protection forest concerns everyone!” in recent years. One particularly successful example is the initiation of the Tyrolean protection forest partner towns (with systematic integration of the stakeholders of the relevant valleys/municipalities, naming of concrete protection forest contact partners in the municipalities, as well as appropriate competitions, school projects with differing focuses, accompanying PR work, etc.). Similar approaches are chosen also in the other Provinces or regions dominated by protection forests (regular coordination meetings of the interest groups concerned, conduct of school competitions, afforestation activities, awards for particularly successful projects, etc.).

These activities are implemented on the most decentralised level possible, making use of regional structures; integrating multipliers and stakeholders (such as municipalities, schools, tourism and hunting associations) is particularly important in this context. This allows synergy potentials to be exploited in all areas (resources, infrastructure, funding approaches, etc.). Furthermore, conflicts of interest are to be resolved on an interdisciplinary level by involving all the parties involved in advance. To ensure that these approaches are continued and developed as planned, the theme was laid down in a

prominent position of the Austrian Forest Programme. In order to provide forests having an object protection function with the stability of cover and the regeneration capacity of forests they need specifically and on a large scale, the Directorate-General „Forestry“ of the Federal Ministry of Agriculture, Forestry, Environment and Water Management launched the programme „Initiative

Protection through Forests“ („Initiative Schutz durch Wald — ISDW“) in coordination with the Federal Provinces. Meanwhile, this programme is tuned to the EU Regulation on support for rural development. It is also implemented in the framework of the Austrian Programme for the Development of Rural Areas 2007–2013 and prepared for the 2014–2020 period.

„INITIATIVE PROTECTION THROUGH FORESTS“ (ISDW)

The programme “Initiative Schutz durch Wald” (initiative concerning protection through forests) serves to safeguard and enhance the protective effect of forests. Protection against natural hazards is provided above with the help of silvicultural measures which, if necessary, can be supplemented by accompanying technical measures.

In the Austrian Protection Forest Strategy, and to implement the Mountain Forest Protocol of the Alpine Convention, the following objectives were agreed upon for the ISDW programme:

- Optimisation of the object-protective effect of forests to a far greater extent than so far
- Stronger motivation for the management of forests having an object protecting effect, especially through fair, performance-related compensation within the meaning of the Alpine Convention/Mountain Forest Protocol
- Linking regional planning (district framework plans based on the Forest Development Plan) with site-related projections (detailed projects), dynamic district framework planning with regular readjustments
- Cooperation between the provincial forest service and the Forest Engineering Service in

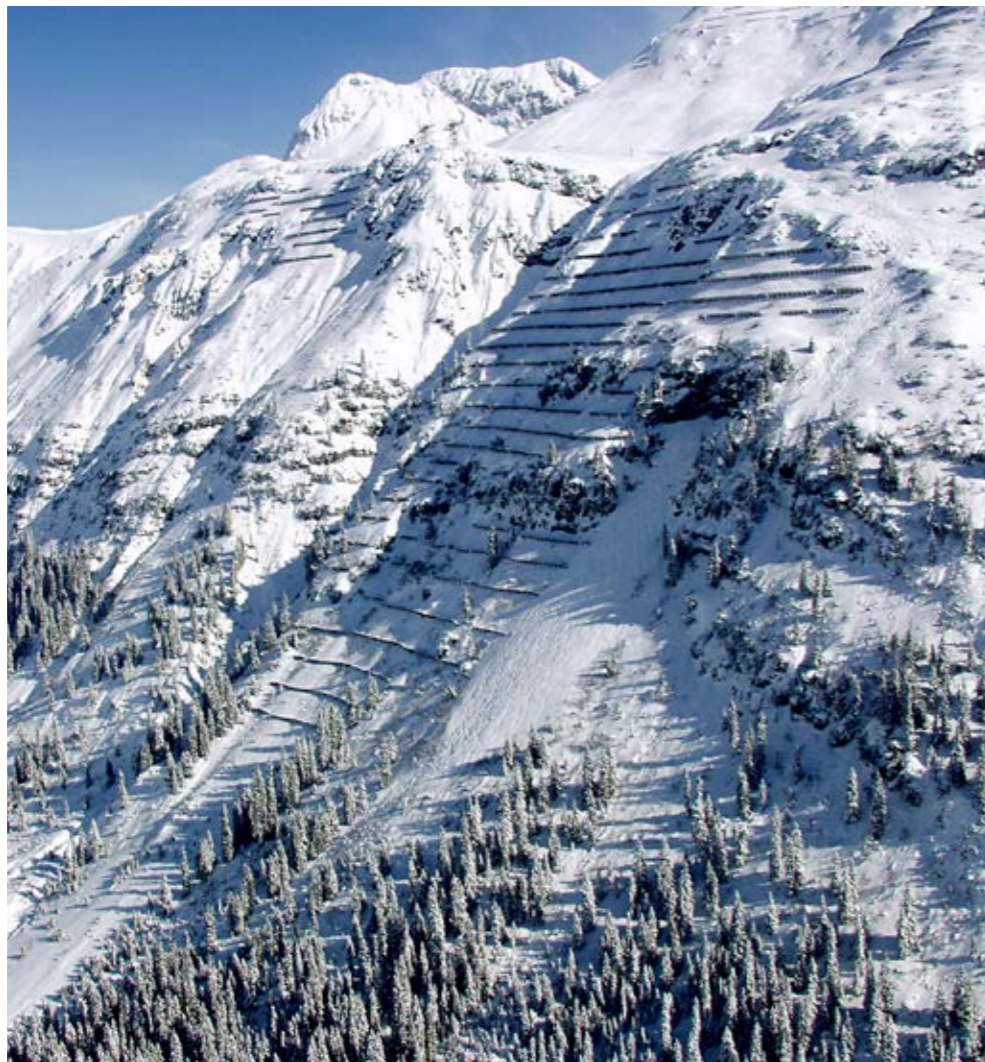
Torrent and Avalanche Control, with integration of science (BFW)

- Introduction of an evaluable “traffic light system” for the status quo and the target status of the protective functions of forests with an object protecting effect
- High efficiency of support through accompanying monitoring activities; standardised, efficient administration
- Funding security for the ISDW: The annual funds are provided by the financial partners within the scope of the agreements made
- Taking account of other funding opportunities concerning protection forests and optimisation of the requests from applicants through options on provincial level with simultaneous compliance with minimum standards applying on federal level

Planning tools and procedure

In order to reach the desired targets the “Initiative Schutz durch Wald” follows a uniformly defined development and approval procedure that guarantees the required planning security and transparent funding at all levels from framework and detailed plans through the implementation of measures on the relevant forest site to the evaluation.

For details, see: <http://www.naturgefahren.at/massnahmen/isdw>



TORRENT AND AVALANCHE CONTROL (DIE.WILDBACH)

Natural hazards constitute a safety risk in many Austrian regions: Torrents, avalanches, mudflows, landslides and rock falls threaten humans, their areas of living, settlements and economic area, transport routes and major infrastructure. For many centuries the Alpine region was settled and managed in line with the forces of nature; people were well aware of the existing dangers and had a high level of acceptance of the imminent risks (risk culture).

In modern society the reasoning of humans is becoming more and more captivated by people's

concerns about their present and future life. With people's constantly increasing demands on prosperity and quality of life, also the need for safety is growing. Natural hazards present a complex threat to the basis of life against which the individual can no longer effectively protect himself. In the Austrian Constitution torrent and avalanche control has therefore been declared a federal task of major importance.

To fulfil this task, preventive protection measures are implemented and the instrument of hazard zone planning (see info box „Forest Land-Use Planning“) is applied to control the use of land. In Austria, the Forest Engineering Service in Torrent and Avalanche Control (abbr. „die.wildbach“), a unit of the Federal

Ministry of Agriculture, Forestry, Environment and Water Management, has been charged with this task.

die.wildbach pursues the concept of an effective combination of protective forest biology, engineering and land-use planning measures within the scope of the overall natural hazard management. The tasks include the planning, implementation and maintenance of active control measures, hazard zone planning, consulting and expert activities, as well as support for the catchment areas. Federal subsidies from the Disaster Fund are used to allow preventive protection.

In recent years the analysis and evaluation of the natural hazard potential in torrent and avalanche catchment areas, which had formerly been based on concrete planning, has developed into an area-wide information and knowledge base on natural hazards for the entire federal territory (knowledge management). die.wildbach has important instruments for this purpose, such as the hazard zone plans, which are available for a great part of Austria, the digital torrent and avalanche register, regional studies and analyses of the natural space for individual valleys.

In the course of time the measures taken to protect torrent and avalanche catchment areas have developed into integral management plans that include permanent technical and forest biology measures and most recently also temporary measures. The control plans do not only provide for active measures, but also aim at controlling other ways of using the space in the catchment area (catchment area management). With the implementation of the EU Water Framework Directive and the EU Floods Directive, the perspective is raised to the level of larger hydrological space units (river basin management).

The Hazard Zone Plan serves as a basis for regional planning and the construction sector, but is not normative ex lege. Based on what has been learned from the flood events of recent years, greater attention is paid to the implementation using the instruments of land-use

planning. The objective is to shift areas of settlements away from imminent natural hazards (preventive regional planning).

The federal government allocates about 70 million euros per year from the Disaster Fund to support measures to control torrents, avalanches, rockfall and erosion. With the close linking of hazard zone planning and the planning of measures as well as the provision of federal funds subject to compliance with the plans and expert opinions of die.wildbach as provided for by the “reasons for obstruction” decree of the BMLFUW, an effective and economic control of the use of resources (subsidy management) is ensured.

Together with the provincial forest services, the provincial chambers of agriculture and in consultation with expert engineering consultants and engineering offices die.wildbach also elaborates area-management projects to rehabilitate and safeguard protective mountain forests. The measures are implemented above all by the owners of the forests; many of them are mountain farmers. die.wildbach has about 1,100 employees.

<http://www.die-wildbach.at>

INTERNATIONAL COOPERATION

Since mountain forests are faced with similar problems and framework conditions all over the world, Austria participates also in international efforts to develop joint strategies aimed at improving the condition of mountain and protection forests and their protective function in the case of natural disasters. In addition to the initiatives for protection forests taken in the framework of FOREST EUROPE, the European Union or the Alpine Convention¹⁴, Austria participates also in a great number of international projects dedicated to cross-border strategic cooperation between regions dominated by mountain forests.

14) Alpenkonvention: <http://www.alpconv.org/de/convention/default.html>



CRITERION 6: MAINTENANCE OF OTHER SOCIO-ECONOMIC FUNCTIONS AND CONDITIONS

THIS CRITERION DESCRIBES THE SOCIOECONOMIC FUNCTIONS OF FORESTS AS WELL AS SOCIAL AND CULTURAL ASPECTS OF FORESTS. Due to the significant changes that have taken place over the past few decades information about the persons working in forests as well as about forest holdings and the whole forest sector are important social indicators especially for the sustainable development of rural areas. Austrian forests fulfil a great number of socio-economic functions, ranging from the creation and securing of jobs and foreign trade in wood and wood products to social and cultural aspects. By means of these functions and the resulting added value forests contribute to Austria's gross domestic product.



INDICATOR 6.1: FOREST HOLDINGS

As opposed to many other European countries, Austrian forests are managed above all by private forest owners. The most frequent structure is small-scale ownership with holdings covering less than 200 hectares of forest land; 50 % of the Austrian forest is managed by such small holdings, the major part of them with the labour of family members. Most of these private forest owners manage not only forests but also agricultural areas.

The other half of the Austrian forests is managed by about 1,500 enterprises with 200 or more hectares of forest land. Beside these private forest holdings, which account for about 22 % of the forest area, and the community forests with approximately 10 %, the Austrian Federal Forests hold a special position. They manage 14 % of the domestic forested land and are thus by far Austria's largest forest enterprise. In addition to the state, also some Provinces and

Forest areas and ownership structure — types of ownership according to cadastral map

Survey year: 2012 (in hectares)	A	%
Total	3,646,382	100
Private forest < 200 hectares*	1,829,002	50
Private forest 200 hectares and more*	797,693	22
Community forest	346,728	10
Communal forest (forests as assets)	80,169	2
Provincial forest	46,301	1
Austrian Federal Forests and other publicly owned forests	546,489	15

Table 5 | Source: BMLFUW 2014
 *) including church-owned forests

municipalities own forests (altogether 3 %). Taking everything into account, the share of public forest ownership totals 18 %, which is significantly less than in most other European countries.

Over the past decades, massive structural changes have taken place in agriculture and forestry. The number of enterprises has been steadily on the decline in recent years. This has several reasons: A decrease in the traditional ties between forest property and agricultural enterprises can be observed while at the same time the group of urban forest

owners is increasing. In consequence, people feel less closely linked to the forest and are therefore less willing to work in forests themselves.

As a result of this growing disinterest in management, certain forests are no longer managed at all. Austria's forest policy tries to counter this development by subsidising mergers and cooperations. Forest associations and forest management communities take over various tasks of forest management depending on the wishes of their members.

Enterprises and forest areas according to Agricultural Structure Survey 2010, compared to 1995 and 1999

Structural features	Number of enterprises			Area in hectares		
	1995	1999	2010	1995	1999	2010
Less than 3 ha	77,157	64,681	41,853	102,958	88,254	59,373
3 to less than 5 ha	32,293	30,728	27,106	125,130	119,173	104,751
5 to less than 20 ha	57,384	56,594	55,638	553,517	547,136	540,868
20 to less than 50 ha	12,360	12,476	13,689	370,489	373,152	410,528
50 to less than 100 ha	2,998	2,989	3,524	205,763	205,055	240,689
100 to less than 200 ha	1,617	1,674	1,960	220,520	228,605	266,972
200 to less than 500 ha	849	854	961	260,438	263,061	293,632
500 to less than 1,000 ha	270	284	300	189,597	200,427	207,319
1,000 to less than 2,000 ha	127	132	147	177,014	185,117	206,590
2,000 to less than 3,000 ha	41	40	45	100,522	97,785	108,713
3,000 to less than 4,000 ha	21	20	22	72,430	68,294	73,705
4,000 to less than 5,000 ha	18	12	10	81,731	54,052	44,574
5,000 ha and more	84	64	52	795,878	826,534	845,428
Total	185,219	170,548	145,307	3,255,987	3,256,645	3,403,142

Table 6 | Source: Statistics Austria 2014, Agricultural Structure Survey

INDICATOR 6.2: CONTRIBUTION OF FOREST SECTOR TO GROSS DOMESTIC PRODUCT

According to most recent calculations the forestry sector's contribution to gross domestic product growth was about 1.7 % in 2013. Thereof, 0.4 % accounted for forest management, 0.7 % for wood processing and 0.6 % for the production and processing of paper and cardboard. In absolute terms, the gross value added by the forestry sector at cost of production amounted to 4.91 billion euros after 4.96 billion euros in 2012. Thereof, 1.23 billion euros accounted for forest management, 2.02 billion euros for wood processing, and 1.66

billion euros for the production and processing of paper and cardboard.

Since 1995 the gross value added by the forestry sector has increased from 3.96 billion euros to 4.91 billion euros; in relation to the overall economy, however, the importance of the forestry sector has decreased: In 1998 the forestry sector still accounted for a little more than 2.4 % of the total value added, in 2013 for only 1.7 %.

