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TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Latvia

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MINISTRY OF ENVIRONMENTAL PROTECTION
AND REGIONAL DEVELOPMENT
OF THE REPUBLIC OF LATVIA

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Abbreviations

Abbreviation	Meaning
EU	European Union
LFBI	Latvian Farmland Bird index
EFBI	Europe Farmland Bird index
EU Habitats directive	Council Directive 92/43/EEC of May 1992 on the Conservation of natural habitats and of wild fauna and flora
EU Birds directive	Council Directive 79/409/EEC on the Conservation of wild birds
EU LIFE	The LIFE programme is the EU's funding instrument for the environment and climate action
EU ERDF	European Regional Development Fund is a fund allocated by the EU
Natura 2000	Ecological network of protected areas in the territory of the European Union
Convention	Convention of Biological Diversity
EPC	Environmental Policy Concept
NBSAP	National Biodiversity Strategies and Action Plans
PAF	Format for a Prioritised Action Framework for Natura 2000
NDP	National Development Plan
CO ₂	Carbon dioxide
GHG	Greenhouse gas
SWOT	Structured analysis used to evaluate the strengths, weaknesses, opportunities, and threats
LVM	Latvian State Forests
GEF/UNDP	Global Environment Facility/United Nations Development Program
NGO	Non-governmental organizations
CHM	National Information and Cooperation Network
LOB	Latvian Ornithological Society

Executive Summary

Overall status and trends in biodiversity, and major threats

There are 27 443 species known in Latvia so far (18 047 animal species (int.al. 62 mammal species and 223 nesting bird species), 5396 plant species and approximately 4000 fungi species) and it is being considered that only 75% of insect species and 60% of protista species are known. [1, 2]

According to the legislation 236 animal species, 426 plant and 62 fungi species are included in the list of specially protected species, but 22 animal and plant species are included in the list of specially protected species with exploitation limits. Overall 2,7% from known species are included in the list of specially protected species. There are also 86 protected habitat types in Latvia.

One of the most important and comprehensive evaluation of conservation status of habitats and species (other than birds) in Latvia was done according to the EU Habitats directive. The results of the last evaluation (in 2013) shows that only 11% of habitats and 27% of species (other than birds) of the European Union (EU) importance are in favourable conservation status in Latvia. In 2013 the first report on the conservation status of the bird species was done in accordance to the EU Birds directive. The results of the evaluation show that 22% of breeding species' population and 48% of wintering species' population are stable.

As to the forests - indicators show that the total forest area and area of stocked forest land is increasing which is mainly related to overgrowing of agricultural land. There is also disproportion in age structure for the dominant tree species – young and middle aged stands are proportionally more than old stands. Such stand age structure does not ensure presence of uneven-aged trees in forest and continuity of plant and animal species related to them. In many cases forest is seen as the only income for inhabitants of the countryside, and this approach leads to unsustainable use of forests. Other factors with negative impact on forest biodiversity: melioration, construction of forest roads, lack of natural disturbance (e.g. burning) in particular forest habitats.

Regarding agricultural ecosystems - Latvian Farmland Bird index (LFBI) is important complex indicator which describes biodiversity in Latvian rural landscape. After 2004 LFBI was decreasing and there was a concern that negative changes are related to intensification of rural farming and insufficient activities in improvement of environment conditions in agricultural lands. In overall LFBI has been changing around same level as in 1995. [3] Natural and extensively managed grasslands are biologically the most important, but nowadays they cover only 0.3% from the country's territory. These territories traditionally were managed by grazing and mowing, the extent of which has significantly reduced. Main threats to biodiversity in agricultural lands are: polarization of agricultural landscape, overgrowing due to lack of management, melioration etc.

As to threats to biodiversity for other ecosystems: peat extraction and overgrowing of bogs due to melioration; eutrophication, functioning of small hydro-electric power stations and poaching (in inland waters); in coastal areas the main threats are habitat degradation (due to tourism and recreational activities, illegal car driving), habitat loss (due to housing and inappropriate management) and expansion of invasive species. Low environmental awareness of general public and politicians can be also named as one of the major threats to biodiversity in Latvia.

Key actions taken in support of the Convention's three objectives and to achieve the 2014 target and goals and objectives of the Strategic Plan of the Conventions

Traditionally the first objective of the Convention – conservation of biodiversity is the most comprehensible and, accordingly, actively dealt with.

As of June 1, 2014 there are 682 specially protected nature territories established in Latvia covering 11,5% from the country's terrestrial territory (not including North Vidzeme biosphere reserve covering alone 7% from the terrestrial territory of the country). In 2004 when Latvia joined the European Union, network of protected areas of the EU importance *Natura 2000* sites was designated in Latvia. As a basis for *Natura 2000* network the existing national system of specially protected territories was used and amended. Therefore the total number of national specially protected territories increased from 576 (as of 2003) to 674 (as of 2009), 333 sites out of them being designated or classified as *Natura 2000* sites. 7 marine protected territories were established at the beginning of 2010 which will be designated also as *Natura 2000* sites during the 2010. And the one new nature reserve was established in 2013. *Natura 2000* sites in Latvia were designated for protection of 127 species and 60 types of habitats represented in Latvia and enlisted in the annexes of the Birds and Habitats directives.

For the protection of rare, as well as disperse species and habitats also micro-reserves are being established in Latvia. There are 2140 micro-reserves established outside specially protected nature territories from 2001 - 2013 covering in total 39 400 ha. [4]

According to the legislation 236 animal species, 426 plant and 62 fungi species are included in the list of specially protected species, but 22 animal and plant species are included in the list of specially protected species with exploitation limits. Overall 2,7% from known species are included in the list of specially protected species. There are also 86 protected habitat types in Latvia 60 of them being of the EU importance.

In order to achieve the main targets of the Convention, several strategic documents have been elaborated, e.g. the first National Programme on Biological Diversity was adopted by the Government in 2000. At the moment the Environmental Policy Concept 2014-2020 are the actual and the most important environmental planning document in force also covering biodiversity protection issues. [22]

The Program on Sustainable Use and Long-term Conservation of Genetic Resources of Plants and Animals, Forest and Fishes used in Agriculture and Food, 2007-2009 was adopted by the Government in 2007. The Convention's goals and targets to some extent have been included in several very important sectoral plans and programs, e.g.: Rural Development Programme 2007-2013 and National Forest Policy.

Since 2009 national environmental indicators including 15 biodiversity indicators have been set in Latvian legislation. They have been elaborated according to specific national needs and conditions, but in general they are coinciding with Convention's indicators more or less covering several focal areas of the Convention. The National Monitoring Program was prepared initially in 2002, then revised and adopted with the title "Environment Monitoring Programme" in 2006 - including monitoring of biological diversity and requirements provided by the EU biodiversity legislation.

The second objective of the Convention – the sustainable use of biodiversity components is much more complicated issue because of the economical pressure. This issue to some extent is being addressed by specific regulations on protection and use of protected territories and environmental impact assessment.

The third objective of the Convention - fair and equitable sharing of benefits arising out of the utilization of genetic resources is not yet dealt with in Latvia.

Areas where national implementation has been most effective or most lacking

All in all it has to be admitted that there are much more success in implementation of the first objective of the Convention - conservation of biodiversity - than in implementation of the rest of Convention's objectives.

A significant success is establishment of *Natura 2000* network in 2004 and improvement of system of national protected territories accordingly. The *Natura 2000* network was established based on the existing network of protected territories, it was reconsidered, 109 new protected territories were designated and 48 existing protected territories were amended/enlarged. The protected territories now cover 11,5% of state terrestrial area (not including biosphere reserve (7% of state area)). Since 2004 the *Natura 2000* network has been gradually improved, including new territories or extending the existing ones so as to improve the legal protection of the important protected species and habitat types.

A lot of different habitat and species habitat management and restoration activities in different protected territories have been implemented through the projects co-financed by the EU funds, informational/educational materials published, management plans elaborated. Local municipalities, land owners and other stakeholders were largely involved in implementation of these projects through elaboration of management plans for protected territories, through implementation of practical management activities etc. Also significant number of tourism infrastructure elements (information centers, nature trails, view towers, information signs etc.) were created within the EU LIFE and EU ERDF funded projects.

Although the comprehensive communication strategy has not been elaborated communication activities are implemented at increasing scale and finding innovative or creative ways of the communication. So the communication project "Nature concert hall" in 2012 received the EU Green Spider award as the EU 2012 Best practice competition. More attention also should be paid to integration of biodiversity issues in other sectoral plans and programs. [5]

Major obstacles encountered in implementation

Although there are several great achievements in the implementation of nature legislation and policy documents, nature conservation still is not a high priority for the government. In nature conservation sector implementation main emphasis is put on the implementation of requirements of the EU directives and another well-known and traditional obstacle is economical pressure and the fact that nature conservation is mostly seen as a restrictive issue. It derives from strict application of the preventive approach based on lack of information on biodiversity values and benefits and insufficient communication on nature issues to the politicians and general public. Insufficient incorporation of biodiversity issues into sectoral strategies and programs can be considered as another important obstacle and even if sometimes it has been incorporated, in reality it has been given low priority or has remained just as a declarative issue.

Future priorities

One of the most important problem in implementation of nature Conventions as well as the EU Directives is lack of appropriate information/researches on biodiversity conservation and particularly on protected territories (management efficiency, costs and benefits, ecosystem services etc.). In the nearer future we have to focus on facilitation and development of appropriate studies/projects. More attention also should be paid to integration of biodiversity issues in sectoral plans and programs. Another important issue which has to be dealt with in the nearer future is education and awareness rising on biodiversity issues of general society. The main obstacle to implement all these futures priorities is lack of human and financial resources, as well as lack of political will.

Chapter I – An update on biodiversity status, trends and threats and implications for human well-being

Overview of the country's biodiversity

The terrestrial territory of Latvia occupies 6 457 300 ha, 3.9% of that covered by inland waters, 45.7% - forests, 4.9% - bogs, 38.5% - agricultural lands [6].

There are 27 443 species known in Latvia so far (18 047 animal species (int.al. 62 mammal species and 223 nesting bird species), 5396 plant species and approximately 4000 fungi species) and it is being considered that only 75% of insect species and 60% of protista species are known. [1, 2]

The system of nature protection in Latvia is mainly regulated by 2 laws: the Law on Species and Habitats Protection and the Law on Specially Protected Nature Territories. Based on these Laws, Cabinet of Ministers has adopted several supporting Regulations. In general, the legislation of nature conservation in Latvia corresponds to requirements of the EU Directives, Convention on Biological Diversity and other conventions. Additional specific nature protection requirements are included in sectoral (e.g. forestry, agricultural, spatial planning, building) legislation.

According to the legislation 263 animal species, 427 plant and 62 fungi species are included in the list of specially protected species, but 24 animal and plant species are included in the list of specially protected species with exploitation limits. Overall 2.7% from known species are included in the list of specially protected species. There are also 86 protected habitat types in Latvia.

Table 1. Number of threatened and protected species and habitats in Latvia

	<i>Specially protected according to the national legislation</i>	<i>Included in the Red Data Book of Latvia</i>	<i>Included in the EU Birds and Habitats Directives and represented in Latvia</i>
Species:	752	759	127
<i>Mammals</i>	31	24	4
<i>Birds</i>	99	78	70
<i>Reptiles and amphibians</i>	9	9	3
<i>Fishes</i>	18	15	10
<i>Invertebrates</i>	106	162	22
<i>Plants</i>	232	315	14
<i>Mosses</i>	129	87	4
<i>Lichens</i>	60	34	-
<i>Mushrooms</i>	62	35	-
<i>Algae</i>	6		
Habitats	86	-	60

Source: Ministry of Environmental Protection and Regional Development, 2014

Proportion and division in categories of specially protected nature territories

As of June 1, 2014 there are 683 specially protected nature territories established in Latvia covering 11,5% from the country's terrestrial territory (not including North Vidzeme biosphere reserve covering alone 7% from the terrestrial territory of the country). The System of Protected territories consists of 8 categories accordingly to the goals of designation and conservation – strict nature reserves, national parks, nature reserves, nature parks, nature monuments, protected landscape areas, biosphere reserves and marine protected territories.

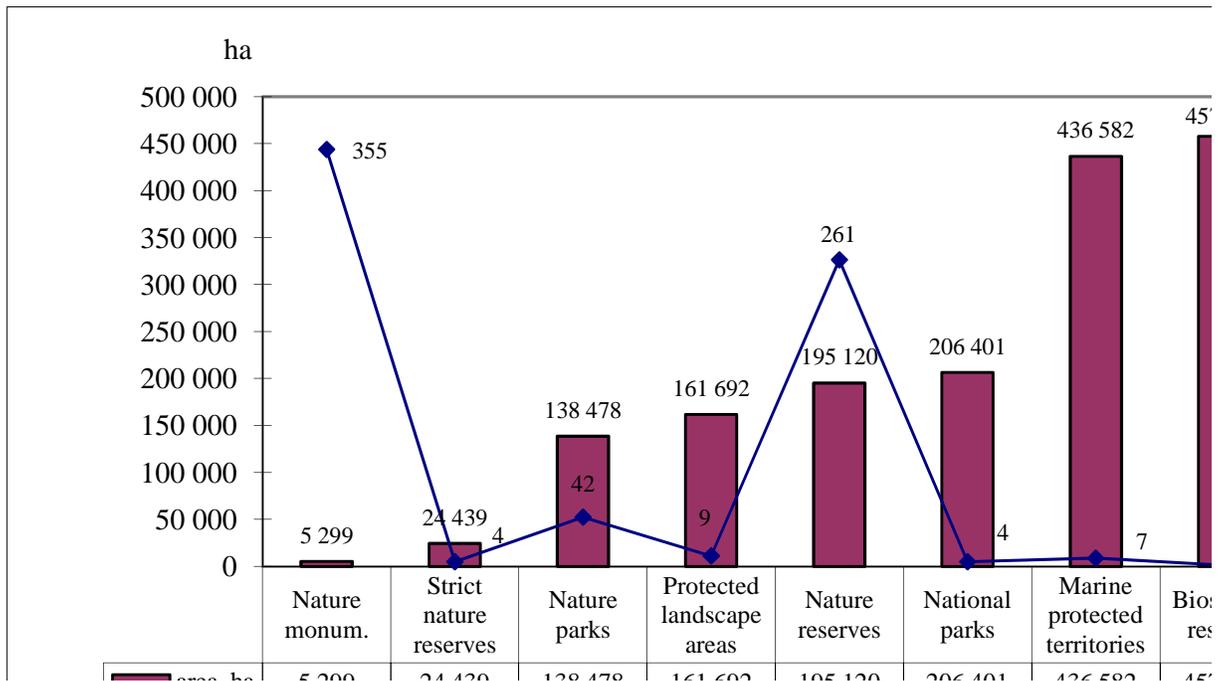


Figure 1. Number and area of specially protected territories in Latvia

Source: Ministry of Environmental Protection and Regional Development, 2014

In 2004 when Latvia joined the European Union, network of *Natura 2000* sites was designated in Latvia. *Natura 2000* is unified network of specially protected territories of the EU importance throughout the EU which is established to ensure the protection of species and habitats included in the EU Birds and Habitats Directives. As a basis for *Natura 2000* network the existing national system of specially protected territories was used and amended. Therefore the total number of national specially protected territories increased from 576 (as of 2003) to 674 (as of 2009), 327 sites out of them being designated as *Natura 2000* sites. 7 marine protected territories were established at the beginning of 2010. And the one new nature reserve was established in 2013. *Natura 2000* sites in Latvia were designated for protection of 127 species and 60 types of habitats represented in Latvia and enlisted in the annexes of the Birds and Habitats directives.

