It is not a matter of course that our natural environment will be preserved and managed from
generation to generation. On the contrary, there are many different conditions and factors that
affect the current state of the natural environment and how it will fare in the future. A great deal
of the world’s natural resources and habitats for animals and plants are endangered because we
use and treat them in a way that is not sustainable.

Human beings certainly have an effect on the environment, and, consequently, we have a choice
to make about the quality of environment we would like in the future as well as a responsibility
for the natural environment, now and in the future. Protected areas by law is the only way to
ensure that our environment is preserved for future generations.
Swedish Nature Conservation
100 Years

Come with us on a journey around the Swedish landscape and countryside – to mountain heaths, surging rivers and spongy mires, into ancient forests, through meadows and oak landscapes all the way out to the Baltic and North Seas and their archipelagos.

In this brochure we inform people about society’s commitment to protecting the natural environment. It also gives some examples of areas that have been protected since the Swedish Parliament set environmental objectives in order to achieve a favourable natural environment in Sweden 1999.

In the year 1909, the Swedish Parliament passed an act relating to National Parks in order to protect the natural environment for the benefit of science and tourism. Protecting the environment by site protection according to the environmental code is vital in order to preserve valuable nature in Sweden for future generations.

Welcome to the natural world!
Some facts about the nature in Sweden

Sweden is a country of varied landscapes and natural environments. A large proportion of the countryside has a long history of land use. However, Sweden is one of the few countries in Europe that still has virgin forests, wetlands, unregulated rivers and other types of valuable and unspoiled, natural features.

The largest proportion of Sweden’s protected areas can be found in the mountainous region and consists of national parks and nature reserves. The mountain landscape is majestic and offers great contrasts, with sparkling glaciers, barren, alpine peaks, vast areas of heath and glorious meadows rich in wildflowers. At a lower altitude, there are ancient forests. For many people, the mountains are synonymous with the great outdoors, recreation and relaxation, but there is also a long tradition of reindeer husbandry and trading in kind. The mountain landscape, however, remains among the most unspoiled areas of Sweden’s countryside.

Much of Sweden’s landscapes consists of forests and forest plantations, and these are a familiar feature of the scenery. The northern, forest landscape beneath the mountains is dominated by coniferous forest plantations but in some areas there are large mires and old-growth forest fragments. In southern Svealand, the countryside gradually gives way to a varied mix of woodlands and agricultural landscapes. In Götaland, there are beech forests and other selected, valuable, broadleaved trees, a habitat for a host of plant and animal species. There are expanses of agricultural flatlands, mostly in Mälardalen, Västergötland, Östergötland and Skåne, and even several large areas of wetlands, home to a rich variety of bird life. In many areas of the country, there are pastures of great natural and environmental and cultural value. In an international perspective, it is important to preserve oak landscapes in southern Sweden, and bare limestone soils on Öland and Gotland.

In relation to land surface, Sweden is one of the countries in the world with the largest number of lakes, 100,000 in total, and about 700 rivers and streams. These lakes can include anything from clear, mountain lakes and brown, forest lakes to those rich in nutrients from the muddy soils of the flatlands. These significant variations, are due, in part, to differences in height, depth, nutrient availability and pH value.

The Swedish coastal and marine environments are characterised by a sea of varying salinity, several large archipelagos and a coast that rises. In Bohuslän, the water has high salinity, while in the Baltic Sea the water is brackish and in Bottenviken almost completely fresh, and animals...
and plants have adapted to these varying levels of salinity. The rising of the land along the coast of Norrland is significant, providing a gradual source of new coastal environments, valuable for animals and plants. Along the coasts, there are several large archipelagos, of great natural value and appeal for those seeking outdoor pursuits.

**Nature conservation – an important part of the environmental agenda**

Sweden has long been a contributor to the international environmental effort in the UN and EU, participating in the work of establishing goals and committing to nature conservation. At the same time as the 100 year anniversary of the national parks is celebrated, it is 10 years ago, in 1999, that the Swedish Parliament adopted the national environmental quality objectives. The key elements of international commitment, national environmental quality objectives and legislation in the Environmental Code all provide the basis for the environmental effort in Sweden.

The Swedish Environmental Protection Agency and county administrative boards lead the official work on nature conservation in cooperation with other authorities. There are also vital contributions from municipalities, foundations, non-profit organisations, landowners and companies. In their efforts concerning nature conservation, the authorities strive for cooperation and participation as well as strategic action, founded on knowledge and research, by the use of inventories, analyses and consulting between groups. The Environmental Code and its different methods of protection provide the tools for preserving areas of great natural value and natural environments near urban areas.

In Sweden, about 13 per cent of the land surface is protected in some way. In order for Sweden to manage international commitments and achieve environmental objectives, more areas of land and water require formal, long-term protection.
Torneälven is one of four protected national rivers in Sweden.

In the area of Muorkapte there are mires and forests of high conservation value.

The nature reserve Sjaunja is a wilderness area and a part of the world heritage site of Lapponia.

Pristine forest with 600-years old Scots pines in the nature reserve Svenskådalen.
Species rich deciduous forest in the national park of Söderåsen.
Protected areas – why?

Long-term protection, according to the law, is essential in order to preserve the world’s natural and cultural heritage and safeguard fundamental values such as clean water, clean air and unspoiled nature so that natural environments of particularly great value for animals, plants and people can be preserved. This is why nearly every country in the world is establishing national parks, nature reserves and other protected areas.

Threat to environmental values
It is not a matter of course that our natural environment will be preserved and managed from generation to generation. On the contrary, there are many different conditions and factors that affect the current state of the natural environment and how it will fare in the future. A great deal of the world’s natural resources and habitats for animals and plants is endangered because we use and treat them in a way that is not sustainable. In fact, exploitation has, to a large degree, depleted natural resources, which harms people as well as the environment. Human beings have an effect on the environment, and, consequently, we have a choice to make about the quality of the environment we would like in the future as well as a responsibility for the environment, now and in the future. Protected areas by law is the only way to guarantee the preservation of valuable, natural environments and habitats for future generations.

Tourism – the new primary industry
Protected areas often offer wonderful, natural and recreational experiences – visitors can enjoy their wild, natural beauty, the wide, open spaces and a rich variety of flora and fauna. For this reason, protected areas often become natural sightseeing features that promote Sweden, its counties and geography. In Europe, for example, Sweden is famous for its unspoiled landscape and conservation areas are an important part of marketing Sweden as a tourist destination. Tourism in Sweden has a greater economic value than, for example, the export of iron and steel or cars.
No well-being without a natural environment
Most people, regardless of cultural background, feel a deep respect for nature, its energy and powers of rejuvenation and most of us have a strong need to physically experience these things. Protected areas provide unique opportunities for experiencing a rich variety of scenery and landscapes. The experience of a visit to a genuine virgin forest or picking cloudberry on a wide expanse of mire is difficult to value in terms of money but having such opportunities available to us are a fundamental part of our wellbeing and quality of life.

The ecosystem needs protection
Protected areas contribute to the production of the ecosystem and its ability to deal with climate changes. Industries such as fishing, agriculture and forestry all depend on a functioning ecosystem. Protected areas help preserve a number of important ecosystem services such as providing clean water and air, and can buffer the negative effects of climate change. Many of the world’s conflicts are a result of the exploitation of natural resources. By economising and regulating the exploitation of natural resources, we help provide the essential conditions necessary for a functioning ecosystem, which will ensure prosperity and security for future generations.

A tool for preservation of biodiversity
Biodiversity and renewable natural resources are a prerequisite for human life on earth. Biodiversity itself can be described as the millions of species and the rich variety of life forms and functions in the world ecosystems. Protected areas are needed for the preservation of biodiversity. Sweden signed the Convention On Biological Diversity in 1992. This international treaty was drawn up at the United Nations Conference on Environment and Development in Rio de Janeiro. It provides the basis for our responsibility and our international commitment to protect the natural environment.

The nature’s have earnt an inherent worth
The natural environment has an inherent worth beyond its economic value for human beings; this principle is laid down in the Convention on Biological Diversity. For most people, the preservation of the beauty and rich diversity of nature is a given.
The landscape – past, present, future

The landscape has undergone substantial changes. Large-scale agriculture and forestry, extensive drainage and hydro-power expansion has affected the ecosystem functions. The land-use of today and tomorrow will be crucial for the functioning of landscapes and for man and nature in the future.

