

Government Resolution on the Strategy for the Conservation and Sustainable Use of Biodiversity in Finland for the years 2012–2020, ‘Saving Nature for People’



1 Resolution

The Finnish Government has today, 20th December 2012, made a resolution approving a new Strategy for the Conservation and Sustainable Use of Biodiversity in Finland for the years 2012–2020. The strategy was drafted by the Ministry of the Environment, after prior assessment by the Cabinet Finance Committee.

2 Introduction

In line with the programme of the current Finnish Government, led by Prime Minister Jyrki Katainen, Finland's National Strategy and Action Plan for the Conservation and Sustainable Use of Biodiversity are being updated to correspond to objectives defined under the Convention on Biological Diversity (CBD) and within the European Union. The strategy will be implemented so as to safeguard the ways that Finland's indigenous Sámi People traditionally utilise nature.

Finland is committed to the objectives of the CBD, including the conservation and sustainable use of biodiversity, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. Finland is also committed to intensify efforts to realise these main objectives in order to halt the loss of biodiversity globally, regionally and at national level by 2020. The tenth Conference of Parties to the CBD (COP 10) approved the Strategic Plan for biodiversity, the resource mobilisation strategy, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity. Additionally, various thematic working programmes and horizontal actions were approved. These decisions together form a flexible global framework that is to be implemented by the Parties to the CBD in line with their own legislation, objectives and conditions.

The European Commission Communication of 3.5.2011, *Our life insurance, our natural capital: an EU biodiversity strategy to 2020* (COM (2011) 244 final) formed the basis for related European Council Conclusions agreed in June 2011 and December 2011. According to the vision defined in the Communication, “By 2050, European Union biodiversity and the ecosystem services it provides — its natural capital — are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided.” The Communication also sets a headline target for 2020, regarding:

“Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.”

The Strategy for the Conservation and Sustainable Use of Biodiversity in Finland for 2012–2020 is based on all of the issues covered by the CBD. It aims to promote the ecologically, economically, socially and culturally sustainable utilisation and development of biodiversity and natural resources in Finland, while also safeguarding biodiversity, the vital needs of future generations, and livelihoods based on natural resources. The Government has defined the following goals as a basis for the strategy:

Vision

By 2020 biodiversity loss in Finland will have been halted.

The favourable status of biodiversity and ecosystem services will be ensured by 2050.

Finland will protect and sustainably utilise biodiversity for its own intrinsic value and as a source of human wellbeing, while also taking active responsibility for issues related to biodiversity in international contexts.

The Government believes that wide-ranging actions, changes in attitudes and processes, and enhanced cooperation will all be needed to achieve the goals described above. These actions must be based on the following principles:

Mission

Finland will urgently undertake effective actions designed to halt the loss of biodiversity by 2020 and ensure that by 2050 the state of the natural environment in Finland is stable and capable of ensuring people’s future well-being.

To achieve this:

- Issues and values related to biodiversity must become fundamental elements in decision-making.
- The pressures facing biodiversity must be reduced.
- Collaboration between the authorities, citizens, businesses and stakeholders and related participation procedures must be enhanced. New forms of cooperation designed to prevent and minimise any harmful impacts on biodiversity must be realised at a timely stage of the preparation of decisions on projects and plans.
- Degraded ecosystems must be restored cost-effectively or left to revert to their natural state through natural processes.
- Natural resources must be utilised sustainably. Renewable natural resources must be used in economic activities and to increase well-being in ways that

ensure they are not depleted, but are renewed for the benefit of future generations. Non-renewable resources must be used as eco-efficiently as possible. In this way the present generation will not endanger the prospects for future generations to enjoy a good life in a sustainable society.

- Actions related to the conservation and sustainable use of biodiversity must be realised effectively with due regard to citizens' constitutional property rights and Finland's traditional everyman's right of access to the land, while also ensuring that all citizens meet their responsibility to preserve biodiversity. The indigenous Sámi community's traditional knowledge related to biodiversity will be respected.
- Decisions related to biodiversity must be based on the best available scientific information, and also apply the precautionary approach.
- Finland will take responsibility for ensuring access to genetic resources and the fair and equitable sharing of benefits arising from their utilisation.

3 Key challenges

This section of the strategy examines different kinds of habitats in Finland, compiling recent trends in the diversity of their species and biotopes, assessing the factors behind these trends, and proposing necessary conservation and management measures. The most significant indicators for monitoring biodiversity in these habitats are also specified.

Many of the resolutions made at COP 10 in Nagoya emphasised the need to safeguard the functioning of ecosystems and ecosystem services, as well as biodiversity. Ecosystem services are the benefits obtained by people from nature. They can be divided into four categories: provisioning services, cultural services, supporting services and regulating services. Biodiversity forms the basis for ecosystem services, but there are also many important ecosystem services whose relationship to biodiversity has not yet been sufficiently studied. The assessment and valuation of the services provided by ecosystems will play a vital role in the future monitoring of progress towards the objectives defined at Nagoya. Research findings and the development of assessment methods will be needed for this purpose. There is also a need to develop suitable indicators to describe ecosystem services and related trends.

Forests

Efforts to safeguard the biodiversity of Finland's forests have recently been intensified by increasing the areas of forest under protection, by improving the quality of protected forest habitats through ecological restoration, and by enhancing the nature management methods used in commercially utilised forests. Forest biodiversity is no longer declining as rapidly as previously, but the overall declining trend has not yet been halted.

The conservation statuses of 73 forest biotopes have been evaluated in the first phase of biotope status assessments. More than half of the assessed biotopes were classified

as threatened. This is partly because the assessment criteria are based on the features of natural forests, whereas most of Finland's forests are commercially managed. According to the fourth Finnish Red List of the statuses of species, positive trends are evident for 81 species primarily associated with forest habitats, but at the same time the statuses of 108 forest species have worsened.

In many groups of forest species negative trends are more common than positive trends. Positive trends have been particularly evident among beetles, while many lichens are undergoing negative trends. Due to the slow dynamics of forest ecosystems both the impacts of protective measures and negative longer-term trends in natural environments may only become evident after a time lag. Some forest species have nevertheless adapted successfully to changes induced by commercial forestry, or even benefited from such changes.

The findings of the fourth Finnish Red List survey suggest that protective measures are making a difference, and that actions taken to protect forests and promote their sustainable use and management are already resulting in positive impacts. But without the continuation of these measures and necessary additional actions the numbers of threatened and extinct forest species will still continue to grow in the near future. More actions are particularly needed to safeguard the biodiversity of forests in Southern Finland. With regard to the ecological structure of forests, measures designed to increase the amounts of decaying wood in forests would be particularly important for biodiversity. Measures applied in commercially managed forests are especially crucial in terms of safeguarding biodiversity, since about 90 per cent of Finland's forests are used for commercial forestry.

