

POLAND 

# THE STATE FORESTS IN FIGURES 2015



State Forests





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of the State Forests**

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Promotional forest complexes (PFC) are functional entities established to provide educational programmes and to pursue and promote the principles of forest management which integrate goals such as nature protection, enhancing environmental functions of forests, sustainable utilisation of forest resources and participatory management of forests. They were established within the State Forests as part of the national policy on forests and the provisions of the Forest Act. Promotional forest complexes also function as research centres where knowledge of the forest environment is used to facilitate interdisciplinary research. This, in turn, informs the improvement of forest management methods and defines the boundaries of economic interference in the forest ecosystems. PFC provide an alternative to the overcrowded national parks where tourist traffic is regulated by strict rules. They give an opportunity for direct contact with nature, without many restrictions on access (also for the disabled), and play an important role in education, especially of children and young people.

The State Forests policy on promoting sustainable forest management resulted in the creation of 25 promotional forest complexes distributed between the 17 regional directorates of the State Forests. Their total area is 1268 thousand hectares, of which 1247 thousand hectares are administered by the State Forests (17.6% of their total forest area).





The State Forests National Forest Holding (the State Forests) is an organisation which administers property on behalf of the Treasury and does not have legal personality. It is responsible for the management, on a self-financing basis, of all state-owned forests, with the exception of national parks, land under the administration of the Agricultural Property Agency and forests leased under perpetual lease agreements. Its aims are to manage forests according to the principles of universal protection of forests, sustainable and continuous use of all forest functions and the increase of forest resources. These aims are implemented in accordance with forest management plans drawn up for each forest district for a ten-year period.

The State Forests, whenever natural, social and economic conditions permit, fulfil the tenets of international agreements which include: the Forestry Principles and Agenda 21 adopted at the 1992 Earth Summit in Rio de Janeiro; the Declaration of European Forestry Ministers with regard to the protection of European forests (Strasbourg 1990, Helsinki 1993, Lisbon 1998, Vienna 2003, Warsaw 2007, Oslo 2011); and the Kyoto Protocol of 2005 concerning the role of forests in carbon sequestration. Since Poland's accession to the European Union on 1 May 2004, the State Forests have been implementing, within their remit, the programme Natura 2000.

The State Forests National Forest Holding operates in accordance with the legal provisions of the Forest Act of 28 September 1991 (as amended), the Ordinance of the Council of Ministers of 6 December 1994 which outlines the principles of financial management in the State Forests, the Accounting Act of 29 September 1994, and other regulations resulting from the Forest Act.

This brochure is based on the "Annual report on the condition of forests in Poland 2014", which was commissioned by the Directorate-General of the State Forests and compiled by the Forest Research Institute, and on the "Annual financial and economic report of the State Forests National Forest Holding 2014".

# THE STATE FORESTS IN FIGURES 2015



**State Forests**



# AIMS AND OBJECTIVES OF THE STATE FORESTS



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In accordance with the provisions of the Forest Act of 28 September 1991 (with later amendments) and the regulations and ordinances resulting from them, the main aims of the State Forests are to manage forests according to the principles of universal protection of forests, to maintain their permanence, to use all forest functions in a continuous and sustainable way and to augment forest resources. These aims are pursued through sustainable multifunctional forest management in accordance with forest management plans for each forest district for a ten-year period. Each plan sets out objectives of silvicultural management and protection for specified fragments of forests (stands) and methods of achieving them.

The State Forests administer all forests owned by the State Treasury, with the exception of national parks and the land administered by the Agricultural Property Agency or leased under perpetual lease agreements. This involves managing forests and other land and property, keeping an inventory of the property owned by the Treasury, monitoring forest condition, keeping and updating data on the size of forest area and timber resources, monitoring and forecasting the level of fire hazard and the occurrence of insect pests and tree diseases.



The State  
Forests  
administer  
forests owned  
by the State  
Treasury

The State Forests fund forest science research which contributes to the advancement of forestry and forest management methods. Whenever natural, social and economic conditions allow, the State Forests implement the international agreements as laid down in:

- the Forestry Principles and Agenda 21 adopted at the 1992 Earth Summit in Rio de Janeiro;
- the Declaration of European Forestry Ministers concerning the Protection of European Forests (Strasbourg 1990, Helsinki 1993, Lisbon 1998, Vienna 2003, Warsaw 2007, Oslo 2011);
- the Kyoto Protocol (2005) concerning the role of forests in carbon sequestration.

Since Poland's accession to the European Union on 1 May 2004 the State Forests have been implementing, within their remit, the programme Natura 2000.

Other important objectives of the State Forests are to make forests accessible to society and to increase awareness of environmental issues by providing forest and nature education.

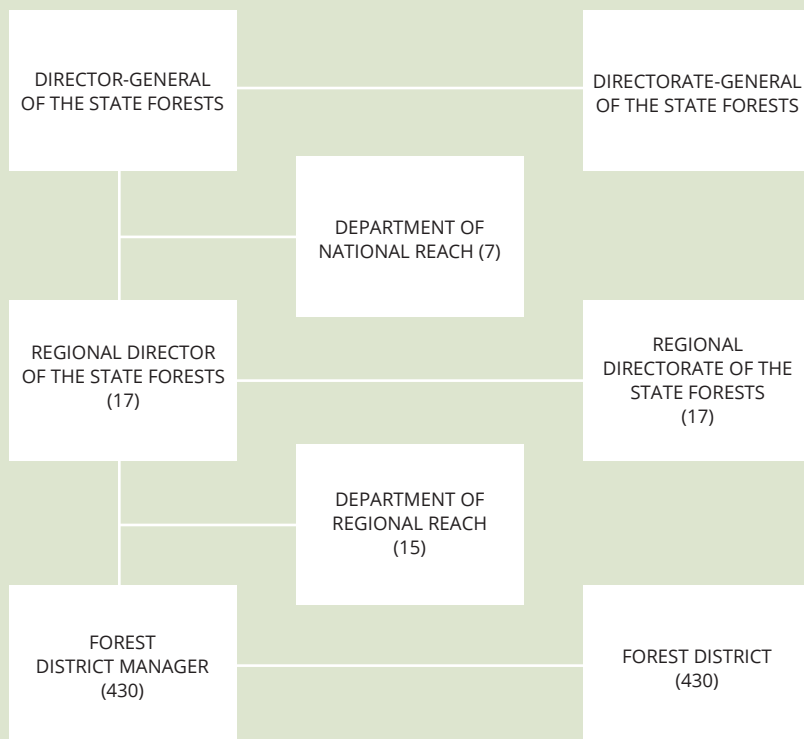
# ORGANISATIONAL STRUCTURE AND EMPLOYMENT



## Organisational structure

The State Forests are a state organisational unit which administers property on behalf of the Treasury and does not have legal personality. It operates on a self-financing basis.

The State Forests are headed by the Director-General who is assisted by the Directorate-General and the directors of regional directorates.



**THE THREE-TIER STRUCTURE OF THE STATE FORESTS**  
(status as of 31 December 2014)

As of 31 December 2014, the State Forests comprised the following organisational units:

- Directorate-General of the State Forests (DGSF);
- 17 regional directorates of the State Forests (RDSF);
- 430 forest districts;
- 15 organisational units (departments) with regional authority reporting to the regional directors of the State Forests (3 storage complexes, 2 fisheries, 2 transport and logistics, 3 service and production, 2 forest transport, 2 forestry services, 1 training and recreation centre);
- 7 organisational units (departments) with national authority, five of which report to the Director-General of the State Forests (the Centre for Research and Implementation in Bedoń, the State Forests Information Centre in Warsaw, the Forest Technology Centre in Jarocin, the State Forests IT Department in Bedoń and the Coordination Centre for Environmental Projects in Warsaw). Two organisational units (the Kostrzyca Forest Gene Bank in Miłków and the Forest Culture Centre in Gołuchów) report to the directors of Wrocław and Poznań RDSF, respectively.

The remaining integral parts of the Directorate-General of the State Forests comprise 9 forest protection teams and 11 regional inspectorates.

The fundamental organisational units of the State Forests are forest districts. Each is led by a forest district manager who has the autonomy in managing forests according to the forest management plan and who is responsible for their condition. In 2014 there were 430 forest districts with an average area of 17.5 thousand hectares.

There are  
**430**  
forests districts  
within the State  
Forests







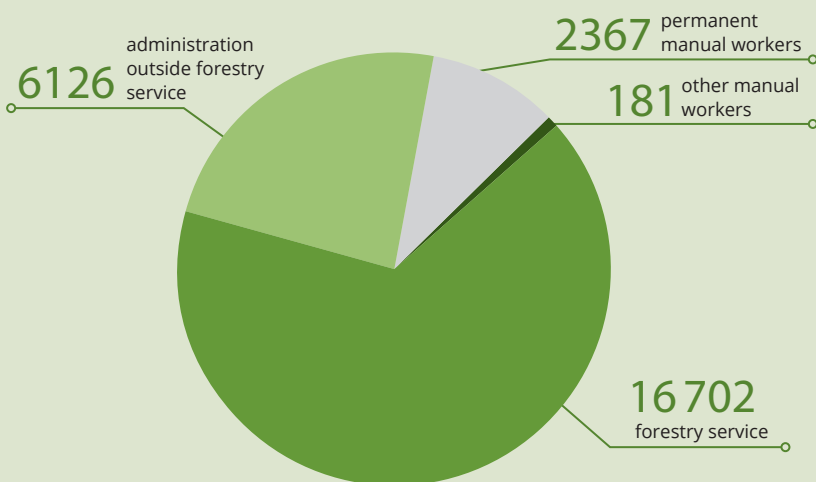
## Employment

The average monthly employment in the State Forests in 2014 was 25 376 people, 273 more than in 2013. The employment structure was as follows (in number of staff):

1. Permanent employees	25 195
● including non-manual employees	22 828
2. Employees on fixed-term contracts	181

The average monthly employment in the constituent units of the State Forests was:

1. In forest districts including:	23 110
● forestry service	15 984
● non-manual posts outside forestry service	5 079
● manual posts	2 047
2. In departments ● including non-manual posts:	1 005 560
3. In the Directorate-General and in regional directorates (including forest protection teams)	1 261
● including forestry service	706



EMPLOYMENT STRUCTURE in the State Forests in 2014

The average employment in the State Forests in the period 2011–2014 was higher than in 2012.

As of 31 December 2014, a total of 25 433 people were employed in the State Forests, an increase of 48 compared with the last day of 2013.



LEGEND:

FORESTRY SERVICE

ADMIN. OUTSIDE FORESTRY SERVICE

ALL MANUAL WORKERS

EMPLOYMENT IN THE STATE FORESTS in 2011–2014

## Research

Research commissioned by the Director-General of the State Forests in 2014 was significant for the development of all areas of forestry. Most research was carried out at the Forest Research Institute.

In total, 115 research projects were pursued in 2014, costing PLN 44 954.4 thousand. Of these, 62 projects were conducted at the Forest Research Institute, costing PLN 31 896.6 thousand, and 53 projects involved universities and other research institutions at a cost of PLN 13 057.8 thousand.

The results of the research were shared with the relevant units of the State Forests and other organisations for implementation.

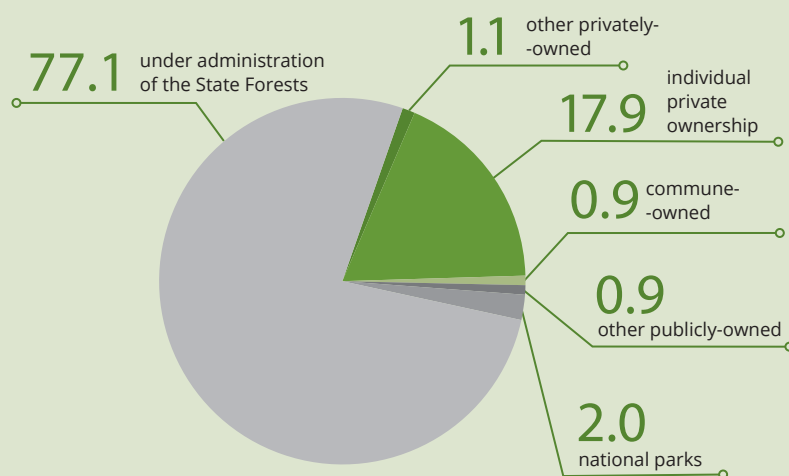


In 2014  
the State Forests  
commissioned  
**115**  
research  
projects

# RESOURCES OF THE STATE FORESTS



The forest area in Poland amounts to 9197.9 thousand hectares (as of 31 December 2014, Central Statistical Office), which puts the forest cover at 29.4%. The majority of forests (81.0%) are publicly-owned, including those administered by the State Forests (77.1%).



OWNERSHIP STRUCTURE (in %) OF FORESTS IN POLAND (Central Statistical Office)\*

\* The values do not add up to 100% due to rounding.



## Land use structure

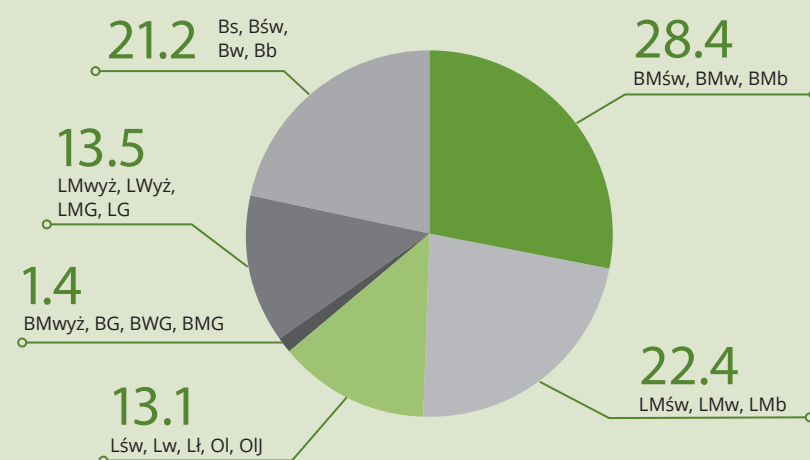
As of 31 December 2014, the total area of land administered by the State Forests amounted to 7 605 178.77 hectares and it was structured as follows:

● forests, total	7 294 113.75 ha
including: afforested land	6 983 575.65 ha
non-afforested land	111 113.01 ha
● agricultural land	141 754.52 ha
● wasteland	99 658.21 ha
● waters	9 109.04 ha
● landscape tree and shrub planting	11 931.53 ha

## Area structure of habitats and dominant tree species



Forests in Poland mainly occur on the poorest soils, which is reflected in the structure of forest habitat types. Coniferous forest habitats predominate, accounting for 51% of the total forest area, while broad-leaved forest habitats account for 49%. In both groups upland habitats occupy 6.3 % of the forest area and mountain habitats 8.6%.



