

State of the Parks in Finland

Finnish Protected Areas and Their Management from 2000 to 2005



Mervi Heinonen (ed.)

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Finnish Protected Areas and Their Management from 2000 to 2005



METSÄHALLITUS

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Cover photo: Hikers in the Pallas-Yllästunturi National Park. Established originally as Pallas-Ounastunturi National Park in 1938, this park was extended and re-established in 2005. Today it is Finland's third largest national park, and the most popular park in terms of visitor numbers. Photo: Paavo Hamunen.

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ABSTRACT	<p>State of the Parks in Finland is the first comprehensive report on protected areas, nature and wilderness reserves, the most valuable part of Finnish nature. National parks have been established in Finland since the 1930's and the protected area network has been constructed since the 1970's. The protected area system is today an important part of the nature conservation networks of the Boreal region, the Baltic Sea and the European Union.</p> <p>The Natural Heritage Services unit of the state enterprise Metsähallitus manages a major part of the established protected areas and those reserved for conservation on State land.</p> <p>This report presents the State of protected areas in Finland in 2005 by</p> <ul style="list-style-type: none"> – reviewing the milestones made in conservation of national biodiversity and describing changes that have taken place in the surrounding environment during the past few years – introducing the national administration, conservation programmes and protected area system – displaying the diversity of natural and cultural as well as recreational values – describing the use and users of protected areas – explaining the challenges of protected area management through analysis of pressures and threats faced by biodiversity in natural and man-made environments – evaluating productivity and effectiveness of Metsähallitus in managing the protected areas by using measures and indicators – summarizing the results at regional and national levels – presenting examples of significant outputs and outcomes as well as best practices – looking into the challenges of conservation and sustainable use of biodiversity in the immediate future reflecting on the National Biodiversity Strategy 2006-2016 and the 2010 targets set in the context of the United Nations Convention on Biodiversity (CBD). <p>The report gives a comprehensive overview of the present state and the level of knowledge on the protected area network in Finland. A review of the state and level of biodiversity conservation in each of the major ecosystems helps to understand why protected areas are essential and in need of good management. The State of the Parks report also pinpoints the ecological, cultural, social and economical benefits offered by national parks and other protected areas.</p> <p>State of the Parks reporting carries out objectives of the CBD work programmes. Frameworks used for the reporting are the Management Effectiveness Evaluation methodology designed by the IUCN World Commission on Protected Areas (WCPA) and World Wildlife Fund (WWF), the model for environmental monitoring developed by the European Environment Agency (EEA) and the concept of Adaptive Management in management and use of natural resources.</p> <p>State of the Parks reporting on Finnish protected areas will be repeated in 2010.</p>		
KEYWORDS	protected areas, national parks, strict nature reserves, wilderness reserves, hiking areas, resources, land use planning, nature conservation, recreation, nature tourism, monitoring		
OTHER INFORMATION	Park profiles on 70 national parks, strict nature reserves, wilderness areas and national hiking areas are presented in Finnish on the Metsähallitus website (www.metsa.fi/sop) as part of this report.		
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NATURA 2000 -OMRÅDETS NAMN OCH KOD			
REGIONAL ENHET			
FÖRFATTARE	Mervi Heinonen (red.)		
PUBLIKATION	Parkernas tillstånd i Finland. Finlands skyddsområden och deras förvaltning 2000–2005		
SAMMANDRAG	<p>Rapporten Parkernas tillstånd är den första omfattande presentationen av Finlands naturskydds- och ödemarksområden, dvs. den värdefullaste delen av Finlands natur. Skyddsområdessystemet har utvecklats under en lång tid och det omfattar i dag en betydande del av nätverken av skyddsområden i det norra barrskogsbältet, Östersjöområdet och hela Europa.</p> <p>Största delen av skyddsområdenas areal och nästan alla skyddsområden som inrättas på statens mark och skyddsområden som upptas i något av skyddsprogrammen förvaltas av Forststyrelsens naturtjänster. I denna rapport om skyddsområdenas tillstånd år 2005</p> <ul style="list-style-type: none">– ges en översikt över de framsteg som gjorts under de senaste åren i skyddet av naturens mångfald och över de förändringar som skett i verksamhetsmiljön från och med år 2000– presenteras naturskyddsförvaltningen och naturskyddsprogrammen samt samtliga skyddsområdes-system– granskas naturens och kulturarvets mångfald på skyddsområdena– beskrivs användningen av skyddsområdena och användargrupperna– betraktas problemen och utmaningarna inom förvaltningen av skyddsområdena med fokus på det tryck och de hot som påverkar livsmiljöerna– granskas Forststyrelsens verksamhets resultat och verkningsgrad inom förvaltningen av skyddsområden så att man med hjälp av olika parametrar och indikatorer jämför dem med de mål som samhället uppsatt– ges sammandrag både på det regionala planet och på riksnivå– presenteras centrala resultat för och arbetssätt inom verksamheten med hjälp av exempel– diskuteras de kommande årens utmaningar med fokus på Strategin för bevarandet och hållbart nyttjande av biologisk mångfald samt FN:s biodiversitetskonventions 2010-mål. <p>Rapporten ger en helhetsbild av Finlands skyddsområdessystems nuläge och nivån på de uppgifter som gäller dess tillstånd. Genom att betrakta naturens mångfald och dess skydd utgående från livsmiljöerna är det lättare att förstå varför skyddsområdena är nödvändiga och varför de bör skötas. Rapporten Parkernas tillstånd lyfter också fram skyddsområdenas ekologiska, kulturella, sociala och ekonomiska fördelar. Rapporteringen följer målsättningarna för det arbetsprogram för skyddsområden som ingår i biodiversitetskonventionen. Rapporteringen grundar sig på en metod som Internationella naturvårdsunionens (IUCN) kommission för naturskyddsområden (WCPA) utvecklat för utvärdering av effektiviteten på förvaltningen av skyddsområden och en modell för miljöuppföljning som Europeiska miljöbyrå (EEA) utvecklat samt referensramen för adaptiv förvaltning av naturresurser.</p> <p>Följande rapport om skyddsområdenas tillstånd i Finland kommer att ges ut år 2010.</p>		
NYCKELORD	skyddsområden, naturskyddsområden, nationalparker, naturreservat, ödemarker, resurser, naturskydd, områdesplanering, rekreatjonsbruk, uppföljning		
ÖVRIGA UPPGIFTER	Förutom sammandraget ingår i rapporten Parkernas tillstånd också parkkorten på Forststyrelsens webbsidor (på finska) (www.metsa.fi).		
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ALUEYKSIKKÖ			
TEKIJÄ(T)	Heinonen, Mervi (toim.)		
JULKAISUN NIMI	Puistojen tila Suomessa. Suomen suojelualueet ja niiden hoito 2000–2005		
TIIVISTELMÄ	<p>Puistojen tila -raportti on ensimmäinen kattava esitys Suomen luonnonsuojelu- ja erämaa-alueista, arvokkaimmasta osasta Suomen luontoa. Suojelualuejärjestelmää on maassamme kehitetty pitkän ajan kuluessa, ja se muodostaa nykyisellään merkittävän osan pohjoisen havumetsävyöhykkeen, Itämeren alueen ja koko Euroopan suojelualueverkostoista.</p> <p>Pääosaa Suomen suojelualueiden pinta-alasta sekä lähes kaikkia valtionmaiden perustettuja suojelualueita ja suojeluun varattuja suojeluohjelma-alueita hoitaa Metsähallituksen luontopalvelut.</p> <p>Tässä Suomen suojelualueiden tilaa vuonna 2005 kuvaavassa raportissa</p> <ul style="list-style-type: none"> – esitetään katsaus viime vuosien edistysaskeliin luonnon monimuotoisuuden suojelussa ja muutoksiin toimintaympäristössä alkaen vuodesta 2000 – esitellään luonnonsuojeluhallinto ja -ohjelmat sekä suojelualuejärjestelmien kokonaisuus – tarkastellaan luonnon ja kulttuuriperinnön monimuotoisuutta suojelualueilla – kuvaillaan suojelualueiden käyttöä ja käyttäjäryhmiä – lähestytään suojelualueiden hoidon ongelmia ja haasteita elinympäristöihin vaikuttavien paineiden ja uhkien kautta – tarkastellaan Metsähallituksen toiminnan tuloksellisuutta ja vaikuttavuutta suojelualueiden hoidossa peilaten niitä yhteiskunnan asettamiin tavoitteisiin tunnuslukujen ja indikaattoreiden avulla – tehdään yhteenvetoja alueyksikkö- ja valtakunnantasolla – esitellään toimintaan liittyviä keskeisiä tuloksia ja työtapoja esimerkein – pohditaan tulevien vuosien haasteita Suomen luonnon monimuotoisuuden suojelun ja kestävän käytön strategian sekä YK:n biodiversiteettisopimuksen 2010-tavoitteiden valossa. <p>Raportti antaa kokonaiskuvan Suomen suojelualuejärjestelmän nykytilasta ja tilaa koskevan tiedon tasosta. Elinympäristökohtainen luonnon monimuotoisuutta ja sen suojelua koskeva tarkastelu auttaa ymmärtämään, miksi suojelualueita tarvitaan ja miksi niitä pitää hoitaa. Puistojen tila -raportti pyrki nostamaan esiin myös suojelualueiden tuottamat ekologiset, kulttuuriset, sosiaaliset ja taloudelliset hyödyt.</p> <p>Raportointi toteuttaa biodiversiteettisopimuksen suojelualueita koskevan työohjelman tavoitteita. Taustana raportoinnille ovat maailman luonnonsuojeluliiton (IUCN) suojelualuekomission (WCPA) kehittämä menetelmä suojelualueiden hoidon tehokkuuden arviointiin, Euroopan ympäristöviraston (EEA) kehittämä ympäristöseurannan malli sekä luonnonvarojen hoidon ja käytön sopeutuvan suunnittelun kehys.</p> <p>Suomen suojelualueiden tilasta on tarkoitus raportoida seuraavan kerran vuonna 2010.</p>		
AVAINSANAT	suojelualueet, luonnonsuojelualueet, kansallispuistot, luonnonpuistot, erämaat, voimavarat, aluesuunnittelu, luonnonsuojelu, virkistyskäyttö, seuranta		
MUUT TIEDOT	Yhteenvetojulkaisun lisäksi Puistojen tila -raporttiin kuuluvat Metsähallituksen verkkosivuilla (www.metsa.fi) julkaistavat puistokortit.		
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NATURA 2000 - GUOVLLU NAMMA JA KODA			
GUOVLOOVTTADAT			
DAHKKI(T)	Heinonen, Mervi (doaimm.)		
PRENTOSA NAMMA	Mehciid dilli Suomas. Suoma suodjalanguovllut ja daid dikšun 2000–2005		
ČOAHKKÁIGEASSU	<p>Mehciid dilli -raporta lea vuosttas viiddes govvádus Suoma luonddusuodjalan- ja áidalasmeahceguovlluin, Suoma luonddu divraseamos oasis. Suodjalanguovlovuogádat lea riikkasteamet ovddiduvvon guhkes áigge siste, ja dat ráhkada dán áigge mearkkašahtti oasi davvi goahcevuovdeavádaga, Nuortameara birra ja olles Eurohpa suodjalanguovlofierpmádagain. Eanašoasi Suoma suodjalanguovlluid viidodagas ja maiddá measta buot stáhtaetnamiidda vuodduvvon suodjalanguovlluid ja suodjaleapmái várrejuvvon suodjalanprográmmaguovlluid dikšu Meahciráđdehusa luondbálvalusat.</p> <p>Dás Suoma suodjalanguovlluid dili j. 2005 govvideaddji raporttas</p> <ul style="list-style-type: none"> – ovdanbuktojuvvo geahčastat dimmá ovdánemiide luonddu mánggahámatvuoda suodjaleamis ja nuppástusaide doaibmanbirrasis jagi 2000 rájes – ovdanbuktojuvvojit luonddusuodjalanhálddahus ja -prográmmat ja maiddá suodjalanvuogádagaid oppalašvuohta – guorahallo luonddu ja kulturárbbi mánggahámatvuohta suodjalanguovlluin – govviduvvojit suodjalanguovlluid geavaheapmi ja geavaheaddjiavkkut – lahkonuvvojit suodjalanguovlluid dikšuma váttisvuodat ja hástalusat eallinbirrasiidda váikkuheaddji deattu ja áitagiid bokte – guorahallojit Meahciráđdehusa doaimma bohtosat ja váikkuhus suodjalanguovlluid dikšumis speadjalastimiin daid servodaga ásahan ulbmiliidda dovddaldatloguid ja indikáhtoraid vehkiin – dahkkojit čoahkkáigeasut guovloovttadat- ja riikkadásis – ovdanbuktojit doibmii laktáseaddji dehaleamos bohtosat ja bargovuogit ovdamearkkain ja maiddá – guorahallojit boahttevaš jagiid hástalusat Suoma luonddu mánggahámatvuoda suodjaleami ja bistevaš geavaheami strategiija ja maiddá ON:id biodiversitehtasoahpamuša 2010-ulbmiliid dáfus. <p>Raporta addá oppalašgova Suoma suodjalanguovlovuogádaga dáládilis ja dili goskevaš dieđu dásis. Eallinbirasguovdasaš luonddu mánggahámatvuoda ja dan suodjaleami goski guorahallan veahkeha áddet, manin suodjalanguovllut dárbbášuvvojit ja daid galgá dikšut. Mehciid dilli -raporta geahččala bajidit ovdan maiddá suodjalanguovlluid fállan ekologalaš, kultuvrralaš, sosiálalaš ja ekonomalaš ávkkiid.</p> <p>Raporteren ollašuttá biodiversitehtasoahpamuša suodjalanguovlluid goskevaš bargoprgrámma ulbmiliid. Duogážin reporteremii leat máilmmi luonddusuodjalanlihtu (IUCN) suodjalanguovlokomišuvnna (WCPA) ovddidan vuohki suodjalanguovlluid dikšuma beaktilvuoda árvvoštallamii, Eurohpá birasdoaimmahaga (EEA) ovddidan birasčuovvuma málle ja luondduváriid dikšuma ja geavaheami plánerápma.</p> <p>Suoma suodjalanguovlluid dilis lea dárkkuhus reporteret čuovvovaš háve j. 2010.</p>		
ČOAVDDASÁNIT	suodjalanguovllut, luonddusuodjalanguovllut, álbmotmeahcit, luonddumeahcit, áidalasmeahcit, resurssat, guovlluidplánen, luonddusuodjaleapmi, lustageavaheapmi, čuovvun		
EARÁ DIEĐUT	Čoahkkáigeassoprentosa lassin Mehciid dilli -raportii gullet Meahciráđdehusa internetsiidduin (www.metsa.fi) almmustahtton meahcekkorttet (suomagiella).		
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Preface

This is the first ever State of the Parks report about Finland's protected areas, which contain many of the most valuable elements of our country's natural heritage. The report gives a comprehensive picture of the state of our protected areas, and of the level of related data in 2005. It also assesses recent changes and immediate challenges. The report also serves to remind us why our protected areas need to be carefully managed and cherished.

Similar reports have previously been drawn up in other countries. Reports on parks in the Australian states of Victoria and New South Wales have particularly been referred to in the planning of this report. A group of international experts conducted a thorough evaluation of the effectiveness of the management of Finland's protected areas in 2004. The evaluation group recommended that future international evalua-

tions at intervals of ten years should be supported by a new system created to compile key data on each protected area, and that reports based on this information should be published every five years. The Metsähallitus Natural Heritage Services (NHS) has duly acted on this advice.

The evaluation group set out various principles for the drafting of State of the Parks reports. Reports should provoke public debate about problems and deficiencies concerning the management of protected areas, many of which are related to a lack of data. At the same time, such regular standardised reports constitute time series that reveal how the state of the parks has changed, and how various actions are reflected in results. The reports should also highlight the ecological, social and economic benefits of protected areas. Comprehensive assessments will also help the NHS staff working in different areas



Protected area directors visiting Linnansaari National Park. The World Protected Area Leadership Forum (WPALF) and the Board of Directors of the World Commission on Protected Areas (WCPA) met in summer 2004 at Savonlinna in Eastern Finland. Photo: Liisa Nikula.

to understand the needs and objectives of other areas. This will help to harmonise the management of protected areas.

Various agreements oblige the Finnish authorities to report on the state of protected areas to many national and international bodies. This State of the Parks report contains data that will be of use for many purposes, and will thus lighten the overall burden of reporting. The report will particularly be a vital tool for the monitoring work needed for the Programme of Work on Protected Areas of the UN Convention on Biological Diversity (CBD), and Finland's own National Strategy and Action Plan for the Conservation and Sustainable Use of Biodiversity.

The work of the NHS is not limited to the drafting of occasional reports, however, as it is even more important to compile the data needed for the management of protected areas into accessible information systems that can be applied in practical work. This task is still unfortunately incomplete. Data systems that support practical activities, and their information content, can play an essential role in efforts to improve the productivity, quality and cost-effectiveness of the management of protected areas.

The management of protected areas in Finland has been very successful in recent years. Notable improvements include the implementation of wide-ranging conservation programmes and the concentration of protected area administration within Metsähallitus; staff training and the active communication and adoption of best management practices in all activities; the rapid spread of conservation activities into areas outside statutory protected areas; active cooperation nationally and internationally; improvements in management, steering and planning systems; the

much wider use of nature management measures and habitat restoration methods, especially in forests and mires; improved species protection; new technology and data systems; and the accumulation of data and research material as a basis for future activities.

The largest single challenge for nature conservation in Finland is the scarcity and scattered distribution of protected areas in Southern Finland. The natural values that require conservation cannot be safeguarded in the long term in changing conditions through these existing areas alone, and new measures are needed in addition to urgent habitat restoration and other nature management activities to somehow significantly improve the ecological interconnectivity of protected areas. Increasing numbers of visitors and growing nature tourism place demands on land use planning standards. The EU's Natura 2000 programme will soon be fully implemented, like other earlier national conservation programmes, shifting the spotlight to the need for areas to be effectively and productively managed, and to the ecological, social and economic benefits obtainable from protected areas - to wellbeing.

Climate change and other factors affecting nature are continuously adding to the pressure to improve the management of protected areas. We have no choice but to adapt to such changes, but there is at the same time a risk that irreplaceable natural values will be lost. A coherent, ecologically representative and vital global network of protected areas is the best possible way to minimise the impacts of such changes on biodiversity. This State of the Parks report will establish a good benchmark to facilitate future evaluations of Finland's efforts towards this end.

Rauno Väisänen
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Metsähallitus

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1 Introduction

Finland's operating environment for nature conservation, the nature conservation administration, and the protected areas system form a multidimensional organisational setting for conservation efforts. There is plenty of detailed and comprehensive information on areas administered by different organisations, and on these organisations' work, but it is still difficult to get a comprehensive picture of the overall state of the protected areas and the conservation of their natural values. There have been many rapid and radical changes in this operating environment over the decade since Finland joined the EU, with considerable impacts on the administration of the country's protected areas. In Finland's nature conservation administration about 800 man-years are worked on behalf of nature and human wellbeing, but within each administrative sector it can still be difficult to see the significance of grassroots work within the larger scheme.

Most earlier reports on nature conservation in Finland, Finnish protected areas and their management have been prepared by government officials, and such compilations are too often hard to obtain and also difficult to comprehend. Many reports relate to a single programme of action or objectives, and they closely follow the structures defined in the lists of measures within these programmes. Often they also contain ambiguous abbreviations and references to conferences of parties held in various parts of the world. An understanding of the objectives and targets defined in related international agreements is undoubtedly important in order to comprehend the challenges facing nature conservation today and the progress that needs to be made.

Information on the administration, natural values, use and management of Finland's protected areas has been collected and stored in many ways. Some information is available to stakeholders and the public in published annual and activities reports, or in the management plans for protected areas. But a lot of data has

been compiled for administrative use, and is made available to stakeholder partners only on agreement or by specific request. Today, most information is entered into databanks, and access to the data may be subject to user rights for such systems, or limited to specific reports compiled from the data.

