Biosphere Reserve Nomination Form

BLEKINGE ARCHIPELAGO

Tärnö, Hällaryd archipelago in Karlshamn municipality

BLEKINGE
ARKIPELAG

Collaboration between Karlshamn, Karlskrona, and Ronneby municipalities and the Blekinge County Administrative Board

The application documents are available on the website: www.blekingearkipelag.se

Authors

Blekinge County Administrative Board: Therese Asp, Anna-Karin Bilén, Jenny Hertzman, Anette Johansson, Jonas Johansson, Elisabeth Lindberg, Ulf Lindahl, Lennart Olsson, Petra Torebrink, Elisabet Wallsten, Ulrika Olsson Widgren and Åke Widgren.
Karlshamn Municipality: Lena Axelsson and Bernt Ibertsson.
Karlskrona Municipality: Britt-Marie Havby, Birgith Juel and Sven-Olof Petersson.
Ronneby Municipality: Emma Berntsson, Per Drysén, Anna-Karin Sonesson, and Yvonne Stranne.

To assist with the nomination form the Biosphere Candidate Office has sought special assistance from Björn Berglund, professor emeritus of quaternary geology, Lund University and the first conservation officer in Blekinge and Merit Kindström, research engineer at the Swedish University of Agricultural Sciences (Chapter 11 Physical Characteristics) and Lars Emmelin, professor of environmental assessment, at Blekinge Institute of Technology (Chapter 15 Logistic Support Function).

Several officials from the Nature and Environmental groups and the Fishing unit at the Blekinge County Administrative Board as well as officials from the municipalities have assisted with examining and commenting on the text. In addition, many people have contributed directly or indirectly with documentation and other material.

Maps

The Biosphere Candidate Office has produced all the maps included in the nomination form and appendices. Background maps from National Land Survey of Sweden, serial no. 106-2004/188.

Editorial Group for the Application

Lena Axelsson, Anette Johansson, Elisabeth Lindberg, Sven-Olof Petersson, Anders Thurén, Elisabet Wallsten, and Ulrika Olsson Widgren.

Translation: Maria Engberg, Rouchy Engberg Communications

Graphic form: Annika Spåhl

Karlshamn, Karlskrona and Ronneby July 1st, 2009.

Photos

Cover page: Aerial view of Tärnö, Hällaryd archipelago. Bergslagsbild AB.

Eijer Andersson:	36
Jörgen Andersson:	14 top
Ulf Arup:	93 bottom
Therese Asp:	72
Erika Axelsson:	6 bottom
Lars Bengtsson:	88
Björn Berglund:	54 both
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PART I: SUMMARY

1 Proposed Name of the Biosphere Reserve

[It is advisable to use a locally accepted geographic, descriptive or symbolic name which allows people to identify themselves with the site concerned (e.g. Rio Platano Biosphere Reserve, Bookmark Biosphere Reserve). Except in special circumstances, Biosphere Reserves should not be named after existing national parks or similar administrative areas]

Blekinge Archipelago biosphere reserve

2 Country

Sweden

3 Fulfillment of the Three Functions of Biosphere Reserves

(Article 3 of the Statutory Framework presents the three functions of conservation, development and logistic support. Explain in general terms how the reserve fulfills these functions.)

3.1 ”Conservation – contribute to the conservation of landscapes, ecosystems, species and genetic variation”

(Stress the importance of the site for conservation at the regional or global scales)

The proposed biosphere reserve is located in the southeast corner of Sweden and comprises most of the coastal areas and archipelagos of Blekinge. The 200 000 hectare large area contains landscapes and biological values of international, national, and regional significance. The geomorphology and geology of the area in combination with the mild, coastal climate as well as the variation of fresh and brackish water have created unique circumstances for a rich biological variety containing a large number of red-listed species. At the same time, the long continuity of land use in some part of the area has created vital conditions for many species of plant, animal, and fungi and many of the merits of the cultural landscape in the area is a result of man’s continued land use. There are also aspects of environments that contain species that are not conditioned by human activities.

The proposed biosphere reserve is unique in many ways. It is largely its own natural geographical region, the Blekinge rift valley terrain and oak forests. It comprises the

Nowhere else in northern Europe does the broadleaf forest meet the sea to such extent as in Blekinge.

southernmost primary rock archipelago of the Baltic while substantial parts of the archipelago and main land coastline is wooded with broadleaf forests. At no other place in Northern Europe do the broadleaf forests and the sea converge to such an extent as at the Blekinge coastline. The area also contains the southernmost salmon-carrying stream of the Baltic Sea (and the country), the Mörrum River, which is also by virtue of its southern position one of the most species-rich rivers in Sweden. The many shallow and highly desalinated bays, lagoons, and estuaries along the coast are important spawning and growth areas for several species of fish while also being internationally significant grounds for stopping and overwintering for several seabird species. The great significance of the area for fish and birds has lead to two wetlands being singled out as of international importance (Ramsar wetlands): Mörrum River and Pukavik Bay, and Blekinge archipelago (three separate areas). The many legally protected areas within the Blekinge archipelago and coastal landscape strongly contribute to the long-term preservation of the area which comprises a total of one (1) culture reserve, 37 nature reserves, and 72 Natura 2000-areas.

3.2 "Development – foster economic and human development which is socio-culturally and ecologically sustainable"

(Describe the potential of the proposed Biosphere Reserve to obtain this goal.)

The small-scale coastal fishing relies on traditional knowledge.

Blekinge Archipelago comprises of densely populated coastal areas, three towns, as well as sparsely-populated archipelago and open seas. There are important natural and cultural heritage values as well as strong local commitment to keeping the countryside alive all year around. There are also several actors already working for a sustainable development within the area. These things considered suggest that the area is well suited to becoming a model and demonstration area for how economic and social development that is socio-culturally and ecologically sustainable can be stimulated and developed.

Blekinge Archipelago is a pronounced cultural landscape and humans have long made their mark on both land and water. Traditional knowledge about the use of natural resources within small-scale coastal fishing

and pasture-raised farming is still alive. The knowledge and the operations are highly important to safeguard in order to maintain the values that characterize Blekinge Archipelago today. Simultaneously it is getting harder to sustain a living only from traditional livelihoods, so in order to live and work in the countryside, not least in the archipelago, innovative thinking and entrepreneurship need to be stimulated to develop both existing and new sustainable possibilities for making a living and future-driven activities within Blekinge Archipelago.

The interplay between town and countryside, land and water is also of great importance for the future development of Blekinge Archipelago. The proximity of the towns to the countryside makes it possible to earn a living through employment in town while living on and cultivating the man influenced landscape in the countryside.

Town consumption gives increased conditions for developing the concept around locally produced and refined produce and other goods, which also benefits the countryside and sea-connected businesses. Blekinge Archipelago has long shorelines and is characterized by great interaction between sea and land environments. Sustainable usage and development of the area therefore also require a healthy Baltic region, in which it is important to work with sustainable natural resource usage as well as to diminish emissions into the sea.

The strength of the biosphere reserve concept is that it is built from a bottom-up perspective, working from the conditions and needs of a particular region. In order to anchor the project and propel local driving forces, it is imperative with dialogue, participation, and user-centered planning together with inhabitants, interest groups, businessmen, entrepreneurs, researchers, local authorities, and other actors. One example of now running projects is SamarBETE which aims at creating possibilities for livestock owners to keep grazing animals in the archipelago all year around.

Within tourism and recreation there are great development possibilities.

The opportunities for development in the area are strengthened through the gathering of inspiration, exchange of experiences and cooperation with other coastal regions around the Baltic Sea and from other parts of the world. Here the world network of Biosphere Reserves will be of great value. The process of working with the biosphere reserve in the Blekinge Archipelago initiative has revealed great commitment to working for a sustainable development of the area. By way of the Biosphere concept one can accomplish the building of a common, gathering arena in which several interested parties and practitioners within different activities can meet, discuss and cooperate in many issues. This generates a powerful tool for sustainable development in the shorter and longer perspective. The Archipelago Council is an important assembly for this work.

3.3 "Logistic support – support for demonstration projects, environmental education and training, research and environmental monitoring related to local, regional, national and global issues of conservation and sustainable development"

(Indicate current or planned facilities).

Environmental education, practice, and demonstration projects

The proposed biosphere reserve has great potential for becoming a support within environmental education in the area, partly through establishing close contacts to secondary education in the three municipalities concerned, Karlshamn, Karlskrona, and Ronneby, as well as to other educational bodies. In addition, the reserve project can serve as inspiration and sounding board, and carry out its own educational activities.

The Biosphere concept is in itself an interesting form for working in an integrated manner with development and conservation issues, which already during the preliminary study and the candidacy phase contributed to generating a lot of interest in doing practice work and school assignments with a connection to Blekinge Archipelago.

In establishing a meeting point for different activities and interests, needs could easily be identified and new ideas and possibilities arise that can be developed into demonstration projects for sustainable development. Examples of this that were already initiated during the candidacy phase in the Blekinge Archipelago are the inter-sectional, collaborative work to develop sustainable solutions for drainage and water supply for the coastal and archipelago areas of Blekinge, and the project SamarBETE that aims at facilitating grazing animal-operations in the archipelago and coastal regions.

Grazing in the archipelago has a long tradition and is important to maintain an open landscape.

Research and higher education

Blekinge Institute of Technology (BTH) is in great need of the logistical support of a biosphere area for education and demonstration projects as well as research. BTH is one of the most distinctly profiled university colleges in Sweden, toward co-operation with the surrounding community. BTH has, as one of 22 colleges in Sweden, received a KK grant (KK=Knowledge Foundation) for a comprehensive program "ProVision" for co-production with the business and public sectors for developing knowledge within BTH's profile areas. For education and research about sustainable development of society the possibilities of support and co-operation with the region and the municipalities are of utmost importance. The only comprehensive education program for planning architects in Sweden is offered at BTH and the co-operation with the three municipalities is crucial for the connection to the professional reality. Projects

and thesis projects in the program have during several years touched upon planning and development of the archipelago. BTH also has an international Master's program, *European Spatial Planning and Regional Development*, which is leading in the field in Europe. The program *Strategic Leadership for Sustainable Development* has also received significant international attention. Both programs offer international students the opportunity to carry out thesis projects within sustainable development.

Environmental monitoring

Sampling of the water environment can be carried out on the ice during winter.

Environmental monitoring has taken place for a long time and within many different sectors. The part of environmental monitoring that is state-financed is coordinated by the Swedish Environmental Protection Agency and the county administrative board and is currently operating within ten separate program areas divided by different environments, such as fresh water, agricultural lands, wetlands, and forests. In addition to the state environmental monitoring many important studies are carried out by municipalities, water conservation associations, universities and colleges, as well as non-profit organizations. During the process of establishing the proposed biosphere reserve and during the ongoing revision of the regional environmental program, the Blekinge County Administrative Board has conducted a compilation of all environmental monitoring in the area. More than 950 sites are covered by some kind of environmental monitoring in the proposed biosphere reserve.

4 Criteria for Designation as a Biosphere Reserve

[Article 4 of the Statutory Framework presents 7 general criteria for an area to be qualified for designation as a biosphere reserve which are given in order below.]

4.1 "Should encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human intervention"

(The term "mosaic" refers to a diversity of natural habitats and land cover types derived from human uses such as fields, managed forests, etc. The term "major biogeographic region" is not strictly defined but it would be useful to refer to the map of the "World Network of Biosphere Reserves" which presents 12 major ecosystem types at a global scale.)

The Blekinge Archipelago landscape is varied with both open and forested land.

The proposed biosphere reserve belongs to the biogeographic region *Temperate and subpolar broadleaf forests or woodlands* (Swedish zone Southern deciduous forest region, also known by the EU as the Nemoral region). Although the area is by Swedish standards relatively densely populated many of the different ecological systems are not intensively used or farmed, in comparison with European continental conditions. This partly explains why the biological values are still in place to such a great extent. The fine-grained nature strongly contributes to the reserve constituting a mosaic of a variety of ecological systems. The natural landscape of the archipelago has been more or less intensively farmed since the Middle Ages and on the great islands since pre-historic times. Human cultivation has had and continues to have great importance for the biological values, primarily with the extensively used broadleaf forests and the meadows and pastures with elements of oak.

Within Blekinge Archipelago a great number of land use types can be discerned. The broadleaf forests take up considerable acreage. Some of them have a long natural continuity whereas others have arisen in overgrown meadows and pastures or sparsely grazed forests. The majority of the broadleaf forests are today extensively cultivated. The spread of coniferous forests within the area is limited. They comprise mostly planted or rationally cultivated spruce forests, but there are also plenty of planted, cultivated pine forests along certain parts of the coastline. There are also elements of natural and extensively cultivated pine forests. The latter are often found on shallow and lean lands, for instance on rocky lands close to the sea.

The natural grazing lands are constituted by a mix of different types of meadow and pasturelands whose biological values all depend on cultivation and maintenance in various degrees. Particularly significant types are oak meadows, often with giant trees, and shore meadows that are important bird biotopes. The farmed lands, that is the meadows and the cultivated grazing lands, are among the most intensively used in the proposed biosphere reserve's land use types, which also means that the biological values are very limited.

The built areas of the proposed biosphere reserve – not the least the towns – contain natural areas with unique biological values. The highest values can be found in the broadleaf forests and parks that have been preserved as town-proximate recreation and outdoor life areas and that often have their origins in old oak meadows, which could partly explain the many features of several hundred-year-old giant trees.

The Ronneby Brunnsskog is a popular walking area with its tall beeches.

Of the lakes and watercourses of the area, the latter are particularly important. The watercourses are only partially regulated and have therefore been able to maintain much of their biological diversity. They also constitute important fishing grounds, particularly the internationally known Mörrum River.

The inner archipelago's marine environments are used for several human activities on land and at sea, for instance small scale fishing, boating, and recreation. The low saline levels mean that the area in all likelihood lacks any equivalent counterparts within its biogeographic region. The outer archipelago, that is, the open sea, takes up a large part of the proposed biosphere reserve and has partly a different composition of species than the inner and more shallow parts of the archipelago.

Many of the smaller islands of the area are important for breeding sea fowl. The beaches, smaller islands and skerries of the Blekinge Archipelago were, in older times, important grazing grounds. Some islands are still grazed, but the diminished amount of grazing animals today lead to overgrowth and a changed landscape.

4.2 "Be of significance for biological diversity conservation"

(This should refer not only to the numbers of endemic species, or rare and endangered species at the local, regional or global levels, but also to species of globally economic importance, rare habitat types or unique land use practices (for example traditional grazing or artisanal fishing) favoring the conservation of biological diversity. Give only a general indication here.)

The varied mosaic landscape of Blekinge Archipelago with its combination of unusual eco-systems and largely extensive usage has few counterparts from an international perspective. The broadleaf forests and the presence of old or giant trees (primarily oak) should be emphasized. The area is one of the richest in the country as far as the presence of old and giant trees is concerned. Sweden, in turn, holds approximately more than a third of the giant trees in Europe. Out of the 3,653 red-listed species in Sweden, closer to a quarter of them are linked to old and big trees in the cultural landscape. An exact number of how many of those exist in the proposed biosphere reserve is not available but it is likely that a substantial part of them is present. The giant trees of the reserve can be found in forests and pasture lands as well as in parks and wooded areas in direct connection to the towns and their centers and with other agglomerated settlements. The proposed biosphere reserve is therefore of the utmost importance for the preservation of biological diversity from a European perspective.

The mighty jaws of the male stag beetle are used in the fight for the females.

Some of the threatened oak-living species that Sweden and the proposed biosphere reserve have particular responsibility for include the stag beetle *Lucanus cervus*, the hermit beetle *Osmoderma eremita*, warted oak polypore *Inonotus dryadeus*, lacquered bracket *Ganoderma resinaceum* and the lichen *Lecanographa illecebrosa*. The unique wealth of species in the Mörrum River is of equal importance for the preservation of biological diversity. The genetically unique strain of salmon (*Salmo salar*) is of crucial importance for the presence of salmon in the whole southern Baltic Sea and therefore also of high economic value. The shallow and partly fresh, brackish coves constitute valuable spawning and growth areas for fish, such as Northern pike *Esox lucius*, European perch *Perca fluviatilis*, and the Atlantic herring *Clupea harengus*, which make the coves of significant ecologic and economic value. Simultaneously, they are of great importance for primarily several species of stopping and overwintering sea fowl. In the shallow coves lives also the algae Baltic stonewort *Chara horrida*, endemic to the Baltic Sea. The reserve is also home to a significant part of the Baltic harbor seal population. Within the proposed biosphere reserve there are also important occurrences of several endangered species of frogs and reptiles, of which the agile frog, *Rana dalmatina*, should be particularly pointed out.

Blekinge Archipelago is home to a large part of the Swedish population of the agile frog.

The proposed biosphere reserve contains 18 globally red listed species (IUCN Red list), 36 EU-listed bird species (EU Birds Directive) and 13 EU-listed species of plants and animals (EU Habitats Directive), as well as 449 nationally red listed species. While the knowledge of certain groups of plants, fungi, and animals is good, there is still much that is unknown or insufficiently familiar. In all probability, the biological diversity and presence of red listed species are much richer than we know of today, something which future inventories may show.

4.3 ”Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale”

(Describe in general terms the potential of the area to serve as a pilot site for promoting the sustainable development of its region (or ”eco-region”))

Blekinge Archipelago is characterized by its position in the southern Baltic Sea with open sea areas, relatively sparsely populated archipelago and densely populated coast. Man has been a part of and formed the landscape since the end of the last ice age. Blekinge Archipelago is unique and attractive for residents, tourism and for outdoor

recreation. A sustainable development presupposes that we can both preserve and use the natural and cultural resources in the area, that there are business and services of various kinds and that innovative thinking and entrepreneurship are stimulated. A sustainable development for Blekinge Archipelago needs to proceed from the existing landscape with its character and conditions. We must strive for a holistic view with balance between man, economy, and environment. A sustainable and living archipelago is a very important part of that balance.