INDICATOR 6.3: NET REVENUE

Regular surveys and analyses of key economic indicators document the economic performance of forest enterprises and the competitiveness of domestic wood production. This kind of monitoring has a long-standing tradition in Austrian forestry. It has been a successful instrument in supplying basic data for forest policy decisions. The documentation of forest-economic data is based above all on two networks of test forest enterprises, of which one has been established in forests smaller than 200 hectares (as from 2013: up to 500 hectares), the other in forests larger than 500 hectares. Further data is also supplied by the Austrian Federal Forests.

In general, these investigations rely on data supplied voluntarily by individual enterprises. The data is collected according to cost accounting factors. The results thus describe primarily the profitability of wood production and thereby differ essentially from balance sheet ratios. Ancillary enterprises are not included in this profit and loss account. Preparation of the data is carried out at the University of Natural Resources and Applied Life Sciences ("Universität für Bodenkultur").

PRIVATE FORESTS

The survey of private forests is based on a sub-sample of about 110 farms from the more than 2,200 agricultural enterprises statistically surveyed for the "Green Report". In 2012, the farm forest enterprises invested an average of 7.7 family labour hours per hectare of commercial forest and earned a family income of € 297 per hectare, i.e. € 39 per hour of family labour.

The family income from forest management was thus 18 % below the preceding year and 15 % (or 5 % when comparing inflation-corrected real values) above the ten-year average. The reduction compared to the preceding year is a result of the smaller quantity of wood felled, the exceedance of the ten-year average is above all due to the rising timber prices of the past few years.

The pro-rated social insurance contributions allocated to the forest are not included in the profit account and ultimately reduce the available family income, most recently by € 69 per hectare.

LARGE FOREST ENTERPRISES

Lastly, 100 enterprises participated in the test network of large forest enterprises which was established as early as in the 1960ies. With over 310,000 hectares of commercial forest area, these test enterprises account for half of the total sample in this size category. An external assessor prepares a business account for each test enterprise, thus allowing a detailed cost accounting analysis on a uniform basis. In 2012, the large-scale forest enterprises achieved an operating result of 136 euros per hectare of commercial forest, 4 % less than the preceding year, but 12 % (or 5 % when comparing inflation-corrected real values) above the ten-year average. The rather good results of the last two years are above all due to the relatively high prices of roundwood. However, we should not have any illusions about the long-term development based on the good results for the past few years. The revenues and value added from timber production have shown a downward trend for several decades. Only with consistent rationalisation and the associated cost cuts has it been possible to always get positive operating results.

AUSTRIAN FEDERAL FORESTS (ÖBF AG)

Some 15 % of the Austrian forest are managed by the Österreichische Bundesforste AG (Austrian Federal Forests or ÖBFAG), which was disincorporated from the federal budget in 1997 and is organised as a stock corporation (the federal government is the sole shareholder).

The business results of Österreichische Bundesforste AG are published in an annual sustainability report (<http://www.bundesforste.at>). Since the individual business divisions are not differentiated internally within the meaning of full cost accounting, however, only few economic indicators can be compared directly with the results of the test forest surveys for farm forests and large enterprises.

In the financial year 2012, Österreichische Bundesforste AG reported its best operating results since the establishment 15 years ago. The operating output increased from 226.1 million euros (2011) to 237.0 million euros,



the consolidated turnover from 213.7 million euros to 226.9 million euros, the operating profit (earnings before interest and tax = EBIT) from 26.1 million euros to 36.1 million euros. Taking into account the financial result, which was influenced by write-offs from the participation sector in 2012, the result from ordinary business activity amounted to 15.7 million euros (2011: 23.7 million euros). The annual surplus amounted to approximately 8.5 million euros (2011: 21.0 million euros). The usufructual fees that have to be paid to the owner, the Republic of Austria, is legally set at 50 % and amounted to 4.3 million euros (2011: 10.5 million euros). Since 1997 the Federal Forests paid altogether 340 million euros of usufructual fees, dividends and tax on earnings to the Republic.

The number of persons employed increased by six, thus amounting to 1,155. The sustainable prescribed cut was with 1.5 million cubic metres in line with the planned felling quantity. Process optimisation, consistent management of costs and a decrease in damaged wood had a positive impact on the result. With a share of 72 % (170.3 million euros) in the operating output forest/wood remains the core business. With 38.0 million euros, respectively 18.9 million euros, also the business areas of real estate and services made important contributions.



INDICATOR 6.4: EXPENDITURES ON SERVICES

Private and public forest owners make additional expenditures in order to allow a range of free services to be provided to the public. These include for example expenditures for the conservation of protection forests. These services make an important contribution to the quality of life and the safety of the population. A major part of the services rendered by forest owners are rendered as a “by-product” in the course of forest management, as many of these services cannot be marketed because as „public services“ they do not have a realisable market value either ex lege or due to strong social pressure. With a few specific exceptions, forest owners are not forced by law to manage their forest; however, if they do, the law ensures that the desired public services are also rendered. This makes it very difficult to segregate the additional expenses for the provision of free services from normal expenditures, and to quantify them. In addition to legal stipulations,

the public sector also tries to ensure the provision of the desired services by offering financial incentives. Under the Forest Act, for example, it is the duty of the federal government to promote forest management with a view to its effects in the public interest.

Due to the tendency towards a decrease in value added by timber production, it is becoming increasingly difficult or financially uninteresting for some forest owners to manage all of their forest area and to provide the services required by the public. The public, and thus every individual person, is therefore called upon more and more to make a contribution towards ensuring these services, be it in the form of payment for a specific service by the concrete beneficiary or compensation of part of the costs, or in the form of public funds being made available in order to cover the necessary expenditures.

INDICATOR 6.5: FOREST SECTOR WORKFORCE

Sustainable management of the Austrian forests requires highly qualified human resources. The significantly increasing mechanisation and technical development of timber harvesting observed since the beginning of the nineteen eighties as well as the administrative rationalisation led to strongly declining numbers of employees. Even so, the Austrian forestry sector still provides jobs for many people. In addition to forest workers and employees, many of the forest owners themselves spend more or less of their working time in the forest.

In 2012 the Austrian forestry sector employed 4,023 labourers, including 455 female labourers. The number of employees and civil servants with training in the field of forestry was 2,371 in the year 2012. Of these, 1,403 worked in forest enterprises and the remaining 1,386 worked in the tertiary sector. Österreichische

Bundesforste AG employed an average of 1,157 people (597 labourers, 560 employees) in 2012.

The extent of work provided by family labour is difficult to determine due to the large number of mixed farm forest enterprises. However, the total number of paid and unpaid labourers in forestry can



be estimated on the basis of data from Statistics Austria. The estimate for 2012 is 22,501 annual units of labour (labour output of one person in full employment). It

should be pointed out that in the context of the Agricultural Structure Survey 2010, separate data for forestry were collected for the first time.

TRAINING AND FURTHER TRAINING

Highly qualified human resources provide an important basis for the sustainable management of Austria's forests and simultaneous maintenance of all forest functions. Plans and offers for education, training and advanced training are continuously adapted to the forest-political and socio-political framework conditions. This is the only way to ensure that forest managers can cope with the steadily increasing demands on domestic forests. Education in forestry is based on the general educational system in Austria and includes a wide variety of vocational and technical qualifications:

APPRENTICESHIP

Skilled forest worker („Forstfacharbeiter“): There are three ways of becoming a skilled forest worker. First, in the framework of a regular three-year apprenticeship at an enterprise qualified to train apprentices and completion of a vocational school. Furthermore, training is offered in the framework of a second-chance education programme by completion of a course at a FAST (Forstliche Ausbildungsstätte) and successful completion of the Skilled Workers Exam („Facharbeiterprüfung“). The third possibility is the „follow-up apprenticeship“ in forestry after completion of the agricultural secondary school, which ends up with the Skilled Workers Exam at the forestry training centres of the Federal Forest Office (BFW). Skilled forest workers are qualified to perform manual and motor-manual activities within the scope of afforestation, cultivation, tending and harvesting work in forests.

Master forest administrator („Forstwirtschaftsmeister“): After three years of work experience as a skilled forest worker, it is possible to take a course at one of the forestry training centres to become a master forest administrator. This course ends with the

master craftsperson examination. After another three years of practical work experience, a two-month preparatory course and successful completion of the final examination, the title „Master of Forestry“ („Meister der Forstwirtschaft“) is awarded. In 2013 the 14 apprenticeship trades then offered according to the Law on Vocational Training in Agriculture and Forestry was supplemented by the new apprenticeship trade „Biomass and bioenergy“. Master forest administrators are qualified to perform (in most cases as foremen/forewomen) manual and motor-manual forest activities within the scope of afforestation, cultivation, tending and harvesting work in forests and to offer his/her activities as an independent service-provider, as set out in trade law.

TRAINING AT A SPECIALISED EDUCATION AND TRAINING INSTITUTION

Forest warden („Forstwart“): The so far one-year, as from the school year 2015/2016 two-year training as forest warden is provided by a Forestry School and ends with a recognised examination. Applicants must be 16 years of age and they must have passed the entrance examination. Forest wardens are qualified to assist in the forest and hunting services of forest enterprises covering over 1,000 hectares and to manage forest enterprises of less than 1,000 hectares independently.

Forester („Förster“): The five-year training as a forester ends up with a diploma examination and is offered at the Federal Secondary College for Forestry at Bruck/Mur for all parts of Austria. In parallel to the regular five-year course a three-year senior course in „Forest Management“ has since 2007 been offered for graduates of three-year agricultural and forestry colleges. The main focus of this training

course is on „regional management“, which qualifies the graduates to offer forest-related services in rural regions professionally.

Junior forest official („Forstadjunkt“): After the five-year training as a forester, the graduate can be employed as a junior forest official at a forest enterprise. A junior forest official is qualified to work as an additional assigned forest agent in the forest and hunting services of forest enterprises of over 1,000 hectares and to carry out further specific activities according to different provisions of the 1975 Forest Act.

ACADEMIC TRAINING

Forestry assistant („Forstassistent“): The education and training for the profession of a „forest assistant“ is offered at the Vienna University of Resources and Applied Life Sciences in the form of a 6-term bachelor study course in „Forestry“ and a 4-term master study course in „Forest Sciences“ including doctoral studies. The training complies with the Bologna regulations. The forestry assistant is qualified to work as an additional assigned forest agent in the forest and hunting services of forest enterprises covering more than 3,600 hectares that are obligated to employ certified foresters or silviculturists and to carry out further specific activities according to different provisions of the 1975 Forest Act.

TRAINING AS EXECUTIVE FOREST OFFICER

State Examination for Executive Forest Services: The specialist training as executive forest officer (forest manager or Graduate in Forestry) includes the taking of the State Examination for the Higher Forest Service. The purpose of the State Examination is to introduce forestry assistants and junior forest officials to their future management tasks. The graduate forester is qualified to independently manage forest enterprises of a size between 1,000 and 3,600 hectares obligated to employ certified

foresters or silviculturists and to work as additional assigned forest agent in the forest and hunting services of forest enterprises covering more than 3,600 hectares. The forest manager („Forstwirt“) is qualified to independently manage forest enterprises of a size of over 3,600 hectares obligated to employ certified foresters or silviculturists and to work as additional assigned forest agent in the forest and hunting services of forest enterprises covering more than 3,600 hectares.

PEDAGOGICAL TRAINING

Training and further training of agricultural and forestry advisors and teachers are offered at the University of Agricultural and Environmental Teacher Training in the form of bachelor and master study courses. Teachers are entitled to teach at the levels I or II of secondary agricultural or forestry colleges. Advisors are above all used at the Provincial Chambers of Agriculture. They are entitled to advise forest owners in questions concerning, for example, forest management or subsidisation. The education as forest pedagogue allows an optimum training which ends with the award of a certificate. Such courses are offered at each of the five recognised forestry training institutes in Austria. Moreover, forest pedagogics is also offered as an optional subject at the fourth level of the Foresters' School at Bruck an der Mur.

IN-SERVICE FURTHER TRAINING

In-service further training for the forestry sector is provided by internationally recognised training and competence centres. To provide targeted further education and training for all persons who are working in the forestry sector and interested in forests, these Forestry Training Institutes (at Ort/Gmunden, Ossiach, Rotholz, Pichl, and the training institute at Hohenlehen) offer specific events, courses, lectures and demonstrations and pass on to them the knowledge gained from practical trials of forestry working procedures, equipment and machinery.

ABOUT THE HISTORY OF FOREST WORK

Excerpt from „Die Entwicklung der forstlichen Ausbildung in Österreich“
(The development of forest-related training in Austria) by Prof. Dr. Anton Trzesniowski (transltd.)



With the development of the axe as a useful tool the nomadic Stone Age men became sedentary as they became able to fell and process trees. The axe, for the first time, put humans in a position to work trees that had formerly been unconquerable.

In Central Europe wood was for a long time the only building material. Forests were common-pool resources and everyone had the right to use them at discretion. However, utilisation was at will, without pattern or method, and without any restriction. In the 13th century the foundation of a great number of towns and the mining boom increased the consumption of wood to such an extent that, bit by bit, forests were no longer common property but started being under sole proprietorship and were owned by sovereigns who became ever more

powerful. In Central and Western Europe Franconian kings became the first forest owners. The possibility of felling trees must be seen as the starting point of planned forest work, because step by step technologies viable for the future were developed. The axe is to be regarded as advancement of the celt and for thousands of years remained the only tool used to fell and process trees in forests.

Forest work as a separate profession developed much later, namely with the flourishing of mining and the involved substantially increased need for wood.

Forestry technology as a more sophisticated form of forest work and an important part of forestry owes its

late development to the invention of the steam engine which, however, was first used only for the transport of timber by forest railways. The mechanisation in forestry experienced a breakthrough as late as in the mid of the 20th century, with the development of light-weight combustion engines. Substantial progress in forest work developed from practical forest work and from the forest education and training institutes which adapted the industrial innovations to the needs of work in forests.

The foundation of monasteries, growing towns and mining led to complex interventions in forests. As a consequence of these interventions, which were carried out by local farmers, forest work developed differently in many regions. Local traditions developed and in almost all Alpine valleys different types of tools with individual names were used.

In the course of time the exchange of commodities and the exchange of experiences made with new trends and

improved tools reached even the most remote areas and eventually resulted in a higher quality of forest work.

The more efficient production of many appliances and facilities led to stronger typification and thus to a modest standardisation of working methods.

From today's perspective, all these processes took place very slowly and lasted for centuries. Things began to move only when people started to recognise the value of human labour as a production factor.

Other chapters of the book (in German) deal with:

- Forest work, subject of scientific studies
- The term „forest work“
- Priorities of work
- Systems and organisation of forest work
- About the training of forest workers



FOREST WOMEN — A “GREEN” NETWORK

Traditionally, forestry and the wood industry are an industry dominated by men. Networks, alliances and regular reserved tables are open almost exclusively to men. However, the stronger role of women is also reflected in the forestry sector, where the number of women working in the industry is on the rise. Even so, it is still not always easy for the “stronger sex” in forestry to accept this fact and to change its ideas accordingly. Very often women in the forestry and wood industry still have a special status. This caught the eyes of three dedicated women whose “calling” is the forestry sector, and in September 2001 they founded the association “Forstfrauen” (Forest Women).