For these reasons, there is an evident need for a comprehensive presentation to depict the Finnish protected areas system as simply as possible, to clarify the international issues related to nature conservation in Finland, and to compile the scattered information on protected areas into a structured form that everyone can gain access to and use. This State of the Parks in Finland report strives to respond to these challenges.

The report outlines the international and national operating environments and Finland's protected areas system as a whole, but the main emphasis is on the state of the established protected areas administered and managed by Metsähallitus. Metsähallitus is a State-owned enterprise whose Natural Heritage Services unit (the NHS) is responsible for public administrative tasks including the management of most protected areas in State-owned lands. Most of these areas also belong to the European Natura 2000 network.

The State of the Parks report is divided into two parts. The first part (this summary report) compiles data on Finland's protected areas network and its management at national and regional level. The focus is generally on the period 2000-2005. The report is available in English and Finnish. The second part of the report will feature detailed information on the national parks, strict nature reserves, wilderness reserves and national hiking areas administered by Metsähallitus. These 70 areas account for around 80% of Finland's total network of protected areas. This second section of the report will only be published in Finnish on Metsähallitus's website at www.metsa.fi.

2 State of the Parks Report

2.1 Background to the Reporting

2.1.1 Finland Is Committed to Preserving Natural and Cultural Heritage

Obligations under international conventions

Finland is a party to all global or relevant regional international conventions where the conservation and sustainable use of biodiversity are significant objectives (see Appendix 1). The most important such agreement is the United Nations Convention on Biological Diversity (CBD), which Finland signed in 1992 in Rio de Janeiro. Finland's Parliament ratified the convention in summer 1994. A total of 188 countries are a party to the convention, of whom 168 are signatories.

The CBD aims to protect the global ecosystems, plant and animal species and their genetic diversity, and also to promote the sustainable use of natural resources and the equitable sharing of the consequent benefits. One main idea behind the CBD is that the maintenance of biodiversity should be integrated into all activities that shape natural environments, including farming, forestry, fishing and hunting, tourism, construction, planning and housing. Information Box 1 explains key concepts related to biodiversity and its sustainable use.

All national parties to the CBD are obliged to protect the natural ecosystems, biotopes and species of the vegetation zones within their territories. Finland has special responsibility together with Sweden and Russia for the natural features of the boreal coniferous forest zone in the Fennoscandian region, which includes the Scandinavian Peninsula, Finland, Russian Karelia and the Kola Peninsula. This zone is dominated by forests, mires, and coastal and inland water habitats. The cultural environments created by man are also important in terms of the region's overall biodiversity.

Finland is also a party to significant international agreements on cultural issues, including the World Cultural and Natural Heritage Convention of the United Nations Educational, Scientific and Cultural Organisation (UNESCO),

which was adopted in 1972 and ratified by Finland in 1987. On the basis of this convention, UNESCO maintains the World Heritage List, which contains sites considered to be of global value as humanity's cultural or natural heritage.

Thematic programmes and cross-cutting issues

To work towards the objectives of the CBD, the parties have defined a set of thematic programmes for different habitats and ecosystems, and a series of programmes of work on common or cross-cutting issues, which have all been approved by Conferences of Parties (COP) held over the period 1998-2004. COPs are nowadays held every other year. The most recent, COP8, was held in Brazil in March 2006. The most important programmes of work from a Finnish perspective concern the biodiversity of forests, inland waters, marine and coastal areas, agricultural areas and protected areas. Other programmes on the biodiversity of dry and sub-humid lands, mountains and islands are less significant due to the absence or scarcity of such habitats in Finland.

Key cross-cutting issues for Finland in the context of the CBD include mitigation of pressures on biodiversity, such as invasive species, climate change and tourism, as well as the assessment of environmental impacts. Other significant themes include the sustainable and equitable use of biodiversity, liability for damage to biodiversity, education and the raising of public awareness, and technology transfer and cooperation. Progress is needed on all of these issues, also in collaboration with work done on the basis of other UN multilateral agreements. Many international organisations also work to promote the objectives of the CBD, including the World Conservation Union (IUCN), the World Wide Fund for Nature (WWF) and the United Nations Environment Programme (UNEP), all of whom provide significant funding for biodiversity conservation work, especially in developing countries.

Other scientific and administrative processes designed to support the CBD include the Global Strategy for Plant Conservation, the Global

Taxonomic Initiative, and the development of biodiversity indicators. Indicators of trends in biodiversity are especially needed in the context of monitoring progress towards the 2010 Biodiversity Target approved at the Johannesburg World Summit on Sustainable Development in 2002.

Goal to halt the loss of biodiversity

In spite of efforts made under the CBD, biodiversity has continued to decline on a global scale. The countries who met in Johannesburg made commitments to significantly slow the ongoing decline in biodiversity by 2010. The EU set a

INFORMATION BOX 1.

Biodiversity and the Sustainable Use of Natural Resources

Diversity of nature

Biodiversity includes all the biological and physical diversity within any ecosystem. Biological diversity includes genetic diversity within species, taxonomic diversity (the number and diversity of species), and the ecological diversity of the habitats formed of the species and their inorganic environment. Natural diversity also includes the geological diversity of the rocks and the soil. This geodiversity can be seen as the basis for biodiversity and as a part of the diversity of ecosystems.

Evaluating biodiversity

Biodiversity can be considered as the number of species relative to a geographical feature, such as an area of habitat or a protected area. It is possible to monitor changes in the set of species in the same area, or to compare different areas to each other. Extensive field surveys can be conducted, or monitoring can focus on indicator species or the structural features that maintain the biodiversity of habitats.

Protecting biodiversity

To protect biodiversity, the UN Convention on Biological Diversity (CBD) was adopted in 1992. The goals of this agreement are the conservation of biological diversity (the diversity of animal and plant species, their genetic diversity, and the diversity of ecosystems), the sustainable use of natural resources, and the fair and equitable sharing of the benefits from the use of natural resources. Finland is one of the 168 states who have signed this agreement, which is implemented through a national biodiversity programme.

Sustainable management and use of habitats

The sustainable management of habitats means conserving their diversity, productivity, regenerative capacity, viability, and the possibility to carry out the relevant ecological, economic and social functions on local, national and international level, now and in the future. The ecologically sustainable use of natural resources promotes the conservation of biodiversity, and the adaptation of human activities to the levels of exploitable natural resources and the capacity of the environment. It is a responsibility of all administrative branches to ensure the sustainable use of natural resources in economic activities.

target in 2001 for member states to halt the decline of biodiversity by 2010.

Biodiversity targets also form part of the EU's wide-ranging 6th Environmental Programme and its associated action plan. Measures to preserve biodiversity are currently being outlined in the context of the renewal of the EU's Biodiversity Strategy, which dates from 1998, and related sectoral action plans approved in 2001. The Message from Malahide declaration issued in Ireland in 2004 defined more precise sectoral objectives and preliminary indicators for monitoring purposes (see Appendix 2). To steer measures in member states, the European Commission issued in 2006 a communication "*Halting the loss of Biodiversity by 2010 – and beyond. Sustaining ecosystem services for human well-being*".

The EU's Natura 2000 network is a vital tool for the conservation of natural resources. Attempts are also being made to include measures designed to reduce activities that threaten biodiversity in official policies and action plans in all economic sectors. This is particularly important in relation to activities that directly exploit natural resources, such as agriculture, forestry and fishing, but objectives have also been defined by the EU for policies in the fields of land use planning, energy, transport and construction. In the spirit of the CBD, the Message from Malahide also prioritises improvements in the sharing of the benefits derived from biodiversity, as well as measures to promote research and training,

increase awareness and know-how, and intensify international cooperation. The Countdown 2010 project launched in Malahide constitutes a useful practical communications tool for all European actors working towards the target of halting the decline of biodiversity by 2010. The aim is to get different actors to work together as one movement, encompassing businesses and NGOs alike.

The goal of significantly slowing the loss of biodiversity has been and will continue to be the main aim of Finland's national biodiversity action plans. Figure 1 illustrates the objectives of nature conservation work at different levels, together with the key tools for achieving these goals. Nature conservation in Finland is very much part of regional nature conservation in Northern Europe and the Baltic Sea region. Key tools in Finland include the Nature Conservation Act and the National Action Plan for the Conservation and Sustainable Use of Biodiversity. Finland is also actively involved in international cooperation to promote the ecological health and biodiversity of the Baltic Sea through the Helsinki Commission (HELCOM). At the European level, the most important measures to promote nature conservation are based on the Bern and Bonn agreements, and the Birds and Habitats Directives applied to achieve their objectives within the EU.

On a global scale, the most important programmes promoting the conservation and

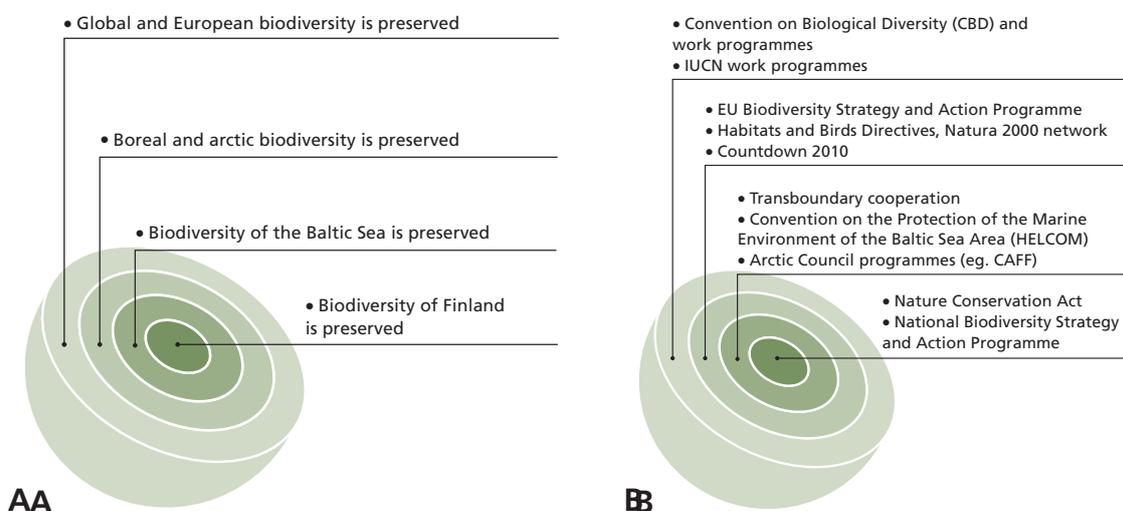


Figure 1. A. Nature conservation objectives and B. Important conservation programmes and instruments. HELCOM = Helsinki Commission, CAFF = Conservation of Arctic Flora and Fauna.

sustainable use of biodiversity are the work programmes of the CBD and the World Conservation Union (IUCN). According to the CBD, the most important means to maintain biodiversity is to make sure that various natural habitats are preserved, managed and used sustainably. Safeguarding habitats can ensure the survival of their characteristic species diversity and the genetic diversity within these species' natural occurrences. Protected areas, and the networks they make up, have a crucial role in this respect.

2.1.2 Joint Work Programme for a Global Protected Area Network

The 5th IUCN World Parks Congress, held in Durban, South Africa, in 2002, stressed that a globally and nationally comprehensive, biologically representative and effectively managed protected areas system is crucial to achieve the 2010 targets. The Congress also emphasised that an ecologically representative and functional protected areas system should incorporate suitably interconnected protected areas, ecological corridors and buffer zones.

The Durban Congress stressed the importance of understanding phenomena related to the occurrence and functioning of species, habitats, ecosystems and ecological processes at all scales. Specific objectives and schedules were also confirmed for the conservation of the habitats of globally threatened species; for the establishment of sustainable networks of protected areas to conserve terrestrial, marine and freshwater ecosystems; and for the conservation of all the ecological processes that serve to maintain biodiversity and provide ecosystem services for human communities. The transboundary benefits highlighted during the Congress will not be obtainable unless the ecological sustainability of protected areas is safeguarded through their prudent management and use.

The 7th Conference of Parties to the CBD, held in Kuala Lumpur, Malaysia, in spring 2004, approved a Programme of Work on Protected Areas that aims to create a global network of protected areas, incorporating national and

regional networks. National parties committed themselves to objectives and schedules defined to enhance the coverage of protected areas and improve their management. The Programme of Work also emphasises the need for better linkages between protected areas and land use in their surrounding areas, as well as the desirability of exploiting opportunities for the multiple use of protected areas. Attention was particularly drawn to the need for indigenous and other local communities to participate in the establishment, use and management of protected areas.

2.1.3 Management Effectiveness of Finland's Protected Areas Evaluated

One key objective of the Programme of Work on Protected Areas is to ensure that at least a third of the protected areas in each signatory country are covered by systematic monitoring and evaluation by 2010. The management effectiveness of Finnish protected areas was evaluated in 2004. The evaluation was commissioned by Metsähallitus, whose Natural Heritage Services unit (NHS) is responsible for public administrative tasks including the management of most protected areas in lands owned by the Finnish State. The evaluation report was published in spring 2005.¹

This Management Effectiveness Evaluation (MEE) was conducted by applying methods developed by the World Conservation Union and the WWF, according to conditions in Finland. The evaluation examined the operating context, planning, resources, processes, outputs and outcomes. This evaluation framework has been approved in the Programme of Work on Protected Areas to be used as the common basis for coherent evaluation. (See Information Box 3, p. 22).

Evaluations of individual protected areas have been conducted applying methods in the IUCN framework in various countries over the last five years, but Finland is one of the first industrialised countries to conduct such a wide-ranging evaluation. The evaluation covered Finland's entire protected area system and its administration. Assessments were conducted by the NHS of a total

¹ Gilligan, B., Dudley, N., Fernandez de Tejada, A. & Toivonen, H. 2005: Management Effectiveness Evaluation of Finland's Protected Areas. Nature Protection Publications of Metsähallitus. Series A 147.

of 70 protected areas, applying the WWF's Rapid Assessment and Prioritisation of Protected Area Management (RAPPAM) methodology. These account for about 80% of Finland's protected area network. The evaluation also included field-work, which involved visits to various protected areas in different parts of Finland, as well as meetings with representatives from ministries, Metsähallitus, non-governmental organisations and other stakeholders.

The evaluation gives an overall rating that Finland's protected areas are well managed, and states that with some exceptions they appear to be achieving their aims in conserving biodiversity. The evaluators considered that protected areas have a good status in Finland compared to systems in many other countries, and that they should be used as examples for areas elsewhere. To further improve the protected areas system in Finland the evaluation team made a set of recommendations, the most important of which concerned:

1. ecosystem approaches in planning
2. the development of the protected areas system
3. the management planning of protected areas
4. the impacts of conservation measures
5. impacts on local communities
6. visitor impacts
7. financing
8. the global role of the NHS
9. surveys and monitoring
10. state of the parks reporting.

These issues will all be covered in this report. The MEE report is available in full and in summary form on the Metsähallitus website (www.metsa.fi/mee).

2.1.4 First Report on the State of the Parks in Finland

The recommendations of the international evaluation team concerned the work of various actors in addition to Metsähallitus, although the assessment emphasis was on the management of areas administered by the NHS. One important recommendation concerned the need to develop an information system to monitor the state and management effectiveness of Finland's protected

areas (the parks), and use it to initiate regular public reporting on the state of the parks. One factor behind the team's recommendation may be the previous lack of a comprehensive presentation about Finland's protected areas, especially in English. There was no real shortage of data as such, but the picture of the state of Finland's protected areas remained rather fragmented.

The task of setting up such a system to describe the state of Finland's protected areas and also developing replicable reporting procedures was immediately undertaken within Metsähallitus in spring 2005. One basis for this work was the suggestions made by the evaluation team for the structure and content of such reporting.

Objectives within the State of the Parks reporting are:

1. to give a comprehensive picture of Finland's protected areas system and the state of the country's protected areas
 - for employees of Metsähallitus working with protected areas
 - for local and national stakeholders and decision-makers
 - for the international nature conservation community
2. to compile and analyse the available data
 - on the state of the protected areas system, on the conservation of biodiversity, and on challenges related to the management of areas (threats to parks and measures to counter these threats)
 - at the level of individual protected areas or parks
 - in regional and national summaries
3. to describe the outputs and outcomes of the management of Finland's protected areas
4. to outline the future direction of nature conservation work in Finland.

It is intended that State of the Parks reporting will be repeated approximately every five years (with the next compilation of data due in 2010), so as to enable longer-term monitoring of trends in the state of the parks. This first report should serve as a model for future reports. Two main themes have been selected for this report: habitats and cultural heritage. Other topical issues will be emphasised in future reports. One pos-

sible theme for the 2010 report could be species, for instance. The reports will support the Natural Heritage Services' own work and cooperation with various stakeholders, as well as the next international evaluation, which has been provisionally scheduled for 2014.

2.2 Position, Framework and Structure of the Report

2.2.1 Towards Coherent Reporting

A considerable part of the environmental monitoring work done in Finland is designed to meet Finland's commitments under international agreements and EU legislation. Finland is obliged to submit regular monitoring results and reports on the implementation of agreements and legislation. The extensive environmental monitoring conducted in Finland enables the assessment of very many different environmental pressures and trends. This monitoring work can be divided into four main categories:

- monitoring of natural resources
- monitoring of pressures
- monitoring of the state of the environment
- monitoring of environmental policies and measures (environmental responses).

Wide-ranging environmental monitoring is applied in descriptions of the state of biodiversity and protected areas. Data on protected areas is also compiled as part of environmental monitoring.

The countries that have ratified the Convention on Biological Diversity (CBD) are obliged to report regularly on their national implementation of the CBD to the Convention Secretariat. Decisions on the contents and scheduling of national reports are made by Conferences of the Parties to the CBD. Parties are additionally obliged to submit various other reports at agreed intervals on their national implementation of programmes of work or other measures related to the CBD. Finland's national reports are available through the website of the CBD Secretariat (www.biodiv.org). The latest such report was finalised in summer 2005. Finland has also reported on the implementation of other international agreements to the respective Secre-

tariats. National reports on the implementation of the Ramsar Convention have been submitted in 1999, 2002 and 2005. This convention obliges national parties to promote the conservation of internationally significant wetlands and their waterfowl by establishing protected areas in wetlands. Collaboration between the bodies responsible for implementing the various multilateral environmental agreements will be an important task over the coming years, with the aim being to harmonise reporting and avoid the duplication of work.

Within the EU there is a need to enhance the administration of data and reporting in the context of the implementation of various directives. Reporting on the implementation of the Birds and Habitats Directives, for instance, is required separately and at different intervals. Reporting on the Habitats Directive is submitted every six years, with the next submission due at the end of 2007. Reports on progress related to the Birds Directive are submitted every three years. In many cases, however, the reports focus on the same areas where species are protected separately under the two distinct directives (for more information on these directives see Sections 3.1.2. and 5.1.3.)

Comprehensive national reporting encompassing protected areas, biotopes and species in the form of the State of the Parks reports can help to provide the answers to various questions related to protected areas set up as part of the implementation of international agreements. Most importantly, such needs can be met by improving the whole protected areas information system currently under development, which can then be used to compile the necessary data at different levels. Such a system can also include tools to facilitate the monitoring of management effectiveness and productivity.

2.2.2 State of the Parks Reporting as Social Responsibility

State of the Parks reporting and development of the related information management systems form part of the activities of the Metsähallitus NHS. Regular reporting on the state of protected areas and their management is also an important part of social responsibility, and helps to meet related accounting obligations. Metsähallitus's

nature conservation work is steered and guided through the respective ministries' performance management schemes to achieve social objectives approved by the Parliament, using public funding. It is vital to ensure that this work and its impacts are transparent.