A foundation for long-term economically sustainable development is a sustainable use of natural resources. At the same time many of the natural values and cultural heritage of Blekinge Archipelago are reliant upon conditions for an economic development within those businesses that have formed the landscape during a long time. For a long-term sustainable development of the area it is also important that existing activities within different types of business can develop and strengthen while new jobs and thereby new income-generating possibilities can be created. Individual companies with local entrepreneurs in a variety of trades are of utmost value. Their initiative within different sectors can produce new and sustainable possibilities for livelihoods and future-driven activities within the proposed biosphere reserve. Examples of such activities include visitors, tourism, but also within the traditional trades farming and fishing. It is also important to see the opportunities for combined companies with different activities, such as rental services, guide companies, services of all kinds, grazing and nature conservation, local refinement of reserve produce or social functions in different combinations.

Decoys are dummies used during sea fowl hunting. They are often decorative and production of decoys is a possible source of income in the archipelago.

The co-operation between different activities and entrepreneurs can also be a possible route to the widening and stimulation of new thinking and collaborative advantages that can be of benefit for the economic development of the reserve. An active Biosphere Office is a meeting point for all these entrepreneurs and business men within the reserve. It can also be a place in which new activities are collected for further spreading the word and developing new business ideas within ecotourism and service. Blekinge Archipelago can here serve as a model for a new way of working by which the abilities and possibilities for development of the individual entrepreneur are stimulated.

Blekinge Archipelago comprises of Baltic marine environments to 75 percent and the sea environment issues are therefore of utmost importance for the region. In addition to its very high natural and cultural environmental values the sea environment has had great importance during a long time for the food supply and is today important also for a variety of leisure activities. For instance, we have already started working with drainage and water supply issues during the biosphere candidacy phase. Within Blekinge Archipelago there is a strong commitment toward finding new and environmentally sustainable solutions for drainage and water issues. This affects permanent residents as well as summer cottage owners, boat owners, and tourists. In several places within the proposed biosphere reserve there are ideas and projects aiming at finding small and

large scale solutions for drainage and water supply in order to limit emissions into the Baltic Sea. Another current topic is the establishment of washing services for boat bottoms which reduces the use of toxic boat bottom paints, which in turn aims at reducing the poison- and nutritive salt stress in Blekinge's part of the Baltic Sea.

The blue mussel is one of the species that can be seen along the snorkeling route in Kollevik.

The establishment of a snorkeling route in Kollevik, Karlshamn by the proposed biosphere reserve connects to the sustainable development of the area. By increasing public knowledge and awareness about the Baltic Sea in a concrete manner an increased commitment to the Baltic environments and condition is created. The snorkeling route has become a new excursion destination that attracts locals as well as visitors from far away. Natural and cultural tourism is still comparatively undeveloped in the area but considering Blekinge Archipelago's substantial natural and cultural values there is great interest as well as potential to develop such tourism in a sustainable manner in the future. Within the proposed biosphere reserve there have been a few seminars on ecotourism for tourism entrepreneurs in order to give inspiration for and show possible areas for development.

The proposed biosphere reserve is within the municipalities Karlshamn, Karlskrona and Ronneby. The three municipalities already work actively with several projects and activities connected to sustainable development. Through the establishment of a biosphere reserve there are positive possibilities for increased municipal co-planning for the shared archipelago and coastal landscape. Such co-operation will also benefit the region's development possibilities within a larger context. It can also work as inspiration and model for other local, regional and national areas.

4.4 "Be of an appropriate size to serve the three functions of the biosphere reserve"

(This refers more particularly to (a) the surface area required to meet the long term conservation objectives of the core area(s) and the buffer zone(s) and (b) the availability of areas suitable for working with local communities in testing out and demonstrating sustainable uses of natural resources.)

The area which has been demarcated for the proposed biosphere reserve Blekinge Archipelago comprises archipelago, coastal, and open sea areas in the Baltic Sea within the three municipalities Karlshamn, Karlskrona and Ronneby in Blekinge region. The demarcated archipelago and its nearby coastal and sea areas are in many issues intimately connected. The proposed biosphere reserve encompasses a total area of 213,000 ha, out of which 156,000 ha is sea and 57,000 ha land.

North of Tärnö lie some of the 1000 islands and uncountable islets and skerries.

The archipelago contains approximately 1,000 islands and uncountable smaller islets and skerries. The total shoreline of the reserve is approx. 530 kilometers out of which the shoreline of the mainland is approx. 367 kilometers long. This shows the great interaction between sea and land environments throughout the reserve.

The core areas of the reserve comprise approx. 21,000 ha and the buffer zones approx. 47,000 ha. Those areas reflect a great deal of the biological diversity and cultural heritage which the Blekinge archipelago possesses. The size of the core areas is deemed to be sufficient to comply with the long-term preservation goals. In the proposed biosphere reserve there are approx. 85,000 permanent inhabitants out of which 4,000 live on islands with or without permanent connection with the mainland. Added to this is a great number of seasonal inhabitants and temporary visitors. Most of the inhabitants live in the transition area, but throughout the proposed biosphere reserve sustainable use of resources and sustainable development are tested and demonstrated.

4.5 Through appropriate zonation

> "(a) a legally constituted core area or areas devoted to long term protection, according to the conservation objectives of the biosphere reserve, and of sufficient size to meet these objectives."
>
> (Describe the core area(s) briefly, indicating their legal status, their size, the main conservation objectives)

The core areas consist of nature and culture reserves, Natura 2000 areas and habitat protection areas. These are all protected by Swedish law in accordance with the Swedish Environmental Code, which came into force in January 1999 (1998:808). The core area within the proposed biosphere reserve comprises approx. 21,000 ha (10% of the total surface area of the reserve).

Tjärö is both a nature reserve and a Natura 2000 site.

- Culture reserve 102 ha
- Nature reserves 15,642 ha
- Natura 2000 sites according to the habitat directive. (Council Directive on the conservation of natural habitats and of wild fauna and flora 92/43/EEG) 14,191ha
- Natura 2000 sites according to the bird directive (Council Directive on the conservation of wild birds 79/409/EEG) 7,944 ha
- Habitat protection areas 103 ha

Several of the areas are both Natura 2000 sites according to the EU habitat directive and bird directive and sometimes also nature or culture reserves. The main conservation objectives of the core areas are largely linked to archipelago environments on land and at sea, as well as the oak landscape in coastal areas and in the archipelago. Activities in the core areas are limited to those that are permitted according to regulations covering the above-mentioned protection areas.

"(b) a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place..."

(Describe briefly the buffer zone(s), their legal status, their size, and the activities which are ongoing and planned there).

The buffer zones within the proposed biosphere reserve have a surface area of approx. 47,000 ha (22% of the area of the reserve). Almost two thirds of the area is sea. The buffer zones comprise areas that are designated Ramsar sites; areas of national interest for nature conservation and conservation of the cultural environment; shore protection areas in the coastal area and along the major rivers; lands where the state via the Swedish Forest Agency has set up long-term nature conservation agreements with land owners; bird and seal protection areas; and, BSPA sites designated by HELCOM and World Heritage Site Naval City of Karlskrona. Shore protection, national interests and animal protection areas are all covered by Swedish legislation in accordance with the Swedish Environmental Code (1998:808) and the Ramsar area of the Ramsar Convention of Wetlands which came into force in 1975. The Helsinki convention was signed first in 1974 and then in revised form in 1992. The buffer zone consists of:

- National interest for the purpose of conservation of the cultural environment: 10,940 ha
- National interest for the purpose of nature conservation: 52,934 ha
- Ramsar sites (2): 13,578 ha
- Forests with nature conservation agreements: 227 ha
- World Heritage site 1,425 ha
- BSPA site (HELCOM): 10,556 ha
- Animal protection areas: 1,321 ha.

The various protection sites often overlap. In the buffer zones forestry and agriculture as well as fishing are carried out. In addition, tourism, recreation such as fishing or nature experiences, education, research, and environmental monitoring are also carried out. The buffer zones comprise marine environments, broadleaf forests, land adjacent to valuable water courses and lands close to the beach, grazing areas, arable lands, and running water. The activities in the buffer zones are protected according to regulations covering the above-mentioned protection areas.

The values of the buffer zones will be used to further strengthen the economic and practical possibilities for supporting activities in the reserve.

"(c) an outer transition area where sustainable resource management practices are promoted and developed"

(The Seville Strategy gave increased emphasis to the transition area since this is the area where the key issues on environment and development of a given region are to be addressed. The transition area is by definition not delimited in space, but rather is changing in size according to the problems that arise over time. Describe briefly the transition area as envisaged at the time of nomination, the types of questions to be addressed there in the near and the longer terms. The size should be given only as an indication).

The transition area of the proposed biosphere reserve is 145,000 ha which covers nearly 70% of the total surface. 75% of the transition area is sea. The transition area comprises, in addition to marine areas, mostly arable land, forests, some larger industries as well as towns and other spread out buildings. In the transition area there is great potential to promote sustainable development, among other things through the environmental projects that the municipalities manage and through research, information, and education. Since there are already many good initiatives for sustainable development in place within several sectors in the transition area it is imperative to continue to support these initiatives. The goal is that the biosphere reserve, as a model area for sustainable development should facilitate the production of economic resources as well as human networks and common initiatives across municipalities and sectors, for instance through co-planning within the scope of the collaboration plan for the reserve. Sustainable businesses such as small-scale agriculture and fishing, local food production, varied and naturally adjusted forestry and ecotourism are examples of activities already in place in the transition area and which the proposed biosphere reserve sees great potential to further develop.

4.6 "Organizational arrangements should be provided for the involvement and participation of a suitable range of *inter alia* public authorities, local communities and private interests in the design and the carrying out of the functions of a biosphere reserve."

(Are such arrangements in place or planned?)

The proposed biosphere reserve is planned to be formally organized as a collaboration between four equal partners: the municipalities of Karlshamn, Karlskrona, and Ronneby and the Blekinge County Administrative Board. A steering group was established already during the biosphere candidacy phase with comprehensive responsibility for the work with the biosphere reserve. The group will continue should the area be designated a biosphere reserve. The organization will be evaluated during 2011.

Rope making is an old craft tradition that comes to life every year at the 100-year old boatyard at Östra Hästholmen.

The practical work will be run from a Biosphere Office which will be established in 2010. Its function will be to serve as a platform for coordination and activities for, among other things, dissemination of information and knowledge building concerning a variety of development and preservation issues; be a meeting place for different actors in the reserve as well as be a driving force in activities and projects that incorporate both development and preservation. The Biosphere Office will not have any public authority. In addition to the coordinator, the continuous activities of the Biosphere Office will be run by staff from the four partners, similarly to the working group that existed during the candidacy phase. This organization offers good conditions for a solid anchoring of the biosphere reserve work in each of the four main organizations.

In order to become the collecting node and meeting place at which different activities and interested parties can co-operate to form, develop and run Blekinge Archipelago forward in a sustainable manner, and be a force of inspiration in these issues for outsiders, dynamic and flexible networks and meeting forms are needed. A consultation group, the Archipelago Council, consisting of committed individuals from associations, businesses, public authorities, administrators and other actors, will assemble regularly in order to discuss together the different concerns of the biosphere reserve. The Archipelago Council is a great resource and knowledge bank for the reserve development by way of all the different interests represented. It is also important to look after existing network that are constantly expanding, in order to form thematic groups in accordance with the issues and needs that will arise during the biosphere process.

4.7 Mechanisms for implementation

Does the proposed biosphere reserve have:

"(a) mechanisms to manage human use and activities in the buffer zone or zones?"

(Briefly describe)

Most activities are regulated via existing national laws (primarily the Swedish Environmental Code and the Planning and Building Act).

The environment replacement system and the countryside program regulate and put demands on how the maintenance of the countryside should be managed. Funding can be had for, e.g. the cultivation of valuable grazing and hay-making lands. There are also arrangements in the trade organizations of fishing, forestry and agriculture, such as the certification of forests (e.g. FSC and PEFC), lands for ecological cultivation (e.g. KRAV) and for the fisheries (Närfiskat). There are also possibilities for various voluntary agreements and contract regarding land usage within areas on municipality or private lands, so called tending agreements.

"(b) a management plan or policy for the area as a biosphere reserve"

(Briefly describe)

At present there is no administrative plan or policy for the area, but the proposed biosphere reserve is part of a national pilot project that the Swedish Environmental Protection Agency runs, aiming at producing administrative plans for valuable coastal and archipelago areas in collaboration with different actors in five chosen pilot areas. The aim is to reach a new method of working based on dialogue, discussion and co-production of an administrative plan involving public agencies and other involved actors. By creating a common vision among the different affected interested parties while also maintaining a holistic view of the landscape, a sustainable view of the future is achieved that most of the actors believe in and are willing to work toward. The so called collaboration plans will be the basis for the future administration of each res-

pective area. These plans should not be seen as forcing a particular action but rather, as they are developed in close collaboration with different affected partners, they will be grounded in each area's actual preconditions and needs. Thus, the plans will be effective tools for the areas' continued development and preservation work.

The aim for Blekinge Archipelago is that this collaboration plan should become a dynamic tool for the continued work with the development and sustainability work for a biosphere reserve with focus on the sea environment. Tools for this work are among other things knowledge-increasing activities regarding the sea, such as seminars, workshops, theme days et cetera; realization of subprojects within the framework for sustainable archipelago development, and meetings with different interest groups and representatives for areas of activities. The collaboration plan is designed and documented in such a way that it promotes knowledge increasing follow-ups and make use of experiences. The plan is scheduled to be in place during 2010 when the pilot project is completed.

(c) a designated authority or mechanism to implement this policy or plan?

(Briefly describe)

Blekinge Archipelago has four principal authorities: Karlshamn Municipality, Karlskrona Municipality, Ronneby Municipality, and Blekinge County Administrative Board. Through a joint steering group, these four will have the overall responsibility for the implementation and design of the collaboration plan. The practical responsibility for the work with the plan and the responsibility for keeping it up to date will fall on the biosphere reserve office.

(d) programs for research, monitoring, education and training?

(Describe briefly research/activities monitoring (ongoing or planned) as well as education and training activities)

For a long time, research about the Blekinge archipelago and coastal landscape has been carried out in several disciplines. Much of the present research is carried out at Blekinge Institute of Technology (BTH) which is situated within the proposed biosphere reserve. Research is also conducted at the Swedish University of Agricultural Sciences in Alnarp and the University of Kalmar. Today there is no coordinated research program within the proposed biosphere reserve. In the long run it can be appropriate to appoint a research coordinator, who is responsible for all research programs in the biosphere reserve, responsible for the communication between different research projects, and to manage a database of current and past research projects.

The proposed biosphere reserve office Blekinge Archipelago emphasizes the importance to create a "zero position" for both socio-economic factors and the preservation of landscape values as a basis for future evaluation of the effect of the biosphere reserve. The office intends to establish co-operation with Blekinge Institute of Technology at which research of this kind is conducted.

Environmental monitoring has taken place in the area for a long time. The part of the monitoring which is state funded is coordinated by the Swedish Environmental Protection Agency. It is conducted within ten different programs, divided according to different types of environments such as fresh water, arable land, wetlands, and forests. Apart from the state-controlled environment monitoring, many important studies are carried out by other parties, such as municipalities, water protection associations, universities and nonprofit organizations. Within the proposed biosphere reserve there are approx. 950 places that either are or have been under some type of environmental monitoring.

During 2008 the Swedish counties' environment monitoring programs were revised. All monitoring conducted in the counties was analyzed and evaluated in order to find flaws and to conduct a relevant prioritization of the monitoring. The aim was to also find effective solutions in co-operation with other counties through collaboration. The monitoring that is conducted today in the Blekinge Archipelago is extensive and is complemented by measures taken under the national grants for endangered species and the follow-up work within Natura 2000 and protected areas. Within the scope of producing a collaboration plan for the area, the ambition is to identify possible flaws in the current monitoring and evaluation programs and needs should, if possible, be integrated into existing monitoring programs.

Excursions in the landscape is one way to encourage the local population to learn more about their countryside.

There is a wealth of information and activities within education in the area which is directed toward the population at large and special interest groups. Different kinds of knowledge enhancing activities are arranged in separate areas of activities under the direction of municipalities, the county administrative board as well as independent study organizations, companies, nonprofit organizations et cetera. The future biosphere reserve area, which is intended to be a model area for sustainable development, will constitute an important source of inspiration and resource for education and practice. The biosphere reserve office will continue the work of initiating and supporting educational efforts for different groups in biosphere-related subject that are relevant to Blekinge Archipelago, as well as develop and support projects and activities that lead to increased knowledge about how humans can interact with their surrounding environment in a sustainable fashion.

