

Biosphere reserve
Kristianstads Vattenrike®

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Kristianstads Vattenrike Biosphere Reserve



The coastal areas and dunes of Hanöbukten Bay with eel sheds like that at Stockaboden featured here, are one of the thematic landscapes that form the focus for work in the Biosphere Reserve. Photo: Sven-Erik Magnusson

A biosphere reserve is a model area that combines conservation with development. There are biosphere reserves throughout the world, designated as protected areas by the UN agency UNESCO. Kristianstads Vattenrike was established as a biosphere reserve in 2005.

Kristianstads Vattenrike Biosphere Reserve includes the greater part of the Municipality of Kristianstad, from the forests to Hanöbukten Bay with the rich wetlands of the River Helge å and the urban centre of Kristianstad at its heart.

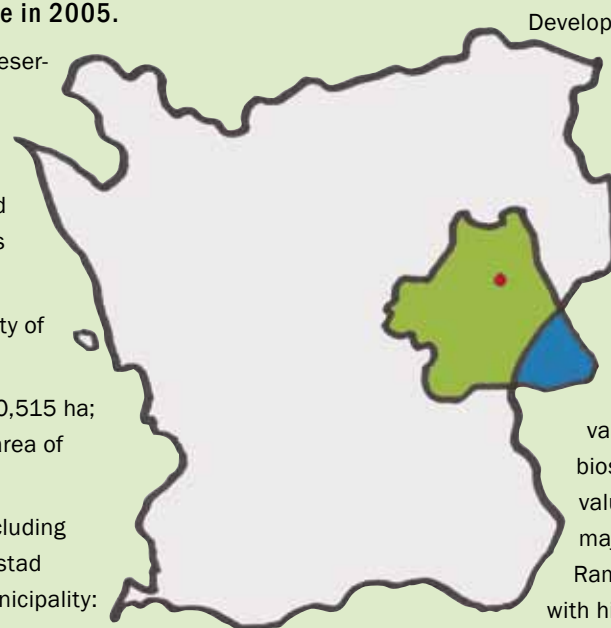
Extent: Greater part of the Municipality of Kristianstad.

Area: 104,375 ha. Land and lakes, 90,515 ha; marine area, 13,860 ha. (Total land area of municipality: 134,620 ha.)

Population: approximately 75,000 including approximately 35,000 in the Kristianstad urban region. (Total population of municipality: 80,000.)

Species worthy of preservation: There are at least 700 nationally red-listed species in the biosphere reserve, a high figure compared to other areas of Sweden. Approximately 30% of red-listed species in the province of Skåne occur in the biosphere reserve. The wetlands are home to 120–130 regular-

ly breeding species of bird. In all, some 260 species have been recorded. At least 38 different species of fish have been caught in the inland waters: around 30 of these, including the European catfish and loach, spawn in fresh water.



Development projects: Numerous local projects include biogas for municipal buses, wetlands ecotourism and the development of products from the seasonally inundated grasslands. Biological and recreational values are being developed hand in hand on a golf course in the sandy grasslands.

Thematic landscapes: Ten thematic landscapes with high natural values have been identified within the biosphere reserve. These include valuable wetland environments, the majority of which are protected as a Ramsar site, extensive sandy areas with high natural values, internationally

recognised forest habitats and unique flowing water environments.

There are also many nature reserves and Natura 2000 sites within the biosphere reserve. In the future the scope of the work will gradually extend to cover all of these ten theme areas under the maxim: Benefiting people and nature!

The year in review 2010

By far the biggest event of the year was the inauguration of the naturum Vattenriket visitor centre on 27 November. This ranks alongside UNESCO's designation of the biosphere reserve in 2005 among the most important milestones since our work began in 1989.

A new action plan for 2010–2013, "Priorities in Kristianstads Vattenrike", was launched to summarise what is currently being done and what can be done in the area. While providing guidelines for the work in progress, this is also a living document that leaves scope for carefully considered reprioritisations. Annual reports of activities should refer to the action programme, the main aims of which – conservation, development and support – are shared by all biospheres worldwide.