Number of micro-reserves outside protected territories

For the protection of rare, as well as disperse species and habitats apart from specially protected nature territories the micro-reserves are being established in Latvia. Micro-reserves usually are established for the protection of special features in nature important for certain species – typical examples of micro-reserves are protection of nests of large birds like black stork *Ciconia nigra* and Lesser Spotted Eagle *Aquila pomarina*. The area of micro-reserves is usually smaller than area of specially protected territories. Although they can be located

within the protected territory, mostly micro-reserves are located outside the specially protected territories. According to the goal of designation and protection of micro-reserve certain economical activities are prohibited (e.g. forestry, land use change). There are 2140 micro-reserves established outside specially protected nature territories from 2001-2013 covering in total 39 400 ha. Micro-reserves are not forming part of the protected territories network, although serving the needs of protected species.

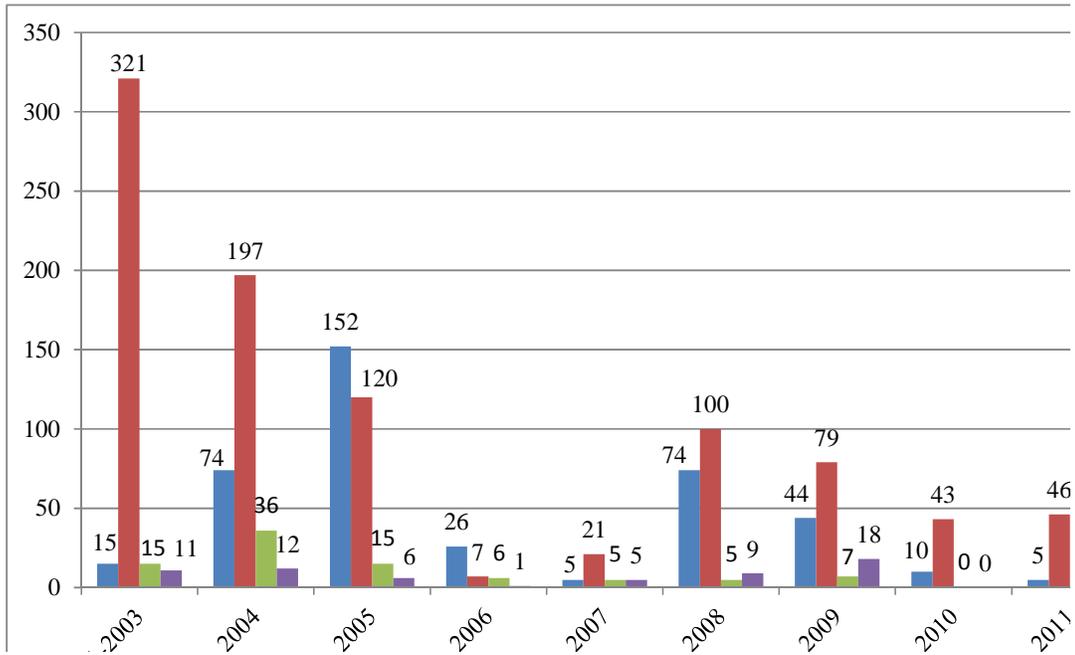


Figure 2. Number of micro-reserves established (2001-2012) outside specially protected territories.

Source: Nature Conservation Agency, 2014

Status of habitats and species of the EU importance

According to the EU Habitats Directive the conservation status of species and habitats mentioned in the Directive has to be periodically evaluated and reported to the European Commission. The results of the last evaluation (in 2013) show that only 11% of habitats and 27% of species (other than birds) of the EU importance are in favourable conservation status in Latvia (Figure 3 and 4).

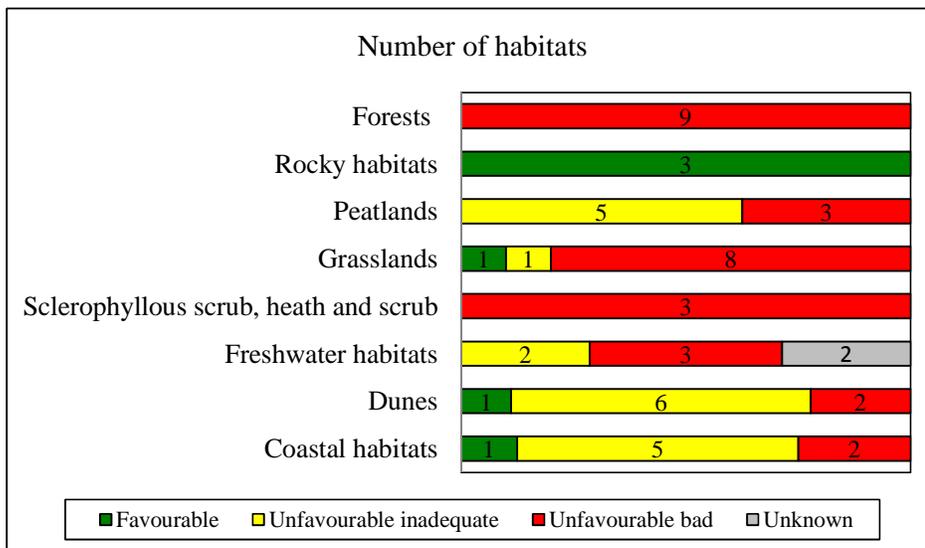


Figure 3. Conservation status in 2013 by habitat category
 Source: EEA-European Topic Centre on Biological Diversity, 2013

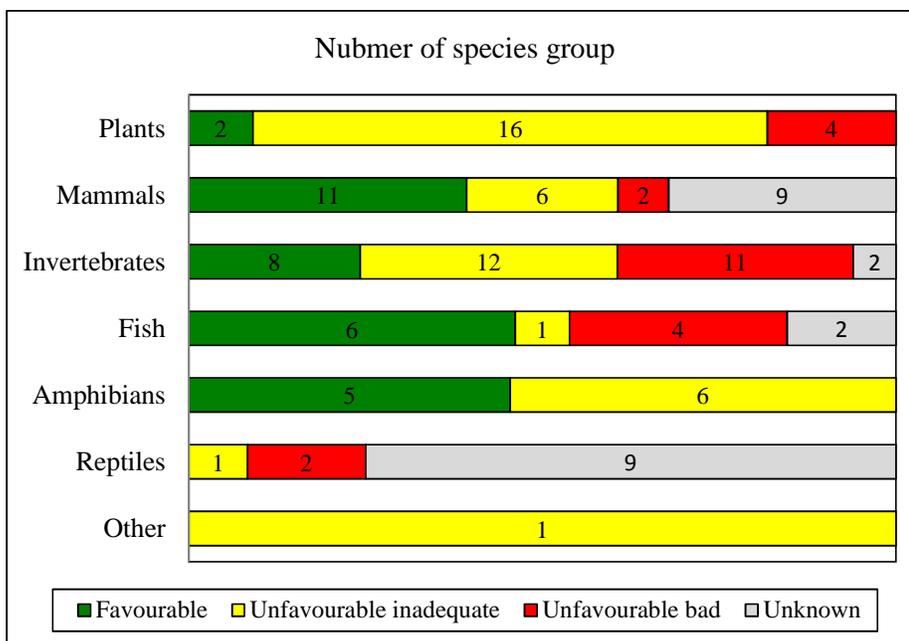


Figure 4. Conservation status in 2013 by species group
 Source: EEA-European Topic Centre on Biological Diversity, 2013

Major ecosystem types

Agricultural ecosystems

According to land balance data of the Republic of Latvia as of 1 January 2013, agricultural lands covers 38,5% (64,7% - arable land, 0,3% - orchards and 35,0% - grasslands) of Latvia's terrestrial territory [6]. *Natura 2000* territories comprise 24% agricultural land. [7]

More than 520 plant species (1/3 of Latvia's flora) can be found in grasslands in Latvia. Grasslands are important for protection of different species, for example, approximately 40% of protected plant species are found in grasslands, 82% of population of corncrake *Crex crex* nests in grasslands. Natural and extensively managed grasslands are biologically the most important, but nowadays they cover only 0.3% (till the middle of 20th century - 13%) from the country's territory [8]. These territories traditionally were managed by grazing and mowing, the extent of which has significantly reduced. Main threats to biologically important grasslands are: polarization of agricultural landscape, overgrowing due to lack of management (in 2013, about 9.4% of the agricultural land was land which was not used for agricultural purposes), melioration (the total area of drained agricultural land is 1.2 million ha. [6]

Indicators

Area of the known localities of EU importance grasslands and area of maintained grasslands of the EU importance

Grasslands of the EU importance are natural meadows and pastures with high diversity of species (including those of EU importance) and including grassland habitat types of EU importance. The favourable conservation status of species and habitats of EU importance related to natural grasslands can be only ensured by appropriate management of these grasslands. According to the existing evaluation by scientists and NGOs, there are in total 100 000 ha (target area) of grasslands of EU importance in Latvia. 80 % of all grassland habitats were in an unfavourable conservation status in 2007. The area of EU importance grassland habitats managed under agro-environment schemes has been smaller in Natura 2000 sites than outside them in 2007-2013, indicating a worse conservation status in Natura 2000 sites than outside them. In 2012, less than 50 % of all EU grassland habitats were managed although management of the EU importance grasslands is subsidized from the EU funds and coordinated by means of the Rural Development Programme of Latvia. [9]

Farmland Bird index

In order to evaluate ecological conditions in agricultural territories the Farmland Bird index has been developed and being calculated in Latvia since 1995.

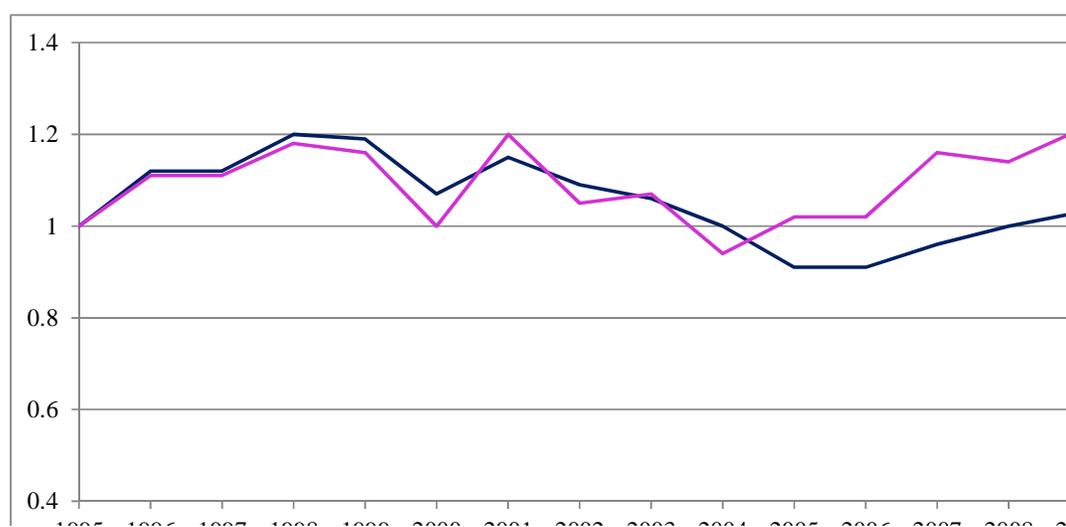


Figure 5. Farmland Bird index.

Source: Nature Conservation Agency, 2011

Figure 5 presents two Farmland Bird indexes differing in number and content of species. Latvian Farmland Bird index (LFBI, 13 species) does not contain several index species included in Europe Farmland Bird index (EFBI), but typically related to populated areas in Latvia (e.g. Barn Swallow *Hirundo rustica*, Common Starling *Sturnus vulgaris*, and Tree Sparrow *Passer montanus*). Whereas EFBI (14 species according to list as of 2010) does not contain several bird species typical to Latvian rural landscape and therefore included in LFBI, such as European Goldfinch *Carduelis carduelis*, Common Rosefinch *Carpodacus erythrinus*, Marsh warbler *Acrocephalus palustris* and Common Grasshopper Warbler *Locustella haevia*. Changes in Latvian Farmland Bird index were similar to changes in Europe Farmland Bird index until 2004. After 2004 LFBI is decreasing and since it is more appropriate in describing Latvian rural biodiversity, there is a concern that negative changes are related to intensification of rural farming and insufficient activities in improvement of environment conditions in agricultural lands. However LFBI has an overall changing trend around same value as in 1995. [3]

Index of population demography of indicator species: white stork and black stork

Approximately 10 000 pairs of white stork (*Ciconia ciconia*) are nesting in agricultural lands in Latvia (5% from the world's population, 9.2% from the EU population). The number of white storks in Latvia is stable and an average number of juveniles (2004-2012) are 2 juveniles per populated nest (Figure 6).

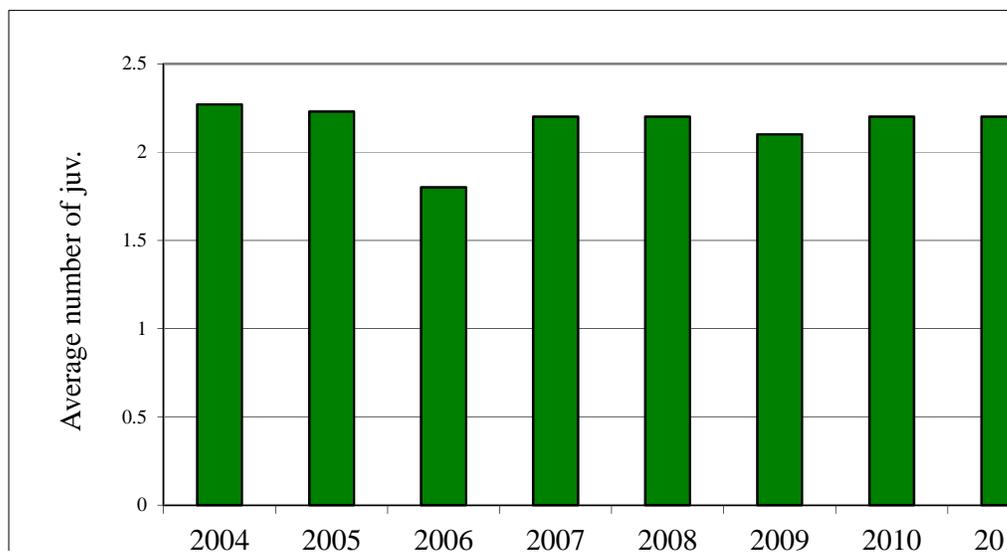


Figure 6. Average number of white storks' juveniles per populated nest.

