

GUIDE IN ENGLISH

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PRESENTATION OF SOUTHERN JELØYA PROTECTED LANDSCAPE AREA AND EXPLANATORY COMMENTS RELATING TO THE PERMANENT EXHIBITION ON THE PROTECTED AREA. WALL CHARTS 1 - 24

WALL CHART 1.

A UNIQUE PART OF THE EARTH'S CRUST

In the period from 270 to 225 million years ago there were great changes in the earth's crust in this part of the world. These changes have proved decisive in forming the natural conditions of today's Jeløya.

The sandstone and slate on northern Jeløya date back to the beginning of this period when the crust cracked and parts of it subsided. Lakes and rivers were formed and the sand and clay that were deposited on the beds of these lakes and rivers were later fossilized into sedimentary rocks.

Later, there was a period of earthquakes with further subsidence and big rock formations were tilted. A big fault was formed in the present Mossesundet. The cracks resulted in intensive volcanic activity. Great amounts of ashes were spread over a large area and are found as tuffs in today's landscape.

After this period of volcanic ashes, heavy and dark lava poured into the area. When this lava hardened it became the kind of volcanic rock called basalt. The basalt is found in the Tronvik and Hesteberget area and under the soil of most of the fields in the protected area. Later, after the period of the basalt, a reddish kind of lava with feldspar crystals erupted through the cracks. The hills in this area consist mainly of this kind of rock, which is called rhombic porphyry.

The subsidence of the part of the earth's crust that Jeløya belongs to has resulted in all these rocks being preserved. Jeløya subsided by 1500 meters in relation to the land east of Mossesundet. When the glaciers of the Ice Ages later eroded the area, all the special rocks mentioned above were carved away east of the fault, while the rocks in the Jeløya area were preserved.

WALL CHART 2.

THE ICE AGES

The great inland ice masses have covered Scandinavia several times during the last 1.5 million years. The Last Ice Age came to an end about 10,000 years ago, when the present warmer period started.

THE GLACIERS MOVED

Glaciers move slowly like a viscous liquid. At the edge they either break into pieces or melt. While they move across the terrain, they tear loose pieces from the bedrock. Rocks and stones transported with the ice also erode the rock face under the glaciers. In this area, hundreds of meters of rock strata were eroded by the ice.

THE FORMATION OF THE "RA"

Boulders, stones, and more fine-grained sediments transported by the ice were deposited at the edge of the glacier. In periods with a colder climate the glacier moved

forward again, and large masses of sediments were compressed, forming a large terminal moraine along the edge of the inland ice.

The big "ra" was formed this way. It reaches through the greater part of Scandinavia. It is this moraine that transverses the southern part of Jeløya.

WALL CHART 3.

JELØYA ON THE SEABED

The inland ice masses were enormously heavy and therefore pressed the land down. Jeløya was compressed down by as much as about 200 meters compared to the present sea level.

When the ice masses melted away from the area the land started to rise again, but this process was so slow that for a length of time Jeløya was covered by sea water. It took about 5000 years for Rødsåsen to rise above sea level to form an islet. At present, the land continues to rise at a rate of about 3 millimeters per year.

WALL CHART 4.

WAVES FORMED THE LAND

When the seabed rose to the surface, waves started to wash away the finer sediments and the bedrock was uncovered. The top of the moraine was flattened and now consists mainly of stones, gravel, and sand. The clay was washed into depressions or into deeper waters. This natural distribution of the sediments gives us the main clue to why different plants and trees thrive in different parts of the area.

THE CONDITIONS FOR PLANTS

Soon after the hills rose above sea level the first shore plants started growing, and as time went by, they were followed by land plants. Several natural conditions determine which plants grow where today.

THE BEDROCK

The lava rocks contain an abundance of nutritious materials and calcium and have therefore given the area fertile soils. Several fissures in the rocks allow plants to take root. The crevices and cavities are filled with water. This reservoir makes it possible even for bigger trees and bushes to grow on the rock surface.