The Metsähallitus NHS reports on its annual finances in the shape of a statutory official performance report and a briefer and more general annual report intended for the wider public. Neither of these annual reports covers linkages within the context of the wider operating environment or longer-term objectives. The State of the Parks report will help to highlight these aspects. Linking international goals and wider national objectives to the monitoring of outputs in the medium term enables more open evaluation. This report does not aim to present an actual assessment of the outcomes of activities, which is left to the readers, and ultimately to an official evaluation team. The relationships between different levels of reporting are described in Appendix 3.

Metsähallitus as a business entity publishes annual social responsibility reports based on recognised standards. Most of the information within these reports is derived from Metsähallitus's well-defined planning and monitoring systems, an ISO 14001 certified environmental management system, and audited bookkeeping and accounts. Performance measures used to assess economic, environmental and social responsibility are closely linked to the definition of national indicators for sustainable forestry, to the construction of performance measures for the Balanced Scorecard for Metsähallitus's business units (see Section 8.1.1 for details) and to indicator development work conducted to help evaluate Metsähallitus's general results. Performance measures and indicators (see Information Box 2) have been also selected with the aim of describing how Metsähallitus's values are realised. These values include the responsible use of natural resources, results through cooperation, employee well-being, customer orientation, and profitability.

Some of the indicators on which Metsähallitus reports are closely linked to Metsähallitus's own statutory social obligations including the consideration of biodiversity, the provision of facilities for recreation, the preservation of suitable conditions for reindeer husbandry and the

culture of the indigenous Sámi People, and the promotion of employment. Some indicators describe the management of protected areas, biotopes and species, and the operating procedures of the NHS. These indicators are therefore highly suitable for inclusion in reporting on the State of the Parks in Finland.

2.2.3 International Frameworks for Information Analyses

Cycle of adaptive management

The evaluation team responsible for the Management Effectiveness Evaluation recommended that the same framework should be used for State of the Parks reporting as in their own evaluation, namely the framework defined by the IUCN World Commission on Protected Areas (WCPA) (see Information Box 3). The idea is that the whole system for monitoring the state of protected areas should have the same logical basis at every level. The same issues – the wider context, the state of protected areas, processes and their effectiveness, and outcomes – can be examined from the perspective of individual protected areas, regional administrative units, and the national network of protected areas. In State of the Parks reporting data is processed at all of these levels.

Assessments are repeated at regular intervals as part of the monitoring and evaluation of protected areas, conducted within this framework. The consequent systematic maintenance and reporting of monitoring data thus also supports adaptive management. In periodic assessments of the implementation of plans and the outcomes of activities, in the context of local area planning, for instance, stakeholders and citizens are able to contribute their own knowledge and visions. The scientific community also participates in the monitoring of outcomes. Future activities are then adapted on the basis of feedback, ensuring that new plans apply the best knowledge available.

The planning and management of protected areas can also be described as an adaptive process within the wider context (see Fig. 2). The state of protected areas is assessed through their natural, cultural and recreational values. Biotopes and species are surveyed, and the representativity

and viability of their occurrences are assessed as comprehensively as possible, also in relation to ecosystems as a whole. Whole landscapes, valuable buildings and archeological relics and their current state are evaluated on the basis of the available data. The extent and state of areas' recreational facilities are also surveyed. The consideration of former land uses and the monitoring of present recreational uses help to determine which contextual factors affect the values of protected areas, including former pressures and potential future threats.

Land-use and management planning helps to define the key actions that need to be taken to promote the preservation of protected areas' values, and resist potential threats. Management plans also define opportunities and limitations for the nature and extent of future land use. Clear objectives are defined for the use and management of areas, together with related indicators. Wider objectives, including the social objectives defined in legislation and national action plans, form the basis for these objectives.

The longer-term objectives defined in land-use and management planning are realised in the short term with the help of detailed op-

erational plans and annual operational planning and monitoring. The realisation of conservation objectives is monitored, and the effectiveness of activities is assessed in relation to the wider goals defined for management, such as the survival of thriving biotopes and species in the long term (their 'favourable conservation status').

Protected areas are not planned and managed in a vacuum, but as part of a wider operational context that involves many other environmental actors and factors. All research and monitoring work done in protected areas is exploited in the compilation of basic data and the monitoring of the state of protected areas. Local communities and stakeholders participate in the drafting of land use and management plans. The management of protected areas often depends on wider collaboration. Feedback on this work is compiled continuously, and considered where possible in the development of future activities. Best practices identified in the work of the NHS or other organisations are applied wherever possible, as are data and procedures obtained through the latest research.

The idea behind adaptive planning is to exploit all the available data to improve manage-

INFORMATION BOX 2.

What Do the Figures Show?

Performance measures are useful ways to measure the wider state of things. They typically consist of numerical figures produced by measuring specific features that are considered to reflect wider trends of interest. Target values may be set for such measures. Examples include the number of occurrences of threatened species selected for monitoring, or the numbers of visitors to national parks.

Key figures are measures used to help calculate whether a target has been reached. Various key figures can also be used to give a general picture of the functions related to evaluation. Key figures include the number of completed management plans, or the total area of habitat in hectares restored in a single year, or compared to a long-term goal. The number of national parks and the total area of wilderness reserves also provide a general description of the scale of activities.

Indicators have wider significance than performance measures, and they can be either numerical or verbal. They indicate the quality or state of the subject concerned, or ongoing changes in its quality or state. Indicators help to provide numerical data that can be used to determine whether goals have been reached or not. One example indicator is trends in white-backed woodpecker (*Dendrocopos leucotos*) populations, which indicate whether the quality of the habitat of this demanding species has remained good enough to sustain biodiversity.

Management Effectiveness Evaluation of Protected Areas

Management Effectiveness Evaluation (MEE)

Evaluations of the effectiveness of protected area management are useful tools for implementing the CBD's Programme of Work on Protected Areas. Such evaluations can ensure that protected areas become systematically monitored, thus making sure that conservation measures are carried out in practice as well as in theory.

The following aspects of management are monitored and evaluated:

- the state and operating environment of protected areas
- planning
- resources
- processes
- results (outputs)
- effectiveness (outcomes).

Most evaluations are carried out using methods developed by the IUCN World Commission on Protected Areas (WCPA) and the WWF, which can be adapted for use in a single area or a network of protected areas.

Performance and efficiency

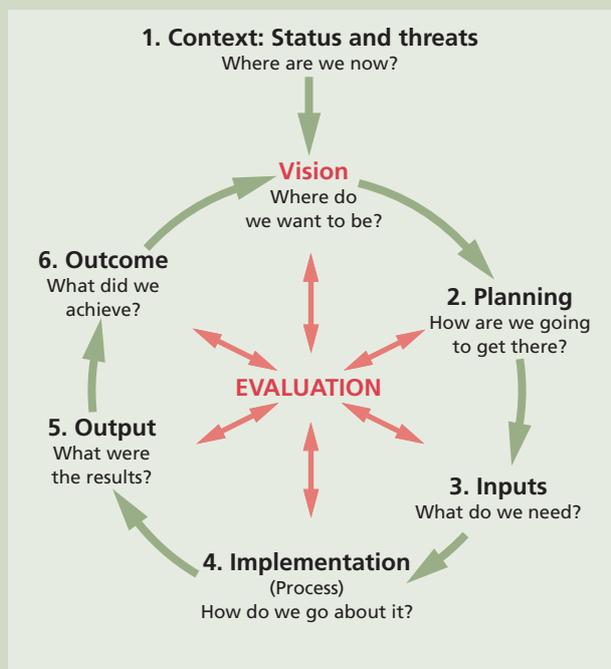
The performance of an organisation reflects the achievement of goals and the generation of benefit and impacts compared to the resources used. Performance criteria are divided into outputs and outcomes. Operational performance reflects the end results and effectiveness of operational processes. Efficiency gives a general view of the use of resources and the organisation of activities. It consists of economy, which compares expenses to outputs, and productivity, which relates inputs to outputs, including the work of staff. Performance is related also to the service capacity of the organisation (as reflected by customer satisfaction), the management of human resources (and the related know-how), management methods and organisational culture.

Performance in the management of protected areas reflects the success of the authority responsible for managing the areas, in terms of both the cost-efficient use of resources and achievement of nature conservation goals and social objectives.

Effectiveness

Effectiveness reflects the relationship between targets and actual impacts in the long term. Impacts describe the immediate or direct changes caused by an activity or service, for instance in a protected area (maintaining a population of a threatened species) or for an individual customer (gaining employment).

Social effectiveness describes how social development policy targets have been attained. Impacts are measured over broad areas and social issues, such as the maintenance of biodiversity, or improvements in local economies and employment. The aim of social effectiveness is to respond to the needs of society and to ensure the sustainable use of natural resources, social development and economic growth. Social effectiveness forms part of the performance, that an organisation can influence through its own actions.



Framework for protected area management effectiveness evaluation (IUCN WCPA and WWF).

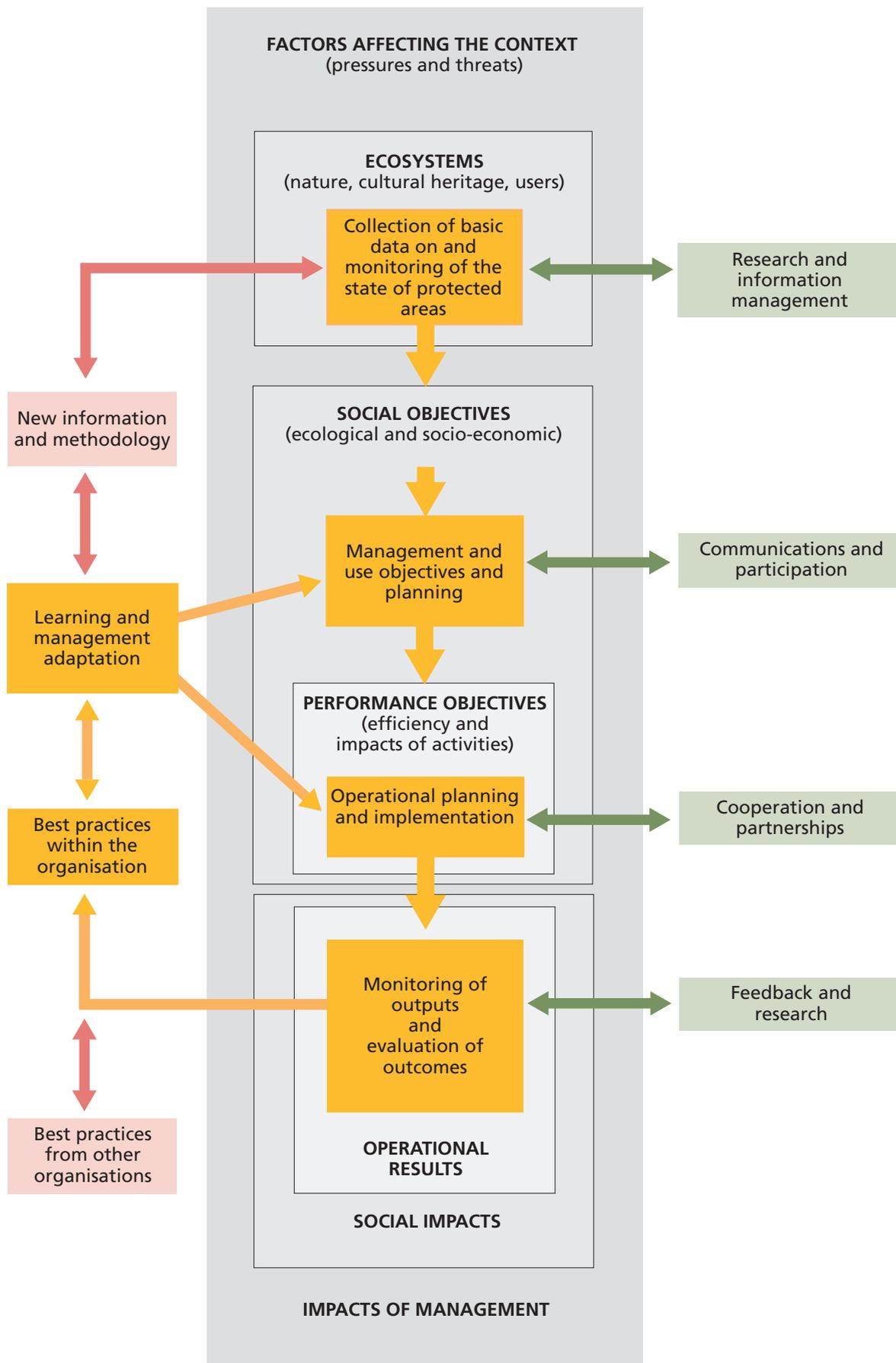


Figure 2. Framework for adaptive management of protected areas in broader environmental and operational context. Source: Metsähallitus.

ment work. The fact that this work is done in a complex and constantly changing environment, where other actors are also developing their activities, means that it is not feasible to get a complete and final picture of the values of protected areas, their state, and the factors affecting them. New ideas must continuously be tested in planning and other activities, with their impacts monitored, lessons learnt, and future planning duly adapted.

Causalities and consequences

The background to the assessment model described above is a widely shared vision that the state of the environment cannot be improved without an understanding of the mechanisms that lead to environmental impacts. The European Environment Agency (EEA) applies for this purpose a model known as DPSIR (Driving Force-Pressure-State-Impact-Response). Figure

3 and Table 1 illustrate how this model can be applied in the context of the conservation of biodiversity.

Wide socioeconomic drivers result in pressures for the exploitation of natural resources. These pressures in turn affect the state of various constituents of biodiversity, leading to various impacts on biodiversity, including changes that worsen the status of species and biotopes. These impacts generate society's responses, which aim to prevent, reduce or repair harmful impacts. Measures are planned aiming to control pressures and address structural changes in habitats or declining trends in species, for instance.

Each of the model's factors and the impacts of measures on them can be monitored and assessed with the help of various meters and indicators. This monitoring includes environmental monitoring of all the four types listed in Section 2.2.1 (p. 19).

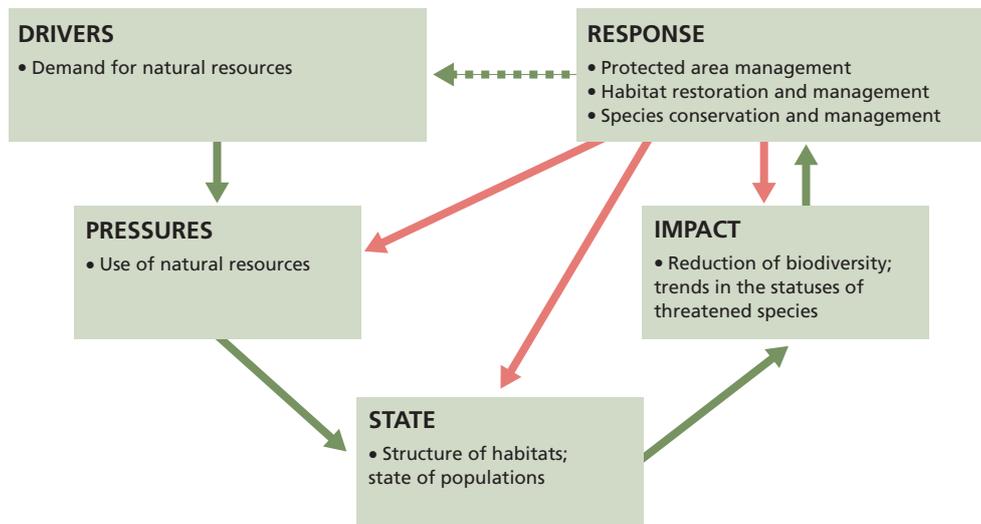


Figure 3. DPSIR framework for interpreting trends in biodiversity. Source: Hildén et al. 2005.

Table 1. DPSIR framework for interpreting trends in biodiversity. Source: Auvinen 2006.

D	Driver	Political programmes, structure of economy, market development etc.
P	Pressure	Economy, land use, climate change etc.
S	State	Habitat and resource availability, population state of typical species etc.
I	Impact	Trends in the statuses of threatened and EU Directive-listed species and resource-dependent species
R	Response	Protection, habitat restoration and active management

2.2.4 State of the Parks Reporting in Two Parts

One model applied in reporting on Finland's protected areas and the state of their management has been the State of the Parks reporting done in Australia by regional park administrators Parks Victoria and the New South Wales National Parks and Wildlife Service. A similar two-part structure to the Australian reports has also been adopted for reporting on Finland's parks.

This summary report examines the state of the whole park system, while the second part, the park profiles, presents detailed information on the state of individual protected areas.

Summaries of park system data every five years

This summary report on the State of the Parks:

- reviews conservation developments in recent years from 2000 to 2005
- presents Finland's protected area system as a whole and the national nature conservation administration and programmes
- examines biodiversity and the diversity of cultural heritage in protected areas
- describes the use of protected areas, and user groups
- approaches problems and management challenges through the factors that affect natural habitats
- evaluates the outputs and outcomes of management activities in relation to objectives through defined performance measures and indicators, also compiling such assessments at regional and national level
- presents management issues and procedures through examples
- examines the challenges faced over the coming years in the light of the CBD's Programme of Work on Protected Areas and the 2010 Biodiversity Target.

This summary report exploits the frameworks described above. The state of biodiversity, the factors affecting it and degrees of conservation are all examined on the basis of the evaluation of the first Finnish National Biodiversity Action Plan, finalised in 2005.

The regional and national summaries compiled for the summary report are partly based on data collected on individual parks, and also on material already compiled for annual reports. The performance measures and indicators of current states are largely from 2005. Time-series have been compiled for the last five years where possible. Overall financing, the acquisition of areas designated for protection and park visitor numbers are examined over longer periods. The key indicators used to assess the state of protected areas and the effectiveness of their management have been drawn together into a list of indicators (see Appendix 22). It is intended that the next State of the Parks report in 2010 will compile data using the same procedures and indicators.



On the Karhunkierros Trail in Oulanka National Park. Brian Gilligan (left), who led the international team of experts that evaluated the effectiveness of Metsähallitus's protected area management, brought to Finland good practices related to state of the parks monitoring and reporting. Photo: Nigel Dudley.

Park profiles of significant protected areas

A park profile form was designed to collect data on individual protected areas, with a general structure parallel to that of the summary report, and data fields to collect information relevant to issues discussed. The form has two sections. The first section encompasses data on the protected area, its natural and cultural values, its facilities, its use, significant pressures and threats, completed plans and maps. The second section includes data on questions related to the management of the area and its impacts. Data for the first section of the park profiles has been compiled for all of the 70 areas now covered (see Fig. 4). The data for the second part of the profiles has been summarised in this report, since all such data is not available for each specific protected area, largely because Metsähallitus's operational and reporting procedures are mainly activity-specific rather than area-specific. Data on the use of resources, for instance, has not been routinely monitored on an area-by-area basis. The contents of these park profiles are described in more detail in Appendix 4.

The park profiles have been designed so that most of the necessary data can be obtained directly from existing data systems. Metsähallitus does not yet have a complete information management system for monitoring the state of protected areas, however, and the existing information systems do not as yet support the compilation of such data very well. At the moment, information is filled out on forms manually, and then published electronically together with the relevant maps. The longer-term objective is that a web-based information service should be set up through collaboration within Finland's nature conservation administration, making use of the various existing information systems, to enable access to data on specific protected areas at the "touch of a button". Such a service will benefit the whole administration, as well as all stakeholder groups and citizens interested in protected areas.