Key indicators for forest biodiversity, which are still partly under development, include data on forests' structural features and ages, as well as the viability of threatened forest species and biotopes. Such structural features, depending on the growth site, include tree species diversity, the age structure of trees, amounts of decaying wood, and the interconnectedness of forest habitats. A key result is the achievement of targets for specific areas of forest to be covered by actions within the METSO Forest Biodiversity Programme for Southern Finland.

- The Government will continue to implement measures designed to conserve nature in forests and ensure that forests are managed sustainably, while monitoring their impacts and considering ways to apply such measures more effectively. New forest legislation currently under preparation will safeguard favourable conditions for the preservation of forest habitats of importance for biodiversity. New, cost-effective measures will be devised with regard to ecological, economic, social and cultural considerations, and duly applied, building, for instance, on good experiences obtained through the METSO forest biodiversity programme.

Mires

Out of Finland's original mire habitat area of about 10.6 million hectares, some 1.3 million hectares have been lost due to land use changes. More than half of this area (about 5.6 million hectares), has been drained to facilitate commercial forestry. This leaves areas of natural mire habitat with no artificial drainage ditches totalling about

4.1 million hectares. Some 1.7 million hectares of this total are in Southern Finland, where mire biotopes are most threatened. Spruce mires, open bogs, spruce fens and open fens have particularly declined. In Southern Finland 48 mire biotopes are classed as threatened, amounting to 77 per cent of the evaluated mire biotopes. In Northern Finland only 9 mire biotopes (16% of those evaluated) are under threat. This declining trend is the consequence of the various ways in which mires have been used in the longer term.

The survey findings indicate that over the last 50 years the digging of drainage ditches to make mires more productive for forestry purposes has been the most significant threat factor. Other factors include construction, peat extraction, the flooding of peatlands to create reservoirs, and the clearance of agricultural land. The most serious new threat factor is climate change, which particularly endangers palsa mires in the north. About 1.1 million hectares of mire habitat have been protected across Finland, but protection coverage varies greatly between different regions. Threats hindering the natural ecological functioning of protected mires particularly have to be recognised in the surroundings of spruce mires and fens in Southern Finland whenever forest improvement drainage schemes are planned in such areas.

The reasons behind some changes observed in vegetation in protected mires still need to be determined. Peat extraction should in future only be permitted in mires and peatlands that have already been drained, or where conditions are significantly different from their natural state due to other changes. There is a need to prepare a conservation programme in line with the Nature Conservation Act to safeguard mires that have not been included among the most nationally significant mires.

The diversity of mire ecosystems can be measured on the basis of their structural features, as well as the distributions of threatened mire species and biotopes. The success of the measures used in mire conservation can also be assessed on the basis of the numbers of mires where more natural conditions have been or are being restored.

- The Government believes that the state of Finland's mires, the threat factors facing them, and their sustainable use should be examined broadly. For this purpose the Government passed a separate resolution on 30 August 2012 defining a strategy for the sustainable and responsible use and conservation of mires and peatlands.

Agricultural environments

Traditional livestock farming enriched agricultural ecosystems by creating various open and semi-open habitats, today described as semi-natural habitats. The commercial agricultural use and maintenance of such areas ended during the first half of the 20th century when the farming of meadowlands died out. The numbers of livestock farms and grazing animals declined steeply from the 1990s, especially in Southern Finland. Agricultural land use has become more intensive, leading to the loss of the habitat of many farmland species. In recent years, however, the increasing use of buffer zones and strips in agricultural land and the later mowing of fallow fields have improved the situation somewhat.

Out of 40 evaluated semi-natural habitats 37 (93%) have been classified as threatened. None were rated as being of least concern, and one semi-natural habitat, alder meadows, has already become extinct in Finland. The three most important threat factors are the overgrowth of formerly grazed pastures and mown meadows, the clearance of new fields, and afforestation. The clearance of fields is becoming less important as a threat, but eutrophication and construction are becoming more important as threats alongside overgrowth and afforestation. Among the threatened species primarily associated with farmland habitats the statuses of 70 have been improving due to climatic warming and other factors, while the statuses of 83 have worsened.

The special subsidies granted for the management of semi-natural habitats as part of the national rural development programme's agri-environmental support have been the most important form of financing supporting the preservation of such habitats during the funding period due to end in 2013. The significance of such subsidies for the preservation of many semi-natural habitats such as dry meadows, rocky meadows and moorland has, however, been limited, since such habitats occur in small patches, they are unproductive in terms of fodder yields, there is a shortage of livestock to graze them, and they are hard to mow mechanically. The time-consuming application process for these special subsidies in relation to the total sums that are granted for such small areas of land reduces the attractiveness of the subsidy scheme. The quality of the land management practices has also been deficient with regard to conservation goals.

Some rare semi-natural habitats such as herb-rich wooded meadows and marshy meadows today only survive where they are managed in protected areas. Organic farming has to some extent improved the preservation of species diversity. The importance of farmland habitats as landscapes is emphasised by their high cultural value. In addition to traditional agricultural settings there are very many other areas where overgrowth is purposefully prevented, including road verges, railway lines and sidings, and power lines, which if suitably managed with regard to their species diversity could partly compensate for the declining diversity of agricultural environments.

Agriculture is practised for the purposes of food production, and thriving agricultural environments are the basis for Finland's national food production. Without viable cattle and sheep farming and the grazing of animals in outdoor pastures it is not possible to preserve the biodiversity of agricultural environments. Since there is a great need to enhance the conservation and management of farmland biodiversity, it is also worth safeguarding the capacities of agricultural environments to produce ecosystem services in addition to their other productivity goals.

Trends in farmland biodiversity can be measured through indicators that describe trends in the numbers and areas of semi-natural habitats of importance to species biodiversity, as well as trends in the quality of their management. In more intensively cultivated agricultural land, monitoring should focus on trends in their structural diversity in terms of the areas of verges, buffer zones and fallow fields, as well as the total area of agricultural land where organic farming methods are applied.

- The Finnish Government aims to increasingly prioritise the conservation and sustainable use of biodiversity during the EU multiannual financial framework period beginning in 2014. Agri-environmental support will be channeled to enhance environmental protection and nature management regionally and at the farm level, while the conditions for such subsidies will be changed to make them provide more real incentives for farmers to make improvements.

New means will be devised for the restoration and management of traditional agricultural biotopes that are threatened by overgrowth, but which cannot be managed through agricultural policies since they are located outside working farms.

Inland waters and shores

The statuses of 43 inland water biotopes have been evaluated. Of these 17 (40%) have been classified as threatened. Almost all of them were considered to be much more threatened in Southern Finland than in the north. Throughout the country biotopes in rivers and streams are more threatened than those in other inland waters. The statuses of rivers and streams in Southern Finland are extremely poor.

Eutrophication, pollution and hydrological engineering are the most significant threat factors. The decline of small water bodies (springs, streams and ponds) is partly due to the artificial drainage ditches dug in commercially managed forests and other forestry measures, as well as wastewater bypasses and overflows from sewerage systems and pumping stations. The greatest threats facing lakes are nutrient and solid loads, while headwaters suffer from the impacts of forestry and peat extraction.