AREA SHARE (in %) of forest habitat types in Poland (Large-Scale Forest Inventory 2010–2014)

### LEGEND:

Bb	– bog coniferous forest	Lł	– riparian forest
BG	– montane coniferous forest	LMb	– bog mixed broadleaved forest
BMb	– bog mixed coniferous forest	LMG	– montane mixed broadleaved forest
BMG	– montane mixed coniferous forest	LMśw	– fresh mixed broadleaved forest
BMśw	– fresh mixed coniferous forest	LMw	– moist mixed broadleaved forest
BMw	– moist mixed coniferous forest	LMwyż	– upland mixed broadleaved forest
BMwyż	– upland mixed coniferous forest	Lśw	– fresh broadleaved forest
Bs	– dry coniferous forest	Lw	– moist broadleaved forest
Bśw	– fresh coniferous forest	Lwyż	– upland broadleaved forest
Bw	– moist coniferous forest	Ol	– alder forest
BWG	– high-mountain coniferous forest	Olj	– alder-ash forest
LG	– montane broadleaved forest		

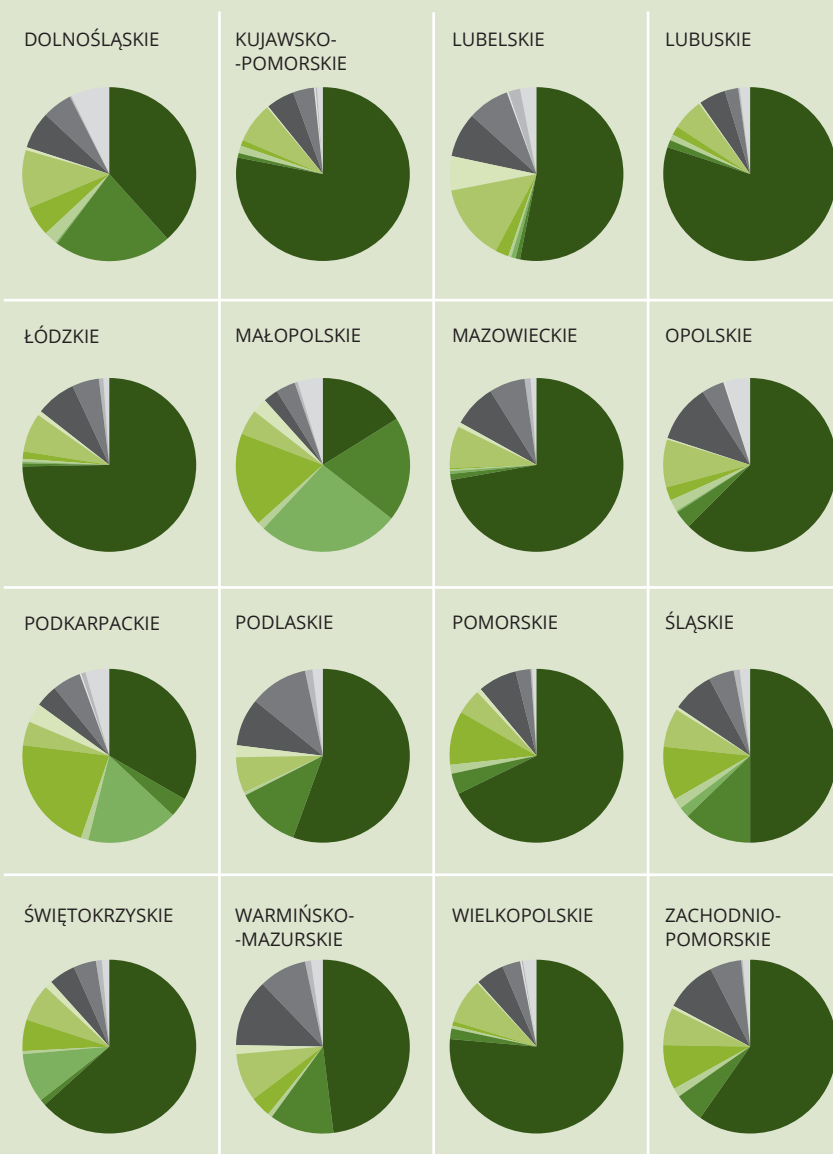
Geographical distribution of habitats is largely reflected in the spatial structure of dominant tree species. Apart from the mountain regions where spruce, fir and beech have a larger share in stand composition, in the rest of the country pine is a dominant species in the majority of stands.

Coniferous  
forest habitats  
cover  
**51%**  
of the forest  
area

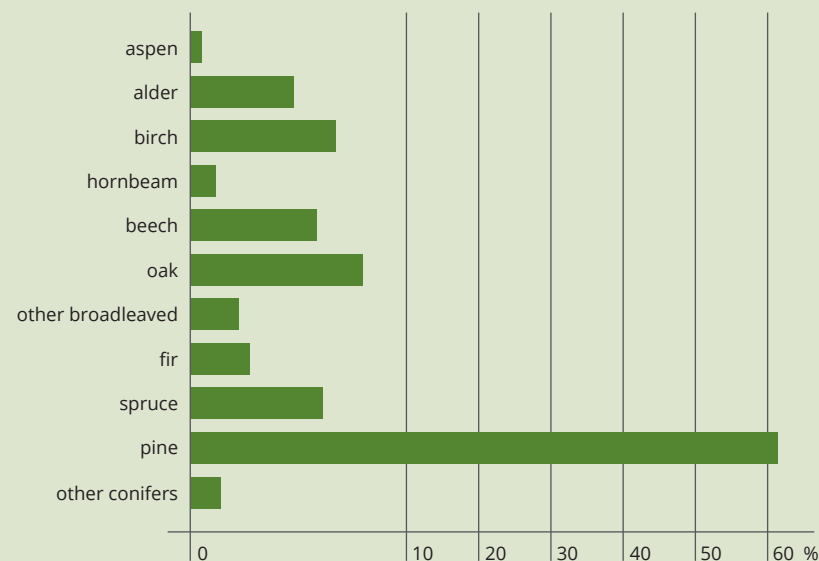


Coniferous species dominate on 69.1% of the total forest area in Poland. Pine, which in Poland has optimal climatic and site conditions within its Euro-Asiatic natural range and has developed many important ecotypes

(eg. taborska and augustowska pines), accounts for 58.5% of the forest area in all ownership categories, 60.5% in the State Forests and 55.8% in privately-owned forests (Large-Scale Forest Inventory).



**AREA DISTRIBUTION OF STANDS showing the proportions of dominant species** (Large-Scale Forest Inventory 2010–2014)



**AREA SHARE OF DOMINANT TREE SPECIES in the forests administered by the State Forests** (Large-Scale Forest Inventory 2010–2014)



**LEGEND:**

PINE	BEECH	ALDER
SPRUCE	OAK	POPLAR
FIR	HORNBEAM	ASPEN
OTHER CONIFEROUS	BIRCH	OTHER BROADLEAVED



## Age structure

Stands aged 41–80 years, representing age classes III and IV, prevail in the age structure of forests and cover 25.9% and 19.0% of the forest area respectively. Stands older than 100 years, including stands in restocking class (KO), stands in class for restocking (KDO) and stands with selection structure (BP), account for 12.3% of the forest area managed by the State Forests. The share of non-afforested land accounts for 3.2%.



**AREA SHARE OF STANDS by age class in the State Forests**  
(Large-Scale Forest Inventory 2010–2014)



## Afforestation

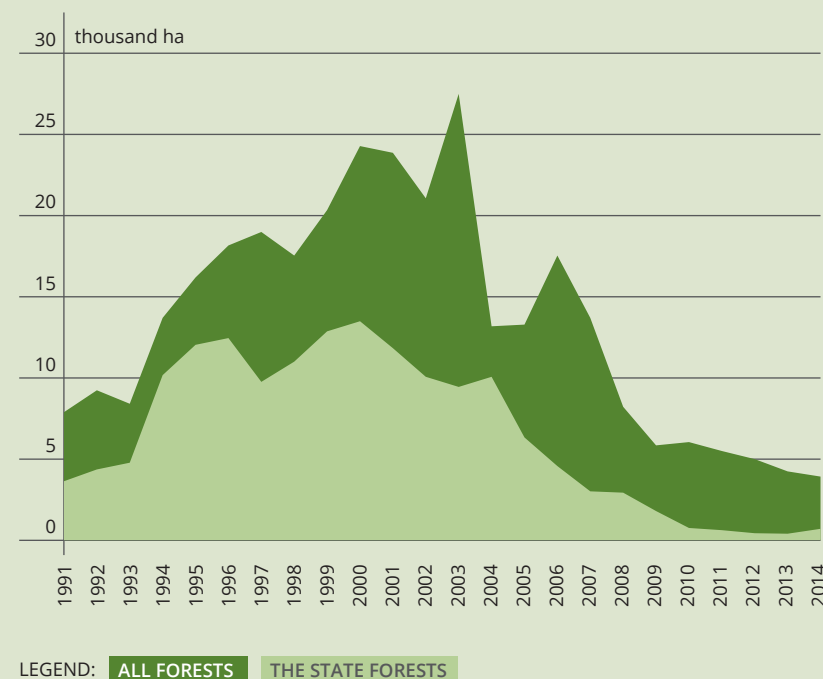


The basis for all afforestation in Poland is the “National Programme for the Augmentation of Forest Cover”, which was commissioned by the Ministry of the Environment, Natural Resources and Forestry and prepared by the Forest Research Institute. The programme was adopted for implementation by the Council of Ministers on 23 June 1995 (it was modified in 2002). The main aims of the programme are to increase forest cover to 30% by 2020 and to 33% by 2050 and to ensure an optimal spatial and temporal distribution of afforestation.

Artificial afforestation carried out in 2014 covered 3776 hectares of land in all ownership categories. The drastic decline in afforestation (from 16 933 hectares in 2006, a decrease of 78%) is largely a result of changes to the criteria for designating privately-owned agricultural land for afforestation under the “Programme for the Development of Rural Areas”, as well as competition from subsidies for agricultural production.

A decrease in the size of afforested areas was observed in the State Forests where in 2014 only 674 hectares were artificially afforested, as compared with 9.7 thousand hectares in 2004. This was a result of a sharp decline in the amount of post-agricultural land and wasteland being designated for afforestation by the Agricultural Property Agency.

**674**  
hectares  
of land were  
afforested in the  
State Forests  
in 2014



LEGEND: **ALL FORESTS** **THE STATE FORESTS**

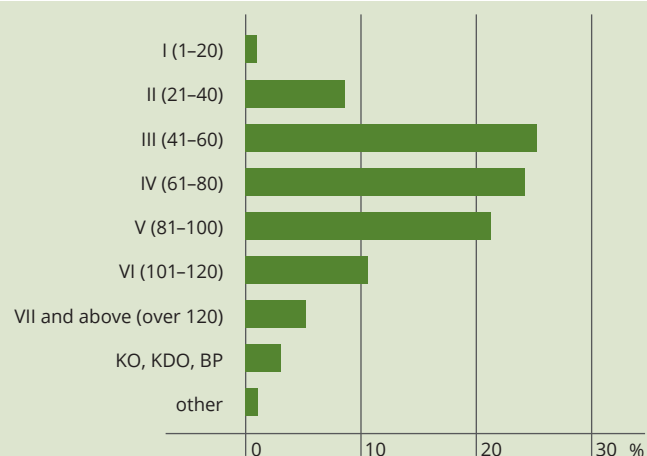
**THE SIZE OF ARTIFICIAL AFFORESTATION in Poland in 1991–2014** (Central Statistical Office)



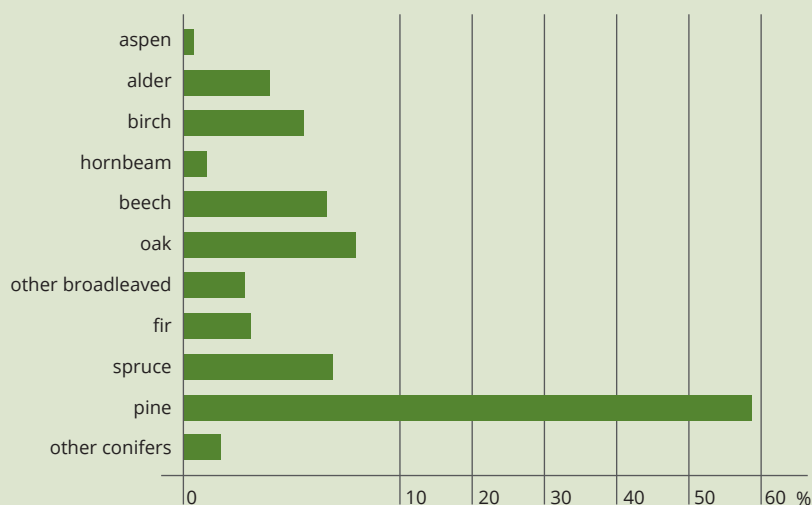
## Timber resources

The main source of information about the volume of timber resources in Poland is the Large-Scale Forest Inventory. According to the data collected in the years 2010–2014, and based on the forest area as it stood at the end of 2013, the timber resources in Poland amounted to 2469 million m<sup>3</sup> of gross merchantable timber, of which 1950 million m<sup>3</sup> were in the State Forests.

Almost half (49.4%) of the timber resources in the State Forests are in stands in the age classes III and IV (41–80 years). The volume of timber resources in the stands over 100 years old, including classes KO, KDO and BP, stands at 18.8%.