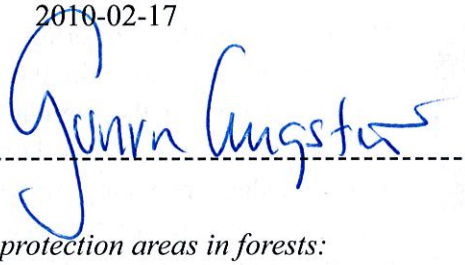
5 ENDORSEMENTS

5.1 Signed by the authority/authorities in charge of the management of the core area(s):

For Natura 2000 sites, nature and culture reserves, and habitat protection areas in the farmed landscape:

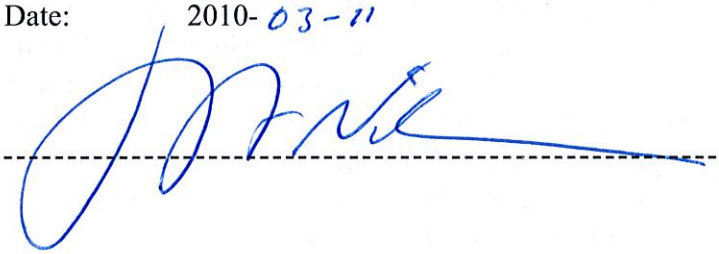
Institution: Swedish Environmental Protection Agency
Full name: Maria Ågren
Title: Director General
Date: 2010-03-31

Institution: Blekinge County Administrative Board
Full name: Gunvor Engström
Title: County Governor
Date: 2010-02-17



For habitat protection areas in forests:

Institution: Swedish Forest Agency
Full name: Bengt Nilsson
Title: Chief District Forester
Date: 2010-03-11



5.2 Signed by the authority/authorities in charge of the management of the buffer zone(s):

For Ramsar sites, bird and seal protection areas, BSPA-area by HELCOM and World Heritage Site:

Institution: Swedish Environmental Protection Agency
Full name: Maria Ågren
Title: Director General
Date: 2010- 03-31

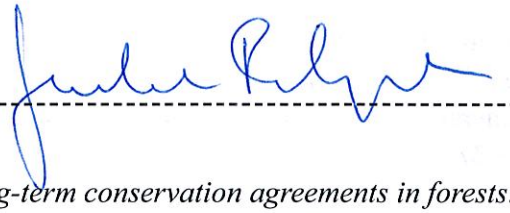
Institution: Blekinge County Administrative Board
Full name: Gunvor Engström
Title: County Governor
Date: 2010-02-17

For areas of national interest for nature conservation and conservation of the cultural environment, and shore protection areas:

Institution: Karlshamn Municipality
Full name: Sven-Åke Svensson
Title: Chair of the Municipal Council
Date: 2010-02-17

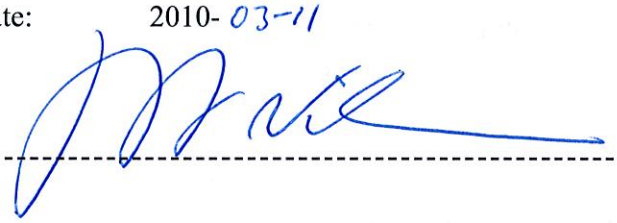
Institution: Karlskrona Municipality
Full name: Karl-Gösta Svenson
Title: Chair of the Municipal Council
Date: 2010-02-17

Institution: Ronneby Municipality
Full name: JanAnders Palmqvist
Title: Chair of the Municipal Council
Date: 2010-02-17



For land with long-term conservation agreements in forests:

Institution: Swedish Forest Agency
Full name: Bengt Nilsson
Title: Chief District Forester
Date: 2010- 03-11



5.3 Signed as appropriate by the National (or State or Provincial) administration responsible for the management of the core area(s) and the buffer zone(s):

Responsibility in Sweden for managing the forms of protection pertaining to the core areas rests at institutional level within national and local government agencies.

There is no institutional responsibility in Sweden for managing the forms of protection pertaining to the buffer zones. However, there is a general responsibility and, in certain instances, a statutory supervisory responsiblity in accordance with current Swedish legislation.

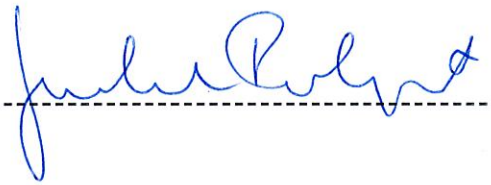
See above, sections 5.1 and 5.2.

5.4 Signed by the authority/authorities, elected local government recognized authority or spokesperson representative of the communities located in the transition area:

Institution: Karlshamn Municipality
Full name: Sven-Åke Svensson
Title: Chair of the Municipal Council
Date: 2010-02-17

Institution: Karlskrona Municipality
Full name: Karl-Gösta Svenson
Title: Chair of the Municipal Council
Date: 2010-02-17

Institution: Ronneby Municipality
Full name: JanAnders Palmqvist
Title: Chair of the Municipal Council
Date: 2010-02-17



5.5 Signed on behalf of the MAB National Committee or focal point:

Full name: Lars M Nilsson
Title: Head of Unit, chair
Date: 2010- 03.19

PART II: DESCRIPTION

6 LOCATION (LATITUDE AND LONGITUDE)

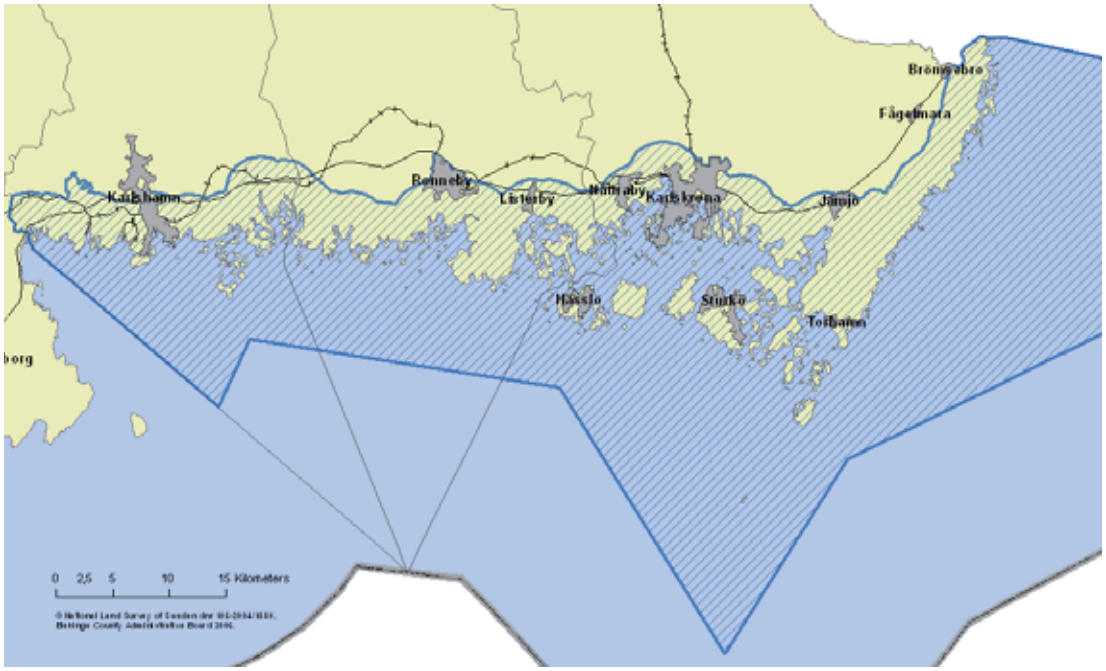
[Indicate in degrees – minutes, seconds the coordinates of the central point AND the external limits of the proposed Biosphere Reserve to be used for a Geographic Information System (GIS)]

Biosphere Reserve central point:

Aspö strait in Karlskrona municipality 56º6'54'' N, 15º35'2'' E. The central point may seem to be located far east, but the placement of the geographic central point is due to the extensive marine areas that are part of Karlskrona municipality.

Biosphere Reserve – external limits:

Northern limit: 56º19'22'' N, 16º2'51'' E
Western limit: 56º10'22'' N, 14º39'24'' E
Southern limit: 55º49'52'' N, 15º40'41'' E
Eastern limit: 56º12'56'' N, 16º13'16'' E



Blekinge Archipelago's outer border. The biosphere reserve includes the coastal areas of Karlshamn, Ronneby och Karlskrona municipalities.

7 Area (see map)

Total: 212,797 ha

7.1 Size of terrestrial Core Area(s)

Size of terrestrial Core Area(s): 5,800 ha.
If appropriate, size of marine Core Area(s): 15,000 ha.

7.2 Size of Buffer Zone(s)

Size of terrestrial Buffer Zone(s): 16,000 ha.
If appropriate, size of marine Buffer Zone(s): 31 000 ha.

7.3 Approx. size of Transition Area(s)

Approximate size of terrestrial Transition Area(s) (if applicable): 35,000 ha.
If appropriate, size of marine Transition Area(s): 110, 000 ha.

7.4 Brief Rationale of Zonation

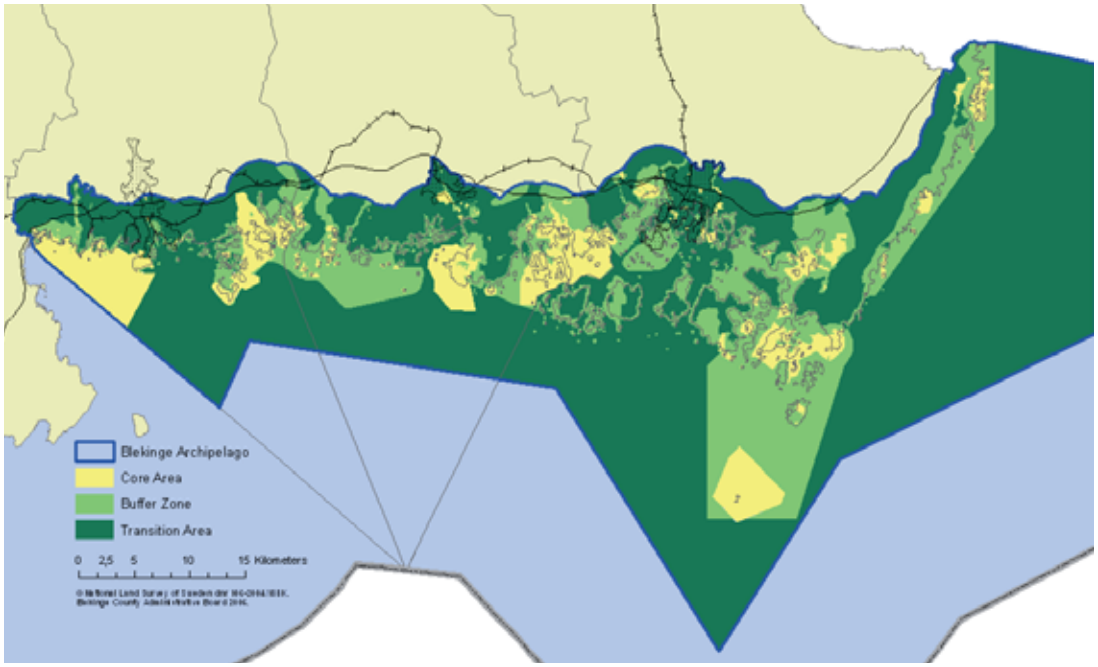
Brief rationale of this zonation (in terms of the various roles of Biosphere Reserves) as it appears on the zonation map. In the cases where a different type of zonation is also in force at the national level, please indicate how it can coexist with the requirements of the Biosphere Reserve zonation system:

The zonation in the proposed biosphere reserve has been developed in accordance with Swedish environmental law and the Swedish MAB-committee's advice by way of UNESCO's guidance documents as basis. The zonation constitutes a form of planning. The division into zones does not in itself result in new restrictions, but can be used as part of prioritizing different measures and also be used to describe values for preservation and development of the values of the reserve. In the zonation model protected core areas are meant to be surrounded by buffer zones, showing how different areas are dependent on each other ecologically as well as socio-economically.

Blekinge Archipelago is characterized by a mosaic landscape and a complex history of land use. Therefore, the zonation in Blekinge Archipelago varies between different sections of the landscape in which high values for nature and culture exist. For Blekinge Archipelago it is essential to further discuss the zonation and also to develop tools including criteria that handle zonation in a more dynamic way.

The continued zonation will be integrated in the work with the municipal spatial planning of the comprehensive plans that constitute a long-term vision for the municipalities' development of land and water use. The zonation as a model for marine planning will be discussed within the framework of the work with the collaboration plan.

One cannot disregard the strong connection of human use of the archipelago to the natural values of the land areas in Blekinge Archipelago. The values of the archipelago and its landscape are affected by the human and her use of natural resources. Therefore, in Blekinge Archipelago it will be of particular importance to point to the strong connections between natural and cultural environmental values. As with the Kristianstads Vattenrike, Blekinge Archipelago too believes that the use of themed or, as in the case of UNESCO World Heritage Site Naval City of Karlskrona, focus areas is one path. Possible theme/focus areas include the deciduous forests with their rich oak landscapes and a sustainable broadleaf forestry; sustainable fishing with focus on industry, health, and biological diversity; land use on islands with attention to historic and biologic diversity; and the relationship between town and countryside as regards environment and provision.



Zonation of Blekinge Archipelago.

Descriptions of the zones

The core areas are protected according to law and aims at preserving natural values and outdoor life areas. The core areas consist of almost two-thirds marine environments. In addition, the core areas consist of *inter alia* larger water courses, lowland grasslands, grazing lands on islands, broadleaf forests and wooded grazing lands. These areas have very significant cultural values and an interesting history of land use. They are protected according to Swedish law as either nature or culture reserves, habitat protection areas or Natura 2000 areas. Activities in the core areas are limited to those that are allowed according to the rules for the above-mentioned area protection programs and EU directives. All these areas are part of Blekinge Archipelago core areas except one nature reserve, Yttre Stekön. The aim of the nature reserve Yttre Stekön is to protect a clump of yew trees that constitute a minor part of the area of the nature reserve; most of the reserve contains summer homes. The yew tree is under legal protection and red listed, which is not in itself a ground for inclusion of the area as a core area.

The buffer zones contain or connect the core areas. Activities that are compatible with the values of the core areas are encouraged in the buffer zones. In Blekinge Archipelago half of the buffer zones are marine environments, but they also comprise broadleaf forests, land adjacent to valuable water courses and beach-near lands, grazing lands, meadows and running water. The boundaries for the buffer zones follow other already identified demarcations, such as Ramsar sites, BSPA-areas, areas of national interests for nature conservation and conservation of the cultural environment, shore protection areas in the coastal area and along major rivers, bird and seal protection areas, World Heritage site, and forest conservation agreements. The administration of the buffer zone will be developed as part of the work with the collaboration plan for the reserve.

The transition area within Blekinge Archipelago is the area where one can develop ecological, economic and social sustainability in the clearest and most educational way. The transition area comprises *inter alia* large ancient sites, natural monuments, nature value areas of forest, areas of national interest for outdoor recreation and commercial fishing. Within the development area one finds predominately farmland, forests, marine habitats as well as urban areas and dispersed settlements. As concerns development, locally rooted and long-term sustainable development is prioritized.

8 Biogeographical Region

[Indicate the generally accepted name of the biogeographical region in which the proposed Biosphere Reserve is located. You may wish to refer to the map of the World Network of Biosphere Reserves presenting 12 major ecosystem types.]

UNESCO-definition: Temperate and subpolar broadleaf forests or woodlands

EU-definition: Nemoral and Boreal region

Swedish definition: Southern deciduous forest region and Southern coniferous forest region.

Blekinge Archipelago belongs to the Southern deciduous forest region and the Southern coniferous forest region.

9 Land Use History

[If known, give a brief summary of past/historical land use(s) of the main parts of the proposed Biosphere Reserve]

Summary

Along the southern coast of Blekinge are ravines in the north-south direction and rift valley landscape also characterizes the large islands where the topography of the landscape in earlier times was described as harsh. The landscape does not allow room for a large-scale agriculture and therefore presents a small-scale agricultural landscape, which largely originated in the land reforms of the 1800s. Roads and existing development has been put in the boundary between the hills and cultivable land of the 1800s. In the Baltic Sea the valleys become deep bays. These bays were and are well-protected harbors.

A Bronze Age mound is situated along one of the major roads in Blekinge.

The coastal and island landscape has been created by human use of land since prehistoric times and this is still clearly visible. At higher altitudes, there are numerous remnants of prehistoric settlements, burial sites and farming. Blekinge coastline during prehistoric times varied widely. This means that there are remnants of fossil coniferous forest on the ocean floor and in these it is possible that there are traces of human activity from the Mesolithic Stone Age.

Blekinge's eastern coast is flat and the sandy soil in the area means that the forest reaches out to the coast where the open farming lands take over in a narrow band. The landscape contains small-scale farming and the road systems are archaic, edged by stone walls.

The long continuity of the lifting of the land is still noticeable in human made landscape elements such as stone walls and stone mounds. The continuity of cultivation makes for a landscape with very high values of the biological cultural heritage.

Until 1658 Blekinge was part of Denmark. Land use is strongly linked to the site's importance for Denmark and Sweden respectively. During the Danish period Blekinge was significant for the Royal Court for supplies of necessities such as firewood and herring, but it was peripheral in the kingdom. When the area became Swedish Blekinge was given an important war and defense strategic role as the naval base was moved from the capital Stockholm to the newly constructed town Karlskrona in the Blekinge archipelago.

Settlements, villages and cultivated land

Stone pier moorings are simple landings for boats. They are common in the Eastern archipelago.

The prevailing wind direction in the archipelago is south-west and settlements in the archipelago are located, where possible, sheltered from the wind behind the ridges. During the Middle Ages, seasonal settlements were placed in equally sheltered locations. Today, these cottage foundations and stone pier moorings are located some ways away from the coast. This is the case mainly in the western and central part of the archipelago, while the flat landscape of the eastern archipelago does not give any significant protection at all. On the smaller islands, the fishing villages and farms therefore lie exposed to the weathers.

Archaeological finds suggest that the large islands soon had a resident population. In written sources this population is not noted until the 1500s and 1600s. A lean and limited farming was combined with rich fishing for the households in the archipelago as well as on the coast. It was not until the 1800s when technological developments, the land reforms and draining projects made it possible to farm the clay soils that the result of cultivation became more profitable. By studying place names one can follow the development of the landscape, and see how it has been used.