What men have always been able to do: Help and assist each other. Women can do that, too. Mutual support and exchange of experiences — especially for women in executive positions — can only be helpful and have a positive effect on the Forest Women’s self-confidence and the entire sector benefits from this. Moreover, it enhances the general image of women as reliable and resilient partners also in the professional environment.

Seven years of active networking

Meanwhile, some 50 women from all corners of Austria meet for active “networking” two to three times per year. The meetings are quite different: Usually they combine a technical and cultural programme; sometimes they take the form of a seminar or even a Christmas party. The programme is very diverse and is chosen by the ladies themselves. The foundation of this network has led to a wide range of reactions among forest men,

and the question “What on earth are our women doing?” has probably been asked hundreds of times. After six years of active work in the association, the situation has calmed.

Men have grasped that the Forest Women are not a horde of women’s libbers and that instead they boost and support each other in order to achieve successes for forest and wood together with the forest men! “Meanwhile quite a few forest men accompany their Forest Woman to some of the Forest Women meetings”, says Dagmar Karisch-Gierer, chairwoman and initiator of the network — something she sees as an absolute success.

Like in the forest, “regeneration” is very important also for the association. Therefore the Forest Women have joined forces with the forestry education institutions and initiated a mentoring project. Meanwhile they have also become a popular platform as a job centre.

Developing the network

An idea has grown into a functioning network that interested women can join at any time. Regardless of their vocational qualifications, all women working in the forestry sector and wood industry can join the network. The important thing is to continue developing the network and to live the networking concept actively: Every Forest Woman can contribute her skills, or even just her contacts and her vocational background, within the meaning of the objectives of the network.

For details, see: <http://www.forstfrauen.at/>

INDICATOR 6.6: OCCUPATIONAL SAFETY AND HEALTH

Work in forests continues to be one of the most dangerous occupations in agriculture and forestry. Due to various factors such as difficult terrain, adverse weather conditions, work with dangerous tools and machinery or the force of falling trees, accidents and fatalities occur again and again.

With the improved work techniques, the increased use of modern safety equipment as well as a higher level of mechanisation, the number of forest accidents has been dropping — despite an increase in felling volume — over the past years and decades. Nonetheless there are still times when the number of casualties and, unfortunately, also that of fatal accidents still rise dramatically, especially in years with a high level of damaged wood due to storms. Therefore, labour safety and its long-term improvement is always a very important issue.

For this reason also the promotion of training and further education in forestry is very important with a

view to safety at work. The programmes offered by the agriculture and forestry training centres include a large number of courses relevant to this issue. Important contributions towards the prevention of accidents are also made by the Social Insurance Institution for Farmers and the Austrian Social Insurance for Occupational Risks.

OCCUPATIONAL ACCIDENTS IN FORESTRY

In 2013, a total of 1,238 persons were injured in work accidents in forestry, 18 persons sustained fatal injuries. In addition to injuries sustained in accidents, occupational diseases (e.g. diseases caused by noise, vibrations or pollutant emissions by machinery, the partly high ozone exposure when working outdoors, or by insect bites and stings) also play a role, albeit a less important one. Between 2010 and 2013 33 cases of recognised occupational diseases of the business branch Forestry and Logging were reported.



INDICATOR 6.7: WOOD CONSUMPTION

Under the klimaaktiv programme „energieholz“ initiated by the Ministry of Agriculture, Forestry, Environment and Water Management the Austrian Energy Agency („Österreichische Energieagentur“) in cooperation with the Austrian Chamber of Agriculture and the Co-operation agreement „Forst – Holz – Papier“ (Forest – Wood – Paper) aggregated the data of the entire value-added chain of timber and presented them in the form of a Sankey diagram (Figure 40). In addition to the generally available base data (timber harvest report, foreign trade, industry reports, etc.), expertises by major players on the market were also included. Due to the complexity of these material flows and the great differences in the quality of the data, this presentation must be regarded as a “living document” that will be developed continuously.

The main input parameters are the foreign trade statistics provided by Statistics Austria and the timber harvest report provided by the Federal Ministry of Agriculture,

Forestry, Environment and Water Management. The wood utilisation data originate from the relevant annual and industry reports by the paper and timber industry, which provide an overview of the use of timber in these sectors. This data is supplemented by data on the use of wood as a source of energy based on calculations and estimates by the Austrian Energy Agency.

The „other wood supplies“ include wood quantities not surveyed in the timber harvest report, such as firewood for own use from the „smallest forests“, field shrubs, garden and park cutting, or recycling wood. For lack of reliable databases, the quantities presented here are estimates.

The collation of all the various data sources provides a general overview of the supplies and use of wood in Austria and also provides information about the complexity of wood flows in Austria and how tightly meshed the entire industry is.

Wood flows in Austria

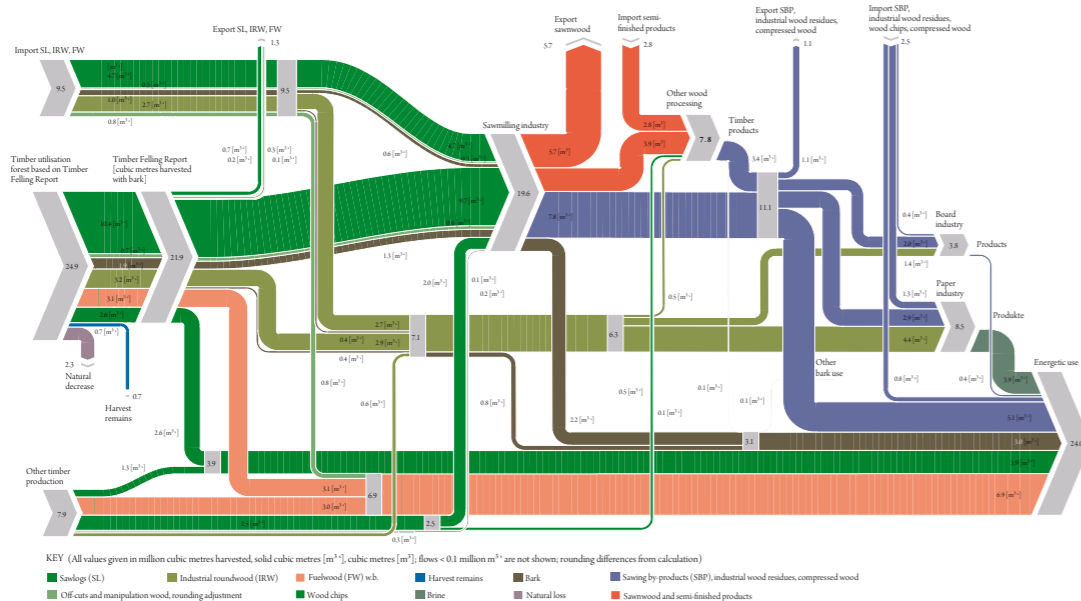


Figure 40 | Source: klimaaktiv 2014, http://www.klimaaktiv.at/erneuerbare/energieholz/holzstr_oesterr.html

INDICATOR 6.8: TRADE IN WOOD

The trade in wood and wood products is of high economic importance to Austria. Large quantities of the goods produced by the Austrian wood and paper industry are exported, above all to EU countries.

Taking everything into account, about 95 % of the timber felled are processed or used for energy generation in Austria. The biggest wood purchaser is the sawmill industry. The paper and board industry buy mainly wood of smaller diameters and sawing by-products. Moreover, use for energy production has further gained importance.

As was the case the year before, the foreign trade balance for wood, wood products and paper products was with a plus of 3.69 billion euros much better than Austria's overall trade balance. Roundwood imports to supply the Austrian wood industry are becoming more difficult to realise as the neighbouring countries are increasing their own processing capacities.

Consequently, the domestic forestry sector is essential for the supply of the domestic wood industry with roundwood. To ensure that, strategies and incentive schemes have been developed to promote the mobilisation of wood, as has been explained in Indicator 3.1

FOREIGN TRADE IN 2013

The trade in wood and wood products is of high economic importance to Austria. A significant share of the production of the Austrian wood and paper industry is exported, mainly to EU Member States. In addition, 8.2 million cubic metres of raw timber and 3.3 million tonnes of wood chips, shavings and other wood waste, fuelwood as well as wood pellets and briquettes were imported in 2013.

Foreign trade in wood 2013

in billion euros

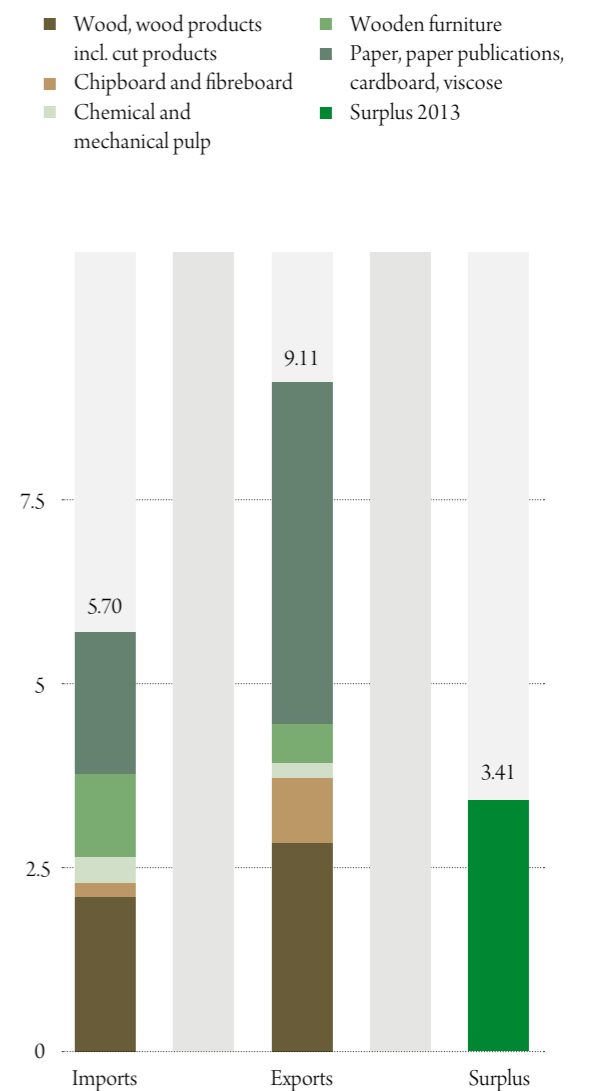


Figure 41 | Source: Forst Holz Papier 2014, <http://www.forstholzpapier.at>



EXPORT INITIATIVE

In October 2002 the Austrian export initiative was launched. The successful initiative of the BMLFUW, Agrarmarkt Austria and the Austrian Federal Economic Chamber supports companies by providing them with professional export know-how and assists them in the process of internationalising their sales markets.

Priorities in this context are the transfer of knowledge as well as the export of services and technology. Targeted market exploration trips, Austria Show Cases and fora with market partners in the target countries of the export initiative were undertaken to achieve these goals. In the course of these years, a great number of delegations, expert visits and individual information were procured to interested companies, forest enterprises and stakeholders via the BMLFUW's Directorate-General for Forestry, the Agricultural Attachés and the Austrian Federal Economic Chamber. In all, almost 100 Austrian enterprises from the forest and timber sector and more than 250 companies took part in the events of the export initiative for forest and timber.

Since 2008 Asian countries, too, have increasingly been interested in the Austrian forest and timber

<http://www.bmlfuw.gv.at/greentec/green-jobs/exportinitiative.html>

sector and the cooperation with these countries has been intensified. After a market exploration trip to China aimed at intensifying research and know-how transfer as well as forest consulting, a memorandum of understanding was prepared in 2011 and signed by the Austrian Ministry of Agriculture, Forestry, Environment and Water Management and the Chinese Minister of Forestry.

In 2010 and 2011 exploration trips with specific goals and tasks were undertaken also to the nearby markets of the Balkans; existing contacts were strengthened and new ones were established.

Since 2011 Austria's forest and timber management sector has also been successful in Suriname in South America. In 2011 an agreement concerning closer cooperation in forestry was signed. Accordingly, Austria provides the system for a forest inventory of tropical forests; it is to elaborate the concept for a sustainable forest management that is environmentally sound and makes good economic sense and advise the country in the establishment of appropriate framework conditions, laws and structures.



INDICATOR 6.9: ENERGY FROM WOOD RESOURCES

In addition to the material exploitation, use of the raw material wood as a source of energy is gaining importance. Although the use of wood as a source of energy was for quite some time rather stagnant in Austria, this issue has experienced a

considerable revival in the past decade. Energy from wood serves primarily to generate heat.

In 2011, 94.4 percent of the total volume of timber used for energy was used to generate heat and the

remaining 5.6 percent were used to generate eco-power. In the coming years, the production of fuels will be an additional potential use.

Wood is virtually unrivalled as a fuel. When wood is burned, a neutral carbon balance is maintained, which means that only such an amount of the greenhouse gas CO₂ is released as the tree has recycled while growing. Use of this domestic raw material helps reduce the dependence on imported fossil fuels, which often originate from troubled regions where there is no certainty with regard to guaranteed supply.

The use of wood creates added value and jobs in the country and it improves the Austrian balance of payments, in which the purchase costs for fossil sources of energy are a massive burden. By international comparison, Austria is one of the leading nations with regard to the utilisation of biomass. The share of renewable sources of energy in gross domestic consumption is about 32 % (in 2012), that of biomass about 18 %. It is noteworthy that bioenergy is above all (about 80 %) generated from wood.

Figure 42 illustrates the use of wood for the period from 2001 to 2011 and the projected need for wood as a source of energy expected for 2015 and 2020. Wood consumption developed particularly dynamically in the field of biomass-based CHP plants and thermal power stations. The consumption of pellets, a relatively new 'green fuel', has seen a rapid upward trend as well. Briquettes stagnate at a comparatively modest level. Also the consumption of firewood billet has remained more or less the same. According to the forecast of the Austrian Energy Agency (AEA), the use of wood as a source of energy might reach 25 million cubic metres in 2020.

To the European Union, Austria committed itself to ambitious targets as regards its share of renewable energy and climate change mitigation. Based on a share of 23.3 % in 2005, 34 % of the energy consumed is to be covered from renewable sources by the year 2020. The intensified use of wood continues to play a substantial role to ensure achievement of the targets.