THE SOILS

The sediments that cover Jeløya mainly date from the time of the "ra". The soils in the hillsides are mostly coarse grained and exposed to drought. In the lower areas there is more clay, and water supplies are abundant. Both the rock formations, the clay and the old shell banks provide the soils with calcium, which is very important for the growth of many plants. Blue anemones and bloody cranesbill are examples of plants demanding an ample content of calcium in the ground.

THE CLIMATE

When the plants first took root (about 5000 years ago) the climate was warmer than today, and the woods consisted of deciduous trees such as oak, ash, linden, and maple. The spruce did not come to this area until a climatic change occurred about 1000 years ago. Compared to most other parts of Norway, Jeløya has a mild climate. The summer season is particularly warm and sunny.

The winter climate is to a high degree affected by the temperature of the fjord. Night frost comes later here than on the mainland. If the fjord does not freeze, the winter cold does not take hold of southern Jeløya.

Annual rainfall is 200 mm on the average in East Norway. This is considerably less than in the southern coastal strip and West Norway. Most of the rain comes in the autumn and winter. The spring and early summer are therefore often very dry. This affects the plant life on the island.

WALL CHART 5.

PLANT LIFE

PLANT COMMUNITIES

Different trees and plants make different demands on the place they grow in. They all require a specific combination of water, light, temperature, and nutrition. The interaction between various organisms and their surroundings is called ecology. Through the study of ecology, one learns that certain groups of trees and plants thrive better together than others. A group of plants that thrive in the same kind of environment is called a plant community.

CONIFEROUS WOODS

The coniferous woods in this area contain an unusually high number of demanding herbs and bushes, while there are very few spruce woods with blueberries on Jeløya.

WALL CHART 7.

TEMPERATE DECIDUOUS WOODS

Compared to other countries, Norway has relatively few temperate plants. However, in a zone from the southern border between Norway and Sweden to Trøndelag in the north, there are scattered examples of woods collectively called temperate deciduous forests. All these woods contain trees and plants that demand high temperatures and a special kind of soil.

With its fertile soils and high summer temperature Jeløya is one of the few places in Norway where we find particularly well-established temperate deciduous woods.

WALL CHART 8.

BORDER ZONE VEGETATION

The border zones between different types of natural environment, for example between sea and land or between woods and open fields, form special biotopes. These edge zones always contain a greater variety of species than the surrounding areas. In fact, they might be labelled the oases of the cultivated landscape. The modernization of farming in the area has resulted in a dramatic reduction of these biotopes. Trying to preserve this rare resource will therefore be an especially important task in the years to come.

THE SIDES OF ROADS

Along the roads there are incredibly long and continuous edge zones with several flowers and a rare meadow flora. This vegetation is a delight to the eye.

THE WATER BORDER ZONE

The banks of ponds and brooks have a particularly luxuriant plant growth. The abundance of water and the trickle of nutrients from the surrounding soil make the water border zones very favorable for plant growth. Some land plants thrive here, but it is the special water edge plants that dominate, such as reed, purple loosestrife, marsh marigold and black alder. These plants depend entirely on this kind of environment, which makes the edge zones an indispensable part of the landscape.

THE SHORES

The shore plants grow in zones that run parallel to the shoreline. Plants resistant to sea water grow in the zone nearest to the fjord itself. Seaweed is washed ashore and thereby fertilizes the plants in this zone. The zone farthest away from the fjord is normally characterized by a thicket of bushes protecting the land plants from wind and sea spray.

THE WOOD BORDER ZONES

The wood edges form a transition between widely different plant communities. Here the wood plants get sunshine and heat while the plants of the open landscape get shadow. These edge zones are normally dominated by deciduous trees and several demanding plants.

WALL CHART 9.

THE LEAVES OF DIFFERENT TREES

Are you familiar with the most common deciduous trees? Try to match the leaves and the names. The correct answers are given behind the door.

WALL CHART 10.