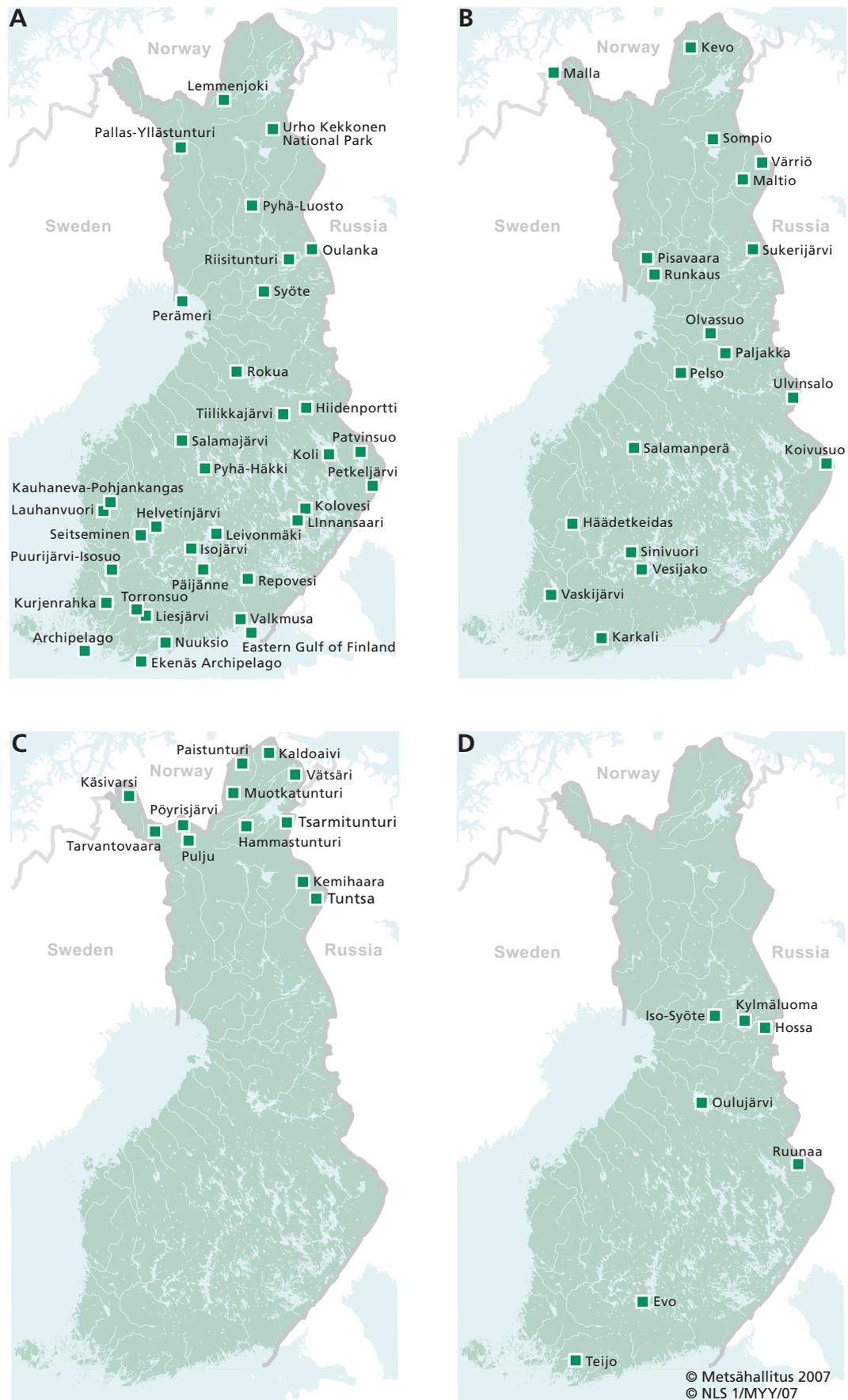


Figure 4. The main elements of Finland's protected area network. Out of some 500 protected areas established on State-owned land, 70 areas were evaluated individually. These areas comprise about 80% of the total area of the protected area network. State-owned protected areas are almost all managed by Metsähallitus. A. National Parks, B. Strict Nature Reserves, C. Wilderness Reserves, D. National Hiking Areas.

3 Review of Recent Years

3.1 Towards International Goals by National Objectives

3.1.1 First National Biodiversity Action Plan concluded

Finland has striven to ensure that national obligations under the CBD are met through the implementation of the National Action Plan for Biodiversity in Finland. The first action plan covered the period 1997-2005. This plan was designed to have the backing of a wide range of representatives from various sectors of society. The National Biodiversity Committee who drafted the plan involved representatives from all ministries, key business areas, research bodies, environmental organisations and other stakeholder groups. The plan was based on strategic programmes of each administrative sector and implemented through sectoral responsibility.

According to the national action plan, Finland maintains biodiversity by ensuring that sufficient protected areas are maintained across the country, and that natural resources and commercially exploited areas are used and managed sustainably, also taking into account the other objectives of society.

The main objectives of the action plan were:

1. to maintain the viability of Finland's native species (i.e. their favourable conservation status)
2. to safeguard the diversity of ecosystems and the coherence of natural habitats in all of Finland's biogeographical zones
3. to promote the sustainable use of natural resources and economic opportunities related to the exploitation of biodiversity (enterprise and employment)
4. to improve the effectiveness of Finland's international activities.

A total of 124 measures were defined to help realise these objectives. The implementation of the action plan was monitored throughout the period, and the impacts of the implemented measures in terms of maintaining biodiversity have been comprehensively evaluated. The evaluation report was published in 2005, constituting one of the first national-level evaluations of trends in the state of biodiversity anywhere in the world.²

According to the evaluation, there have been qualitative changes in habitats in Finland with negative impacts on the state of biodiversity, and such changes are still going on. The greatest changes have been in agricultural habitats, in other environments created by man, in forests and along shores. The impoverishment of species diversity seems to be most pronounced in smaller-scale and species-rich habitats. But in many cases a slowing in such negative trends is becoming evident. Appendix 5A contains summaries of the main pressures or factors affecting each main habitat type, together with their impacts on trends in biodiversity and the main measures directed at these areas under the action plan.

The most effective measures to safeguard biodiversity have generally been those implemented widely over similar areas, as well as measures specially designed for habitats of major importance for biodiversity. Such measures have included Metsähallitus's natural resource planning and habitat restoration work in protected areas, as well as the implementation of the Natura 2000 programme. Appendix 5B lists the measures that have proven to be the most effective means to safeguard biodiversity for each habitat type. These measures will also be described later in this report.

Finland's new National Strategy and Action Plan for the Conservation and Sustainable Use of Biodiversity 2006-2016 was finalised in 2006. The action plan strives to link measures more closely to the objectives defined in the CBD's programmes of work.

² Hildén, M., Auvinen, A.-P. & Primmer, E. (eds.) 2005: Suomen biodiversiteettiohjelman arviointi. (Abstract: Evaluation of the Finnish National Action Plan for Biodiversity.) – Suomen ympäristö 770. 251 p.

3.1.2 Finland's Natura 2000 Network Approved

The Natura 2000 network is designed to protect important biotopes and species throughout the European Union, and preserve biodiversity. When Sweden and Finland joined the EU in 1995, the network was extended to include areas within the Boreal Biogeographic Region, where coniferous forests predominate. This region also now extends into the territories of the three Baltic countries Estonia, Latvia and Lithuania, who joined the EU in May 2004. The open fells in northern Finnish Lapland have been categorised within the Alpine Biogeographic Region, most of which lies in Central Europe. The biogeographic regions of the Natura 2000 network are illustrated in Figure 5.

The Finnish Government made its first decision on proposals to be submitted to the EU for Finland's Natura 2000 network in 1998. The proposed network was later extended in 1999, 2002, 2004 and 2005. The European Commission made a decision in December 2003 on sites to be included in the Alpine Region of Natura 2000. Altogether 19 areas in Finnish Lapland were approved for the network, with a total extent of 17,900 km². Finland's other Natura 2000 sites lie within the Boreal Region of the network, approved by the Commission in January 2005. After additions made in June 2005, Finland's proposals included 1,860 sites with a total area of some 49,000 km², or almost 15% of the whole country. Almost 80% of this total area is owned by the Finnish State. Most of the network is administered and managed by Metsähallitus. Finland's Natura 2000 network is shown in Figure 10 on page 42.

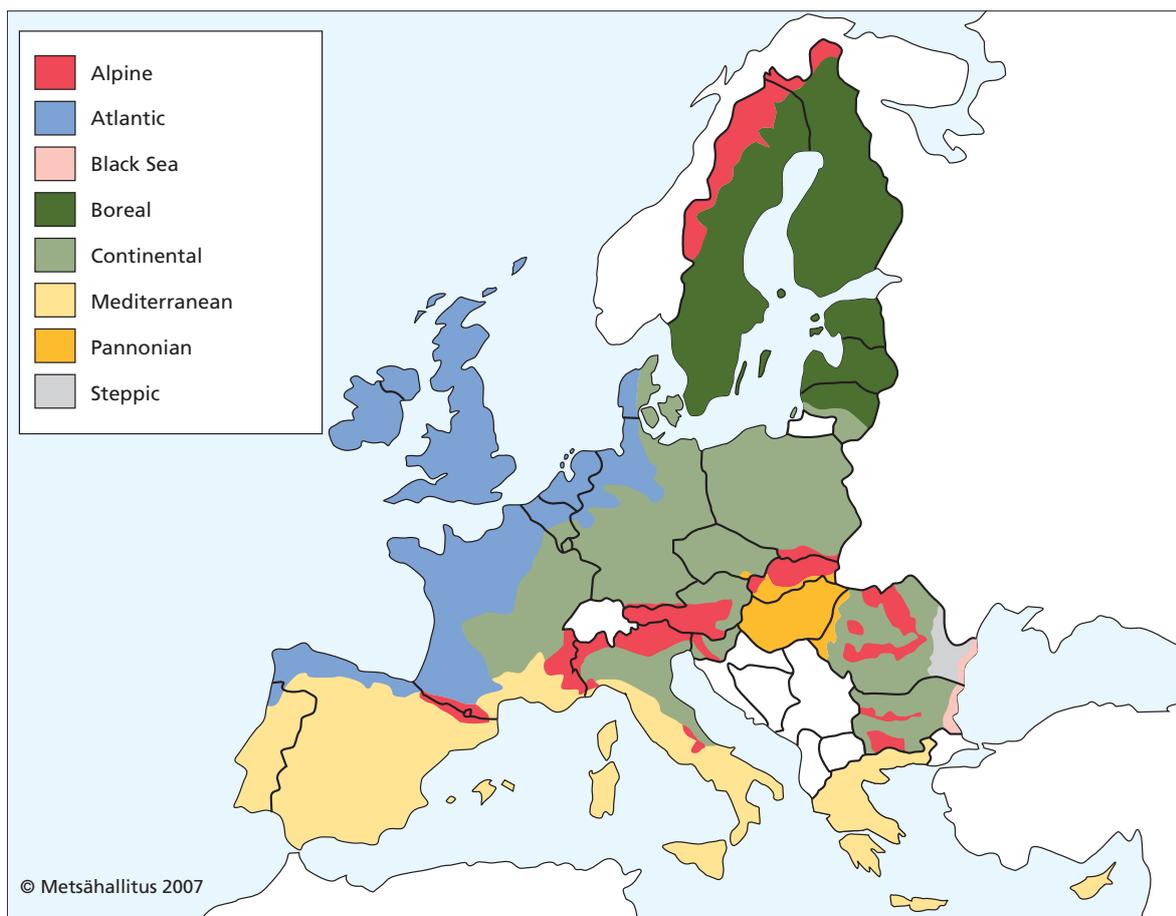


Figure 5. Biogeographical Regions of the EU Natura 2000 network. The map includes all 27 EU member states as of January 2007. Adapted from European Environment Agency's source material.



Kalbådan Seal Reserve. The rocks and waters around the Kalbådan lighthouse form one of the seven seal reserves established in 2001. Photo: Jari Kostet.

3.1.3 International Cooperation Expanded

Finland's cooperation on nature conservation with neighbouring countries has expanded towards all points of the compass over the last five years. Collaboration with Russia has been intensified through cooperation between twinned parks on either side of the Finnish-Russian border, and through the extension of work on arctic issues, particularly in NW Russia and the Barents Region. Collaboration with Norway has also continued, focusing on issues such as the conservation of threatened species. Cooperation with Sweden has included the development of protected areas in the Kvarken region.

The Northern Dimension of European cooperation was strengthened when the EUROPARC Federation set up a new Nordic-Baltic Section in 2003 on the basis of an initiative by Metsähallitus. The Natural Heritage Services (NHS) also led the new section's work during its first two years. Numerous joint projects have been run with the Baltic countries since they joined the EU, many of them benefiting from EU funding. Nordic cooperation to promote nature conservation around the Baltic Sea under the umbrella of the Helsinki Commission (HELCOM) has also been notable. Finland has especially worked actively to promote the designation and effective management of marine protected areas.

Metsähallitus has also been playing an increasingly prominent role in the work of other international organisations, including the World Conservation Union (IUCN), the EUROPARC Federation and the WWF, as well as in the work done under the CBD.

3.2 New Areas and Tasks for Metsähallitus

3.2.1 New and Extended National Parks

Metsähallitus manages lands and waters owned by the Finnish State with a total extent of more than 120,000 km², or approximately a third of the whole country. More than half of this area (almost 70,000 km²) is managed by the NHS, and this area increased by a total of 3,840 km² over the period 2000-2005. Three new national parks were established during these years: Syöte in 2000, and Repovesi and Leivonmäki in 2003. Seven seal reserves were established in September 2001 primarily to protect grey seals in the Finnish waters of the Baltic Sea.

In the beginning of 2002 about 1,400 km² of lands and waters were transferred to Metsähallitus's administration from the Finnish Forest Research Institute and the Ministry of Defence. The most important of these areas were the national parks of Pallas-Ounastunturi and Py-



hätunturi, the strict nature reserves at Pisavaara and Karkali, and the Aulanko Nature Reserve. Areas transferred from the Ministry of Defence included islands and eskers of considerably value for the conservation of threatened species. These transfers were made as part of a wider administrative reorganisation of properties in State-owned lands and waters.

The two national parks transferred from the administration of the Finnish Forest Research Institute were expanded significantly and both now form part of wider national parks established in 2005. Pallas-Yllästunturi National Park is now Finland's third largest national park, after Lemmenjoki and the Urho Kekkonen National Park. Pyhä-Luosto National Park has combined two of Eastern Lapland's most significant fell ranges. Three other national parks have meanwhile been extended significantly: Helvetinjärvi, Liesjärvi and Seitsemien. There were 35 national parks in Finland at the end of 2005.

Over the period 2001-2005, administrative transfers and land acquisitions related to nature conservation programmes resulted in a total gain of more than 1,730 km² to protected areas under NHS administration. Finland's implementation of national nature conservation programmes is described in more detail in Section 4.2.2 (page 45).

3.2.2 Increasingly Prominent Role for the Natural Heritage Services

Metsähallitus's strategic outlines were reviewed at the very beginning of the new millennium. Accordingly, Metsähallitus is a State-owned enterprise with a focus on the environment and customers, whose main elements are the Forestry business unit and the Natural Heritage Services (NHS). The core tasks of the NHS are to conserve biodiversity and organise recreational facilities for the public in State-owned lands. The NHS has been working systematically to fulfill both of these tasks by improving Finland's protected areas network and its management, and by promoting the sustainable recreational use of natural areas and nature tourism. The NHS's overall responsibility for developments in these fields has expanded recently, also outside State-owned protected areas.

Legislation on Metsähallitus renewed

Legislation within a new Act on Metsähallitus came into force in the beginning of 2005. These statutes assign Metsähallitus to manage, use and protect the natural resources and other properties under its administration effectively and sustainably. The conservation of biodiversity must be duly considered together with other objectives.

The legislation also defines in detail Metsähallitus's public administration duties, which are fulfilled by the NHS separately from Metsähallitus's business operations. This work is generally financed from the State budget. The NHS accounts are maintained and reported separately from the other operations of Metsähallitus.

Metsähallitus's public administrative duties include:

- nature conservation work, as defined in the Nature Conservation Act and legislation on protected areas, and the acquisition of protected areas
- duties defined in Acts on Wilderness, Fishing, the Koltta Sámi, Off-road Traffic, Hunting, the Right to Public Waters, Rescue, Reindeer Husbandry, and Outdoor Recreation
- provision of services for nature recreation
- management and supervision of game and fisheries
- tasks relating to the acquisition and security storage of forest tree seeds
- duties laid down in the Water Act and other tasks relating to log floating.

New tasks recently assigned to the NHS include issues related to hunting, fishing, off-road traffic, log floating and the maintenance of tree seed banks, also outside protected areas. The main legislative statutes concerning the operations of the NHS are listed in Appendix 6.

3.3 Common Challenges in Conservation and Recreation

3.3.1 Action to Safeguard Forest Biodiversity in Southern Finland

A report by the ESSU working group, appointed by the Ministry of the Environment to assess the need for conservation in the forests of Southern Finland and Ostrobothnia and make proposals for ways to improve conservation, was published in 2000. The group's needs analysis was based on ecological and conservation biological research, as well as evaluations of the representativeness of protected forests in the hemiboreal, southern boreal and middle boreal forest vegetation zones (see Fig. 9, p. 41). According to the working group, Finland's current network of protected

areas is sufficiently representative with regard to the threatened or declining forest species primarily associated with habitats in the northern boreal zone, but the network is not sufficient to safeguard comparable species primarily found in the hemi-, southern or middle boreal zones.

In 2002 the Finnish Government approved the METSO Forest Biodiversity Programme for Southern Finland, which was drawn up on the basis of the ESSU working group's report, to safeguard forest biodiversity in Southern Finland. The programme includes 17 measures designed to promote forest biodiversity across the METSO Region (see Fig. 9). The main aim of these measures was to find ways to better safeguard the habitats and structural features of forests that are important for forest biotopes and their threatened species. Some of these measures were already previously in use. Some measures involve completely novel ideas, many of which are based on voluntary actions taken by forest-owners.

The METSO programme includes measures designed for the short and the long term. Shorter-term measures were initiated during the period 2003-2005, most longer-term measures will be initiated after 2007. The ecological, social and economic impacts of the programme's measures were assessed in 2006, and during 2007 a decision will be made on how to continue and finance this work in the future. It is intended that the METSO Programme as a whole should run for the period 2003-2016.

Most of the measures in the METSO Programme concern privately-owned forests, but Metsähallitus also has a central role in the implementation and financing of the parts of the programme affecting State-owned lands. The main projects run by Metsähallitus during the first phase of the programme have involved:

- collecting habitat data on protected areas
- managing and restoring wooded habitats in protected areas
- applying nature management measures in commercially managed forests
- using Metsähallitus's income from property sales to acquire land designated for future protection.

Since the new Act on Metsähallitus came into force in the beginning of 2005, income from land sales has no longer been used to acquire

land for protected areas. Such purchases have subsequently instead been financed directly from the national government budget. The implementation of the measures within the METSO Programme will be described in more detail in Section 8.5.2 (p. 191).

3.3.2 Inventory and Management of Marine and Coastal Areas

About a quarter of the area administered by Metsähallitus consists of marine waters with a total extent of more than 30,000 km². Most of these waters are public waters owned by the State, whose administration was transferred to Metsähallitus in 1995, and to the NHS in 1998.

Metsähallitus's primary role with regard to public waters is to act as their owner in all property issues. This includes the supervision of hunting and fishing, for instance. Along Finland's coasts Metsähallitus also administers many lands and waters within protected areas and conservation programmes. These areas form what has been described as a "string of pearls" stretching all the way from the Eastern Gulf of Finland to the Bothnian Bay.

In 2001 Metsähallitus finalised a marine strategy encompassing "nature conservation tasks and activities in marine areas". This strategy aims to promote nature conservation and boating in State-owned waters. The main objectives of the marine strategy are:

- to survey, monitor and manage natural and cultural values in marine areas
- to draft management plans for conservation sites administered by Metsähallitus
- to influence the use of areas outside protected areas
- to steer and supervise the use of protected areas
- to maintain the State-owned buildings and facilities in protected areas
- to promote outdoor recreation and tourism in marine areas, and provide the related customer service
- to participate in cooperation both within Finland and internationally.

Metsähallitus's marine strategy was drafted with wide-ranging participation of other stakeholders from coastal areas. One goal has been to publicise the work of Metsähallitus more widely.

The implementation of an action plan based on the marine strategy began in 2003. A specific work plan on issues related to marine biology was drafted within Metsähallitus. This plan includes the MERLIN inventory programme, which serves as Metsähallitus's input to the Finnish Inventory Programme for the Underwater Marine Environment (VELMU).