**VOLUME OF TIMBER RESOURCES by age class in the State Forests**  
(Large-Scale Forest Inventory 2010–2014)



**VOLUME OF TIMBER RESOURCES by tree species in the State Forests** (Large-Scale Forest Inventory 2010–2014)

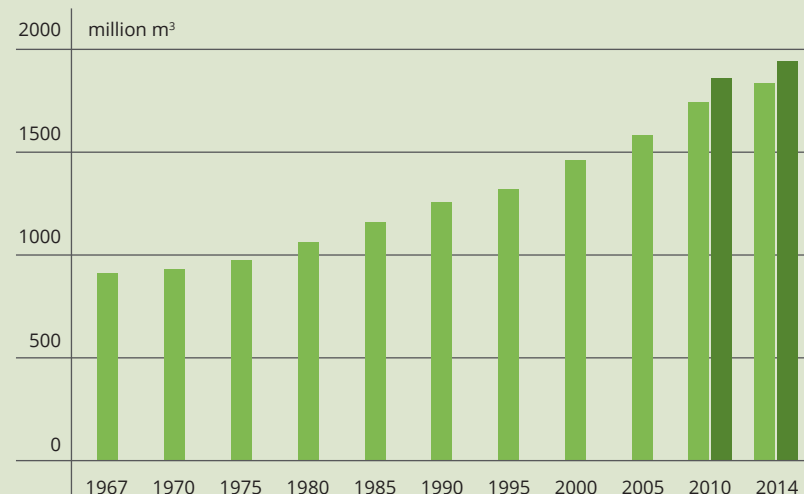
Moreover, according to the Large-Scale Forest Inventory 2010–2014, the average standing volume of stands in the State Forests was 275 m<sup>3</sup>/ha. Pine has the largest share in the volume of timber resources and accounts for 58.6%.

There has been a steady growth in timber resources since the first inventory in the State Forests took place in 1967.

In the last 20 years between January 1994 and January 2014, in the forests managed by the State Forests, the gross merchantable timber increment amounted to 1199 million m<sup>3</sup>. During that period 665 million m<sup>3</sup> of merchantable timber was harvested, which means that 534 million m<sup>3</sup> of gross merchantable timber,

In the last 20 years the SF timber resources have increased by

**534**  
million m<sup>3</sup>



LEGEND:

**THE STATE FORESTS**  
(Large-Scale Forest Inventory)\*

**THE STATE FORESTS** (Bureau for Forest Management and Geodesy update)

\* Large-Scale Forest Inventory data for periods 2006–2010, 2010–2014

**TIMBER RESOURCES IN THE STATE FORESTS in 1967–2014 in million m<sup>3</sup> of gross merchantable timber, figures for 1 January** (Bureau for Forest Management and Geodesy, Large-Scale Forest Inventory)

representing 45% of the total increment, remained to augment the standing timber resources.

The steady increase in timber resources (standing volume per hectare) is evident in all age classes (except KO/KDO). In the State Forests it is achieved by harvesting in accordance with the principle of forest sustainability and by continuing augmentation of the forest area.



# FOREST FUNCTIONS



Forests fulfil diverse functions, either naturally or as a result of human activities:

## ENVIRONMENTAL (PROTECTIVE) FUNCTIONS

positive impact on shaping of the local and global climate, regulation of water cycle in nature, prevention of floods, avalanches and landslides, protection of soil against erosion and landscape against step-sation.

## SOCIAL FUNCTIONS

providing health-enhancing and recreational conditions for society, contributing to the labour market and helping to develop environmental awareness in society.

## PRODUCTIVE (ECONOMIC) FUNCTIONS

primarily production of renewable biomass, including timber and non-timber products, and effective management of hunting.

The statutory obligation of the State Forests is to pursue sustainable forest management in order to ensure sustainability of forests, their continuous multifunctional utilisation and the increase of forest resources.

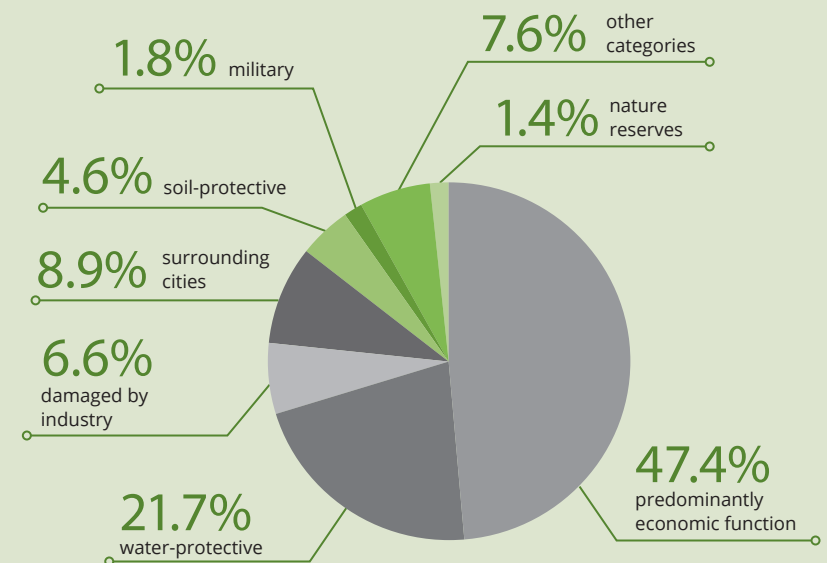
Sustainable forest management is based on the premise that forest ecosystems can fulfil a variety of functions. The State Forests have been developing this multifunctional characteristic of forests for many years, which is evident, for example, in the large proportion of protective forests in the total forest area under their administration.

# Environmental functions of forests

## Protective forests

The environmental and social functions of forests, often referred to as non-productive functions, have long been recognised in forest management which began to distinguish a category of protective forests as early as in 1957.

By 1975 a total of 1485 thousand hectares of forests were designated as protective, which amounted to 22.5% of the forest area administered by the State Forests at that time. At present, as of 1 January 2014, the total area of protective forests stands at 3625 thousand hectares, which represents 51.3% of the total forest area, or 52.7% including 102 thousand hectares of nature reserves. The majority of protective forests are located in the mountain regions (Kraków RDSF and Krosno RDSF) and in areas affected by industry (Katowice RDSF).



SHARE OF PROTECTIVE FORESTS in the State Forests in 2014 (DGsf)

Protective forests are subject to different management practices, depending on their primary function. These may include limits on clear-cutting, raising the age of trees for cutting, adjusting the species composition according to the forest function or creating recreational facilities.



## Carbon sequestration

Assessment of the amount of carbon absorbed by various ecosystems (including forests) was, until recently, of primarily scientific interests. However, the growing threat of climate change caused by the increased concentration of CO<sub>2</sub> in the atmosphere, and still rising social awareness of this threat, have brought about a more practical approach which was expressed in the Kyoto Protocol (2005). The Protocol, among other issues, identified and evaluated various forestry-related actions aimed at increasing carbon sequestration and included them in the total balance of greenhouse gas emissions and absorption.

It is estimated that the forest biomass in Poland contains 1099 million tonnes of carbon, of which 26 million tonnes occur in deadwood (SoEF 2011).

In addition, the State Forests' objectives resulting from the Forest Act of 28 September 1991 are in line with the goals set out in the Kyoto Protocol. This is evident in the increase in the last decade of forest area by 65 thousand hectares and of resources by 395 million m<sup>3</sup> whereas the average standing volume in the same period increased from 222 to 275 m<sup>3</sup>/ha.

Forests  
in Poland contain

**1099**  
million  
tonnes of  
carbon



## Social functions of forest



### Forest education

Forests are a natural place for recreation and leisure, particularly for the inhabitants of large conurbations. Forests are a popular destination for excursions, mainly organised by schools, which give young people an opportunity for direct contact with nature. Recreation in forests presents an excellent opportunity for environmental and forest education.

Forest education in all parts of the State Forests is based on the Ordinance No. 57 of 9 May 2003, issued by the Director-General of the State Forests, and concerning the "Directions of the development of forest education in the State Forests" and the "Guidelines for creating forest education programmes in forest districts".

Various educational programmes organised by the State Forests attracted over 3 million participants in 2014. Among the events offered were outdoor lessons and guided tours, classes held in centres for forest education, meetings with foresters both in and outside schools, exhibitions, competitions, sporting events and many others.

Such variety of educational activities was possible to organise because of the commitment of over 9 thousand foresters who devoted part of their time to popularising knowledge about forests and ecology. They were supported by an appropriate infrastructure which includes: forest education centres (58), classrooms (272), teaching shelters for use as "green classes" (548), educational trails (991), educational stops (1914), a "green school", other facilities (2771) and also overnight accommodation.



Educational activity of the State Forests is financed mainly from the forest districts' own resources and from the national and regional funds for environmental protection. In 2014 approximately 32.6 million PLN were spent on forest education, of which 83.6% came from forest districts' own resources and 6.7% from the forest fund.

A leading role in forest education is unquestionably played by promotional forest complexes (PFC) which each year attract about 30% of participants in all educational programmes. The well-developed educational infrastructure includes: forest education centres (27), classrooms (54), teaching shelters known as "green classes" (104), educational trails (206), educational stops (488) and other facilities (434), as well as overnight accommodation.

There are 25 promotional forest complexes distributed across all 17 regional directorates of the State Forests. Their total area is 1268 thousand hectares, of which 1247 thousand hectares are administered by the State Forests (17.6% of their territory). PFCs have been established as part of the State Forests policy on promoting sustainable forest management (see cover for a map and a list of PFCs).

More than  
**30**  
million PLN  
spent on forest  
education  
in 2014



## Tourism

In addition to educational activities, the State Forests offer a wide range of tourist attractions which are available to visitors of all ages and social groups. Overnight accommodation consisting of nearly 4.5 thousand beds is available in recreation and training centres and in hunting and forester lodges. There are over 20 thousand kilometres of walking routes, nearly 4 thousand kilometres of cycling routes and about 7 thousand kilometres of horse riding routes.

Visitors have access to over 600 bivouac sites, nearly 400 locations where camp fires are permitted and about 3160 car parking facilities. Accommodation includes rooms in 60 training and recreation centres, 130 hunting lodges and 200 guest rooms elsewhere.

The tourist infrastructure within the State Forests is being improved continually. Under the initiative "Making forests accessible", 9 forest car parking areas and 41 stopping places were built in 2014. Information about the State Forests tourist facilities can be found at [www.czaswlas.pl](http://www.czaswlas.pl).

Nearly  
**4.5**  
thousand  
beds are available  
to tourists in  
the SF



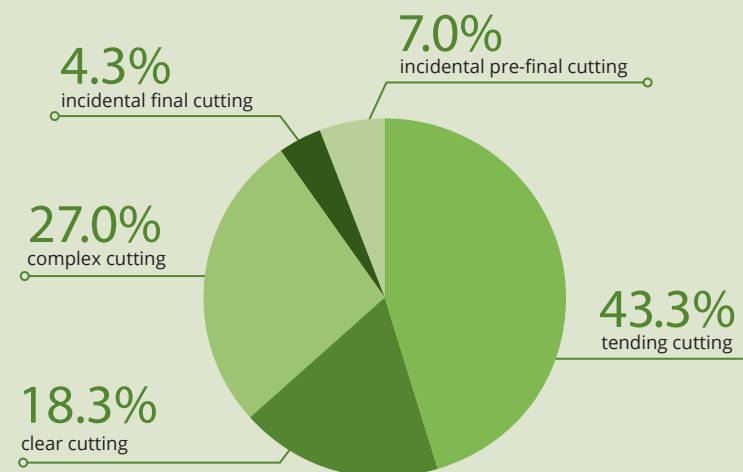
## Productive functions of forests



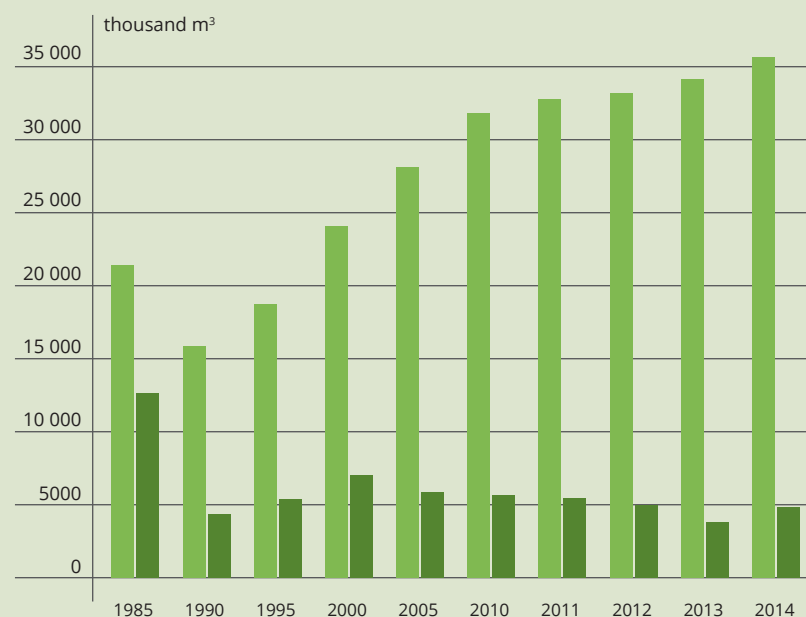
### Harvesting of timber

The level of utilisation in the State Forests is determined primarily by natural conditions, silvicultural and protective needs and, above all, by the principle of sustainability of forests and augmentation of their resources. In 2014 the State Forests harvested 37 759 thousand m<sup>3</sup> of raw timber, including 35 686 thousand m<sup>3</sup> of net merchantable timber (nearly 102.8% of the approximate prescribed cut), of which 17 716 thousand m<sup>3</sup> (97.7% of prescribed cut) was obtained from final cutting and 17 970 thousand m<sup>3</sup> (108.3% of prescribed cut) from intermediate cutting.

The volume of timber harvested for sanitation reasons (clearing deadwood and trees damaged in natural processes or by high winds, insect infestation, disturbances in water relations and anomalous weather conditions) amounted to 4816 thousand m<sup>3</sup>, or 13.5% of the total harvest of merchantable timber in 2014, and was one of the lowest in the last 30 years.