Source: Nature Conservation Agency, 2013; LOB, 2013, Institute of Biology, 2013

Forests

As of 1st January 2012 forests cover 3.02 million ha (51%) of the territory of Latvia (state owned 1.49 million ha, 0.04 million ha owned by municipalities and 1.48 million ha private property).

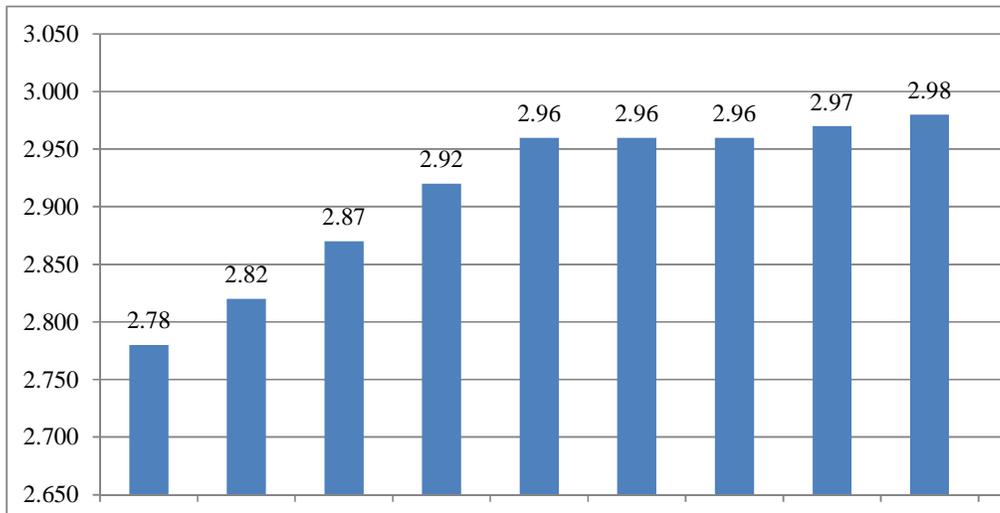


Figure 7. Forest change dynamics, million ha.

Source: State Forest service, Public report of 2012

Forest stands mainly comprise 3 species: pine, spruce and birch. *Natura 2000* sites comprise 335.4 thousands ha of forests (11.3% of total forest area). In total (as of 2013) various types of protected forests occupy 513.3 thousand ha or 17.5% of the total forest area. [10] 17-84% of protected species are related to forests in every group of organisms on which information is available. There are 11 protected forest habitats in Latvia.

Indicators

Forest area

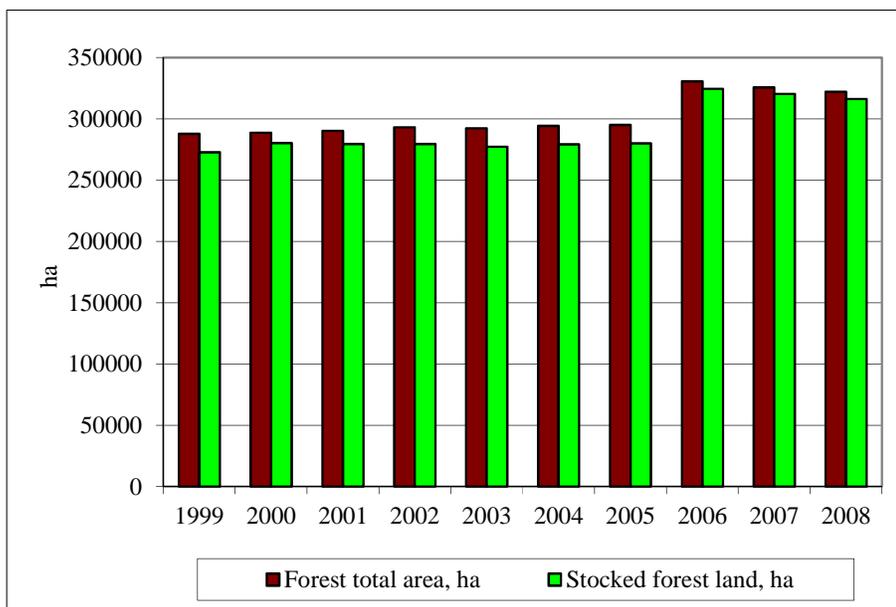


Figure 8. Forest area in Latvia

Source: Central Statistical Bureau of Latvia, 2013

Figure 8 shows that total forest area from 1999 till 2006 has increased (from 287 700 ha to 330 600 ha), but during the last two years (2007-2008) it tends to decrease. The situation in area of stocked forest land is quite similar – from 1999 till 2006 it increased from 272 800 ha

to 324 600 ha, but there is reduction during 2007-2008. Since 2009 in forestry statistics auditing made every 5 years, next data will be available 2015. Stocked forest land is a part of forest area – it excludes areas where neither a forest (cutovers, perished stands, damaged stands) nor forest crops are growing (afforested areas not yet included in the forest-covered areas). Increase of the total forest area and area of stocked forest land is mainly related to overgrowing of agricultural land. Maintenance of forest biological diversity is affected by severe economic situation in the countryside. In many cases forest is seen as the only income for inhabitants of the countryside, and this approach leads to unsustainable use of forests. Other factors with negative impact on forest biodiversity: melioration (in total 50% of forest land are drained by open ditches), construction of forest roads (Figure 9), lack of natural disturbance (e.g. burning) in particular forest habitats. [4]

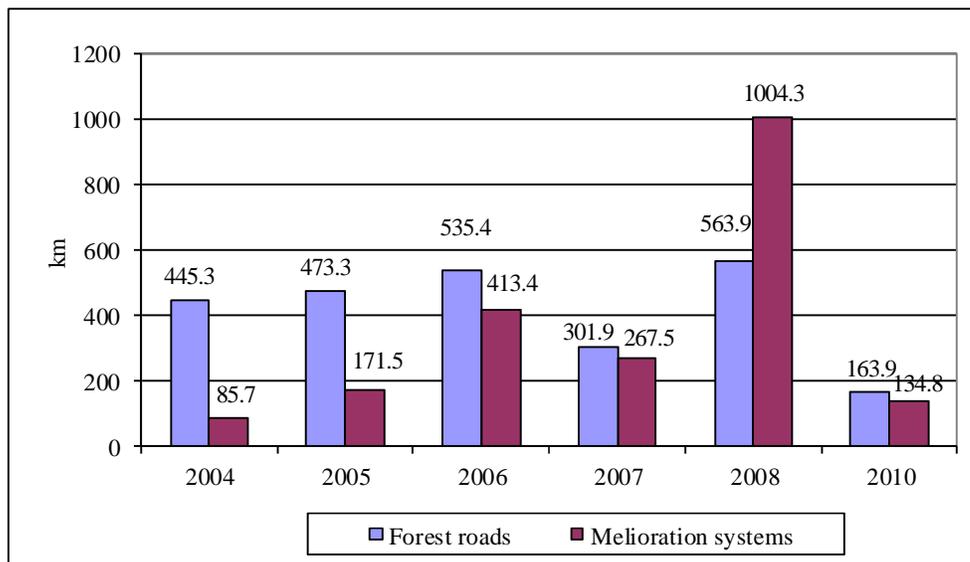


Figure 9. Total length (km) of built up and reconstructed forest roads and melioration systems from 2004-2010. New data will be updated in 2015.

Source: State Forest Service, 2013

Forest age class structure

Biologically old stands are the most important for biodiversity, respectively, pine stands starting from 140 years (Figure 10), spruce – 120 years (Figure 11), birch – 90 years (Figure 12). All figures show disproportion in age structure – young and middle aged stands are proportionally more than old stands. Such stand age structure does not ensure presence of uneven-aged trees in forest and continuity of plant and animal species related to them. [4]

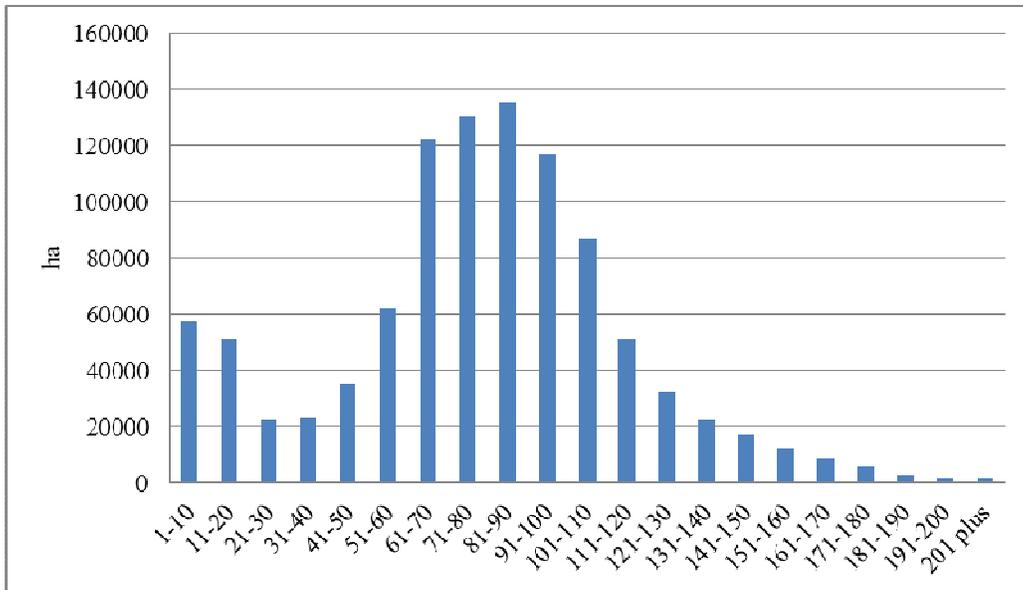


Figure 10. Area of pine stands according to age classes (as of 01.01.2014).
 Source: State Forest Service, 2014

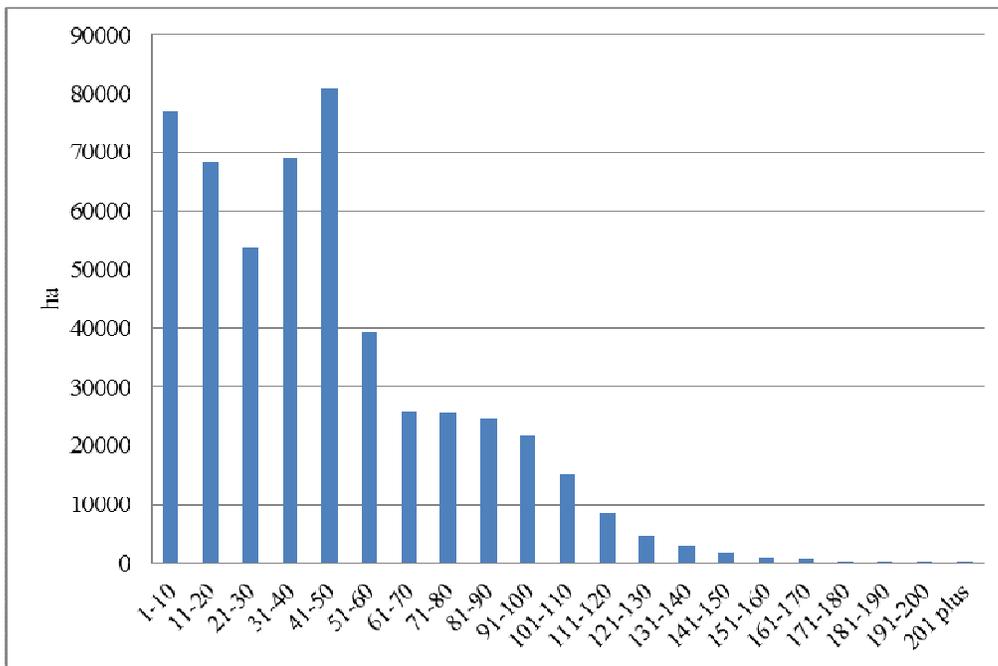


Figure 11. Area of spruce stands according to age classes (as of 01.01.2014).
 Source: State Forest Service, 2014

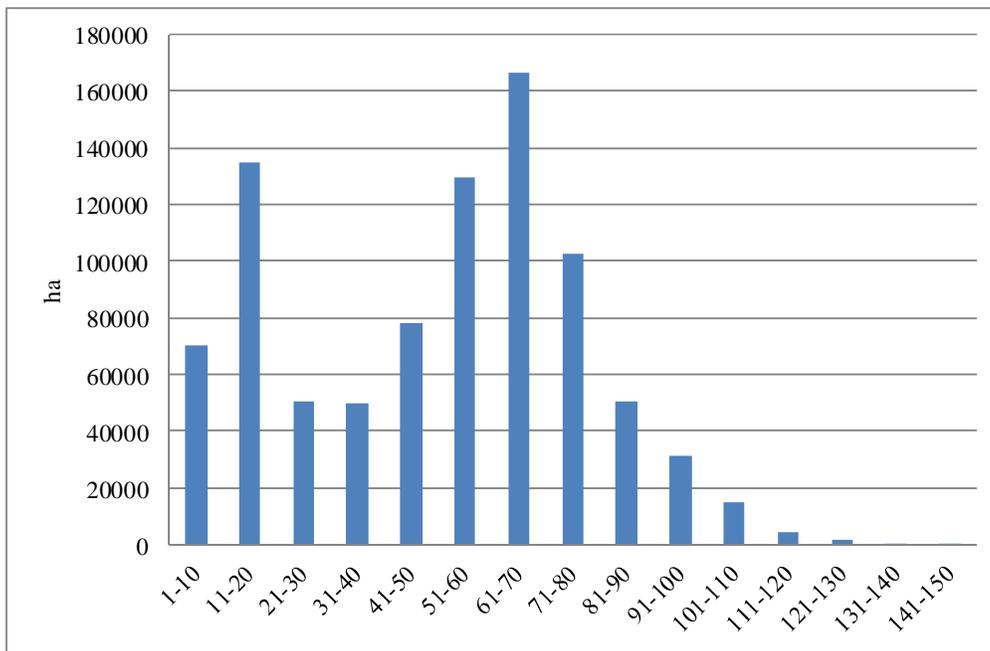


Figure 12. Area of birch stands according to age classes (as of 01.01.2014).
 Source: State Forest Service, 2014

Index of population demography of indicator species: black stork and lesser spotted eagle

Forests of Latvia are very significant nesting area for about 5% of the world and 8% of the European population of black stork (*Ciconia nigra*). The number of estimated population of black stork in Latvia to date is 500-700 pairs. Since 90-ies the population of black stork in Latvia has decreased for approximately 45% from the initial population [11]. Intensive forest management and lack of feeding sites are the main negative factors causing decrease of population of black stork. The nesting results probably also are influenced by the presence of DDT found in the eggshells of the black stork [12]. Nesting areas of black stork are protected within specially protected territories and micro-reserves, however currently only 28% from all nesting areas are under legal protection [12].