The VELMU programme collects data on underwater marine biotopes and their species diversity (see Fig. 6). Finland has ratified several international agreements whose implementation will be facilitated by such information. Finland also has related obligations under EU legislation and programmes. The data to be collected through VELMU is also needed to help reach goals defined by the Helsinki Commission (HELCOM) concerning the biodiversity and sustainable use of the Baltic Sea, and for monitoring progress towards the objectives defined for Finland's Programme for the Protection of the

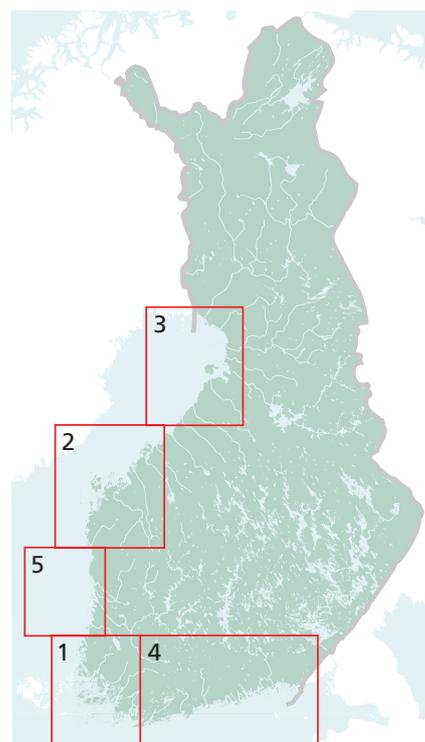


Figure 6. The Finnish Inventory Programme for the Underwater Marine Environment VELMU, showing the regional divisions of coastal waters numbered according to the order in which surveys will progress. Surveys have begun in (1) the Archipelago Sea, (2) Kvarken area and (3) the Bothnian Bay. Work is due to begin during 2007 in (4) the Gulf of Finland and later in (5) the Bothnian Sea. Inventories will continue until 2014. Source: Finnish Environment Institute. © Metsähallitus 2007, © NLS 1/MYY/07.

Baltic Sea. The inventory work has been scheduled in several stages to be conducted over the period 2004-2014. This work involves institutes within the administrative spheres of seven different ministries, as well as many non-governmental organisations.

3.3.3 Developing Outdoor Recreation and Nature Tourism

During the years 1997-2000 the National Outdoor Recreation Demand and Supply Assessment (LVVI) was conducted across Finland. This research work was then continued under the leadership of the Finnish Forest Research Institute over the period 2001-2005. Researchers examined how much and in what ways the Finnish population practices outdoor recreational activities in natural settings. The benefits of such recreational activities and the demand for nature tourism were also studied. Surveys meanwhile



Repovesi National Park. In 2001 an area of 500 hectares was donated by the paper company UPM to enable the establishment of a new national park. Together with the company's own private forest reserve, the park makes up a substantial nature conservation area of 30 km² in Southern Finland. Photo: Jari Kostet.

compiled data on the supply of recreational areas and facilities.

The LVVI study provided valuable information on the recreational use of protected areas, while methods were developed for measuring visitor numbers and harmonising visitor surveys. The study also compiled data on Finland's recreation areas, hiking and skiing routes and other recreational facilities into data systems.

The significance of the recreational use of nature and the growth of nature tourism and their potential regional impacts have all consequently been seen in a new light. In 2003 a Government resolution launched an Action Plan to Develop Nature Tourism and the Recreational Use of Natural Areas (VILMAT). The main objective of this plan is double the number of jobs in these fields by 2010. The VILMAT Action Plan includes a total of 30 measures designed to promote the recreational use of nature and nature tourism. The main areas where actions can help to boost employment and demand-orientated developments are:

- the clarification of responsibilities and the harmonisation of objectives
- the preservation of favourable conditions and attractive aspects of natural settings
- improved productizing and cooperation
- demand-based development and increases in information and know-how.

As the administrator of State-owned lands and waters, Metsähallitus is playing a major role in the realisation of the VILMAT Action Plan. Many measures have already been implemented, including the building up of partnerships and collaborative networks with local operators, and efforts to improve data management in the context of supply and demand for recreational activities and nature tourism. Special tools have also been devised to help ensure that nature tourism is sustainable. The NHS has also drafted development programmes to promote recreational activities and nature tourism in protected areas, hiking areas and State-owned waters. It is intended that these programmes should be implemented within existing funding frameworks. To improve the effectiveness of such measures the NHS has identified several focus areas for development of nature tourism, where specific growth and employment targets are defined.

4 Context and Status of the Protected Area System

4.1 Regionally Diverse Management Context

Finland's total surface area is 420,000 km², of which nearly three-quarters is land and one quarter consists of marine and inland waters. Over a third of the total land area is forest, and a fifth consists of mires. Other habitat types comprise a total of 17%. The distribution of land and water areas can be seen in Figure 7.

The State owns around 30% of Finland's territory, mainly in the east and north. All public waters are State-owned. The majority of State lands and waters, an area of 120,000 km², is administered by Metsähallitus. Metsähallitus administers a total area of 24,000 km² of public coastal and inland waters – a fifth of all Finland's water areas. Companies and associations own around 10% of the land and private citizens 60%. The largest concentrations of privately-owned land are in Southern Finland. These ownership patterns affect land use significantly, and also mean that Metsähallitus's role varies considerably in different parts of Finland.

The operating environment of the Natural Heritage Services (NHS) in Southern Finland, Ostrobothnia and Lapland is examined in the following part of the report. The factors influencing the local operating environment are summarised in Appendix 7. Maps showing the NHS regions can be found in Appendix 8. These maps include larger population centres, main transport routes and larger protected areas. Appendix 8 also lists the protected areas administered by the NHS regional units (see Fig. 8 on p. 40).

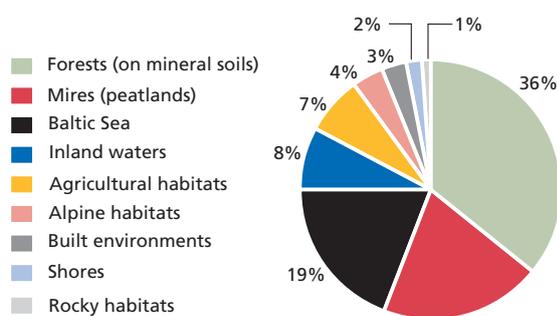


Figure 7. Finland's lands and waters categorised by main habitat type. Source: Finnish Environment Institute.

4.1.1 Population and Economy Concentrated in the South

Over 85% of the Finnish population lives in the region covered by the NHS Southern Finland regional unit, but Metsähallitus administers only 14% of this area. Settlements are particularly clustered along the south coast. The Helsinki metropolitan area has a population density of around 400 residents per km², while every resident of Northern Lapland has 2 km². Settlement, farming and forestry all started from the south, so this region has the lowest proportion of untouched natural areas that could be included in conservation programmes. Areas in their natural state are in practice fragments between efficiently exploited areas, and they are often under pressure for land use in construction.

There are more State protected areas in Southern Finland than anywhere else, but they are typically very small. There are also thousands of private protected areas, and these are steadily increasing in number. Because so many people live in this area, its protected areas are under a lot of pressure from the numbers of visitors. For example, Nuuksio National Park (44 km²), which lies just outside Helsinki, attracts 110,000 visitors per year, while Lemmenjoki National Park, which is sixty times larger at 2,850 km², attracted only an estimated 10,000 visits in 2005. Southern Finland's dense road network means that protected areas are within easy reach, so visitor numbers and the provision of facilities are major challenges in the context of the management of areas in the south.

The area covered by the NHS Southern Finland unit includes brackish water coastal habitats, Finland's uniquely extensive archipelago, Finnish Lakeland with its famed tens of thousands of lakes, and many forest biotopes that do not occur in other parts of the country. Protected areas necessarily include areas with altered natural habitats, many of which are in need of habitat restoration and management. For example, most mires have been drained a long time ago, and hardly any forests were left untouched by the effects of the slash-and-burn farming methods



A springtime scene in the heritage landscape of the Lenholm Nature Reserve. This area was one of fourteen sites in Southern Finland where habitat restoration work was done using EU funding during the period 2001-2004 under a project coordinated by the WWF in Finland, Sweden and Estonia. Metsähallitus was one of the project's many partners. Photo: Jari Kostet.

of the 19th century. Protected areas also typically have many traditional agricultural biotopes and cultural landscapes. The Archipelago National Park, for instance, is also responsible for protecting a whole traditional way of life.

Apart from potential customers, the NHS Southern Finland unit has many times more stakeholders than the other NHS regional units. Ten of Finland's 13 regional environment centres operate in this area, which contains as many as 344 municipalities, compared to just 22 in Lapland. Many of the coastal and archipelago municipalities are at least partly Swedish-speaking.

Activities conducted around and between protected areas in densely populated parts of Southwestern Finland represent a major management challenge. Metsähallitus is obliged to monitor and participate in regional and local land use planning and strive to reduce factors that have a detrimental effect on protected areas. The small sizes of protected areas make them more vulnerable than their northern counterparts.

There has been cooperation on nature conservation for many years between Southern Finland and the Baltic countries, especially Estonia. The proximity of Russia is a major factor in Eastern and South-eastern Finland, where transboundary cooperation is very active.

4.1.2 Unique Coasts and Borderlands in Ostrobothnia

Settlement and industry in Ostrobothnia are concentrated along the low-lying coastline and in river valleys, where most of the land is privately owned. Most coastal municipalities in Southern and Central Ostrobothnia are at least partly Swedish-speaking. For historical reasons, State lands lie mainly along the region's eastern border and in the north, so this is where the larger protected areas are also located. Metsähallitus is still an important employer in the larger sparsely-settled municipalities along the eastern border, although the old logging sites have now been consigned to history. Jobs created by nature

conservation and nature tourism partly compensate for those lost in forestry.

Ostrobothnian natural settings are distinguished by the land uplift coasts of the Bothnian Bay and the Kvarken Archipelago in the Gulf of Bothnia, as well as river systems, coniferous forests and an originally large proportion of mires. Mires have very extensively been drained or used for peat. Most major watercourses have been harnessed to produce hydropower and control flooding, and most lakes are regulated. Few river systems can still be regarded as being in their natural state. The southern limit of Finland's reindeer husbandry region runs from Kainuu to Lapland's southern border. Reindeer husbandry is a secondary occupation to farming, and does not have the same significance here that it does in Lapland. Most of the reindeer in this area are fenced in and receive extra winter fodder.

The NHS Ostrobothnia unit manages vital tourist attractions such as Oulanka National Park, which is one of the country's most popular parks, and four national hiking areas. The old-growth forest conservation programme designated many new reserves, but these are still in the process of

being established, and land use and management planning has only just commenced. The NHS Ostrobothnia unit's cooperation with the nature conservation authorities in Russian Karelia has produced remarkable results. The other natural direction for cooperation is Sweden, on the other side of the Bothnian Bay and the Kvarken Archipelago.

4.1.3 Protected Areas in a Key Role in Lapland

Metsähallitus's social impacts are greatest in Lapland, where it manages two-thirds of the land area in the province, and so influences the lives of most local people in one way or another. Half of Metsähallitus's area, i.e. one-third of the total area, is administered by the Forestry business unit. For this reason the management of State-owned forests concerns a large section of the population in a totally different way than it does in the south, where land ownership is fragmented. In the northernmost municipalities as much as 70% of the land is under varying degrees



The Perämeri National Park. The critically endangered primrose species *Primula nutans* grows on the shores rising from the Bothnian Bay. This species has declined steeply as traditional grazing practices have disappeared and shore meadows have become overgrown. Eutrophication and building have also affected the species' occurrences. Photo: Seppo Keränen.

of protection, so the management of protected areas is of interest to all residents.

The total extent of Lapland's protected areas is about 3.4 million hectares (34,000 km²), amounting to three-quarters of all the protected lands in Finland. It has been easier to establish large protected areas in Lapland than elsewhere. The land was already owned by the State, so conservation decisions have not involved expensive land purchases. More natural areas were in their original state in Lapland than in other parts of the country. No trees grow in the northernmost parts of Lapland, and forests in Central Lapland were long economically worthless, because sawmills and pulp mills were far away. The large-scale exploitation of Central Lapland's forests did not begin until the 1960s. This is quite a different situation from Ostrobothnia, where forests were already being used intensively for tar-burning two hundred years ago. Lapland's protected areas do not have big requirements regarding habitat restoration or active management and traditional agricultural habitats are scarce.

Lapland covers almost half of Finland's total area, but only 185,000 people live there, mostly concentrated in four towns. Rivers were formerly

the most important routes, and settlements and farms mainly sprung up along them. Large parts of Lapland have never been permanently settled, but people have still used its natural resources, such as fish, game and berries, and also grazed reindeer there. The importance of the natural economies remains strong to this day. Natural livelihoods have been particularly important to Europe's only indigenous people, the Sámi. Accounting for and supporting Sámi culture is an integral part of Metsähallitus's operations within the Sámi Homeland in Northern Lapland. Sámi is an official language in this area, and the Sámi Parliament of Finland must be officially consulted on all land use issues. Information box 11 in Section 5.6.3 (p. 94) takes a more in-depth look at the Sámi and their culture.

Although much of Lapland is not really part of the Arctic area, the NHS participates in circumpolar Arctic cooperation on issues including species protection and in Barents regional cooperation. The NHS Lapland unit collaborates with all the countries around its borders. Cooperation with Sweden and Norway concerns the supervision of hunting and fishing, for instance, and there have been exchanges of information and



Snowshoeing in the spring sunshine. The autumn and especially the winter season are important for tourism in Lapland. A major part of nature tourism is directed to the large northern national parks of Pallas-Yllästunturi, Pyhä-Luosto and Urho Kekkonen. Photo: Markku Tano.

personnel with protected areas in Russia's Kola Peninsula since the 1990s.

Lapland's protected areas are located in sparsely populated areas, but most national parks are close to internationally-known tourist centres, whose population multiplies during the tourist season. Nature tourism is very important to the economic life of the whole province, and much is expected of Metsähallitus. Increasing visitor pressure is concentrated close to tourist centres mainly in the autumn and late winter. As the areas are large, visitors can be guided in such a way that some outlying parts of the parks are left undisturbed. Parks are almost entirely used for grazing reindeer, and local inhabitants are allowed to hunt in most parks.

4.2 Nature Conservation Administration and Programmes

4.2.1 Park Management in Finland Involves Cooperation

Strategic direction from the Ministry of the Environment

Nature conservation work in Finland is steered by the Ministry of the Environment, and mainly carried out by the Finnish Environment Institute (SYKE), the regional environment centres, the Metsähallitus Natural Heritage Services (NHS), and the Finnish Forest Research Institute (METLA). At a rough estimate, the annual amount of work done in nature conservation is about 800 man-years, a significant part of which is done through short-term employment and projects. In terms of man-years, Metsähallitus is responsible for over 60% of permanent work, the regional environment centres for around 25%, and SYKE around 10%.

Nature conservation work has a broad meaning in this context, including:

- the maintenance of biodiversity
- supporting the sustainable use of natural environments and resources
- cherishing natural landscape values
- increasing public awareness of nature
- promoting research into nature.

At a regional level, nature conservation work is managed by Finland's thirteen regional

environment centres and Metsähallitus's three NHS regional units. The regional environment centres' tasks focus on administrative work and the overall direction of natural conservation, as well as working with interest groups. Metsähallitus plays a rather practical role. Among other things, the NHS manages and maintains State-owned nature reserves, wilderness reserves and public waters. It is possible to clarify the way that work is allocated between these organisations concerning such tasks as the management of private protected areas. During 2006 this issue was addressed with the aim of improving the efficiency of the administration as part of the Government's productivity programme.

Most protected areas managed by the Natural Heritage Services

The NHS is a part of the larger Metsähallitus enterprise, which is regulated by the Act on Metsähallitus. Metsähallitus is an independent State-owned enterprise which operates within the administrative sector of the Ministry of Agriculture and Forestry. It receives funding from the State budget, which is used for nature conservation work according to guidance from the Ministry of the Environment.

In Metsähallitus the diverse use of natural resources and nature conservation expertise have been concentrated in the same organisation in an attempt to exploit the benefits of cooperation and conciliate the demands for ecological, economic, social and cultural sustainability. Common information and planning systems enable the management of the entire field and allow savings on expenditure. In accordance with prevailing ownership policies, it is expedient to manage, use and administer State lands and waters as one entity.

The Parliament annually approves Metsähallitus's primary aims regarding services and other activities. The Ministry of Agriculture and Forestry sets Metsähallitus's annual financial goals based on objectives defined by the Parliament. Public administrative tasks and their objectives and funding are agreed annually, mainly with the Ministry of the Environment.

The total extent of the protected and other special areas administered by Metsähallitus amounted to some 4.6 million hectares (46,000

km²) in 2006. This figure encompasses more than 2,500 separate protected areas or other sites, including 494 legally established nature reserves, 12 wilderness reserves and 7 national hiking areas.

At the end of 2005 the Finnish Forest Research Institute (METLA) administered and managed protected areas with a total extent of around 8,000 ha, including one national park (Koli) and two strict nature reserves (Malla and Vesijako). These protected areas will be administered by Metsähallitus from the beginning of 2008. Finland has over 4,600 protected areas on private land, but these form less than 10% of the total area under protection. Privately-owned protected areas are managed according to regional environment centre guidelines.

Metsähallitus manages protected areas by means of regional unit-specific responsibility and funding. Individual protected areas generally do not have their own staff or ear-marked funding. Instead areas within each region are managed together as a whole, to enable limited resources to be allocated cost-effectively.

Between 1998 and 2005 there were six regional NHS units: Southern Finland, Western Finland, Eastern Finland, Ostrobothnia-Kainuu, Northern Finland and Northern Lapland. In 2001 the former Northern Lapland District for Wilderness Management became a regional unit of the NHS with a regional director responsible for coordinating all Metsähallitus activities in the region and cooperating with the Sámi population and other local inhabitants.

Further reorganisations saw the number of NHS regional units fall to three by the end of 2005 (see Fig. 8). The two northernmost regional units, Northern Lapland and Northern Finland, were merged to form the NHS Lapland unit, while the three southernmost regions (Southern, Eastern and Western Finland) were combined to form the NHS Southern Finland unit. The former NHS, Ostrobothnia-Kainuu gained about 156,000 ha, mainly waters, and became the NHS Ostrobothnia unit. The protected areas transferred to the NHS Ostrobothnia unit from the former NHS, Western Finland were mainly coastal Natura areas and small mire reserves.

The regional organisation and its structures were rationalised and renewed according to a process model. The operational model used by

the NHS is based on core processes, which include protected area planning, nature conservation, management of recreational use of nature, and game and fisheries tasks. Other functions include development and administration. The organisation model is shown in Section 8.1.2 (see Fig. 45 on page 155).

From a European perspective, Finland's administrative model for nature conservation and protected areas, which covers the entire country and has a centralised administration, is fairly exceptional. It was modelled on the administrative structure of the US National Park Service (NPS), which was already recognised in the 1920s as an effective way to look after the country's network of national parks and protected areas. In most European countries national parks are individual units with their own funding and procedures. They form part of a regional or national collaborative network at the most. In Finland the organisations in charge of nature conservation work closely together to define national objec-



Figure 8. Present and former regional units of Metsähallitus Natural Heritage Services. Source: Metsähallitus.

tives and ensure they are executed locally. Unified procedures and national data systems effectively support this work. (For more details see Section 8.4.)

4.2.2 Building up the Protected Area Network

Special responsibility for nature of the boreal taiga

The CBD and its Programme of Work on Protected Areas emphasise the importance of an extensive global network of protected areas in maintaining biodiversity. All of the country parties have a responsibility to protect the characteristic natural features, flora and fauna of their territories. Most of Finland belongs to the boreal coniferous forest zone, and its international responsibilities relate to the typical and special habitats and species that occur there.