HARVEST OF MERCHANTABLE TIMBER by type of utilisation in the State Forests in 2014



LEGEND: MERCHANTABLE TIMBER DEADWOOD

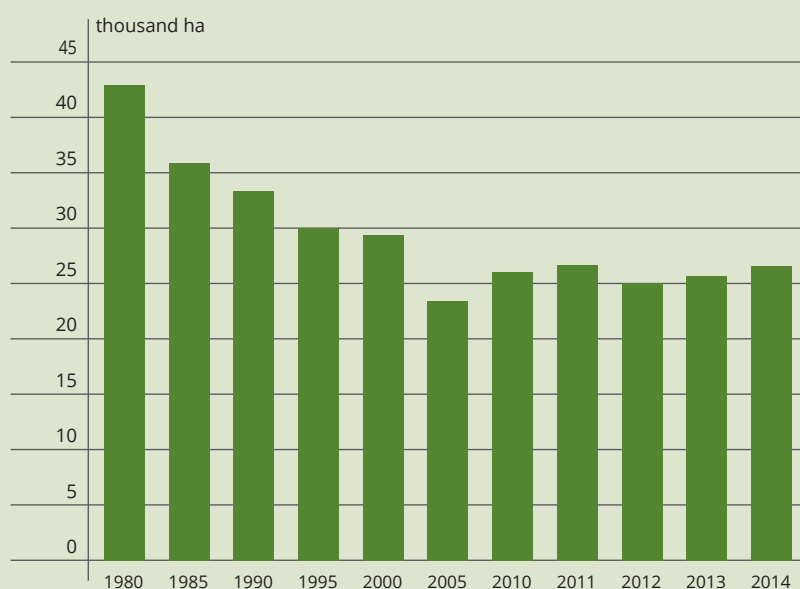
SHARE OF HARVESTED DEADWOOD IN THE TOTAL UTILISATION in the State Forests in 1985–2014, in thousand m<sup>3</sup> of net merchantable timber (DGSP)



Only  
**18.3%**  
of merchantable  
timber was  
harvested in clear-  
cutting

In the last 20 years (1995–2014), the State Forests utilised 92.0% of prescribed cut in final cutting and 113.1% of prescribed cut in pre-final cutting which in forest management plans is defined as approximate.

In 2014, under the clear-cut system, 6515 thousand m<sup>3</sup> of merchantable timber was harvested in the State Forests, which accounts for 18.3% of total harvest. The clear-cut area totalled 26.6 thousand hectares and was larger than the average for the past decade at 25.1 thousand hectares. The gradual reduction in size of the clear-cut area is indicative of the progress in sustainability of forest management. However, clear-cutting is often necessary where a large-scale destruction occurs as a result of high winds and other abiotic factors or dieback caused by drought, fungal disease or insect infestation.



AREA OF CLEAR-CUTTING in the State Forests in 1980–2014, in thousand hectares (DGFSF)

In the last five years, the size of timber harvest, expressed by the volume of net merchantable timber to one hectare of the forest area, has stabilised at 5.03 m<sup>3</sup>/ha; in 2013 this indicator was 4.82 m<sup>3</sup>/ha. The size of harvest in the State Forests does not exceed the permitted level of utilisation and constitutes nearly 53% of current increment.

The proportion of utilisation in current increment is a commonly used indicator of sustainable development, often used by specialists outside forestry. However, it should be used with caution; its current values are determined to a large extent by the age structure of forests with a sizeable share of stands characterised by large increment but relatively low utilisation.

## SILVICULTURE

The aim of silviculture is to ensure the sustainability and continuity of forest ecosystems. This is achieved by using methods of stand regeneration and of profiling species and age structures, which are based on natural processes. These methods of renewal, tending and protection are used at all stages of stand development.

Particular attention is paid to environmental conditions of tree and stand development and protection of near-natural ecosystems.



The most important forest management activities undertaken in the State Forests in 2014 were (in hectares):

1. Nursery production (total productive area of forest nurseries)	2 104
2. Restocking and afforestation (including filling gaps and introduction of second storey) including: • natural regeneration • afforestation, in total including natural succession	56 413 7 390 1 284 319
3. Fill planting and supplementary planting	3 803
4. Forest tending, total including: • underbrush • soil preparation and weed control • early cleaning • late cleaning • other tending	310 986 602 171 922 55 534 80 173 2 754
5. Thinning, total including early thinning	450 086 103 305
6. Land drainage, in total including mineral fertilising of forests	63 842 29
7. Stand conversion, total	7 657

# NATURE CONSERVATION



The State Forests, in compliance with the Forest Act and the national policy on forests, has for many years been maintaining an inventory of forms of nature protection required by law, which is kept updated and includes the current data from all forest districts.

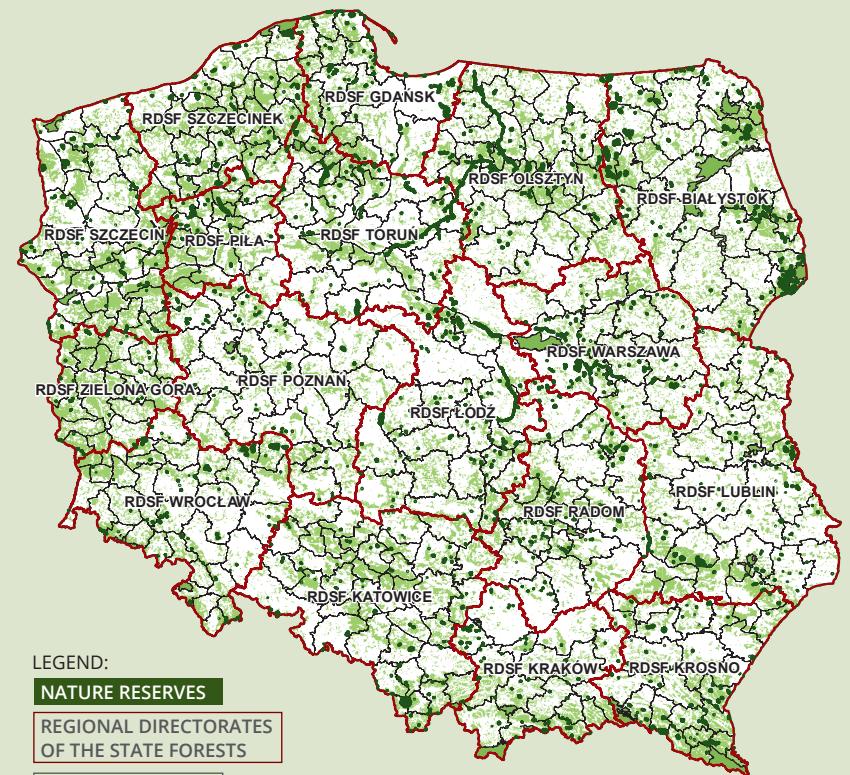
As of 31 December 2014, the State Forests inventory included:

- 1272 nature reserves covering an area of 122.3 thousand hectares;
- Natura 2000 sites covering 2892 thousand hectares in total (38% of the State Forests territory). They include: 135 sites for protection of birds (SPA) with a total area of 2218 thousand hectares (29.2%) and 722 sites of Community importance (SCI) with a total area of 1659 thousand hectares (21.8%);
- 9714 natural monuments, including: 7672 single trees, 1292 groups of trees, 107 tree avenues, 437 erratic boulders, 206 rocks and caves, 193 areas under monument protection (336 hectares);
- 8632 areas of ecological utility, in total 28 716 hectares;
- 137 documentation sites with a total area of 1075 hectares;
- 139 nature-and-landscape complexes with a total area of 47 842 hectares.

Additionally, 3267 protective zones have been created within the State Forests in order to protect endangered species. They cover an overall area of 144 705 hectares. The area of all-year protection is 32 226 hectares. Protected are refuges of rare birds (2974), mammals (1), reptiles (57), insects (10), plants and lichens (224) and other (1).

In the total area of forest stands under special protection over 200 658 hectares of stands are designated as the seed base, including 15 422 hectares of selected seed stands, 178 812 hectares of economic seed stands, 1884 hectares of seed and seedling orchards and 4540 hectares of gene conservation stands.

The State Forests also initiate their own programmes aimed at maintaining biological diversity and protecting and restoring endangered species of flora and fauna. Among them are: "Programme for the Preservation of Forest Genetic Resources", "Programme for the Restitution of Fir in Western Sudety", "Programme for the Restitution of Yew" and numerous projects focusing on reintroduction of wood grouse,



LEGEND:

**NATURE RESERVES**

**REGIONAL DIRECTORATES  
OF THE STATE FORESTS**

**FOREST DISTRICTS**

**NATIONAL PARKS**

**FOREST COMPLEXES**

**NATURE RESERVES IN POLAND under the administration  
of the State Forests (DGSF)**

black grouse, peregrine falcon, lynx, edible dormouse and bison. Other programmes focus on in situ and ex situ conservation of endangered species such as wild service tree, smooth snake, hermit beetle, great capricorn beetle, stag beetle, hare, grey partridge and many others.

There are 8 animal rehabilitation centres run by forest districts, 5 botanical gardens and 5 arboreta.

The State Forests initiate various actions aimed at increasing the numbers of game animals, their restitution and widening of the gene pool (eg. fallow deer). In the last 10 years there has been a 40% increase in the population of hare, which was previously in decline. Various restitution programmes concentrate on breeding animals and then introducing them into the open hunting areas, as well as on reducing the numbers of potential predators. Increasingly more attention is paid to actions directed at maintaining biological diversity (creating animal refuge areas, breeding places and ecological corridors), which is one of the main factors of successful restitution programmes.

Natura 2000  
areas cover  
**38.1%**  
of the total  
SF area



## PROJECTS PARTLY FUNDED BY THE EUROPEAN UNION



The conservation work carried out by the State Forests is often partly financed by national or EU funds, such as the Life+ programme which contributed to the following projects:

- "Protection of lesser spotted eagle in selected areas of Natura 2000" (Białystok RDSF) – completed in December 2014;
- "Protection of biological diversity in forests, including areas of Natura 2000: promoting best practice" (Coordination Centre for Environmental Projects) – completed in December 2014;
- "Active protection of lowland populations of wood grouse (*Tetrao urogallus*) in the Dolnośląskie Forests and in Augustowska Primeval Forest" (Wrocław and Białystok RDSF).

Programmes funded by the European Regional Development Fund and National Fund for Environmental Protection and Water Management:

- "Protection of yew and its restitution in the territory of Kraków RDSF"
- "Re-cultivation of degraded land and former military land administered by the State Forests" (57 forest districts and the total area of 24 thousand hectares).

In order to prevent degradation of forest habitats caused by disturbances in water relations, the State Forests carry out various actions aimed at increasing water retention. Examples of such projects include: "Increasing water retention capacity and counteracting flooding and drought in the lowland forest ecosystems" (178 forest districts across the country) and "Counteracting the effects of rainwater outflow in the mountain regions. Increasing water retention capacity and maintaining streams and relating infrastructure in good condition" (55 forest districts in 4 RDSF).

## FOREST PROTECTION

Forests in Poland are claimed to be among the most threatened in Europe due to constant and simultaneous impact of a number of factors which have detrimental effect on their condition. These negative phenomena, often called stress factors, can be classified into three broad categories with respect to their origin: abiotic, biotic and anthropogenic.

### Threats from abiotic factors

Several abiotic factors had devastating effects on forests in 2014, with most damage caused by disturbances in water relations (both flooding and drought), hurricane-force winds and heavy snow fall (ice and snow accretion). In most cases these events were local or regional. The amount of wood from fallen and broken trees, which was harvested in 2014, reached 3 228 568 m<sup>3</sup> and was 68% more than in 2013.

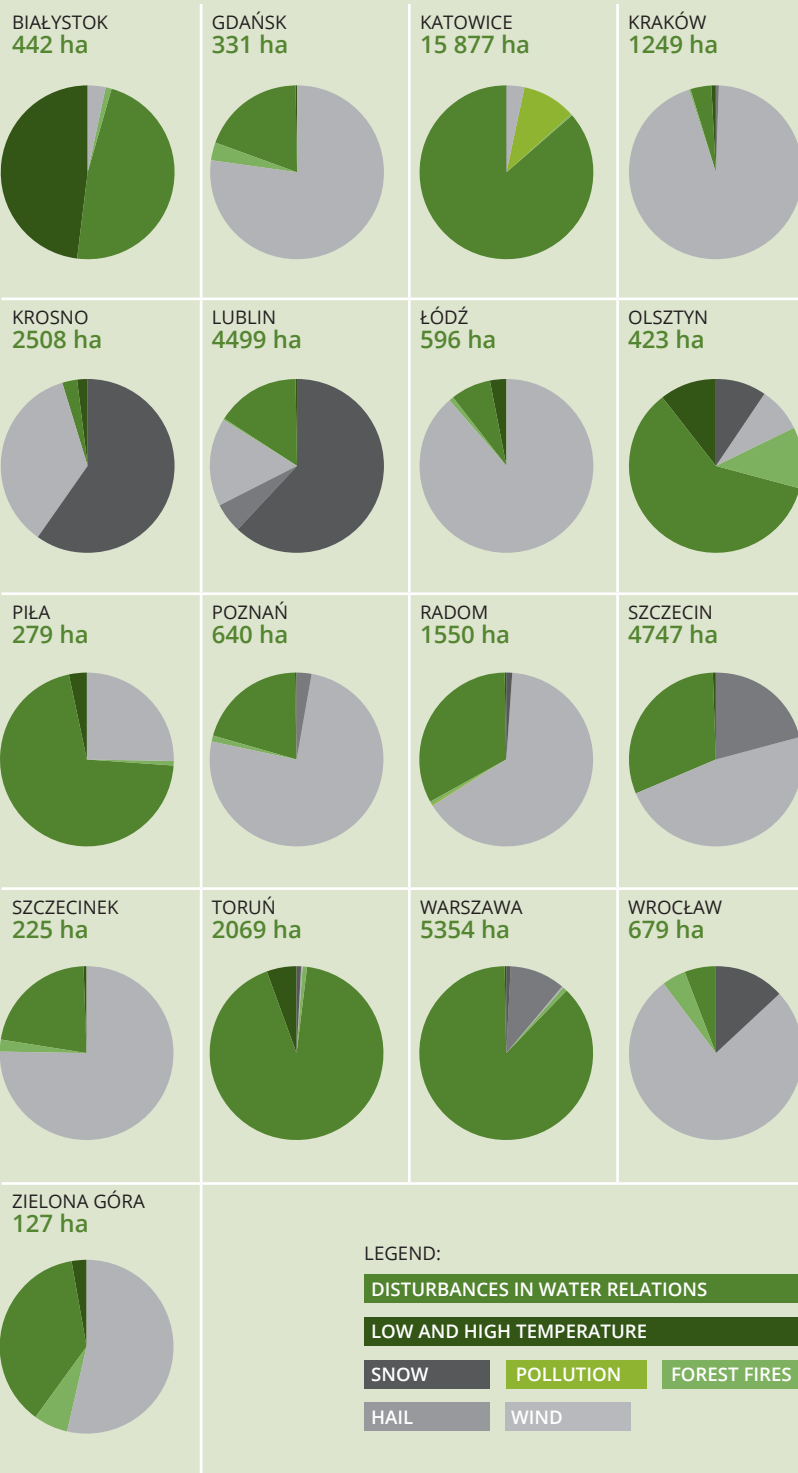
Damage to forests caused by at least one abiotic factor was reported by 85% of all forest districts (39% reported one factor as a cause of damage, 28% two factors, 13% three factors and 5% four factors). A total area in which abiotic factors caused damage in 2014 amounted to 38 096 hectares. The largest area was affected by disturbances in water relations (21 072 hectares across 162 forest districts), high winds (8781 hectares across 144 forest districts) and ice and snow accretion (4485 hectares in 18 forest districts).