ANIMAL LIFE

Southern Jeløya has a varied landscape and a rich vegetation compared to most other places in Norway. The animal life might be compared to that of similar landscapes in South Sweden and Denmark.

Different kinds of plants live in a particular environment, while animals move more freely from one biotope to another. However, there is often a special relationship between animals and plant communities. A certain kind of animal requires a certain kind of food, shelter and breeding ground that can only be found in the right form of vegetation. More varied vegetation in a particular area gives a higher number of different species of animals.

WALL CHART 12.

ANIMAL LIFE RELATED TO:

CONIFEROUS FOREST

Purely coniferous forests contain few species. Only when these forests also contain deciduous trees, they have a rich bird and animal life. The conifers give little food but provide good shelter. Particularly in winter they give shelter to overwintering birds and animals. Many of the species that are commonly found in forests in other parts of East Norway do not thrive on Southern Jeløya. For example, elk and grouse depend on larger areas of continuously forested land less trafficked by people.

TEMPERATE DECIDUOUS FORESTS

A typical feature of the temperate deciduous forest is its great production of plant materials, such as leaves, seeds, nuts and fruits. This provides several different animals with food. Worms, snails, and insects are especially plentiful in this environment. Dead leaves on the ground provide a favorable basis for a special kind of animal life, for instance different sorts of earth worms.

This environment gives very good living conditions for insectivorous small birds. In winter, various birds and small rodents live on nuts and seeds collected during the autumn season.

WALL CHART 13.

ANIMAL LIFE RELATED TO:

FRESH WATER

Brooks, dikes, and ponds have to a large extent been formed by man. Yet they contain many forms of animal life. In summer there are several algae, crawfish, amphibious animals, insects, and birds, many of whom only live in this kind of environment.

SHORES

This kind of environment offers very different conditions. Different species react differently to wind, sea water and temperature variations. Closest to the fjord, we find small animals and insects that get their nourishment from whatever the sea washes ashore. Some of them, such as the seaweed fleas, are sea animals while others only live on land. Many birds live close to the sea throughout the year. Many of the most common land birds will also be found on the shores in the periods of migration.

WALL CHART 14.

ANIMAL LIFE RELATED TO:

THE CULTIVATED LANDSCAPE

The greater part of the area consists of cultivated land. The animal life is, however, closely related to the natural vegetation found in scattered places throughout the area. Small groves, trees, alleys, road, brook and field edges, overgrown clearings and the remains of former pastures all constitute a vital part of the open landscape and satisfy the demands of several animal species.

The insects are here as elsewhere often closely related to special plants. The rich field flora provides the right kind of environment for a lot of rare butterflies.

Also, birds are dependent on the right kind of vegetation. Some prefer the vegetation of open fields while others prefer bushes and thickets. Some species that are normally found only in woods settle in areas where there are separate trees or groups of trees.

WALL CHART 15.

MAMMALS

In contrast to many birds and insects, mammals demand large spaces providing different biotopes within one area. Southern Jeløya has permanent stocks of deer, foxes, badgers, hedgehogs, mink, various small rodents, and bats. One rarely sees most of these animals during daytime, but the traces they leave behind betray their nocturnal wanderings.

WALL CHART 16.

ANIMAL LIFE RELATED TO THE FARMING OF THE AREA

Agriculture creates living conditions for many of the animals in the cultivated landscape. Technological and economic developments have caused an accelerating rate of change in the farming land of the area. During the last 20 years, the following three species of birds have experienced a change in their living conditions:

THE PARTRIDGE (RAPPHØNS)

The varied and weedy fields of past days provided a very good environment for this small gallinaceous bird. As the weeds were removed chemically from most fields the partridges became dependent on weeds in grazing land used by the livestock. Then the

farmers stopped producing livestock and started growing grain instead. This change of production eventually destroyed the habitat of the partridge in this part of Norway.

THE LAPWING (VIPA)

If the farmers had livestock, the cattle would keep the grass low in areas of natural grazing land. The lapwing depends on this kind of open land which now disappears as farmers have turned to grain production instead. This means that the lapwing has become a rare bird in the farming regions.