The cultivated landscape and agriculture
Over the years, agricultural practice has undergone sweeping changes which have taken place in several stages. For example, small-scale farming of many pasture lands has given way to mechanised farming with large grain-producing units. While, in the past, land was used for many purposes, cultivation is now strictly divided so that food is produced on arable fields and forest on forest lands. Meadowlands have been cultivated or transformed into pastures while large areas of what used to be pasture lands have been used for planting or have become overgrown. Grazing now occurs mainly on what was formerly arable land, and, consequently, this land has lost a good number of its natural species. Since the 1940s the number of farms in Sweden has decreased, especially during the last decades.

The result of these changes in agricultural practices and cultivation methods is that about 2 000 animals and plant species of the cultivated landscape are endan-

A STORY OF LAND USE
Here begins a journey through time looking at land use, from the pre-industrial time when unspoiled natural features characterized our country, to the present, where natural forests and natural waterways have become a rarity.

1400–1850 AGRICULTURE AND MINING START TO SHAPE THE LANDSCAPE.
Agricultural develops rapidly. Use of forests and water in mining districts for the mining industry intensifies. During the 1600s, rivers are also used for large-scale mining operations. By the 1800s, large areas of Norrland are still uncultivated and mainly untouched.

1551 The first forest officer mentioned in court documents. 1558 King Gustav Vasa forbids felling of oak and beech trees (with a few exceptions).

1634 County administrative boards established.

1637 Bergskollegium established giving ironworks the right to fell forests for open hearth furnaces and hammers in iron production.

1647 Sweden’s first forest law passed aimed at safeguarding the production of charcoal, tar and potash. “Slash and burn” agriculture is restricted.

1600–1700 Most river valleys begin to be exploited, water power is used for large-scale mining and iron handling.

1700
Forests and forestry
About 95 per cent of the forests in Sweden are affected by forestry. Swedish forest cultivation is a clear example of how to attain high rates of timber production by good forest management and planning. This is demonstrated, for instance, by the fact that timber supplies have increased by more than 60 per cent since the 1920s. On the other hand, intensive forest cultivation has transformed the landscape significantly for plants, animals and people. This is evident in large parts of the country where it is difficult to see an old forest. As a result of clear-felling, forest roads, drainage, scarification and spruce tree plantations, our forest landscapes have been, for the greater part, depleted of their biodiversity; quite simply, there are too few natural habitats to sustain the life of forest plants and animals. However in protected areas and in the mountain region the habitats are still in place.

In Europe today, natural growth forests are rare. For example, only about 0.2 per cent of the original surface area of the Middle-European broad-leaved deciduous forest remains in natural condition. Despite the substantial depletion of natural forests in Sweden, the country has the largest area of protected and unprotected ancient forests of any country in Western Europe. In an international perspective, it is vital to preserve their biodiversity.

Such estates as have not been built on, belong to God, us and Sweden’s crown and no other! ~ GUSTAV VASA 1542

1734 Detailed regulations on how farmers may use the forest introduced.

1749 Berry picking and woodland grazing described as common rights.

1789 A royal ordinance revokes almost all regulations on restrictions to farmers’ rights to forests – right of ownership comes into force.

1809 Scotsman James Dickson settles down in Göteborg, establishing the Swedish sawmill industry.

1823 Demands made for planned forest management because of timber shortage.

1827 The Bill of “Laga Skifte” means numerous, small, arable fields are combined to rationalise cultivation placing it closer to farms.

1839 First educational programme for foresters started, led by German Obbarius who is first to advocate cultivation using clear-felled areas.

1850

1880 Discoverer Adolf Erik Nordan-skiöld puts forward proposal on establishing national parks.

1880 Start of hydropower use for electricity production in Sweden.
Waterways and Hydropower

Hydropower has long been in use as a source of energy in Sweden, for example, for running mills and sawmills. In addition, up until the middle of the 1960s, timber was transported on many larger waterways. But it is the extraction of hydropower to produce electricity that has, undoubtedly had the greatest impact on waterways, with the subsequent expansion occurring in Sweden during the 1900s. Until the mid 1960s, the main basis for producing electricity was hydropower while today, hydropower accounts for about half of all electricity production.

The development of hydropower has meant considerable changes for land and aquatic areas. For example, whole valleys have been dammed up and drained. The shores of river reservoirs then become flooded and drained by turns, suffering serious erosion from surging waves and ice. This is why, water levels during the year can often be abnormal, which harms plant and animal life, both in the water and along the shores. In addition, the natural habitats of many animal species dependent on the presence of flowing water have been destroyed because of the building of hydropower plants, inhibiting migrating fish and this is only one of the ways in which their living conditions have changed.

Unregulated rivers are in short supply on the planet, which is why, in an international perspective, it is of the utmost importance to protect them. Kalix-Torneälven is the only large, unregulated river left in Europe outside Russia. A freely gushing river and the attractive fishing opportunities it offers are valuable assets to the tourist industry. This is certainly the case for the few unregulated rivers left in Sweden, among them four protected, national rivers, where unique opportunities for tourism and outdoor recreation can be enjoyed.

1850–1960 EXPLOITATION ON THE RISE

The sawmill industry expands considerably, hydropower starts being used to produce electricity and the first proposal to establish national parks is put forward. Towards the end of this period, the landscape is being reshaped by the onset of farming mechanisation, forest felling and draining of mires for forest production, as well as the increased use of hydropower.

1897 Forest Officer, Uno Wallmo, publishes the book: “Rational Forest Felling”, where he demands that the practice of clear-felling be replaced by selective thinning.

1900

1909 The Swedish Parliament passes the National Parks Act and establishes nine national parks, among others Sarek and Abisko; the aim is protection for the benefit of science and tourism.

1910

1918 The Water Act is passed in order to facilitate the development of hydro-power, at a time when industry is booming.

1919 For the first time, encroachment of a national park is permitted for hydropower exploitation. The Swedish Parliament decides that an area of Stora Sjöfallets National Park may be used in connection with the regulation of Suorva reservoir in Stora Lule River.

1920

1921 Forester Joel Wretlind starts to use the system of cutting by compartments.

1923 The Swedish Parliament passes a new law to protect the forest, perceived as the first step towards more sustainable forest cultivation.
Outdoor life and public health

During the 1900s, there is a dramatic increase in migration to urban areas, as a consequence of industrialisation and changed conditions for work and livelihoods. Towns and densely populated areas expand outwards, becoming denser and more concentrated at the expense of existing green areas in city centres. Increasingly, people will be living in and around the cities. The natural environment there is becoming more and more significant. At the same time the value of preserving unspoiled natural features and uncultivated land in more distant parts of the country, is gaining more attention. Greater insight into the natural environment’s importance for aspects other than the merely traditional uses of water and land means that outdoor recreation and activities in the nearby countryside are progressively becoming an essential part of general wellbeing.

Municipalities are having to take increasing responsibility for creating a living environment that ensures society’s fundamental needs for public health and good living standards and have a key role in the planning of how different environmental quality targets should be met.

There is a growing need to preserve and manage natural environments in parks and other outdoor recreational areas and to deal with an equally growing need for public transport to these areas near the countryside. Green spaces in the immediate vicinity of urban areas are emphasised as a high priority, for example, by a state assignment given to county administrative boards in the counties of Stockholm, Skåne and Västra Götaland (as reported in 2003). The assignment calls for the conservation of the most valuable green spaces in urbanised areas. Public access to these areas, outdoor life and public health also benefit from the local nature conservation effort carried out in 2004 to 2006 aimed at underpinning municipality planning on environmental quality objectives and making good use of local initiatives and involvement.

1927 Permission is granted for the first regulation of Suorva. This leads to the impounding of a chain of lakes in Stora Lule River, and the construction of a reservoir.

1930 1940 1950

1932 The state invests substantial funds in draining wetlands. This has devastating consequences for biodiversity and degrades several ecosystems.

1939 A temporary emergency act is passed, permitting the fast expansion of hydropower but showing little consideration for environmental concerns.

1940s Large-scale hydropower expansion progresses rapidly. There are signs of disturbances in salmon and trout fishing.

1942 Muddus National Park

1948 The arrival of the chain-saw.

1950s Hydropower expansion continues at a swift pace.

1952 Act to protect our beaches is passed.

» If we do not start conducting the drainage process in earnest, the greater part of our country is likely to become a desert of marshlands «

EDITOR OF PERIODICAL THE FOREST GUARDIAN 1898
Recent decades have seen a strong decline in natural habitats for many animal and plant species; the increasing imbalances within the remaining natural environments are endangering the survival of numerous species.

» Clear felling areas make the land look as if it’s been ravaged by war! «  

-AUTHOR SARA LIDMAN 1977
1986 A study circle entitled “Increased clear-felling” gathers numerous forest owners and results in clear felling of forest areas.