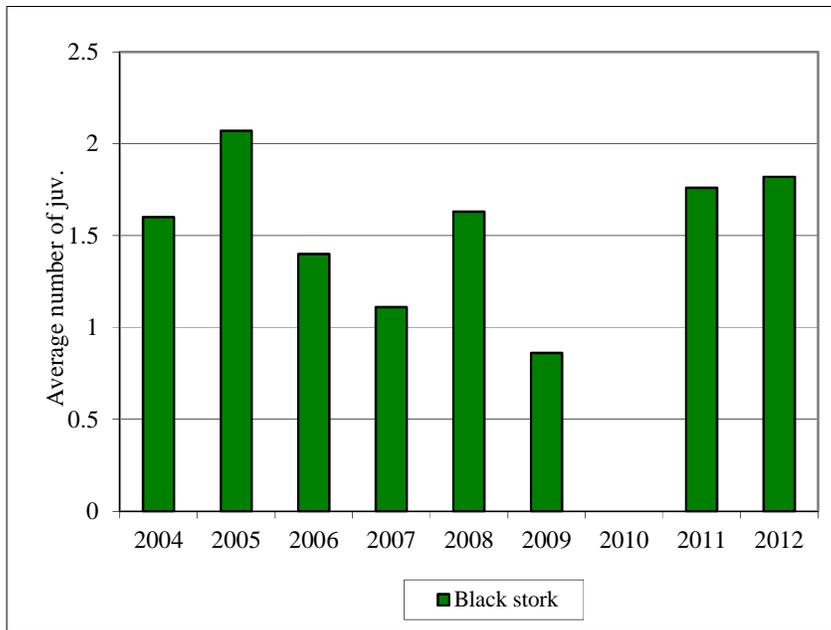


Figure 13. Average number of black storks' juveniles per populated nest.
 Source: Nature Conservation Agency, 2013; LOB, 2013, Institute of Biology, 2013

Latvian population of Lesser spotted eagle (*Aquila pomarina*) counts about 24% of European population (20% from world's population). Forests (for nesting) and grasslands (for feeding) both are equally important ecosystems for this species and therefore the overall environmental quality can be described based on the parameters of Lesser spotted eagle's populations.

From sampling plots with long-time observations only in "Bukaisi" (Figure 14) stable dynamic of number of eagles has been stated. Apparently decrease in number of pairs in two other sampling plots shows negative trend in overall development of population during the given period. The most important reason to that is intensive forest management (starting from 2000) particularly in private forests leading to loss of old forest stands suitable for nesting. During the last years the number of lesser spotted eagle is also influenced by intensive agriculture and, in particular, development of crop farming leading to loss of grasslands suitable for feeding. [13]

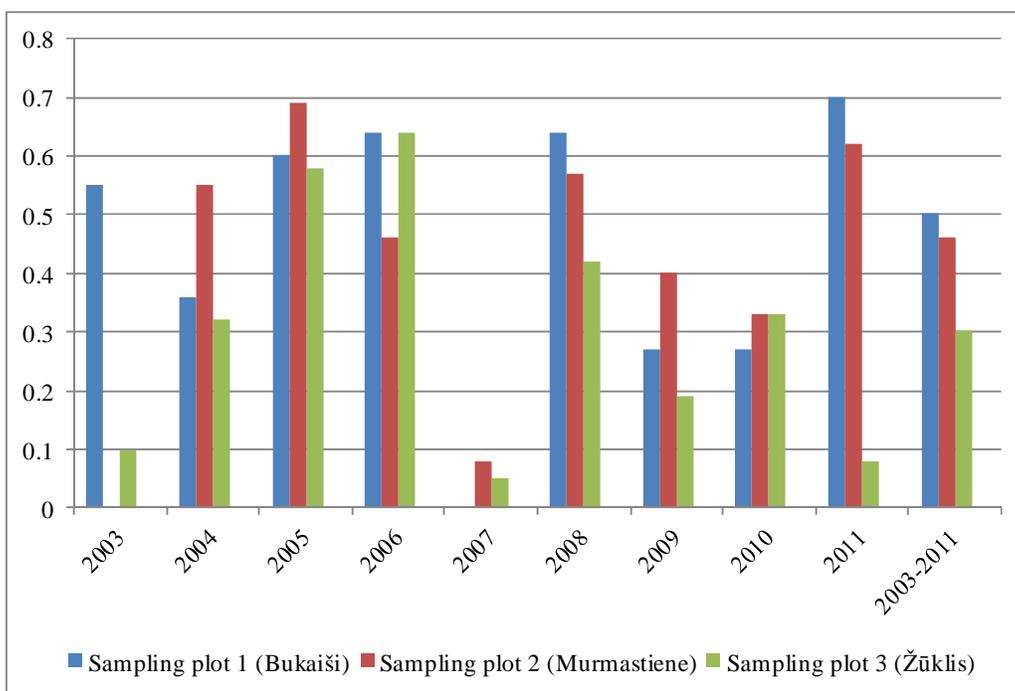


Figure 14. Nesting results of Lesser spotted eagles in 3 existing sampling plots.

Source: Latvian State Institute of Agrarian Economics, 2012

Bogs

Bogs are distributed throughout the country and cover 4.7% (as of 2013) of Latvia's territory [1]. 70% out of them are being relatively unaffected [14]. The rest are the bogs where peat extraction or drainage was/being done. There are 3 main types of bogs in Latvia: fens, transitional mires and raised bogs. According to legislation there are 8 specially protected bog habitats. More than 50 protected plant species can be found in Latvian bogs (43 in fens, 15 in raised bogs and 27 in transitional mires). Mainly they are orchids (15 species) and sedges (10 species). The most valuable bogs in terms of rare species are fens [14].

The main threats for biodiversity are peat extraction and overgrowing of bogs due to melioration. Peat is among the most economically significant minerals in Latvia. It is estimated that peat deposits (wetlands of more than 1 ha large and with more than 0.3 m peat) cover 10.4% of the terrestrial land of Latvia (includes not only bogs, but also some forest types, drained mires and peat extraction sites) [15]. There are no indicators elaborated or approved associated with biodiversity of bogs, but Table 1 shows amount of estimated peat deposits and extent of peat extraction from 2004-2012.

Table 1
Amount of estimated peat deposits and extent of peat extraction from 2004-2012

	2004	2005	2006	2007	2008	2009	2010	2011	2012
	million of tonnes								
Amount of peat deposits	794.80	794.21	775.94	768.55	768.0	767.14	767.98	757.4	756.84
Extent of	0.595	0.791	1.000	0.541	0.865	0.855	0.703	0.947	0.739

Source: Latvian Environment, geology and meteorology agency, 2012

Inland waters

There are 140 lakes (larger than 1 km²) and 12 400 rivers (with total length 38 000 km) in Latvia [6]. Biodiversity in lakes has been mainly investigated in relation to their trophic condition. It is concluded that mesotrophic lakes represent greater species diversity, but oligodystrophic, dystrophic and diseytrophic bog lakes comprise more rare and protected species. 2680 algae species, 1614 invertebrate species, 40 fish and 3 lamprey species according to present estimation can be found in freshwaters in Latvia [2]. According to legislation there are 27 specially protected habitats of inland waters in Latvia.

Main threats to biodiversity in inland waters are: eutrophication, functioning of small hydro-electric power stations and poaching.

Indicators

Index of population demography of indicator species: salmon and trout

Salmon (*Salmo salar*) and Trout (*Salmo trutta*) are specially protected species in Latvia and EU. There are 10 salmonid rivers in Latvia, the Salaca River being the most important of them. The Salaca River is designated as a national salmon index river and therefore special monitoring of salmon and other fish species is being carried out there. The population of salmon and trout in the Salaca is being considered as stable; the number of migrating smolts increased significantly in spring 2006 (Figure 15). [16]

Poaching and loss/degradation of suitable habitats (e.g. due to activities of small hydro-electric power stations built on rivers in previous years) are some of negative impacts influencing populations of salmon in Latvia.

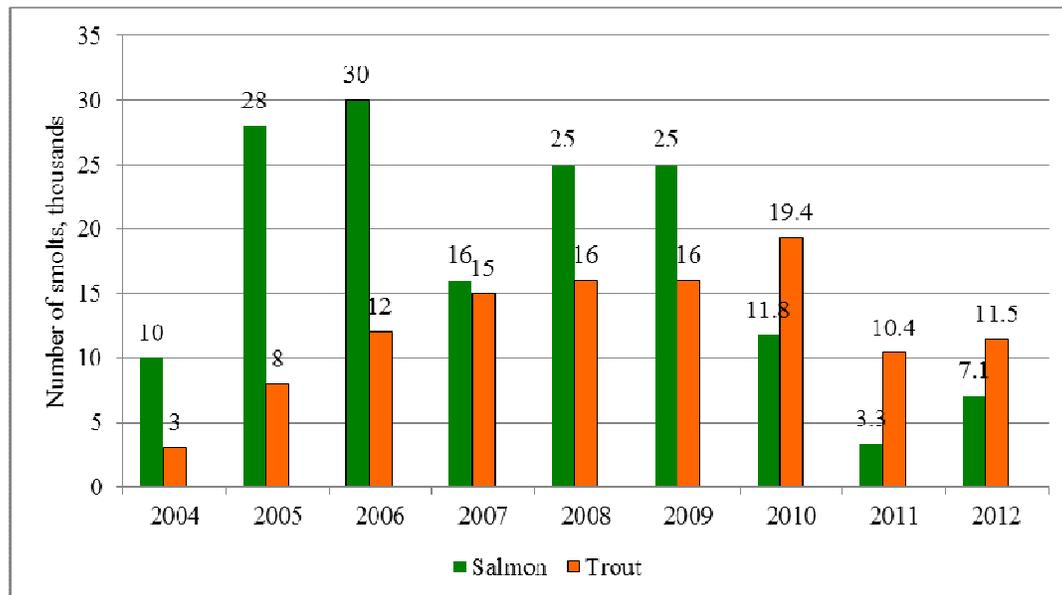


Figure 15. Number of smolts in Salaca River.

Source: The Institute of Food Safety, Animal health and environment – BIOR, 2013

Marine and coastal areas

The total length of coastline in Latvia is about 496 km, approximately 90% from it is covered by natural habitats, and the rest is covered with buildings. Great diversity of habitats and

species can be found along sea coast, for example it comprises 23 coastal habitats of EU importance. There are more than 40 territories along the Baltic sea and Riga Gulf coast in Latvia that have been designated as *Natura 2000* sites, three of these territories comprise also sea aquatorium. Seven marine *Natura 2000* sites are designated in Latvia. Main threats to biodiversity in coastal areas are: habitat degradation (due to tourism and recreational activities, illegal car and quad), habitat loss (due to housing and inappropriate management), expansion of invasive species and low environmental awareness. Two different marine areas (coastal areas and open sea areas) can be distinguished in Baltic Sea and Riga gulf ecosystem. Between these two the greatest biodiversity can be found in coastal areas where benthic algae stands grow. Main threats to biodiversity in marine areas are: eutrophication and invasive species.

Invasive species

According to information in European Network on Invasive Alien species there are 36 invasive species and 12 potentially invasive species in Latvia. [17] However information on invasive species has not been gathered systematically so far and is available only for some species: in the form of separate observations (e.g. *Percottus glehni*, signal crayfish) or studies (hogweed *Heracleum sosnowsky*) of invasive species in coastal area. The most problematic species which has caused the biggest damage is hogweed (*Heracleum sosnowsky*). It was introduced in Latvia in 1950-1960 as a cultivated plant for cattle feeding, but at the end of the 80-ties and beginning of 90-ties its distribution in Latvia went out of control. Nowadays it has spread almost all over the country invading more than 12 000 ha. Hogweed is the only species included in the national legislation on invasive species. Based on the Convention of Biological diversity and several national strategic programs, the Program of Localization of Distribution of Hogweed 2006-2012 was adopted by the Government in 2006 and in 2008 the Regulation on Localization of Distribution of Hogweed were adopted. [18]

Genetic diversity

By adopting the Convention on Biodiversity, Latvia has undertaken a commitment to preserve also the genetic resources. It is important for Latvia to preserve the genetic resources of the local varieties of agricultural animals, like Latvian blue cow and Latvian brown cow, Latvian white pig, etc., as well as the genetic resources of the local plant varieties with their characteristic features. The Program on Sustainable Use and Long-term Conservation of Genetic Resources of Plants and Animals, Forest and Fishes used in Agriculture and Food, 2007-2009 was adopted by the Government in 2007. [19] It is stated in the Program that following number of samples of genetic resources are being maintained:

- 53 vegetables from 13 species;
- 57 field crop and grasses species;
- 459 Latvian fruits and berry bushes from 13 species;
- 100 aromatic and vulnerary plants from 13 species.

Conservation program of genetic resources of agricultural animals is being realized by several non-governmental organizations, forest genetic resources are being maintained *in situ* as well as *ex situ*. From 2007 Latvia have EU support from Rural development program (2007 – 2013) measure “Agro – environment payments” to support farm animal genetic resources. [19]

Conservation of genetic diversity of wild plants and animals is responsibility of several botanical gardens and zoological parks, "National Botanic Garden" being the leading state scientific institution among them in the plant genetic diversity conservation, and the Riga Zoo in animal genetic diversity conservation. Microbial Strain Collection of Latvia holds over 700 cultures of microorganisms [20]. There are five botanical gardens and five zoos in Latvia. [21]

Main problems and threats in conservation of genetic resources are:

- lack of a unified legislative basis and a system of collection, description, conservation, analysis and use of genetic resources;
- shrinking proportion of the use of the local varieties, which endangers the gene pool of agricultural plants and animals as well as the agricultural biodiversity.

[19]

Chapter II – Status of national biodiversity strategies and action plans, their implementation, and the mainstreaming of biodiversity

Introduction

The first National Programme on Biological Diversity was adopted by the Government in 2000. It was supplemented with Action Plan containing list of detailed activities to be fulfilled in order to ensure biodiversity protection in each type of ecosystem and economic sector. Till 2003 the major part of activities enlisted in the Action Plan was fulfilled, the Action Plan was updated. In 2012 the National Development Plan of Latvia 2014-2020 was adopted defining also policy goals in biodiversity protection. In 2014 the Environmental Policy Concept 2014-2020 was adopted by Government and since the above mentioned National Programme on Biological Diversity is considered out-of-date, the Environmental Policy Concept (EPC) is the actual and the most important environmental planning document in force also covering biodiversity protection issues. [22]

A brief description of the NBSAP, identifying the main or priority activities

The EPC can be considered as the general policy planning document in environmental field. The overall goal of environmental policy defined in the EPC is to ensure the possibility for inhabitants to live in a clean environment, fulfilling sustainable development, maintaining environmental quality and biodiversity, ensuring sustainable use of natural resources as well as ensuring public participation in the decision making processes and information on environmental quality.

An indication of whether and where targets and indicators (both global and national) adopted under the Convention have been incorporated into NBSAPs

Since the EPC is the general environmental policy planning document, it contains only one quite general policy target per sector and almost no particular biodiversity indicators except one: a Farmland Bird index. The EPC target in nature protection is to ensure balance between nature protection interests and economic interests. A few of the priority activities enlisted to achieve this goal are:

- to update information on the specially protected species and habitat distribution of their goals and conservation status of the preparation of EU importance of protected species and habitat maps spread out and guidance for the management of habitats;
- to make management planning and implementation, coordinating conservation and socio-economic interests;
- to integrate management plans of specially protected nature territories and local spatial development plans;
- to activate fund raising for management of specially protected nature territories, including providing funding support and compensatory payments, including restrictions on economic activities and / or additional conditions in protected areas, etc.