THE CORNCRAKE (ÅKERRIKSA)

The corncrake used to live hidden in the meadows. Its life was adapted to the production of hay and the haymaking fields. When the farmers started using silo fodder the haymaking started earlier and was repeated more frequently. This has disturbed the nesting of the corncrakes and the stock has diminished drastically. Now the corncrake is one of the rarest birds in East Norway.

WALL CHART 17.

DEAD TREES - THE WORLD OF SPECIALIZED SPECIES

There are many dead and hollow deciduous trees on Southern Jeløya. Rare and highly specialized insects live in these trees. When a tree is weakened because of ageing, drying, and rotting, insects immediately start making use of it. They take over larger and larger parts of the dying tree. However, the insects very rarely kill the tree. Almost without exception, they get their nourishment from its dead parts. The tree will continue to live for many more years and only then fall and become a rotting log.

The dead trees are a splendid habitat for the insects. Each species makes use of special parts of the tree, and the predators live on the other insects. In forestry, trees are cut down long before they die a natural death. The dead trees on Southern Jeløya therefore provide a highly valuable habitat for many species.

WALL CHART 18.

THE HISTORY OF THE LANDSCAPE

CULTURAL HISTORY

Southern Jeløya is almost exactly in the middle of the fjord, not far from Vestfold. Before 1885, the ferry went between Tronvik on Jeløya and Låvøya north of Horten. The port was in the Tronvik bay, but in northerly winds the ferry had to moor in the Gullholmen strait. In the 1920s, a vessel was found buried on the shore of the Gullholmen strait. This vessel was from about 1500 and contained among other things furs, copper utensils and hazel nuts.

This area has been populated since the first reefs rose above sea level in the late stone age. The farm name of Refsnes may stem directly from this period. The farms named after persons, like Trond and Kobb, date from the Viking Age, while the name forms "rød", "kase" and "reir" are characteristic of adverse times in the Middle Ages. The name Alby simply means mansion and is probably a substitute for a much older name.

WALL CHART 19.

From the end of the 18th century and well into the 19th century the farms on Jeløya were bought by wealthy citizens in Moss. As a result, the farms and smallholdings gained higher status. Kasseløkka became Charlottenborg, Berg became Bergersborg, and Reir was changed into Reier.

The new owners found a sheltered and yet open landscape on Southern Jeløya. They changed it into a landscape of mansions with large buildings and well cultivated fields surrounded by alleys, gardens and parks.

WALL CHART 20.

GRØNLI

From 1814 and onwards, the "Haga wood" with the smallholdings Grønli and Hagan developed into a mansion. The wood was transformed into a large, romantic garden with winding lanes and a carp pond spanned by a bridge leading to an island of flowers. The whole design was based on a traditional manor landscape style with elements of exotic trees, such as walnut and sweet chestnut.

The place got its present character at the turn of the century. The greater part of the old park has developed freely into a fantastic deciduous wood, while the area closest to the main

building is maintained as a manicured English park with tall groups of trees on undulating lawns. Hedges connect the houses to form a solid frame around a series of closed spaces. Across the fields, the visitor sees the remains of the kilometer-long alley. Bordering the forest, there is the climax of it all: the shadowy linden alley where the tree crowns join to form the arch of a cathedral.

KUBBERØD

The main building with its red mansard roof was built about 1750. The garden which lies in the sunny slope in front of the house is one of the old renaissance gardens. These were closed gardens, a kind of extension of floor and walls out into the open. A couple of maps from the 1790s indicate that the garden used to be enclosed by stone walls and divided into a regular pattern of paths, hedges, and garden beds.