Among evaluated species positive trends have been observed for 12 species and negative trends for 27 species. Worsening trends have also been more common than positive trends for species associated with lakeshores, river banks, sandy shores, and shores consisting of water meadows and flood meadows.

It is important to reduce nutrient loads to conserve the biodiversity of inland waters. The harmful impacts of diffuse loads only decline slowly. Most rivers flowing directly into the sea are only in a satisfactory ecological state or worse, mainly due to pollution from diffuse sources. In many localities artificial obstructions in rivers and streams and excessive loads of nutrients and solids are the most significant problems facing the habitats of threatened and vulnerable migratory fish populations.

Measures to restore rivers and streams and preserve them in their natural state are vital for the conservation of their characteristic species diversity. Very few small water bodies remain in their natural state. Too little attention has particularly been given to the conservation and management of ecosystems in streams. Streams are important for removing nutrients and suspended loads from catchment basins, for evening out flow rates, and for safeguarding biodiversity. It is expected that climate change will affect the hydrological balances of river systems, flood cycles and water levels, as well as their natural loads, due to such factors as increases in natural leaching and water temperatures. These changes and more frequent extreme

situations such as floods and prolonged droughts may have harmful impacts on biodiversity.

In water protection it is important to find solutions at the level of entire catchment areas. In 2009 the Government approved seven river basin management plans which together cover the whole of mainland Finland, in the most extensive single development project ever implemented for Finland's inland waters. The plans helped to define the measures needed to restore degraded surface waters and groundwater reserves to a good ecological state and to prevent the deterioration of waters that are still in a good state. On 17 February 2011 the Government approved a resolution on a programme for the implementation of river basin management plans for the years 2010–2015. This programme sets out in detail what should be done in different sectors to achieve a good state for inland waters, and also allocates responsibility for implementation.

In addition to monitoring trends in species and biotopes of inland waters and shores, trends in their water quality and ecological state are monitored, particularly with regard to the nutrients that cause eutrophication. Suitable indicators are additionally needed to facilitate the monitoring of the natural state and coherence of rivers, streams, springs and ponds.

- The Government will ensure that the approved river basin management plans are duly implemented, while creating more inland water restoration projects and promoting efforts to restore the natural state of small water bodies.

The Baltic Sea and its shores

Our knowledge of underwater biotopes in the Baltic Sea and assessments of their state are much less comprehensive than for terrestrial biotopes, even though the ongoing Finnish Inventory Programme for the Underwater Marine Environment (VELMU) has already greatly expanded our knowledge base. Of 12 underwater biotopes whose statuses could be evaluated only one was classified as being of least concern, four as near threatened, and five as threatened, including three biotopes considered to be endangered in Finnish waters: red algae communities, charophyte meadows and *Zostera marina* communities.

Finland's Baltic coastline is long and intricate with great variations in geology, landscape structure, water salinity levels and climatic factors. The statuses of 43 coastal biotopes have been evaluated. Of these 23 (53%) were classified as threatened. Succession series of coastal forests in areas with emergent coasts are critically endangered, since intact examples of such series are extremely rare today. Endangered coastal biotopes include combinations of deltaic biotopes and succession series of dunes.

The most serious threat factor facing underwater biodiversity in the Baltic Sea is eutrophication. Commercial marine activities such as gravel extraction, shipping and infrastructural projects and the associated risks are increasing. The ecological impacts of projects and plans are difficult to assess with regard to biodiversity values due to the lack of relevant data.

Eutrophication is also the most significant threat facing shores. Combined with the disappearance of grazing and mowing in coastal meadows it has wide-ranging effects on coastal biotopes. The overgrowth of coastal habitats is the most significant threat to species associated with Baltic seashores. The statuses of such species tend to be worsening overall. For certain biotopes coastal construction and erosion also have harmful impacts.

The most wide-ranging future threat is climate change, which could lead to significant changes in the Baltic Sea and its coastal habitats. The spread of invasive alien species is another growing threat to biodiversity in the Baltic Sea.

The ongoing inventories of the underwater marine environment are important in many ways. The resulting data is much needed in the contexts of increased shipping, regional planning of the use of sea areas, and impact assessments related to the use of natural seabed resources and constructions on the sea bed.

Finland's Natura 2000 network of protected areas encompasses significant areas for marine and coastal biotopes and species. Certain areas of open sea are currently being added to this network. More research findings on underwater environments will be needed to facilitate the preparation and implementation of management plans for marine protected areas. The need to combat invasive alien species remains a major challenge throughout the Baltic Sea.

Sufficient indicators already exist for monitoring trends in the state of the Baltic marine environment, but there is still a need to enhance monitoring of the areas and quality of underwater and coastal habitats.

- The Government will intensify measures designed to protect and improve the state of the Baltic Sea and conserve marine biodiversity both at national level and in collaboration with other coastal countries around the Baltic by implementing marine environment management planning in line with the EU Marine Strategy Directive, HELCOM's Baltic Sea Action Plan, the EU Strategy for the Baltic Sea Region, and approved river basin management plans.

Work on surveying the biodiversity of the marine environment will continue through the Finnish Inventory Programme for the Underwater Marine Environment (VELMU). Goals related to the conservation and sustainable use of biodiversity must be duly considered in marine spatial planning and during the drafting of Finland's national marine environment management strategy and action plan.

Fish stocks

In Finland the threats facing fish species and declines in fish stocks are mainly due to actions that have changed aquatic environments. The construction of physical barriers has prevented fish stocks from going through their natural reproductive cycles and led to the loss or deterioration of spawning areas. Many of the fish populations affected have also suffered from overfishing. More measures are

particularly needed to safeguard the diversity of Finland's migratory fish populations.

In the Baltic Sea region Finland supports EU fisheries policies designed to safeguard threatened fish species and sustainable fish populations with regard to the needs of commercial fisheries. Environmental conditions that are sustainable with a long term-perspective are among the general objectives of the Common Fisheries Policy for fishing and fish farming. Reductions in unwanted by-catches, an end to the discarding of catches, and measures to minimise negative impacts on marine ecosystems are all needed to ensure that all marine areas reach a good state in accordance with the Marine Strategy Framework Directive.

On 8 March 2012 the Government approved a resolution on a National Fishway Strategy. The most important goal of this strategy is to strengthen the vitality of threatened and vulnerable migratory fish populations. This represents a shift in emphasis away from fish introductions towards measures that maintain and restore the natural reproductive cycles of fish populations. Opportunities for fish to migrate up and down rivers affected by hydrological engineering will be improved, and measures will also be implemented to enable fish to reach potential spawning areas, for instance by improving the water flow in certain channels and by restoring natural rapids that have been cleared.

Both quantitative and qualitative indicators are needed to monitor the desired improvements in opportunities for natural fish species to reproduce and the sustainability of fishing levels. Particular attention should be given to the habitats of threatened fish species and populations.