Since 2009 national environmental indicators including 15 biodiversity indicators have been set in Latvian legislation. They have been elaborated according to specific national needs and conditions, but in general they are coinciding with Convention's indicators more or less covering these focal areas: Status and trends of the components of biological diversity, Sustainable use, Threats to biodiversity, and to a limited extent - Ecosystem integrity and

ecosystem goods and services. Most of biodiversity indicators are described in Chapter I of this report.

Information on how activities under the NBSAP contribute to the implementation of the articles of the Convention since the fourth report and the thematic programmes and cross-cutting issues adopted under the Convention

Activities enlisted in the EPC at the moment address only some issues of the Articles 6, 7, 8, 12, 13 and 20 of the Convention. It can be considered that EPC to a limited extent covers such Convention's thematic programmes as Agricultural Biodiversity, Forest Biodiversity and Inland Waters Biodiversity and such cross-cutting issues: Protected Areas, 2010 Biodiversity Target, Biodiversity for Development, Communication, Education and Public Awareness, Identification, Monitoring, Indicators and Assessments and Sustainable use of Biodiversity.

An overview of progress made in implementation of priority activities or action, focusing on concrete results achieved

Since the EPC is a new document there is no overview available of progress made in implementation of priority activities so far. Most of the policy results included in the previous policy planning document covering also biodiversity issues – National Environmental Policy Plan 2004–2008 – are achieved. For example – the network of protected territories of European importance *Natura 2000* was established, appropriate monitoring programme of *Natura 2000* site was developed and is being implemented, species conservation plans and management plans of protected territories have been and are being developed constantly.

An indication of domestic and/or international funding dedicated to priority activities

It is planned to use different types of funding resources (state budget, EU funding and private sector funding) to implement the activities enlisted in EPC. It is considered that due to economical situation in country, there will be not enough financial resources for co-financing in the near future and therefore only the most prior activities will be implemented. In 2012 Latvia has elaborated first draft of the Prioritised action framework as provided in the Article 8 of the EU Habitats directive. The Prioritised action framework includes listing of the priority actions to be implemented as well as estimates of the necessary funding and possible sources. The findings and information of the PAF have been used for the planning of the usage of the EU Structural funds 2014–2020 and the state budget.

An analysis of the effectiveness of NBSAPs, focusing on:

(i) Whether observed changes in status and trends in biodiversity (as described in Chapter I) are a result of measures taken to implement NBSAPs and the Convention

The legislation of Latvia's nature conservation is in line with the EU nature legislation and enforcing nature conservation requirements set in the EU directives is a priority. Nevertheless, since the goals of the Convention and EU directives largely overlap, it can be concluded that by implementing the EU directives, the Convention is also being implemented. The Convention is being more referred to in cases of conservation of genetic diversity.

The major part of activities enlisted in the first National Programme on Biological Diversity and its Action Plan was fulfilled. Also most of the policy results included in the previous policy planning document covering also biodiversity issues – National Environmental Policy Plan 2004–2008 – are achieved. Nevertheless the strategic goals of these both documents mostly have not been achieved. There are several reasons for that, e.g. – lack of political will and biodiversity issues not being set as a priority, growing economic pressure during the past 5 years which was not foreseen in the biodiversity planning documents and therefore was not

accordingly dealt with (no additional evaluations, instruments and human and financial capacity foreseen etc.).

(ii) Whether the current NBSAP is adequate to address the threats to biodiversity identified in Chapter I

As it is mentioned in subparagraph a) of this Chapter, the Environmental Policy Concept 2014–2020 is the only existing general environmental planning document at the moment, which, to some extent, covers also biodiversity conservation issues. Therefore it comprises one quite general policy goal (to ensure balance between nature protection interests and economic interests) in the field of biodiversity conservation and several future activities enlisted. Majority of the activities included in the EPC is aimed for creation of the necessary prerequisites for the improved incorporation of the biodiversity considerations into sectorial policies and land use plans.

National strategies and programs

Sustainable Development Strategy of Latvia until 2030 is the highest national long-term development planning document. Nature as a future capital is defined as one of the directions of strategic development. Sustainable Development Strategy of Latvia has several overall goals of the Strategy directly related to biodiversity:

- (1) to ensure adequate activities for conservation of biodiversity and ecosystems;
- (2) to ensure integration of environmental issues and to develop wide use of environmental policy instruments in other sectorial policies;
- (3) to ensure public involvement in sustainable development processes.

The particular targets of the biodiversity conservation sector are:

- to maintain and restore diversity of ecosystems and their natural structures;
- to maintain and enable diversity of local wildlife species;
- to maintain genetic diversity of wildlife species as well as cultivated plants and domestic animals;
- to facilitate conservation of traditional landscape;
- to ensure sustainable use of natural resources. [23]

National Development Plan of Latvia (2014–2020) was approved by the Government in 2012 and it is the highest medium-term development planning document. The objective of the plan is to facilitate a balanced and sustainable development of the country, as well as to ensure an increase of Latvia's competitiveness. The strategic goal of the National Development Plan (NDP) is – education and knowledge for the growth of the national economy and technological excellence. The priorities of the NDP are:

- An educated and creative individual;
- Technological excellence and flexibility of companies
- Development of science and research.

The chapter “Prerequisites for sure and sustained development” of NDP presents the most important areas for the achievement of the strategic objective, the chapter “Reasonably used and well-preserved natural environment” being among them. This chapter includes also several tasks related to biodiversity:

- (1) to facilitate the preservation and reasonable use of biological diversity and protected territories;
- (2) to promote the inclusion of the protected territories into the economic development determining different prohibited zones of economic activities and substantiating the socio-

economic decisions in their determination, as well as to attract financial resources for their management;

(3) to encourage public participation in environmental protection and preservation by providing timely and true information to the local inhabitants about environmental quality and natural resources;

(4) to facilitate the development of environmental education, as well as to foster education for sustainable development and to raise environmental awareness among the general public;

(5) to support sustainable development of the natural environment for recreation purposes and to promote ecotourism;

(6) to facilitate evaluation, mitigation and monitoring of the risks to nature, including climate change and industrial risks. [24]

Declaration of the Intended Activities of the Cabinet of Ministers (adopted in 2014) is the document of political guidelines. In order to implement this Declaration the Cabinet of Ministers develops and approves the **Government Action Plan** (adopted in 2014) with particular tasks, time schedule and indicated responsible institutions. Tasks related to biodiversity conservation are:

(1) Adopt environmental policy guidelines by defining the main objectives and activities for the development of the environmental policy during the next seven years;

(2) To protect biodiversity, providing a single specially protected nature areas, as well as endangered species and habitats outside protected nature areas;

(3) We will continue to implement projects in energy and water sectors, as well as an effective waste management system. [25]

Cross-sectorial plans, programs and policies

The Spatial Development Concept of the Coastal Zone (2011–2017)

The Concept:

- includes an overview of existing situation and problems in the coastal area,
- defining values of national importance in the coastal area;
- defining unified goal of conservation and development of the coastal area;
- determining policy principles and actions are implemented from 2011–2017. [26]

The Land Use Policy Concept (adopted in 2010) is a medium term policy planning document defining targets, principles and results of land use policy, problems to be solved and necessary actions. This Concept includes biodiversity issues to some extent, for example, issues on biodiversity conservation in agricultural lands which are not used for agricultural purposes and issues of land fragmentation (particularly forest lands) are highlighted in a descriptive part of the Concept. Conservation of biologically valuable territories is highlighted as one of the policy results. [27]

Sectoral strategies and programs

Environment

The Environmental Policy Concept has been already described in the Chapter I of the report.

The National Climate policy (adopted in 2012), primary goal is to be achieved by implementing several activities, e.g.:

- 1) increase the share of renewable energy sources in the energy balance;

- 2) promotion of the implementation of environmentally sound agricultural methods that reduce direct GHG emissions;
- 3) increase CO₂ removals in forestry.

It is highlighted in the Programme that development of small hydro-electric power stations has to be balanced with requirements of nature conservation and conservation of fish resources. It is also indicated that nature conservation requirements have to be taken into account in ecologically valuable and vulnerable territories. [28]

Economy

The overall goal of the **Latvian National Lisbon Programme (2005–2008)** is to facilitate employment and development of the country. The Programme is a policy planning document which shows how, in 2005-2008 Latvia reaches the Lisbon strategy goals on the basis of the Integrated Guidelines, approved by the European Council in July 2005. To maintain biodiversity on existing level is one of the activities included in the Programme to ensure sustainable use of natural resources. Each year a report of progress of implementation of the Programme is prepared as well as new tasks and activities added. Programme still is valid. [29]

Energy

The Concept of Energy Sector Development (2007–2016) includes some information on restrictions for nature conservation purposes in energy development. [30]

Communication, transportation

The Transport Development Concept (2014–2020) describes situation, problems, policy goals and actions in transport sector. Nature and biodiversity issues are not reflected in this Concept. [31]

Agriculture

The updated Rural Development National Strategy Plan of Latvia (2007–2013) is a middle term policy planning document pursuant to the Regulation of EC on support of Rural Development by the European Agricultural Fund for Rural Development. The objective of the Plan is - prosperous people in sustainably populated countryside of Latvia - for the achievement of which the following four activity directions are identified:

- 1) Development of Capacities of Rural People;
- 2) Enhancement of Labour Generated Income in Rural Territories;
- 3) Sustainable Management of Rural Natural Resources;
- 4) Development of Rural Living Environment. [32]

The Rural Development Program for Latvia 2014–2020 (draft, not adopted yet) is prepared and going to be adopted to achieve the objectives set out in the National Rural Development Strategy Plan, conditions and activities consistent with utilization of Community's and Latvia's financial resources. Program has been referred to the need for identification:

- (1) Increase the knowledge of agriculture, forestry, food industry employees and other rural entrepreneurs.
- (2) To promote the development of innovative products for agriculture, food production and forestry.
- (3) Promote farms, especially small and medium-sized, competitive, increasing their manufacturing productivity and to support co-operation and market access.
- (4) Reconstruction of drainage systems in agricultural and forest lands.

- (5) Food production strengthening enterprise competitiveness, increasing agricultural value-added products and market opportunities.
- (6) Organically produced agricultural product sales, improving the promotion of co-operation and increasing the share of processed products.
- (7) “Slow food” movement support.
- (8) Environmental Pollution Prevention and maintenance of soil fertility.
- (9) Conservation of biodiversity in agricultural and forest lands.
- (10) Unequal climatic and natural conditions preventing the consequences of agricultural production.
- (11) Unused agricultural land in productive use provision.
- (12) Underdeveloped forest fire monitoring system.
- (13) Increasing CO₂ sequestration in forest lands.
- (14) To promote the reduction of GHG emissions in agriculture.
- (15) Rural areas in population conservation, standard of living, employment and the availability of services.
- (16) Improve agricultural production-related quality of rural roads.
- (17) Promotion of public social activities, including education, culture, sports and recreation areas.

The Program includes description of Latvia’s biodiversity and protected territories and these issues are also recognized as one of the strengths in SWOT analysis. There are several activities (e.g. *Natura 2000* payments (both in agricultural and forest lands), payments for maintaining biodiversity in biological grasslands, preservation of genetic resources of farming animals) in the Program directed towards biodiversity conservation. Implementation of the Rural Development Program is co-financed by the EU Rural Development Fund. [33]

The general objective of **The Fisheries Development Plan of Latvia (2014–2020)** (draft, not adopted yet) is to ensure sustainable use of fish resources for benefit of future generations and to ensure prosperity of people involved in fisheries. Short information of Latvia’s protected territories is included in the Plan. A few activities of the Plan are directed towards biodiversity conservation (e.g. restoration of fish spawning areas, building and improvement of fish-passes). Implementation is co-financed by European Fishery Fund. [34]

Forestry

Latvian Forest Policy (adopted in 1998) defines the long-term strategic and tactical goals and principles of forest sector development. The overall goal of the Policy is the sustainable management of forests and forest lands. The goal of the Policy particularly regarding biodiversity is the preservation and maintenance of biodiversity at the current level. [35]

The Corporate Strategy of the State Stock Company “Latvijas Valsts meži”. Latvian State Forests (LVM) is the largest forest manager in the country. The LVM goal in nature conservation and environment protection is: “to conserve biological diversity (genetic resources, rare and endangered species and ecosystems) and protect the related environmental values like soils, waters, and landscape”. Several tasks to achieve the goal are given in the Strategy, inter alia:

- In the forests under management systematically identify the sites essential for the conservation of protected species and habitats;
- Elaborate individual management plans for the forest areas having special management goals:
 - 8-10% of forests are managed for biodiversity conservation, excluding there any management or planning only the activities necessary for maintaining and enhancing the biodiversity;

- 10-12% of forests are managed for protecting the environment components like waters, soils and landscape, and maintaining the forest's recreational values and cognition opportunities essential for the public;
- Works for the implementation of the model for landscape ecological planning;
- Assess and within limits possible reduce the impact of management activities on the environment, reducing to the minimum the use of chemical plant protection agents in forests; since 2005, the using in forest operations only biodegradable oils. [36]

Tourism

The Concept of Latvian Tourism Development (2014–2020) the target of the previous Concept was to ensure increase of tourism proportion in Latvian Gross Domestic Product. One of the basic tasks of development of the sector is brought in tourism product development and competitiveness. In future tourism product development is based on the seven core values - quality, sustainability (environmentally friendly technology and the introduction of access), individualization, high value-added, cooperation, tourist involvement/experience through cooperation and competitiveness. On the tourism development policy objectives are defined Latvian sustainable tourism development, promoting tourism to increase competitiveness in foreign markets. [37]

Education and science

Biodiversity and nature conservation are not directly reflected in policy documents regarding education and science.

Research, technological development and innovation: Smart Specialization Strategy, research and development initiatives (2014 – 2020)

Latvian policy for the Smart Specialization Strategy – principles:

Effective coordination between knowledge specialization and capabilities of industry to leverage on such specialization, ensuring that building of excellence in research and development is partly led by and followed by “entrepreneurial discovery”, taking into account existing capacity of embedded sectors and their potential for growth;

- Increasing the knowledge pool in the areas of specialization through focusing, international cooperation and knowledge acquisition;
- Economic policy that promotes the absorption of knowledge in companies and stimulates private research, development and innovation investments;
- Promoting knowledge transfer and closer cooperation between universities, research institutions and enterprises;
- Promoting social innovation at all levels of government and society in general. [38]

The Science and Technology Development Concept (2009 – 2013) were elaborated to set the policy targets and priorities in development of science and technology. One of the policy principles mentioned in the Concept is that development of science and technology is determinant for sustainable development of Latvian economy, prosperity and maintenance of natural resources. [39]

One of the problems identified in the **Education Development Concept (2014-2020)** is insufficient number of students in natural sciences, engineering and technologies. The task to deal with this problem is to increase the number of students financed by the state budget in natural sciences, engineering, medicine and environmental sciences. [40]

Defence

The goals of **Environment Strategy 2011–2015 of the Ministry of Defence and National Armed Forces** are: maintain high environment quality standards; reduce the pollution and sustainable use of natural resources. Regarding biodiversity conservations the targets are:

- to ensure implementation of nature conservation requirements and to ensure conservation of protected species and habitats;
- to maintain ecosystems, biodiversity and social and heritage values.