1990 The study campaign “Richer forest” is initiated. This introduces a decade characterized by a new view of the loss of biodiversity in forests and insight is growing steadily stronger.

1988 Large, ancient forests in the mountain regions become nature reserves.

1992 Sweden signs the Convention on Biological Diversity. Protection and care of biodiversity becomes the foundation of nature conservation.

1993 Rigorous protection given to national rivers Torneälven, Kalix älv, Piteälv and Vindelälven.

1993 Environmental objectives are aligned with production targets, the new forestry act and the obligation to fell a certain portion of older forests is revoked.

1994 Common Right of Access is supported in the constitution.

1996 Lapponia is declared a UNESCO World Heritage Site. In total, four national parks and three nature reserves are declared, comprising 9,400 km².

1999 The Riksdag adopts 15 environmental quality objectives.

1999 The Environmental Code comes into force, superseding previous environmental laws.

2000 Sweden adds more areas to Natura 2000.


2009 Governmental proposition on site protection.

2009 Kosterhavet becomes Sweden's first national park with a marine environment.

2009 The Riksdag adopts 15 environmental quality objectives.

2009 The Environmental Code comes into force, superseding previous environmental laws.

2002 The Swedish Parliament substantially increases government appropriation for nature conservation.

2001 A comprehensive political framework for nature conservation.

In 2009, 10.5% of the land area is protected as a national park or nature reserve. If other forms of protection and all Natura 2000 areas are counted as protected, 13% of the land area is protected in some fashion. In order for Sweden to meet international commitments and achieve environmental objectives, more land and aquatic areas need long-term, formal protection.
Environmental quality objectives
– the basis for Sweden’s environmental undertaking

The Swedish Parliament has adopted 16 quality goals for the environment in Sweden. The overall goal of the Government’s environmental policy is to pass on to the next generation a society in which the major environmental problems facing Sweden have been solved. In 1999 the work with the environmental objectives started.

The environmental quality objectives signify the increased protection of forests, land and water. Seven of the environmental quality objectives include measures to protect the landscape and countryside, include the nature reserves, protected biotope areas and nature conservation agreements.

The forests, mires and aquatic environments which most merit protection have been prioritised for establishment as nature reserves. On top of this, society is committed to protecting natural environments which are easily accessible and rich in variety. Authorities, municipalities, landowners and companies have to collaborate in order to achieve the environmental quality objectives. The cooperation of researchers and non-profit organisations is also essential.

Preserving biodiversity
– a vital part of the environmental objectives

Biodiversity has for many years been an important aspect of both the Swedish and international environmental work. Protected areas and the preservation of biodiversity is a vital part of the environmental objectives.

The Caspian tern is a vulnerable species which breeds along the coast of Östersjön. Its occurrence indicates biologically rich coastal habitats.
16 environmental quality objectives

1. Reduced Climate Impact
2. Clean Air
3. Natural Acidification Only
4. A Non-Toxic Environment
5. A Protective Ozone Layer
6. A Safe Radiation Environment
7. Zero Eutrophication
8. Flourishing Lakes and Streams
9. Good-Quality Groundwater
10. A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos
11. Thriving wetlands
12. Sustainable Forests
13. A Varied Agricultural Landscape
14. A Magnificent Mountain Landscape
15. A Good Built Environment
16. A Rich Diversity of Plant and Animal Life
Examples of nature conservation 1999–2009

Here, we show some examples of areas that have been protected since the Swedish Parliament decided on environmental objectives. Above all, we have prioritised site protection of the coasts and sea, lakes and watercourses, and wetlands and forests.

COASTS AND SEA

KUNGSBACKAFJORDEN

Kungsbackafjorden is an important fish spawning and feeding site. Both fish fry and adult fish are protected here. At greater depths, there are often soft beds where mussels, snails, bristleworms and crayfish have considerable significance as food for fish that live on the seabed. Salmon, trout, mackerel, sea lamprey and eel all migrate into the fjord.

TOTAL AREA: 5 200 hectares, of which 500 hectares comprise land and islands.

PROTECTION: The nature reserve was established in 2005. Included both in OSPAR and HELCOM network of marine conservation areas and in Natura 2000.

MUNICIPALITY: Kungsbacka

KOSTERHAVETS NATIONALPARK

This truly offshore environment, situated in the area around Kosteröarna, northern Bohuslän, possesses the richest variety of marine species in Sweden and is home to our country’s only living coral reef: Lophelia pertusa. In the area, there are also valuable cultural environments, characterised by fishing and an archipelago with traditional farming practices.

TOTAL AREA: 40 000 hectares, of which 875 hectares comprise land.

PROTECTION: The national park was established in September 2009. It is apart of OSPAR network of marine conservation areas and Natura 2000.

MUNICIPALITY: Strömstad and Tanum
3 KRONÖREN
Kronören is a beautiful archipelago situated where the rugged coast of Ångermanland gives way to the stony, moraine coast of Västerbotten. The area has a rich variety of bird-life including forest birds such as the capercaillie and three-toed woodpecker and typical coastal species such as eider and the artic skua. The area is also home to Sweden’s only known natural habitat of the four-leaf mare’s tail.
TOTAL AREA: 5 800 hectares of which 1 300 hectares comprise land
PROTECTION: The nature reserve was established in 2002. Is part of HELCOM network of marine conservation areas.
MUNICIPALITY: Göteborgs, Kungsälv and Öckerö

4 HOBURGS BANK
Hoburgs bank is a deep-sea bank and Sweden’s largest marine conservation area. Besides large areas of sand sea-bed, there are mussel-banks essential, for example, for the long-tailed duck.
TOTAL AREA: 12 270 hectares
PROTECTION: The site is part of HELCOM network and Natura 2000 in 2003.
MUNICIPALITY: Gotland

5 KNÄHAKEN
Knåhaken is Öresund’s coral-reef area, host to more than 530 species of molluscs. Strong currents, stable temperature and an even level of salinity contribute to highly biodiverse, biological communities.
TOTAL AREA: 1 366 hectares
PROTECTION: Sweden’s only municipal marine nature reserve, established in 2001. Is part of the HELCOM network of marine conservation areas.
MUNICIPALITY: Helsingborg

6 NÄTTARÖ
Nåttarö is an untouched marine environment with rich marine eelgrass and bladderwrack beds. It is one of the few places where the common guillemot breeds in the county of Stockholm. Nåttarö has long and sandy beaches which are popular for outdoor recreation.
TOTAL AREA: 6 600 hectares, of which 600 hectares comprise land
PROTECTION: The nature reserve was established in 2008.
MUNICIPALITY: Haninge

7 KVÄDÖFJÄRDEN
Kvädojärden is an untouched coast and archipelago with beautiful, marine eelgrass beds and starry stonewort sites. Licknevarpefjärden, a part of the reserve, has since long prohibited fishing and has perhaps the country’s strongest stocks of pike.
TOTAL AREA: 4 600 hectares of which 1 300 hectares comprise land
PROTECTION: The nature reserve was established in 2007.
MUNICIPALITY: Valdemarsvik
LAKES AND WATERWAYS

AMMERÅN

The character of Ammerån alternates between stretches of rapids, flowing through wilderness environments and sections with settlements and cultivation. This watercourse is completely unregulated by hydropower and the reserve, both in and around the river, is of great natural value. It offers outstanding, recreational experiences for visitors. Ammerån is home to the freshwater pearl mussel and otter, as well as rich stocks of trout and grayling.

**TOTAL AREA**: 817 hectares

**PROTECTION**: The nature reserve was established in 2003 and is a Natura 2000 site.

**MUNICIPALITY**: Strömsund and Ragunda

SÄLLEVADSÅN

The flood valley of the river Sällevadsån offers enchanting forests, surging rapids and a rich stock of freshwater pearl mussels. The natural habitats of dippers, kingfishers and otters can be found here along the stretches of foamy water.

**TOTAL AREA**: 448 hectares

**PROTECTION**: The nature reserve was established in 1999, and is a Natura 2000 site.

**MUNICIPALITY**: Hultsfred

VÄSTRA ÅSNENS ÖVÄRLD

Åsnen archipelago comprises close to 200 islands and represents large areas of unexploited scenery and landscape important for fish including gudgeon, European chub and a natural trout population. The area offers excellent opportunities for outdoor recreation, undisturbed by noise.

**TOTAL AREA**: 225 hectares

**PROTECTION**: The nature reserve was established in 1987 and is currently under expansion. Parts of the site belong to Natura 2000.

**MUNICIPALITY**: Alvesta and Tingsryd

MÖRRUMSÅNS DALGÄNG

Mörrumsån constitutes one of the country’s most significant watercourses for self-reproducing salmon and sea trout. This watercourse is home to a wide variety of species, including gudgeon, freshwater crayfish and freshwater pearl mussels.