ALBY

The present buildings were erected about 1860 after a fire. The main building has a classical design, and the alleys and park were inspired by French baroque, a style characterized by formal lines, long vistas, and a geometrical pattern. The alley leads diagonally towards the barn gate, so that the farmyard and the main building will not be seen before one is there. From here a side alley runs east and opens a view of the fields. From the main building, an almost infinite vista opens to the southeast - to the fjord. The fields below the lawn are concealed by a wall, which creates an optical illusion, as if the lawn bordered directly on the fjord itself.

The exotic acacia grove, the beech wood and the grotto in the wall are all characteristic features of a romantic manor landscape style. There are tales of a period in the 1840s when there may have been a carp pond, a rabbit island, and a hanging arbour with a fireplace high up in a maple tree, with a stair of 24 steps hidden in the foliage.

REIER

The bright main building, reminiscent of a castle, was built as late as in 1924. A map from 1912 shows us a detailed and neatly worked out park. A tall brick terrace in front of the main building and several rectangular gardens may remind us of Italian renaissance. At the same time, the entire design is in the form of a cross, in the Baroque fashion. Typical of the design is a grove of trees that can grow naturally. This mixture of styles was very common in German gardening at the turn of the century. In the grove there is a low hill where the path spirals its way to the top.

WALL CHART 21.

AGRICULTURE

Fertile soils, abundant ground water and a warm climate all form the basis of intensive and profitable farming on Southern Jeløya. Altogether there are about 500 acres of cultivated land and 350 acres of woods in the protected area.

WALL CHART 22.

SPRING

Preparation for the planting of early cabbage and potatoes begins indoors as early as in winter. The climate favors early crops. Harrowing and fertilizing make the soil a good place for small plants to grow.

SUMMER

Spraying against insects, diseases caused by fungi and weeds is an important task in early summer. The harvesting of early cabbage and potatoes begins in June. Because the summers are dry, one must normally use artificial irrigation.

AUTUMN

The threshing of grain starts as early as in August. The Jeløy farmers grow a lot of wheat which needs a long and warm summer. Maize is harvested by hand and treated more like a vegetable than as a sort of grain. Throughout the autumn until November tons of winter cabbage and potatoes are harvested. These large amounts of cabbage and potatoes are stored indoors to be sold during the winter season.

WINTER

Tree felling and clearing of trees and thickets take place in the winter. Several of the farms have market gardens producing vegetables and flowers on a year-round basis.

WALL CHART 23

INTRODUCTION

Southern Jeløya landscape area is protected under the Nature Conservation Act of 1954. There are different types of protected areas in Norway. The national parks are normally large areas of relatively unspoiled scenery. A "nature reserve" is usually a smaller area with distinct environmental characteristics, such as temperate deciduous woods or wetlands, and it is more strictly regulated by law than the other types of protected area.

Southern Jeløya protected area was established by law on the 23rd of December 1983. The area is approximately 1000 acres.

The purpose of the protected area is to preserve a unique natural and cultivated landscape which is rare in a national context.

Geological, botanical, zoological and cultural features, as well as the interaction between these elements, give this area an outstanding value.

NATURAL CONDITIONS

The rocks on Jeløya are volcanic. When the ice masses of the last Ice Age melted away about 10,000 years ago, the land continued to rise, a process still going on at a very slow pace. The hills of Rødsåsen and Reieråsen both have gentle slopes to the east and steep cliffs to the west. This shape has been caused by the stratification of the rocks as well as by glaciers and the sea. Along Stalsberget, the waves have carved out

cylindrical holes in the cliffs, so-called potholes. Previous shorelines can be traced at different levels in the Rødsåsen hill and the Alby forest.

In large parts of the protected area, the bedrock is covered by boulders, pebbles, sand, and clay. These materials are part of the Østfold moraine trans versing southern Jeløya. The most nutritious of these sediments are cultivated land today.

Jeløya is in a border zone between an inland and a coastal climate. Summer temperatures are on average high with many hours of sunshine and a long growing season. Today there is intensive grain and vegetable farming in this area.

The woods are dominated by conifers and many varieties of herbs, but there are also several temperate deciduous trees. Alder woods thrive on the moist ground behind the old shorelines. There are also border zones and beaches with pebbles, sand and cliffs, all of them with their own characteristic plant communities.