Use of wood and demand for wood as a source of energy

in million solid cubic metres per year

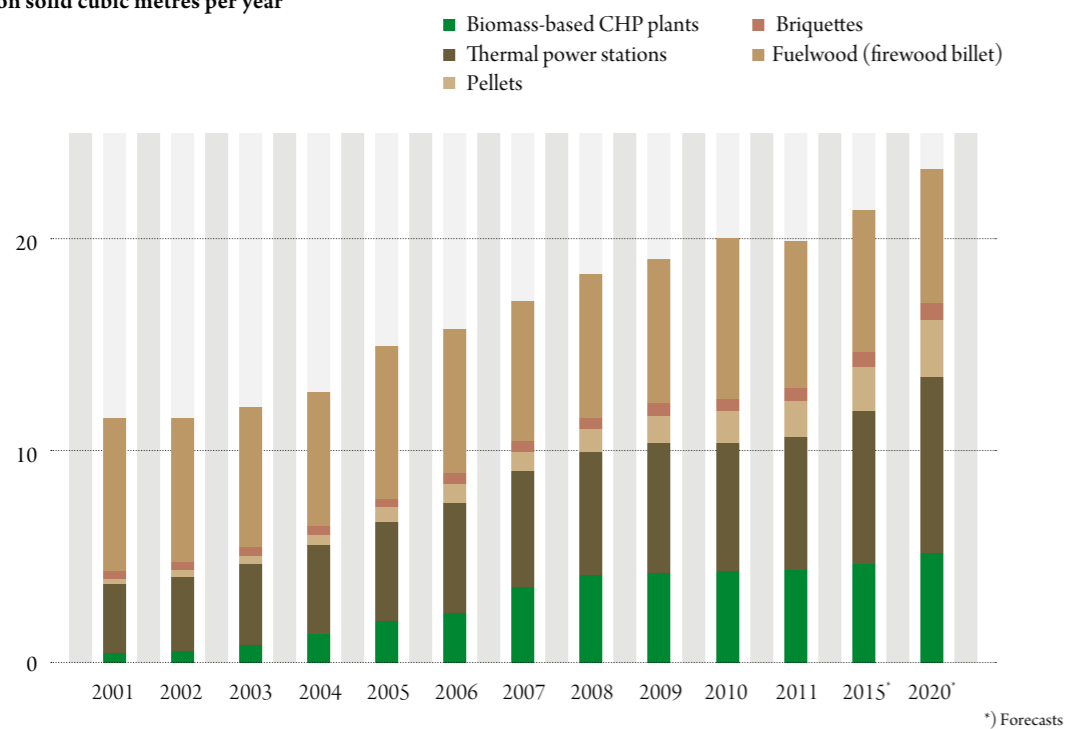


Figure 42 | Source: Energieagentur, Statistics Austria, Austrian Chamber of Agriculture, 2014

INDICATOR 6.10: ACCESSIBILITY FOR RECREATION

For a tourism country like Austria, landscapes, and thus also forests, are of overriding importance. In large areas forests are not only the scenery of the landscape, but to an always greater extent provide also an area for recreation and a place for leisure-time activities. In recent decades, the sector "tourism and leisure industry" has seen exceptionally dynamic growth and has become a major segment of the economy of Alpine countries. The tourism and leisure industry is an important employer in rural areas and reduces the migration from structurally deprived regions; in the case of Austria, it is also one of the largest foreign-exchange earners.

Against this background it appears useful to illustrate the broad range of topics concerning recreation/leisure/ tourism and forests not only with a view to potential conflicts, but also to pursue a far-sighted, need- and customer-oriented strategy.

FORESTS AND TOURISM — STRONGER CUSTOMER ORIENTATION IS REASONABLE

In recent years the field of tourism, spare-time, recreation and holidays has been discussed quite intensively in forest-related working processes (in particular in the Austrian Forest Dialogue) and in general a more proactive strategy that is oriented towards customers has been regarded to be expedient. The subsidy options tried and tested in regional development and new subsidy options (LEADER¹⁵) are to be used more intensively by the forestry sector in the future.

The legal framework regulating the utilisation of forests for recreational purposes in Austria can be outlined as follows: According to the Austrian Forest Act anyone may enter and spend time in the forests for recreational purposes. Restrictions apply only under specific conditions. The Forest Act also stipulates that everyone

is responsible for his/her own safety and must pay attention to any hazards that may arise from conditions in the forest when moving off of public roads and paths. With regard to works in connection with forest management, the forest manager is held liable for gross negligence and for wilful intent on enclosed surfaces.

On forest roads or other (marked) paths in the forest, the legal situation is different. Here, the liability provisions set out in the Austrian Civil Code apply. As a result of this legal framework, there is an increasing number of court actions due to the rising number of forest visitors and sportsmen in forests with the existing hazard potentials. Some forest enterprises and land-owner representatives together with representatives from the tourism industry and the authorities initiated the identification of public cycle paths and mountain-bike routes and reached mutual agreements on solutions to the liability issue under insurance law.

TOURISM TRENDS IN FORESTS

There is a clear trend towards short breaks and increasing day-trips, the lion's share of which is naturally found in forest areas close to towns and cities on the one hand, and the ecologically sensitive mountain regions on the other hand. This type of tourism can have varying intensities in the individual regions and therefore can have a negative impact on ecosystem interrelations, especially in overloaded areas. The "adventure society" is carrying out more and more activities in forests and the associated conflict potential is growing. The pressure to establish tourism infrastructures in and close to forest areas is increasing and the associated demands on the forest experts are becoming more complex. In some forest areas the potential value added by tourism exceeds that of conventional timber utilisation, making other objectives and planning standards necessary.

15) LEADER: <http://www.netzwerk-land.at/leader/leader-in-oesterreich>

In the Austrian Forest Strategy 2020 an approach to solutions is developed in the context of the Forest Dialogue which aims at achieving a

consensus between forest tourists and forest managers concerning their joint use of forests.

INDICATOR 6.11: CULTURAL AND SPIRITUAL VALUES

Austria has become an active trailblazer in the development and business-oriented utilisation of cultural values and potentials in the forest and in the environment for forest managers in Europe. An active and far-sighted contribution, including special features about Austria, was made towards designing the topic-specific international work processes. Austrian forest experts were actively involved in particular in the development of Resolution 3 by the Ministerial Conference on the Protection of Forests in Europe (MCPFE — now FOREST EUROPE) in Vienna (2003), in which “cultural and spiritual aspects” of sustainable forest management were defined more precisely for the first time. These aspects must be contributed to and implemented in practical forestry. The Austrian initiatives in the area of forest and culture are based on the principle of voluntary participation. They are characterised by a high level of commitment, motivation and cross-sectoral networking of the actors.

One of the specific features of Austria by European comparison is the vast extent of mountain forest management and the predominance of family enterprises of all sizes, the important role of forest stands in protecting the living area of people.

The period from the establishment to the final utilisation of forest stands is often far longer than hundred years in Austria. Therefore, owners usually have a high level of

cultural and historical awareness. This knowledge about the importance of historical conditions and circumstances is the most important prerequisite for identifying the values, potentials and objects, and for their maintenance and proper utilisation.

In the process of the preparation of an implementation strategy on the theme „Forest + Culture“ by the Ministry of Agriculture, Forestry, Environment and Water Management and the Austrian Forest Association it also became clear very soon that there were numerous individual initiatives by public institutions, associations, enterprises, museums and, last but not least, dedicated private players in the cultural environment of the forest sector in Austria. The „Network Forest & Culture“, established in October 2003 at the Forestry Training Centre Ort/Gmunden, a historical forest site, has for many years actively worked on technical and structural networking. This network is intended as a working platform that offers expert support, connects most different organisations and organises events on the subject.

The topic, which, as „maintenance of rural cultural heritage“, has already been firmly anchored in the EU-wide funding initiative „VOLE — Rural Development“, has to be promoted and pushed ahead in a targeted manner. Forest and culture have also become a topic for discussion in the Austrian Forest Dialogue and are reflected accordingly in the Austrian Forest Strategy 2020.



Workshop on the International Arrangement on Forests

A Country-Led Initiative in Support of the United Nations Forum on

2015后国际森林安排研讨会 联合国森林论坛国家倡议会议

29-31 October 2014 Beijing China

2014年10月29-31日 中国

Host:

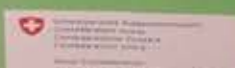
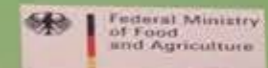
主办:



State Forestry Administration, the People's Republic of China
中华人民共和国国家林业局

Co-Sponsors:

联合主办:



Technical Support:

技术支持:



北京国际会议中心
Beijing International Convention Center

CRITERION 7: AUSTRIA'S INTERNATIONAL RESPONSIBILITY FOR SUSTAINABLE FOREST MANAGEMENT

CRITERION 7 ILLUSTRATES AUSTRIA'S COMMITMENT IN THE CREATION OF AN INDEPENDENT, INTERNATIONAL AND BINDING INSTRUMENT FOR THE PROTECTION AND MAINTENANCE OF SUSTAINABILITY IN THE MANAGEMENT OF FORESTS as well as other activities to raise the awareness for forest maintenance all over the world. Austria demonstrates international responsibility and is committedly working for sustainable forest management all over the world.

INDICATOR 7.1: FOREST-RELATED PROJECTS IN DEVELOPMENT COOPERATION

Austria takes big efforts to promote sustainable forest management also on international level. One priority is the bilateral know-how and technology transfer as well as the support for projects dealing with sustainable forest management as a contribution to superordinate development objectives such as, for example, the fight against poverty or rural development.

In 2013, a total amount of 7.6 million euros of public funds were granted to twelve forest projects in the framework of development cooperation.

In the Austrian development cooperation, projects are wherever possible carried out in direct cooperation with

the national partner governments to strengthen their capacities and competences. Wherever possible national experts are used who are assisted by Austrian organisations.

In 2013 forest-relevant projects were carried out in the Caucasus, in Georgia, Kyrgyzstan, Brazil, Bhutan, Ethiopia, Uganda, and in the ECOWAS states.

Austria aims at increasing the number of projects and the budget according to the 4th Global Objective on Forests: „to raise additional funds for the development cooperation in forestry“.

Contracts directly relating to forestry, concluded since 2011 by ADA

Country	Year	Projects	Budget in €	Funded by
Georgia	2011	Reafforestation in support of sustainable agriculture and forestry in Kakheti, Georgia — erosion control for agricultural areas („Wiederaufforstung zugunsten einer nachhaltigen Land- und Forstwirtschaft in Kakheti, Georgien — Erosionsschutz für landwirtschaftliche Flächen“)	41,853	ADA funds (complementary to measures taken by GiZ (German Agency for International Cooperation))
Region of South-Eastern Europe	2011	THEMIS — Regional Platform on sustainable natural resource management in South Eastern Europe to combat illegal logging	27,106	ADA funds (complementary to own resources from applicants)
Bosnia-Herzegovina	2012	IZW project: Establishment of markets and capacities in Bosnian forestry to revitalise the timber processing industry (Project of the Institute for Zoo and Wildlife Research: „Markt- und Kapazitätenaufbau in der bosnischen Forstwirtschaft zur Revitalisierung der Holzverarbeitungsindustrie“)	55,638	Contribution from OEZA (Austrian Development Cooperation), at least doubled by private funds
Region of Caucasus	2013	ENPI FLEG II Forest Law Enforcement and Governance: Complementary Measures to Georgia and Armenia	13,689	ADA funds (complementary to EU funding)

Table 7 | Source: BMLFUW 2014

16) ECOWAS states (Economic Community of West African States): Republic of Benin, Burkina Faso, Republic of Cabo Verde, Republic of Côte d'Ivoire, Republic of Gambia, Republic of Ghana, Republic of Guinea, Republic of Guinea-Bissau, Republic of Liberia, Republic of Mali, Republic of Niger, Federal Republic of Nigeria, Republic of Senegal, Republic of Sierra Leone, and Republic of Togo.

Projects in development cooperation funded by the BMLFUW since 2008.

Country	Year	Projects	Budget in €	Funded by
Argentina	2008–2014	Supporting sustainable management of forests and local communities in Argentina	72,482.00	BMLFUW, Directorate of International Environmental Affairs
Brazil	2012–2013	Supporting local communities and the sustainable management of the Araripe forest (Ceará State)	28,000.00	BMLFUW, Directorate of Climate and Air Quality
Suriname	2012	Sustainable forest management in Suriname („Nachhaltige Waldbewirtschaftung in Suriname“)	180,000.00	BMLFUW, Directorate-General for Forestry
Georgia	2013	Management of forests in Georgia („Bewirtschaftung von Wäldern in Georgien“) (REDD+)	1,500,000.00	BMLFUW, Directorate of Climate and Air Quality
Burkina Faso	2013	Sustainable management of agroforestry genetic resources („Nachhaltige Bewirtschaftung von agroforstgenetischen Ressourcen“) (REDD+)	500,000.00	BMLFUW, Directorate of Climate and Air Quality
Ethiopia	2013	Regeneration of forests („Regeneration von Wäldern“) (REDD+)	1,300,000.00	BMLFUW, Directorate of Climate and Air Quality
Bhutan	2013	Adaptation of forests in Bhutan („Anpassung der Wälder in Bhutan“) (REDD+)	1,100,000.00	BMLFUW, Directorate of Climate and Air Quality
Kyrgyzstan	2013	Management of natural hazards by protection forest management („Naturgefahrenmanagement durch Schutzwaldbewirtschaftung“) (REDD+)	200,000.00	BMLFUW, Directorate of Climate and Air Quality
Uganda	2013	Design and Development of Robust Systems for National Forest Monitoring and Information on Safeguards for Uganda's REDD+ Activities	650,160.00	BMLFUW, contract administration by ADA (complementary to the national water and climate programme)
Ethiopia	2013	Strengthening Implementation of the Yayu Coffee Forest Biosphere Reserve (REDD+)	378,045.00	BMLFUW, contract administration by ADA (complementary to the share of equity of the applicants)
In 15 West African States (ECOWAS)	2013–2016	ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREE) — Sustainable Biomass Actions (REDD+)	600,000.00	BMLFUW, Directorate of Climate and Air Quality
ECOWAS states	2013–2016	ECREEE — WACCA Actions — West African Clean Cooking Alliance (there is a direct link between the use of efficient stoves and forests; as less wood is needed, the pressure on forests decreases).	600,000.00	BMLFUW, Directorate of Climate and Air Quality
Paraguay	2014	Reducing CO ₂ emissions from rural areas in Paraguay and strengthening Indigenous Peoples and Peasant Communities Rooting through Agroecology	300,000.00	BMLFUW, Directorate of Climate and Air Quality
Mali	2014	Mali National Forest Inventory Project Appraisal	38,000.00	BMLFUW, Directorate of Climate and Air Quality

Table 8 | Source: BMLFUW 2014

Funds of the Federal Ministry of Finance (BMF) to the European Bank for Reconstruction and Development (EBRD) and the Inter-American Development Bank (IDB)

Country	Year	Projects	Funded by	Budget in €
Bosnia-Herzegovina	2007	Forest Sector Overview	EBRD	250,000.00
Romania	2007	Forestry and Forest Industry Study	EBRD	300,000.00
Bulgaria	2009	Forest Sector Reform	EBRD	500,000.00
Belarus	2011	Forest Sector Study	EBRD	350,000.00
Central and South America	2012	REDD	IDB	1,000,000.00

Table 9 | Source: BMLFUW 2014

INDICATOR 7.2: AUSTRIA'S CONTRIBUTION TO INTERNATIONAL AND MULTILATERAL FOREST GOVERNANCE

The objective of the foreign-policy endeavours is to promote the breakthrough of sustainable forest management principles, if possible all over the world.

Austria pro-actively participates in the process of shaping international forest policy, in particular at the United Nations Forum on Forests, in the Climate Convention, in the Convention on Biodiversity, and in the Ministerial Conference on the Protection of Forests in Europe.