- The Government will enhance fishing legislation so as to safeguard the routes used by migratory fish and to ensure that fish stocks are used and managed in line with sustainability principles. The revised Fishing Act should safeguard biodiversity, opportunities for recreational fishing to continue at today's levels, and favourable conditions for commercial fishing. Fish introductions should be planned giving greater priority to multiple goals for the restoration and management of river basins and fish stocks, instead of target catches.

The sustainability of fishing will be ensured through measures including improvements in the monitoring of fishing as set out in the new legislation, and the implementation of the EU Fisheries Control Regulation.

Arctic fells

The statuses of 46 arctic fell biotopes have been evaluated, with 7 (15%) classified as threatened. Snow patches were classified as endangered, since their numbers have clearly decreased, and this decline is expected to accelerate due to climatic warming. Reindeer grazing has affected mountain birch forest biotopes and some mountain heath biotopes. Climate change represents a future threat to biotopes shaped by ground frost.

Among the threatened species of treeless arctic fell habitats negative trends have been noted among 27 species and only one species has been faring more favourably.

These species typically only have small total populations and limited distributions, which increases the risks associated with random factors. Such random factors are the main causes of the negative trends among about half of these threatened species, and erosion due to reindeer grazing or tourism was the second most significant causal factor. The shrinking of reindeer grazing areas due to the spread of competing forms of land use leads to the degradation of the remaining grazing areas.

Climate change will be a significant threat in the future, since the species living on treeless arctic fells will have no opportunities to shift their ranges as vegetation zones shift.

Most of Finland's arctic fell habitats are protected in various ways. Such habitats can be negatively impacted by reindeer grazing, other traditional livelihoods, outdoor recreational activities and tourism. The scale of reindeer grazing can be affected through reindeer husbandry subsidies and by adapting competing land use forms. Mining projects, road-building and the construction of tourism developments have all resulted in harmful impacts in certain localities. Climatic warming is the most significant future threat facing arctic fell environments, and this is a challenge for traditional livelihoods as well as nature conservation. Climate change may particularly affect the culture of the indigenous Sámi people, since most of Finland's arctic fells lie within the Sámi Homeland region.

The monitoring of biotopes and species in arctic fell environments is an urgent issue due to the predicted rapid rate of climate change in these northern regions. The same applies to habitats near the tree line and trends in the productivity of reindeer grazing areas. Indicators to illustrate such trends urgently need to be devised.

- The Government will particularly pay attention to the vulnerability of nature in northern regions, to the need for better monitoring and forecasting of threat factors, and to conservation and sustainable use, both nationally by clarifying legislation and administrative practices related to land use, and internationally in cooperation with other countries in the Arctic and Barents Euro-Arctic regions.

The Government will also enhance the rights of the Sámi as an indigenous people, for instance by clarifying legislation related to land use and by participating actively in international cooperation to strengthen the legal and practical protection of indigenous peoples.

Geological formations, soils and biodiversity

The Convention on Biological Diversity does not directly address the conservation of the inorganic natural values of bedrock and soils. From the perspective of the conservation of biodiversity, however, the dependency of organic nature on the characteristics of soils and bedrock is crucial. Soils are today beginning to be protected in the same way as the air and waters through such initiatives as the EU Thematic Strategy for Soil Protection.

Our current knowledge of the state of and trends in biodiversity in agricultural land and forest soils is insufficient. Deposited landforms such as eskers and moraine

features play a key role in the accumulation of groundwater reserves, which in turn significantly affect biodiversity. Areas where groundwater seeps up to the surface, for instance, are very important in maintaining biodiversity, providing functions such as spawning areas for rare trout populations.

Finland's Land Extraction Act aims to control the extraction of mineral resources so as to support environmentally sustainable development. For the permit system to function effectively, however, more information is needed about the natural values of rock and soil formations. Many more new mines, mining claims and applications for concessions are being established today than in previous decades. Mining activities have particularly intensified in Northern and Eastern Finland. Finland's mining legislation has been renewed, and the new legislation gives more consideration to the need to conserve biodiversity than earlier legislation did.

The findings of previous and ongoing inventories should be used to compile data for use in the monitoring of soil and bedrock materials and formations of special importance for biodiversity. It is particularly important to monitor linkages between increasing mining activity and the conservation of biotopes and species dependent on specific geological conditions.

- The Government aims to emphasise the close linkages between the conservation and sustainable use of biodiversity and the utilisation of mineral resources, and will insist that the impacts of projected activities on organic nature and the diversity of soil and rock formations are duly considered whenever policy decisions are made on the utilisation of geological resources.

Biodiversity considerations in land use planning and substitute habitats

Finland's biodiversity is manifested in landscapes that were first created by natural processes, but which in practice have been shaped for centuries by the relationships between man and nature. The landscape level offers the best spatial scale for examining linkages between different biotopes and the conservation of their natural values. In planning at the landscape level it is possible consider how the preservation of natural values can be ensured in different kinds of natural and cultural environments and in the ecological corridors and transitional zones between them.

A new concept of "substitute habitats" has been adopted in Finland when evaluating biotope status to describe environments that have been created or radically shaped by human activity, but which are still important as habitats for the species of more natural biotopes that have become threatened. The term substitute habitats has come into use in the context of species protection. Such habitats include underwater structures and shipwrecks, groundwater pools in gravel pits, water protection wetlands established in agricultural land, old peat cuttings, ornamental parklands and avenues of broad-leaved trees, lime quarries, meadow-like road embankments, field verges, railway embankments, small airfields and banked fortifications. If suitably managed, such artificial environments can compensate for the absence of suitable similar habitats. In the management of these habitats, the need to protect certain species must be harmonised with technical and cost considerations.

Many of the special features of urban environments are created by man but still constitute biotopes that host wide species diversity. Many threatened species find suitable territory in towns and cities. The proximity of urban nature provides a source of joy and recreation for many residents of towns and cities. Urban green spaces, nature reserves and even vacant and derelict land can also be very important resources for environmental education. In planning processes, urban nature has to be widely taken into account because ecosystem services of value to residents may occur in areas that are not very significant in terms of biodiversity. In such assessments the local knowledge of amateur naturalists and other urban nature lovers concerning biodiversity can be utilised to complement data produced by professionals.

From the perspective of residents, green spaces and bodies of water in built up areas clearly play a significant role in promoting public health as amenities for recreation and exercise, and sources of psychological well-being. They are also important in environmental health terms for their impacts on air quality, while recent research findings suggest that sensitisation to non-pathogenic microbes in the environment may inhibit the development of allergies.

Urban areas are changing the way they manage rainwater runoff and storm water. Earlier the aim was primarily to convey the water through sewerage systems; but today the preference is to use solutions such as various kinds of open channels and basins to slow the water and keep it near the source. This trend should in future increase the areas of open water in built up areas and thus enhance the biodiversity of urban environments. Because of the greater frequency of extreme rainfall events due to climate change and the increasing extent of built up land, managing storm water is a growing challenge for communities in terms of water protection and public health and safety. This challenge also affects risks related to biodiversity in the vicinity of built up areas.