**TOTAL AREA**: 299 hectares

**PROTECTION**: The nature reserve was established in 2008, and is a Natura 2000 site.

**MUNICIPALITY**: Karlshamn and Olofsström
**GÖRJEÅN**

Görjeån’s water system comprises several watercourses, largely untouched by human activity. The source is situated south of Jokkmokk and the stream flows into Lule River. The upper part has stretches of rapids along steep banks but also calmer sections surrounded by lakes and marshlands. By Jåkkåmåkk Mountain, the river’s drop becomes greater and it flows into a ravine-like gorge. Close to its mouth, the course of the river is slower and meandering. The shores and the riverbed here are sandy. Freshwater pearl mussel can be found in the watercourse.

**TOTAL AREA:** 664 hectares of water  
**PROTECTION:** The site belongs to the Natura 2000 network.  
**MUNICIPALITY:** Jokkmokk and Boden

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**NAVÅN**

This river reserve hosts one of Sweden’s most valuable populations of the endangered freshwater pearl mussel, in great need of protection. The river is a relatively undisturbed, natural water system with natural water level variations, intact riverbeds, shores and edge zones. The area is important for research and teaching.

**TOTAL AREA:** 1,087 hectares  
**PROTECTION:** The nature reserve was established in 2008, and is a Natura 2000 site.  
**MUNICIPALITY:** Sundsvall

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**VREÅN**

The source of this unregulated watercourse is in Kolmården. The river flows through a ravine and boasts high water quality. It is a valuable breeding site for fish attracted to steams and is the natural habitat of all of Sweden’s seven species of mussels as well as unusual dragonflies and freshwater molluscs. The reserve also contains valuable deciduous forests, and the rare plant *Pleurospermum austriacum* can be found in certain areas.

**TOTAL AREA:** 35 hectares  
**PROTECTION:** The nature reserve was established in 2005, and is a Natura 2000 site.  
**MUNICIPALITY:** Nyköping

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**BÄSTETRÅSK**

The lake Bästeträsk is surrounded by wetlands, and the scenery is dominated by smaller lakes, “alvar heaths”, rush mires and forests that form a unique mosaic of natural environments which is probably unparalleled in Europe. The site is completely undisturbed and untouched by human activity and the wilderness here hosts unusual species of hornworts, as well a rich variety of rare fish and bird species. There are a number of rare organism in the deciduous woodlands around the lake.

**TOTAL AREA:** 1,494 hectares  
**PROTECTION:** The nature reserve was established in 2002 and is a Natura 2000 site.  
**MUNICIPALITY:** Gotland

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**TROLLVÅSSLAN**

Trollvasslan is a small and shallow watercourse with sand and gravel banks, largely unaffected by human activity. The creek is surrounded by marshlands and old growth, coniferous forest. The water is clear and of high quality, home to water fauna such as a population of reproducing freshwater pearl mussel.

**TOTAL AREA:** 222 hectares  
**PROTECTION:** The nature reserve was established in 2009  
**MUNICIPALITY:** Ålvdalen

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**SVARTÅN IN HAMRA NATIONALPARK**

Svartån meanders with stretches of falls and rapids down to Voxnan for about 5 km. The river is unregulated and, unusually, has even escaped waterway clearing operations. The river valley has been sluiced by an ice river and there are smooth stone slabs here as well as an ancient pine forest.

**TOTAL SURFACE AREA:** roughly 1,150 hectares after expansion.  
**PROTECTION:** Svartån will be protected by the founding of Hamra national park in 2010. The site is part of the Natura 2000 network.  
**MUNICIPALITY:** Ljusdal
WETLANDS

BORGELEMOSSARNA ①
The reserve comprises large and low-lying areas of marsh and fen land, highly valued for its wild scenery of forest and marshlands. The most valuable aspect of Borgelemossen and the neighbouring bogs is the combination of hydrologically, unaffected marshlands, the total surface area of wetlands, its natural, old growth, coniferous forest and a rich bird-life.

TOTAL SURFACE AREA: 597 hectares
PROTECTION: The nature reserve was established in 2008 and is part of Natura 2000 network.
MUNICIPALITY: Dals-Ed

KOMOSSE ②
Komosse is one of the largest mires in southern Sweden. The reserve is untouched by human activity and accommodates a wide variety of wetlands. Here, there are wide plains of bog with sloping, arched or flat bogs, marsh forest, nutrient-rich and nutrient-poor marshes, brooks, and meres. There is a 30 meter difference between the bog’s highest and lowest points.

TOTAL SURFACE AREA: 2 672 hectares
PROTECTION: The nature reserve was established in 1980 and expanded in 2005. It is a Natura 2000 site.
MUNICIPALITY: Jönköping and Ulricehamn

RÖNNÖ ③
This high-value reserve resembles a mosaic, featuring an untouched mire and natural forest. The natural environment is characterised by high levels of precipitation – here, narrow passages of mire are intertwined with large, open bogs, marshy pine forests and broad-leaved, deciduous forests of beech and oak. Along the running waters lies old hay-making marshlands, or ley. Animal and plant life is diverse and the reserve is inhabited by capercaillies, black grouse and stock dove as well as red-listed mosses, larvae and fungi.

TOTAL SURFACE AREA: 328 hectares
PROTECTION: The nature reserve was established in 2008, and is a Natura 2000 site.
MUNICIPALITY: Laholm and Markaryd

FRÄMMERMYRAN ④
This reserve of wetlands features an intact, raised fen crowned with a number of mineral rich peat domes. Forests in the area comprise marshy, coniferous (mostly spruce) and pine forests. The marsh forest is inaccessible because of tall clumps of sedge grass and water-filled hollows.

TOTAL SURFACE AREA: 25 hectares
PROTECTION: The nature reserve was established in 2002, and is a Natura 2000 site.
MUNICIPALITY: Vilhelmina
5 **Tervavuoma**

Tervavuoma is one of the largest string, flark fens in the region; its size and the fact that it is untouched make it unique. There is an abundance of birds on the reserve and beside the water-fringed vegetation, there are valuable woodlands. Traces of early cultivation have been preserved.

**TOTAL SURFACE AREA:** 8 216 hectares (including expansion)

**PROTECTION:** The nature reserve was established in 2008; expansion is planned. It is a Natura 2000 site.

**MUNICIPALITY:** Pajala

6 **Fjällmossen**

Fjällmossen is one of Central Sweden’s largest mire complexes. The greater part of Fjällmossen consists of peat soils, low in nutrients resulting in poor marsh vegetation. The bog areas are situated mostly in the western and south-east parts of the mire. In addition, there are smaller areas of bog vegetation scattered along the edges of the mire and on the central plateau. Headlands and islets in the mire are usually covered with pine forest on rocky ground. There is a wide variety of birds, including, for example, large, black grouse-leks.

**TOTAL SURFACE AREA:** 776 hectares

**PROTECTION:** The nature reserve was established in 1999; the site is part of the Natura 2000 network.

**MUNICIPALITY:** Nyköping and Norrköping

7 **Sjöstorps Kalkkärr**

This reserve boasts an outstanding example of a limestone fen, which is one of our most endangered natural environments. Many of them have become overgrown with weeds after being used for cattle-grazing or traditional hay-making, while others have been destroyed by draining or other activities. This limestone fen features lush and diverse vegetation, including well-known types of orchids and rare land molluscs. It is also possible to find certain species usually only occurring in the mountain regions e.g. Alpine bartsia.

**TOTAL SURFACE AREA:** 8 hectares

**PROTECTION:** The nature reserve was established in 2008, the site is part of the Natura 2000 network.

**MUNICIPALITY:** Ödeshög

8 **Koppången, Orsa Kommun**

Koppången features wide stretches of sloping mires that reach high up onto the hillsides. The vast forest lands here, largely having escaped modern forestry cultivation, hold great natural value as they contain the habitats of many rare and red-listed species.

**TOTAL SURFACE AREA:** 4 500 hectares

**PROTECTION:** The nature reserve was established in 2001; the site is part of the Natura 2000 network.

**MUNICIPALITY:** Orsa

9 **Grundsjömoossarna**

This reserve consists of two mire complexes and the surrounding forests. There are different types of wetlands here as well as a topogenous mire, a mildly arched bog, a marshy forest and mixed mire. Their natural value comes from the diversity and variety of the river, special flora and the combination of forests and marshlands. The wetlands contain the habitats for species that live in nutrient-poor mires as well as those that live in nutrient-rich mires.