Global activities:

- UNFF (United Nations Forest Forum)
- CSD (United Nations Commission on Sustainable Development)
- UNFCCC (United Nations Climate Framework Convention)
- CBD (Convention on Biological Diversity)
- UNCCD (United Nations Convention to Combat Desertification)
- FAO — COFO (Committee on Forestry of the Food and Agriculture Organisation of the United Nations)
- ITTO, ITTA (International Tropical Timber Organisation, International Tropical Timber Agreement)
- WTO, WTA (World Trade Organisation, World Trade Agreement)
- CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)

- World Heritage Convention
- ITPGRFA (International Treaty on Plant Genetic Resources for Food and Agriculture)
- GATT (General Agreement on Tariffs and Trade)
- Pan-European activities:**
- FOREST EUROPE (Ministerkonferenz zum Schutz der Wälder in Europa)
- FAO European Forestry Commission
- UNECE Committee on Forests and the Forest Industry
- Think Forest
- EFI (European Forest Institute)
- Efe ('Environment for Europe' Ministerial Conference)
- Alpine Convention
- Ramsar Convention (Convention on Wetlands)
- Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats)
- Bonn Convention on the Conservation of Migratory Species of Wild Animals
- Carpathian Convention
- Activities at the EU level:**
- Standing Forestry Committee
- FLEGT Committee
- Council Working Party on Forests
- Council Working Party on Rural Development
- Council Working Party on International Environmental Issues (incl. climate and biodiversity)
- Leadership functions in international bodies:**
- UNFF Vice Presidency 2008–2010
- ITTA, ITTC Presidency 2008
- 2007–2011 Co-Presidency of the FOREST EUROPE Working Party for a Legally Binding Instrument on Forests (LBI)
- Presently (2014) chair position in 4 national initiatives for the support of UNFF
- Presently (2014) member to the Secretariat of the Intergovernmental Negotiation Committee for a Legally Binding Instrument on Forests (LBI).
- Presently (2014) leading roles in 3 UNECE/FAO working parties
- Presently (2014) member to a global coordination group of FAO

Target

Continuous priority-setting of the Austrian policy for sustainable forest management world-wide.

INDICATOR 7.3: PUBLIC FUNDS FOR FOREST-RELEVANT, INTERNATIONALLY ACTIVE ORGANISATIONS AND FOR THE PARTICIPATION OF AUSTRIAN EXPERTS IN FOREST-RELATED INTERNATIONAL BODIES

Forest-relevant, internationally active organisations are supported with a view to the expansion and active support of international transfer of know-how and technology. In 2013, about 300,000 euros of public funds were paid to support e.g. FAO, IUFRO, EFICEEC, ANRICA, or the Intergovernmental Negotiating Committee for a European Forest Convention (INC). This includes also the participation of experts of the Directorate-General for Forestry in forest-relevant, international bodies and meetings such as UNFF, UNECE/FAO, OECD, EU Council and Standing Forestry Committee, Forest Europe including the negotiations on the European Forest Convention

Public funds of the Directorate-General for Forestry for forest-relevant, internationally active organisations

Organisation	Public funds 2013 in €
ANRICA	25,000
EFICEEC	75,000
FAO	20,000
IUFRO	11,000
Austrian Federal Environment Agency	1,605
INC (Intergovernmental Negotiating Committee for a (Legally Binding) Agreement on Forests in Europe)	90,000
Total	222,605

Table 10 | BMLFUW 2014

and various EU working parties as well as research cooperations (e.g. ThinkForest, ERANET, COST).

Public funds for the participation of experts of the Directorate-General for Forestry in forest-relevant, international bodies and meetings

Country	Funded by	
	Meetings	Expenses
Global		
UNFF	1	4,527
UNECE/FAO	11	10,863
OECD	2	1,490
Europe		
EU (Council + Standing Forestry Committee)	18	12,787
Forest Europe (incl. the negotiations for an Agreement on Forests in Europe)	10	15,152
EU other (e.g. EU working groups)	8	4,866
Other		
Bilateral meetings	3	6,670
Multilateral meetings	21	7,746
Research cooperations (e.g. ThinkForest, ERA-NET, COST)	14	11,369
Sum Directorate-General Forestry	88	75,470

Table 11 | BMLFUW 2014

INDICATOR 7.4: AUSTRIAN CONTRIBUTION TO EFFORTS ON COMBATING ILLEGAL LOGGING

In order to combat illegal logging, the European Commission adopted the action plan „Forest Law Enforcement, Governance and Trade — FLEGT“ in 2003. In 2005 Regulation (EC) no. 2173/2005 on the establishment of a FLEGT licensing scheme for imports of timber into the European Community (FLEGT Regulation) was adopted. This licensing scheme relies basically on voluntary partnership agreements of the European Union with partner countries, which are to ensure that exclusively timber logged in compliance with the national law of the partner country or legally imported into this partner country is to be imported into the European Union. Until 2014, such agreements were concluded with six countries.

In none of these countries the establishment of legality assurance systems and their recognition by the European Commission has been completed; first imports with FLEGT licenses will therefore probably be carried out in 2015 at the earliest. The competent bodies of the EU Member States will then have to check whether a valid FLEGT license was granted for the individual deliveries of wood products from partner countries. Only if such a license exists, will the relevant load be released for free circulation under the Community Customs Code.

On 3 March 2013 Regulation (EU) no. 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market (EU Timber Regulation) entered into force. This Regulation prohibits the placing of illegally harvested timber and timber products on the internal market. Operators must also be able to furnish proof that, due to the use of a diligence system, they take no or only a negligible risk to put timber and timber products from illegal logging

on the market. FLEGT licenses are one possibility how this proof can be furnished.

With its Timber Trading Surveillance Act („HolzHÜG“), which entered into force on 7 August 2013, Austria adopted the required provisions for the implementation of both the FLEGT and the EU Timber Regulation. The Federal Research Centre for Forests (BFW) is now in charge of the controls of the FLEGT licenses and the controls according to the EU Timber Regulation concerning timber and timber products from non-Austrian logging.

The district administration authorities are responsible for the remaining controls required according to the EU Timber Regulation. With the Austrian Timber Trading Surveillance Act also the participation of the customs authorities as well as the penalties for infringement were regulated.

Controls conducted:

- **EU Timber Regulation:**
 In spring 2014 the Federal Research Centre for Forests (BFW) conducted first controls of market operators placing on the market timber and timber products from third countries.
- **FLEGT Regulation:**
 The BFW is prepared: First imports with FLEGT licenses are expected for 2015 only.
- **Cooperation with customs authorities:**
 The information flow between the customs authorities and the BFW works well; the legal basis is the „HolzHÜG“.

QUALITATIVE INDICATORS



INDICATOR A.1: NATIONAL FOREST PROGRAMMES AND SUCHLIKE

THE AUSTRIAN FOREST DIALOGUE — JOINTLY ENSURING AND DEVELOPING SUSTAINABLE FOREST MANAGEMENT

For ages and generations Austrian forests have fulfilled economic, ecological and social functions of inestimable value. In order to identify and optimally balance the many different social claims associated with these services, the Austrian Forest Dialogue (ÖWAD) was launched in early 2003. The Forest Dialogue is a participative process of policy development.

It is a nationally and internationally much renowned example of „good governance“ in which representatives of over 90 public and private organisations and institutions representing the interest of environment

and nature protection, sports, forestry and agriculture, the wood-based and paper industries, employee and consumer protection, hunting, the church, development cooperation, youth, science, education, energy management, the Federal Provinces and public administration participate continuously.

The Forest Dialogue provides the opportunity to exchange different opinions and expectations in relation to Austrian forests and their management in consultations based on partnership. The concrete objective is to formulate consensually strategies and guidelines that can be implemented on an operational basis on forest-political fields of action. In 2005 the first Austrian Forest Programme was adopted in this framework and then implemented using a working programme.

An integral element of the working programme is the ÖWAD set of indicators which includes 70 individual indicators. The indicators are used to check to which extent the goals set out in the Forest Programme are being achieved. By means of the indicators actions which may be necessary to ensure and optimise sustainable forest management can be identified.

EVALUATION OF THE AUSTRIAN FOREST DIALOGUE

At the end of 2011, after nine years and completion of an external evaluation (evaluation of processes and results), the first cycle of the Austrian Forest Dialogue ended as planned. The external evaluation gives the Austrian Forest Dialogue a good report, also in the context of national forest dialogue processes of other countries. According to this evaluation the ÖWAD complies with the international criteria for national Forest Programme processes, has good instruments for implementation and monitoring (working programme and set of indicators) as well as wide participation opportunities.

THE AUSTRIAN FOREST DIALOGUE IS GOING ON!

At the end of 2011 the supreme political body of the Forest Dialogue, the Round Table, decided to continue the Forest Dialogue and to launch another cycle with the objective of preparing a new Forest Programme in the form of a Forest Strategy 2020 by the end of 2015. Continuation of the Forest Dialogue requires several structural and process-related adjustments which are to guarantee effective and efficient implementation of the Forest Dialogue for the purposes of „good governance“.

The primary objective of the Forest Strategy 2020 is to ensure and optimise the ecological, economic and social dimensions of sustainable forest management in a well-balanced way, paying special attention to the added value and the potential of the Austrian forestry and timber sectors for a „liveable Austria“.

The Forest Strategy is intended as an instrument to harmonise the multiple interests and demands made

on Austrian forests and to find solutions to possible utilisation conflicts. The Forest Strategy 2020 is to provide forest-political cornerstones to ensure and continuously optimise the sustainable management and maintenance of Austria's forests so as to ensure the multifunctional services rendered by forests for present and future generations.

THE BODIES IN CHARGE OF THE FOREST DIALOGUE

Various bodies have been established to implement the Forest Dialogue:

- **Round Table:** Being the highest decision body of the Forest Dialogue, the Round Table is headed by the Federal Minister of Agriculture, Forestry, Environment and Water Management himself.
- **Forest Forum:** The Forest Forum is the body preparing the decisions for the Round Table; its tasks are to work on the requirements set by the Round Table and to find a contextual balance of interests in forest-relevant issues. The Forest Forum is also responsible for promoting and monitoring the implementation of the Forest Programme (including ÖWAD Indicators).
- **Technical modules (expert working groups):** Content-related work takes place in the Modules. Four technical modules have been established:
 - M1: Forests.Economy.International affairs
 - M2: Forests.Climate.Ecology
 - M3: Forests.Water.Natural hazards
 - M4: Forests.Society.Knowledge
- **Steering Group:** The Steering Group acts as an interface between the Round Table, the Forest Forum and the Modules and is responsible for strategic process planning and process management as well as for the content-related and editorial adaptation and

integration of the results of the individual working groups.

--- **Working Group „ÖWAD Indicators“:** The task of this permanent working group is to continuously develop and adjust the indicators of the Forest Dialogue, including the relevant actual values and target values. Moreover, it has to prepare indicator reports at regular intervals. The ÖWAD set of indicators also provides the basis for the structure of this Forest Report.

--- **Working Group „ÖWAD Monitoring“:** The task of this permanent working group is to support the Steering Group in the implementation of the evaluation results and to work out proposals for the content-related orientation as well as for the structural and process-related adjustment of the Forest Dialogue process.

--- **ÖWAD Secretariat:** The Secretariat assists the Steering Group and is responsible for the overall coordination as well as for the operative planning and implementation of

the Forest Dialogue and its results, notably the Austrian Forest Strategy 2020.

OPPORTUNITIES TO PARTICIPATE IN THE AUSTRIAN FOREST DIALOGUE

Participation in the Forest Dialogue is open to all groups, institutions and interested parties concerned with the Austrian forest. The general public can participate in the work of the Forest Dialogue via the Internet platform <http://www.walddialog.at> as well as through written statements.

In addition, the interested public is informed by means of a Forest Dialogue Newsletter which reports regularly on the current state and the progress of the Forest Dialogue.

If you are interested in participating in the Austrian Forest Dialogue, in receiving the Forest Dialogue Newsletter or other information, please contact walddialog@bmlfuw.gv.at in writing or call the head of the Forest Dialogue Secretariat, Dr. Georg Rappold, at +43 1 711 00-7314.

All publications and results as well as more detailed information can be consulted at <http://www.walddialog.at>.

Cycles of the Forest Dialogue

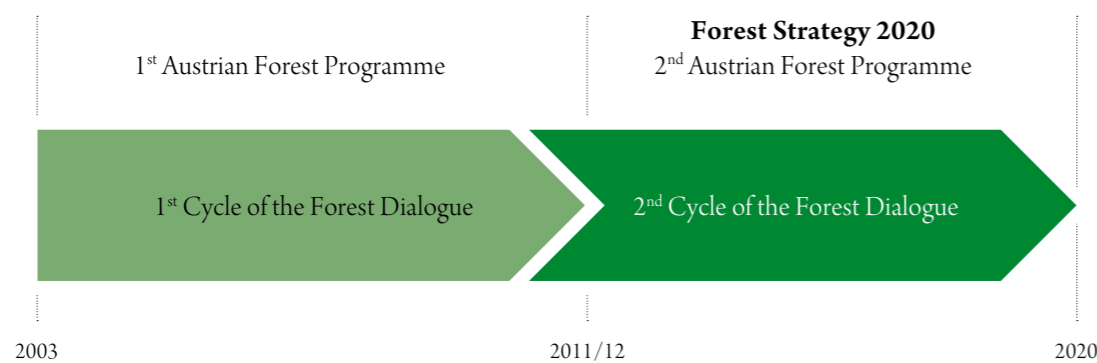


Figure 43 | Source: ÖWAD, BMLFUW 2014



**INDICATOR A.2:
 INSTITUTIONAL FRAMEWORK**

FOREST AUTHORITY

The activities of the Forest Authority are based on the 1975 Forest Act as amended (ForstG 1975). There are also several other laws (see A.3) that have an impact on the activities of the Forest Authority. The enforcement of the Forest Act usually falls within the competence of the district administrative authorities in the first instance. However, for certain matters the Provincial Governor or the Federal Minister of Agriculture, Forestry, Environment and Water Management is entrusted with enforcement.

The instrument applied to enforce the will of the Forest Authority is the official notice. If required, the recipient of the official notice has the right to lodge an appeal with the Provincial Administrative Court. The appeal has to be lodged with the authority finding the official notice (first instance) stating the reasons.

According to section 14 of the Law on Legal Proceedings in an Administrative Court („Verwaltungsgerichts-

verfahrensgesetz“, VwGVG) the authority can, within a period of two months, freely decide to annul or amend the contested notice or to reject the appeal (preliminary appeal decision), or to present the appeal to the Provincial Administrative Court.

The Federal Minister of Agriculture, Forestry, Environment and Water Management is the supreme forest authority.

After having exhausted all ordinary remedies, the recipient of the official notification is still entitled to extraordinary legal remedies, notably:

1. In certain cases the ordinary appeal according to section 25a VwGG (Administrative Court Act — „Verwaltungsgerichtshofgesetz“) to the Administrative Court (VwGH) or
2. the appeal to the Constitutional Court (VfGH).

The Administrative Court either rules itself on the case, which could also mean a rejection of the appeal, or it abrogates the unlawful decision by the authority and transfers it to the same authority for a new decision, whereby the legal opinion of the Administrative Court has to be taken into consideration.

The Forest Authority is assisted by university graduates in forestry and foresters as official forest engineering experts, and by legal experts. At the level of the district administrative authority the official forest engineering experts work within the framework of the District Forest Inspection Service, at the level of the Provincial Governor within the framework of the Provincial Forest Inspection Service. Also the Federal Minister of Agriculture, Forestry, Environment and Water Management has a forest engineering expert. The Provincial Administrative Court will usually cooperate with the forest engineering experts of the Provincial Forest Inspection Service.