The special features and threatened statuses of urban environments are not yet understood or being studied sufficiently. One challenge is that for reasons related to climate policies it is considered important to strive to increase the density of construction in built up areas. But taken too far this could excessively reduce the availability of green spaces resembling natural areas in the vicinity of residential districts. From the perspective of the diversity of urban environments and the preservation of their ecosystem services it is important to monitor the numbers of different biotopes and their fragmentation, as well as related changes in land use designations. Applying the City Biodiversity Index (CBI) and promoting best practices are good means to support the integration of biodiversity considerations into the planning of cities and other built up areas. More life can be brought into even densely built up environments through measures such as the creation of green roofs on buildings.

It is important to devise local, regional and national principles and guidelines to preserve and enhance green infrastructure, to address the numbers, quality and risk of fragmentation of natural environments, and to facilitate adaptation to climate change.

It is also important to achieve regionally balanced development safeguarding the viability of settlement in different regions of Finland. The biodiversity of farmland

habitats is particularly dependent on the settlement of rural regions, and the continuing viability of arable and pastoral farming. Indicators of the conservation and sustainable use of biodiversity should be devised to facilitate the monitoring of the numbers and structural features of protected areas, recreation areas and other areas preserved in a fairly natural state, for the purposes of land use planning.

- In steering land use planning, developing the spatial structure of communities, and planning and managing infrastructure, the Government will give due consideration to opportunities to promote biodiversity, support the related traditional knowledge of indigenous people, and safeguard the important ecosystem services available to citizens in their own surroundings. Land use planning tools for use at the landscape level will be created to help safeguard the biodiversity of different ecosystems and the zones between them. Development work will also focus on the need to define the characteristic features and values of natural and cultural landscapes, and find good means and controls for the management of substitute habitats.

Species protection

The fourth Red List evaluation of threatened species in Finland was completed in 2010. About 45,000 species live in Finland. More resources have been available lately for research into species thanks to the Research Programme of Deficiently Known and Threatened Forest Species (PUTTE), which forms part of the METSO Forest Biodiversity Programme. This has enabled the conservation statuses of as many as 21,398 species to be evaluated. This figure is 14 per cent higher than for the previous red list published in 2001, and amounts to 45 per cent of the species found in Finland. This makes the Finnish Red List the most comprehensive anywhere in the world.

A total of 2,247 were classified as threatened, amounting to 10.5 per cent of the species whose statuses could be evaluated. The coverage of the evaluation particularly improved among species groups including diptera, hymenoptera, arachnids, zygoptera, fungi and lichens. Trends in the statuses of species could also be assessed much more accurately in these inventories. The greater availability of data in itself led to changes in the statuses of 866 species.

Verified changes in the prospects for species compared to the previous inventories were observed for 542 species, with the situation having improved for 186 of these species and worsened for 356. The overall success of conservation measures for species can be assessed on the basis of these changes. The total number of threatened species increased by 742 species compared to the previous evaluation, but the percentage of species classified as threatened only increased by less than 0.5 per cent.

The findings of the evaluation indicate that in habitats where more measures have been implemented to protect species, such as forest and farmland habitats, positive impacts are beginning to become evident. It is clear that even in these habitats the measures taken to conserve species are still insufficient in some respects, and it is necessary to continue to implement these measures and also develop supporting ex situ conservation methods. The evaluation reveals many practical deficiencies and

problems related to the organisation of species protection. These factors make the cost effectiveness and long-term viability of such measures uncertain. A good basis for considerable improvements in species protection in Finland is nevertheless in place, since by international standards an extremely good knowledge base of the ecology and conservation statuses of species has been built up.

To safeguard genetic resources it is necessary to set up ex situ conservation projects in artificial environments to support the in situ conservation of growth sites and habitats in natural environments. On the basis of the findings of the three-year project Vulnerability Assessment of Ecosystem Services for Climate Change Impacts and Adaptation (VACCIA) a strategy and action plan have been prepared for ex situ conservation. The strategy recommends that a national seed bank should be established for threatened plant species.

The conservation statuses of species are among the best indicators of trends in biodiversity. The numbers of threatened species and trends in their status are also worth studying for different habitat types, so as to facilitate assessments of the pressures on these habitats and the necessary measures. To ensure that changes in the numbers of evaluated species do not affect assessments, any change in the number of threatened species should be accounted for in relation to the evaluated species. Changes in the status categories of threatened species should also be monitored, for instance, to examine whether verified positive changes observed in the statuses of threatened species outnumber negative changes by 2020.

- The Government will intensify species protection in Finland by drafting and implementing a species protection action plan in collaboration with key actors in this field. The plan should improve the cost effectiveness, comprehensiveness and impact of species protection measures, while also ensuring that monitoring and research can continue in the long term, ensure that data on species is well managed, and guarantee that related voluntary work is well organised and supported.

Climate change

The impacts of anthropogenic climate change are already visible in natural environments. The Red List evaluation of Finland's biotopes mentions climate change as the direct cause of the increasing threat facing several biotopes in Northern Finland. It is also mentioned as a future threat factor for more than 70 biotopes. Assessments of the threats facing species indicate that climate change is the primary threat factor for nine species, as well as one of the threats facing a further 24 species.

Climate change is expected to be most dramatic in northern regions. The first signs of declining biodiversity in a rapidly changing climate have also become evident in northern regions of Finland. It is difficult to find ways to help biotopes and species to adapt to changes that are much more rapid than natural trends. The best solution for the conservation of biodiversity is to prevent climate change in the first place. The most crucial predicted and proven impact of climate change on species is the tendency for their distributions to shift northwards. This phenomenon affects almost all kinds of habitat.

While northern species and biotopes become endangered, new species will spread into Finland from the south. Some of these may require protective measures, for instance, if they are protected under EU legislation. These species may correspondingly decline in the more southerly parts of their distributions, in Central or Southern Europe, leading to an overall northward shift in their ranges as a whole.

Geographical changes in the distributions and abundance of species are already under way, as reflected in the arrival of new species and changes in the species assemblages present in areas. Increases in the numbers of southerly species and declines in northerly species are most pronounced on the margins of their distributions, with southerly species becoming more abundant in protected areas in Northern Finland, and northerly species declining in protected areas in the south. To enable threatened species to spread northwards, their habitats must be interconnected at the wider landscape level. Because of climate change, conservation planning must be dynamic and predictive – the traditional conception of a network of protected areas must be re-evaluated on the basis of research findings.

To help mitigate climate change, national policies aim to significantly increase the use of renewable energy sources in Finland. The use of more wood energy, other forms of biomass, windpower and hydropower may increase pressures on the natural environment, however. It is important to be prepared to prevent any such harmful impacts.

One key goal is to meet a higher proportion of Finland's energy needs using wood. Methods already used for harvesting energy wood include the removal of logging residues, tree stumps and crowns from forests. The impacts of these new practices on forest species, soils and watercourses are not yet sufficiently understood. More information is needed to help find ways to minimise any harmful impacts.