The coastal and archipelago landscape on the major islands is the result of the land reforms and technological developments of the 1700s and 1800s. The reforms, whose purpose was to gain greater overall holdings, often resulted in villages being split up and farms were moved out to the allocated farming lands. Villages and farms and the roads between them lie in land between the arable land and the barren fringe lands.

Farms are often of the so called South Gothia (*sydgötisk*) type, i.e. barn buildings are placed at right angles to the main building to form a sheltered barn court between the buildings. Out in the fields and along the main roads are crofts, inhabited by agricultural workers, who had been allocated a small parcel of farm land in exchange for a certain number of days' work. Crofts could also belong to the distribution system, namely that each village would supply a certain number of men who were tenement soldiers and their families. In Blekinge it was boating men who were called into the Navy in Karlskrona. Several of these day-work and boatman cottages still exist today, while many are only noticeable from the remains of their foundations visible as traces in the landscape. There were also crofters. These homes were on land that was owned collectively by villages and the aim was to reduce vagabondage and have access to additional labor. The people were casual laborers. They were stone-cutters, fishermen and boat builders, et cetera.

On the smaller islands, there was not enough room for the land reforms to affect the landscape as much as on the mainland and on the large islands. Villages are still gathered close together.

The best place to retrospectively describe the human presence and the shape of the landscape is Förkärla district, which shows a range from the industrial farming landscape in the valley and the 1500-1800 century villages to the prehistoric landscape of hills. There are large fields of flat stone mounds, magnificent grave sites and burial grounds, ruins from the Neolithic Age to the Iron Age (around 2300 BC – 1050 AD). All of it is indebted to whatever the coast and the shores of the archipelago bore and the richness that the sea offered both in terms of food and as transport corridor. The burial fields in Hjortahammar, which were used for most of the Iron Age (0 to 1050 AD), include more than 100 relics of various kinds. The port of Hjortahammar is one of the oldest known trade ports in Blekinge and in the waters off the coast there are pole barriers for protection. Dating shows that pole barriers in both areas were built from the 900s to the 1200s.

The forest gave shipping timber and fuel

The coastal and archipelago forest areas have a strong connection to the naval shipyard in Karlskrona. The construction of Navy ships required a great deal of timber and most important was the oak, which belonged to the Crown until the end of the 1800s. At that time, ships began to be built of iron plates and the oak was no longer as interesting. The shipyard's great need of timber had a major impact on the landscape. Soon there was not enough oak in Blekinge so the naval shipyard began getting timber from the Swedish provinces on the European continent in Germany and what is now Poland.

During the Danish period the area was taxed with wood for the capital, Copenhagen, and this continued when the populations of the Swedish-built towns of Karlshamn and Karlskrona grew. Karlskrona was during the 1700s the third largest town in the country and the town's inhabitants needed both firewood and construction timber.

Stone industry – an important source of income

In Blekinge there was easily accessible granite along the coast and in the archipelago. The stone was transported by ship to buyers in Sweden and in countries like Germany, Russia and Denmark. During the great stone epoch between the years 1860 and 1930, stones were requested for roads, wharves in the channels and ports, and as foundations for monumental buildings. The boom in the stone industry happened around the turn of the 20th century. At that time more than 3,000 men worked in over 1000 quarries.

During the stone quarrying epoch at the turn of the 20th century, 1500 people lived on the island of Tjurkö which today has 200 inhabitants. Nature is starting to reclaim Vrålebo.

Many farmers opened quarries as a secondary source of income and remains of stone masonry can still be seen on many of the archipelago's islands and coastal areas, in the form of overgrown quarries and scrap piles of stones.

On Tjurkö in the eastern Karlskrona archipelago an area of gathered quarries and farm buildings remain. Today there is industrial quarrying for ballast production at three sites in Karlshamn municipality, on Sternö and in Stilleryd and Elleholm.

The towns of today's Blekinge Archipelago

The coast is densely populated and here one finds Blekinge county's four towns: Sölvesborg, Karlshamn, Ronneby and the county seat Karlskrona, of which the latter three are included in the proposed biosphere reserve. Between them is a strip of agricultural villages, holiday homes and villa areas. Pressures for development are high in the coastal zone. The archipelago, by contrast, had a low pressure development compared with many other Swedish archipelagos, due to that the military's long presence in the area limited availability. Blekinge archipelago has many uninhabited islands. For town dwellers the islands are important for holiday homes and recreation.

Ronneby

Ronneby has medieval origins with a partially preserved medieval town plan. The town grew at the lowest fall in the Ronneby River a few miles from its outlet. The river was navigable up to the town and the road that during medieval times united the east and the west crossed the river. This communications hub made Ronneby to an important meeting and trading place.

During the border conflict between Denmark and Sweden the town suffered ravages. In 1564 it was devastated by the Swedes and thus lost its former importance as Blekinge's main town. Ronneby lost its charter when Karlskrona was founded in 1680, but the town had rights as a merchant town during the 1700s and regained its town privileges in the late 1800s.

Ronneby Brunnspark

The spa facility Ronneby Brunn, dating back to 1705, is so far Blekinge's only culture reserve. It lies adjacent to Ronneby River's western shore at the foot of a mighty steep fault. Its period of greatness ran from 1873, when Ronneby Hälsobrunn AB was for-

First class spa guests are gathered in front of "the old source", the oldest building in the park.

med, until the late 1920s. During its heyday Ronneby Brunn became one of the major tourist attractions in Sweden of international standard, with baths and swimming in the sea, with hotels and restaurants and the opportunity to walk in both the forest and the park. Karön, which is one of the largest islands in the archipelago of Ronneby, has a clear link to Ronneby Brunn. There are still trails, villas from the late 1800s, and a restaurant with more than a 100-year-old history. Karön was of great importance for attracting spa guests to Ronneby. The possibility for sea bathing ensured that Ronneby stood up well in competition against other spas.

The National Romantic style ideals of the late 1800s have provided an environment with high cultural and natural values. One could take long, healthy walks in Brunnsskogen (Ronneby Brunn forest) in a relic landscape with house foundations, fields, meadows and outfields. Walkways, terraces and stone staircases were laid out in the farmed landscape and naturally occurring plant materials were used to create exciting environments around the ancient remains in the area. The forest consists of beech and oak with wide crowns, and pine and yew.

Karlshamn

Karlshamn is one of Sweden's best-preserved wooden towns with buildings from the 1700s. The town was founded by the Swedish king Charles X Gustav on the important trading place Bodekull from the Middle Ages, which was one of the most frequently used fishing and farming ports of Danish Blekinge. A road was built in the mid-1600s for shipments of iron works products from Småland in the north to other parts of Europe. Bodekull received town privileges in 1664 and two years later changed its name to the town of Karlshamn.

Karlshamn is a planned town from the 17th century with the typical grid plan of the time.

Karlshamn would initially serve as a center of trade with the naval port and shipyard. The Danish siege of the Karlshamn citadel during the Scanian War in the late 1670s, and the fact that the Danes burned down the town, based the decision to instead plan and build a new naval base in the eastern Blekinge archipelago. Karlshamn was developed in the 1700s and 1800s to one of the country's main import and export towns. Sea transports were facilitated by the deep natural harbor located at Mie River outlet. Still Karlshamn's port is one of the major commercial ports in Sweden.

Karlskrona

The Fort of Kungsholmen is one of the fortifications built to defend the inlet to Karlskrona.

When Blekinge became Swedish in 1658, a southern naval port was needed where the ice did not stay as long as in Stockholm. Blekinge was in the middle of what was then the Swedish Empire, which also included Estonia, Latvia, Lithuania and Finland and provinces on the coast of what is today Poland and Germany. The choice fell on the island Trossö which was three kilometers out into the archipelago and was protected by an outer barrier of islands which gave good defense capabilities. The harbor basin was deep enough for the war ships, and there was plenty of oak wood in the surrounding area for shipbuilding. Karlskrona was founded in 1680 and the country's foremost architects were involved in the planning. The original town plan with unique baroque features and the monumental architecture of the square with its two baroque churches have been preserved. Karlskrona became a World Heritage Site in 1998 and is the main base for the Swedish navy since 2007.

The naval base and the civilian town gave rise to the production of commodities in the surrounding country. Surrounding Karlskrona is a row of mansions, none of which would be there had the town not been founded. From the end of the 1600s townspeople, officials and officers bought individual farmers' homesteads in the villages. By successive purchases of land they often acquired all farms in the villages which created cohesive properties. Besides the farming, the farms had at first the character of summer fun for the owner's family, but as of the 1800s they developed into rationalized agricultural industry. The main house as well as the farming buildings had a representative, architecturally conscious design. Contributing to this conscious style were garden and park facilities in an English style, as well as the surrounding lots of oak and beech forests which provided a suitable backdrop to the estate environment.

Around the town there are also urban farms. The origin is the land of about 630 hectares which the king and Crown donated to the town in 1680, since the town had no arable land within its town limits. Up until 1821 the land was used for mule grazing, but after a land division in 1821 it was divided into 41 town farms, that were leased out to farmers, gardeners and traders. Fruit, vegetables and root crops were grown for subsistence and sold in the town. Some of these urban farms still exist today, even if the fields have been disused and on much of the land residential areas have been built.

The naval town affected the whole surrounding lands. The navy devoured huge quantities of material in the form of wood, firewood, tar, flax, corn, etc. The impact it had on the landscape is clear even today, for example in the form of tar production sites, so called tar piles, flax drying houses, and flax preparation houses. The oak was saved as it was meant for the Crown, and only in exceptional circumstances and according to certain conditions was it harvested by the landowner.

10 Human Population of Proposed Biosphere Reserve

[Approximate number of people living within the proposed Biosphere Reserve]

		permanently	seasonally
10.1	Core Area(s):	219	37
10.2	Buffer Zone(s):	22 077	7 598
10.3	Transition Area(s):	62 444	14 728

10.4 Brief description of local communities living within or near the proposed Biosphere Reserve:

[Indicate ethnic origin and composition, minorities etc., their main economic activities (e.g. pastoralism) and the location of their main areas of concentration, with reference to a map if necessary]

The proposed biosphere reserve Blekinge Archipelago spans the three municipalities of Karlskrona, Ronneby and Karlshamn. The area is by Swedish standards densely populated with approximately 135 inhabitants per km², the corresponding figure for the whole of Sweden is about 21 inhabitants per km². The largest communities in the area are the three towns of Karlskrona, Ronneby and Karlshamn. Karlskrona has about 33 700 inhabitants, Ronneby and Karlshamn about 12 000 and 13 000 inhabitants respectively.

Karlskrona

King Charles XI founded the town of Karlskrona in 1680 on a number of islands in the archipelago. The intention was to create a sheltered and ice-free main site for the Swedish navy. Karlskrona's unique town environment with well-preserved buildings from the naval base era is a World Heritage site since 1998. The Navy has continuously operated in the town since its inception, and today it is again the main base for the Swedish navy. Business in Karlskrona is characterized today by a few large companies, with the manufacturing companies Kockums AB, ABB Power Technology Products AB and Dynapac Compaction Equipment AB as the best known. However, the developments in the service sector have been extensive, and the investments in the telecommunications sector and the establishment of the Telecom City have been a success, not least because of the Blekinge Institute of Technology's profile in this area. From Karlskrona there are daily ferries to Poland.

Ronneby

Ronneby has medieval ancestry. The church is from the 1100s and in 1387 Ronneby received its town charters. At that time the area belonged to Denmark and the Ronneby area was an important trading town in the Danish kingdom. Blekinge became Swedish in 1658 and when Karlskrona was founded in 1680, the town charters for Ronneby were cancelled and people were forced to move to the new town. During the 1700s, however, trade and crafts developed in Ronneby and the first industries began to grow. In 1882 Ronneby was again given town charters. In the 1800s there were two main industries in Ronneby, Kockums enameling works with the manufacture of household utensils and the spa of the international standard, Ronneby Brunn. Ronneby Brunnspark is today a culture reserve, and was crowned Sweden's most beautiful park in 2005. Ronneby business is still characterized by manufacturing with Tarkett AB as the largest workplace. During the 1980s, however, a structural change in the municipality began by the advent of the Soft Center and also the establishment, albeit brief, of the university. Private services, particularly in the IT sector were established and flourished.

Karlshamn

Karlshamn was planned by King Charles X Gustav after Blekinge became Swedish in 1658 and Karlshamn received its privileges in 1664. The town was built on the site of the old Danish fishing port and trading place Bodekull and the intention was to build a naval base for the Swedish navy. After the town was invaded and besieged by the Danes in 1677 the king decided that a new town, Karlskrona, would be built farther east in a more protected location. Karlshamn subsequently developed into a maritime and commercial town. Karlshamn harbor today belongs to the largest ports in the country for freight and is the largest and deepest port in southeastern Sweden. Karlshamn has daily ferry connections to Lithuania. The municipality's economy is characterized by a few large industrial workplaces, AAK AB, Södra Cell AB and IFÖ Sanitary AB. The establishment of Netport with its three foci; New Media, Digital experiences and Intelligent logistics has brought a new interesting area of development for the municipality.

Together, these three towns developed into one of the leading regions in the world in terms of new information technologies.

To the island of Aspö there is no road connection but ferries run several times daily.

Within the proposed biosphere reserve there are, in addition to the three major towns, four major villages; Mörrum, Nättraby, Lyckeby and Jämjö. The proposed biosphere reserve is one of the most densely populated areas outside of Sweden's three metropolitan regions. Settlements located along the coast are gathered in several villages as well as scattered collections of residential areas and cottage settlements. In the latter category, several houses have begun to be used for

year-round living. The archipelago is sparsely populated, however, except on the large islands connected to land. Aspö outside Karlskrona has 500 inhabitants and is the one island without land link with the most year-round residents. In the smaller islands' fishing villages and villages a large part of the buildings are only used for summer living. In summer the area's population increases further with seasonal residents along the coast and in the archipelago. Business in rural areas is characterized by agriculture and forestry, with an element of fishing and fish processing in the coastal area. The proportion of small businesses in the craft sector and the private service sector has increased significantly.

10.5 Name(s) of nearest major town(s):

Karlskrona: The county seat of Blekinge county. Located in Blekinge Archipelago's eastern part, with a population of 33 700 inhabitants.

Malmö: The county seat of Skåne county with 281 000 inhabitants. 170 km west of Blekinge Archipelago.

Stockholm: Capital of Sweden with 795 000 inhabitants. 400 km north of Blekinge Archipelago.

Copenhagen: Capital of Denmark with 600 000 inhabitants. 200 km west of Blekinge Archipelago.

Kaliningrad: Largest city in the Russian enclave of the same name, on the Baltic southeast side. The city has about 423 000 inhabitants and is located about 340 km east of Blekinge Archipelago.

Gdynia–Sopot–Gdansk: Tri-City area at the coast of Poland with a total of about 1 million inhabitants, about 260 km southeast of Blekinge Archipelago.

Rostock: Major port city in Germany with 200 000 inhabitants. 310 km southwest of Blekinge Archipelago.

The distance to the cities is measured as the crow flies from Blekinge Archipelago's center point at Aspö strait, Karlskrona municipality. Population concerns the urban population, not the entire municipality.

10.6 Cultural significance:

[Briefly describe the proposed Biosphere Reserve's importance in terms of cultural values (religious, historical, political, social, ethnological)]

Prehistoric traces in the landscape

One of Blekinge's most famous stone ships from the Viking Age is located at Hjortahammar.

Blekinge Archipelago is very rich in remnants of human activity. Above all, the Bronze Age and Iron Age landscapes are clearly noticeable. Along the coast and in the archipelago are burial sites, which probably also acted as markers for a region or a family's area of interest. The oldest is the large mounds (about 20 meters in diameter, 3-4 meters high) from the Early Bronze Age, which were placed at heights where they have a dominant position in the landscape. In early and late Iron Ages rural people buried their relatives in small mounds in slopes down toward a stream or lake. Viking Age ships could be placed on strips of land protruding into the sea near the ports.

The Danish king's influence over a wider circle of peripheral lands had grown stronger during the late Iron Age and this periphery included a large part of Blekinge. In the area there are still parts left of the main road, called Kongslijden (King's Road), which went from the Danish king's headquarters in Roskilde on Zealand to the Danes' eastern outpost of Blekinge, and the medieval trading sites Elleholm, Bodekull (now Karlshamn), Ronneby, Lyckå and Avaskär.

Rock carvings have been interpreted as religious figures made by the Bronze Age people.

Religion

Some of prehistoric man's religious rites are reflected in the large number of rock carvings from the Bronze Age. The Blekinge carvings were made about 1200-500 BC and the largest, known carvings are found in the southeastern part of the proposed biosphere reserve. The carvings depict ships, people and sun crosses. There are also bowl hollows.

Blekinge was Christianized starting in the mid 1000s. The medieval churches were built out of field stone and were located at sites in or near villages. The medieval churches that today are preserved in Blekinge Archipelago are located in Nättraby, Ramdala and Ronneby. The fishermen population out on the islands sometimes formed own chapel teams in order to build small churches.

There were two monasteries in Blekinge, one of which was within Blekinge Archipelago. The Franciscan Convention on Torkö ceased in 1537 as the Danish kingdom was reformed and turned to Protestantism, and only walls remain of the installation. The chapel was consecrated in the name of Saint Clara.

On the islands and along the coast are several small, simple church buildings which were built during the late 1800s by churches who declared themselves free from the State Church, the so-called evangelist nonconformist churches or local variants of the State Church. On one and the same island, for example, both the Mission Covenant Church of Sweden and the Swedish Evangelical Mission could be represented with their own buildings. These buildings are currently being preserved by community associations and are used as community centers for, for example, summer worship services.