Tasks

Whether the 1975 Forest Act is applied or not depends in principle on the existence of forest soil; however, some provisions are applicable beyond the scope of the forest or have an effect reaching beyond forest borders. The activities of the Forest Authority can be roughly divided into

- a) Internal tasks: In addition to consulting and participation in forestry subsidisation, they also include the preparation of forest engineering expert opinions, the monitoring of forest management activities by forest owners within the legal framework prescribed by law, including the cessation of illegal activities as well as the stipulation of necessary measures

and

- b) External tasks: These tasks include the handling of petitions to clear forest land, the proclamation of protective forests to protect third parties, as well as the abatement or prevention

of forest desertification and forest-damaging air pollution.

Forest land-use planning, official expert functions, as well as the very own task of the Forest Authority, namely forest supervision, have a kind of intermediate position as regards the above-mentioned division of tasks, since both external (third parties) and internal (forest owners) influences have to be taken into consideration and corrected if necessary. This includes for example the cessation of illegal felling or land clearing activities, as well as the prevention of forest desertification and the monitoring of proper reforestation.

REPRESENTATIONS OF INTEREST IN FORESTRY

Legal representations of interest in forestry

These are the nine Provincial Chambers of Agriculture, which are subdivided into District Chambers of Agriculture in Burgenland, Lower Austria, Upper Austria and Styria. Membership in these Chambers is mandatory by law for owners of agricultural and/or forest land over a certain size.

Private representations of interest in forestry

- Austrian Chamber of Agriculture (LKÖ) as the umbrella organisation of the Provincial Chambers of Agriculture
- Forest associations for each Federal Province (except Vienna) and the Austrian Forest Association
- Austrian Association of Farm and Forest Owners, which in turn is subdivided into provincial associations (except in Tyrol, Vorarlberg and Vienna) and the Federal Association of Agricultural Enterprises in Austria as member associations
- The Austrian Forest Association, which is subdivided into provincial forest associations.

OTHER STAKEHOLDERS AND INTEREST GROUPS

The English term “stakeholder” refers to all persons/ organisations interested in an action/problem/solution. The kind of participation (active/passive) is not relevant in this respect. The following stakeholders are important to forestry:

Non-government organisations (NGOs)

- Austrian Economic Chamber with the trade associations for the Austrian wood industry, the timber and construction materials trade, the paper industry, the construction industry, etc.
- Federal Chamber of Architects and Engineering Consultants (Civil Engineers)
- Austrian Chamber of Labour and its sub-organisations
- Austrian Federation of Trade Unions and its sub-organisations
- Universities and other education and training institutions
- Federation of Alpine Associations in Austria (VAVÖ)
- Österreichischer Alpenverein (Austrian Alpine Association)
- Naturfreunde Österreich
- etc.

Environmental Non-Governmental Organisations (ENGOS)

- Birdwatch
- BIOSA — Biosphäre Austria

- Commission Internationale pour la Protection des Alpes (CIPRA)
- Distelverein (“Thistle Association” — an association for the preservation and promotion of rural habitats)
- Friends of the Earth
- Global 2000
- Greenpeace
- Austrian Environmental Umbrella Association (ÖGNU)
- World Wildlife Fund for Nature (WWF)
- etc.

COOPERATIONS FORESTRY — TIMBER INDUSTRY

- proHolz Austria — Working party of the Austrian timber industry
- Cooperation Agreement Forest – Wood – Paper



INDICATOR A.3: LEGAL/STATUTORY FRAMEWORK AND INTERNATIONAL COMMITMENTS

The following principles and international obligations are legally binding on forest management in Austria:

--- Forest Act 1975 as applicable

Important topics

- Maintenance of forests
- Sustainability of forest management
- Reforestation
- Afforestation and enhancement of forest condition

--- 2002 Amendment to the Forest Act

Important topics

- Elimination of bureaucracy and simplification of administrative procedures: Partly new regulation of the clear-cutting procedure, new regulation of the obligation to appoint forest officers, new regulation of the state examination in forestry
- Stronger focus on the aspects of ecology: New regulation of reforestation obligation, special provisions for national parks, natural forest reserves and the like
- New regulations concerning the protection forest
- New regulation of forest subsidisation
- Restructuring of research, training and education in forestry

--- 2013 Amendment to the Forest Act

With the 2013 amendments through the **Federal Act Amending the Agricultural Law**, Federal Law Gazette I No. 104/2013, and through Federal Law Gazette I No. 189/2013 the amendment required to

provide constitutionality with regard to the 2012 amendment on administrative litigation was adopted.

Above all, the forest-law provisions concerning logging cooperatives were amended, or supplemented, in such a way that on the one hand more concrete legal requirements on the text of the statutes and on the other hand regulations are created that are to facilitate procedures in the cooperative (e.g. organisation of General Assembly, decision-making, distribution of costs) and make the cooperatives take the required activities.

In turn, the possibilities of the authority to intervene in problem situations or in the case of prolonged failure to act on the part of the cooperative have been improved by means of new instruments (substitute performance, appointment of a curator).

Another important issue are deregulations, especially a reduction of the activities handled by authorities and thus the saving of costs concerning the division of forests and clearings with a time limit. The application procedure for clearing, which contributes essentially to the administrative simplification, applies also to clearings with a time limit of areas up to 1,000 m².

Furthermore, changes in wording, clarifications as well as the repealing of meanwhile obsolete regulations were carried out to consolidate existing legislation. The law contains also changes with respect to the clarification concerning the obligation to employ certified foresters or silviculturists; this obligation is now met according to section 113.

Moreover, it includes changes and/or clarifications concerning the rights of use of land by administrative bodies (in particular the authorities and the Forest Engineering Service in Torrent and Avalanche Control) to allow them to perform their tasks in a more efficient way.

--- Other federal acts with a direct relation to forestry

- Federal Law regulating the Trade in Timber (Timber Trading Surveillance Act)
- Federal Law on the creation of a quality label for wood and wood products from sustainably managed forests
- Act on Forest Reproductive Material 2002 (Agricultural Law Amendment Act 2002)
- Ordinance on Forest Reproductive Material 2002
- Plant Protection Act 2011
- Federal Law on the new regulation of the legal form of the Austrian Federal Forests and the establishment of a stock corporation for continuation of the enterprise „Österreichische Bundesforste“ (Austrian Federal Forests) (Federal Forests Act 1996)
- Basic Freight and Cableways Act 1967
- 1951 Framework Law on dealing with

forest and pasturage rights, as well as special field servitudes

- Animal Welfare Act 2004

--- State Treaties of importance to and/or legally binding on forest management

- Saltworks Convention
- Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention)
- Convention on Biological Diversity (Biodiversity Convention)
- Convention on the Protection of the Alps (Alpine Convention)
- International Plant Protection Convention
- European and Mediterranean Plant Protection Organisation (EPPO)

--- Provincial laws



Ordinances of the Provincial Governors and Provincial Forest Laws as set out in sections 15, 26 and 95 ff. of the 1975 Forest Act — implementing laws on forestry

- Regional planning and regional development laws
- Construction law and supplementary construction law
- Nature and landscape protection laws
- National park laws
- Clean air acts of the Federal Provinces
- Land transaction acts
- Protection of cultivated agricultural land
- Hunting law
- Fisheries law
- Laws on the protection of Alpine pastures

--- Other federal legislation

Apart from the above-mentioned legislation, there are several other federal-law regulations that concern sustainable forest management. Among them are, for example:

- Austrian Farm Act 1999
- Austrian Water Rights Act 1959
- Industrial Code 1994
- Environmental Impact Assessment Act (EIA Act) 2000
- Clean air legislation
- Waste Management Act 2002
- Environmental Information Act
- Plant Protection Products Act 1997
- Fertilisers Act 1994



SURVEY OF AUSTRIA'S INTERNATIONAL OBLIGATIONS

European Union

In late September 2013 the European Commission published a new European Forest Strategy (COM 2013/659). It relies on three guiding principles:

1. Sustainable forest management and multifunctional role of forests,
2. Resource efficiency and
3. Global forest responsibility.

The new strategy identifies eight priority areas which are based on the existing forest-political activities: Supporting our rural and urban communities, fostering competitiveness, forests in a changing climate, protecting forests and enhancing

ecosystem services, improving the forest knowledge base, innovative forestry, fostering coordination and communication, and forests from a global perspective. In conclusion, the different attempts to coordinate activities of relevance to forest policy in the EU have so far mainly been based on voluntary cooperation between Member States and a few activities by the Commission.

However, also forest-relevant EU legislation increased over the past decades. In other political fields of the European Union (Figure 44) an always greater number of legally binding regulations are adopted, partly with incompatible objectives.

Moreover, over the years a great number of formal and so-called ad hoc institutions have become established in the European Union. Their task is on the one hand coordination in forest policy within the European Commission, among Member States and the Commission and, on the other hand, the direct communication with stakeholders. Even the

Policy areas having impacts on forests in Europe

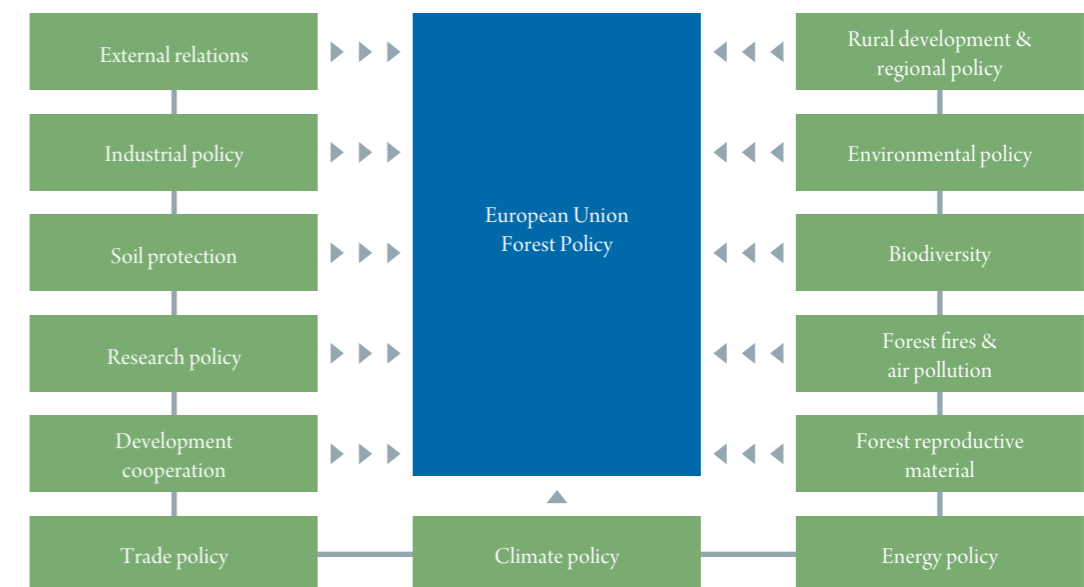


Figure 44 | Source: Pülzl, H. 2005. Evaluation of European Community: Regulations and policies relevant to forest policy. Federal Ministry of Agriculture, Forestry, Environment and Water Management, Vienna, AT. 119p. (slightly adapted).

European Court of Justice, which is in charge of the interpretation and implementation of EU legislation, can be given a role in this process if, for example, it checks the application of EU law (see Figure 45). With the Lisbon Treaty, also the role of parliaments has been strengthened. They have been able to play a stronger role since then.

Pan-European context

In Pan-Europe¹⁷ there are presently a small number of legally binding instruments (Alpine Convention with Mountain Forest Protocol, Carpathian Convention, Bern Convention, Espoo Convention, Aarhus Convention) that are also of relevance for Austria's

Institutions of relevance to forest policy in/outside the European Union

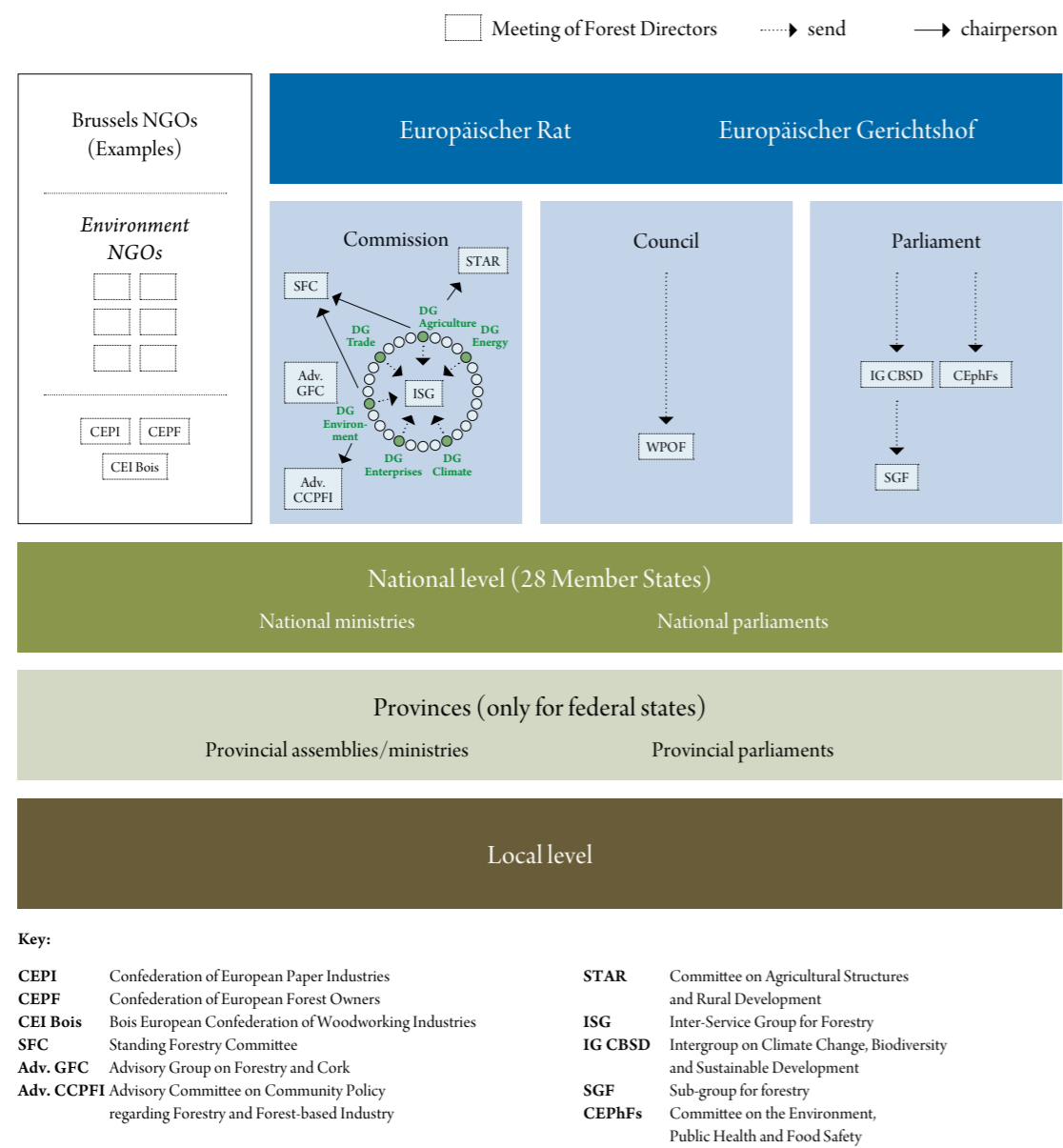


Figure 45 | Source: Püzl, H. and Nussbaumer, Eva. 2006. Modes of Governance for European Forest policy. Coordination, co-operation and communication. Vienna, AT, Federal Austrian Ministry for Agriculture, Forestry, Environment and Water Management.