Preserving the natural surroundings, ecosystems, species and genetic diversity is crucial for human survival. Sightings of otters in the river in central Kristianstad and peregrine falcons nesting on the city's water tower are signs of a partial recovery in some of our local ecosystems.

Biosphere reserves exist to promote development that benefits both people and nature. As natural values are the very basis of ecotourism, the key is to experience nature without exploiting it. The cranes at the Pulken visitors' site – those resting on their migration and their painted likenesses in the nearby studio of a Danish artist – are a good example of this. The combined birdwatching tower and outdoor museum at Pulken has made this site, like many others, more accessible to visitors.

The opening of the Sännastigen Trail adjacent to the golf course in Åhus shows how nature conservation and public demand for walking trails can co-exist with environmentally adapted golfing facilities. Such initiatives have received

national recognition through Kristianstad's nomination as Sweden's best municipality for outdoor life. Further indications that our activities have attracted attention far beyond Kristianstad came when we hosted visits from Sweden's Minister for the Environment, Andreas Carlgren, and the US ambassador to Sweden, Matthew W. Barzun.

Biosphere reserves also support environmental monitoring, research, education and information. Test fishing in three lakes (Hammarsjön, Araslövssjön and Råbelövssjön) produced positive results in several respects: the low water level was representative of normal summer conditions and the status of the fish population seemed relatively good. However, as certain threats do exist, new tests will be made in 2013.

The main expression of the biosphere reserve's duty to inform has, of course, been the construction of a visitors' centre, the naturum. This has been widely praised as an asset for the entire region and initial visitor numbers confirm it as a resounding success. Now, however, as the gateway to Kristianstads Vattenrike, it is important not only to welcome visitors here, but also to motivate them to visit the various outdoor sites and make use of the facilities offered by the region's ecotourism companies.

Sven-Erik Magnusson

Sven-Erik Magnusson
Manager, Biosphere Office
Coordinator, Kristianstads Vattenrike Biosphere Reserve



The weather year – 2010

Weatherwise, 2010 was a very varied year with both the highest and the lowest mean daily temperatures since we began keeping records in 1998.

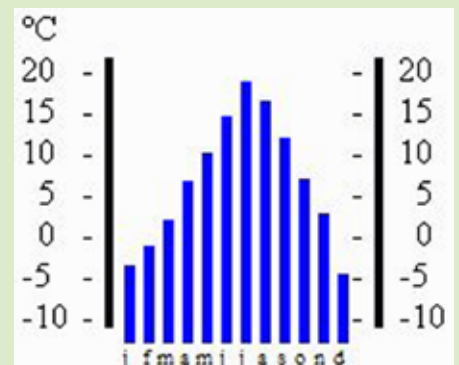
Most memorable perhaps was the cold end to the year. In some places the mean temperature for December was the lowest ever recorded. Weather Online statistics show the lowest mean monthly temperature of any month so far: -4.9°C .

Prior to that, the coldest month was January 2010 (-3.7°C), so the year ended much as it started. Web camera pictures from Isterinäset show that the snow there did not finally disappear until 21 March.

At last, however, spring arrived, followed by a warm summer: a mean of 20.7°C in July was high even considering what we have become accustomed to in recent decades. The nights before 12 and 13 July were classed as "tropical", with temperatures above 20°C . This is extremely

unusual given Kristianstad's proximity to the coast. The mean daily temperature of 25.9°C on 10 July was the highest ever recorded by Weather Online.

But the year ended as it started. The snow that fell in Kristianstad on 24 November was to remain for the rest of the year. In addition to a White Christmas we also had a couple of new record low temperatures: a daily mean of -14.6°C on 21 December and -20.4°C on the following morning.



2010 saw big variations in temperature.

Healthy fish in our local lakes

Lake Araslövssjön and Lake Hammarsjön are as rich in fish as they should be. Limnologist Jonas Dahl is content with the results of last summer's test fishing in the lakes of Kristianstads Vattenrike.