Finland's characteristic natural features include the ancient bedrock and geologically-speaking young soils and moraine landforms created after the Ice Age. The proximity of the Atlantic Ocean makes the climate milder than would otherwise be typical for this zone – this makes the light and temperature conditions unique, and enables forests to grow even north of the Arctic Circle.

The special nature of Finland's climatic conditions are further emphasised by its generally low-lying topography, which features little differences in height. The lush and diverse hemiboreal oak zone on the southern coast is actually located on

the same latitude as Greenland. The southern boreal forest and mire zone includes the extensive Finnish Lakeland, and the middle boreal zone stretches quite far north into Ostrobothnia. The land uplift coast along the Gulf of Bothnia is unique with regards to how the forests there have developed. The forests of the northern boreal zone in Northern Finland differ from the taiga, the forest vegetation typical for such latitudes, in that Scots pine in Forest Lapland and birch in Fell Lapland grow further north than Norway spruce. Nutrient-poor treeless fells are widespread in northernmost Lapland and the northwestern Käsivarsi region.

Finland's forest vegetation zones and their subzones can be seen in Fig. 9, which also shows the herb-rich vegetation areas known for their high diversity, and the boundary of the region covered by the METSO programme.

Forest vegetation zones and subzones:

1. Hemiboreal zone
2. Southern boreal zone
 - a. Southwestern Finland
 - b. Lake District
 - c. Southern Ostrobothnia
3. Middle boreal zone
 - a. Ostrobothnia
 - b. North Carelia-Kainuu
 - c. Lapland triangle
4. Northern boreal zone
 - a. Kuusamo
 - b. Northern Ostrobothnia
 - c. Forest Lapland
 - d. Fell Lapland

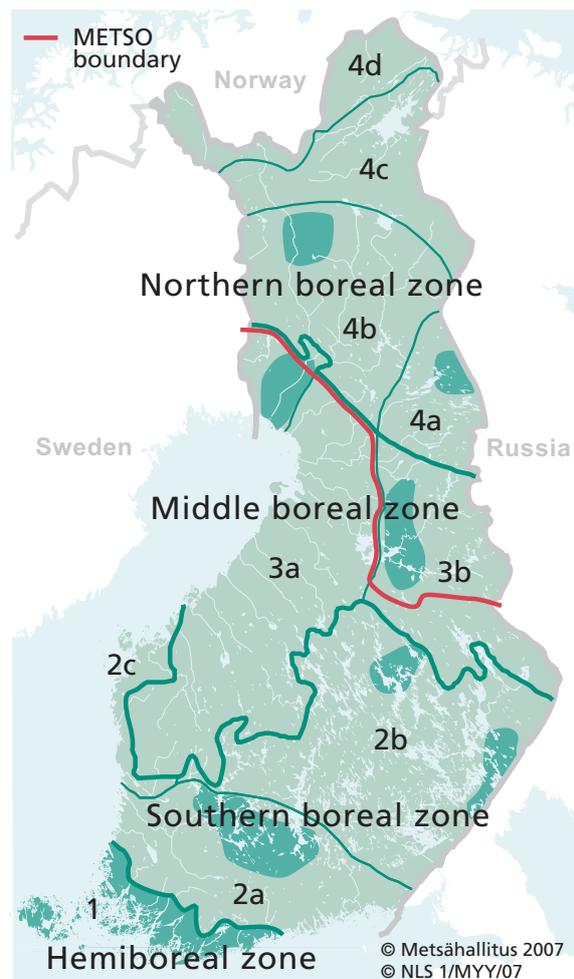


Figure 9. Forest vegetation zones and sub-zones. Biodiversity “hot spot” areas with many herb-rich forests and rich fens are marked in green. The boundary of the METSO Forest Biodiversity Programme for Southern Finland is marked in red. Source: Ministry of the Environment, Finnish Environment Institute.

National network preserves native nature

Finland's nature reserves form a diverse network which aims to protect a sufficient amount of representative and ecologically viable example areas of all the ecosystems and biotopes that occur in Finland, their geographical variations and their natural stages of development. Protected areas are also very important for attaining and maintaining the favourable conservation status of different biotopes and species. The functions of the protected areas network, as defined by the Nature Conservation Act, can be found in Information Box 4.

Different areas within the nature reserve network vary greatly with regards to size, location, character and restrictions, but their different features complement one another. Finland has succeeded in founding a quite extensive and, by European standards, ecologically valuable network of protected areas, which is also an important part of the global network of protected areas.

Natura 2000 network protects European habitats and species

The Natura 2000 network, which is based on EU Habitats and Birds Directives, protects biotopes and species' habitats that are becoming rarer across the EU as a whole, and other areas that are important for birds. These directives have a slightly different emphasis than Finland's Nature Conservation Act, in which the guiding principle of the protected area network is the comprehensive coverage of ecosystems and the representativeness of the areas' species.

In common with other EU countries, Finland chose its proposals for the Natura 2000 network based on the Habitats and Birds Directives. The Birds Directive obliges EU countries to protect an adequate number of nesting sites and migration staging areas for bird species considered important in the EU. The Habitats Directive obliges EU countries to adequately protect biotopes considered important in the EU. The directives' annexes list these important species and biotopes, specifying about 1,000 species and 200 biotopes for the whole of the EU25. A total of 132 of these species and 69 listed biotopes are found in Finland.

Individual areas can be protected either on the basis of the Birds Directive (SPA areas), the Habitats Directive (SCI areas), or both. The protection of Natura areas can be based on law, administrative regulations or voluntary contracts. Most protection is based on Finnish legislation in the Nature Conservation and Wilderness Acts, but natural values can also be protected under the Forest, Water, Outdoor Recreation, Land Use and Building, and Land Extraction Acts. The regulations that establish protected areas under the Nature Conservation Act stipulate how they can be used. Natura areas can only be used in ways that do not threaten the natural values under protection. When developments are planned near Natura sites, the need for a possible evaluation of their impacts on the natural values must be considered. Where necessary, more detailed impact assessments are then conducted.

Finland's Natura 2000 network in 2005 is shown in Figure 10 and Table 2.

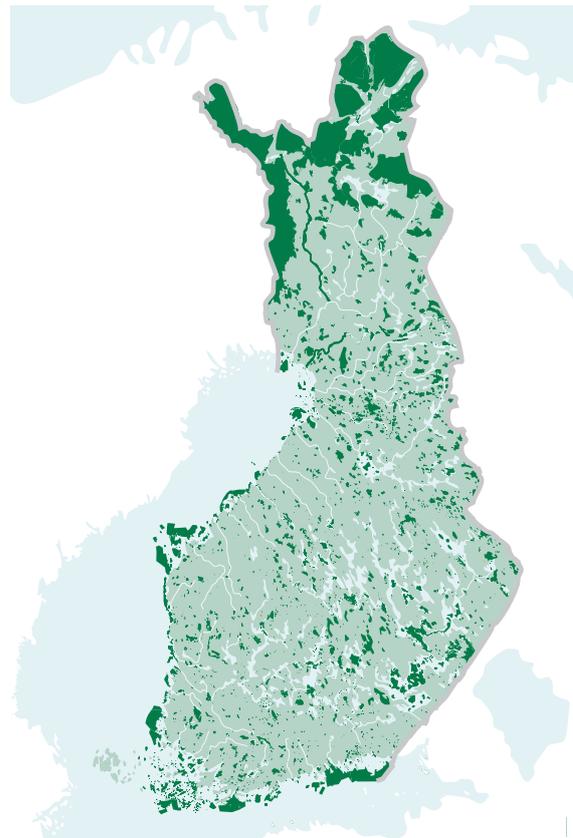


Figure 10. The Natura 2000 network in Finland.
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Role of the Protected Area Network Defined in Legislation

In the Nature Conservation Act, enacted in 1997, the role of the network of protected areas is clearly defined.

The network of protected areas must primarily preserve:

- 1) areas of natural habitat, particularly habitat types characteristic of the Finnish landscape, and habitats, land forms and features which are endangered.

As part of this aim, or additionally, the following should be preserved:

- 2) natural gene pools and ecosystem diversity
- 3) species, as well as geological and geomorphological features, especially those species and features which are either naturally rare, or threatened or declining as a consequence of human activity
- 4) landscapes and habitats shaped by previous generations, including the cultural heritage associated with the Finnish countryside, along with endangered domesticated plant and animal breeds
- 5) the natural succession of ecosystems and other natural processes at various stages
- 6) outstanding natural beauty of sites
- 7) wildness-like character of the areas.

Within the limitations set by the requirements of conservation, the network of protected areas should also aim to serve:

- 8) research and monitoring work on the state of the environment
- 9) environmental education, the understanding of nature, and interest in nature
- 10) outdoor recreation in harmony with natural surroundings.

The economic utilisation of protected areas for such activities as nature tourism is possible, if it does not endanger the achievement of conservation aims.

Table 2. Finland's Natura 2000 network as of 31.12.2005. The remaining sites were added to the network through the completion of the Natura IV and V processes in 2006. SCI = Site of Community Importance, SPA = Special Protection Area. Source: Ministry of the Environment.

EU Habitats Directive		EU Birds Directive	
SCI areas approved by the European Commission	1 632 sites	SPA areas listed by Finland	441 sites
	4.6 milj. ha		2.69 milj. ha
Natura IV (in court hearing)	39 sites	Natura IV (in court hearing)	12 sites
	223 100 ha		146 500 ha
Natura V (under preparation)	44 sites	Natura V (under preparation)	14 sites
	2 700 ha		218 900 ha

The long history of protected areas and their management

In the Nordic countries the ideological debate on the protection of forests and areas of natural beauty began in the late 19th century. The Finnish explorer A.E. Nordenskiöld's writings from 1880 are regarded as the first call for the formation of protected areas as "State parks".³

The first protected forests and "nature reserves" were created on Metsähallitus land at the beginning of the 20th century. These areas were untouched or aesthetically valued forests which were to be spared for research and as heritage for future generations. The first ever official mention of the formation of national parks can be found in a Protection Forest Committee report from 1910. Finland's first Nature Conservation Act was passed in 1923. Nature conservation originally involved protecting individual species, regulating fishing and hunting, and designating natural monuments and nature reserves.

The first areas to be protected by the State were the national parks of Pyhäntunturi and Pallas-Ounastunturi and strict nature reserves at Malla and Pisavaara, all designated in 1938. Some protected areas in the northeastern and eastern parts of Finland were lost in the Second World War, when they became a part of the Soviet Union; these included Heinäsaari National Park in Petsamo and the Pääskyspahta and Pummanki strict nature reserves, as well as Kutsa and Hiisijärvi. The southern Porkkala National Park was located in an area that was leased to the Soviet Union, and therefore ceased to be a national park. These first parks, which were all formed on State land, were administered by the Forest Research Institute. The 17 national parks and strict nature reserves established in 1956 were all located on Metsähallitus land.

The expansion of Finland's network of protected areas has since the 1970s been based on conservation programmes and their supplements, approved over the period 1978-1996. When the National Parks Committee produced its report in 1976, Finland had a total of 282 protected areas, with a total extent of about 331,600 hectares. The network grew considerably in 1982 with

the founding of 16 new national parks and strict nature reserves and the significant enlargement of 10 existing areas. In the same year 59 mire reserves were also created. Ten new national parks were added to the network in the 1990s.

The Wilderness Act, on the basis of which 12 vast wilderness reserves were founded in Lapland, came into force in 1991. Finland's Natura network, which has been under construction since 1998, consists mainly of existing protected areas, wilderness reserves and national hiking areas. The network also includes many sites from other nature conservation programmes.

Recreational hiking increased after the Second World War to such an extent that it became necessary to provide campsites with firewood and outdoor toilets. Metsähallitus paid special attention in the 1970s to widening the existing network of wilderness huts. The very first hiking areas as defined in the Outdoor Recreation Act were founded in 1979 in Kylmäluoma and Hossa. There are currently seven national hiking areas.

A National Parks Working Group was formed in 1974 to plan the management of national parks. Facilities such as marked routes, shelters and camp fire sites, were built according to the first management plans from 1978 onwards. The administration of national parks in the USA has served as a model in the development of planning work.

Metsähallitus managed its nature conservation work for a long time as part of its forestry activities. The number of employees specialised in nature conservation increased from the late 1970s onwards, and the Office for National Parks was formed in 1981 with a permanent staff of around ten. A decade later this office became Metsähallitus's Nature Protection Division. As the scope of nature conservation expanded, the unit got its own regional organisation in 1992, with around 100 employees, and by the end of 2005 there were over 300 permanent employees. Nature conservation work and facilities for outdoor recreation have been purposefully developed to meet current needs for the protection of biodiversity, nature tourism and the recreational use of nature.

3 Nordenskiöld, A. E. 1880 : Förslag till inrättandet af Riksparker I de nordiska länderna. (Proposal for the establishment of State Parks in the Nordic countries.) In: Per Brahes minne. Stockholm.

Three quarters of the conservation programmes realised

The Finnish Government has approved seven national nature conservation programmes, covering national parks and strict nature reserves, mires, bird wetlands, eskers, herb-rich forests, shores, and old-growth forests. The areas selected for these programmes were chosen between 1970s and the 1990s according to agreed scientific criteria and, at least in recent decades, stakeholders participated in the selection process. The Government has also stipulated conservation objectives for these programmes. The programmes are briefly described in Information Box 5.

In 1996 the Government allocated 3,300 million Finnmarks (552 million euros) to these nature conservation programmes, to be realised by the end of 2007. Total funding consisted of compensation and land acquisition funds from the Ministry of the Environment budget, and a financial commitment from Metsähallitus until the end of 2004. The purchasing of land for these conservation programmes has been entirely funded by the State budget since the beginning of 2005. Levels of conservation programme funding and the annual increase in the total areas under conservation over the period 1982-2005 can be seen in Figure 11.

Metsähallitus's Laatumaa business unit and the regional environment centres manage tasks related to land acquisition. In implementing conservation programmes, the environmental administration works on the principle that land-owners should receive appropriate compensation

for their land, or have the chance to exchange it or sell it to the State. If negotiations fail to end in an agreement, it may be necessary to redeem or protect the area without the owner's active consent. Around 40 such redemptions were carried out during the period 2000-2005.

The extent to which these conservation programmes have been realised varies between the programmes, areas and targets (see Table 3 and Fig. 12). All in all, three-quarters of the nature conservation funding programme targets for 1996-2007 had been realised by the end of 2005. A total area of 272,000 hectares (2,720 km²) was protected and around 14,000 real estate compensation issues had been settled. About 90,000 ha of private land purchases earmarked for the conservation programmes remained unrealised.

These earlier nature conservation programmes will be realised in most parts of Finland by the end of 2007. It was, however, decided in December 2005 that the funding programme will run until the end of 2009 to allow the remaining acquisitions to be completed.

After these nature conservation programmes have been completed, it will be possible to focus resources on resolving shortcomings in the protection of biodiversity. Improvements to the conservation status of Southern Finland's forests in particular will require additional resolutions in 2007. Among other things, the new voluntary measures included in the METSO Forest Biodiversity Programme for Southern Finland will need to be applied more widely than they were in the pilot phase.

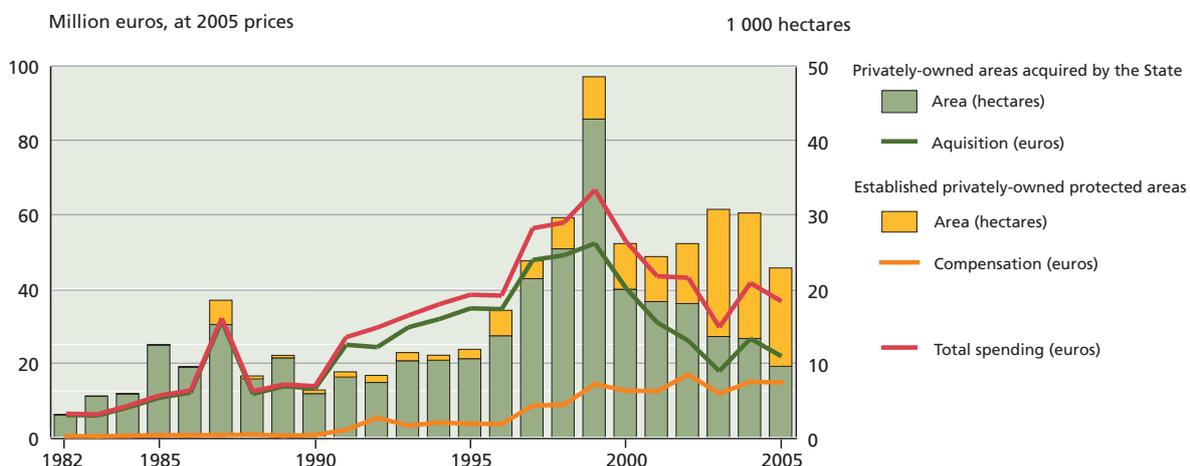


Figure 11. Financing of national nature conservation programmes and annual increases in the total area under protection 1982-2005. Source: Ministry of the Environment.

Nature Conservation Programmes in Finland

National nature conservation programmes are enacted through Government decisions-in-principle, which define the natural features to be protected by each programme, the protective measures, and the conservation goals, based on which it is possible to establish new protected areas. There are seven approved Programmes for the Conservation of National Parks and Strict Nature Reserves, Mires, Herb-Rich Forests, Bird Wetlands, Shores, Eskers, and for the Protection of Old-growth Forests. In addition, the Government has approved most of the proposed Natura 2000 sites for inclusion in the European nature reserve network.

The conservation programmes are mostly implemented through the acquisition of private land by the State, which then legally establishes protected areas. Natural features of Natura 2000 sites can be protected under the Nature Conservation Act, or under some other regulations, such as forest, water or soil legislation. Most of the State-owned lands reserved for conservation are managed by Metsähallitus. The situation of the various conservation programmes in the end of 2005 is described in the following.

National Parks and Strict Nature Reserves Programme

National parks and strict nature reserves form the backbone of Finland's network of protected areas. National parks have been established to conserve valuable natural features, and they are also open to visitors as sites for recreation and nature tourism. Strict nature reserves are primarily for nature conservation and science, and therefore the aim is to keep the landscape untouched as much as possible.

National parks and strict nature reserves have been established in Finland since the 1930s, but most Finnish national parks have been established in the last two decades. The Government decision on the programme for developing the network of national parks and strict nature reserves was drafted in 1976, and the programme has been supplemented in 1980, 1985 and 1988. There are now 35 national parks in Finland, and their total area is about 892,000 hectares (ha).

There are 19 strict nature reserves, and their total area is about 154,000 ha. Except for a few extensions, this development programme has been realised.

Mire Conservation Programme

The aim of the Mire Conservation Programme is to conserve enough examples of different types of mires nationwide. Almost all the mire areas which are most valuable to nature conservation and mire biology, and which were in their natural state when the programme was drawn up, are now protected. Protected areas included in the programme have been established since 1980s, and there are 173 mire reserves, with a total area of 627,000 ha. Many of these areas are complexes aapa mires and raised bogs. The programme has been mostly implemented.

Herb-Rich Forest Conservation Programme

Herb-rich forest is the lushest forest type in Finland, with the greatest number of species. In Finland, herb-rich forest vegetation is at its extreme northern limit of distribution, and thus herb-rich forests here have many characteristics which are not found elsewhere. The aim of the conservation programme is to protect different types of herb-rich forests in different vegetation zones, and to safeguard their characteristic communities of animal and plant species. The conservation programme includes 436 sites, most of which are located in Southern Finland. In 1992, 53 reserves were established, with a total area of 1,250 ha. So far this amounts to only one fifth of the total area designated for the programme. Herb-rich forests are, however, included also in other protected areas.

Bird Wetland Conservation Programme

This programme was approved in 1982 to protect wetland and water habitats that are especially important for waterfowl. It includes about 78,800 ha, which mostly consist of water. About 50,000 ha, almost two-thirds of the total area, were acquired by the State or established as private nature reserves by 2005. The aim of the programme is to ensure the 287 designated sites remain as close to their natural state as possible.