17) All of Europe.

forest policy and in whose design and establishment Austrian representatives are involved. Since the early 1990ies the Ministerial Conference on the Protection of Forests in Europe, which is now referred to as FOREST EUROPE, has become established in addition to these regional instruments. This political process aims at establishing sustainable forest management all over Europe. The goals of the process are evident from the political declarations and the resolutions adopted at the regular Ministerial Conferences (so far seven). Vital parts of the documents include a uniform definition of sustainable forest management (Helsinki Resolution 1 — 1993), the adoption of criteria and indicators for sustainable forest management and the wording of a European approach to national forest programmes (Vienna Resolution 1 — 2013). Austria has lent its strong support to this Ministerial Conference on Forests. Between 1998 and 2003 also the Liaison Unit, the secretariat of the process, had its headquarters in Vienna. In 2011, at the Ministerial Conference in Oslo, it was decided that the negotiation process for a legally binding forest convention should be launched. Austrian representatives took particularly great efforts at the preparatory stage and have also had leading roles in the negotiations (e.g. by managing working groups etc.). However, at the moment negotiations have stalled and have not yet been finalised. There is also a "Environment for Europe" Ministerial Conference which can be understood as a pan-European response to the implementation of the Convention on Biological Diversity and which, in forest-specific issues, is tightly linked to Forest Europe.

Some organisations of the United Nations, such as the Food and Agriculture Organisation (FAO) and the United Nations Economic Commission for Europe (UNECE), prepare forest-relevant data and information and act as hosts and organisers of expert conferences and meetings. Every other year the countries also meet in Rome within the Committee on Forestry (COFO) which is organised by FAO. In these fora, too, Austrian representatives are actively working in leading positions (FAO-ECE Forest Communicators Network).

International context

Like in (Pan-) Europe so far no comprehensive legally binding instrument for forest has been agreed at the global level. However, there are a large number of instruments of international law that relate to forests and that directly or indirectly deal with forest issues (e.g. World Heritage Convention UNESCO), Bonn Convention on the Conservation of Migratory Species of Wild Animals, Vienna Convention for the Protection of the Ozone Layer, Framework Convention on Climate Change UNFCCC, Kyoto Protocol, Convention on Biological Diversity CBD), Cartagena Protocol, Nagoya Protocol, International Treaty on Plant Genetic Resources for Food and Agriculture, Convention to Combat Desertification CCD, General Agreement on Tariffs and Trade GATT, Agreement on Technical Barriers to Trade TBT, WTO Sanitary and Phytosanitary Agreement, Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora CITES, International Tropical Timber Agreement ITTA, etc.).

In addition, there are non-legally binding instruments, such as the Forest Principles, Agenda 21 with its Chapter 11 on combating deforestation which were adopted at the UN Conference on Environment and Development (UNCED) in Rio as well as the non-legally binding instrument for all types of forests (United Nations Forest Instrument) which was adopted by the UN Forum on Forests (UNFF) and approved by the General Assembly of the United Nations in 2007. Austrian representatives are taking actively part in these global fora by for example, held leading positions within the UNFF context.

In addition to the above activities there are also forest certification processes launched by civil society (Forest Stewardship Council FSC, Programme for the Endorsement of Forest Certification schemes PEFC) that are also active in Austria.

EUROPEAN FOREST INSTITUTE — CENTRAL-EAST EUROPEAN REGIONAL OFFICE IN VIENNA

The European Forest Institute (EFI) operates five regional offices in all parts of Europe which constitute integral components and deal with research topics of regional relevance. One key task is to put those topics through the integration expert-know of established research institutes in those regions in a European context.

The Central-East European Regional Office (EFICEEC) with its headquarters in Vienna was opened in 2010 and acts as a network of the Central-European and Eastern European forest research institutes. The Office in Vienna takes an important position for the whole Central-

EFI regional offices and EFICEEC-EFISEE partners

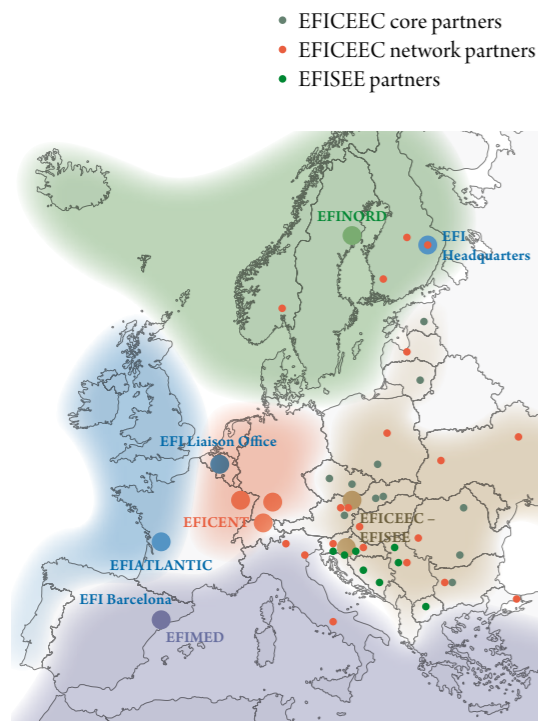


Figure 46 | Source: EFICEEC 2014

More information at: <http://www.eficeec.efi.int/>

East European (CEE) and South-East European (SEE) area. Presently, the EFICEEC-SEE network comprises 40 partners from 20 countries (Figure 46).

The topics of the current EFICEEC research activities comprise European and international forest policy, the changing structures of forest ownership in Europe, the sustainable use of resources, innovative value-added chains in the wood and non-wood sectors, financial instruments to maintain biodiversity, evaluation of land use in Europe as well as indicators for sustainable forest management. Conditions and circumstances like restitution and privatisation, decoupled tradition and lost expert know-how due to expropriation and the fragmentation of forest property as well as rural exodus and demographic change are substantial factors to assess the potentials of forest management in Eastern Europe. Through the application of interdisciplinary approaches research results shall also be directly applicable for forestry practice and support decision-makers. In the course of cooperation with FAO for instance two studies on forest owners organisations in Eastern Europe were prepared which investigate how forest owners organise themselves and in which ways they cooperate. A great number of these topics are dealt with in international projects and in cooperation with UNECE, FAO or Forest Europe.

Following the positive evaluation, the continued operation of the regional office is ensured at least until 2018, also ensured by the support from the Ministry of Agriculture, Forestry, Environment and Water Management. EFICEEC will therefore further take a lead in forest-related research activities and policy support in the Danube region as well as on a European level.

BILATERAL AFFAIRS

Visits of foreign experts at the BMLFUW have been a decades-long tradition. The list of countries interested in Austria's successful forest and timber industry is getting longer and longer.

Above all, Austrian know-how appears to gain importance for countries of the Far East. Apart from (South) Eastern European countries mainly experts from China, Japan and South Korea are interested in Austria's success formulas.

The topics most demanded are Austrian sustainable forest management, including small-scale forestry and mountain forest management, as well as forest-political questions and biomass from wood. In this context, also the protection against natural hazards has been gaining importance.

In most cases cooperation takes the form of lectures and workshops, excursions with partners

in Austria (Provincial Forest Administrations, Chambers of Agriculture, Austrian Federal Forests, private forest enterprises, etc.) as well as of specific education and training courses which are in most cases held at the forest education and training centres.

Furthermore, projects of Austrian organisations concerning know-how communication abroad are actively supported and promoted.

There are agreements on cooperation (so-called Memorandums of Understanding - MoUs) with ministries of various countries; forestry is dealt with in MoUs with Algeria, Argentina, Bulgaria, China, Kosovo, Poland, Serbia, South Korea, Czech Republic, Turkey, and Hungary.

Other agreements are already being prepared.

INDICATOR A.4: FINANCIAL INSTRUMENTS/ECONOMIC POLICY

Forests and forestry are integral parts of rural areas — almost 50 % of the Austrian territory is managed by forest farmers having forest areas < 200 hectares. Their forest management is a sustainable contribution towards the extensive conservation and development of forest ecosystems and rural areas. However, external factors such as

- migration away from the rural regions with the associated impacts on the economic, social and cultural structure of these regions,
- growing public demands on the forest (owners), or
- international economic developments

have major impacts on forest management. The Federal Ministry of Agriculture, Forestry, Environment and Water Management sees its task in supporting persons managing forests appropriately in order to preserve and improve their areas of living.

RURAL DEVELOPMENT PROGRAMME 2000–2006

Under the Rural Development Programme 2000–2006 according to Regulation (EC) no. 1257/99, the following measures were supported:

- Maintenance and improvement of the economic and ecological value of forests

- Maintenance and improvement of the social value of forests
- Preservation, amelioration or restoration of forests with major protective or beneficiary effects
- Development of forests
- Processing, marketing of wood and biomass
- Innovation and information
- Associations of forest owners
- Extraordinary stress and prevention
- Maintenance and improvement of the ecological stability of forests
- Afforestation of agricultural areas and their tending

- Improving the Competitiveness of the Agriculture and Forestry Sector (Axis 1)
 - Improvement of the Environment and the Countryside (Axis 2)
 - Quality of Life in Rural Areas and Diversification of the Rural Economy (Axis 3)
 - LEADER (Axis 4)
- and comprised the following forest-political priority actions:
- „Forest — Economy“ with the objectives of
 - Sustained improvement of the economic value of forests by means of close-to-nature forest management and improvement of the structure of forest stands;
 - Safeguarding of a sustainable management taking into account the future competitiveness of forestry;
 - Horizontal and vertical integration of forestry in rural areas.

In total, these measures amount to 129.77 million euros serving the improvement of forest management.

PROGRAMME 2007–2013

The Austrian Programme for the Development of Rural Areas 2007–2013 (LE 07–13) was approved by the European Commission on 25 October 2007 and deliberately focused on forest-related measures. Funds of 25 million euros annually were therefore allocated. In addition, 16 million euros per year were retrieved for the „Protection against Natural Hazards“. For the entire seven-year programme period, this was an amount of 287 million euros or about 4 % of the total budget of the LE 07–13.

In the LE 07–13 „forests“ included all priorities provided for in Council Regulation no. 1698/2005 of the European Community, namely

- „Forest — Man“ with the objectives of
 - strengthening human resources in forestry;
 - improving education and further training.
- „Forest protection — Protection forest“ with the objectives
 - Restoration of the ecological and social effects of forests and the prevention of natural disasters, fires and forest pests.
 - Protection against natural hazards.
- „Forest — Environment“ with the objectives of
 - Improving the status of the environment in insufficiently stocked rural areas.

- Preservation and development of surfaces and structures valuable in terms of nature conservation, in particular of habitats and species protected under Directives 79/409/EEC and 92/43/EEC.
- Improved development of areas with a high natural value as well as the preservation of the cultural heritage.

inter-provincial projects, submitting joint applications, and initiating measures within the scope of inter-structural cooperation. These new approaches should enable a more efficient forest management through inter-structural and inter-provincial cooperation, and improve the income from forests.

Subsidies were granted, which means that applicants also had to accept certain conditions. So the contents and the essential preconditions for the individual measures are briefly presented:

Axis 1
(Improving the competitiveness of the agricultural and forestry sector)

- Vocational training and information actions
 - Subjects eligible for support: Training and further education, qualification measures (support for participants and for events).

Table 12 shows the focuses of forest policy measures and their allocation to the measures (new measures are highlighted in blue) and priorities defined in the Council Regulation.

The measures offered in LE 07–13 should guarantee that activities in the areas of networking, cooperation, processing, information, tourism and sensitisation for environmental protection that reach beyond the scope of forestry are integrated as well, and that activities for local development strategies can be implemented. Additionally, there was the possibility of implementing

Focuses of forest policy measures / Allocation to the measures defined in the Council Regulation

Forest — Economy	Forest — Environment	Forest protection — Protection forest	Forest — Man
Improvement of the economic value of forests	First afforestation of agricultural land	Prevention, forest protection	Vocational training, further education and information measures
Increasing the value added	Natura 2000 payments	Protection forests	Forest-related education / Forest pedagogics
Cooperation, development of new products, processes and technologies	Forest-environment payments		
Infrastructure	Recreational effect, tourism		
	Improving the cultural heritage		
	Protection against natural hazards		
	Information, LEADER		
Axis 1	Axes 2 and 3	Axes 2 and 3	Axes 1 and 3

Table 12 | Source: BMLFUW 2014

- Volume of funding: 100 % of the creditable costs as a maximum.
- Improvement of the economic value of forests
 - Subjects eligible for support: Silviculture (afforestation, tending, restructuring of stands, etc.); forest gardens and seed; forest-related business plans; one-time acquisition of machinery and equipment; provision of biomass.
 - Conditions: Orientation towards the natural forest community; maximum supportable surface 20 hectares per year and per forest manager; no game damage endangering the forest; support only for new or show equipment within the scope of forest owner associations.
 - Volume of funding: 50 % of the creditable costs as a maximum, taking the “de-minimis” allowance (max. EUR 200,000 support per applicant within three years) into account.
- Increasing the value added for forestry products
 - Subjects eligible for support: Establishment of and participation in organised timber market systems; improving the logistics chain forest — wood; one-time acquisition of machinery and equipment.
 - Conditions: Limitation to small enterprises (max. EUR 2,000,000 turnover per year, max. 9 employees); support only for new or show equipment within the scope of forest owner associations.
 - Volume of funding: 40 % of the creditable costs as a maximum, taking the “de-minimis” allowance into account.
- Cooperation in the development of new products, processes and technologies in the forestry sector
 - Subjects eligible for support: Regional forest-related feasibility studies or structural concepts; cooperation between forest owner associations and third parties (personnel, planning, coordination); interstructural cooperation (personnel, planning, coordination); information, innovation, marketing and services.
 - Volume of funding: 80 % of the creditable costs as a maximum, taking the “de-minimis” allowance into account.
- Infrastructure in connection with the development and adaptation of forestry
 - Subjects eligible for support: Forest roads (new construction, reconstruction); ecologically oriented hydraulic engineering and drainage engineering measures (erosion protection, small retaining basins, stabilisation measures, studies, planning).
 - Conditions: Forest road max. length 3.5 km and max. building costs EUR 35 per metre; compliance with provisions of water legislation.
 - Volume of funding: 90 % of the creditable costs as a maximum, forest road max. 70 %.

Axis 2
(Improving the environment and the countryside)

- First afforestation of agricultural land
 - Subjects eligible for support: Afforestation.
 - Conditions: Only in cadastral communities with less than 20 % forest cover of the growth areas 7.1, 7.2, 8.1

- and 8.2; maximum eligible surface 20 hectares per year and per forest manager; involvement of the nature conservation authority.
- Volume of funding: 70 % of the creditable costs as a maximum.
- Natura 2000 payments
 - Subjects eligible for support: Silviculture (afforestation, tending, forest edges, forest clearings, ecologically valuable stand cells, etc.), nest protection zones.
 - Conditions: Only areas identified on the basis of Directives 79/409/EEC and 92/43/EEC in Austria in accordance with the provincial regulations; management plans; project confirmation by the forestry and nature conservation authority; maximum area eligible for support 100 hectares per year and per forest manager; binding to the natural forest community.
 - Volume of funding: min. EUR 40/ha/year, max. EUR 400/ha/year.
- Forest-environment payments
 - Subjects eligible for support: Silviculture (afforestation, tending, forest edges, forest clearings, ecologically valuable stand cells, etc.), nest protection zones; gene and natural forest reserves.
 - Conditions: Management plans; project confirmation by the forestry and nature conservation authority; maximum area eligible for support 100 hectares per year and per forest manager; binding to the natural forest community.
 - Volume of funding: min. EUR 40/ha/year, max. EUR 400/ha/yr.
- Restoring forestry potential and introducing prevention actions
 - Subjects eligible for support: Forest protection, prevention (silviculture, combat, clearing works); protection against natural hazards (silviculture, accompanying technical measures, public relations work, project management).
 - Conditions: Orientation towards the natural forest community; no game damage endangering the forest.
 - Volume of funding: 90 % of the creditable costs as a maximum.