With more than 30 recorded species, the River Helge å, its lakes and tributaries rank high among Swedish water systems with the greatest variation of fishes. But over the past ten years the water in the river has become brown, the reed beds have disappeared, and the numbers of waterfowl in Lake Araslövssjön and Lake Hammarsjön have declined.

Eager to study what impact these changes have had on the fish, Jonas Dahl began test fishing in the biosphere reserve's two largest lakes in August. "The findings show that the status of the fish population in the lakes remains relatively good, with a good mix of species and good numbers of fish," Jonas reports.

It was high time, too, to conduct standardised test fishing in Lake Råbelövssjön, where the results were equally positive.

"It seems that Råbelövssjön has recovered from the eutrophication of the 1960s and 70s," Jonas says. Hammarsjön and Araslövssjön are much shallower and have a greater variety of fish species than Råbelövssjön, which also has much narrower riparian zones.

Good balance between species

Special gill nets were used for the test fishing, with mesh sizes of between 5.5 and 55 millimetres. The purpose was to determine the mix of species, biomass and age distribution of the fish in the lakes.

The tests showed that the waters in Hammarsjön and Araslövssjön are dominated by perch, roach, bream, white bream and bleak, with a good balance between predators and their prey – one of the indicators of a healthy fish population. The recruitment of new individuals also seems to be working as it should: the blue bream has become increasingly common in these waters.



Reduction in eutrophication

Perch is by far the most common fish in Lake Råbelövssjön.

“If you want to be more or less sure of catching a perch, then head for Råbelövssjön,” is Jonas Dahl’s advice. The past 20 to 30 years have seen a very positive improvement in the lake’s health. Badly eutrophied in the 1960s and 70s, it is now in very good condition following measures to improve drainage and changes in agricultural practice.

There are no algal blooms, and visibility (Secchi depth) is around three metres, even in the summer.



Perch is the dominant species in Lake Råbelövssjön. Photo: Sven-Erik Magnusson.



Biosphere Office limnologist, Jonas Dahl, empties his nets in Lake Råbelövssjön. Photo: Sven-Erik Magnusson.

Seminar to save the eel

Since initial alarms about the threats to eels were sounded in the 1960s, the situation has worsened. After the “Eel 2010” seminar in Åhus on 20–21 April a working party was set up to try to save the eel and eel fishing.

For two days some 60 participants listened to 20 of Sweden’s foremost experts explain why the eel is threatened and how it can be saved by, for example, fishing quotas, the release of elvers bred in hatcheries, and measures to facilitate migration past hydropower plants.

Despite the differing views and proposals, Sven-Erik Magnusson, Coordinator for Kristianstads Vattenrike Biosphere Reserve, summed up as the seminar drew to a close by stating, “There is more that unites us than divides.”

In this spirit, representatives for local fishermen, the County Administration, the Eel Academy and the Biosphere Office agreed to work together to devise a common strategy to save the eel and eel fishing.



Pledged to protecting the eel – Hans-Inge Olofsson (eel fisherman), Johan Wagnström (Director of Fisheries with the County Administration), Lars Pettersson (Eel Academy), Claes Bergkvist (Eel Academy), Max Svensson (hotelier) and Sven-Erik Magnusson (Coordinator, Kristianstads Vattenrike Biosphere Reserve). Photo: Åsa Pearce.

“The important thing is to identify a few key issues and focus on them,” Sven-Erik Magnusson advised and also proposed a highly appropriate name for the working party – “Ålright”. (Ål is the Swedish word for eel!)

Building the naturum



Early in 2010 a wooden skeleton began to take shape on the concrete base. The pine planks had been sawn in Finland, treated and laminated to form Kerto beams, before being sent to Töreboda in Sweden to be transformed into prefabricated units for subsequent on-site assembly.

Parallel with the construction work, the various display modules were manufactured at a number of different sites. The exhibition was finally put together inside the naturum centre in November.



Sturdy "log mats" of slow-growing northern Swedish pine are laid to form the walking surface of the bridge linking the naturum to downtown Kristianstad. Pipes and conduits under the bridge carry electricity and IT cables, district heating, water and sewerage. The temporary bridge on the right, specially built for heavy equipment, was later dismantled.