Indicators of trends in climate change form a good basis for assessing how rapidly and extensively changes may be reflected in natural ecosystems. The first version of the web-based tool FINESSI, devised by the Finnish Environment Institute (SYKE), combines the findings of six climate models, four emission scenarios and three impact models. The impacts described in FINESSI relate to hydrology, lake physiology, agriculture and biodiversity. Hydrological findings have been produced using SYKE's river basin modelling system. They cover the whole country, and comprehensive maps have been drawn up illustrating predicted values for such hydrological variables as the water equivalent of snow, ground humidity, and seasonal runoff averages for today and three future periods. The maps can be examined individually or in combination to compare different climatic models, emission scenarios, periods or impact variables.

Further development work based on ecological research is nevertheless still needed, particularly to enable measures facilitating adaptation to climate change to be favourably targeted and scheduled.

- The Government will assess the impacts of climate change on the state of biodiversity and the implementation of the Convention on Biological Biodiversity in Finland in greater detail, reinforce the related knowledge base, improve the connectivity of the whole network of protected areas, and

establish a basis for policy actions to facilitate adaptation to changing conditions.

Although reducing the emissions that cause climate change remains the primary goal, adaptation measures are also inevitably needed. The impacts on biodiversity of measures designed to combat climate change, including measures based on the regulation of natural systems, must be sufficiently assessed before they are adopted on a large scale.

Invasive alien species

It has long been realised that people can accidentally or deliberately introduce species into new environments where they may be able to thrive. In some conditions such alien species may proliferate in the absence of strong competition. Their presence may lead to declines in other native species. Globalisation and the greatly increased international movement of people and goods by sea, land and air have accelerated the spread of alien invasive species. Inadvertent introductions of alien species into new areas by transport vehicles or vessels, or in transported materials have become more common in recent decades, with harmful impacts as the invasive species spread.

Other anthropogenic changes in the environment such as climate change may exacerbate such problems by creating conditions that are more favourable to the invasive alien species. New invasive alien species are regularly found in Finland. Aquatic alien species can particularly spread easily into new marine waters as a consequence of intensified international shipping.

Some invasive alien species in Finland have harmful economic, ecological, social and health impacts. A National Strategy on Invasive Alien Species has been drawn up with the aim of preventing and responding to related threats to ecosystems, livelihoods and the sustainable use of natural resources in Finland.

The numbers and distributions of harmful alien species can be used as indicators of the effective implementation of the national strategy.

- Finland's National Strategy on Invasive Alien Species was approved by the Government on 15 March 2012. The threats to biodiversity caused by invasive alien species in Finland will be managed and reduced through the implementation of this strategy.

Access to genetic resources and the equitable sharing of benefits

The three main objectives of the Convention on Biological Diversity (CBD) concern the conservation of biodiversity, the sustainable use of its components, and access to genetic resources and the fair and equitable sharing of benefits arising out of their utilisation (access and benefit sharing, or ABS). However, the CBD only contains general obligations concerning genetic resources. For this reason the parties to the CBD have long acknowledged the need for more detailed provisions. In the first attempt to address this need a set of non-binding guidelines was approved at the Conference of Parties (COP) in Bonn in 2002. In the same year the sustainable

development summit in Johannesburg resolved that a multilateral ABS system should be finalised by 2010. On the basis of subsequent negotiations the tenth COP issued the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. Finland signed the protocol on 24 June 2011.

The Nagoya Protocol represents a highly significant step for the CBD, since it enables the convention's third main objective to be fully realised. The protocol is particularly important for developing countries and countries with rich natural biodiversity. The European Union has emphasised that the protocol makes access and benefit sharing in the context of genetic resources more open, more transparent and more predictable.

The protocol covers the different stages of the utilisation of genetic resources from access through to the sharing of benefits. It also promotes access to the products and benefits of biotechnologies based on genetic resources. The Nagoya Protocol also complements the UN Food and Agricultural Organisation's International Treaty on Plant Genetic Resources for Food and Agriculture (2001).

The protocol's central elements concern access to genetic resources and the equitable sharing of benefits. Two other significant elements concern indigenous peoples' traditional knowledge of genetic resources, and issues related to compliance. Article 6 of the protocol requires that genetic resources can only be utilised with the prior informed consent (PIC) of the country of origin of the resources. It also sets out the kinds of measures that need to be approved by countries requiring prior informed consent. If the utilisation involves the traditional knowledge of genetic resources held by indigenous or local communities, their prior informed consent is also required as stated in Article 7. Article 8 on special considerations aims to simplify access to genetic resources for non-commercial research purposes, and also considers needs that may arise during emergencies. In negotiations this was particularly seen as necessary with regard to possible pandemics. The third issue covered in this article highlights the importance of genetic resources for food security.

The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources is defined in the protocol's articles 5 and 9 and its annex. Article 5 stipulates that benefits must be shared by the parties providing and acquiring the resources in accordance with mutually agreed terms (MAT). Possible benefits are listed in the protocol's annex, which is not meant to be exhaustive. Parties to the CBD are obliged to implement the measures necessary to ensure that benefits are duly shared. Article 9 encourages the users and providers of genetic resources to channel the benefits from their utilisation towards the conservation of biological diversity and the sustainable use of its components. Article 12 concerns the traditional knowledge of genetic resources held by indigenous and local communities and related issues, complementing Article 8(j) of the CBD. In Finland this article applies to the indigenous Sámi People.

- As a signatory to the Nagoya Protocol Finland will ratify the protocol without delay and thus support the implementation of the CBD. Permit procedures and other means related to prior informed consent and mutually agreed terms

in the context of access to genetic resources and the equitable sharing of benefits are key issues with regard to the implementation and ratification of the Nagoya Protocol.

The conservation of genetic resources for agriculture, forestry and fisheries

The most important issue in the context of the conservation and sustainable use of the biodiversity of crop plants and livestock animals is the need to preserve their genetic diversity. The genetic resources used in agriculture, including cultivated plant varieties and livestock breeds, are the product of generations of selective plant and animal breeding and the basis for our food security. These resources include wild plant species related to cultivated plant varieties. The conservation of genetic resources for agriculture and their availability for plant and animal breeding are of the utmost importance as agriculture in Finland strives to adapt to climate change.

International agreements and action plans form the most important bases for the conservation of Finland's genetic resources for forestry and agriculture. The most important agreement is the CBD itself, which addresses the need to conserve genetic resources for agriculture, as well as the biodiversity of wild species.

The International Treaty on Plant Genetic Resources for Food and Agriculture (IT-PGRFA), agreed under the auspices of the UN Food and Agricultural Organisation (FAO), is the most important international agreement on agricultural plant resources. In addition to the conservation and sustainable use of plant genetic resources, it covers the mechanisms necessary to ensure their future availability for plant breeding purposes. This legally binding agreement was transposed into Finnish legislation in 2003.