Over  
**3.2**  
million m<sup>3</sup>  
the amount of wood  
from fallen and  
broken trees







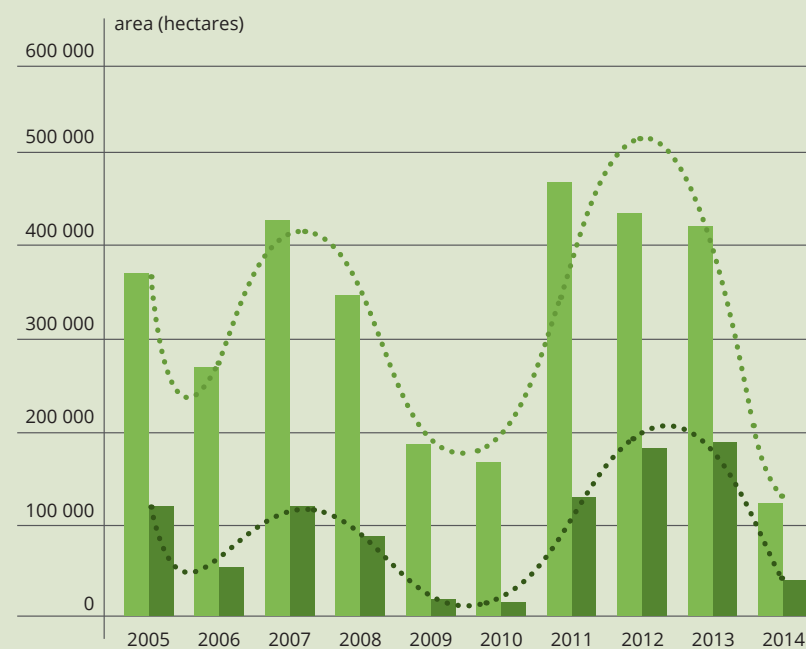
AREA OF DAMAGE TO STANDS aged above 20 years caused by selected abiotic and anthropogenic factors in each RDSF in 2014

## Threats from biotic factors

### Threat from primary insect pests

The threat to forests from primary insect pests decreased significantly in 2014, compared with the previous year. This was the lowest level of threat from this group of insects in the last decade, comparable to the years 2009–2010. In the State Forests the total area in which these pests occurred was 122 125 hectares, a decrease of 71% than in the previous year. It was necessary to apply control treatment aimed to reduce populations of 40 primary insect species and groups in an area of 38 812 hectares, which was 80% smaller than in 2013.

The largest areas subjected to control treatment were in Wrocław RDSF (5222 hectares), Poznań (4693 hectares) and Łódź (4475 hectares), while in the remaining RDSF they were below 3500 hectares.



AREA OF OCCURRENCE AND CONTROL TREATMENT of primary insect pests in 2005–2014, showing the trend in changes



**122.1**  
thousand  
hectares

total area of primary  
pests occurrence

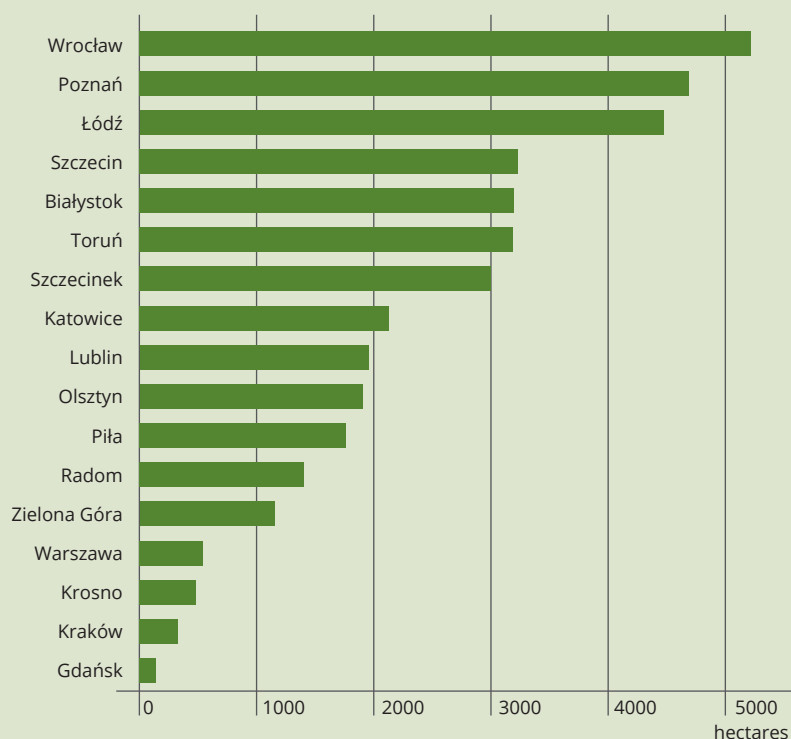
Folivorous insects attacking pine stands cause most damage and largest expenditure in their control in the State Forests. The area of pine stands affected by this group of insects in 2014 was 54 870 hectares. Large-scale control treatment using agricultural aviation equipment covered an area of 21 066 hectares. The most active primary insect was pine lappet moth for which an area of 5977 hectares was treated (a reduction of 90% compared with 2013).

In 2014, a 12% decrease in a total area affected by folivorous insects attacking broadleaved stands was noted, from 53 315 hectares in 2013 to 46 803 hectares. The area on which chemical treatment was used was also 59% smaller than in the previous year.

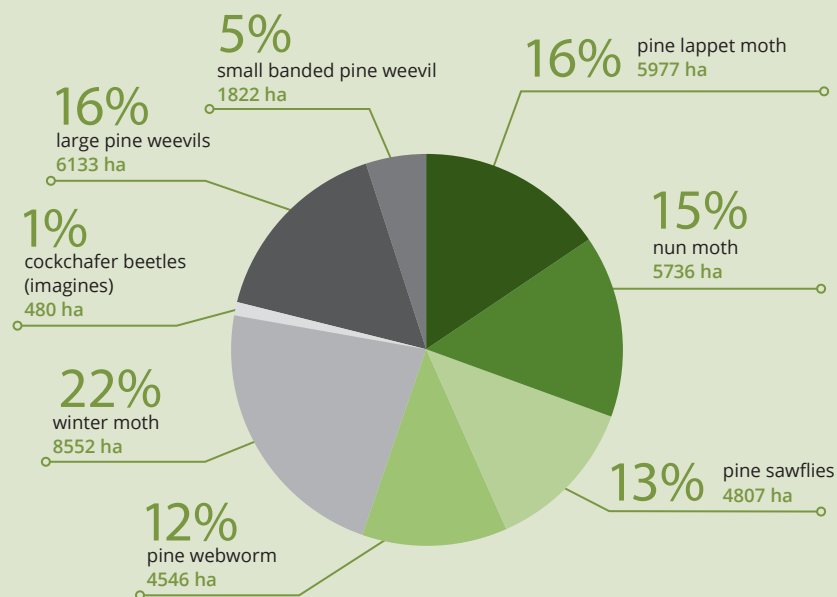
Insect pests attacking plantations and young stands occurred in a total area of 10 395 hectares, which was a decrease of 2173 hectares (17%), compared with the previous year. Control treatment was applied in an area of 8415 hectares, an increase of 14% on 2013.

Insects attacking roots of trees and shrubs occurred in the total area of 8823 hectares, a decrease of 73% on the previous year. In this group of pests chafer grubs (Scarabaeidae) were the main problem. Treatment was used mainly in nurseries and plantations and covered an area of 207 hectares.

In 2014, the area affected by insects attacking spruce, larch, fir and Douglas fir was smaller than in the previous year and amounted to 1234 hectares, a 56% decrease from 2831 hectares. It was the smallest area of stands in this group infested by insects since 1995.



AREA OF POPULATION CONTROL TREATMENT of primary insect pests  
in each RDSF in 2014



(pests occurring in pine stands are marked in green; in broadleaved stands in light grey; in nurseries, plantations and young stands in dark grey)

AREA SHARE OF POPULATION CONTROL TREATMENT  
applied against major primary insect pests in 2014



## Threat from secondary insect pests

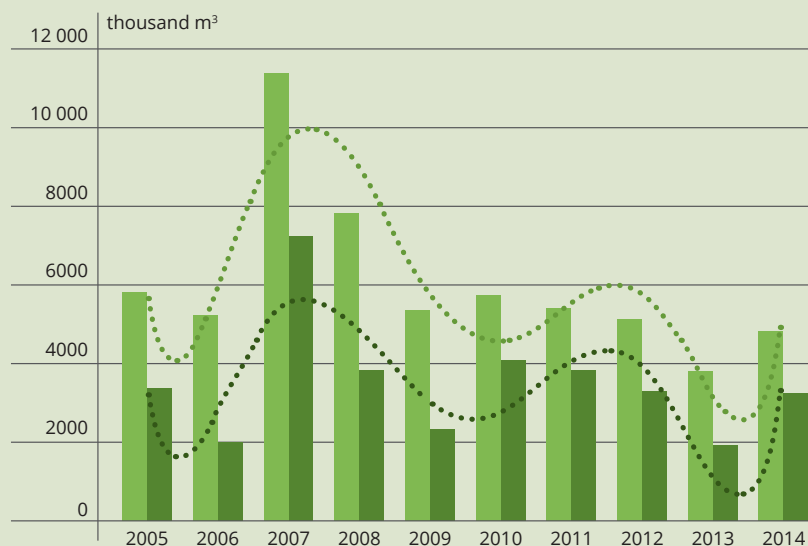
The level of threat to forests from secondary insect pests in 2014, measured by the volume of wood removed in sanitation cutting, was 27% higher than in 2013. Sanitation cutting produced 4 816 729 m<sup>3</sup> of timber, of which 67% was windthrow.

Three RDSF reported the largest volume of timber removed as a result of sanitation cutting: Katowice (818 240 m<sup>3</sup>), Szczecinek (718 343 m<sup>3</sup>) and Szczecin (442 872 m<sup>3</sup>). In the remaining RDSF the yield from sanitation cutting did not exceed 400 000 m<sup>3</sup>.

Most affected were coniferous stands, from which 3 881 890 m<sup>3</sup> of timber was harvested, of which over 66% was windthrow and 29% of raw timber was infested by secondary pests. Sanitation cutting in 2014 produced 1 983 977 m<sup>3</sup> of pine wood, mainly windthrow (71%).

The amount of spruce timber harvested in sanitation cutting in 2014 was 1 714 683 m<sup>3</sup>, of which 58% was windthrow. The harvest of spruce deadwood in 2014 was 38% higher than in 2013, which points to a larger impact of secondary insect pests attacking spruce stands.

A significantly lower level of threat from secondary insect pests was observed in broadleaved stands in 2014. Sanitation cutting produced 934 839 m<sup>3</sup> of timber, which was an increase of about 30 thousand m<sup>3</sup>, compared with the previous year. Over the whole year, as well as in each quarter, windthrow amounted to 72% of the total volume of harvest.