Sweden is today a secular country despite the fact that a large proportion of the population still belongs to the Swedish church. The evangelist nonconformist churches in the archipelago and along the coast have largely ceased their activities, and activities have been concentrated in urban areas while the worshipers in the Swedish State Church have decreased in number.

The democratic system

The democratic system that exists in Scandinavia today can partly be traced to the prehistoric district court sessions, when people gathered on traditional places to hold court in the spring and autumn. Disputes were settled and joint political decisions were made. After the Vasa era's strong central power in Sweden, a certain amount of power was once again delegated during the first half of the 1600s out to the rural parish meetings, through the initiatives of Chancellor Axel Oxenstierna. Today's Swedish municipalities, with their elected representatives, developed from that original system of delegation to today's entities that are autonomous in many areas such as land use planning.

Modern democracy in Sweden, with the introduction of universal suffrage in 1921, is strongly linked to the popular movements that emerged during the 1800s. Three movements have been particularly important for broad popular support for democracy. These were the revivalist movement, the temperance movement and the labor movement. In the revival movement, the people gathered in autonomous churches, so-called free churches that were separated from the authoritarian State Church. The temperance movement was obviously a reaction to the widespread, destructive impact of alcohol abuse. The labor movement gathered the working class in political and trade union activity. These movements helped to spread a democratic approach and widespread activities in associations. It has led also to the large amount of non-profit community groups that currently exist in the country, such as community associations, local history societies and sailing clubs. Such associations are very important as partners in the work of the proposed biosphere reserve, where local involvement and support is crucial.

The Baltic Sea as a route

For several thousand years, the Baltic Sea played an important role as a route. The name Blekinge has been interpreted as the pale sea or the peaceful lake and the protected Blekinge archipelago was suitable for day trips. Headlands sometimes hampered sailing and sites for boat dragging across land were instead used. The importance and age of such sites for boat dragging are proven by the fact that they are lined with ancient remains from the late Iron Age. In the 1200s the Danish king Valdemar Seir

established a sailing route, along which Utlängan in Blekinge is mentioned as one of the stops. At this time there was a coastal road, Kongslijden, in Blekinge, but the sea was much easier to use for transport and long journeys in an east-west direction.

The archipelago was hard to navigate. In earlier times, the archipelago's churches were used as landmarks for navigation, as well as large trees, boulders, etc. Some of these still work today as landmarks for navigation. The intensive travel route along the Blekinge coast, with its "treacherous" archipelago, has caused many shipwrecks. This means that Blekinge's history also is studying the ocean floor. The absence of shipworm in the Baltic Sea means that there are several well-preserved ship wrecks made of wood.

Danish or Swedish with strategic location

17th century town of Kristianopel is today a popular resort, e.g. among sailors.

Blekinge's nationality has on several occasions shifted between Denmark and Sweden, which meant that the landscape has been marked by border issues. The landscape was located on the outskirts of the Danish kingdom and had a vulnerable position against the Swedes and Blekinge was therefore a strategically important area to control. The Middle Ages were marked by periods of political instability and repeated ravages of destruction and reconstruction as a result. During the same period the landscape developed to become a transit area for goods from Småland in the north, down to the ports for further transport to the continent. The Blekinge inhabitants were given important key positions as contact brokers, carriers and trading partners.

From a defense point of view, both the sea and the archipelago have been significant from prehistoric to modern times. Fortifications were built at strategic locations. One example is the Danish fortified town of Kristianopel constructed on a narrow peninsula in about 1600. Kristianopel replaced the medieval town Avaskär which was located slightly north of the newly constructed town. The Danish border defense against Sweden was reinforced with the town's construction and its port was used by the navy. When Blekinge became Swedish in 1658, Kristianopel was perceived to be a potential military risk and its defense walls were partly demolished.

The new naval base

Blekinge continued to be of military significance, even after the area became Swedish and the central management of the landscape became more tangible. Blekinge was in the middle of the country during the era known as the Swedish empire, a time during which Sweden had large fiefdoms across the Baltic Sea. The towns Karlshamn and Karlskrona were both founded during this period, particularly in order to provide a safe and ice-free port for the fleet. After the Danes briefly regained Karlshamn the town was not deemed safe enough for the fleet to be located there. Karlskrona naval base was built on the basis of its strategic location and natural defenses. A barrier of

islands protected the new town and there was only one intake that was sailable for the large ships of the time. The entrance was protected by fortifications that were built on both sides of the waterway. Later, blocks on the ocean floor were constructed, and more fortifications were built.

During World War II small concrete bunkers were built along the coast to defend Blekinge.

Karlskrona's fortification had more than 40 batteries at the establishment of the Swedish Coastal Artillery in 1902. Sweden's largest battery existed for many years on Aspö outside Karlskrona. Immediately before and during World War II, there was an extensive rearmament in Blekinge. Along the Blekinge coastline during the years 1939-41 nearly 400 small concrete bunkers were constructed, the so-called Per-Albin Line, and war moorings were built in the archipelago's deep bays.

Sweden declared itself neutral during the world wars of the 1900s, but Blekinge would later end up near the iron curtain between NATO and the Warsaw Pact. The continued presence of the Armed Forces in peacetime had a controlling influence on the social development in the area. Large parts of Blekinge archipelago became a military restricted area after World War II and only Swedish citizens had access to it. The protection was removed in 1997, but has strongly contributed to that the exploitation of the archipelago was not as extensive as in other parts of the country. Defense installations from different eras form a characteristic feature of the archipelago and along the coast. The Armed Forces have also had a strong impact on business and the industrial development in the county.

Traditional industries and a diverse economy

The economy of the archipelago and the coast has been characterized by versatility. Archipelago farmers lived off of fishing and hunting of seabirds and seals, but they were also keeping grazing animals and farmed arable land wherever possible. In order to obtain cash, they sold fish and agricultural and handicraft products. Competition in the towns was fierce and often they returned home with unsold goods. Transport and piloting activities in the archipelago, stone masonry and shipbuilding were important secondary sources of income. Mainly it was women who ran the sale of the archipelago's products, but they also took work in the quarries. The presence of the Armed Forces has also been an important source of revenue for the island population, since the towns were dependent on what the surrounding area could produce to sell, such as firewood and food to eat. In addition many jobs for women were created in areas such as the Crown's clothing industry.

Fishing

The emergence of buildings in the archipelago and along the coast is strongly related to the lucrative fishery. On several islands there are foundations of simple homes from

the early Middle Ages. Herring fishing was then very rewarding and it was probably people from the mainland who during the summer moved to the islands to seasonal fishing villages. Fishing in the Blekinge archipelago was also important for the maintenance of the Danish king's court. Several of the islands are mentioned in king Valdemar's book from 1230. Permanent fishing villages can be proven to have existed in the archipelago since the 1500s and 1600s. The new archipelago residents lived by what the land yielded in form of fishing, hunting and animal husbandry.

Well into the 1900s the fishery was conducted in open rowing-boats that originated in the 1700s. With these large boats driftnet fishing was conducted at sea. During the 1700s to 1900s herring was the main catch for the fishery at sea.

The Blekinge open rowing-boat was between 22 and 30 foot long and had a crew of 4 to 6 people. Usually it was sailed but in calm weather the crew had to row.

During the late 1800s and a couple of decades into the 1900s fishermen sailed down to Bornholm to fish herring later to be sold. When the men came home with their catch the women took over the work. They prepared the herring, loaded the boats and sailed them to the towns in Blekinge, but also to Kalmar which is the nearest coastal town north of Blekinge, a voyage of about 100 km.

During the 1900s the fishery of eel has left its mark on the coast in the eastern part of the proposed biosphere reserve. During the summer the poles to hold the fishing nets were driven into the seabed. The fishing nets for eels stretched far out into the sea and were a significant feature of the landscape. These permanent fishing methods are not used anymore. Since 2007, the eel fishery is largely stopped due to reduction in the amount of eel fry that migrate into the Baltic Sea.

The Blekinge fishing was for a long time largely coastal and small-scale. Not until the mid-1900s were trawlers purchased, the fishing ports were expanded and new ports were built. Major ports can be found in Karlshamn, on Hasslö and Sturkö in the Eastern Archipelago and on Saltö in Karlskrona and Sandhamn on the east coast.

During the late 1900s fishing was rationalized by national decisions. The fishery was to be conducted with larger units. The smaller boats were replaced by much larger trawlers, which put greater demands on the ports and the care of the catch. In the large ports freezer storages were built and the Blekinge ports became important landing sites also for trawlers from the Swedish west coast.

Today fewer and fewer can or want to make a living from fishing which affects how ports and fishing villages are used. Boathouses are unoccupied and the dwelling houses become summer homes. On the smaller islands without a fixed land link there are very few year-round residents.

Ship and boat building

In a coastal district such as Blekinge Archipelago, where sea transports and the revenue from Baltic Sea assets have been so important for people's livelihood, needless to say, boat and shipbuilding have been extensive. The simplest boat building sites consisted of a wind-protected location near the beach. Boats were built like that from prehistoric times to the 1900s. During the 18- and 1900s small wharves were built with construction halls, a smithy and slipway. Some of these developed into shipyards where ships, mainly fishing vessels up to 80-90 feet long, could be built.

The biggest shipyards came shortly after Blekinge became Swedish. A naval shipyard was built at Boön outside Karlshamn and it was in use until the 1670s. In the 1700s civilian merchant ship construction began instead in the town, an activity that increased steadily during the 1800s to shift in the 1900s to the repair of ships.

When Karlskrona was founded in 1680 the Crown's shipbuilding activities were concentrated to the new town, although smaller orders were still given to other yards. During the 1700s an innovative shipbuilding method was conducted in Karlskrona with Fredrik Henrik af Chapman as constructor. His principles for ship-building are still the basis for the building process in modern shipbuilding. The naval shipyard went into civilian ownership in 1961, but still with an option to build and develop vessels for the Swedish Navy. Today, the Kockum shipyard is one of the world's most high-tech shipyards with an activity that has been conducted continuously at the same location since 1684.

The older boat types, the Blekinge skiffs and hunting canoes, are still in use, but the shipyards that built these boats are essentially going out of business. In recent years, a couple of shipyards have resumed production of traditional types of boats and Litorina Folk High School provides training in traditional wooden boat building. Before, larger vessels were built in the shipyards in Pukavik, Vägga, Kuggeboda and Hasslö, but today only Hasslö shipyard is in operation.

11 Physical Characteristics

11.1 General description of site characteristics and topography of area

[Briefly describe the major topographic features (wetlands, marshes, mountain ranges, dunes etc.) which most typically characterize the landscape of the area.]

The proposed biosphere reserve consists largely of a granite coast with accompanying archipelago. The topography along the coast from Pukavik in the west to Torhamn in the east is interrupted with north-south valleys (ravines) and ridges in between. In several of the valleys streams of varying size flow. Around ten rivers flow into the archipelago. The largest are the Mörrum River, the Ronneby River, the Lyckeby River and the Bräkne River. The area's eastern part, from Torhamn in the south to Bröms in the north, is completely different from the south coast and consists of a flat granite plain with very small level differences.

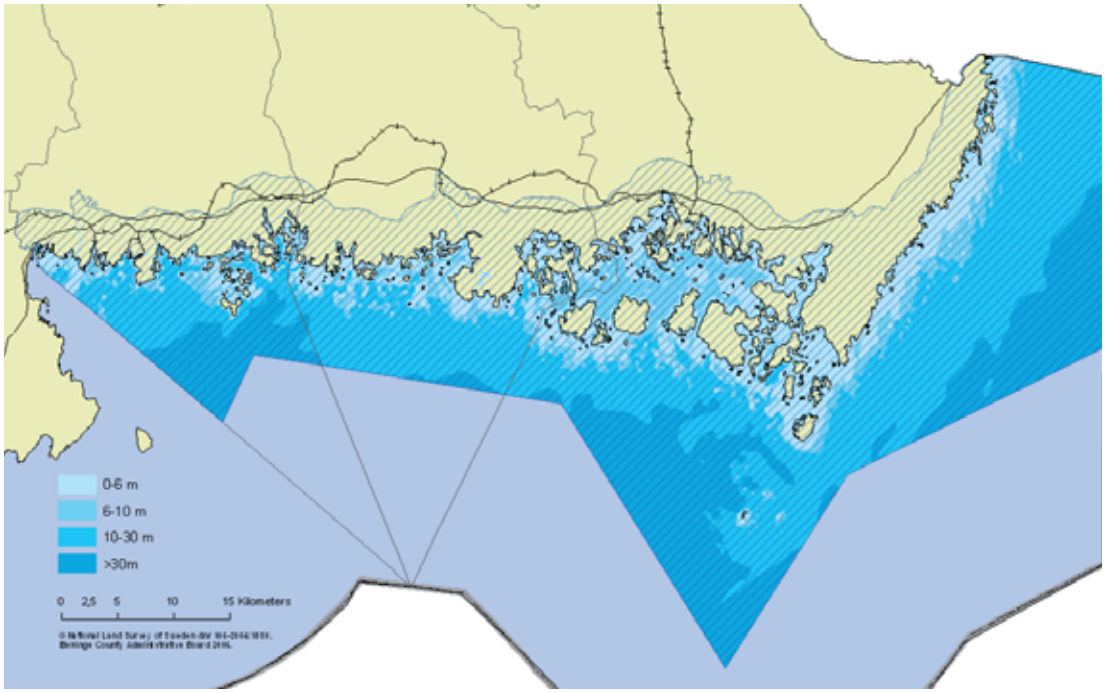
The granite archipelago can be divided into four main parts; Hällaryd archipelago, Ronneby archipelago, Listerby archipelago and the Karlskrona–Torhamn archipelago. The latter includes the five major islands Hasslö, Aspö, Tjurkö, Sturkö and Senoren. The real outpost is Utklipporna, a few small granite islands which lie about 8 km outside of Utlängan in the Torhamn archipelago. Near Kristianopel at the area's east coast is a small archipelago consisting of moraine islands.

Only a few lakes exist in the area. The largest is the Färskesjön, south of Jämjö, Sweden's most southeastern lake. The biosphere reserve is also poor on wetlands, partly due to the climate of low levels of precipitation. Larger wetlands are totally absent.

In the Karlskrona–Torhamn archipelago the bare rock is clearly visible.

The highest point of the proposed biosphere reserve, about 69 m above sea level, is in a high area north of Boråkra in Karlskrona municipality. More marked high points in the landscape are Högarör and Bålabacken, both on Sternö near Karlshamn, which reach a little over 50 meters above sea level. The area's lowest point is at the bottom of the Sternö diabase fields, which now lies 37 meters below the mean sea level.

Along the area's southern coast the variation in water depth is great, from only a few inches in the shallowest bays (e.g. Breda sound southeast of Ronneby) to about 50 meters, which is the area's largest depth, southwest of Utklippan. In the inner shallow bays soft bottoms dominate with organic sediment and sand. In the inner archipelago's outer parts are significant components of hard bottom such as underwater rocks and reefs. At the far end, at greater depths, soft bottoms dominate. The flat east coast is very shallow, with a maximum water depth of just over 30 meters, with a significant element of hard bottoms.



Map showing water depth in Blekinge Archipelago.

11.1.1 Highest elevation above sea level: 69 meters

11.1.2 Lowest elevation above sea level: -37/0 meters

11.1.3 For coastal/marine areas, maximum depth below mean sea level: approx. 50 meters

11.2 Climate

[Briefly describe the climate of the area using one of the common climate classifications]

Blekinge Archipelago belongs to climate zone Cfb according to the Köppen climate classification, i.e. a warm temperate humid climate. By definition this means that the coldest month's average temperature is above -3°C, at least four months have an average temperature of 10°C and precipitation falls all year round without a distinct time of drought. According to Blekinge's Flora (Fröberg, L. 2006) the area which contains Blekinge Archipelago has an average annual precipitation of 500-600 mm/year. The outermost parts of the archipelago have possibly slightly lower average annual precipitation. Measurements are made between 2 and 50 meters above sea level. Average annual temperature is around 7ºC, the coldest month (February) has about -1ºC and the warmest month of July has an average annual temperature of 16ºC.

11.2.1 Average temperature of the warmest month: 15.9 ºC

11.2.2 Average temperature of the coldest month: -0.6°C

11.2.3 Mean annual precipitation: 539 mm, recorded at an elevation of 1-2 meters above sea level (at Ungskär).

11.2.4 If a meteorological station is in or near the proposed Biosphere Reserve, indicate the year when climatic data started to be recorded:

Three stations in the SMHI (Swedish Meteorological and Hydrological Institute) archives are suitable to use as example, Utklippan (temperature), Ungskär (temperature and precipitation) and Karlshamn (temperature and precipitation).

a) SMHI manually: 1859 (Karlshamn), 1972 (Ungskär), 1941 (Utklippan)

b) SMHI automatically: 1996 (Utklippan)

c) Name and position of station:

Karlshamn	56º18'13'' N	14º85'17'' E
Ungskär	56º04'19'' N	15º80'81'' E
Utklippan	55º95'57'' N	15º70'77'' E

11.3 Geology, geomorphology, soils

[Briefly describe important formations and conditions, including bedrock geology, sediment deposits, and important soil types]

The proposed biosphere reserve belongs to the geological bedrock Fennoscandian (Baltic) Shield, which covers most of Sweden and Norway, Finland and northwestern Russia. Blekinge Archipelago is the southernmost granite archipelago in the Baltic Sea and Utklippan is Sweden's outpost in the southeast. The eastern parts of the area are part of the East Blekinge granite plain, and the archipelago is characterized here by the relatively flat, low-lying islands. In the west the Blekinge rift valley terrain takes over when, with increasing altitude, more marked valleys and a pointy coastline. In the west the area border the sedimentary bedrock of Listerlandet and Scania.