A good example of biodiversity conservation in defence sector is the LIFE Nature project “Restoration of Biological Diversity in Military Training Area and *Natura 2000* site “Ādaži”” administered and implemented by the State Agency for Defence Properties under the Ministry of Defence from 2006-2009. Project had 3 main objectives:

- Integrate nature conservation and military interests.
- Restore the Military Training Area’s *Natura 2000* values to, and maintain them at, a favourable conservation state.
- Educate military personnel and cooperate with military *Natura 2000* site managers.

The main activities implemented during the project are:

- management plan for the *Natura 2000* site “Ādaži” developed and approved;
- more than 1000 ha of dry heath habitat restored;
- 1400 ha cleaned up of unexploded ammunition;
- 1000 military personnel received training on nature conservation issues;
- Open-door event organized with more than 600 participants.

Another good example of cooperation is the LIFE Nature project “Birds in Adazi” administered and implemented by the State Agency for Defence Properties under the Ministry of Defence from 2014-2017. Project had 3 main objectives:

- to restore in the Adazi *Natura 2000* site, the breeding and/or foraging habitats of Birds Directive Annex I bird species and Habitats Directive listed heathland and bog habitat types;
- to enhance conditions for the long-term sustainability of the *Natura 2000* designated features within the site through comprehensive conservation and management planning, taking into account the needs and capacity of land owners and managers, and including awareness raising programmes for these owners and managers, as well as visitors to the site;
- to promote cooperation and international networking with other managers of military *Natura 2000* sites and institutions working with similar species and habitats. [41]

A review of successes and obstacles encountered in implementation and lessons learned

Success

The most significant success was elaboration and adoption of the first National Biodiversity Program (supplemented by the Action Plan) in 2000. Different other sectoral plans and programs elaborated afterwards incorporated information and priorities set in the National Biodiversity Program. Till 2003 the major part of activities enlisted in the Action Plan was fulfilled. In 2014 the Environmental Policy Concept 2014–2020 was adopted by Government, there are main targets and priorities according to the current situation and future plans

Another significant success was establishment of *Natura 2000* network in 2004 and improvement of system of national protected territories accordingly. The *Natura 2000* network was established based on the existing network of protected territories, it was

reconsidered and 109 new protected territories were designated, but 48 existing protected territories were amended/ enlarged. The protected territories now cover 11% of country terrestrial area (not including biosphere reserve (7% of country area)).

Establishment of compensation mechanism for forest management in protected territories for private land owners was included as one of the priority actions in the previous National Environmental Policy Plan (2004–2008). The respective law and government regulations were adopted in 2006 and system of compensations came into operation. This was a great success in nature conservation in Latvia, which also positively changed attitude of land owners towards nature protection. From 2006–2008 compensations for forestry restrictions in approximately 2300 ha were paid. In 2013 Government adopted Law of Compensation for restrictions on economic activities in protected areas. The new Law and regulations determinates the new compensation mechanism in protected territories for land owners.

Attraction of funding from the EU LIFE Nature and EU ERDF programs can be mentioned as another great success. From 2001 (when funding from the EU LIFE programs became available for Latvia) till 2014, 27 LIFE projects were implemented for the protection of the biodiversity. A lot of different habitat and species habitat management and restoration activities in different protected territories have been implemented through these projects, informational/educational materials published, management plans elaborated, etc. Local municipalities, land owners and other stakeholders were largely involved in implementation of these projects through development of management plans for protected territories, through implementation of practical management activities etc. Also significant number of tourism infrastructure elements (information centers, nature trails, view towers, information signs etc.) were created within the EU LIFE and EU ERDF projects.

A very successful example of involvement of general public in biodiversity conservation issues is the public monitoring program elaborated and implemented during the GEF/UNDP co-financed project “Biodiversity protection in North Vidzeme Biosphere Reserve” (2005–2009). Inhabitants of the Biosphere Reserve were invited to obtain and submit information in given questionnaires on different species (some rare, some common), agricultural activities, distribution of invasive species etc. in their property or neighborhood. There was quite a large response from inhabitants and a lot of information within the territory of the Biosphere Reserve was collected.

Obstacles

Although there are several great achievements in the implementation of nature legislation and policy documents, nature conservation still is not a priority for the government. In nature conservation sector implementation of the requirements of the EU directives is the priority. Another well-known and traditional obstacle is economical pressure and the fact that nature conservation is mostly seen as a restrictive issue. It derives from lack of information on biodiversity values and benefits and insufficient communication on nature issues to the politicians and general public. This, in its turn, derives from lack of human and financial resources. Insufficient incorporation of biodiversity issues into sectoral strategies and programs can be considered as another important obstacle and even if sometimes it has been incorporated, in reality it has been given low priority or has remained just as a declarative issue.

Chapter III - Progress towards the 2020 Aichi Biodiversity Targets and contributions to the relevant 2015 Targets of the Millennium Developments Goals

Progress Towards the 2020 Aichi Biodiversity Targets

<i>Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society</i>			
Target 1			
By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.			
Target implementation (Low/Medium/High)	status	Medium	
Assessment of the rate of progress in reaching this target (A/B/C)	B		
<p>There are no specific national target and indicators developed for Target 1.</p> <p>In overall environmental education and education for sustainable development are parts of school and universities programmes according to Environmental Protection Law, [42] Section 42.</p> <p>Nature territories, nature education centres, museums, national funds for nature projects and NGO ensure large part of the general nature protection awareness of the public. For example, every person is welcome to report on wild flora and fauna observations on special home page – http://dabasdati.lv/en/ created by NGO`s since 2008. As well as to engage in public monitoring programme for nature objects coordinated by Nature Conservation Agency. [21]</p> <p>Nature Concerthall should be mentioned as well as a specific annual outdoor relaxing and educational multimedia performance since 2006. It was named as best environmental campaign of the European Union 2012 by the EU “Green Spider Network”. Nature Concerthall is aimed at raising public awareness about the importance of different species in our environment and our responsibility to take care of and to maintain biodiversity. This is achieved by using a multidisciplinary approach involving scientists and professional artists from many sectors.</p> <p>One of the examples of the public awareness and action is designation of their territory as free from growing the genetically modified crops by almost all local governments. [43]</p> <p>Specific information and communication are provided for different parts of society, for example to private persons and local municipalities that hold around 60% of nature protected territories on land.</p> <p>In 2010, the book “Protected habitats of Community Importance in Latvia. Identification manual” was released, with 2nd revised version in 2013 also in English. In this book, the criteria and methods were specified. This facilitates the development of unified understanding among experts and inventory process. [44]</p> <p>The Environmental Policy Concept (2014 – 2020) has actions to involve science community to evaluate the nature capital.</p>			
Target 2			
By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being			

incorporated into national accounting, as appropriate, and reporting systems.	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
<p>There are no specific national targets and indicators developed to evaluate overall realization of the Target 2.</p> <p>The capitalization of nature resources is suggested by Sustainable Development Strategy of Latvia until 2030.</p> <p>The Environmental Policy Concept (2014 – 2020) has actions to involve science community to evaluate the nature capital.</p> <p>Most of the sectoral policies can indicate a process of implementation of the nature protection measures stated into their policy documents and legal acts. Including an environmental impact assessment of the sectoral policy documents and projects as a horizontal takeover. Since 2012 projects have been started for integration of the spatial planning of the protected nature territories and local municipalities in national scale. [45]</p> <p>Estimation of the overall nature protection interrelation and progress between policy sectors still needs to be developed, including biodiversity value incorporation into national accounting and reporting systems.</p>	
<p>Target 3</p> <p>By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.</p>	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
<p>There are no specific national targets and indicators developed to evaluate overall realization of the Target 3. Incentives related to Target can be viewed as part of nature protection policy itself and its integration into sectoral policies (including Target 2, 7 as well as actions planned by EU Biodiversity Strategy to 2020).</p> <p>A green budget reform including right subsidies is suggested by „Sustainable Development Strategy of Latvia until 2030”.</p> <p>The Environmental Policy Concept (2014 – 2020) plans for more direct use of the finances of the natural resources tax to the environmental benefit.</p> <p>Financial compensations for having strict nature protection zones and EU payments for management of the biologically valuable grasslands and Natura 2000 forests for land owners are part of activities dedicated for the Target.</p>	
<p>Target 4</p> <p>By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.</p>	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in	B

reaching this target (A/B/C)																
No specific indicators are developed to measure this Target. Some part of its realization can be shown by Target 1.																
An ecological footprint account for households and financial promotion for sustainable enterprises as well as ecological footprint as indicator are suggested by „Sustainable Development Strategy of Latvia until 2030”. There the reduction of an ecological footprint from 3,5 ha per inhabitant to less than 2,5 ha in 2030 is envisaged.																
The Environmental Policy Concept (2014 – 2020) envisages an implementation of the National EU Programme “Promotion of the sustainable lifestyle by development of the public “green” awareness”.																
Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use																
Target 5																
By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.																
Target implementation status (Low/Medium/High)	Low															
Assessment of the rate of progress in reaching this target (A/B/C)	A															
Status of protected habitats and species of the European Union according to 2 nd national report for the period 2007-2012:																
<table border="1"> <thead> <tr> <th>Status</th> <th>Number of biotopes</th> <th>Number of species</th> </tr> </thead> <tbody> <tr> <td>unknown</td> <td>2</td> <td>14</td> </tr> <tr> <td>unfavourable-bad</td> <td>29</td> <td>25</td> </tr> <tr> <td>unfavourable-inadequate</td> <td>20</td> <td>43</td> </tr> <tr> <td>favourable</td> <td>6</td> <td>32</td> </tr> </tbody> </table>		Status	Number of biotopes	Number of species	unknown	2	14	unfavourable-bad	29	25	unfavourable-inadequate	20	43	favourable	6	32
Status	Number of biotopes	Number of species														
unknown	2	14														
unfavourable-bad	29	25														
unfavourable-inadequate	20	43														
favourable	6	32														
In the period 2007-2012 national Natura 2000 network has been extended by 4 182,54 km ² and at the present, the total area of Natura 2000 is 11 863,96 km ² , including seven protected marine areas.																
In 2007-2012 nature management plans have been adopted for 53 Natura 2000 sites (18,5% of the total area of Natura 2000 sites). Until now, nature management plans have been adopted for 126 Natura 2000 sites (54% of the total area of Natura 2000 sites). During this period, eight species protection plans have been adopted.																
Related actions of The Environmental Policy Concept (2014 – 2020) are:																
<ul style="list-style-type: none"> – national mapping of the distribution of the species and biotopes of the EU concern; – respective target setting for their protection; – development and implementation of protection plans for species, biotopes and nature territories; – restoration of biotopes according to Natura 2000 management programme. – integration of the management plans into land use plans of the local municipalities 																
An important policy area to sustain the biodiversity within the agriculture land will be the implementation of the <i>greening</i> of the European Union Common Agriculture Policy payments.																
Target 6																
By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested																

sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
An additional evaluation would be necessary to assess the complete status and trends for the Target.	
National implementation of the Common Fisheries Policy of the European Union is an everyday process and national policy documents and legal acts largely are in place. In the same time a full achievement of the Target will depend on practical implementation of the policy and ecosystem based approaches.	
A full implementation of existing national river basin management plans and their development for 2016-2021 as well as elaboration of Marine Strategy are planned by Environmental Policy Concept (2014 – 2020).	
Target 7	
By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
Most of the sectoral policies can indicate a process of implementation of the nature protection measures stated into their policy documents and legal acts. Including an environmental impact assessment of the sectoral policy documents and projects as a horizontal takeover. Estimation of the nature protection interrelation and progress between these policy sectors still needs to be developed.	
There are legal regulations prescribing requirements for protection of certain structures, e.g.: - protection of sea shores and rivers with their banks; - requirements for fishery - catching, utilization, research, conservation, enhancement and monitoring of fish resources in inland and territorial marine waters; - requirements for forestry – preservation of dead wood and trees from previous forest stand generation, restrictions for cutting of forest patches allocated in certain distance from forest massifs, limited cutting on river banks; - hunting conditions – to ensure the protection and preservation of the population of game animal species and their habitat; - legislation on agriculture and rural development to facilitate sustainable agriculture and rural development; - requirements for species reintroduction for the preservation and restoration of the species; - protection of alleys etc.	
Target 8	
By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
National policy documents and legal acts necessary for the implementation of the European Union waste, air, soil, water policy largely are in place. In the same time a full achievement of	

the Target will depend on practical realization of the policy and its effect on the environment. Additionally an effect of the environment around country and historic pollution are factors of influence, too.	
Target 9 By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
Target will be approached according to new regulation of the European Union, the EU Biodiversity Strategy and by use of the existing national experience and data of the monitoring and research.	
Target 10 By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
Target implementation status (Low/Medium/High)	-
Assessment of the rate of progress in reaching this target (A/B/C)	-
Not applicable.	
<i>Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity</i>	
Target 11 By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
<p>The territory of Latvia belongs to the Baltic Sea and Boreal biogeographical regions of the European Union. In 2012, there were 332 Natura 2000 sites in Latvia with the total area of 1 224 137 hectares from which 787 730 hectares are terrestrial sites (325 sites), and 436 407 hectares – 7 marine sites (since 2011).</p> <p>Terrestrial Natura 2000 sites cover ca. 12 % of the country's area; marine Natura 2000 sites cover ca.34 % of the coastal marine area of Latvia and ca.1% of exclusive economic zone of Latvia.</p> <p>Total coverage of specially protected nature territories (including biosphere reserve) is ca.17% of the territory of Latvia.</p> <p>Related actions of “The Environmental Policy Concept (2014 – 2020)” are:</p> <ul style="list-style-type: none"> – national mapping of the distribution of the species and biotopes of the EU concern; – respective target setting for their protection; 	

<ul style="list-style-type: none"> – development and implementation of protection plans for species, biotopes and nature territories; – restoration of biotopes according to Natura 2000 management programme. 	
<p>Target 12 By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.</p>	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
See Target 5.	
<p>Target 13 By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.</p>	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
The existing policy implementation of the international agreements and national policy for genetic diversity will be supplemented with the measures of the Nagoya Protocol.	
<i>Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services</i>	
<p>Target 14 By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.</p>	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
While “ecosystem services” is relatively new policy concept for national nature protection policy, some other Targets support this Target already by conserving nature and preventing pollution. The operational program for the use of the EU Structural funds 2014-2020 provides funding for the restoration of the most affected ecosystems – grasslands, wetlands, dunes and forests. Priorities for the restoration will be set within the framework of the LIFE+ funded project: NAT-PROGRAMME - National Conservation and Management Programme for Natura 2000 Sites in Latvia (LIFE11 NAT/LV/000371). [46]	
<p>Target 15 By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.</p>	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
See Target 10.	