VOLUME OF TIMBER (thousand m<sup>3</sup>) harvested in sanitation cutting, including windthrow, in 2005–2014, showing the trend in changes\*

LEGEND:

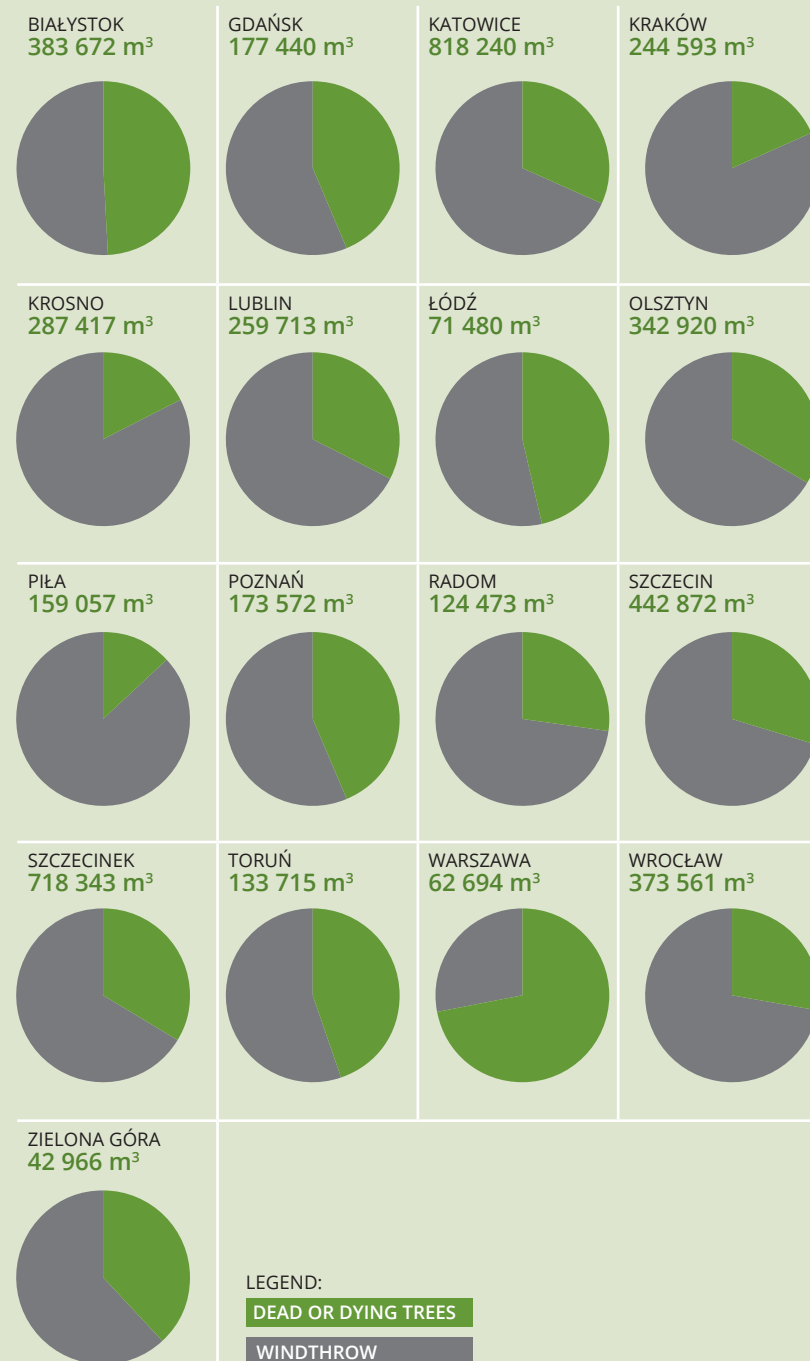
SANITATION CUT

TREND IN SANITATION CUT

WINDTHROW

TREND IN WINDTHROW

\* In 2012 there was a change in the method of recording the volume of timber harvested in sanitation cutting. Data for the years 2005–2011 covers period October to September of the next year while data for the years 2012–2014 covers period January to December.



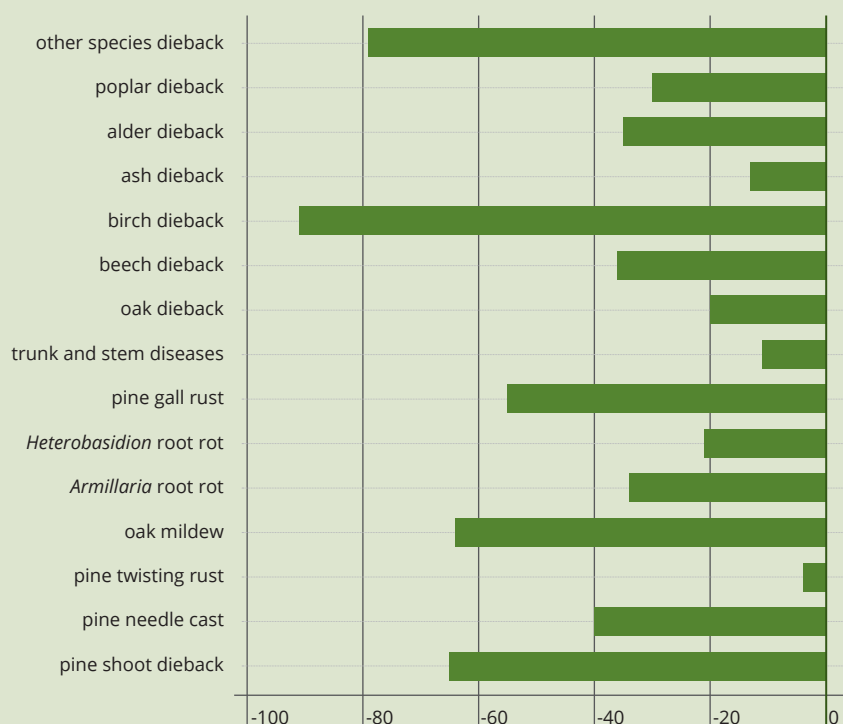
VOLUME OF DEAD OR DYING TREES AND WINDTHROW harvested in 2014 in sanitation cutting in each RDSF





## Threat from infectious fungal diseases

In 2014 infectious diseases were reported over a total area of 208.305 thousand hectares of stands, a decrease of 78.2 thousand hectares (27%), compared with 2013. A decrease in occurrence of all diseases affecting stands was noted in 2014. The most significant changes in the level of threat (a drop of over 50%) concern diseases of assimilatory apparatus, namely pine shoot dieback, oak mildew and leaf and needle rust. The area affected by the occurrence of pine needle cast decreased by 40%, pine gall rust by over 50% and trunk and stem diseases were reported in an area of 25.8 thousand hectares which was smaller by 3.3 thousand hectares than in 2013.



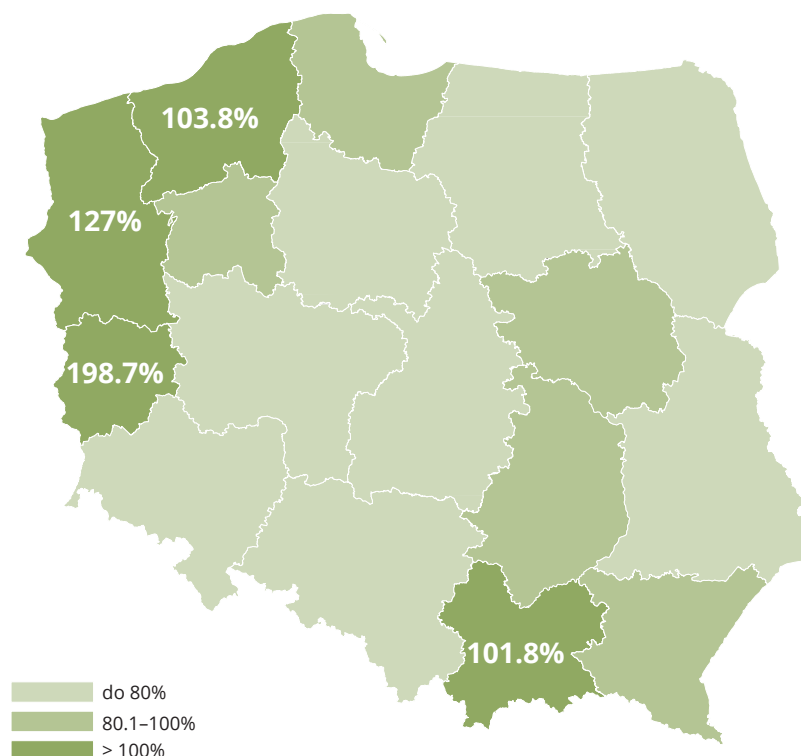
CHANGES IN AREAS AFFECTED BY INFECTIOUS DISEASES in 2014, in comparison with 2013 (%)

The improvement in health condition of broadleaved stands continued in 2014. Areas affected by dieback of oak, beech, birch, ash, alder and poplar decreased by 20%, 36%, 91%, 13%, 35% and 30%, respectively, compared with 2013. Dieback of tree species other than the ones listed above also decreased and occurred in an area of 203 hectares (988 hectares in 2013).

Areas affected by root diseases decreased by 56.9 thousand hectares; a decrease was noted in the spread of *Armillaria* root rot and *Heterobasidion* root rot by 34% and 21%, respectively.

Health condition of stands in each RDSF generally showed improvement or no change in comparison with 2013. The exceptions are Szczecin and Zielona Góra RDSF where the affected areas increased. In contrast, the area of diseased stands decreased by half or more in four RDSF: Białystok and Łódź by 50% and Olsztyn and Poznań by 67%.

**208.3**  
thousand  
hectares of stands  
affected  
by infectious  
diseases



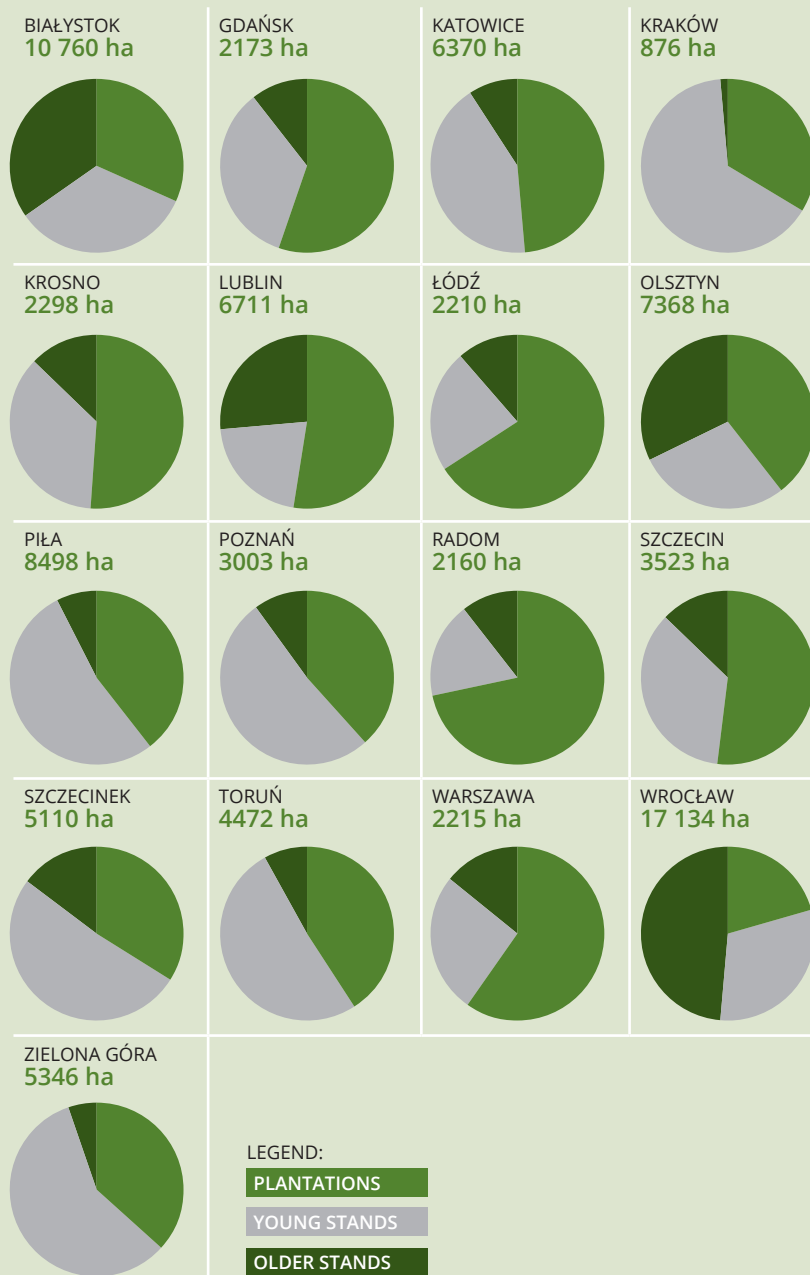
CHANGES IN THE AREA AFFECTED BY INFECTIOUS DISEASES in 2014, expressed as a percentage of the area affected in the previous year

Protective treatment aiming at controlling the spread of infectious fungal diseases is used in forest nurseries (mainly chemical methods) and in stands, when it is necessary (biological and mechanical methods). In 2014 chemical treatment was used in the total area of 1291.2 hectares, protective biological treatment on 18 029.2 hectares and mechanical methods on 2690.2 hectares.



## Damage to forests caused by animals

In 2014, damage to stands caused by game and protected animals was reported in a total area of 90 228 hectares. Such damage in the range 21–40% occurred on 63 617.54 hectares and above 40% on 26 610 hectares.



AREA OF STANDS in each RDSF in which damage exceeding 20% was caused by game and protected animals in 2014

Damage caused by red deer, fallow deer, roe deer, wild boar and hare was reported in the total area of 69 905 hectares, including 32 088 hectares of plantations, 27 562 hectares of young stands and 10 255 hectares of stands in older age classes.

Damage in the range 21–40% caused by folivorous mammals occurred in the total area of 54 357 hectares, including 24 322 hectares in plantations, 22 462 hectares in young stands and 7573 hectares in older stands. Damage above 40% occurred on 15 548 hectares, including 7766 hectares in plantations, 5100 hectares in young stands and 2682 in older stands.

However, since 2013 there has been a decrease in the level of damage in each category. Protective measures (fencing) were introduced in over 182 thousand hectares of forest plantations. In 2014 almost 50 thousand hectares were regenerated within the State Forests and further 500 hectares of former agricultural land were afforested. Active protection against animals in renewed areas included fencing on 18 407 hectares in total, mechanical protection on 10 826 hectares and chemical protection on 56 231 hectares.

In addition to damage caused by game animals in 2014, harm from species under various forms of protection, eg. elk, beaver and bison, was also reported.

Over  
**90**  
thousand hectares  
total area of  
damage caused  
by animals

## Threats from anthropogenic factors

### Forest fires

There were 5245 forest fires in 2014 (compared to 4883 in 2013). The burnt area covered 2690 hectares of stands, which is 1401 hectares more than in the previous year. As in 2013, the largest number of fire events took place in the Mazowieckie province (1169 fires, 22% of the total number), the lowest – in the Małopolskie (120) and Opolskie (155) provinces.