The proposed biosphere reserve belongs to the Swedish natural geographic regions, ”Blekinge rift valley terrain and oak forest area” (No. 9) and ”South-Eastern Småland forest, lakes and plains areas, subdivision Kalmar Coast” (No 12b). Blekinge’s physiographic regions have been described by Björnsson (1946) and Mattsson (1973). Blekinge bedrock morphology was treated by Lidmar-Bergström (1986). The farming landscape is in a characteristic manner adapted to the geomorphology of the landscape. Blekinge’s geology and morphology have also been studied by Ringberg (2006). Blekinge bedrock has been described briefly by Wiklander (1973).

Modern rock charts were published by the Geological Survey of Sweden (Barley Field and Bergström 1986, 1990, Barley Field 1993, 1999 a, 1999 b, 2002)

The crystalline bedrock of Proterozoic era (2,500-540 million years ago)

The bedrock in the proposed biosphere reserve was formed mainly during two periods, first about 1,800-1,700 million years ago in a late stage of the Svekokarelian mountain formation, and secondly 1,450 million years ago. The area has a variety of bedrock with large, relatively homogeneous massifs, while other parts show significant variation among the rocks over relatively short distances.

Blekinge coastal gneiss

Blekinge coastal gneiss is Blekinge’s landscape stone. In the western parts of Blekinge, it is likely that the gneiss consists of transformed volcanic rocks that were sedimented 1,700 million years ago. Further east in Blekinge there are also heavily deformed granite rocks that are called coastal gneiss. The coastal gneiss is fine to medium fine grained with gray to reddish gray color and has clearly developed planes of foliation. Within the proposed biosphere reserve the coastal gneiss has been mined for the manufacturing of paving stones. The coastal gneiss is particularly suitable for this since its structure makes it easy to cleave it.

Småland granite

Within the so-called Transscandinavian Igneous Belt there are granite and monzonite rocks known as Småland granite. These are some 1,850 to 1,650 million years old. The Småland granite that occurs within the proposed biosphere reserve is all around 1,770 million years old and more or less deformed and often faintly migmatited. Special versions are the Tjurkö granite that appears on Tjurkö and Sturkö and the Almö granite on Almö.

In 1898 there were 1369 stone quarries in Blekinge. One of the largest was the one at Tjurkö.

Tving granite

Tving granite, named after the parish Tving, is an umbrella term for more or less gneiss-like granodiorites, tonalites and granites within the proposed biosphere reserve, with an age of approx 1,770 million years. They have been transformed through the movements of the earth’s crust presumably at several separate occasions. In many places the Tving granite has undergone metamorphic transformation to gneiss. The Tving

granite is often porphyritic or has 1-2 cm large “eyes” of potassium feldspar and is gray to reddish gray. The grain size is generally fine to medium fine.

Karlshamn granite

The Karlshamn granite group is composed of rocks formed 1,450 million years ago. These occur mainly in Blekinge, but also for example on Bornholm. They are associated with intrusions into the older surrounding rocks and have had a profound impact that resulted in significant transformations. The actual Karlshamn granite, which is made up of relatively homogeneous massifs, is coarsely porphyritic with 1-6 cm-sized crystals of potassium feldspar with levels up to 50%, medium to coarse grain and red to reddish gray in color. On Utklipporna there is some gneissose coarsely porphyritic Karlshamn granite, with the occasional potassium feldspar up to a few decimeters long. On the islands in Torhamn’s outer archipelago one finds a somewhat fine-grained, slightly gneissose Karlshamn granite. Especially in the fine-grained Karlshamn granite there are plenty of old cobblestone quarries.

Diabase

In the open quarry at Sternö, diabase is mined. The black stone is used for e.g. sculptures.

The Svekonorwegian mountain formation took place between 1,000 and 900 million years ago and affected the southwestern Swedish bedrock at a very large scale. It is still not entirely clear how much impact this event had on the Blekinge bedrock. Within the proposed biosphere reserve the Dala-Blekinge-diabase form NNE-SSW line paths in the bedrock. These were formed in the final phase of this mountain formation, about 930 million years ago, when the southwestern Swedish bedrock was lifted to shallower levels and then was eroded. It was probably during this period that the characteristic Blekinge intersecting fissured patterns appeared. The largest presence of diabase is in the Karlshamn passage that stretches from Sternö to the northeast and through the town of Karlshamn. There is mining of diabase in larger open quarries on Sternö.

The sedimentary rock from Phanerozoic era (540 million years ago to present day)

The east coast granite plain takes shape

At the end of the Precambrian era, about 600 million years ago, there was tectonic tranquility in the bedrock in the eastern part of the current Blekinge, but despite this calm it was not unaffected. Through weathering and erosion a granite plain took shape. Parts of this granite plain can be found in the area’s easternmost parts, east of a line drawn from East Hästholmen to Färskesjön on the Torhamn Peninsula. Weathering and erosion were interrupted when what is today southern Sweden fell below sea level at the beginning of the Phanerozoic era. During the periods of the Cambrian, Ordovician and Silurian eras (540-420 million years ago) sediments were deposited that came to be transformed into rock. As the land rose above sea level at the beginning of the next period, Devon, weathering and erosion began again. Thus most of the sedimentary

rocks disappeared, with the exception of a 5 km wide area of Cambrian sandstone and arkose extending from the level of Jämjö and further north along the east coast. The sandstone is superimposed by loosely connected quaternary earth-layers and only at a few places can it be studied, e.g. at Attanäs and by the stream by Brömsebro.

Today's coastal and island landscapes are formed in a tropical to subtropical climate

When most of the sedimentary rocks disappeared the bedrock was once again exposed to destructive forces. Then, during the Mesozoic era (250-65 million years ago), the climate in Sweden was tropical to subtropical. In the hot and humid climate an extensive weathering took place, producing kaolinite as residue. Cracks in the bedrock played a major role as they guided the weathering down to the depths of the rock. Wherever the bedrock was full of cracks weathering occurred more rapidly than in other parts. Crack-free massifs of bedrock fared much better and stayed in the terrain as granite hills and residual blocks. It is probably thus Blekinge coastal and island landscape took form. On the mainland the major north-south valleys appeared that interrupt the coastline and which today bears water coming from the south Swedish highlands, for example Mörrum River. The weathering continued during the late Triassic and Jurassic eras (250-145 million years ago). At the beginning of the next period, the Cretaceous era, the area was once again put below sea level and lime sludge, mud and sand were sedimented on the weathered surface.

Within the Biosphere Reserve several tracks from the weathering process and the time as seabed under the Cretaceous era (145-65 million years ago) are visible. In Kuggeboda, southeast of Ronneby, there is one area where a relatively thin layer of limestone from the Cretaceous era contains 10 meters of kaolinite. Highly weathered rock has been found at Fornanäs, also southeast of Ronneby, chalk on Hasslö and Utklipporna, and weathering pits at Penningberget in Karlshamn. The mountains in Blekinge have the same character as mountains in the tropics; steep sides with flat upper surfaces. The form is due to the horizontal and vertical cracking (banking) because of pressure relief when the overlying rock eroded away. Examples of banking within the proposed biosphere reserve can be found on the west side of Prästaberget, south of Ronneby. Blekinge was probably covered by sea during the Late Cretaceous era. When the area rose above sea level in the early Tertiary era, there was once again a period of breaking down of the bedrock, and most of the sediments from the Cretaceous era disappeared.

The soft soil layers from Quaternary (2.5 million years ago to present day)

Recurrent ice and tundra climate puts mark on the landscape

About 2.5 million years ago the Quaternary era began, which extends to the present day. For Sweden and Blekinge this period has been marked by periodic glaciations with intermediate ice-free stages. Each land ice has made its mark on the landscape and the soils, but it is probably just the last ice age that we see traces of today in the area. The last ice age began about 115,000 years ago and it was during this glaciation that most of today's soils in the area were formed. Studies of glacial striations show up to four different glacial abrasion movements with different relative age. These systems of glacial grooves indicate glacial movement in a span from northwest–southeast to east–west. Within the area there are also nice Northern exposed rocks that were polished by the ice.

During the last ice age the flat rock was polished smooth and round.

Within the proposed biosphere reserve there is a significant expansion of rock fields without soil cover. As mentioned above, the exposed bedrock surface shows traces of the ice, for example in the form of striations. But the bedrock was also affected before and after the Quaternary ice ages, through the frost processes of the tundra climate. It is common with frost-blasted blocks in today's landscape. Exposed rock surfaces have weathered, so that striations have partially disappeared and the rocks, especially those of coarse-grained granites, now have a rough top surface.

Moraines, drumlins and boulders

In Blekinge in general the predominant soil type is moraine. This is the type of soil formed in and under the ice sheet that then deposited or melted out of the ice. Moraine, consisting of a mixture of boulder, stone, gravel, sand, silt and clay, often forms no independent shape but follows the underlying bedrock. On the Gö peninsula southeast of Ronneby, there is however an area of drumlins. They are elongated fusiform hills with a core of rock and a tail of densely packed moraine facing south. The drumlin shape is also characteristic of several of the mainland headlands and the islands of the archipelago. Even the largest blocks in the moraine can be seen as forms. Within the area there are many such so-called boulders. People have found them mythical and many of them have their own legends.

Ice-rivers, boulder ridges and potholes

Characteristic of the coastal area are the soils formed when the ice sheet melted away from Blekinge and the rest of the country. This took place in the Blekinge coastal area about 14,400 years ago. At an early stage, when the edge of the ice still was in the area melt water flowed in and under the ice. Existing major forms of landscape forced the ice-river to the larger river valleys along the Blekinge coast. There material was deposited in the form of stone, gravel and sand particles. These were more or less rounded at the edges due to abrasion during transport in the water. The deposit was gradually dependent on grain size, the larger material first, then, as the current speed of the ice-river decreased the grain sizes decreased. In practice, this resulted in eskers, which are characterized by their size-sorted materials. With the ice melting, this gradient of size shifted northward, so that coarser sediments were overlaid by layers of fine-grained sediments. Along the south coast there are a number of eskers; from the Mörrum ridge in the west to the east Hjortahammar ridge. There is also the Kristianopel ridge running across the granite plains in eastern Blekinge. Ice-river flows have also left their mark directly in the bedrock. On the Sternö peninsula south of Karlshamn there are fine examples of potholes, which formed when water put boulders into rotation. Boulders, known as löparsten, and bedrock wore on each other and the result was a hole in the mountain, a Giants kettle.

Varved clay sedimented in the Baltic Ice Lake

When the Blekinge coast became ice-free the bedrock was still depressed and an ice lake called the Baltic Ice Lake formed in the southern Baltic. It covered the entire coastal district with a highest shoreline of about 65 m above sea level. In the ice lake fine grained materials (silt and clay) were deposited in the form of so-called glacial clay. This came with the ice-river but sedimented only in calmer water away from the ice edge. The glacial clay is usually varved in light and dark layers, depending on whether it was deposited during summer or winter. Studies on the clay in the area show that the melting edge of the ice had a west-east orientation. This, together with the ice melting from south to north, makes the raising of the landscape uniform along the Blekinge coast.

Yoldia Sea / Ancylus Lake / Littorina Sea – Baltic Sea history recorded on the sea-bed and coastal zone sea walls

The post-glacial period began 11,500 years ago as the arctic Baltic Ice Lake was drained at Billingen in West Gothia (Västergötland). At the Blekinge coast this meant that the shore level in a short time fell from about 25 meters above sea level to about 20 m below today's sea level. The Baltic became an inland sea, the Yoldia Sea. Drained areas in Hanö Bay were forested with pine and birch and current archipelago areas connected with the mainland. Modern fishermen have often caught in their nets pine stumps which have been dated to around 11,000 years. But these forests were drowned when the landscape rose in central Sweden and the Baltic Sea once again became a lake, the Ancylus Lake. Land uplift led to water "tipped over" towards the southern Baltic Sea at about 10,700 years before present day; during 100 years the water level rose cataclysmically by about 20 m. Dating from this time there are pine stumps and wood layers in many island coves. Perhaps there are also drenched Stone Age settlements.

Divers have picked up 10 000 year old pine stumps from the bottom of the sea.

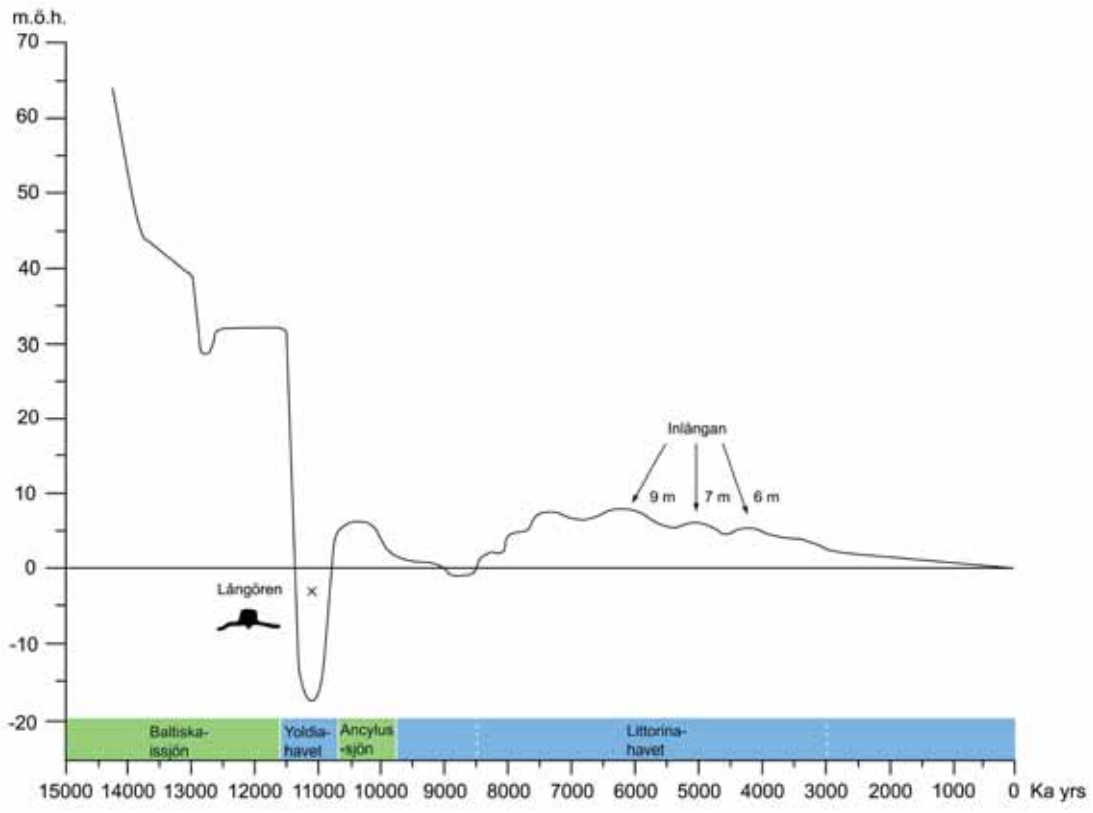
The fossil beach ridge at Inlängan shows that the sea level previously was higher than today.

The Ancylus Lake existed during a brief time in the area and the shore level was then about 5-6 meters above current sea level. From this time, there are mounds in the east coast, which were subsequently overlaid with beach sand from later stages of the Baltic Sea. The best preserved and studied "fossil" Ancylus beach is at Olsäng southwest of Kristianopel.

9,800 to 8,500 years before present day, the Baltic Sea water was slightly brackish because salt water could penetrate through the Danish straits. At this time, the Blekinge coast was at about the same sea levels as today. About 8,500 years before present day the world ocean's levels rose and at the Blekinge coast the sea reached the level of around 5-8 m above the present level and stayed so until about 4,000 years ago. This stage is called the Littorina sea proper which had a salinity of about 1% at the Blekinge coast, corresponding to the salinity of Öresund today. Beach ridges constructed of sand and gravel or rounded rubble are testament to the several periods of high water. Such beach ridges can be found at 6-9 meters above sea level along the entire coast of Blekinge, banks of shingle in particular in Hällaryd archipelago and Inlängan in Torhamn archipelago. Beach ridges built of sand have been exposed to wind, which meant that they are often covered by dunes of shifting sands, for example, on the east coast. Often you will find Stone Age settlements in these beach ridges that are covered with sand. The last 4,000 years are called the Late Littorina period. Then the shoreline moved gradually down to today's level, while the salinity decreased to 6-7 per mil.

The history of the Baltic Sea clearly documented along the Blekinge coast

The Blekinge coast is Sweden's only archipelago area with a west–east coastline. This means that land uplift was the same on the coastal route Pukavik–Torhamn and that all contemporary shorelines are at the same level. The relief of the landscape with its lakes, bays and exposed islands has meant that the Baltic Sea's different stages are all visible throughout the area. There are unique opportunities to study drenched forests of the Yoldia sea stage and the shorelines of the Littorina period formed 6,000 years ago within the proposed biosphere reserve.



The development of the Baltic Sea during the last 15 000 years.

12 Biological Characteristics

[List main habitat types (e.g. tropical evergreen forest, savanna woodland, alpine tundra, coral reef, kelp beds) and land cover types (e.g. residential areas, agricultural land, pastoral land). For each type circle REGIONAL if the habitat or land cover type is widely distributed within the biogeographical region within which the proposed Biosphere Reserve is located to assess the habitat's or land over type's representativeness. Circle LOCAL if the habitat is of limited distribution within the proposed Biosphere Reserve to assess the habitat's or land cover type's uniqueness. For each habitat or land cover type, list characteristic species and describe important natural processes (e.g. tides, sedimentation, glacial retreat, natural fire) or human impacts (e.g. grazing, selective cutting, agricultural practices) affecting the system. As appropriate, refer to the vegetation or land cover map provided as supporting documentation.]