The great variety in scenery and plants fosters a similar variation in the animal life. The insect fauna is particularly rich, and several highly rare species have been found. Jeløya is well known to people with a special interest in butterflies.

The mammals in this area are mainly the kinds that thrive in a cultivated landscape: hedgehogs, red foxes, badgers, and deer.

The birdlife is especially rich, and the number of species registered occasionally is as high as 185. Jeløya lies in a favorable position for migrating birds in the outer Oslo fjord area. A long and continuous shoreline zone provides an attractive habitat for migrating flocks of birds.

CULTURAL HISTORY

5,000 years ago, the sea level was 35 meters higher than today, and the present Rødsåsen hill was an island. Some of the oldest traces of settlement on Jeløya have been found on this former island.

In the middle ages several of the farms on Jeløya belonged to the Crown or the Church, or they were part of the estates in this region. From the end of the 18th century many of the farms and smallholdings were bought by wealthy citizens in the towns.

It was in this period that the harmony of the present cultivated landscape was created, and many of the farms were models for farmers in other parts of the region. Alleys and magnificent gardens were laid out, and mansions were built, modelled on Danish and English prototypes. The characteristic style of the farms Grønli, Reier, Tronvik, Kubberød and Alby dates to this period.

The garden in front of the main building of Alby is unique among Norway's old gardens. The shaping of the terrain and the supporting wall at the southern end of the garden have the effect of making the fields between the wall and the fjord invisible to visitors standing on the lawn. At first sight one might believe that the garden borders directly on the fjord itself. This illusionary trick is a well-known feature in traditional English gardening and in French gardens from the baroque era.

In the supporting wall there is also a small grotto which functioned as an arbour.

A keen interest in foreign plants was a characteristic feature of gardening at that time, the acacia grove in front of the main building reminds us of this trend.

HOW TO BEHAVE IN THE PROTECTED AREA

You are welcome to this area, but:

- show respect for the animals, and do not get too close to the birds' nests.
- do not pick flowers and other plants.
- tidy up after yourself and leave as few traces as possible.

PLEASE NOTICE THESE REGULATIONS:

- motorized traffic for the public is allowed only on the main road to Alby.
- walking on the home fields is allowed only when the fields are covered by snow or frozen, but not in the period from 30 April to 14 October.
- the public is not allowed into private farmyards or gardens.
- bonfires are forbidden from 15 April to 15 September.
- dogs are to be kept on leashes from 1 April to 30 September.
- all plants on the shores and in the woods behind are protected by law.

KEY TO SYMBOLS ON THE MAP:

Grense for verneområdet = boundary of the protected area

Skog = wood

Tun-hageanlegg = farmyards and gardens

dyrka mark = cultivated land

eng og beite = fields and grazing land

strandsone = shore zone

boligbebyggelse = residential areas

allé = alley

off. bilvei = public road

privat gardsvei = private road

sti eller turvei = path or trail

parkeringsmuligheter = parking utsiktspunkt =
viewing point

her star du nå = you are here now

WALL CHART 24.

WHAT ARE YOU ALLOWED TO DO IN A PROTECTED AREA?

Are you allowed to:

bryte greiner = break branches

kaste eller gjemme søppel = throw or hide litter

klatre i trærne = climb trees

spise på stranden = eat on the shore

ligge i gresset = lie on the grass

leke i skogen = play in the wood

ha med hund i bånd = bring dogs on leashes

kjøre i skogen = drive in the wood

kjøre på småveier = drive on small roads

fiske fra stranden = fish from the shore

bade i sjøen = swim in the sea

gå på jordene sommerstid = walk on the fields in summer

Moss municipality v/municipal department of planning, environment and technology has the administrative responsibility for the protected areas in the municipality, including Søndre Jeløy landscape protection area.

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The Norwegian Environmental Protection Agency (SNO) supervises the protected areas.

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