**TOTAL SURFACE AREA:** 206 hectares

**PROTECTION:** The nature reserve was established in 2008; the site is part of the Natura 2000 network.

**MUNICIPALITY:** Norrtälje
ÖRASJÖBÄCKEN-STORSVEDJAN
Öra lake and Örjasjöbäcken reserve has valuable watercourses and natural forests. The streams contain trout, miller’s thumb and freshwater pearl mussel. The surrounding, natural woodlands are mainly of old spruce trees, and deadwood or wood in various stages of decay. In places, there are also pine trees and deciduous, broadleaved trees. The north part of the reserve, hosts a rare lichen, commonly known as Methuselah’s beard lichen, which is in more abundant supply here than anywhere else in Central Sweden.

TOTAL SURFACE AREA: 228 hectares
PROTECTION: The nature reserve was established in 2006 and is a Natura 2000 site.
MUNICIPALITY: Timrå

LOKADALEN
Lokadalen is the longest and deepest of several sharp ravines that cut through the landscape of the neighbouring districts of Värmland and Västmanland. The woodlands of the reserve have stood untouched for 100 years and are, consequently, characteristic of natural growth forest, with trees of all ages, glades, gnarled and knotty deciduous trees, late growth spruces as well as a large number of old trees and decaying wood. The oldest spruce is roughly 330 years old and stands on a steep slope, facing the lakes.

TOTAL SURFACE AREA: 169 hectares
PROTECTION: The nature reserve was established in 2007.
MUNICIPALITY: Hällefors and Karlskoga

HALLANDSÅSENS NORDSLUTTNING
Visitors to this conservation site are met by the sight of beautiful, deciduous woodlands with a rich vegetation of herbs and other plants and numerous streams running through ravines. Other areas are dominated by beech forest, but on the hillsides there are many other tree types, e.g. elm, ash and alder. The combination of the calcium-rich moraine and the subsoil water flow creates the conditions necessary for a rich variety of flora to thrive in the reserve. The vegetation is lush, and features, for example, dog’s mercury and enchanter’s nightshade. The forest is multilayered with many thick trees and plenty of wood.

TOTAL SURFACE AREA: 113 hectares
PROTECTION: The nature reserve was established in 1979 and expanded in 2006. The site is part of the Natura 2000 network.
MUNICIPALITY: Båstad
**GALLEJAU**

The Gallejaur conservation site is situated on a mountain, unique because of its forest vegetation. For latitude and height above the sea, it is extraordinarily productive and fertile, with tall groups of trees of varying ages. In the upper part of the slopes, the forest is dominated by 300 year old spruce and pine trees. At the top of the mountain, on the peak’s flat surface, even older trees can be found as well as an abundance of dry trees, twisted and gnarled, which have turned grey due to weather conditions and the wind. Further down the slopes, the forest is also remarkably old.

**TOTAL SURFACE AREA:** 109 hectares

**PROTECTION:** The nature reserve was established in 2008 and is connected to a cultural heritage site.

**MUNICIPALITY:** Arvidsjaur

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**EKHULTEBERGEN**

This old, natural, coniferous forest is situated on the border between the counties of Östergötland and Kalmar, partly on steep terrain. Pine forests dominate here, but there are also a number of damp areas of thick spruce trees and late growth alders. In the west parts, 350 year old pine trees stand on rocky substrate. Around Lake Åkervristen the deciduous woodlands contain oak, lime tree, birch and aspen and the habitats of endangered species, for example: ring lichen, smooth snake and black, flatheaded borer.

**TOTAL SURFACE AREA:** 196 hectares

**PROTECTION:** The nature reserve was established in 2001, and is a Natura 2000 site.

**MUNICIPALITY:** Åtvidaberg and Västervik

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**ÖSTERGARNSBERGET**

This inland escarpment has broad views over land and sea and comprises both “alvar heath” and forests affected by grazing. On the south part of the escarpment, there are a number of caves which have been eroded by the sea waves. Landslide debris lies strewn along the steep, scarp slopes as well as large slabs of limestone. The shaded slopes have rich vegetation, including hazel, aspen, Finnish white beam (also called mountain ash) and rare limestone oak fern.

**TOTAL SURFACE AREA:** 192 hectares

**PROTECTION:** The nature reserve was established in 2005; the site is part of Natura 2000.

**MUNICIPALITY:** Hudiksvall

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**GÖ**

The natural environments of Göhalvön have a wealth of flora and fauna unequalled in Sweden. Large areas of the site consist of forest dominated by valuable, broad-leaved species. Besides oak, there are aspen, lime tree, maple, beech, wild cherry and elm. Old alder forests and a large stand of old beech trees can also be found on the site. Gö also comprises meadowlands on the shores of the peninsula, expanses of sand heathlands, sandy fields and rocky land. The marine environments of Göhalvön provide habitats for a rich diversity of animal and plant life. The shallow waters of the bays and coves are important natural environments for pike and perch.

**TOTAL SURFACE AREA:** 1 940 hectares

**PROTECTION:** The nature reserve was established in 2008 and is a Natura 2000 site.

**MUNICIPALITY:** Ronneby
KILSRAVINERNÄ  

Kilsravinerna comprise part of a well-developed ravine area, unique for Värmland. On the ravine slopes and in the valleys, there are fertile, natural deciduous forests with grey alder. The climate in the ravine is warm and damp, favouring a variety of species. The forest lies within walking distance of Kil and is a popular area for country walks.

**TOTAL SURFACE AREA**: 44 hectares

**PROTECTION**: The municipal nature reserve was established in 2006.

**MUNICIPALITY**: Kil

ÄLVRUMMET  

In Trollhättan, not far from the River Göta älv, lies this popular nature conservation area and outdoor recreation centre. Älvrummet is a deep, rift valley where the difference in level between the valley bottom and the surrounding mountains measure nearly 100 metres. An older, tall coniferous forest with diverse vegetation grows east of the river. West of the river, on the steep inclines, the slopes alternate with groves of deciduous trees. In addition, there are several interesting cultural heritage sites in the area.

**TOTAL SURFACE AREA**: 61 hectares

**PROTECTION**: The municipal nature reserve was established in 2009.

**MUNICIPALITY**: Trollhättan

ÄLMÅS  

The site consists of an old, cultural landscape with arable fields, meadows, pastures, deciduous and mixed woodlands. The numerous examples of cultural remains on the site include trees that have been trimmed, stone walls, stone cairns and piles – a by-product of field clearing. Excavations have shown that there was cultivation here as early as 500 BC.

**TOTAL SURFACE AREA**: 35 hectares

**PROTECTION**: The municipal nature reserve was established in 2006.

**MUNICIPALITY**: Borås
**Norra Lunsen**

Norra Lunsen is a large, coherent forest area with flat, rocky land and mires. Its old, coniferous forests are a favourable environment for red-listed species. This nature reserve is situated just south of Uppsala, which makes it a popular destination for town dwellers for hiking and skiing.

**Total Surface Area:** 1 356 hectares

**Protection:** The municipal nature reserve was established in 2003; the site is part of Natura 2000.

**Municipality:** Uppsala

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**Flemingsbergsskogen**

This nature reserve is surrounded by the Stockholm suburbs of Flemingsberg and Huddinge among others, and has large, connected forest areas of older coniferous and deciduous forests, bogs and pine forest on rocky ground. In the eastern areas, there are also beautiful pastures. The site is rich in species and provides habitat for about 100 red-listed species. Proximity to the city, suburbs and train lines has made the site easily accessible for country walks and recreation.

**Total Surface Area:** 967 hectares

**Protection:** The municipal nature reserve was established in 2006.

**Municipality:** Huddinge

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**Tinnerö Eklandskap**

Tinnerö boasts a scenic landscape of oak and rich, natural and cultural environments that reaches all the way into central Linköping. It is cultivated and varied, with meadows and pasture lands that are the home of a wide variety of plant and animal life. The iron-age settlements and burial grounds here feature a number of ancient monuments and remains.

**Total Surface Area:** 683 hectares

**Protection:** The municipal nature reserve was established in 2006; the site is part of Natura 2000 network.

**Municipality:** Linköping

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**Fattenborg**

Fattenborg is largely made up of pine forests and moraine islands surrounded by marshlands. The site is characterised by increasing elevation of the land (some 9mm per year) and there are clear traces of former shore lines and ancient bays. Fattenborg is one of Norrbotten’s most important archaeological sites, featuring ancient monuments and remains from both the stone and iron-ages.

**Total Surface Area:** 43 hectares

**Protection:** The municipal nature reserve was established in 2005.

**Municipality:** Kalix

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**Icktjärn**

The landscape of Icktjärn features steep, undulating hills of coniferous forests, home to numerous, red-listed species, for example, Methuselah’s beard lichen. There is a mountain pasture here, called Jättestabodarna, which was once used to produce butter, cheese and soft whey cheese. This nature reserve is a popular destination for excursions with Kramfors dwellers because of its ski runs and angling opportunities.