The façade is clad in panels of heat-treated pine. Heating the pine rapidly to 200 °C does not char the wood, but ages it artificially by as much as 200 years in one single day. This process produces many benefits, including improved dimensional stability and greater resistance to wood rot and fungal attack.



Constructing the Forsakar model

There are several flowing water environments on the slopes of Linderödsåsen Ridge. Among the best known is Forsakar, a high waterfall by local standards. The model shows how the torrent cascades down the rock face at Forsakar before flowing between logs, stones and boulders to calmer waters. Visitors can also make the acquaintance of several hardy little water-dwelling creatures including the amphipod crustacean *Gammarus pulex* and mayfly larvae.



Test-driving the Opteryx

It was decided that there must be at least one exhibit that no visitor could forget after leaving the naturum. Originally known as "The Capsule", this would leave no one oblivious to the fact that the naturum in the heart of the town is also at the heart of the wetlands. A thrilling journey using films shot from helicopters and boats, real and animated sequences, and advanced electronics and engineering would – quite literally – shake visitors into awareness. The picture shows an early test at a local factory. The director and test pilots are some of the people who helped turn the idea into reality. The capsule would later be known as Opteryx, after the damselfly *Calopteryx*, which lives part of its life in the water, part in the air.

Assembling the aquarium

Everyone expects to see an aquarium in a wetlands exhibition. But what kind of aquatic environment should we show? We chose a section of Lake Hammarsjön, looking towards Viby. Large areas of the lake are only 60–70 cm deep in summer. To emphasise the impression of a shallow plains lake, the aquarium projects out into the exhibition area. To be able to show a representative number of species, the aquarium has cooling equipment and three different filter systems.

The aquarium is complemented by a "digital aquarium" showing fish species in the two rivers, Helge å and Vramsån.



Models made in Stockholm

Attitudes to the wetlands around Kristianstad have changed over the centuries. This is made clear by comments from characters from three different historical periods in showcases that chart the change from "a land of water" through "water-logged lands" to today's "rich wetlands". The models and showcases were created by modelmakers in Stockholm working to a detailed brief from Kristianstad. All three showcases recreate the same view looking east across the River Helge å towards central Kristianstad, as it appeared at different times in history.



Naturum — gateway to the wetlands

The big day has come at last! Maria Ågren, Director General of the Swedish Environmental Protection Agency, opens the proceedings. Sten Hermansson, Chairman of the Municipal Council, raises the flag. Then the doors open to welcome the first visitors to naturum Vattenrike.

Slit's beautiful! What fun! So much to see! What a wonderful view! The first visitors were full of praise when the naturum centre opened its doors. They listened to music from Mare Balticum in the auditorium, snacked in the cafeteria and explored all the exciting things the exhibition had to offer.

"This is really impressive, and a great day for Kristianstad. This is sure to attract tourists to Kristianstads Vattenrike," predicted an enthusiastic Sten Hermansson.

Visitors of all ages crowded inquisitively around the fish in the aquarium, hunted for bugs below the falls at Forsakar and took a trip in Opteryx. Swedish EPA Director General, Maria Ågren, was impressed by what she saw.

"It's fascinating to see how attitudes to the wetlands have changed, from a water-logged problem to a popular biosphere reserve that, from today onwards, can also pride itself on a beautiful naturum visitors' centre," she said.

As the proceedings drew to a close, Karin Magntorn, manager for the naturum centre, expressed her delight at the way things had gone.

"What a day!" she said. "And what a positive response! Fantastic!"



PHOTO: PIA OHLSON

Swedish EPA Director General Maria Ågren.



PHOTO: SVEN-ERIK MAGNUSSON

The exhibition hall was soon filled to capacity.



PHOTO: ÅSA PEARCE

Bengt Gustavsson examines his showcase alter ego.



PHOTO: ÅSA PEARCE

Examining bugs from the Forsakar falls.