The operational program for the use of the EU Structural funds 2014-2020 provides funding for the restoration of the most affected ecosystems – grasslands, wetlands, dunes and forests. Priorities for the restoration will be set within the framework of the LIFE+ funded project: NAT-PROGRAMME - National Conservation and Management Programme for Natura 2000 Sites in Latvia (LIFE11 NAT/LV/000371). [46]	
Target 16 By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
Nagoya Protocol will be implemented according to respective regulation of the European Union and to the Protocol itself. [47]	
<i>Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building</i>	
Target 17 By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
“The Environmental Policy Concept (2014 – 2020)” has been adopted in March 26, 2014 by the Cabinet of the Ministers. Concept contains 15 actions directly targeted to the nature protection besides others within related environmental issues. [22]	
Target 18 By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
Realization of the Target is largely complemented by activities for the Target 1.	
Target 19 By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	
Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B
The Environmental Policy Concept (2014 – 2020) widely recognizes the importance of the	

issue of the Target and has planned actions to involve science community to evaluate the nature capital.

There are six priority areas for the science 2014-2017 defined by the Cabinet of the Ministers (November 20, 2013). One of them is: „Environment, climate and energy” (aiming research inter alia for sustainable use of the natural resources, for detection of the economic value of the ecosystems and for an analyses of the future protection measures of the biodiversity and ecosystems).

Target 20

By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

Target implementation status (Low/Medium/High)	Medium
Assessment of the rate of progress in reaching this target (A/B/C)	B

An annual development assistance (contributions to international nature protection agreements and international development projects) of about 30 000 euro can be reported in the period from 2006 to 2010.

The EPC includes also the target for the resource mobilization for the implementation of the biodiversity related measures in Latvia. The EPC envisages the increase of the funding for the protection of biodiversity from 14 euro/ha/year (in 2013) to 50 euro/ha/year (in 2020), taking into account all available sources of funding.

Contributions to the 2015 Targets of the Millennium Development Goals

Each UN member nation adapts the Millennium Development Goals to domestic conditions, develops goals, targets and indicators suitable for its own country and follows progress towards achievement of these Goals. Latvia’s Goals are realistic, but they are also challenging enough to serve as points of reference in discussions about policy changes needed to improve Latvia’s future. The indicators make it possible to identify problems which exist alongside positive development trends.

The environment sustains human life and provides the basis for all future development. At present, the impact of human activities on the environment is negative, and the global population is continuing to increase. Both these circumstances make it difficult to plan and ensure environmental sustainability. A complex approach to economic, social and environmental issues is the basic principle of sustainable development.

Sustainable development has been defined in the 1987 report of the UN Joint Committee on Environment and Development, *Our Common Future*. Sustainable development – development that serves the long term interests of society by meeting the needs of the present without compromising the ability of future generations to meet their own needs. It is development that serves the long-term interests of society. Sustainable development is possible only if policy is planned, rationally managed and continuous at global, regional and local levels. For this reason, specific documents on environmental issues and sustainable development have been adopted at all policy levels.

For example:

- o UN: *Agenda 21*, the Millennium Declaration, the Convention on Biological Diversity, the Framework Convention on Climate Change, the Kyoto Protocol;

- EU: the Lisbon Strategy, the EU Sixth Environmental Action Programme, the EU Sustainable Development Strategy;
- Latvia: the Environmental Policy Concept (2014 – 2020) Latvia’s Policy Guidelines on Sustainable Development.

Forests are a source of livelihood for 1.2 billion people across the world living in extreme poverty. However, due to inefficient management, forests are shrinking and now cover only 30% of all land. Since forests account for as much as 90% of terrestrial biodiversity, inefficient management of forests poses a serious threat to global biological diversity.

Although the proportion of land area covered by forests shrank worldwide to 30% in 2000, in Latvia 45% of the territory is covered by forests. Latvia is one of the most wooded countries in Europe, with per capita forest area exceeding the European average 4.5 times. Forests play a major role in the Latvian economy, they reduce the concentration of CO₂ in the atmosphere, and they provide opportunities for recreation.

The main objectives of Latvia’s forest policy are:

- to protect the biological diversity and quality of Latvia’s forests in order to maintain a positive climate and water regimen, and to prevent soil desiccation;
- to support afforestation of non-arable land in order to increase absorption of carbon dioxide (to purify the air);
- to promote exploitation of wood and wood products;
- to educate forest owners, managers and the public about the biological diversity and ecological importance of forests.

The world is growing warmer. Temperature increases are projected to be in the range of 1.4 to 5.8 degrees Celsius between 1990 and 2100, causing floods and other disasters. 18 of the estimated 6 to 7 billion tons of CO₂ released each year by human activity, about 1/3 is absorbed by oceans and another third by plants. The rest is released into the atmosphere, causing the so-called greenhouse effect. Most of the CO₂ emissions are caused by burning fossil fuels – coal, oil, natural gas. In the last 100 years, depletive management of forests and natural resources has been the major reason for climatic changes. This is why people have started exploring the economic use of natural resources and environment-friendly technologies. To ensure environmental sustainability, it is important for Latvia to meet the following targets:

- to integrate principles of sustainable development into sectoral policies.
- to prevent the depletion of natural resources.
- to provide safe drinking water for the population.

One of the concepts for sustainable development strategy is dematerialization – increasing human welfare, while simultaneously reducing material consumption and exploitation of resources. Occurrence of dematerialization in any specific sector or in the economy as a whole is called decoupling. For example, the term “decoupling of the economy” indicates that economic development no longer depends solely on material consumption. Dematerialization can be achieved by developing the services sector and knowledge-intensive production.

The level of dematerialization is measured by eco-efficiency indicators. These show the rate of economic growth, the consumption of resources and the amount of pollution caused during this period. The main sectors of the economy: energy, industry, transportation, construction, fisheries, agriculture, etc. should be constantly monitored to ensure environmental sustainability. [48]

Progress towards the Goals and Objectives of the Strategic Plan of the Convention

There is no particular plan for implementation of the Strategic Plan of the Convention, but some of its goals and objectives, based on national needs, are incorporated in the National Environmental Concept 2014-2020. For example, National Environmental Concept contains, among others, the following activities: to facilitate researches on impact of different management activities to favourable conservation status of species and habitats, to raise public awareness on biodiversity protection issues, to facilitate involvement of local municipalities and NGO`s in management of protected territories.

An analysis of lessons learned regarding implementation, highlighting examples of successful and less successful actions taken

All in all it has to be admitted that there are much more success in implementation of the first objective of the Convention - conservation of biodiversity - than in implementation of the rest of Convention`s objectives – sustainable use of components of biodiversity and equitable sharing of the benefits arising out of the utilization of genetic resources.

A significant success is establishment of *Natura 2000* network in 2004 and improvement of system of national protected territories accordingly. The *Natura 2000* network was established based on the existing network of protected territories, it was reconsidered, 109 new protected territories were designated and 48 existing protected territories were amended/enlarged. The protected territories now cover 11,5% of state terrestrial area (not including biosphere reserve (7% of state area)).

According to the legislation a management plan for each protected territory can be prepared and every nature management activity undertaken in the territory has to be in compliance with it. A procedure of elaboration (including public involvement) and content of the management plan is also described in the legislation. The management plan includes description and analysis of nature values in each particular territory, defines nature protection targets and describes existing and possible threats and necessary management activities. By 2014 180 protected territories have management plans approved, some of them are fully implemented and a part of them are implemented partially.

Attraction of funding from the EU LIFE Nature and EU ERDF programs can be mentioned as another great success. From 2001 (when funding from the LIFE program became available for Latvia) till 2014, 27 LIFE projects were implemented for the protection of biodiversity. A lot of different habitat and species habitat management and restoration activities in different protected territories have been implemented through these projects, informational/educational materials published, management plans elaborated. Local municipalities, land owners and other stakeholders were largely involved in implementation of these projects through elaboration of management plans for protected territories, through implementation of practical management activities etc. Also significant number of tourism infrastructure elements (information centers, nature trails, view towers, information signs etc.) were created within the EU LIFE and EU ERDF projects.

Communication of nature conservation issues can be mentioned as a less successful example since there is no communication strategy elaborated and implemented. Although the attitude towards nature protection has slightly changed (has become more positive) when payments from the Rural Development Program and national compensations for forest landowners started, and also when different large-scale projects were implemented, it is still quite negative, especially among sectoral institutions and politicians.

A summary of future priorities and capacity-building needs for implementation of the Convention

One of the most important problems in implementation of nature Conventions as well as the EU Directives is lack of appropriate information/researches on biodiversity conservation and particularly on protected territories (management efficiency, costs and benefits, ecosystem services etc.), so in the nearer future we have to focus on facilitation and development of appropriate studies/projects. More attention also should be paid to integration of biodiversity issues in sectoral plans and programmes. Another important issue which has to be dealt with in the nearer future is education and awareness rising on biodiversity issues of general society. The main obstacle to implement all these futures priorities is lack of human and financial resources, as well as lack of political will.

Conclusions

An overall assessment of whether the implementation of the Convention has had an impact on improving conservation and sustainable use of biodiversity, and the fair and equitable sharing of benefits arising out of the utilization of genetic resources, in their country

Conservation of biodiversity

Based on the Convention, the National Biodiversity Programme was elaborated and approved in 2000 covering almost all of the Convention's goals and targets and including a wide list of priority activities (Action Plan). During the next few years almost all activities undertaken in the biodiversity conservation were coincident with the Programme and its Action Plan.

By accession to the European Union in 2004, Latvia faced major changes in legislation and shifted priorities towards Europe-scale approach to nature conservation. Most effort was put on approximation of the EU legislation. Protection of biodiversity gained higher profile in Latvia as a network of specially protected territories of the EU importance *Natura 2000* sites was established, stronger requirements for assessing potential impact of economical activities on species and habitats were required, and EU LIFE funding for nature conservation activities was and still is available to Latvia, among others. Since the requirements of the EU nature legislation are largely overlapping with the Convention goals and targets, we can say that by implementing EU nature legislation the Convention is being implemented as well.

To implement the provisions of the Article 7, National Monitoring Program was prepared initially in 2009, then revised and adopted with the title "Environment Monitoring Programme" in 2009 - 2012 including monitoring of biological diversity and requirements provided by the EU biodiversity legislation.

To implement the Article 18, Latvia has elaborated National Information and Cooperation Network (CHM). This information system supports thematic and cross- sectoral issues of the Convention; information on species and habitat diversity in Latvia is published on the home page <http://biodiv.lvgma.gov.lv/>.

The Convention's goals and targets to some extent have been included in several very important sectoral plans and programs, e.g.: Rural Development Program 2014-2020, National Forest Policy and The Spatial Development Concept of the Coastal Zone (2011-2017). The Concept of Coastal Zone:

- includes an overview of existing situation and problems in the coastal area,
- defining values of national importance in the coastal area;
- defining unified goal of conservation and development of the coastal area;
- determining policy principles and actions are implemented from 2011-2017.

The attitude of general public towards protected territories has slightly changed (has become more positive) when payments from the Rural Development Program and national compensations for forest landowners started.

Sustainable use of biodiversity

To ensure sustainable use of biodiversity is much more complicated issue because of the economical pressure. This issue to some extent is being addressed by specific regulations on protection and use of protected territories and environmental impact assessment.

The issue on fair and equitable sharing of benefits arising out of the utilization of genetic resources will be developed according to Nagoya Protocol and corresponding to the new EU regulation.

Appendix I - Information concerning reporting Party and preparation of national report

A. Reporting Party

Contracting Party	Latvia
NATIONAL FOCAL POINT	
Full name of the institution	Ministry of Environmental Protection and Regional Development of the Republic of Latvia
Name and title of contact officer	Ms. Daiga Vilkašte, Director, Nature protection department; CBD focal point
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CONTACT OFFICER FOR NATIONAL REPORT (IF DIFFERENT FROM ABOVE)	
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SUBMISSION	
Signature of officer responsible for submitting national report	
Date of submission	

B. Process of preparation of national report

The report was prepared by the Nature Protection Department of the Ministry of Environmental Protection and Regional Development of the Republic of Latvia by consulting to relevant institutions.

Appendix II - Further sources of information

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Appendix III — National implementation of the thematic programmes of work and plans under the Convention on Biological Diversity or decisions of the Conference of the Parties related to cross-cutting issues

Progress on targets of the Programme of Work on Protected Areas

Latvian network of *Natura 2000* sites is a part of the EU network of *Natura 2000*. It builds upon the Birds and Habitats Directives and provides a coherent ecological framework for protected areas to secure the long-term conservation of Europe's most threatened species and habitats. The aim of *Natura 2000* is to ensure the restoration or maintenance of natural habitats and species of Community interest at a favourable conservation status. It complements other protected wildlife areas designated at national, regional and local levels.

The Birds Directive was the first piece of EU legislation designed to preserve biological diversity *in situ*. A pan-European approach was necessary to coordinate and support national initiatives, especially when dealing with transborder bird migration. The Birds directive called for the establishment of special protection areas for endangered bird species. Wetlands are recognised in the Birds directive as being of particular importance for migratory birds.

The Habitats Directive established a common framework for the conservation of endangered species and habitats in the EU. It obliges Member States to designate and manage special areas of conservation.

The territory of Latvia belongs to the Baltic Sea and Boreal biogeographical regions of the EU. In 2014, there were 332 *Natura 2000* sites in Latvia with the total area of 1 224 137 hectares from which 787 730 hectares are terrestrial sites (325 sites), and 436 407 hectares – 7 marine sites. Terrestrial *Natura 2000* sites cover ca. 12 % of the country's area; marine *Natura 2000* sites cover ca.34 % of the coastal marine area of Latvia and ca.1% of exclusive economic zone of Latvia. Total coverage of specially protected nature territories (including biosphere reserve) is ca.17% of the territory of Latvia.

The *Natura 2000* network hosts 22 plant species (genera), 34 invertebrate, 29 mammal, 14 amphibian and reptile, 13 fish species, and 58 habitat types included in the Habitats Directive's Annex II and 93 bird species included in the Birds Directive's Annex I. The *Natura 2000* network in Latvia contributes to the conservation of five EU priority species and 19 EU priority habitat types as well as a large number of other threatened, nationally protected species and habitats.

Several *Natura 2000* sites in Latvia are essential for the conservation of threatened bird species that are almost extinct in many EU countries, with still large, though shrinking populations. Therefore Latvian bird populations serve as donor populations for other parts of Europe. For example, about 5 % of the world and 8 % of the European population of *Ciconia nigra* as well as 20 % of the world and 24 % of European population of *Aquila pomarina* occur in Latvia. The *Crex crex* population in Latvia comprises 25 % of the European populations. These populations are noteworthy at the EU level and even globally.