Shore Conservation Programme

The aim of the Shore Conservation Programme is to conserve valuable natural features of seas and lakes. The Government made a decision about the programme in 1990, and 127 sites have subsequently been included. 29 sites represent seashores and 98 sites lakeshores. The total area of these sites is about 104,300 ha. There is some 8,000 km of protected shoreline altogether. About 4% of the coastline and 5% of Finland's total extent of lakeshore is thus protected. More than 85% of the sites included in the programme are now State-owned or established as private nature reserves. However, only a fifth of all sites included in the programme have been established as nature reserves.

Programme for the Protection of Old-growth Forests

The aim of this programme is to conserve old-growth forests, as well as ecological entities and species related to them. A total of 92 new nature reserves were established on State-owned lands in Southern Finland in 1994 to protect old-growth forests. Their area is about 10,000 ha in total.

In summer 1996, the Government made a decision-in-principle to protect old-growth forests in Northern Finland, under which 293,600 ha of new protected areas will be established or added to existing nature reserves on State-owned lands. In addition, about 8,500 ha of old-growth forests on private lands have been protected, and 14,000 ha of jointly-owned old-growth forests in Kuusamo acquired for conservation.

Esker Conservation Programme

Building and the extraction of gravel and sand have destroyed many of Finland's natural esker landscapes. In 1984, a national esker conservation programme was drawn up to protect the diversity of esker landscapes, and to conserve their geological, geomorphical and scenic characteristics. A total of 159 sites are included in the programme, with a total area of about 96,000 ha. Most of the sites are located in Southern Finland.

Eskers are protected mainly under the Land Extraction Act and Decree. The natural state and scenery of eskers may not be degraded by sand extraction or other activities. In addition to designating esker areas for protection, the programme also widely controls the construction of buildings, roads and power lines so that the characteristics of esker landscapes can be preserved.

Natura 2000 Network

The Natura 2000 network is formed of areas of importance to nature conservation in the European Union. Its basic idea is to promote sustainable development by halting habitat degradation. The network aims to protect habitat types and the habitats of species specified in the Habitats Directive, which lists about 200 habitat types and 1,000 species.

Each member state draws up a national list of Natura 2000 sites according to the Habitats Directive (Sites of Community Interest SCI). The EU Commission assesses national lists in cooperation with the European Environment Agency's Topic Centre for Nature Conservation and the member states. This assessment is carried out separately for each biogeographical zone. Most of Finland's Natura sites belong to the Boreal Region, although northernmost Lapland forms part of the Alpine Region.

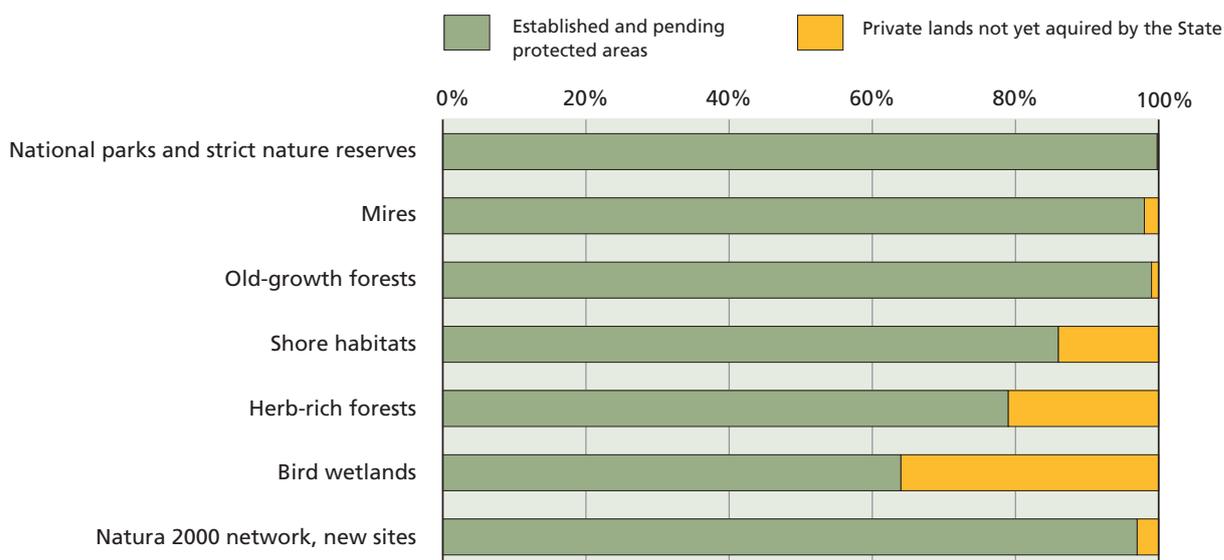


Figure 12. Implementation of national nature conservation programmes as of 31.12.2005. Source: Ministry of the Environment.

Table 3. Realisation of national nature conservation programmes as of 31.12.2005. The Esker Conservation Programme is not included in the table, as it is implemented through the Land Extraction Act and Decree. Source: Ministry of the Environment.

Nature conservation programme	Established		Private nature reserves	Not yet established		Total area, ha
	Statutory nature reserves			State-owned land	Privately-owned land	
	Land	Water				
National parks ¹	797 000	85 000	–	8 200	2 100	892 300
Strict nature reserves ¹	151 000	2 600	–	0	0	153 600
Mires	442 400	11 500	13 200	146 100	14 000	627 200
Bird wetlands ²	–	–	39 100	11 000	28 700	78 800
Shore habitats	–	–	21 700	67 600	15 000	104 300
Herb-rich forests	1 250	10	1 900	2 100	1 400	6 660
Old-growth forests	10 200	200	2 200	305 700	2 300	320 600
Other State-owned nature reserves ³	39 800	27 000	–	–	–	66 800
Other privately-owned nature reserves	–	–	28 400	–	–	28 400
Privately-owned waters	–	–	56 000	–	–	56 000
Wilderness reserves	1 379 000	110 000	–	–	–	1 489 000
Natura 2000, new sites ⁴	–	–	6 300	58 300	26 000	90 600
Total	2 820 650	236 310	168 800	599 000	99 000	3 914 260

1 The Development Programme for National Parks and Strict Nature Reserves (1978) and other Government Decisions-in-principle on establishment or enlargement of national parks.

2 Bird Wetland surface area includes both land and water areas.

3 Includes, for example, seal reserves.

4 Includes only land areas that were not in any nature conservation programme prior to the Finnish Natura 2000 site proposal in 1978 and will be established as nature reserves.

Establishing parks and reserves is a complicated process

Nature conservation programmes are realised, through for instance, the acquisition of the designated areas for the State. These areas are chosen and their borders defined based on surveys of their conservation values and on compromises reached in cooperation groups. The acquisition of an area for the State and its transferal to Metsähallitus administration do not yet make it a nature reserve, however.

Establishing a nature reserve on State-owned land requires a statute defining the purpose of the area and the principles of its management and use. If required, specific local regulations can be issued either as a part of the statute or separately. The area's protected status and restrictions (protection provisions) do not, however, take legal effect until the area has been officially made

into a 'nature reserve cadastral unit' meaning that the real estates are merged and the property is officially registered. Borders of the reserve must also be demarked in the field. The whole process, which can take several years, is shown in Figure 13.

About 500 protected areas have been statutorily established, but about 40% of these have not yet been formed as nature reserve cadastral units. Metsähallitus also currently administers about 1,500 sites within conservation programmes that are due to become nature reserves by 2011-2012 in line with the Natura goals (see Table 4). About a third of these sites are old-growth forests, and another third are wetlands. When these programmes have been realised, the statutes prepared and the nature reserve cadastral units duly formed, a total of about 1,500-2,000 nature reserves will be under State administration.

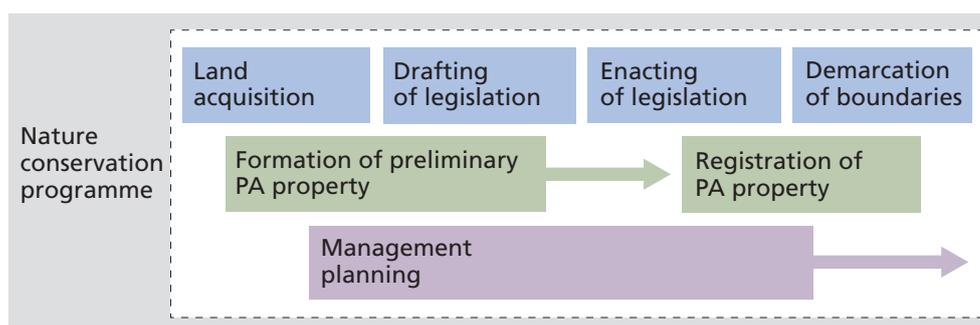


Figure 13. Process of implementation and establishment of a protected area (PA). Source: Metsähallitus, National Land Survey of Finland, Finnish Environment Institute.

Table 4. Sites within national nature conservation programmes managed by Metsähallitus Natural Heritage Services in 2005. Source: Metsähallitus.

Conservation Programme	Number of sites	Total area, ha	Percentage of total area
National parks and strict nature reserves	3	52 950	7
Mires	314	119 340	16
Bird wetlands	112	8 230	1
Shore habitats	107	125 820	17
Herb-rich forests	122	1 800	0.2
Old-growth forests	351	245 500	34
Natura 2000 sites	422	79 520	11
Several overlapping programmes	65	96 300	13
Total	1 496	729 460	100

4.3 Status of the Finnish Protected Area Network

4.3.1 More than 10% of Finland under Protection

Around 10% of Finland's total land area is now protected when areas protected by statutes, i.e. nature reserves established under the Nature Conservation Act and wilderness reserves established under the Wilderness Act, are included in the figures. The figure rises to around 15%, if other areas designated for protection under various conservation programmes are also included.

The numbers, total areas and proportions of different kinds of established protected areas in Finland at the end of 2005 are shown in Table 5. Types of protected area are described in Information Box 6.

Protected areas increasingly under Metsähallitus's management

Of the roughly 9 million hectares (90,000 km²) of land managed by Metsähallitus at the end of 2005, 56% are used for forestry and 44% are protected areas or other special areas. Most of the latter are statutory nature reserves, areas designated within conservation programmes, as

well as wilderness reserves and national hiking areas, that are also included in the Natura 2000 network. 'Other areas' include sites designated by Metsähallitus as protected or recreational forest areas, and sites designated for protection under local detailed plans. Metsähallitus also administers a total of 3.4 million hectares of State public waters and other water areas. The total area of protected waters is around 670,000 ha (6,700 km²) when established protected areas and areas within conservation programmes are added together.

The numbers and total extents of areas administered by the NHS between 2001 and 2005 are shown in Figure 14 and Appendix 9. The number of statutory nature reserves increased during this period by 84 (17%), and the number of areas designated within conservation programmes grew by 344 (22%). The total area of statutory nature reserves has grown by 160,000 ha (10%) and the total extent of areas within conservation programmes administered by the NHS has increased by 200,000 ha (28%). Altogether, the total area under different degrees of protection has increased by nearly 585,000 ha (14%) during these five years, if nature reserves, sites designated within conservation programmes, protected forests, other protected sites, wilderness reserves and hiking areas are all counted together.

Table 5. Established protected areas in Finland, their total area by protected area type and the proportional area of nature reserves by type, as of 31.12.2005. Source: Ministry of the Environment.

Nature reserves	Number of sites	Total area, ha	Percentage of total nature reserve area
National parks	35	882 000	50.7
Strict nature reserves	19	153 600	8.8
Mire reserves	173	453 900	26.1
Herb-rich forest reserves	53	1 260	<0.1
Old-growth forest reserves	92	10 400	0.6
Seal reserves	7	19 205	1
Reserves established by Metsähallitus	24	810	<0.1
Other State-owned nature reserves	39	46 810	2.7
Other privately-owned nature reserves	4 687	169 700	9.7
Total nature reserves	5 129	1 737 675	100
Wilderness reserves	12	1 489 000	
Total protected areas	5 141	3 226 675	

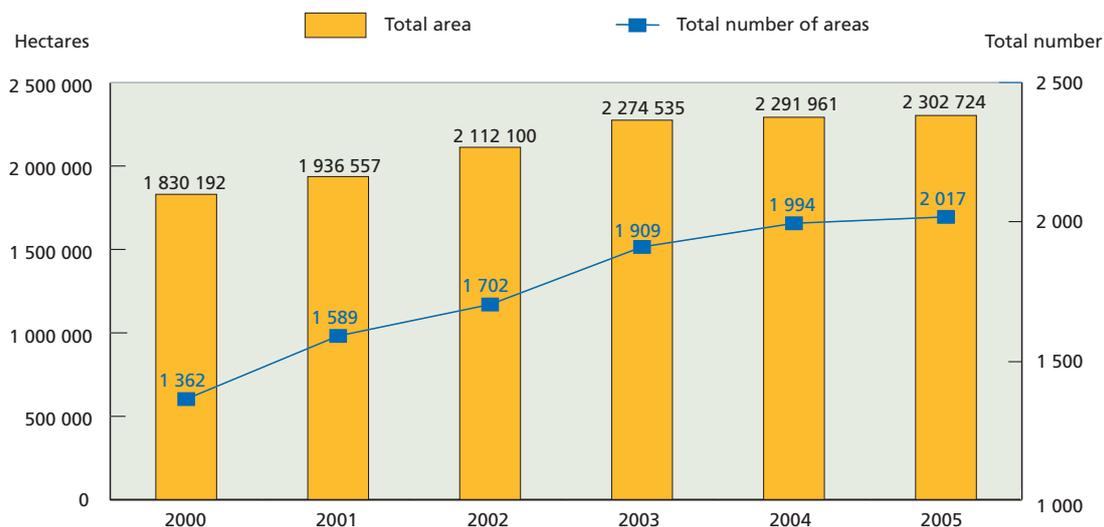


Figure 14. Numbers and total area of established and pending protected areas managed by the Metsähallitus Natural Heritage Services 2000-2005. Source: Metsähallitus.

4.3.2 Protected Areas Large in the North, but Small in the South

Section 4.1 already drew attention to the way that the sizes of protected areas vary greatly between different parts of Finland. This situation can be illustrated by examining the numbers of areas in different regions and their average sizes (see Appendix 8). Numerically speaking, Southern Finland contains almost half of all statutory protected areas and sites designated within conservation programmes on State land. Of the 35 national parks in Finland, 25 are in the region covered by the NHS Southern Finland regional unit. The average size of an established protected area is just 450 hectares, and only 3,200 ha for a national park. As much as 75% of the total area under protection lies within the region of the NHS Lapland unit including the three largest national parks and all 12 wilderness reserves. The average size of a protected area in this region is 9,000 ha, 20 times larger than in Southern Finland. It was still possible to establish relatively large protected areas that remained in their natural state in the 1980s and '90s in sparsely settled Lapland, which contains a lot of State land. Private ownership and other land use pressures in the south hindered the establishment and enlargement of protected areas already from the 1960s. There is very little unprotected original nature left in Southern Finland, at least with respect to unfragmented areas of any significant size. Figure 15 shows the proportions of each forest vegetation zone under protection.

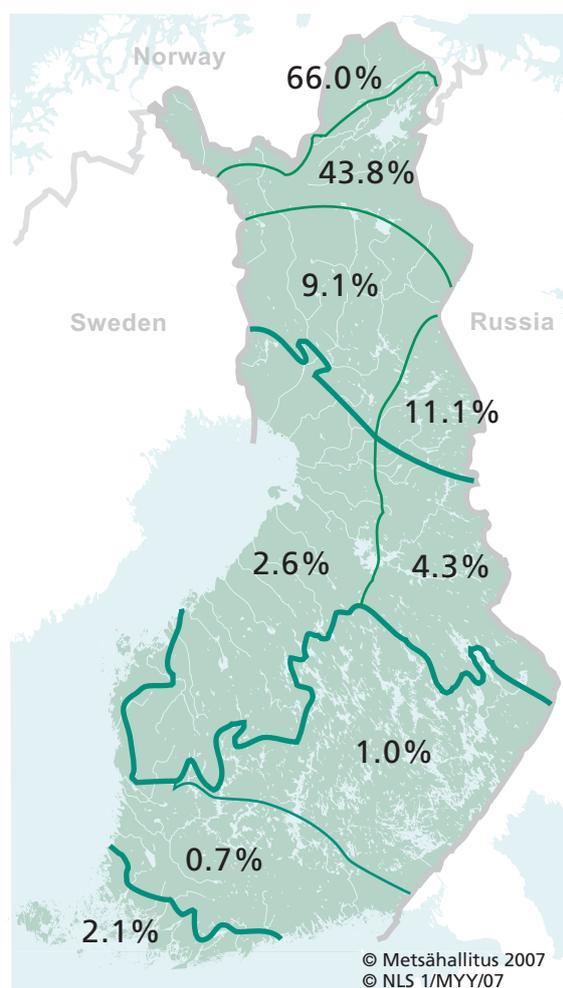


Figure 15. Percentages of different forest vegetation zones and sub-zones under protection. See Figure 9 for details on zoning. Source: Virkkala et al. 2000.

Protected Areas in Finland

Finland has many different kinds of protected areas reserved for various purposes. Protected areas are generally intended to conserve biodiversity, antiquities, traditional livelihoods, landscapes and other cultural values. Protected areas together form networks at provincial, national and international level.

Nature reserves, wilderness reserves and national hiking areas have been established under various acts and decrees. Most of the sites included in Natura 2000, HELCOM's Baltic Sea Protected Areas, and Ramsar Convention wetland sites are already established protected areas or areas designated for future establishment within conservation programmes. Landscape conservation areas, Biosphere reserves and World Heritage sites are established outside these programmes. In the beginning of 2006, there were about 500 legally established protected areas on State-owned lands in Finland. There were additionally more than 4,000 private nature reserves, but their total area only accounts for 5% of all protected areas. Most protected areas on State land are administered by the Metsähallitus Natural Heritage Services (NHS). A few areas have been administered by the Finnish Forest Research Institute. These will be transferred to the NHS in 2008.

National Parks

There are 35 national parks in Finland, 34 of which are managed by Metsähallitus. National parks have been established to conserve valuable natural features, and they also are open to visitors. National parks have conservation value internationally, as well as nationally, and they include national landscapes and other notable natural and cultural sights.

Strict nature reserves

Strict nature reserves have been established primarily for nature conservation and science. Therefore they have strict regulations, and are mostly closed to the public. However, it is possible to obtain permits to visit these areas for scientific or teaching purposes. In a couple of strict nature reserves, there are marked trails where

access is permitted. There are 19 strict nature reserves in Finland, 17 of which are managed by Metsähallitus.

Other nature reserves

There are also several other types of areas protected under statutes or decisions made by Metsähallitus or the regional environment centres. Such areas include mire reserves, old-growth forest reserves, herb-rich forest reserves, seal reserves, and other nature reserves. The bulk of these areas is located on State-owned lands, and their conservation status varies.

Wilderness reserves

In 1991, 12 wilderness reserves were established in accordance with the Wilderness Act on State lands in Lapland. Their total area is about 1.5 million hectares (15,000 km²). They are not actually nature reserves, but rather they have been established to maintain the wilderness-like nature of these areas, to protect culture of the indigenous Sámi people and traditional livelihoods, and to promote various sustainable uses of natural resources. However, these wilderness reserves do also have an important role in maintaining biodiversity, and they are all part of Finland's Natura 2000 network. All wilderness reserves are managed by Metsähallitus.

National hiking areas

Seven national hiking areas have been established under Finland's Outdoor Recreation Act for hiking and outdoor recreation. They have marked nature, hiking and cross country skiing trails, cabins and camping sites, and it is usually possible to go fishing or hunting in these areas. All hiking areas are managed by Metsähallitus, and included in the Natura 2000 network.