FOTO: ÅSA PEARCE



PHOTO: ÅSA PEARCE

Sven-Erik Magnusson, Karin Magntorn - and their dream house!



PHOTO: PIA OHLSON

Relaxing over coffee and cakes in the café.

Focus on research

There was no shortage of activities for young and old alike during naturum's first few weeks. The day after the opening there were Christmas trees to be shaken down in the search for spiders. Under the leadership of nature educators Andreas Magnusson and Sam Peterson, youngsters studied the spiders under a magnifying glass and learned that all Swedish spiders are poisonous – although, fortunately, not to humans.

We are all attracted to beautiful natural surroundings, but why? Professor Nils Uddenberg, a physician and author, explained why to a packed auditorium: "It's quite simply a throwback to the days when we climbed down from the trees in search of somewhere with water and vegetation to sustain us," he said.

The Biosphere 2010 Research Conference gave new insights into and views from Kristianstads Vattenrike. Children and adults had the opportunity to attend as "assistant researchers" and Lund University researcher Roine Strandberg described how he followed migrating birds with GPS technology. Educators learned more about teaching out in the open air, and author Mats Ottosson explained nature's function as "massage for the soul".



PHOTO: ÅSA PEARCE

Researchers come in all ages.



PHOTO: ÅSA PEARCE

Nils Uddenberg lectured during Research Weeks.

THE YEAR IN REVIEW | January–April 2010



Kristianstad commended for outdoor life

In 2010 Kristianstad was ranked as one of Sweden's top three municipalities for outdoor life. At the award ceremony in Stockholm, Kristianstad was commended for its focus on accessibility, its plans for swimming areas and the upgrade of Kristianstads Vattenrike's visitor sites.

"This top three ranking will give an extra boost to interest in Kristianstads Vattenrike," says Karin Magntorn, the naturum manager, who has worked tirelessly to improve accessibility to the area's visitor sites.

Alders die due to flooding

When plant pathologist Christer Olsson examined dead and dying alder trees in Kristianstads Vattenrike during the winter, he confirmed that the aggressive Phytophthora fungus that is causing havoc elsewhere in Sweden is not the culprit. Instead the trees have suffered from the prolonged summer floods of July 2007. The news that the feared fungus has not yet invaded north-east Skåne and the biosphere reserve's waters is promising. Surviving alders should be able to recover and new ones take root.



Crane artist at Pulken

Carl Christian Tofte is sitting outside his studio in overalls and rubber boots, with a sketch pad on his lap and a telescope within reach. A quick look and then he draws a few lines, rubs them out and draws again.

Carl Christian is one of Denmark's most renowned bird illustrators. Born and raised in Copenhagen, he now lives and works in Härnestad.

"I want to be somewhere many different landscapes and climates meet."

Kristianstads Vattenrike comprises plains, deciduous and coniferous forests, and an archipelago – all easily accessible. "I'm passionate about the landscapes in this area," Carl Christian explains.

THE YEAR IN REVIEW | May–August 2010

Peregrine falcons breed in city centre

It all began in late January when a female falcon from northern Germany appeared by the water tower in Kristianstad. At last, the male, a local resident for several years, had his long-awaited companion. Would the nesting box, which had been in place for a few years, soon become inhabited? After courtship displays in April, by early May it was possible to see from the church tower that the female was brooding on eggs. It was a great day when the chicks finally hatched. They were ringed in early June and by the end of the month – after some intensive flight training – they were ready to leave the nest box. The first pair of peregrine falcons had successfully bred on the water tower – in the heart of Kristianstad!



“Vattenriket sets good example,” says Minister

During his visit to Kristianstads Vattenrike, Sweden’s Minister for the Environment, Andreas Carlgren, enjoyed a tour of the area close to the city by boat from the Kanalhuset open-air museum, via Lake Hammarsjön to the jetty at Ekenabben. The trip then continued on foot via the new boardwalks into the wet forest, where coffee was served.