However, the results of the Habitats Directive's Article 17 report (2013) on the status of species and habitats show that only 11% of habitat types and 28% of species of the EU importance are in a favourable conservation status in Latvia. The species and habitat types are threatened mostly by lack of appropriate management or management applied in insufficient extent and/or regularity as well as by different national, regional and global scale changes in environment, often caused by socio-economic impacts (e.g. land use change), global environmental trends (climate change), etc. [9]

Coastal, dune and halophytic habitats

Latvia is one of the EU countries, where marine and coastal habitats are well represented. The coastline comprises a complex of 23 coastal habitats of EU importance. In Latvia, more than 40 *Natura 2000* sites are designated along the coast of the Baltic Sea and the Gulf of Riga. Approximately 90 % of the Latvian coastline (total length of the coastline – 496 km) is covered by a natural or semi-natural habitat complex, the rest are built-up areas.

Coastal habitats are important corridors of migration for organisms and important feeding ground for birds during spring and autumn seasonal migrations. Numerous species, e.g. the Habitats Directive's Annex II species *Linaria loeselii*, and nationally protected *Eryngium maritimum*, *Lathyrus maritimus* and other rare species occur only in coastal habitats. Many other species, e.g. *Dianthus arenarius ssp. arenarius*, *Angelica palustris*, *Bufo calamita*, *Tadorna tadorna*, *Anthus campestris* occur mainly in coastal habitats and are rarely found elsewhere.

Despite the rather homogenous formation of sand and sediment dominated marine habitats in the Latvian coastal and territorial waters there are several outstanding areas containing reefs of geological origin. They as stony bottoms and ridges (*Reefs* (1170)) rise from the sandy sea bed in the depths of 2-20 meters. Stony bottom as a stable substrate provides development possibilities for specific types of vegetation including red, green and brown macroalgae and a shelter for development of attached species like molluscs, bivalves and a number of invertebrates. Those habitats are also used as spawning grounds by most of the commercially important fish species. Reefs together with underwater macroalgae meadows also provide feeding areas for diving birds feeding on molluscs and crustaceans. The total area of reefs within Latvia marine area is about 36 800 ha. There is a small, but biologically extremely rich coastal lagoon (1150*) located on the eastern coast of the Gulf of Riga serving both as a stopover for birds during their migration and distribution routes for migrating fishes before ascending coastal rivers for spawning. The Gulf of Riga and the Irbe Strait are internationally important waterfowl wintering sites where the total amount of birds during the autumn and winter period exceeds two million individuals. According to the current data, 24 % of North and West Europe's population of *Gavia stellata*, 23 % of *Clangula hyemalis* (more than 1 million individuals), 36 % of *Melanitta fusca*, and 15 % of the *Cepphus grille* population are found in the Latvian coastal waters. With regard to fish species, the Gulf of Riga's population of *Zoarces viviparous*, the largest population in the eastern Baltic, is worthy of mention.

The coastal habitats represent a unique combination of particular abiotic conditions and a dynamic environment, often rich in specialist species including rare ones. Some of the coastal habitat types are among the rarest ones in Latvia, being also acknowledged as priority (*) habitat types in the entire EU: *Coastal lagoons* (1150*), *Boreal Baltic coastal meadows* (1630*), *Fixed coastal dunes with herbaceous vegetation* (grey dunes) (2130*) and *Decalcified fixed dunes with *Empetrum nigrum** (2140*). For example Latvia hosts a relatively large proportion (14.5 %) of the *Wooded dunes of the Atlantic, Continental and Boreal region* (2180) in the Boreal region, which are relatively common and widespread along the coastline in Latvia.

All other coastal and halophytic habitats are rare and threatened by different impacts, particularly *Boreal Baltic coastal meadows* (1630*), where in most cases the traditional management has been ceased causing extinction of related species, *Decalcified fixed dunes with *Empetrum nigrum** (2130*), which depend on moderate disturbances and, on the other hand, sometimes suffer from excessive anthropogenic trampling pressure.

All coastal habitats in Latvia are threatened by many factors, such as expansion of inappropriate grassland and grey dune management (lack of regular moderate disturbances), tourism and leisure impacts (excessive trampling), expansion of built-up areas, etc., and therefore require urgent actions to prevent a loss of habitats and associated species. [9]

Inland freshwater habitats

Inland waters, rivers and lakes, cover 2.6 % of the territory of Latvia and are well represented within *Natura 2000* sites. According to the national legislation, there are 27 specially protected habitats of inland waters in Latvia covering seven EU importance habitats included in the Habitats Directive's Annex I. Nearly all natural lakes and natural unaltered river stretches correspond to the EU importance habitats. Some habitats are of particular importance, e.g. *Lakes of gypsum karst* (3190*) are extremely rare throughout the Boreal region, nearly 90 % of the habitats of this type within the Boreal region occur in Latvia.

The lakes and rivers host 10 fish species and 9 invertebrate species included in annexes of the Habitats Directive. However, due to increasing activities in agriculture and forestry as well as from point sources, lakes and rivers receive increasing nitrate and sediment loads, in comparison to the reporting period (2000-2006). Eutrophication in the form of excessive macrophyte development or intensive algae growth has been recorded in several lakes and rivers within *Natura 2000* sites. Majority of habitats of EU significance – *Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuncetea* (3130), *Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.* (3140) and *Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation* (3150) as well as *Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation* (3260) are reported to have signs of nutrient inflow, therefore still their status is defined as inadequate. *Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuncetea* (3130), a particularly rare habitat type, is highly vulnerable to increased nutrient input.

Freshwater habitats are a specific environment for typical, also rare and protected species. For example, the aquatic habitats still support stable populations of most dragonflies species represented by *Leucorrhinia albifrons*, *L. caudalis*, *L. pectoralis* and *Ophiogomphus cecilia*. Undisturbed river stretches hold diverse settings of rare and endangered fish, mammal and invertebrate associations consisting of increasing numbers of beaver *Castor fiber*, rather stable populations of *Rhodeus sericeus amarus*, *Lampetra planieri*, *Lampetra fluviatilis*, *Cobitis taenia*, *Aspius aspius*, *Unio crassus*, and *Lutra lutra*. During the last reporting period (2007-2012) stabilization and maintenance activities did not achieve stabilization or increase in the population of *Margaritifera margaritifera*. Thus far the latest inventories have not been able to show the conservation status of several fish species, e.g. *Alosa fallax*, *Misgurnus fossilis*, *Pelecus cultratus*. Significant changes in stream habitats are caused by the growing population of Eurasian beaver *Castor fiber*, an increasingly opportunistic species, accelerating river bank erosion and bank instability. This has caused changes in habitat structure in rivers and loss of habitats suitable for vulnerable and threatened species. [9]

Heath and scrub habitats

Heath and scrub habitats in Latvia belong to semi-natural habitats that occur rarely throughout the country *Juniperus communis* formations on heaths or calcareous grasslands (5130) or are limited to few regions in Latvia *Northern Atlantic wet heaths with Erica tetralix* (4010) and *European dry heaths* (4030). All these habitat types are formed as secondary habitats after severe forest transformation in the past (forest clearing and burning) and continuous regular use as pastures over a long time period. Nowadays due to change in land use and its intensity and socio-economic factors all these habitats types are among the most threatened in Latvia and have significantly declined in the course of the 20th century.

Heaths and *Juniperus communis* formations are both remnants of the former land use and traditional land management and host many rare species, e.g. nationally protected plant species *Erica tetralix*, *Trichophorum cespitosum*, *Juncus bulbosus*, *Pulsatilla pratensis*. reptiles *Coronella austriaca*, *Triturus cristatus*, as well as species included in the Habitats

Directive's Annex V – *Lycopodiella inundata*, *Diphasiastrum complanatum*, *Sphagnum* spp., *Leucobryum glaucum*, *Cladonia* spp. (subgenus *Cladina*). Heaths and *Juniperus communis* formations include fragments of mire and semi-natural grassland species, e.g. species of *Nardetalia* and *Festuco-Brometea*. Heath and scrub habitats host some threatened bird species, e.g. *Lullula arborea* and *Coracias garrulus*.

In order to maintain a favourable conservation status of heaths and *Juniperus communis* formations continuous moderate disturbances and regular management activities are required, therefore support for heath and scrub habitat management is among the highest priorities. [9]

Semi-natural grassland habitats

Semi-natural grasslands (meadows and pastures) represent one of the most diverse and species-richest and, at the same time, the most threatened habitat groups. Semi-natural grasslands in Latvia include five priority habitat types: *Rupicolous calcareous or basophilic grasslands of the Allyso-Sedion albi* (6110*), *Xeric sand calcareous grasslands* (6120*), *Species-rich Nardus grasslands, on silaceous substrates in mountain areas (and submontain areas in Continental Europe)* (6230*), *Fennoscandian lowland species-rich dry to mesic grasslands* (6270*), and *Fennoscandian wooded meadows* (6530*), and five other habitat types.

Species-richness and ecological functions of semi-natural grasslands depend on active and regular management measures. Semi-natural grasslands host about one third of vascular plant flora in Latvia, numerous specialist species and rare, threatened species. Many grassland-related species, both rare and common, are declining along with habitat loss and deterioration. Numerous bird species including those of the Birds Directive are breeding in semi-natural grasslands or use them as nesting and feeding grounds, e.g. *Crex crex*, *Gallinago media*, *Philomachus pugnax*, *Vanellus vanellus*, *Grus grus*, *Aquila pomarina*, *Circus pygargus*, *C. cyaneus*, *C. aeruginosus*, *Sylvia nisoria*, *Acrocephalus paludicola*, and other.

Semi-natural grasslands host many threatened invertebrates, e.g. *Coenonympha hero*, *Euphydryas aurinia*, *Lycaena dispar*, *Ophiogomphus cecilia*, *Leucorrhinia pectoralis*, *Parnassius mnemosyne*, *Vertigo angustior*, etc., some of them being exclusively related to semi-natural grassland habitats only. Large trees of wooded meadows and pastures provide a unique habitat for rare invertebrate species, e.g. *Phryganophilus ruficollis*, *Osmoderma eremita*, and lichen species.

Maintenance of grasslands, especially semi-natural grasslands, is crucial for ensuring conservation of numerous species, e.g. ca. 40 % of the nationally protected vascular plant species are found in grasslands, 82 % of the Latvian population of *Crex crex* nests in grasslands. Semi-natural and extensively managed grasslands are biologically the most important; however, nowadays they cover only 0.3 % of territory of Latvia with a continuous decline tendency. [9]

Bog and fen habitats

Bog and fen habitats in Latvia are well represented including the priority habitats: *Active raised bogs* (7110*), *Calcareous fens with Cladium mariscus and species of the Caricion davallianae* (7120*) and *Petrifying springs with tufa formation (Cratoneurion)* (7220*). *Active raised bogs*, though relatively common in Latvia (ca. 4 % of the country), is rare in many parts of Europe due to intensive peat extraction and drainage over the last centuries.

Bog and fen habitats host numerous specialist species occurring only in these habitats, and more than 50 nationally protected species are related to bog and fen habitats. Several threatened plant species (*Saxifraga hirculus*, *Ligularia sibirica*, *Saussurea alpina* ssp. *esthonica*, *Liparis loeselii*, *Hamatocaulis lapponicus*, *Drepanocladus vernicosus*) and invertebrate species (*Leucorrhinia albifrons*, *Vertigo angustior*, *Vertigo genesii*, *Vertigo geyeri*) included in the Habitats Directive's Annex II occur in bog and fen habitats.

Active raised bogs are important feeding grounds for birds in migration periods (Anseriformes), and they provide suitable habitats for many threatened bird species included in the Birds Directive, e.g. *Tringa glareola*, *Pluvialis apricaria*, *Grus grus*, *Philomachus pygnaeus*, *Tetrao terix terix*, *Asio flammeus*, *Circaetus gallicus*, *Circus pygargus*, *C. aeruginosus*, *Aquila chrysaetos*, *Pandion haliaetus*, *Numenius phaeopus*, *Numenius arquata*. However, in Latvia the bird species related to mires have the largest decline over the last decades.

Additionally, many rare and threatened nationally protected species occur in bogs and fens only: mosses – *Sphagnum lindbergii*, *Sphagnum molle*, *Odontoschisma sphagnii*, *Meesia triquetra*; vascular plants – *Betula nana*, *Trichoporum cespitosum*, birds – *Lanius excubitor*, invertebrates – *Anax imperator*, *Clossiana frigga*, *Boloria aquilonaris*, *Boloria frigga*, *Aspilates gilvaria*. [9]

Rocky habitats and caves

Rocky habitats and caves are among the rarest habitat types with the smallest cover in Latvia, therefore highly important as habitats for specialist species. In Latvia, three habitat types are present: *Calcareous rocky slopes with chasmophytic vegetation* (8210), *Siliceous rocky slopes with chasmophytic vegetation* (8220), and *Caves not open for public* (8310), all of them are very rare. Rocky habitats and caves provide substrates for rare moss and lichen communities (e.g. nationally protected species *Schistostega pennata* in caves, and *Asplenium ruta-muraria* and *Asplenium trichomanes* on rocky habitats). Caves are important hibernation sites of seven bat species: *Eptesicus nilssonii*, *Plecotus auritus*, *Myotis daubentonii*, *M. dasycneme*, *M. brandtii*, *M. mystacinus* and *M. nattereri*.

Since rocky slopes and caves are rare in Latvia, they are often popular visitor destinations, thus being highly threatened by mechanic disturbances such as trampling and scratching, and human disturbances in bat hibernation places. [9]

Forest habitats

In Natura 2000 sites in Latvia, forests cover the largest proportion of territories and form the largest proportion of the habitat types included in the Habitats Directive's Annex I. These include priority habitats, e.g. *Western taiga* (9010*), *Fennoscandian natural old broad-leaved forests* (9020*), *Fennoscandian deciduous swamp forests* (9080*), *Tilio-Acerion forests on slopes, scree and ravines* (9180*), *Bog woodlands* (91D0*), and *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)* (91E0*) and three other EU importance habitat types. These forest habitats promote existence of large variety of biodiversity components including many rare, threatened species. According to different data sources, in Latvia forests host 17-84 % of protected species of different groups of organisms including species included in both Habitats and Birds Directives.

For example forests of Latvia are very significant nesting area for about 5 % of the world and 8 % of the European population of *Ciconia nigra*. The Latvian population of *Aquila pomarina* accounts for about 24 % of the European population (or 20 % from world population).

Forest habitats provide suitable habitats for numerous other bird species, e.g. *Aquila chrysaetos*, *Haliaeetus albicilla*, *Bonasa bonasia*, *Tetrao urogallus*, *Glaucidium passerinum*, *Strix uralensis*, *Dryocopus martius*, *Picus canus*, *Picoides tridactylus*, *Ficedula parva*, *Aegolius funereus*. Forests harbour also many vascular plant and moss species included in the Habitats Directive, for example, *Pulsatilla patens*, *Cypripedium calceolus*, *Cinna latifolia*, *Agrimonia pilosa*, *Thesium ebracteatum*, *Buxbaumia viridis*, *Dicranum viride*; invertebrates: *Vertigo moulinsiana*, *Cucujus cinnaberinus*, mammals: *Dryomys nitedula*, *Canis lupus*, *Lynx lynx*, most of bat species, e.g. *Barbastella barbastellus*. [9]