Within the proposed biosphere reserve there is a number of important nature and land use types, both natural ecosystems and land types that are affected by human activities. The most important nature and land use types are described in this chapter. These are

- Broadleaf forests
- Coniferous forests
- Natural grazing lands (natural pastures and meadows)
- Cultivable lands (fields and grassland)
- Built-up areas
- Watercourses and lakes
- Inner archipelago (shallow inlets and bays)
- Outer archipelago (open sea)
- Beaches, islands and skerries.

12.1 First type of habitat/land cover: broadleaf forests

At Tromtö the beech forest grows all the way down to the shoreline.

Within the proposed biosphere reserve there is a significant acreage of broadleaf forests. Some broadleaf forests have very long continuity. Others have appeared by way of the overgrowth of oak and beech groves. In many places, broadleaf forests and the sea meet which in Sweden almost only occur in Blekinge and is very unusual also from an international perspective. Most of the broadleaf forests consist of oak and beech, sometimes in fairly pure collections but usually in combination with elements of other tree species. The reserve also consists of hornbeam forests and small collections of ash, lime and elm. The broadleaf forests have very high biological value. Approximately 50% of the national red listed species are associated with broadleaf forests.

Ecosystem	*Description*
Oak forests (Regional/Local)	The oak has traditionally been used as a symbol of Blekinge. Two species of oak occur within the proposed biosphere reserve, pedunculate oak and sessile oak. Both are common, but the latter is growing particularly on poor rocky areas where it can form low-growing scrubs. On richer soils, often near the sea, the oak forest is often species-rich and of meadow type. On lean soils they are species-poor and of moor-type. The latter is most common.
Beech forests (Regional/Local)	Beech forests can, like oak forests, be either species-rich on meadows, or species-poor on moors.
Hornbeam forests (Regional/Local)	The hornbeam has a southern distribution in the country and rarely produces larger collections of trees. Within the proposed biosphere reserve it exists primarily in smaller clumps but the hornbeam is also a common element in oak and beech forests, especially on steep slopes and hillsides.
Other broadleaf forests (Regional/Local)	Within the area there are scattered mixed broadleaf forests of ash, linden, elm and maple.

12.1.1 Characteristic species

Group	Scientific name	Common English name
Vascular plants	*Carpinus betulus*	European hornbeam
	Corylus avellana	Hazel
	Fagus sylvatica	European beech
	Hedera helix	Common ivy
	Lonicera periclymenum	European honeysuckle
	Quercus petraea	Sessile oak
	Quercus robur	Pedunculate oak
	Stellaria holostea	Greater stitchwort
Mosses	*Antitrichia curtipendula*	Pendulous wing moss
	Homalothecium sericeum	Silky wall feather moss
	Leucobryum glaucum	Large white moss
	Loeskeobryum brevirostre	Short beaked wood moss
	Neckera complanata	Flat feathered neckera
	Neckera pumila	Dwarf neckera
	Rhytidiadelphus loreus	Goose neck moss
	Ulota crispa	No common English name
Fungi	*Collybia fusipes*	Spindle shank
	Fistulina hepatica	Beefsteak fungus
	Inonotus cuticularis	No common English name

	Inonotus dryadeus	Warted oak polypore
	Lactarius quietus	Oakbug milkcap
	Phellinus robustus	Robust bracket
	Ramaria botrytis	No common English name
	Russula mairei	Beechwood sickener
	Russula virescens	Green-cracking Russula
	Strobilomyces strobilaceus	Old man of the woods
Lichen	*Arthonia pruinata*	No common English name
	Bactrospora corticola	No common English name
	Calicium adspersum	Spike lichen
	Lecanographa illecebrosa	No common English name
	Megalaria laureri	No common English name
	Opegrapha vermicellifera	No common English name
	Pachyphiale carneola	No common English name
	Pertusaria amara	No common English name
	Pyrenula nitida	No common English name
	Schismatomma decolorans	No common English name
	Thelotrema lepadinum	No common English name
Mammals	*Capreolus capreolus*	Roe deer
	Cervus dama	Fallow deer
	Pipistrellus nathusii	Nathusius's pipistrelle
	Sus scrofa	Wild boar
Birds	*Coccothraustes coccothraustes*	Hawfinch
	Columba oenas	Stock pigeon
	Dendrocopos minor	Lesser spotted woodpecker
	Dryocopus martius	Black woodpecker
	Milvus milvus	Red kite
	Phylloscopus sibilatrix	Wood warbler
	Parus palustris	Marsh tit
	Picus viridis	Green woodpecker
	Sitta europaea	Eurasian nuthatch
Reptiles and Amphibians	*Lacerta vivipara*	Viviparous lizard
	Rana dalmatina	Agile frog
	Triturus cristatus	Great crested newt
Molluscs	*Arion ater*	Black slug
	Clausilia bidentata	A door snail

	Cochlodina laminata	A door snail
	Columella aspera	No common English name
	Nesovitrea hammonis	No common English name
Insects	*Aglia tau*	Tau emperor
	Agrilus biguttatus	Oak splendour beetle
	Calasoma inquisitor	No common English name
	Calliteara pudibunda	Pale tussock
	Clytus arietus	Wasp beetle
	Dorcus parallelepipedus	Lesser stag beetle
	Erannis defoliaria	Mottled umber
	Favonius quercus	Purple hairstreak
	Grammoptera ustulata	No common English name
	Lasius fuliginosus	No common English name
	Lathoe populi	Poplar hawk moth
	Lucanus cervus	Stag beetle
	Nymphalis polychloros	Large tortoiseshell
	Osmoderma eremita	Hermit beetle
	Ourapteryx sambucaria	Swallow-tailed moth
	Poecilium alni	Whitebanded longhorn beetle
	Pyrrhidium sanguineum	Longhorned beetle
	Sinodendron cylindricum	Rhinoceros beetle
	Stauropus fagi	Lobster moth
	Tortrix viridana	European oak leafroller
	Vespa crabro	European hornet
Other invertebrates	*Anthrenochernes stellae*	No common English name

12.1.2 Important natural processes

Natural process	***Description***
Internal forest dynamic	Deciduous forests that are allowed to flourish with internal forest dynamics (gap dynamics) is characterized by natural wood succession, age range, large elements of old and thick trees and dead wood in various sizes and stages of decomposition.
Climate variations	The flora and fauna of broadleaf forests are adapted to seasonal fluctuations in temperature and precipitation in the proposed biosphere reserve. Phenomena such as extreme cold, wet snow, heavy rain, storms and droughts are natural disturbance processes that can have significant effects. For the proposed biosphere reserve's oak forests in the hilly landscape (oak scrub forests), drought is the single most important natural disturbance factor.

Grazing impact	Pollen analysis has shown that the southern Swedish forests have been mosaic-like and semi-open to a greater extent than was previously known. One of the main explanations is considered to be that grazing animals since ancient times has had a major impact. Also today's strains of grazing wild animals impact the forests and can be local impediments for the regeneration of broadleaf forests.
Harmful fungi	In recent years new harmful fungi have locally attacked mainly elm (the so called Dutch elm disease), oak (attack of a fungus) and ash (ash dieback)
Other	• Sea level variations • Pests, such as *Tortrix viridana* • Fire

12.1.3 Main human impacts

Human impact	***Description***
Forestry	The forest has for millennia been an important raw material resource for human beings. In the forests shipping timber, firewood, timber for house building and wood for tools have been collected. During the second half of the 20th century large areas of broadleaf forests and mixed forests were rerouted to spruce forests. Today, however, the broadleaf forests are not declining in the proposed biosphere reserve. Much of the broadleaf forests found today in the area are cultivated extensively.
Other	• Hunting • Airborne pollutants (eutrophication, acidification) • Exploitation of buildings and infrastructure

12.1.4 Relevant management practices

Management practices	***Description***
Environmentally adjusted/extensive forestry	Most of the proposed biosphere reserve broadleaf forests will continue to be used, and forestry should be conducted in such a way that the natural broadleaf forest species are provided good conditions to continue to live in viable populations. Natural forest-like forests and swamp forests should always be excluded from forestry operations.
Rational deciduous forest use	A smaller proportion of the area's broadleaf forests is managed through rational forestry. Whenever possible, the regeneration of the forest should happen with domestic/local provenances. The area of broadleaf forests in the reserve should increase.

12.2 Second type of habitat/land cover: coniferous forests

Within the proposed biosphere reserve there is a significant area of coniferous forest. Most of the coniferous forest consists of planted pine and pine along parts of the coast, but the area also contains original coastal pine forests.

Along the east coast, the coastal pine forest is common. Picture from Högasand.

Eco system	***Description***
Spruce forests (Regional/Local)	Virtually all the spruce forest in the area is planted or self-rejuvenated from the spruce planted in the 1800s and 1900s. Planting is often done on old farmland, but also some mixed forests and broadleaf forests were transformed during the 1900s to spruce forests. The field layer of the spruce forests is usually poor in species.
Pine forests (Regional/Local)	Along parts of the coast there are relatively large areas of planted pine forest. On shallow, nutrient-poor soils and the rock-bound coast there are also natural coastal pine forests, which can sometimes be very old. Pine forests often have elements of low-growing oak.

12.2.1 Characteristic species

Group	**Scientific name**	**Common English name**
Vascular plants	*Calluna vulgaris*	Common heather
	Deschampsia flexuosa	Wavy hair-grass
	Picea abies	Norway spruce
	Pinus sylvestris	Scots pine
	Vaccinium myrtilus	Blueberry
Mosses	*Dicranum scoparium*	Broom moss
	Leucobryum glaucum	Large white-moss
	Pleurozium schreberi	Red-stemmed feather-moss
	Hylocomium splendens	Glittering wood-moss
Fungi	*Amanita porphyrea*	Grey veiled amanita
	Fomitopsis pinicola	Red banded polypore
	Heterobasidion annosum	Annosum root rot
	Lactarius deterrimus	False saffron milk-cap
	Phaeolus schweinitzii	Velvet-top fungus
	Phellinus pini	Red ring rot

	Ramaria eumorpha	No common English name
	Suillus luteus	Slippery Jack
Lichen	*Chaenotheca ferruginea*	Needle lichen
	Lecanactis abietina	Old wood rimmed lichen
	Lepraria incana	Dust lichen
Mammals	*Alces alces*	Elk
	Apodemus flavicollis	Yellow-necked mouse
	Capreolus capreolus	Roe deer
	Eptesicus nilssoni	Northern bat
	Sciurus vulgaris	Red squirrel
	Sus scrofa	Wild boar
Birds	*Caprimulgus europaeus*	Nightjar
	Columba palumbus	Wood pigeon
	Haliaeetus albicilla	White-tailed eagle
	Lullula arborea	Woodlark
	Muscicapa striata	Spotted flycatcher
	Parus cristatus	Crested tit
	Parus montanus	Willow tit
	Phoenicurus phoenicurus	Common redstart
Amphibians	*Rana arvalis*	Moor frog
Molluscs	*Columella aspera*	A species of vertigo snail
	Nesovitrea hammonis	No Common English name
Insects	*Arhopalus rusticus*	Rusty long-horn beetle
	Bupalus piniaria	Pine looper moth
	Callophrys rubi	Green hairstreak
	Hyloicus pinastri	Pine hawk-moth
	Hylotrupes bajulus	Old-house borer
	Ips typographus	European spruce bark beetle
	Lymantria manacha	Nun moth
	Nothorina punctata	A species of long-horn beetle
	Ochropleura praecox	Portland moth
	Plebejus argus	Silver studded blue
	Prionus coriarius	The tanner

12.2.2 Important natural processes

Natural process	*Description*
Internal forest dynamics	Coniferous forests that are allowed to flourish with internal forest dynamics (gap dynamics) is characterized by natural wood succession, age range, large elements of old and thick trees and dead wood in various sizes and stages of decomposition.
Climate variations	Coniferous forests' flora and fauna are strongly influenced by the proposed biosphere reserve's seasonal fluctuations in temperature and precipitation. Phenomena such as extreme cold, wet snow, heavy rain, storms and droughts are natural disturbance processes that can have significant effects. For spruce forests, which are on the southern border of their natural range, storm damage is, along with the bark beetle infestation, the single most important natural disturbance factor.
Pests	Root rot, caused by *Heterobasidion annosum*, and European spruce bark beetle infestation can locally be very important.
Wild animal grazing	Wild animal grazing (elk, deer) is of particular significance for coniferous forest regeneration. In particular pine is currently difficult to rejuvenate due to elk grazing.

12.2.3 Main human impact

Human impact	*Description*
Forestry	Virtually all the spruce in the area is planted, and operated with prudent management practices. Many of the planted populations are dense monocultures of the same age with a very limited biological diversity. Often clumps are harvested at a relatively young age and before they reach a sufficient age to be of interest to many conifer species of plants and animals. The rational forest management means, for example, by shredding and forest clearings, altered water regimes in forest ditching (now mostly cleansing of old ditches) and plantation of alien tree species and provenances.
Other	• Hunting • Airborne pollutants (eutrophication, acidification)

12.2.4 Relevant management practices

Management practices	*Description*
Environmentally adjusted/extensive forestry	Most of the proposed biosphere reserve's coniferous forests will continue to be used. Natural forest-like forests, mainly some hill landscape pine forests and pine swamp forests should always be excluded from forestry operations.
Rational coniferous forestry	Naturally occurring pine forests should be used with great care to the natural environment, and wherever possible regeneration should be done with local provenances. The rationally farmed spruce forests within the area should eventually be reduced to enable broadleaf forestry.

12.3 Third type of habitat/land cover: natural grazing lands

Pollarded trees are typical for old hay meadows. The tree leafs were used for winter fodder for the animals. Pollarded trees can grow very old.

Natural grazing lands and hay fields in the area are an important habitat and land use type. They contain traditionally favored flora and fauna that indicate both long continuity of cultivation and lack of fertilizers. Natural pastures range from dry, lean grass heaths to river banks and seashore meadows. The hay fields are few and small, but important for biodiversity and with a significant cultural and historical value.

Eco system	*Description*
Hay fields (Regional/Local)	Hay fields and meadows are unusual in the area, and those that exist are usually very small. Different meadow types that are present include forest meadows, beach-near hay fields and smaller hay fields along, for example, road and field borders. Pollarded broadleaf trees, mainly ash and lime, are often important elements in the fields.
Wooded pastures (Regional/Local)	Wooded pastures are common in the area. The most common and in many ways most important tree species in the wooded pastures is oak, but also meadows with birch, beech and other tree species occur. The oak is particularly important since it can become very old and hosts a large number of species of lower plants and animals, including many red listed species. Also the ash reaches old age and is sometimes an important component of the pastures. Oak pastures are found primarily in estate landscapes on larger farms, such as Stensnäs, Göholm, Vambåsa, Tromtö and the old mansions around Karlskrona.

Open dry and fresh meadows (Regional/Local)	The meadows are more or less free of trees, but often consist of shrub-rich grassland, mainly found in coastal locations and are particularly common on islands in the archipelago. They may be species-rich dry meadows, but are commonly species-poor grass heaths. The shrub layer is usually dominated by juniper wood or sloe. If conditions change the meadows generally grow over with birch.
Shore meadows (Regional/Local)	Shore meadows are found in low-lying and flat areas affected by sea water level fluctuations. The largest accumulations of shore meadows can be found in the area's eastern part, and especially along the east coast.

12.3.1 Characteristic species

Group	Scientific name	Common English name
Vascular plants	*Agrostis canina*	Velvet bent
	Agrostis stolonifera	Creeping bent
	Bolboschoenus maritimus	Sea club-rush
	Calluna vulgaris	Common heather
	Deschampsia flexuosa	Wavy hair-grass
	Glaux maritima	Sea milk-wort
	Juncus gerardii	Saltmarsh rush
	Nardus stricta	Mat-grass
	Orchis sambucina	Elder-flowered orchid
	Ranunculus bulbosus	Bulbous buttercup
	Stellaria marina	A species of stitchwort
Mosses	*Dicranum scoparium*	Broom fork-moss
Fungi	*Agaricus campestris*	Field mushroom
	Entoloma spp.	Pinkgills
	Hygrocybe spp.	Waxcaps
	Lycoperdon spp.	Puffball mushrooms
	Macrolepiota procera	Parasol mushroom
	Marasmius oreades	Scotch bonnet
Lichen	*Cladonia ssp.*	Cup lichen
	Evernia prunastri	Oakmoss
	Ramalina fraxinea	Cartilage lichen
Mammals	*Lepus europaeus*	European, or Brown hare
	Microtus agrestis	Field vole
	Nyctalus noctula	Common noctule
	Oryctolagus cuniculus	European rabbit
	Talpa europaea	European mole

Birds	*Carduelis cannabina*	Linnet
	Emberiza citrinella	Yellowhammer
	Lanius collurio	Red-backed shrike
	Milvus milvus	Red kite
	Motacilla alba	White wagtail
	Recurvirostra avosetta	Pied avocet
	Sylvia communis	Whitethroat
Reptiles and Amphibians	*Bufo calamita*	Natterjack toad
	Lacerta agilis	Sand lizard
	Rana arvalis	Moor frog
Molluscs	*Clausilia bidentata*	Door snail
	Deroceras agreste	A terrestrial slug
	Deroceras reticulatum	Grey field slug
	Nesovitrea hammonis	No common English name
Insects	*Aphantopus hyperantus*	Ringlet
	Arachnia levana	Map
	Brenthis ino	Lesser marbled fritillary
	Chlaenius tristis	Black night-runner
	Coenonympha arcania	Pearly heath
	Gnorimus nobilis	Noble chafer
	Maniola jurtina	Meadow brown
	Onthophagus nuchicornis	A species of dung beetle
	Osmoderma eremita	Hermit beetle
	Parnassius mnemosyne	Clouded apollo
	Polyommatus icarus	Common blue
	Pyrgus malvae	Grizzled skipper
	Satyrium pruni	Black hairstreak
Other invertebrates	*Ixodes ricinus*	Sheep tick

12.3.2 Important natural processes

Natural process	***Description***
Overgrowth	At decreased grazing or stopped use, strong herbs and grasses take over while shrub and tree vegetation spreads. Thus, a pasture can in a few decades become forest. On overgrown shore meadows, reeds can spread over extended areas.