Åsa Pearce, Information Manager at the Biosphere Office, busily noted down Minister Carlgren’s impressions of his trip. He expressed his appreciation for the working methods adopted by the biosphere reserve: “I’ve heard plenty of good reports of Kristianstads Vattenrike. Now that I’m finally here, I see its potential as a model for nature conservation of the future.”



PHOTO: SVEN-ERIK MAGNUSSON



PHOTO: KARIN MAGTORN

Nature Day and new exhibition at Lillö

Many people took advantage of the fine weather on 6 June (Sweden’s National Day) to visit one of the activities of the biosphere reserve’s annual Nature Day, Naturrunda. A new exhibition about Lillö and Isterinäset had been prepared next to the bridge over the moat at Lillö in time for this special occasion. About 200 people visited Lillö Castle ruins during the day, where the Biosphere Office and Tourist Office were on hand to guide visitors and sell refreshments.

New trail from Åhus to Sännarna

A new marked trail makes it easy to walk from Åhus via the golf course to the Sännarna Outdoor Museum. Kristianstad’s Golf Club in Åhus and the Biosphere Office are involved in a joint project to combine top-class golfing facilities with nature conservation and recreational opportunities for non-golfers. The new trail was inaugurated on the Swedish Botanical Society’s “Wildflower Day” and some 60 people gathered to listen to botanist Kjell-Arne Olsson talk about the unusual flora on the golf links.



PHOTO: ANDREAS NILSSON



PHOTO: ÅSA PEARCE

Prestigious environmental prize

The year’s Wetlands Award, Våtmarksstipendium, was presented at the Åsums ängar outdoor museum. The winners were Sven-Erik Magnusson, who took the initiative to establish Vattenriket, and Hans Cronert, the prime mover in the work on seasonally inundated grasslands.

The award was presented by Lars Ingelmark, chair of Sweden’s Wetlands Foundation, Våtmarksfonden, and Erik Sellberg, CEO of Ragn-Sells. Lars Ingelmark explained that the expert committee had come to a unanimous decision. “We’ve been talking about this for several years. It wasn’t a question of whether they would receive the award, but when.”

THE YEAR IN REVIEW | September–December 2010



PHOTO: ÅSA PEARCE

US ambassador visits Kristianstads Vattenrike

US ambassador Matthew W. Barzun appreciated the close coexistence of the natural and built environment during his visit to Kristianstads Vattenrike on 14 September. Environmental issues are close to his heart, and in February he and Maud Olofsson, Sweden's Minister for Enterprise, signed a joint Swedish-American Green Alliance (SAGA) designed to promote sustainable urban development.

During a boat trip on the River Helge å, Ambassador Barzun was informed about work to restore the seasonally inundated grasslands and the then almost completed naturum visitor centre.

"Naturum will be the gateway to the wetlands. Within minutes visitors can find themselves in the midst of an environment they didn't even know existed. It's fantastic!" enthused Karin Magntorn, naturum's general manager.

Higher standards at the lowest point

Two new picnic tables with benches and space for wheelchairs have made the visitor site more inviting and accessible at Lägsta punkten, Sweden's lowest point. Workers from the Parks Unit at the municipal Department of Public Works (C4 Teknik) have laid a new type of gravel to facilitate access for wheelchairs, etc. In the summer a new exhibition was installed at the site, explaining the vulnerability of Kristianstad's wetlands location and informing visitors about the municipality's flood protection project and climate work.



PHOTO: TOMMY ÅKERLUND



PHOTO: JAN LINDER

Otters recolonise Kristianstads Vattenrike

Shortly after the inauguration of the naturum Vattenriket visitor centre, otter tracks were seen on the ice by the bridge and on the naturum's lake. New tracks appeared a few weeks later. Then two otters were spotted and photographed by the River Helge å in Torsebro. With a little patience, many visitors from all over southern Sweden saw them during the Christmas and New Year holidays. In the 1970s environmental toxins were one reason why otters disappeared from many places in southern Sweden. Their numbers are now slowly rising, with increased sightings both within the biosphere reserve and outside. It is wonderful news that our otters appear to enjoy life here and are now regular visitors to central Kristianstad.

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