Axis 3
(Quality of life in rural areas and diversification of the rural economy)

- Promotion of tourism in connection with forestry
 - Subjects eligible for support: Recreational effect of forests; infrastructure on forest soil; infrastructure facilities; development and marketing of tourism services; forest-related structural concepts.
 - Volume of funding: 80 % of the creditable costs as a maximum.
- Preserving and improving the rural cultural heritage — forest sector
 - Subjects eligible for support: Management plans Natura 2000; studies, investments in the cultural heritage of forests; public relations work; project management.
 - Conditions: Agreement between forest owners, forest and nature conservation authority; compliance with provisions of water legislation.
 - Volume of funding: 90 % of the creditable costs as a maximum.
 - Vocational training and information actions.
 - Subjects eligible for support:

- Training and further education, qualification measures (support for participants and for events).
- Volume of funding: 100 % of the creditable costs as a maximum.

Generally one has to take into account that starting on the date the programme was approved by the European Commission (25 October 2007) costs have been creditable as of the time of approval of the application for support. Possible subsidy applicants are (depending on the relevant measure): Managers of agricultural and forestry enterprises, other applicants for support, forest owner associations, agricultural cooperatives, logging cooperatives and joint logging ventures, beneficiaries, water cooperatives, water associations, municipalities.

This „mix of measures“ seems confusing at first, but should guarantee that forest farmers or forest owner associations can create and implement projects tailored to their own needs. This was particularly important for active forest management, also with the assistance of forest consultants, in order to achieve appropriate additional revenue from forest management.

PROGRAMME 2013–2020

The Austrian Programme for the Development of Rural Areas 2013–2020 (LE 2020) is presently in the approval process — a decision by the European Commission is expected for December 2014. Every year an amount of 38 million euros is provided — which is 266 million euros for the seven-year programme period or approximately 3 % of the overall budget of the LE 2020.

In this programme period the European Union sets a Common Strategic Framework (CSF) which comprises the European Structural, Fisheries, Cohesion, Social and Agricultural Funds (EAFRD). Overarching themes of the CSF are innovation, environmental protection and climate change. From these themes, six priorities are derived for the EAFRD:

- Knowledge transfer and innovation (Priority 1);

- Enhancing competitiveness (Priority 2);
- Food chain organisation and risk management (Priority 3);
- Restoring, preserving and enhancing ecosystems (Priority 4);
- Resource efficiency and shift towards a low-carbon and climate-resilient economy (Priority 5); and
- Social inclusion, poverty reduction and economic development in rural areas (Priority 6).

Forests are mainly represented in priorities 4 and 5, accompanied by priorities 1 and 6. Main fields of forest policy are:

- Protection against natural hazards;
- Forest — Environment;
- Economy; and
- Knowledge, training and further training, innovation and social aspects.

The measures offered in LE 2020 (they correspond to those of LE 07–13) are to guarantee that activities in the areas of networking, cooperation, processing, information, tourism and environmental awareness, that go beyond forestry, are integrated and that also activities for local development strategies can be implemented. Additionally, inter-provincial projects can be implemented, joint applications can be submitted, and measures within the scope of inter-structural cooperation or social aspects („green care“) can be initiated. These new approaches are to allow a more efficient forest management through inter-structural and inter-provincial cooperation and to improve the income from forests. Subsidies are granted, which means that applicants also have to

accept certain conditions. Therefore, the European Commission in addition to the previously known requirements for support set up additional prerequisites for the granting of support. They include

above all eligibility, selection criteria and „calls“ on certain deadlines. These instruments are to ensure an objective and transparent procedure taking into account equal treatment.

INDICATOR A.5: INFORMATION TOOLS

FOREST INFORMATION

Forests are of incalculable value for the environment and the quality of life in Austria. To inform the public about the many different effects of forests, the BMLFUW implements active public relations work and pursues a targeted information policy. An important prerequisite in this context is the gathering of all relevant data and information about forestry, the wood industry and associated areas of the economy. International reporting and responding to ad-hoc inquiries are also becoming more and more important.

The most important forestry-relevant reports published regularly by the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) are the Austrian Forest Report including its data collection, the Timber Harvest Report, the annual report of the Forest Engineering Service in Torrent and Avalanche Control, the Game Damage Report, and the Green Report. All these reports are available as electronic documents at the homepage of the BMLFUW (<http://www.bmlfuw.gv.at>), under „Publications“.

PUBLIC RELATIONS IN FORESTRY

In order to make the public aware of the importance of forests, events with a high degree of publicity are organised every year in addition to the on-going public relations activities. The main objective is to focus interest on the forest and its actors for a certain period of time.

SOCIAL MEDIA

Since 2010 the forest has also been very successfully represented on Facebook (<http://www.facebook.com/unserwald>) and Twitter (http://www.twitter.com/unser_wald). Visit it there, too! ;)

TREE OF THE YEAR

On the occasion of the „International Day of the Forest“ on March 21 the BMLFUW, together with the forest committee „Kuratorium Wald“, presents the Tree of the Year.



The campaign „Tree of the Year“ has a long tradition and aims at informing about important or endangered tree species and on forests in their entirety, with the ecological and economic role they are playing for humans.

Since 1994 the following tree species were „Trees of the Year“: Fir, beech, lime, spruce, black alder, arolla, European black pine, ash, larch, willow, mountain ash, maple, elm, hornbeam, sorb, birch, wild-grown fruit trees, Swiss pine, chequer tree, and yew. The Tree of the Year 2014 is beech; the Trees of the Years 2015 and 2016 will be European silver fir and oak.

WEEK OF THE FOREST

The Week of the Forest takes place every year in the 24th calendar week. The Federal Ministry of Agriculture, Forestry, Environment and Water Management is the initiator and coordinator of the Forest Week and chooses its focus theme every year. By concentrating on one central motto, public interest is to be focussed on a topical and relevant forest policy issue, thus stimulating discussion and opinion-building.

Between 1994 and 2014 the themes of the Week of the Forest were:

- Forests in good hands — Austria's forest farmers
- Austria's forest farmers — Nature as an economic principle
- Forests for the future
- Forests and water
- Maintaining forests — a global task
- Timber grows. In forests
- Forests as an adventure
- Wood power — Energy grows. In forests
- Fascinating wood
- Forest and water — 2 strong partners
- Forests as habitats
- Talking about Forests
- FOREST — We All Live From It
- FOREST is WORTH more

- FORESTS — splendidly SPECIES-rich
- Our forest
- FORESTS are hot ...
- Our FOREST — the recipe for sustainability
- Our forests in good hands

From 9–15 June 2014 the Week of the Forest was held. Like twenty years ago it was under the banner of the exemplary and sustainable forest management by families.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) proclaimed 2014 the International Year of Family Farming. This, and the 20th anniversary of the State Award for Exemplary Forest Management, gave rise to dedicating also the Week of the Forest to the exemplary and sustainable management of forests by families. Like twenty years ago the motto of the Forest Week was „Our forests in good hands“. About 145,000 forest owners take care of Austrian forests as part of their daily routine and dedicate their commitment, their sound training and innovative ideas to our forests.

On the occasion of the 20th anniversary of the State Award all 184 earlier State Award winners were invited to a celebration at the Federal Ministry of Agriculture, Forestry, Environment and Water Management.

STATE AWARD FOR EXEMPLARY FOREST MANAGEMENT

Annually, since 1994, the State Award for Exemplary Forestry has been bestowed on Austria's most successful farm foresters. From all Federal Provinces exemplary representatives of a modern, future-oriented forest utilisation and management are asked to step into the limelight. The aim of this action is to demonstrate the manifold opportunities to draw economic benefits from forests in a nature-compatible way, to strengthen farm-foresters' self-confidence, and to raise the status of farm-based forest management.

The prize is awarded to private forest management enterprises or joint ventures and, since the year 2000,

also to cooperatives. Also an Austria-wide cooperation prize is awarded. Joint ventures or individuals that have rendered dedicated and outstanding service to the cooperation in forestry (forest assistants and the like) can be submitted for the prize.

Winners of the State Award are to be messengers of the forest and pioneers in their fields and they should motivate as many people as possible to use forests to a greater extent. Every year we can see that this is worth while.

FOREST PEDAGOGY

Forest pedagogy is a dialogue between man and nature. It conveys the essential messages to and for the public in order that forest managers preserve and improve the forest ecosystem in a responsible, transparent and participative manner. This is particularly important in a „forest country“ like Austria.

A great many interested forest visitors are familiarised with Austrian forests. Among other things, forest pedagogy aims to arouse pleasure and interest in the forest and to inform about forests in a playful manner.

Also in 2013, excursions to forests were conducted by certified forest educators. In concrete terms, 5,980 subsidised excursions with 95,899 participants and as many as 454 certified forest educators were offered.

The excursions were organised for the following target groups: Approximately 15 % kindergarten (children aged over 5 years), 62 % primary schools, 15 % new secondary school (NMS), lower secondary school (HS) and grammar school (MS), 5 % general academic secondary school (AHS) and 3 % groups with persons with special needs. Also for 2015 the promotion of forest excursions (minimum of three teaching units) is planned — based on the slogan „Forests are beautiful all year round“.



FOREST RESEARCH

Forest research aims at developing novel technical know-how, decision aids and bases of decision to fulfil the Ministry's tasks to improve, safeguard and sustainably develop the economic, protective, beneficial and recreational effects of forests and to ensure sustainable wood supply, to promote the competitive strength of forestry, to use wood as raw material and energy source, and to enhance the forest engineering system of torrent and avalanche control.

Due to the specific features of the ownership structure of Austrian forests with its extraordinarily high share of private forest owners and the long production periods in forestry with the resulting long-term frame and expensiveness of most forest research projects, there are hardly any enterprises that are able to carry out research activities, nor private research funding.

This situation, with almost complete funding of forest research from public means must be seen also in connection with the important social benefits that Austrian forests provide to the public in terms of regional culture.

Most of the Ministry's research projects are carried out in the framework of the annual research programmes of the Federal Office and Research Centre for Forests (BFW). Other research institutions, especially the institutes of the University of Natural Resources and Applied Life Sciences („Universität für Bodenkultur“), are contracted if the processing of a problem requires special research disciplines or if the BFW does not have sufficient capacity for research activities beyond the scope of its work programme. Also in the event of acute, urgent research need in politics or practice research contracts are, in the framework of third-party funded research activities, awarded to external research institutes, as the necessary technical competence must be available rapidly and the required work has to be carried out speedily.

Major fields of research:

- The forest ecosystem
- Climate change
- New invasive species and animals
- Protection against natural hazards and protection forest management
- Recommendations on tree species and choice of origin
- Monitoring
 Examples for projects at the BFW:
<http://bfw.ac.at>
<http://www.waldwissen.net>
- Taking the right forest (choice of the right plants for the relevant forest location)
- Detector dogs sniff out tree pests
- Unmanned aerial vehicles: NewFOR provides remote sensing data
- Forest land use planning: Behind the scenes
- Diversity counts — Biodiversity Index Forest
- Natural Forest Reserve Programme in Austria

Institutions active in forest research in addition to the BFW:

- University of Natural Resources and Applied Life Sciences (Universität für Bodenkultur)
- Austrian Federal Environment Agency (Umweltbundesamt)

- AIT — Austrian Institute of Technology
- JOANNEUM Research
- University of Vienna
- University of Innsbruck
- Graz University of Technology
- Kompetenzzentrum Holz (Centre of competence for wood)

Priorities of research under contract: Forest ecosystem research, near-natural forest management and greening of the forest management systems, socio-economic aspects of forestry, climate change and its impacts on forests, interface forest/timber (timber logistics) including the utilisation and provision of biomass from forests.

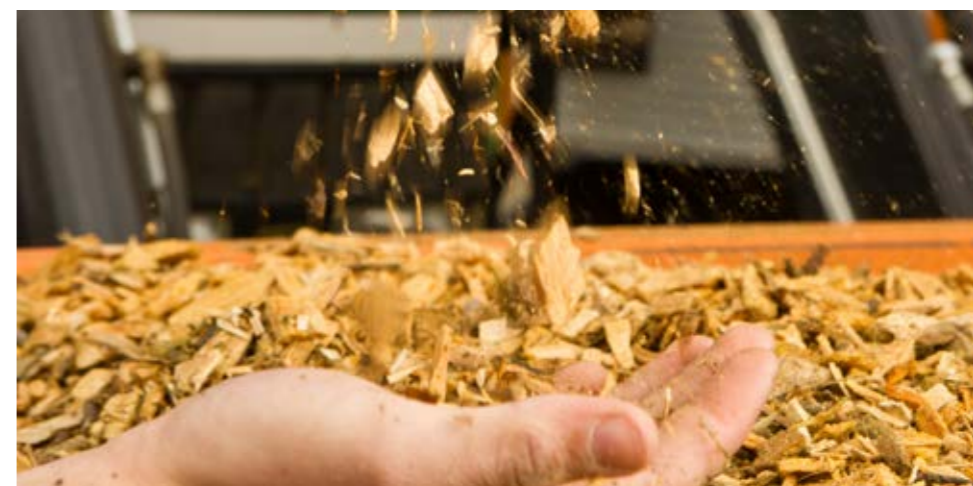
International research coordination

ERANET SUMFOREST and ERANET Plus WoodWisdom-Net + (WWN+)

The research department of the Directorate-General for Forestry participates intensively in European

coordination projects (ERANET and ERANET Plus). These coordination projects aim at creating uniform rules of participation between Member States for the conduct of joint research projects. In this way research tasks which, in financial or technical terms, cannot be carried out by one country can be solved in cooperation with several countries. Moreover, ERANETs are to prevent that, for lack of coordination, the same research tasks are carried out by several countries. For this purpose the ongoing research programmes and research projects conducted in the different countries are compared, gaps and duplication are identified, and priorities in the objectives of research projects are determined.

For top priorities, jointly funded tender procedures for research projects (Joint Calls) are conducted where research partners from at least three participating countries can apply for being awarded research projects. In the ERANET the projects selected are then funded by the national subsidisation agencies (usually each country funds its own national research partners). In ERANET Plus, additional funds are provided by the European Commission (top-up funding). Therefore, not the research institutes but the relevant national sponsors or national institutions managing public research programmes are participants in ERANETs.



SPACE FOR NOTES



FOR A LIVEABLE AUSTRIA.

OUR OBJECTIVE is a liveable Austria in a strong Europe, with clean air, pure water, diversity in nature as well as safe, high-quality and affordable food. We establish the conditions for this.

WE ARE WORKING to provide secure livelihoods, to encourage sustainable lifestyles and to ensure the reliable protection of life.



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