Natura 2000 sites

The Government decided in 1998 about the Finnish sites to be proposed for the Natura 2000 network, and this decision was supplemented in 1999, 2002, 2004 and 2005. In accordance with the Habitats Directive, there are 1,715 Sites of

Community Importance (SCI) in Finland, with a total area of about 4.8 million hectares. This is about 14% of the country's surface area. In accordance to the Birds Directive, there are 467 Special Protection Areas (SPA), and their total area is about 3.1 million hectares, which is about 9% of Finland's surface area. Many of the SCI and SPA sites overlap.

The EU Commission has finally approved of almost all of Finland's SCI proposals. The site list for the Alpine Region was approved in 2003, and list for the Boreal Region in 2005. These decisions include 1,632 sites with a total area of about 4.6 million hectares (46,000 km²). Almost all of these sites belong to established protected areas or national conservation programmes. Sites which are established in accordance with the Habitats Directive are known as Special Areas of Conservation (SAC).

Landscape conservation areas

Landscape conservation areas are established under the Nature Conservation Act to maintain and manage natural or cultural landscapes, their beauty, historical characteristics, or other special scenic values. The related Government decision-in-principle of 1995 lists 156 naturally valuable landscape areas in Finland, with a total area of 730,000 ha. Most of these landscape areas are located in the agricultural districts of Southern and Western Finland. By the beginning of 2006, only one actual protected landscape had been established, and it is partly managed by Metsähallitus.

Baltic Sea Protected Areas (BSPA)

As a part of the work of the Helsinki Commission (HELCOM), 62 coastal sites were proposed for inclusion in the network of Baltic Sea Protected Areas in 1994. Most of these sites were already nationally protected. In 1998, 24 new marine areas were included in the network. The network includes all of Finland's marine national parks, as well as the archipelagos of Kvarken and Rauma, which are mostly managed by Metsähallitus.

Ramsar sites

Ramsar Convention (1975) obliges the 138 signatory states to promote conservation of internationally important wetlands and water birds by establishing protected areas in these habitats. The Convention covers 1,328 sites in all, with a total area of about 112 million hectares.

Finland has 49 of these sites, with a total area of 785,780 ha, and 21 of them are entirely or partly managed by Metsähallitus. Sites are chosen so that they represent, as well as possible, different mires, lakes, marine bays and archipelagos which are important to water birds in Finland. All of Finland's Ramsar sites are also included in the Natura 2000 network, and the conservation goals of the Ramsar Convention are put into practice through Natura conservation measures. Ramsar sites also belong to national conservation programmes, such as the Mire, the Bird Wetlands and the Shore Conservation Programmes.

Biosphere reserves

There are two Biosphere reserves in Finland: the North Karelian Biosphere Reserve (established in 1992) and the Archipelago Biosphere Reserve (established in 1994). These areas both form part of the Man and the Biosphere (MAB) programme of the United Nations Educational, Scientific and Cultural Organisation (UNESCO). They are intended to be model areas of sustainable development, where the goal is to integrate the conservation of habitat diversity with the sustainable use of natural resources. Both areas are partly managed by Metsähallitus.

UNESCO World Heritage sites

UNESCO approved the World Heritage Convention in 1971. By the beginning of 2006, there were 644 cultural heritage sites, 162 natural heritage sites and 24 mixed sites on the World Heritage List. Six of the cultural heritage sites and one natural heritage site (the Kvarken Archipelago) are located in Finland. This site and parts of one of the cultural sites (two survey points within the Struve Geodetic Arc) are partly managed by Metsähallitus.

4.3.3 International Site Designations and Networks

IUCN classifications open to interpretation

Information on protected areas around the world is maintained in a United Nations (UN) database, for which the World Conservation Union (IUCN) has formulated criteria and a classification system (see Appendix 10). The protected areas listed in the UN database must meet two conditions regarding their size and management objectives. Areas approved for the database must comply with the definition of a protected area, issued in 1994, and be “an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.”

For practical reasons, only areas of at least 1,000 hectares are approved for the database. The World Database on Protected Areas is maintained by the World Conservation Monitoring Centre (WCMC), which reports to the United Nations Environment Programme (UNEP).

The IUCN's categories, which apply to Finnish areas over 1,000 ha in size, can be found in Metsähallitus's real estate property and land use information system. Natura areas are classified in the system primarily according to the category of any established protected areas. Interpretation of the IUCN categories has not, however, always been carried out according to the dominant land use. In Table 6, Finnish protected area types are classified according to the categories in which they are reported to the IUCN and a tentative interpretation of the protected area category according to the IUCN definition has been added in brackets. Management objectives will be discussed in more detail in Section 7.2.

Finland's wilderness reserves are registered throughout in IUCN category VI (natural resource management and protection area) and not in line with their name in category Ib (uninhabited area). This is because of the prevailing tradition in Northern Finland, according to which local inhabitants have unrestricted hunting rights in these areas. However, the categorisation of other protected areas situated within the defined regions of reindeer husbandry and unrestricted hunting in Northern Finland could be interpreted

ed according to the constituent acts and land use statutes currently in force (Finland's unrestricted hunting area and reindeer husbandry area are shown in Figures 38 and 39).

For example, some national parks, mire reserves, protected old-growth forest reserves and even strict nature reserves could, according to these definitions, be included in category VI rather than the strict protection categories Ia or Ib. The use of natural resources is in principle prohibited in these categories, and limitations to access are essential. On the other hand, pursuing natural sources of livelihood is in many cases considered acceptable as long as an area's conservation values are not endangered. The definitions are clearly ambiguous.

Most of the national parks in Southern Finland belong, as their name suggests, to IUCN category II, but it is important to notice that fishing and hunting are by definition activities prohibited in areas in this category. The current official view is that only driving of elk should be allowed in national parks of Southern Finland.

The adaptation of the IUCN categories into Finland's protected area system also causes interpretation problems concerning some mire reserves, seal reserves, and various other nature reserves. Similar interpretation difficulties have also been experienced by many other countries.

The IUCN has set up a working group to clarify the definitions of protected area categories and interpret them in such a way that categorisation would work unambiguously and uniformly all over the world, regardless of the names given nationally to the protected areas and of their land use practices. Finland should update its categorisation of protected areas when this work is completed.

Finnish parks an important part of the Natura 2000 network

Areas approved for Finland's Natura 2000 network are mainly established nature reserves, wilderness reserves and sites designated within conservation programmes. Despite the fact that this approach is different from the convention followed by certain other Central and Southern European countries, where the species listed in the directives have been considered even more comprehensively, the Finnish network can be

Table 6. Protected area classification and management objectives by category: SNR = strict nature reserve, WR = wilderness reserve, MR = mire reserve, OFR = old-growth forest reserve, NP = national park, NR = nature reserve, BW = bird wetland. 1 = primary objective, 2 = secondary objective, 3 = possible objective, – = not applicable. Tentative interpretation of protected area category, according to IUCN definition of primary management land use objectives, is in brackets. Based on: IUCN 1994.

Goal of management and use	IUCN protected area category						
	Ia	Ib	II	III	IV	V	VI
	Protected area (PA) managed mainly for science	PA managed mainly for wilderness protection	PA managed mainly for ecosystem conservation and recreation	PA managed mainly for conservation of specific natural features	PA managed mainly for conservation through management intervention	PA managed mainly for landscape/seascape conservation and recreation	PA managed mainly for the sustainable use of natural ecosystems
	SNR	(WR, MR, OFR)	NP	(NR)	(BW)		WR (SNR, NP, MR, OFR)
Scientific research	1	3	2	2	2	2	3 (2)
Wilderness protection	2	1	2	3	3	–	2 (1)
Preservation of species and genetic diversity	1	2 (1)	1	1	1	2	1
Maintenance of ecosystem services	2 (1)	1	1	–	1(2)	2	1
Protection of specific natural / cultural features/sites	–	–	2	1	3	1	1
Recreation and tourism	–	2	1	1	3	1	3
Education	–	–	2	2	2	2	3
Sustainable use of resources from natural ecosystems	–	3	3 (2)	1	2	2	1
Maintenance of cultural / traditional features	–	–	– (2)	– (2)	– (2)	1	2 (1)

seen as an important part of the whole European network of protected areas. The bulk of Finland's Natura network consists of already established protected areas. Most of the areas included in the Finnish network are uninhabited, and there are no heavy pressures on the areas and their values, unlike many places in Europe.

Before the Baltic and Eastern European countries joined the European Union in spring 2004, the Natura 2000 network covered about 12% of the surface area of the Community's 15 member countries. In December 2005 the entire EU25 network included already 20,000 protected areas covering 550,000 km². The Finnish network made up 13% of the whole.

The ten new EU member countries increased the Community's total area by 60%, and the Natura network expanded to cover a new biogeographical region (Pannonia, see Fig. 4 on p. 29). Member countries are finalising their own proposals for areas to be added to the Natura network. It is estimated that when the network is realised, it will cover around 18% of the total area of the EU's 25 member countries. The Natura areas in the Baltic countries significantly complement the protection of the boreal zone. The Natura 2000 network barometer illustrates the status of the network in 25 countries at the end of 2005 (see Appendix 11).



Siikalahti Nature Reserve. Siikalahti is a bird wetland of international significance designated as a Ramsar Convention site. The lake was restored with EU Life funds over the period 2001-2003 and is actively managed to maintain its valuable habitats. Photo: Jari Kostet.

Ramsar sites and biosphere reserves protected as Natura sites

A total of 38 new sites in Finland were approved at the end of 2005 for the network of wetlands and waterfowl habitats required under the Ramsar Convention (1975). The new sites enlarged the total size of Finland's Ramsar network by more than 600,000 hectares. Finland now has a total of 49 Ramsar sites with a total area of nearly 790,000 ha (7,900 km²).

Finland's Ramsar sites include valuable archipelagos such as the Tammissaari Archipelago in the Gulf of Finland and the Mikkelsaari Islands in the Kvarken Archipelago. Protected bays, such as Mietoistenlahti in SW Finland and Laajalahti Bay in the Gulf of Finland comprise a chain of migration staging areas and nesting sites. The most notable inland bird wetland among Finland's Ramsar sites is Siikalahti Bay in Eastern Finland. Finland's Ramsar network also includes 24 mire areas, representing all mire vegetation zones. All of Finland's Ramsar sites also belong to the Natura 2000 network, and the Ramsar Convention's conservation objectives are realised through Natura area protection procedures. A large proportion of Ramsar sites are also international Important Bird Areas (IBA). Finland has 145 of these sites, which have very strict criteria for inclusion. Ramsar sites are also included in national conservation programmes for mires, bird wetlands and shores.

Finland's Ramsar sites are listed in Appendix 12, which also shows the areas administered by Metsähallitus.

The UN Educational, Scientific and Cultural Organization (UNESCO) runs the Man and Biosphere programme (MAB), which studies internationally significant natural values and habitats created by local livelihoods. The related biosphere reserves are not nature reserves in the traditional sense, as human activity plays a central role in these areas. The programme aims to develop the living conditions of people living in biosphere reserves without compromising nature conservation or environmental protection. There are altogether 482 biosphere reserve sites in more than 100 countries. Half of these are in Europe, including two in Finland.

The Northern Karelian Biosphere Reserve is located in two municipalities near the Russian border. Three nature reserves managed by Metsähallitus form the core of this area. The Northern Karelian Biosphere Reserve involves active transboundary collaboration. The Archipelago Sea Biosphere Reserve in SW Finland includes parts of four archipelago municipalities. Areas included in the Archipelago National Park, managed by Metsähallitus, form the protected core of the biosphere reserve, which is surrounded by an extensive cooperation district. The Finnish MAB areas, together with Nordic, Baltic and NW Russian biosphere reserves, form the NordMAB network, founded in 2004.

A comprehensive network of Baltic marine protected areas

The Baltic Marine Environment Protection Commission, alias the Helsinki Commission (HELCOM), established a network of 62 marine protected areas in 1995. HELCOM has since proposed the addition of 23 new reserves, and the member countries have proposed 13 new reserves of their own. A total of 98 reserves have thus been proposed, of which 32 have been of-

ficially accepted for inclusion. Figure 16 shows the locations of these Baltic Sea Protected Areas (BSPAs).

The Baltic Sea is divided into 17 marine areas. Finland's territorial waters include all or parts of the Bothnian Bay, the Kvarken Archipelago, the Åland Sea, the Archipelago Sea and the Gulf of Finland. Finland initially proposed eight BSPA reserves, and then 15 more in 2005, making a total of 23 accepted or proposed BSPAs, with a total area of more than 590,000 hectares (5,900



Figure 16. Baltic Sea Protected Area (BSPA) network. Source: HELCOM.



Islands in the Archipelago National Park. The Archipelago Sea has one of the largest concentrations of islands anywhere in the world. The islands and waters of the National Park are surrounded by a large cooperation area. The park forms the core of a Biosphere Reserve established by UNESCO in 1994 to promote sustainable development and research into the interaction between man and nature. Photo: Lentokuva Vallas.

km²), of which about 93% is water. Finland's BSPA reserves are listed in Appendix 13.

These Finnish areas account for almost a quarter of the BSPAs in numerical terms, and about 16% of the network's total area. All the Finnish reserves belong to the Natura network; 8 of them are part of the Ramsar network and 15 are also classified as Important Bird Areas (IBA).

The CBD's programme of work on protected areas aims that 10% of marine areas should be protected by 2012. It is estimated that about 7% of the Baltic Sea is currently protected, and this figure will rise to 8% when the proposed areas are accepted. According to a recent HELCOM study, the network's coverage and representativeness are fairly good. Most biotopes and species considered to be typical or threatened are duly protected. It is nevertheless intended that the network should be further developed over the coming years.

4.3.4 The Protected Area System under Evaluation

Ecological integrity of protected areas

The main principle behind the protection of a natural area is to maintain or restore its *ecological integrity*. This term has been used for a long time by Parks Canada, and the concept is nowadays in one way or another part of the establishment and management of protected areas worldwide. The idea is that the biodiversity, that is typical in a certain climate in certain local conditions, has a natural state which includes the competitive and dependent relationships between biotopes and species in different habitats. An ecosystem undergoes natural development due to changes in vegetation and circumstances, and also natural disturbances, such as storms or forest fires. Natural ecosystems, however, face various types

of stress caused by human activities that can change their habitats in quantitative and qualitative terms, by disturbing natural cycles and fragmenting areas.

Ecological integrity can be assessed relatively, for instance by monitoring long-term changes in the distributions, abundance and interrelationships of species or species groups. It is also possible to monitor, how the absence of natural disturbances, such as forest fires, affects the life cycles or occurrences of organisms. Another possibility is to monitor local variables, such as the extent of building or amount of water pollution, which are known to cause changes in species' habitats – in this case fragmenting the broader integrity of areas or reducing the quality of the aquatic environment.

Representativeness of the protected area network

Another goal of the protected area network is to preserve an integrated and viable complex of ecosystems. The Australian New South Wales National Parks and Wildlife Service uses the term *CAR principles*, meaning comprehensiveness, adequacy and representativeness. In other words, the important factors regarding the protected area network are the numbers of areas, the functioning of their ecosystems' natural processes, and the vitality of their biotopes and species.

The comprehensiveness and representativeness of Finland's protected area network has been monitored for many years. The Finnish Environment Institute (SYKE) launched the SAVA programme in 1997, initially to evaluate the representativeness of terrestrial ecosystems. The studies compared the original extents of the various habitat types typical of different vegeta-

tion zones with their current extents, based on the national forest inventories carried out in Finland since the 1920s, and also comparing the sizes of protected areas to the areas of forest or mire still in a natural or near natural state. Typical features of the structures and functioning of habitats in their natural state have also been studied. Such features of old-growth forest in its natural state, for instance, include great age differences between the trees within a stand, high species diversity, and abundant dead wood.

The protected area network has also been studied from the perspective of species, including species groups and single species. There is sufficient information on the distribution and abundance of species groups such as birds, which have been monitored comprehensively over a long period of time, to form conclusions about the significance of the protected area network in terms of trends in the numbers of these species. The importance of the mire reserve network for mire birds has been comprehensively assessed, for instance (see Information Box 7).

Protected areas are particularly important to threatened species. Indeed most species listed in the directives that form the basis for sites' inclusion in the Natura 2000 network, are rare or threatened. However, in many cases there is not enough information concerning the viability of species' occurrences in protected areas to enable reliable estimates of their conservation statuses. The first comprehensive evaluation of trends in species and biotopes listed in the directives will be made in 2007 covering the reporting period 2001-2006 of the Habitats Directive. It will not be possible to comprehensively evaluate the significance of the Natura network in the EU as a whole, however, until 2013, at the end of the next reporting period 2007-2012.

Northern mire birds well represented in the protected area network

An assesment of the network of nature conservation areas (the SAVA project) reviewed how well mire bird species are represented in Finland's network of protected areas. This study was based on a line transect method, where 8,800 km of transect surveys were carried out in 1981-1997 in protected areas and sites included in nature conservation programmes. The area of the surveyed sites was about 80% of the total extent of protected areas and sites included in conservation programmes. The data acquired by counting the birds along these transects was reviewed using 100 x 100 km squares of the Finnish standard system (Grid27E) coordinates. Geographical fluctuations in the density of species' populations were taken into account.

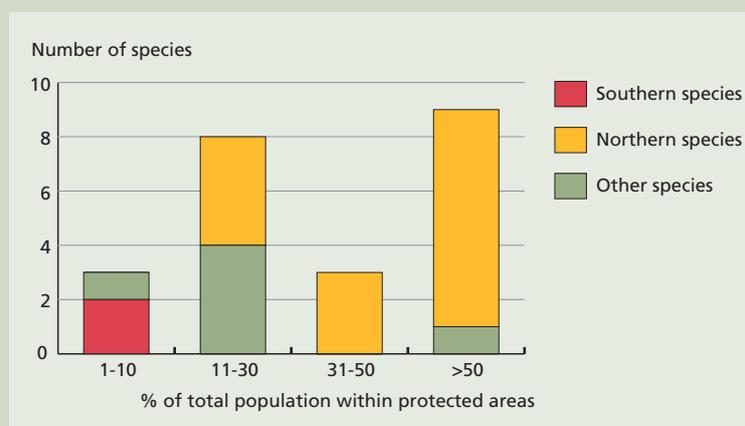
Observations of 23 mire bird species in the network of protected areas were reviewed. More than half of these species were waders. Most of the species favour open mires, but some are mostly found on wooded mires, such as willow grouse (*Lagopus lagopus*). Some species also nest in fields, such as lapwing (*Vanellus vanellus*) and curlew (*Numenius arquata*), or on alpine heaths, such as the golden plover (*Pluvialis apricaria*) and whimbrel (*Numenius phaeopus*).

Two of the studied species were significantly more abundant in protected areas located in Southern Finland, and 15 species in protected areas in Northern Finland. The densities of four species were highest in Central Finland, in the

aapa mire zone of Ostrobothnia. The distribution of the golden plover (*Pluvialis apricaria*) was bicentric, with densities highest in the concentric raised bog zone in SW Finland and in Fell Lapland. Many mire bird species populations are concentrated in northern parts of Finland, where the network of protected areas is largest. It was estimated that more than half of the Finnish populations of 9 of the studied species nest in protected areas. There were only three species which had less than 10% of their total Finnish population nesting inside protected areas. Five species were considerably more abundant in the protected areas of Western Finland.

According to the study, a significant part of mires which are important to birds have been included in the network of protected areas. The largest deficiency is in the aapa mire zone of Ostrobothnia, where the densities of many mire bird species are highest. Finland has a crucial role in the conservation of mire birds and their habitats in the EU, because 40-50% of the whole EU populations of the eight mire birds listed in the Birds Directive nest in Finland.

Source: Virkkala, R. & Rajasärkkä, A. 2001: Significance of the protected area network for the mire bird species. In: Aapala, K. (ed.) 2001: Assessment of the network of protected mires in Finland. – The Finnish Environment 490. Pp. 259-282.



Percentages of the total populations of southern, northern and other mire bird species breeding within protected areas.