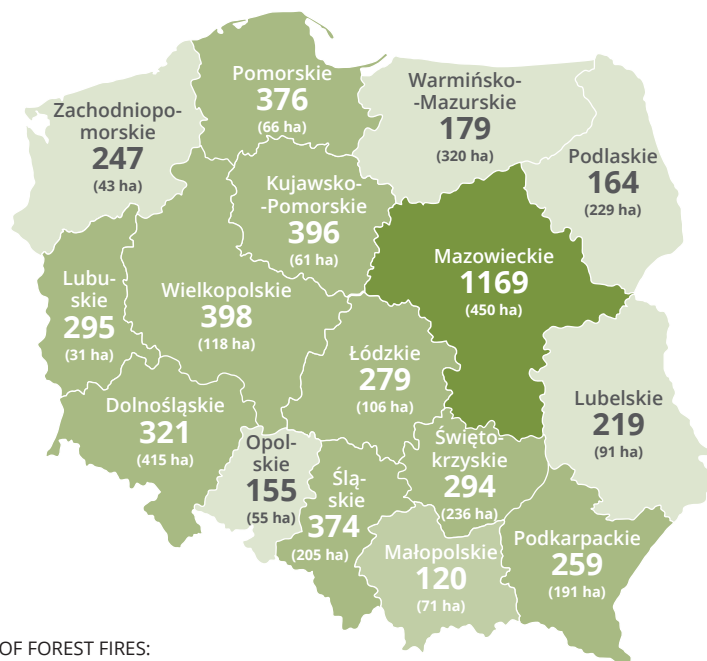


## Air pollution

Estimated data from the National Centre for Emissions Management ("National Emissions Balance", 2015) puts a total amount of emissions in Poland in 2013 at 847 thousand tonnes of sulphur dioxide and 798 thousand tonnes of nitrogen oxides, which is, respectively, 58% and 95% of the level of emissions in 2000. Information on major pollutants in forests in different regions of Poland is supplied by the forest monitoring network. The network consists of 12 permanent observation plots located in pine (5), spruce (3), oak (2) and beech (2) stands across the country.

Average monthly concentration of sulphur dioxide in the air, measured on the observation plots, was within 0.4–12.6  $\mu\text{g}/\text{m}^3$  and of nitrogen dioxide within 2.1–19.5  $\mu\text{g}/\text{m}^3$ . The lowest concentration of sulphur dioxide was observed in the north-east regions of the country and Gdańsk (annual mean below 2.5  $\mu\text{g}/\text{m}^3$ ) while the highest (annual mean above 3.2  $\mu\text{g}/\text{m}^3$ ) occurred in Upper Silesia and around Płock. In the southern regions, particularly in the foothill and mountain areas, and in central Poland, these values were in the mid-range.

The concentration level of nitrogen dioxide, likewise in previous years, was the highest in the central regions of Poland and in Upper Silesia. Forests in the north-eastern regions and in the southern foothill



NUMBER OF FOREST FIRES:

1-125	251-500	751-1000
126-250	501-750	>1000

NUMBER OF FOREST FIRES in Poland in 2014

In the State Forests there were 1825 forest fires in 2014 (34.8% of all forest fires in Poland), which covered an area of 561 hectares (20.8% of the total burnt area); these figures exclude the territories used by the military. The greatest number of fires was recorded in Katowice RDSF (280), followed by Toruń (203) and Zielona Góra (200). The largest areas damaged by fires were in Katowice RDSF (128 hectares), Olsztyn (125 hectares) and Wrocław (84 hectares); combined they accounted for 60% of the total burnt area in the State Forests.

The average area of a single fire in forests in all categories of ownership increased by 0.25 hectare, compared with 2013, and was 0.51 hectare. In the State Forests the average area of a single fire was 0.31 hectare while in forests in other ownership categories it was 0.62 hectare.

The most frequent causes of fires in the State Forests were arson (44%) and negligence (17%). In 33% of all fires their causes remained unknown. The corresponding figures for forests in all ownership categories were: 40% fires caused by arson, 29% caused by negligence and 22% of unknown causes.

The largest number of fires occurred in March (1088 or 20.7% of all fires), then April (16.8%), July (15.9%) and June (11.2%). The smallest number (of the risk period) occurred in August and September.

**1825**  
forest fires in the  
State Forests  
in 2014

**SO<sub>2</sub>**



CHANGES IN CONCENTRATION (average, minimal, and maximal values) of sulphur dioxide and nitrogen dioxide in the air, measured on intensive monitoring observation plots in 2014



The forest monitoring network comprises

**12**

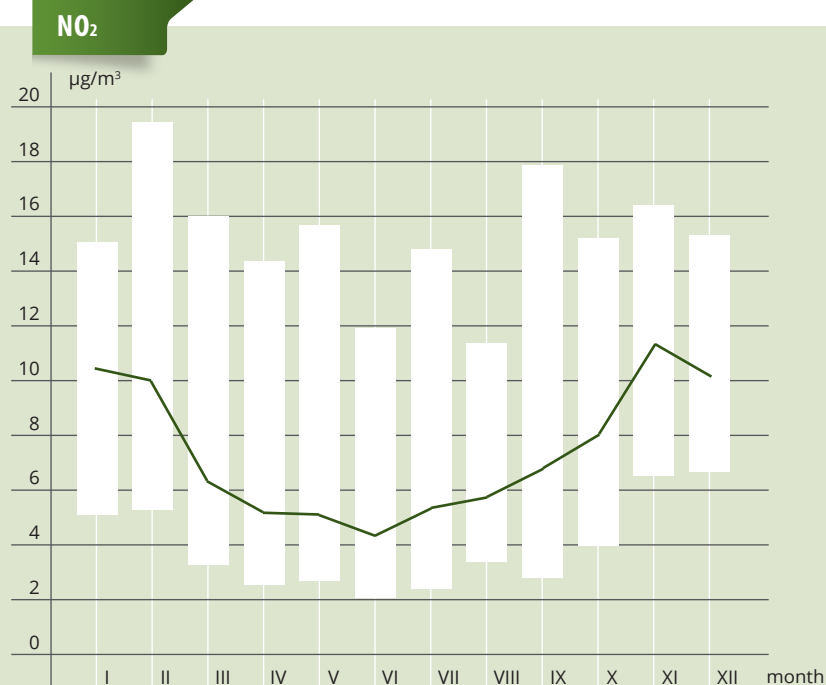
permanent plots

and mountain areas had a significantly lower concentration of  $\text{NO}_2$ . This indicates that the density of population and associated road traffic correspond to geographical distribution of the levels of concentration of pollutants.

Intensity of air pollution changed with the seasons: the highest concentration of  $\text{SO}_2$  and  $\text{NO}_2$  was observed in winter months, especially in January, February, November and December, which coincided with the heating season and therefore increased emissions.

Pollution is cleared from the atmosphere by means of precipitation and deposition, such as rain, snow, drizzle, fog, etc. Acidic precipitation is defined as having a pH value below 5.6. Almost half of the monthly precipitation recorded on permanent observation plots in 2014 was acidic with the pH below 5.5, a slight improvement on the previous years.

The acidity of precipitation measured on the observation plots was higher in the winter months (January, February, March, November and December), with the pH values being particularly low in the southern regions. In the southern mountain areas precipitation had higher acidity with an average annual pH value around 5.0. Precipitation in Gdańsk and in central and western regions of Poland had an average annual pH value of 5.2–5.3. Only areas in the north-east of the country had precipitation with the pH value within 5.4–5.7.



CHANGES IN CONCENTRATION (average, minimal, and maximal values) of sulphur dioxide and nitrogen dioxide in the air, measured on intensive monitoring observation plots in 2014

## THREATS TO FOREST SUSTAINABILITY

Polish forests are increasingly more vulnerable to the effects of abiotic factors which often cause major disasters. These, in addition to exposure to insect pests, fungi pathogens and wild animals, threaten the sustainability of forests. Foresters' efforts to increase the sustainability of forests, mainly by rebuilding stands to match them with the habitat conditions, do not always prevent damage, especially when faced with unpredictable weather conditions. In 2014 rebuilding of forest stands was carried out in an area of 7.7 thousand hectares, cleaning on 135.7 thousand hectares and thinning on 311.0 thousand hectares. Additionally, the stability of stands was being reinforced by the introduction of understorey (0.6 thousand hectares), a second storey (4.1 thousand hectares), by filling gaps (1.1 thousand hectares) and by improving water drainage (63.3 thousand hectares).

The work which is being done in order to enhance the sustainability of forests often has limited effect in the face of increasingly frequent anomalous weather events. It was necessary, therefore, to find longer term solutions to preserving threatened forest ecosystems in Poland, including securing seed material from trees, shrubs and forest floor plants. As a result the Kostrzyca Forest Gene Bank was opened in December 1995. It is located in Miłków in the foothills of the Karkonosze mountains and was a collaborative project between the State Forests and the Institute of Dendrology of the Polish Academy of Sciences.

The Kostrzyca Forest Gene Bank has a stock of 5809 genetic resources relating to 90 species of forest flora, both whole populations and individual plants. Of these, 28 species are of trees and forest-forming shrubs, such as Scots pine, Norway spruce, European larch, Douglas fir, black pine, black alder, common beech, Weymouth pine, and ash. The remaining 62 species are of rare and protected plants which are listed in the "Polish Red Data Book of Plants". Resources of the Gene Bank constitute seed batches which have been harvested from selected seed stands, conservation stands, from maternal trees and tree monuments and from other single trees and plant parts.

Genetic resources of tree and shrub species are preserved long term using the cryoconservation method. This involves storing materials in liquid nitrogen at temperature of  $-196^{\circ}\text{C}$  or in its vapours at  $-150^{\circ}\text{C}$ .



Rebuilding was carried out on

**7.7**

thousand hectares of stands

# THE LEVEL OF DAMAGE TO FORESTS



The level of damage to forests in Poland has been assessed every year since 1989 as part of the forest monitoring programme which is one of the elements of the National Environment Monitoring system. Observations are carried out in forests in all ownership categories and under different forms of protection. Monitored are areas of stands over 20 years old and samples include all species of trees.

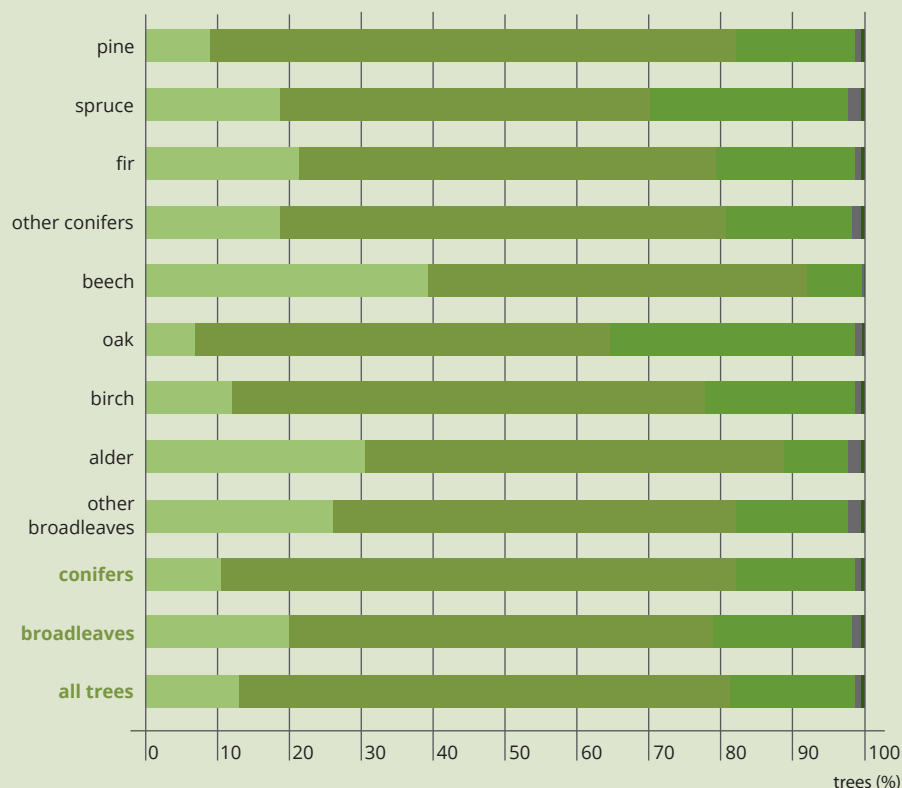
Assessment of the condition of tree crowns in 2014 covered 40 258 trees over the age of 20 years, which were located on 2013 Level I permanent observation plots. In that sample, 11.6% of trees showed no defoliation (defoliation class 0 – healthy trees), including 9.5% of conifers and 15.4% of broadleaves. The largest share of coniferous trees without any defoliation was reported for fir (18.6%), and the smallest – for pine (8.3%). The largest share of healthy broadleaved trees was reported for beech (33.4%) and the smallest for oak (4.7%).

In Polish forests  
**11.6%**  
of trees are healthy



The share of damaged trees with defoliation over 25% (defoliation classes 2–4) for all species was at level 18.9%; the share among conifers was 17.2% and among broadleaves 21.9%. The lowest share among the conifers had fir (16.2%) and the highest spruce (25.1%). Among the broadleaves beech had the lowest share (7.6%) and oak the highest (35.0%).

There was very little variation in the condition of forests in different categories of ownership across the country. In the State Forests 12.0% of all species of trees were healthy (defoliation class 0) and 17.7% were damaged (classes 2–4). In privately-owned forests the proportion of healthy trees was smaller (10.1%) and damaged trees larger (21.7%). In national parks the percentage of both healthy and damaged trees was higher (12.3% and 24.1% respectively) than in the State Forests and in privately-owned forests.



SHARE OF MONITORED TREE SPECIES on Level I permanent observation plots (Forest Monitoring) in defoliation classes in 2014

CLASS:



class 0: 0–10% defoliation  
class 1: 11–25% defoliation  
class 2: 26–60% defoliation  
class 3: above 60% defoliation  
class 4: dead trees



# PROMOTING SUSTAINABLE FORESTRY



**"For forest,  
for people"**  
main theme  
of the jubilee  
year

In 2014 the State Forests National Forest Holding celebrated the 90<sup>th</sup> anniversary of its inception. The aim of the State Forests' promotional work in the jubilee year was to inform the target groups about the traditions and achievements of the State Forests as an organisation and as a custodian of the nation's forests.