With regard to the conservation of agricultural genetic resources, Finland's most important commitments include the FAO's Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (GPA, approved in 1996 and revised in 2011) and Global Plan of Action for Farm Animal Genetic Resources (approved in 2007). These action plans emphasise the importance of national programmes on genetic resources in promoting the conservation and sustainable use of agricultural genetic resources.

The conservation of genetic resources in forest trees contributes to protection at the species level and the diversity of the resources utilised in commercial forestry. Genetic diversity safeguards the capability of forest trees to survive in a changing environment at both the species level and the population level. Genetic resources in forest trees are conserved by implementing the agreements made through the FOREST EUROPE process, which includes objectives defined to conserve the genetic resources of forest trees at European level. Practical cooperation is organised through the European Forest Genetic Resources Programme (Euforgen). The FAO's agreement on plant genetic resources does not cover forest trees, but a report on the State of the World's Forest Genetic Resources is currently being prepared within the FAO.

The above-mentioned agreements and action plans are implemented in Finland through national programmes on plant genetic resources (Ministry of Agriculture and

Forestry 12/2001) and animal genetic resources (Ministry of Agriculture and Forestry 17/2004). These programmes specify objectives and measures for the conservation and sustainable use of the genetic resources. The programme on plant genetic resources covers forest trees, as well as agricultural and horticultural crops. The programme on animal resources covers both local landrace livestock breeds and originally imported breeds that have become established in Finland.

Trends in genetic resources for agriculture and forestry can be measured by examining the conservation statuses of the crop species and varieties and livestock species and varieties specified in the respective national programmes on genetic resources.

- The Government will continue to implement Finland's national programmes on plant and animal resources.

Indigenous peoples' traditional knowledge

The CBD recognises that indigenous peoples' cultures depend greatly on the sustainable use of biological resources, and highlights the significance of their traditional knowledge of biodiversity for the future of their cultures. In Finland the CBD's obligations relating to indigenous peoples apply to the Sámi People of Finnish Lapland. The Sámi Homeland region in northernmost Finland includes the three municipalities of Enontekiö, Inari and Utsjoki, as well as northern parts of the municipality of Sodankylä.

The traditional knowledge preserved within Sámi culture cannot be separated from Sámi livelihoods, social systems and languages. This knowledge is reflected in the ways the Sámi People use natural resources and practise the traditional Sámi livelihoods of reindeer herding, fishing, hunting, gathering and handwork, as well as in their overall relationship with the natural environment. This knowledge is passed on in Sámi language terminology related to nature, terrain, weather, reindeer herding, handwork, trapping and fishing, as well as in Sámi place names. Traditional knowledge is passed on through formal teaching, through examples given by people from older generations, through oral tradition including "joik" songs, and through practices followed by experienced reindeer herders, fishers, hunters, gatherers and craftspeople.

The state of the Sámi People's traditional knowledge of biodiversity and related needs have been evaluated by a national working group set up by the Ministry of the Environment to address issues related to Article 8(j) of the CBD. The Sámi People's traditional knowledge of biodiversity, customary laws and conventional forms of utilisation of nature are becoming threatened. Traditional knowledge is lost as livelihoods change, new livelihoods develop, and changes reshape cultural settings. The traditional knowledge of the Sámi has been and still is transferred from generation to generation largely in connection with the practising of traditional livelihoods and through oral tradition. These pathways can be broken if people move away from the homeland region and traditional livelihoods decline due to worsening conditions.

Sámi customary law related to biodiversity guides traditional land use practices, defines communities' internal relationships with regard to land use, establishes principles for the common use of areas by the Sámi, and ensures that natural resources are used sustainably in line with Sámi legal concepts.

Sámi traditional knowledge and the details of traditional uses of natural resources have been variously archived in written, pictorial and audio form for the purposes of anthropological research and reports. Traditional knowledge is not however collected systematically, and this process is hindered by insufficient funding, coordination, allocation of responsibility and related training. Collecting traditional knowledge in such ways is not alone sufficient to preserve such knowledge, customs and innovations as required by the CBD, since such knowledge should also be returned to the Sámi community. This involves enabling traditional knowledge to remain under the control of the Sámi community, for instance, by improving access to knowledge.

Ethical questions about ownership of traditional knowledge and questions about intellectual property rights to this knowledge often arise in relation to the collecting, storage and use of traditional knowledge. The traditional knowledge of the Sámi related to biodiversity is an integral part of the Sámi People's cultural heritage, property, traditional livelihoods and languages. The storage of traditional knowledge should not lead to the use of this knowledge against the wishes of the Sámi People, and the Sámi community must be given the opportunity to preserve it. Databases containing traditional knowledge may, however, help to preserve, revive and restore such knowledge. It is important to halt the decline in the Sámi's traditional knowledge, land use practices and customary laws related to biodiversity, and ensure that the biodiversity of the Sámi Homeland region is preserved in culturally sustainable ways for future generations.

- In the context of the conservation and sustainable use of biodiversity the Government will follow the guidelines related to the traditional knowledge of indigenous peoples set out in the CBD and its decisions, and Finland will take the lead in international cooperation on the implementation of Article 8(j) of the Convention.

Cross-cutting measures

The conservation and sustainable use of biodiversity entails sustained and broadly based actions that by nature must take effect across society. Legislative and administrative measures have traditionally played a key role. The conservation of biodiversity is promoted by specific legislation, but it is also vital to integrate considerations related to biodiversity into all kinds of legislation and decision-making affecting the environment. Economic incentives encouraging voluntary conservation actions, advisory services, other forms of guidance, and the development and application of favourable land use planning principles in different sectors are also becoming more important policy instruments alongside legislative measures.

There is a clear need to enhance and expand economic incentives, as has also been seen internationally, for instance, in development work within the OECD. Partnerships between different actors in the private sector should also be developed.

Broad expertise and collaboration will be needed to ensure that the concept of ecosystem services is widely adopted and utilised in economic evaluations and development, that macroeconomic indicators are devised to give due consideration to biodiversity, and that economic incentives with harmful impacts on nature are removed.

Education, training and awareness raising play a key role in increasing citizens' understanding of issues related to biodiversity, the environment, and sustainable lifestyles. It is important to draw attention to biodiversity within teaching and training on sustainable development at all educational levels. Children and young people must be encouraged to experience nature and natural environments in their surroundings as part of efforts to get them to think ecologically. Recognising, valuing and conserving biodiversity and awareness of ecosystem services all feature in the national curriculum for basic education; and promoting sustainable development and safeguarding biodiversity are among the goals defined for professional education.

With the help of communications work citizens will be encouraged to take an interest in biodiversity more widely, and support decisions made to safeguard biodiversity.

Decision-making related to biodiversity is greatly dependent on scientific research, data storage and management, and monitoring, since many issues involve complex cause and effect relationships. Finland's active involvement in the work of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) is an important way to ensure that a suitable knowledge base is available to support policy decisions on biodiversity at the national and international levels.