**Total Surface Area:** 272 hectares (including expansion)

**Protection:** The municipal nature reserve was established in 2003.

**Municipality:** Kramfors

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**Norra Lunsen**

Norra Lunsen is a large, coherent forest area with flat, rocky land and mires. Its old, coniferous forests are a favourable environment for red-listed species. This nature reserve is situated just south of Uppsala, which makes it a popular destination for town dwellers for hiking and skiing.

**Total Surface Area:** 1 356 hectares

**Protection:** The municipal nature reserve was established in 2003.

**Municipality:** Uppsala
Cooperation in nature conservation

Cooperation is an important part of modern nature conservation. Here, you can read about a few of the major projects that have been carried out from 1999 to 2009 to protect and preserve valuable natural areas. As a starting point, the projects have had local involvement from authorities, municipalities, landowners and non-governmental organisations.

Kinnekulle – one of the largest nature conservation projects
Kinnekulle is an old district steeped in tradition. For over a thousand years, it has been characterised by large areas of hay-making meadows, with course, old oaks and open pastures on limestone. This landscape has an extremely rich variety of flora and fauna. As agriculture modernised towards the end of the 1800s, much of the land was abandoned and became overgrown with trees and shrubs, and the degradation continues even today. LIFE nature is a fund set up by the EU for the preservation of natural environments and species in EU’s network for nature conservation, Natura 2000. From 2002 to 2007, the county administration board of Västra Götaland carried out one of the largest nature conservation projects in Europe with a total budget of 5.7 million Euros, 50 per cent of which was financed by the EU. This was done in cooperation with landowners, Götene municipality, the federation of Swedish Farmers, forestry companies, the Swedish Society for Nature Conservation, The Swedish Forestry Board and The Swedish Environmental Protection Agency. In cooperation with landowners and other interested parties the project has:

- restored pastures and hay-making land that were degraded and overgrown.
- created the conditions necessary to manage and preserve the Kinnekulle’s natural environments and species in Natura 2000.
- made Kinnekulle’s landscape, scenery and natural features accessible to visitors.

Fulufjället National Park in Dalarna
This project to conserve the countryside surrounding Fulufjället was begun in 1997 by The Swedish Environmental Protection Agency and county administrative board in order to promote discussion about preserving valuable alpine environments and forests, as well as opportunities for eco-tourism and new job creation. In the beginning, there was strong resistance but more and more companies began to see new business opportunities for guided tours, accommodation and service. The project resulted in
the founding of Fulufjällsringen, an association of small, local tourist companies in the region, on both the Norwegian and Swedish sides of the border.

In August of 2002, Fulufjället became Sweden’s 28th national park. Comprising about 38,000 hectares, this vast nature reserve offers hiking and rambling opportunities on its 140km marked trails, as well as tours of the large trackless areas. The founding of Fulufjället’s National Park has led to a 40 per cent increase in the number of visitors to the area.

Stockholm’s archipelago – fish sanctuaries
In the coastal areas, from Stockholm down to Kalmar, there are considerable problems for populations of especially pike and perch to breed. In order to address this, the Stockholm county administrative board has introduced sanctuaries aimed at supporting breeding and replenishment of fish populations. In Stockholm county alone, 25 sanctuaries have been established, primarily in shallow bays. A fishing ban is in effect between April 1st and June 15th. However, regulating fishing in the archipelagic areas can be a complicated and contentious issue, which is why the county administrative board in Stockholm county appointed an advisory committee for fish sanctuaries. Every category of fishermen and the Archipelago Foundation were invited. The outcome of this collaboration was an agreement to set up the 25 sanctuaries approved by every category of fishermen.

Restoration of Vindel and Piteälven
In this project, large areas of riverbed and their biotopes have been preserved or restored. In addition, floatway dams and road culverts, which previously hindered the migration and dispersion of fish and other organisms in the waterways, have been cleared. Reestablishing the natural conditions in a watercourse is an important undertaking. This applies, for example, to rapids and shallow areas which have diminished after the clearing of floatways.

Eight municipalities, 20 fishing conservation sites and more than 100 landowners are collaborating in the project. Having a long term approach has made it possible to gather and substantiate local support for the project.

Öland – unique landscape and cultural environments
The natural environment on Öland is unique in several respects. Coastal meadows, limestone grasslands and nutrient-rich bogs are some of the natural features that characterise Öland’s natural environments and Sweden is obliged to preserve these areas under international conventions. There are large, far-reaching areas of natural pasture lands, rivers, lakes, lakeside meadows, bogs and marsh. As Öland’s open landscape is completely dependent on the presence of farming and live-stock rearing, farmers are invaluable for the long-term management and preservation of its unique, natural and cultural environments. From 2000 to 2005, Kalmar County Administrative Board collaborated with land-owners and agriculturalists and conducted a comprehensive, nature conservation project aimed at preserving and restoring, among other features, meadows and wetlands on the beaches of Öland. The total budget amounted to 3.36 million Euros, of which 50 per cent was financed by the EU. This project has:

- increased the area of well maintained, damp and wet environments in the agricultural landscape of Öland.
- ensured that over 160 square kilometres, divided into 18 different areas, have benefited from various nature conservation measures.
- proposed that all areas be included in the EU’s Natura 2000 network for the conservation of nature.
Establishment of protected areas is an international undertaking for preservation of nature. Both in Sweden and in an international context the most common form of protected areas are national parks and nature reserves.

National parks and nature reserves are forms of long-term protection, which have stringent regulations that prevent exploitation. In addition, the national parks and most of the nature reserves are part of the Natura 2000 network – our contribution to the EU’s nature conservation work.

Apart from nature reserves and national parks, there are protected key biotopes and natural monuments as well as wildlife sanctuaries with limited public access. Nature conservation agreements and subsidies for farmers and agriculturalists are further means of protecting and preserving natural environments, and are becoming increasingly significant.

Parts of the protection and conservation of the natural environment, depend on the cooperation of landowners and their willingness to contribute towards nature conservation.

Authorities seek to coordinate protection of natural environments valuable for their outdoor recreation opportunities, cultural heritage conservation, reindeer husbandry and other activities of cultural interest.

Several aspects of work towards protecting the natural environment involve different sets of regulations and legislation e.g. fisheries legislation, rules for sewage cleaning, shipping, building and encroachment.

In order to implement protection, the authorities responsible have set strategies with parties concerned, which provide guidelines on how protective measures should be applied and coordinated.

From 1999 to 2009, the following strategies were set:

- National strategy for formal protection of forests
- Strategy for lakes and watercourses
- Marine environment strategy
- Wetlands strategy and mire protection plan

ALLEMANSRÄTTEN (RIGHT OF PUBLIC ACCESS)

The Right of Public Access applies to the landscape and countryside throughout Sweden. It means that anyone and everyone can pick berries and mushrooms in the forest. You may hike and camp and put up a tent for the night, but do not damage trees or plants. If you visit the mountains, you must consider reindeer husbandry. Show consideration for cattle and farmers by always closing gates behind you as you pass. The basic principle for The Right of Public Access is always: don’t disturb, don’t destroy. In conservation areas, there is often more specific regulations.
In Sweden and many other countries, establishing nature reserves is one of the most common ways of protecting valuable natural environments in the long term. Sweden’s nature reserves account for about 85 percent of all protected lands in total, supported by the Environmental Code. A nature reserve often consists of natural environments and features which are connected, and may include, natural forests, watercourses and mires.

Nature reserves are established by county administrative boards and municipalities, supported by the Environmental Code. The land may be privately or publicly owned.

In the Environmental Code, the following reasons for establishing nature reserves are given:

- to preserve biodiversity
- to conserve and preserve valuable, natural environments
- to meet the needs for outdoor recreation areas
- to protect, restore or recreate valuable, natural environments
- to protect, restore or recreate the natural habitats for valuable, endangered species

The preservation of biodiversity and conservation of valuable, natural environments are the most common reasons for establishing nature reserves.

The greater part of the nature reserve surface area, almost 85 per cent, lies in the counties of Jämtland, Västerbotten and Norrbotten. Most of the alpine and sub-alpine nature reserves lie within these counties. Authorities, municipalities and non-profit organizations have due to inventories long been aware of many areas in need of protection. These areas are demarcated on maps that constitute the basis for planning and consultation. The mutual exchange of knowledge between landowners and authorities is an important part of the discussions on how natural values are best preserved and developed.