The celebrations were inaugurated on 26 March 2014 with a conference "For forests, for people" which was held in the Parliament building in Warsaw. The theme of this conference was propagated in many promotional activities throughout the year.

One of the promotional campaigns, in collaboration with the Ministry of the Environment, used the theme "Freedom is in Nature" to create 25 running routes across the State Forests, which were signposted with promotional visual materials.

The State Forests Information Centre organised many events nationwide and regionally. Some of them are listed below:

- National Forest Festival under the patronage of the former President of the Republic of Poland, Bronisław Komorowski, with main celebrations taking place in Lublin;
- "Oaks of Freedom" – planting oak trees to celebrate the 25<sup>th</sup> anniversary of the Polish independence and the 90<sup>th</sup> anniversary of the State Forests; a collaborative project with the Chancellery of the President;
- Festival "Earth Day" in Warsaw, the 2014 edition with the motto "Change your habits, not the climate" was organised by the Centre for Environmental Education and Warsaw RDSF;
- Educational festival under the symbol of the Polish forget-me-not, organised at the Forest Education Centre in Jedlnia-Letnisko;
- 9<sup>th</sup> European Forest Pedagogics Congress in Łągow, whose main theme was "Forest pedagogy – More than telling about forests!"
- Scientific picnic – organised by the Polish Radio and the Copernicus Science Centre, with participation of the State Forests;
- "Big mushroom-picking" – educational and promotional event in collaboration with the Polish Radio;
- "Clean up the World – Poland 2014" collaboration with the Our Earth Foundation, in 2014 focusing on raising environmental awareness among tourists.

The main source of information about the activities of the State Forests National Forest Holding and about Polish forests and their protection is the internet portal which received major overhaul in 2014. The portal contains information about the structure of the organisation, its history, commercial and social activities and management of forests. It also contains maps showing locations of forests, regional units of the State Forests, promotional forest complexes, as well as current information about fire hazards and access restrictions. The portal was visited by 1.325 million unique users in 2014. Over 5 million visits and 9.25 million hits were recorded. In April a new site devoted to the 90<sup>th</sup> anniversary of the State Forests was added: [www.90lat.lasy.gov.pl](http://www.90lat.lasy.gov.pl)

The State Forests publish and distribute periodicals on forests and forestry, which target various audiences:

- *Głos Lasu* (circulation 17 thousand) – a monthly magazine for staff;
- *Echa Leśne* (circulation 21 thousand) – a quarterly magazine aimed at anybody who has an interest in Polish forests, mainly tourists, teachers, students and also commercial partners;
- *Biuletyn Informacyjny Lasów Państwowych* (circulation 1.5 thousand) – an official publication from the Director-General of the State Forests.

The State Forests published 20 non-periodical titles of educational and promotional literature in 2014. Printing varied from a few hundred to as many as 10 thousand copies (eg. leaflets and brochures). Promotional literature focused on the 90<sup>th</sup> anniversary of the State Forests and on the campaign "The State Forests: an invitation".

[www.lasy.gov.pl](http://www.lasy.gov.pl)  
visited by  
**5 million**  
internet users  
in 2014





# GLOSSARY

## A

**Afforestation** – the establishment of new forests on the land previously used for agriculture or on wasteland.

**Age class** – an agreed period, usually 20 years, which allows the grouping of stands by age; for example, stands aged up to 20 years form class I, stands ranging from 21 to 40 years form class II, and so on.

**Amount of cut, yield** – the amount (volume) of timber for harvesting derived from management objectives and financial plans.

**Annual prescribed cut by volume in the State Forests** – an annual measure of utilisation of forests, as set out in forest management plans. It is calculated as a sum of final and pre-final (intermediate) cuts for each forest district (approximately equaling 1/10 of the cut prescribed for a 10-year period). The annual quotas may vary depending on forest condition, but the overall harvest in each district must balance over a 10-year period during which the current forest management plan is in force.

**annual prescribed cut in final cuts in the State Forests** – an annually averaged sum of final cuts agreed for every forest district; the volume of harvest is set out in the forest management plan (usually established for a 10-year period) and should not be exceeded.

**annual prescribed cut in pre-final (intermediate) cuts in the State Forests** – an annually averaged sum of approximate pre-final cuts agreed for every forest district.

## B

**Biological diversity (or biodiversity)** – the variety of life forms on Earth or in a given area, usually related to three levels of nature organisation:

**species diversity** – a variety of species;

**ecological diversity** – a variety of community types (biocoenoses, ecosystems);

**diversity of genetic resources** – a variety of genes forming a gene pool of a population.

## C

**Class for restocking (KDO)** – a type of vertical structure of stands in which there is simultaneous utilisation and regeneration under the canopy of the parent stand, and in which the level of regeneration does not yet meet the standard requirements.

**Cleaning** – a series of tending treatments aimed at adjusting the composition of species, the structure and density of stands and the quality of young trees;

**early cleaning** – cleaning in plantations prior to crown closure;

**late cleaning** – cleaning during the period between crown closure and the beginning of self-thinning of trees.

**Clear-cuts** – an area from which all trees have been removed in one operation (final cut) and which is designated for reforestation within five years.

**Deadwood** – trees which are dead or dying as a result of excessive crowding in the stand, attacks by primary or secondary insect pests, the impact of industrial emissions, changes in water relations, etc.

**Defoliation** – loss of leaves or needles which intensifies with a worsening health condition of a tree.

**Diameter at breast height** – diameter (thickness) of a standing tree measured at the standard height of 1.3 m above ground level.

**Economic seed stands** – stands whose origin and quality indicate that seeds harvested from them will produce valuable progeny thus ensuring long-lasting production of timber of satisfactory quality and quantity.

**Ecotype** – *race, ecological form* – the entire population of one plant species found in a specific location; it develops as a result of long-term conditioning by specific (local) properties of the environment; ecotypes vary with regard to their physiological and, less frequently, morphological characteristics.

**Final cutting (felling)** – harvesting of wood associated with renewal of stands or deforestation as a result of a change in land-use; the wood obtained from final felling is known as the final cut timber.

**Folivores (folivorous species)** – leaf-eating animals.

**Forest cover (or index thereof)** – percentage of the area covered by forests in the country's total land area.

**Forest habitat (site) type** – a generalised concept of the group of stands on sites of similar suitability for forest production; the basic unit of the typological classification applied in Poland.

**Gene conservation stands (in situ conservation stands)** – stands selected for preservation of endangered populations of the indigenous tree species.

**Managed forests** – forests which are managed according to a plan and whose function is to produce wood and other forest products, while applying the principles of spatial and temporal order.

**Merchantable timber (large timber)** – (1) the volume of a tree above stump with a diameter at the thinner end of at least 7 cm with bark (refers to standing timber), (2) round wood with a diameter at the thinner end of at least 5 cm without bark (refers to harvested timber).

**gross merchantable** – timber with bark;

**net merchantable** – timber without bark and without losses during harvest.

**Outbreak (gradation, infestation)** – a mass occurrence of insect pests as a consequence of favourable environmental factors for a given species.

**Pathogens** – factors causing diseases; primary pathogens attack healthy organisms while secondary pathogens attack already damaged organisms (eg. trees).

**pH** – indicator of acidity, e.g. of soil.

## D

## E

## F

## G

## M

## O

## P

## R

**Pre-final (intermediate) cutting (felling)** – harvesting of wood associated with stand tending procedure.

**Promotional forest complex (PFC)** – a forest area of special ecological, educational and social value, established for the purpose of promoting sustainable forest management and protection of natural resources.

**Protective forests** – forests under special protection because of their functions or vulnerability to threats.

**Regeneration (renewal, restocking, reforestation):** new forest stands established after the removal of previous stands by felling or as a result of damage by natural causes;

**natural regeneration** – stands established as a result of self-seeding or suckering;

**artificial regeneration** – stands established by man by planting or seeding.

**Restocking class (KO)** – a type of vertical structure of stands in which there is simultaneous utilisation and regeneration under the canopy of the parent stand, and in which the level of regeneration permits the subsequent stages of tending.

**Selected seed stand** – a stand of high quality trees whose main purpose is seed production; they are excluded from felling for a defined period of time (excluded from final felling).

**Selection structure (BP)** – a type of vertical structure of stands, representing groups and clumps of trees of uneven age and size.

**Small-sized timber** – round wood with a diameter at the thicker end (under bark) of up to 5 cm.

**Standing volume** – the volume of all live trees in a given area (stand, province, country, etc.), with a diameter (with bark) over 7 cm at breast height; standing volume is often calculated per hectare.

## T

**Thinning** – cuts made in immature stands after they have passed through the cleaning period, during which economically undesirable trees are removed. Thinning has a positive effect on the quality of stands as it allows the trees to increase their volume, height and crown size.

**early thinning** – cuts covering a period of intensive natural self-thinning process;

**late thinning** – cuts following early thinning.

**Timber resources** – a total volume of trees in forest, usually equated with the estimated volume of merchantable timber in stands.

**Timber volume** – the amount of wood expressed in cubic metres (m<sup>3</sup>).

## W

**Windthrow** – trees broken or brought down by wind.

## Abbreviations

**BP** – type of stand (selection structure)

**DGSF** – Directorate-General of the State Forests

**KDO** – type of stand (class for restocking)

**KO** – type of stand (restocking class)

**PFC** – Promotional Forest Complex

**RDSF** – Regional Directorate of the State Forests

# THE STATE FORESTS – CONTACTS



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SF REGIONAL DIRECTORATES

FOREST DISTRICTS

NATIONAL PARKS

FOREST COMPLEXES

TERRITORIES OF FOREST DISTRICTS  
and regional directorates of the State Forests





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# PROMOTIONAL FOREST COMPLEXES



PROMOTIONAL FOREST COMPLEXES in Poland in 2014





# THE TOTAL AREA OF PFCs – 1 227 480 HECTARES

## **BIAŁOWIESKA PRIMEVAL FOREST**

Area – 52 637 ha

Forest Districts: Białowieża,  
Browsk, Hajnówka

## **TUCHOLSKIE FORESTS**

Area – 84 140 ha

Forest Districts: Tuchola, Osie,  
Dąbrowa, Woźniowa, Trzebciny

## **GOSTYNIŃSKO-WŁOCŁAWSKIE FORESTS**

Area – 53 093 ha

Forest Districts: Gostynin, Łąck,  
Włocławek

## **KOZIENICKA PRIMEVAL FOREST**

Area – 30 435 ha

Forest Districts: Koźnice,  
Zwoleń, Radom

## **ŚWIĘTOKRZYSKA PRIMEVAL FOREST**

Area – 76 885 ha

Forest Districts: Kielce, Łąków,  
Suchedniów, Zagnańsk, Skarżysko,  
Daleszyce

## **JANOWSKIE FORESTS**

Area – 31 620 ha

Forest District Janów Lubelski

## **LUBUSKIE FORESTS**

Area – 32 135 ha

Forest District Lubsko

## **BESKID ŚLĄSKI FORESTS**

Area – 39 883 ha

Forest Districts: Bielsko, Ustroń,  
Wiśła, Węgierska Góra

## **OLIWSKO-DARŻLUBSKIE FORESTS**

Area – 40 907 ha

Forest Districts: Gdańsk, Wejherowo

## **RYCHTAŁSKIE FORESTS**

Area – 47 992 ha

Forest Districts: Antonin, Syców,  
Forest Experimental Station  
in Siemianice (University  
of Life Sciences in Poznań)

## **BIRCZAŃSKIE FORESTS**

Area – 29 578 ha

Forest District Bircza

## **MAZURSKIE FORESTS**

Area – 118 216 ha

Forest Districts: Strzałowo,  
Spychowo, Mrągowo, Pisz,  
Maskulińskie,  
Research Station for Ecological  
Agriculture and Preservation of Native  
Breeds of the Polish Academy of  
Sciences in Popielno

## **SPALSKO-ROGOWSKIE FORESTS**

Area – 34 950 ha

Forest Districts: Brzeziny, Spała,  
Forest Experimental Station in Rogów  
(University of Life Sciences in Warsaw)

## **BESKID SĄDECKI FORESTS**

Area – 32 051 ha

Forest Districts: Piwniczna, Nawojowa  
Forest Experimental Station in Krynica  
(University of Agriculture in Cracow)

## **SUDETY ZACHODNIE**

Area – 22 866 ha

Forest Districts: Szklarska Poręba,  
Świeradów

## **NOTECKA PRIMEVAL FOREST**

Area – 137 273 ha

Forest Districts: Potrzebowice,  
Wronki, Krucz, Sieraków, Oborniki,  
Karwin, Międzybóże



### **SZCZECIŃSKIE PRIMEVAL FORESTS**

Area – 61 070 ha

Forest Districts: Kliniska, Gryfino, Trzebież,  
Municipal Forests of the City of Szczecin,  
Educational Centre “Świdwie”

### **WARSZAWSKIE FORESTS**

Area – 52 099 ha

Forest Districts: Drewnica, Jabłonna,  
Celestynów, Chojnów,  
Municipal Forests of the City of Warsaw

### **DOLINA BARYCZY FORESTS**

Area – 42 379 ha

Forest Districts: Milicz, Żmigród

### **ŚRODKOWOPOMORSKIE FORESTS**

Area – 55 655 ha

Forest Districts: Warcino, Polanów, Karnieszewice  
Municipal Forests of the City of Koszalin

### **KNYSZYŃSKA PRIMEVAL FOREST**

Area – 62 319 ha

Forest Districts: Supraśl, Dojlidy,  
Krynki, Czarna Białostocka

### **NIEPOŁOMICKA PRIMEVAL FOREST**

Area – 10 926 ha

Forest District Niepołomice

### **BIESZCZADZKIE FORESTS**

Area – 24 234 ha

Forest Districts: Stuposiany,  
Lutowiska, Cisna

### **ELBLĄSKO-ŻUŁAWSKIE FORESTS**

Area – 18 827 ha

Forest District Elbląg

### **OLSZTYŃSKIE FORESTS**

Area – 35 310 ha

Forest Districts: Olsztyn, Kudypy  
Forests of the Municipality of Olsztyn



State Forests  
Information Centre

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