Finland's development policies as part of wider foreign and security policies aim to promote sustainable development, peace, stability and democracy around the world. Finland is committed to many international environmental agreements, and to the UN Millennium Development Goals. In international contexts Finland particularly works through the development finance institutions of the European Union and the United Nations. Finland aims to strengthen contributions to multilateral organisations. In line with guidelines set out in the present Government Programme Finland seeks to actively influence international policy-making at EU level and internationally.

- The Finnish Government will base policy actions promoting the conservation and sustainable use of biodiversity on cross-cutting practices in society, while also ensuring the availability of a knowledge base for such actions and reinforcing the dissemination of information among citizens and decision-makers, for instance, by bringing the concepts of ecosystem services and the ecosystem approach into wider functional use.

4 Strategic goals and targets

The Finnish Government resolves to approve the following five strategic goals and 20 more specific related targets as guidelines for the conservation and sustainable use of biodiversity in Finland.

These guidelines have been defined with reference to conditions in Finland to comply with the goals defined at the CBD's COP 10 conference and the targets set in the EU's biodiversity strategy. They form a flexible framework capable of responding to Finland's national needs and priorities.

The Government assigns the relevant ministries to implement this strategy by working in cooperation with civil society, commercial interests and other stakeholders to create a cost-effective and purposeful action plan that contains quantitative and qualitative bases for monitoring. The action plan will implement the goals and targets defined in this strategy while giving due consideration to national needs and priorities. It will be implemented within spending limits defined in central government budget frameworks. Progress on the implementation of the strategy and action plan will be monitored and assessed, with findings reported to the Government in 2015.

Strategic goal 1: Mainstream the conservation and sustainable use of biodiversity across government and society.

Targets for 2020:

Target 1. Finnish people have at least a basic knowledge of biodiversity and are aware of its significance and their own opportunities to contribute to its conservation and sustainable use.

Target 2. Biodiversity values have been integrated. Alternative measures to GNP have been adopted to measure how well sustainable development objectives have been realised. The goal of conserving biodiversity has also been integrated into decision-making on plans, programmes and projects.

Target 3. Incentives and subsidies harmful to biodiversity have been identified and reformed, and economic controls related to biodiversity have been enhanced, taking into account national socioeconomic and cultural conditions.

Target 4. Administration, business, civil society and stakeholders at all levels promote and implement plans for sustainable production and consumption, and keep the impacts of natural resource use within safe ecological limits.

Strategic goal 2. Reduce the direct pressures on biodiversity and promote its sustainable use.

Targets for 2020:

Target 5. The loss of all natural habitats has been halted, and the degradation and fragmentation of natural habitats have been significantly reduced.

Target 6. All aquatic biotic resources are managed and utilised sustainably, applying an ecosystem-based approach. The concept of maximum sustainable yield (MSY) is applied in fisheries. Living natural resources are utilised within safe ecological limits.

Fish stock management plans are drafted for all threatened fish populations and where necessary for commercially fished populations and groups of populations. Fisheries have no significant adverse impacts on threatened species or vulnerable ecosystems. Fish migration routes and spawning areas are safeguarded in waters of importance to migratory fish and commercially fished species. Depleted fish stocks are strengthened and native fish populations restored with the help of introductions.

Target 7. Areas under agriculture, aquaculture and forestry are managed and utilised sustainably, ensuring the conservation of biodiversity.

Target 8. Environmental pollutants and their harmful emissions, including the excess nutrients that cause eutrophication, have been reduced to levels that are not detrimental to biodiversity and the functioning of ecosystems.

Target 9. Invasive alien species and their pathways have been identified and prioritised, with the most harmful species brought under control. Pathways are monitored to prevent the introduction and establishment of invasive alien species in Finland.

Target for 2015:

Target 10. The multiple anthropogenic pressures on threatened ecosystems impacted by climate change have been reduced so as to maintain their integrity and functioning.

Strategic goal 3. Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.

Targets for 2020:

Target 11. Finland's network of protected areas and the measures applied to conserve biodiversity in the use of other areas together cover at least 17 per cent of the terrestrial environments and inland waters of the country, and 10 per cent of coastal and marine areas. The functionality and coverage of the network have particularly been improved in Southern Finland. Protected areas are suitably managed and ecologically and regionally representative. They are well connected, and green infrastructure also connects them to wider landscape entities, with regard to the special features of heritage landscapes. Biodiversity also continues to be safeguarded in commercially managed forests.

Target 12. The extinction of threatened species has been prevented in Finland and the conservation statuses of those most threatened have been improved, with declining trends halted.

Target 13. The genetic biodiversity of Finland's cultivated plants and their wild relatives, forest trees, fish stocks, and farmed and domesticated animals has been preserved and safeguarded.

Strategic goal 4. Safeguard the benefits to all from biodiversity and ecosystem services.

Targets for 2020:

Target 14. Ecosystems that provide essential services, including services related to water, health, livelihoods and well-being, are restored and safeguarded, taking into account socioeconomic and cultural considerations, notably the needs of the indigenous Sámi community.

Target 15. Ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced through conservation and restoration. Finland participates in global efforts to restore at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification. The impacts of the increased use of bioenergy on biodiversity and the nutrient and carbon cycles of forests have been assessed, and guidelines have been set to safeguard biodiversity. Urban biodiversity is enhanced through conservation measures, management measures and the provision of structures that promote biodiversity.

Target for 2015:

Target 16. The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation has been enforced and integrated into national legislation and administrative practices.

Strategic goal 5. Enhance implementation of the conservation and sustainable use of biodiversity through participatory planning, knowledge management and capacity building.

Target for 2015:

Target 17. The implementation and impacts of the National Strategy and Action Plan for the Conservation and Sustainable Use of Biodiversity in Finland have been monitored for the purposes of an interim report produced in 2015. The strategy will be implemented and evaluated cost-effectively in collaboration with various businesses and other stakeholders.

Targets for 2020:

Target 18. The traditional knowledge, innovations and practices of the indigenous Sámi community relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, restored and conserved, subject to national legislation and relevant international obligations, by developing legislation and administrative procedures related to the protection of this traditional knowledge. Finland's implementation of the CBD allows for the full and effective participation of the Sámi community at all relevant levels in line with decisions set out in the CBD and by COPs.

Target 19. Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends have been improved, and are widely utilised, applied and transferred to those needing such knowledge and technology. The impact assessment processes for plans and projects are open,

participatory, and based on professionally conducted inventories whose quality is assured.

Target 20. Finland assesses opportunities to increase the availability of financial, human and technical resources to facilitate the effective implementation of the Strategic Plan for Biodiversity 2011-2020 as drawn up at CBD COP 10 and in line with decisions made at COP 11. Finland strives to obtain resources from all appropriate sources in accordance with the consolidated and agreed process defined in the Strategy for Resource Mobilization. National implementation depends on the availability of resources within spending limits set out in central government budget frameworks. This work will be steered in line with the needs assessments that are developed and reported by all Parties to the CBD.

Minister of the Environment

Ville Niinistö

Nature Conservation Director,
Ministry of the Environment

Ilkka Heikkinen