The initiative to protect an area frequently comes from the county administrative board but can also come from municipalities, non-profit organisations, the public or landowners. The county administrative board consults with landowners and puts forward a proposal for decision about the nature reserve, which sets out aims, stipulations and a management plan.

The state then hires an independent surveyor who calculates the market value depreciation which will result from converting the land into a reserve. After negotiations are complete, the state and the land-owners usually sign a contract. During the process, the county administrative board circulates reserve proposals to other authorities and organizations for comment, after which it makes a decision about establishing the nature reserve. The county administrative board plots out the reserve’s borders, with the assistance of a surveyor.

Rogen nature reserve.
The Swedish Parliament and the government make decisions about establishing national parks, which must lie on state-owned land. The Swedish Environmental Protection Agency is responsible for the underlying documentation as the basis for decision and the planning of national parks by drawing up, for example, the National Parks Plan for Sweden.

A larger connected area of a certain type of landscape can be established as a national park with the support of the Environmental Code. Ideally, the site should be unspoiled by commercialism or industry and as close to its natural state as possible. More than 85 per cent of the total area of national parks in Sweden, is situated within the alpine region in Norrbotten County (Abisko, Stora Sjöfallet, Sarek, Pieljekaise, Vadvetjåkka, and Padjelanta) or sub-alpine region in the same county (Muddus).

The first national parks (9) were declared in 1909. The most recently founded national park is Kosterhavets National Park in Västra Götaland County (est. 2009). National park land area constitutes 15 per cent of the total area of protected land (national parks, nature reserves, nature protected areas and animal and plant sanctuaries).

National parks must have high natural value and:

- should represent, individually or as part of a whole, a wide or unique spectrum of natural landscapes as part of a nationwide system.
- should comprise a variety of natural environments in an area of, normally, at least 1 000 hectares.
- should include natural areas representative of the Swedish landscape and preserve them in their natural state.
- should be appealing areas of great natural beauty or unique environments which create enduring nature experiences and a lasting impression.
- should be a viable subject for effective conservation and, at the same time, be suitable for research, outdoor recreation and tourism without the risk of harm to their natural value.
National Parks Plan

From 2007 to 2008, The Swedish Environmental Protection Agency drew up a revised plan for the establishment of 13 new national parks. The proposal is also for the expansion of 7 existing parks.
The Natura 2000 sites provide an important basis for the preservation of a representative selection of natural environments in Sweden. Natura 2000 comprises valuable natural environments with species or natural features that are particularly in need of protection in a European perspective. The majority of Natura 2000 sites are protected as national parks or nature reserves, but there are additional areas that will need these kind of protective measures.

Natura 2000 sites are chosen according to the criteria of two directives: the Birds Directive of 1979 and the Habitats Directive of 1992. Moreover, these two directives provide the basis for the EU nature conservation policy, which originates from international agreements.

Every country has selected its areas on the basis of the lists of natural habitats and species in the habitat and bird directives and this includes over 170 natural habitats and, altogether, about 900 plant and animal species. The number of areas Member States must contribute relates to how large a proportion of natural habitats and species the country has; Member states must also provide the resources necessary to preserve these areas in the long-term. The areas chosen according to the criteria of the bird directive should be the most suitable. Special consideration should be given to wetlands of international significance. Natura 2000 in Sweden also contributes to European conservation of certain bird species.

The Natura 2000 sites consists of certain protected areas or SPA (Special Protection Areas), and of SCI areas (Sites of Community Importance) for other groups of plant and animal species as well as various types of natural features. All SPA and SCI areas together constitute the network Natura2000. Between 1995 and 2007, Sweden proposed 3,973 sites (comprising a total of 6.28 million hectares) as potential SCI areas, and 530 potential SPA areas (of around 2.89 million hectares) for the network. Certain areas were put forward for approval as both SCI and SPA areas. Altogether 4,063 areas totalling a surface area of around 6.43 million hectares belong to one or both of these categories.

The national river Vindelälven.
Vindefjällen in the county of Västerbotten is one of the largest nature reserves in Europe. It is included in the Natura 2000.
The nature reserve Sparreholm and its oak landscape of high international conservation values.

The nature reserve Hornborgasjön is one of the most valuable Swedish locations for wetland birdlife.
In 2000 Ölands södra alvar became a world heritage site.
More than 4000 areas in Sweden belong to the EU’s network of protected areas.

Approximately 4 per cent of all forest-lands are protected. Below the sub-alpine region, 1.5 per cent of all forest-lands are protected.

Four large rivers are protected in the Environmental Code: Torneälv, Kalixälv, Piteälv and Vindelälven.

51 wetlands are protected according to international agreements.

With regard to the environmental objective “Living forests” 204 668 hectares have been protected for the establishment of nature reserves and 16 400 hectares for the establishment of protected biotope areas.

Almost 80 per cent of the population has access to national parks, nature reserves or nature conservation sites within 5 km of their place of residence; the average distance is 3.4 km. Despite the large surface area of protected areas in Northern Sweden, the population there has, on average, further travelling distances to protected areas than that of southern Sweden.

Protected areas (hectare) 2008 including Kosterhavets national park established in 2009.

<table>
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<th>Number of areas</th>
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<th>Water</th>
<th>Total</th>
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<td><strong>In total</strong></td>
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<td><strong>4 370 387</strong></td>
<td><strong>825 150</strong></td>
<td><strong>5 195 537</strong></td>
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</table>

Protected areas make up about 11.5 per cent of the earth’s land surface and 0.5 per cent of the sea. In Europe alone, there are 42 000 sites which comprise 14 per cent of the earth’s land surface and about 3 per cent of the sea surface.
The diagram shows the area of protected natural environments in terms of national parks, nature reserves and nature protected areas from 1909, when the first national parks were declared. The considerable increase in protected natural environments at the end of the 1980s can, to a large extent, be attributed to the information gained from the nationwide old-growth forests inventory conducted between 1978 and 1982. This was the first proper underlying research and planning carried out for the protection of valuable forests. In 1988, county administrative boards in, among others, Västerbotten and Norrbotten decided to protect a number of large sub-alpine forests as nature reserves. The substantial area increase during the 1990s can be attributed mostly to the conversion of forest service reserves to nature reserves in Norrbotten County and the contribution of sites into the Natura 2000 network.

In numbers, protected areas are dominated by small areas. 62 per cent of the country’s national parks, nature reserves and nature protected areas constitute less than 100 hectares. Three per cent are larger than 5 000 hectares.
There is a decline in the number of unexploited nature areas in Sweden. Absence of roads indicates low degree of exploitation. Several of the last wilderness areas are protected. Jougadalen in Jämtland County (above) and Sarek national park (below) are two examples.
Flowering hawthorn in meadows of the nature reserve Ottenby on the island of Öland.
While in southern Sweden, land is often privately owned, in the central and northern parts of Sweden, different forestry companies dominate and in the mountain region the state is the biggest landowner. The largest proportion of protected surface area is on state land.
THE TEN LARGEST NATURE RESERVES

Vindefjällen has a total area of 555,104 hectare and is the largest nature reserve in Sweden.
Inventories – foundation of our knowledge

Inventories provide society with knowledge on natural environments that need protection. Using computer technology, various map data can be combined so that an overview of the value in various landscapes can be extracted. This facilitates planning and cooperation in the protection and sustainable use of the nature. Between 1999 and 2009, a number of national inventories and analyses have been conducted.

Natura 2000 sites
A basic inventory of areas was conducted by the county administrative boards from 2004 to 2008 in order to fulfill the EU’s directives on protection, surveillance and assessment of Natura 2000 areas. The information collected from the inventory is an extension of Natura 2000 habitats, the occurrence of important structures and functions, status of outdoor recreation centres and occurrence of species. The total area of the inventory is roughly 6.5 million hectares. The methods employed are collation of existing material, aerial photograph interpretation and field inventories. The basic inventory has led to an increase of knowledge about many nature reserves and other conservation areas.

Forest on government lands
On behalf of the government, the Swedish Environmental Protection Agency and county administrative boards carried out an inventory of forests in need of protection on government land between 2002 and 2004. The Swedish Environmental Protection Agency was also asked to assess which forests would need protecting as nature reserves. In total, there were 1 078 valuable forests registered on government land, in great need of protection, which had previously been unprotected. These areas represent various, valuable, natural forests, from forests dominated by valuable broad-leaved species to large, ancient, coniferous forests. A selection of 885 areas, totalling 341 000 hectares of forest, will be protected as nature reserves or will be set aside by state landowners. About half of the sites and 80 per cent of the surface area are situated in the counties of Norrbotten and Västerbotten, mainly within the sub-alpine forest region. State landowners are expected to preserve smaller areas not mapped in this survey.

Key biotopes
The purpose of a key biotope inventory of forests as defined by the Swedish Forestry Board, is to find and register biotopes that constitute important natural habitats for red-listed species. The method comprises study of maps, remote sensing and review of existing information and research as well as field studies. Between 1993 and 1998, forest conservation organisations conducted inventories of key biotopes within small forestry operations. Large and medium-sized forestry companies were themselves responsible for carrying out inventories of their land. Between 2001 and 2003, additions were made to the inventory. Within private forestry operations,
193 000 ha of land featuring key biotopes have been demarcated.

National analysis of valuable forests
The Swedish Environmental Protection Agency submitted a report of the 2005 project, “Frequency analysis of natural environments in need of protection – core values of forest lands,” in cooperation with the Mapping and Land Registration Authority, the Species Information Centre and the Forestry Board. The project’s aim was to give as comprehensive a picture as possible of the occurrence of forests (core values) needing protection in Sweden. Analyses showed that the core values are unusual in most landscapes and that the highest density is in northern Sweden. Landscape that was exempted historically from local felling operations often has more valuable forests, for example, along the sub-alpine border, county borders and in areas of the archipelago. The report provides the underlying information and research for protection of forests in Sweden.

Meadows and pastures
On behalf of the government, the Board of Agriculture and county administrative boards conducted an inventory of many of the country’s valuable meadows and pastures between 2002 and 2004. Results are registered in the database (Tuva), showing that there are 229 000 hectares of valuable pastures and 7 000 hectares of valuable meadow lands as well as the fact that 35 000 hectares are in need of restoration in order to preserve their values. In many cases, valuable meadows and pastures receive government support for cattle and other maintenance.

Wetlands
About 20 per cent of Sweden’s surface area consists of wetlands, and county administrative boards have been carrying out an inventory of this natural feature since the beginning of the 1980s. Roughly a third of wetlands in the inventory possess great natural values. In 2007, the inventory was supplemented with data from Norrbotten, a county which has a large percentage of Sweden’s most valuable mires. Information on nearly 35 000 wetlands was made available on the Web in 2005. The database was developed by SLU Environmental Monitoring and Assessment on behalf of the Swedish Environmental Protection Agency. Data collected from inventories constitutes the basis for the national mire protection plan, protection being a secondary goal within the environmental quality objective “Thriving Wetlands.”

Marine environments
The effort to raise knowledge and awareness of the marine environment has intensified. The Swedish Environmental Protection Agency has conducted inventories of vegetation, seabed fauna and fish in about 140 areas, potentially in need of protection. Digital sea charts and marine-geological maps have been developed and it is now possible to create models for the expansion and occurrence of different natural habitats and species by combining information on depth and seabed substrata from sea charts and geological maps with biological inventories.
Swedes value the environment and nature conservation very highly as a cause worthy of tax-payers’ money. Surveys have shown that environmental issues and nature conservation are on an even par with, for example, health and medical care, childcare, pensions and unemployment benefits combined or the police service, legal system and penal system combined. Swedes consider, for example, that 17 per cent of the environmental budget, which currently amounts to about 5.5 billion crowns, should be set aside for preserving the wealth of natural, animal and plant life habitats in the forests.

The state budget is divided into 27 expenditure areas, where the protection of natural areas falls mainly under the expenditure area “General environmental and nature conservation”. This accounts for about 0.7 per cent of the budget. Funding for the protection of natural environments as national parks and nature reserves equals about 8 per cent of this expenditure area. Taken together, a mere 0.08 per cent of the state budget is allocated for site protection.

During the period between 1999 and 2009, about 7.5 billion crowns have been appropriated for state funding of nature conservation. Society’s expenditure on conservation areas consists partly of administration costs for administering existing conservation areas and partly of costs for land redemption when new conservation areas are established. These costs may be owing to purchase, or perhaps because of subsidies paid to the landowner for non-use of the land. In addition, budget-
ary expense may arise from contributing to acquisitions made by municipalities and foundations or encroachment compensation for land used for nature conservation.

**It is an urgent need for preservation of nature**

The occurrence of valuable natural environments in need of protection is diminishing both in Sweden and throughout the world.

A number of protected natural environments comprise the last remainders of untouched forests, rich mires and waterways still in Sweden. If we delay the protection of the natural environment until further into the future, we risk further harm to biological diversity, increased vulnerability to climate changes and fewer opportunities for sustainable use of the landscape as a whole. Future opportunities for the restoration and recreation of natural environments are limited and in many cases lacking entirely. Compared with preserving existing natural environments, costs may be significantly higher. There is an urgent need to increase efforts and society’s ability to protect the natural environment in a changed climate – for both present and future generations.

*Great Grey Owl.*

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<tr>
<td><strong>Sum</strong></td>
<td><strong>6 265 734</strong></td>
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Welcome to the natural environment!

The Swedish Environmental Protection Agency welcomes tourists from all over the world to experience the natural environment in Sweden. Many national parks and nature reserves are accessible to visitors.

Follow the white star
When a national park or nature reserve is established, its boundaries are defined by posts with a white star against a blue background. An information board and map describes the site’s natural features and sights. Illustrated brochures can be found at tourist agencies or on the websites of municipalities and county administrative boards. In coastal waters, boundaries are marked out on printed sea charts. The Environmental Protection Agency and county administrative boards are responsible for ensuring good management of national parks and that necessary facilities are in place for visitors. County administrative boards and municipalities are responsible for nature reserves. Join us on a guided tour, and keep a look-out for animals, take the trail out into the nature, climb up the lookout tower or make a fire by a cabin.

Naturum – visitor centre in a natural environment
Naturum is a centre for visitors to protected areas, where they can find out more information about animals, plants, geology and the cultural history and traditions which helped shape the area before they go on to explore it. Besides exhibitions, many of the Naturum centres also have guided tours, special theme evenings and nature trails and you can also find recommendations for excursions and hikes. Visitors can take part in a wide variety of activities, depending on the features of the site itself, which could be anything from a beaver safari to excursions with botanists. Numerous groups of schoolchildren often visit Naturum as part of their education.
The Mapping Tool for Protected areas
On the Swedish Environmental Protection Agency’s home page, you can see Sweden’s conservation areas for yourself using the mapping tool “Protected Nature” www.naturvardsverket.se/Protectednature.
If you would like more information on how to get to the different areas and available facilities etc – visit the county administrative boards’ common website.

Researchers have looked into what people want from their experiences of nature
We want:
• to enjoy the feeling of unspoiled, natural environments
• freedom and space
• diversity of species, the opportunity to learn about nature and cultural history
• activity and challenge
• service and opportunities for social interaction

What do you prefer?
Quiet contemplation by a dark mere, whispering spruce trees scented with mushroom, majestic scenery, studies of natural and cultural environments, rambling in quiet tranquility or testing your resilience and stamina on hilly terrain? Or perhaps just enjoying a barbeque in an intimate woodland setting with friends?

“The (Great) Outdoors”
This familiar phrase is a deep-rooted one in the Swedish consciousness and culture and is often referred to. It has a number of definitions: “the countryside far away from buildings and cities especially considered as somewhere that you visit to do activities such as hiking”, or “being outside in natural or cultural landscapes for general wellbeing and to experience nature.”
Norra Kvills national park.
1 Swedish Nature Conservation 100 years
2 Some facts about the nature in Sweden
6 Protected areas – why?
8 The landscape – past, present and future
8 A STORY OF LAND USE
14 Environmental quality objectives – the basis of Sweden’s environmental undertaking
16 Examples of nature conservation 1999–2009
16 COASTS AND SEA
18 LAKES AND STREAMS
20 WETLANDS
22 FORESTS AND WOODLANDS
24 URBAN AND SUBURBAN NATURE
26 Protection, conservation and cooperation
28 How we protect the natural environment
29 NATURE RESERVES
30 NATIONAL PARKS
32 NATURA 2000
36 PROTECTED AREAS IN NUMBERS
44 Inventories – the foundation of our knowledge
46 Protected areas is an investment now and for the future
48 Welcome to the natural environment!
It is not a matter of course that our natural environment will be preserved and managed from generation to generation. On the contrary, there are many different conditions and factors that affect the current state of the natural environment and how it will fare in the future. A great deal of the world’s natural resources and habitats for animals and plants are endangered because we use and treat them in a way that is not sustainable.

Human beings certainly have an effect on the environment, and, consequently, we have a choice to make about the quality of environment we would like in the future as well as a responsibility for the natural environment, now and in the future. Protected areas by law is the only way to ensure that our environment is preserved for future generations.