Hydrological disturbances	Shore meadows are affected by variations in sea levels, wave formations, and water currents. During high water levels and storm, shore meadows in exposed positions can be eroded. In protected areas, shore meadows can grow through the sedimentation of fine-grained materials while vegetation spreads.
Wild animal pasture	On shore meadows grazing by geese can play an important role as a natural disturbance factor, especially in areas no longer grazed by domestic animals.

12.3.3 Main human impact

Human impact	*Description*
Hay and pasture use	Many of the area's natural feeding grounds have been shaped for centuries by traditional mowing or grazing conditions. Trees and shrubs have been used as winter feed through pollarding. A great deal of species depends entirely on the maintenance of human use.
Production raising measures	Input of fertilizer, sowing of new fast-growing species, drainage and cultivation lead to the depletion of the biodiversity. The use of anthelmintics impoverishes the fauna of dung-living species.
Afforestation	Planting of forests on previously claimed meadows and pastures leads to increased fragmentation of the proposed biosphere reserve's natural feeding grounds, thus increasing the risk of distinction of threatened species that are difficult to spread.
Airborne pollutants (eutrophication, acidification)	The deposition of *inter alia* nitrogen benefits a small number of strong and competitive species and leads to the degradation of fungal and plant flora. The deposition of acidifying substances affects the mix of species and leads to the disappearance of species that cannot tolerate low pH values.

12.3.4 Relevant management practices

Management practices	*Description*
Crop reaping	Grounds, currently used for hay-making, often in combination with after-grazing, should be maintained.
Pollarding	Previously pollarded trees should be pollarded where possible. In addition, one should maintain pollarding of young deciduous trees.
Environmental protection oriented grassland	The reserve's natural pastures should be maintained, through traditional grazing without supplementary feeding, combined with suitable clearances of shrubbery and brush. In pastures with old giant trees (usually oak) the continuity of giant trees should be maintained by the selection and support of new appropriate trees.

Rehabilitation	Mature fallow pastures should be restored and re-claimed, provided that they have not been transformed into other valuable habitats, such as groves of broadleaf trees. Mowing should be resumed in the old hay meadows that are today claimed through grazing.

12.4 Fourth type of nature type/land use: cultivable lands

Cultivated fields and pastures are mainly in the north-south rift valley landscape and on the Ramdala plain between Karlskrona and Jämjö. Also along the flat east coast there is a significant proportion of farmland.

Cultivable lands are mainly located along the rivers and on flat land in the eastern part.

Ecosystems	***Description***
Cultivable Lands (Regional/Local)	Most cultivable lands in the area consist of fertile clay soils in rift valleys and on the Ramdala plain. Along the eastern shore the lands consist mostly of sandy soils. Fields of threatened arable weeds are now very rare and found primarily in the eastern part.

12.4.1 Characteristic species

Group	**Scientific name**	**Common English name**
Vascular plants	*Aira caryophyllea*	Silver hairgrass
	Apera spica-venti	Silky bentgrass
	Arnoseris minima	Dwarf nipplewort
	Beta vulgaris	Beet
	Brassica napus ssp. napus	Rapeseed
	Brassica rapa ssp. oleifera	Field mustard
	Cirsium arvense	Creeping thistle
	Hordeum vulgare	Barley
	Phleum	Timothy-grass
	Secale cereale	Rye
	Solanum tuberosum	Potato
	Stachys arvensis	Field woundwort
Fungi	*Panaeolus spp.*	Gill mushrooms
Mammals	*Capreolus capreolus*	Roe deer
	Lepus europaeus	European, or Brown hare

Birds	*Alauda arvensis*	Skylark
	Anser anser	Greylag goose
	Milvus milvus	Red kite
	Vanellus vanellus	Northern lapwing
Amphibians	*Bufo bufo*	Common toad
Insects	*Agrotis exclamationis*	Heart and Dart
	Meligethes aeneus	Pollen beetle
	Pieris brassicae	Cabbage white
	Pieris napi	Green-veined white

12.4.2 Important natural processes

Virtually all the natural disturbance processes are now eliminated. Factors such as drought, rainfall and wildlife grazing (wild boar, greylag goose) affect primarily the harvest.

12.4.3 Main human impact

Human impact	***Description***
Agriculture rationalization	During the past 200 years, an increasingly stringent rationalization has been implemented in agriculture, which has also affected the landscape, flora and fauna. The use of chemical fertilizers, pesticides, seed cleaners, drainage, and the clearing away of obstacles to the cultivation and development of technology have made cultivable land increasingly depleted of plants and animals.
Termination of field crops	Many unprofitable cultivable lands have been transformed in recent decades to hay lands, grazing land, and have in some cases even been planted with forest, which increase the fragmentation of the agricultural landscape and weakened biodiversity
Other	• Introduction of alien species / varieties • Development of buildings and infrastructure

12.4.4 Relevant management practices

Management practices	***Description***
Farming with environmental or conservation concerns	Cultivation of crops should as far as possible be conducted so that the negative environmental impacts are minimized and the cultivable landscape's plants and animals benefit.
Traditional farming methods	Habitats for threatened species associated with traditional cultivation of crops (including endangered arable weeds) should be preserved and restored wherever possible.
Construction of wetlands	New wetlands for biodiversity and denitrification should be constructed at appropriate places in the cultivable landscape (mainly non-highly productive arable lands).

12.5 Fifth type of nature type/land use: built-up areas

The Ronneby Brunnspark is an urban area with a high biodiversity.

The proposed biosphere reserve partly includes Blekinge coastal area, which is one of the country's most densely populated areas outside metropolitan areas. Within the reserve there are three towns and also a few smaller villages. In between, there are relatively dense settlements along the coast. In urban areas there are areas with high natural and cultural values that are mostly linked to deciduous forests. Some of these are deliberately free from building because of their high recreational value and eco-building qualities. In the towns there are also landscaped green spaces with high values.

Eco system	***Description***
Town centers (Regional/Local)	The only areas with urban settlements of significance within the proposed biosphere reserve are the three towns of Karlskrona, Ronneby and Karlshamn.
Neighborhoods (Regional/Local)	Residential areas exist adjacent to the three towns and in the smaller villages which are within the proposed biosphere reserve.
Industrial areas (Regional/Local)	Industrial areas, as well as residential areas, are mainly situated in connection to towns and smaller villages.
Green spaces (Regional/Local)	Green spaces in the form of primarily broadleaf forests and landscaped parks can be found in the three towns. The broadleaf forests are often remnants of old meadows. Elements of the old trees such as oak and beech are common. The biological values are often very high.

12.5.1 Characteristic species

Group	**Scientific name**	**Common English name**
Vascular plants	*Bellis perennis*	Common daisy
	Gagea lutea	Yellow Star-of-Bethlehem
	Gagea minima	Least gagea
	Ranunculus ficaria	Lesser celandine
	Stellaria media	Common chickweed
	Taraxacum sect. Ruderalia	Dandelion
	Viola odorata	Sweet violet
Fungi	*Coprinus cometus*	Shaggy ink cap
	Panaeolus foeniseci	Lawn mower's mushroom
Lichen	*Lecanora conizaeoides*	A species of crustose lichen

Mammals	*Erinaceus europaeus*	European hedgehog
	Mus musculus	House mouse
	Rattus norvegicus	Brown rat
	Sciurus vulgaris	Red squirrel
	Talpa europea	European mole
Birds	*Corvus monedula*	Jackdaw
	Larus argentatus	Herring gull
	Larus canus	Common gull
	Passer domesticus	House sparrow
	Passer montanus	Tree sparrow
	Phoenicurus phoenicurus	Common redstart
	Pica pica	European magpie
Molluscs	*Arion ater*	Black slug
	Arion lusitanicus	Portuguese slug
	Bradybaena fruticum	A species of land snail
	Cepaea hortensis	White-lipped snail
	Deroceras agreste	A species of land snail
	Deroceras reticulatum	Grey field slug
	Nesovitrea hammonis	No common English name
Insects	*Aglais urticae*	Small Tortoiseshell
	Carabus hortensis	Garden carabus
	Carabus nemoralis	A species of ground beetle
	Inachis io	European Peacock
	Lucanus cervus	Stag beetle
	Osmoderma eremita	Hermit beetle
	Vespa crabro	European hornet
	Vespa vulgaris	Common wasp

12.5.2 Important natural processes

Natural processes of importance in populated areas such as urban, residential and industrial areas hardly exist, with the exception of the broadleaf forest near urban areas where several of the processes listed in Section 12.1.2 (Important natural processes: in broadleaf forests) are relevant.

12.5.3 Main human impact

Human impact	*Description*
Outdoor life (including management measures for outdoor recreation	Many of the green spaces, including woodlands, which are in or directly adjacent to urban areas are used for recreation.
Forest /park management	Wooded green spaces are often managed extensively through thinning, clearing, etc.
Exploitation for construction or other purposes	It may occur that green spaces, or parts thereof, within or adjacent to urban areas and smaller urban settlements are used for construction or exploited for other activities.
Air pollution/emission/ noise	The urban environments' green spaces are affected to varying degrees by human activities such as air pollution (e.g. car exhausts), noise and waste water.

12.5.4 Relevant management practices

Management practices	*Description*
Environmental protection adjusted forestry/ extensive forestry	Forestry should be managed so that the forest living species are given opportunities to survive in viable populations, while outdoor recreation interests are met.
Restoration of small green spaces	Smaller green spaces, including alleys, tree groups and solitary old trees, located in urban environments should be preserved as far as possible, and where possible also restored.

12.6 Sixth type of nature type/land use: watercourses and lakes

An old stone vault bridge crosses the Vieryd River where it meets the sea.

Watercourses and lakes occupy a very small area of the proposed biosphere reserve, but they are nonetheless very important as types of nature and land use. Through water the inland lakes and wetlands are linked with the sea. They are very important for biodiversity, while they are also of great economic significance.

Eco system	*Description*
Rivers (Regional/Local)	A number of both large and small rivers, often in river basins which begin in southern Småland, several miles north of the area, runs through the proposed biosphere reserve and flows into the Baltic Sea. Largest and most important, both economically and for biodiversity, is the Mörrum River.

Brooks (Regional/Local)	A very large number of small brooks can be found within the proposed biosphere reserve. Some are tributaries to larger rivers, while others drain smaller lakes in the coastal area.
Lakes (Regional/Local)	The proposed biosphere reserve contains only some 20 smaller lakes. Largest is Färskesjön in the Torhamn region, Sweden's most southeastern lake.

12.6.1 Characteristic species

Group	Scientific name	Common English name
Vascular plants	*Leersia oryzoides*	Rice cutgrass
	Nuphar lutea	Yellow water-lily
	Nymphaea alba	European white waterlily
	Phragmites australis	Common reed
	Potamogeton natans	Floating pondweed
	Schoenoplectus lacustris	Common club-rush
Mosses	*Dichelyma capillaceum*	Dichelyma moss
Macroalgae	*Cladophora glomerata*	Blanket weed
	Nitella gracilis	Slender stonewort
	Nitella flexilis/opaca	Stonewort/ dark stonewort
Mammals	*Lutra lutra*	Otter
	Mustela vison	Mink
	Myotis daubentoni	Daubenton's bat
	Neomys fodiens	Water shrew
Birds	*Acrocephalus scirpaceus*	Reed warbler
	Alcedo atthis	Common kingfisher
	Anas platyrhynchos	Mallard
	Bucephala clangula	Common goldeneye
	Mergus merganser	Common merganser
Fishes	*Anguilla anguilla*	Eel
	Esox lucius	Northern pike
	Gobio gobio	Gudgeon
	Lampetra planeri	European brook lamprey
	Leuciscus idus	Ide
	Perca fluviatilis	European perch
	Rutilus rutilus	Common roach
	Salmo salar	Atlantic salmon
	Salmo trutta	Trout

Molluscs	*Anodonta anatina*	Duck mussel
	Margaritifera margaritifera	Freshwater pearl mussel
	Unio crassus	Thick shelled river mussel
Insects	*Anthocharis cardamines*	Orange tip
	Aphelocheirus aestivalis	Water bug
	Baetis liebenaue	Species of mayfly
	Dytiscus marginalis	Great diving beetle
	Libellula fulva	Arce chaser
	Nepa cinerea	Water scorpion
	Papilio machaon	Old world swallowtail
	Pelosia obtusa	Small dotted footman
Crustaceans	*Pacifastacus leniusculus*	Signal crayfish
Other invertebrates	*Dolomedes plantarius*	Great raft spider

12.6.2 Important natural processes

Natural process	***Description***
Sea level variations	The rivers as well as the lakes are affected by seasonal water level fluctuations related to precipitation.
Overgrowth	In calm streams and shallow lakes sedimentation and peat formation result in a natural overgrowth
Meandering	Calm streams flowing through areas with fine sediment soils have a natural winding (meandering) run. Within the proposed biosphere reserve natural meandering is now extremely rare.
Other	• Water turnover in lakes • Climate (drought etc.) • Goose grazing of aquatic vegetation

12.6.3 Main human impact

Human impact	***Description***
Eutrophication	Eutrophication caused by spills of contaminated water and nutrient leaching from forest and agricultural lands leads to plankton clouds and increased overgrowth. Also fallout from the atmosphere contributes to the overgrowth.
Increased humus levels	Increased humus content, which gives brown color and impaired depth visibility is to some extent a natural process, but the combination of humus leaching from drained forest soils and acidification caused by human air pollution in recent years has accelerated the coloration of the water in lakes and streams.

Siltation of watercourses	In parallel with the increase of brown coloration, and for the same reasons there is also a silting of watercourses minerogenic bottoms.
Liming	In the upper parts of the larger water systems that flow through the proposed biosphere reserve, liming is done regularly in order to maintain the pH of the lakes and watercourses as well as their natural biodiversity. Liming within the proposed biosphere reserve occurs on a limited scale.
Surface water abstraction	In several of the watercourses there is surface water abstraction primarily for agricultural needs, which in times of drought and low flows can have serious consequences for plant and animal life.
Hydropower	Upstream from the proposed biosphere reserve, several of the larger rivers are regulated for hydropower which affects both water and biodiversity, especially fish stocks.
Other	• Groundwater abstraction • Environmental toxins • River cleansing • Recreational activities (fishing, hunting, canoeing, etc.) • Introduction of alien species, such as signal crayfish

12.6.4 Relevant management practices

Management practices	*Description*
Preservation and restoration of aquatic habitats	• Creation of migration paths in rivers • Maintenance and restoration of meandering rivers • Restoration / creation of spawning areas for fish, mainly trout
Preservation of natural pH	Balanced liming of lakes and streams
Reduction of the nutrient substances	• Application of farming technologies and practices that reduce nutrient leaching from agricultural fields and woodlands • Restoration of wetlands • High cleaning effect on public or private sewage systems
Water management	Sustainable surface water and groundwater abstraction
Fisheries management	A sustainable fishery, with practices, quotas and fishing times in the proposed biosphere reserve's lakes and streams, which ensures good stocks of all indigenous fish.

12.7 Seventh type of nature type/land use: inner archipelago

The shallow bays of the inner archipelago, e.g. by Yttre Ekö have a high biodiversity.

The inner parts of the archipelago are frequently shallow, affected freshwater outflows that are more or less isolated from the open sea. The salinity of the surface layer tends to vary between 6 and 8 per mil. The nature type is widespread throughout the proposed biosphere reserve's southern coast. On the east coast is the type less widespread, and the influence of the open sea is more pronounced.

Eco system	***Description***
Shallow inlets and bays (Regional/Local)	Covers virtually the entire inner archipelago's inlets and bays down to about six meters' depth. The shallow water areas often have soft bottoms, rich vegetation and are very important as nursery areas for various fish species while also being important for migrating and nesting waders.

12.7.1 Characteristic species

Group	**Scientific name**	**Common English name**
Vascular plants	*Ceratophyllum demersum*	Rigid hornwort
	Myriophyllum spicatum	Spiked water-milfoil
	Najas marina	Spiny naiad
	Phragmites australis	Common reed
	Potamogeton pectinatus	Fennel pondweed
	Potamogeton perfoliatus	Clasping-leaf pondweed
	Ranunculus peltatus ssp. baudotii	Pond water-crowfoot
	Ruppia cirrhosa	Spiral tasselweed
	Ruppia maritima	Beaked tasselweed
	Schoenoplectus tabernaemontani	Grey club-rush
	Zannichellia palustris	Horned pondweed
	Zostera marina	Eelgrass
Macroalgae	*Ceramium tenuicorne*	A species of red weed
	Ceramium virgatum	A species of red weed
	Chara aspera	Rough stonewort
	Chara baltica	A Baltic stonewort
	Chara canescens	Bearded stonewort
	Chara horrida	A Baltic stonewort
	Chorda filum	Mermaid's tresses

	Cladophora glomerata	Blanket weed
	Cladophora rupestris	Green seaweed
	Ectocarpus silicolosus	Brown algae
	Enteromorpha spp.	Gutweed
	Fucus serratus	Toothed wrack
	Fucus vesiculosus	Bladder wrack
	Furcellaria lumbricalis	A species of red alga
	Monostroma balticum	A species of brown alga
	Pilayella littoralis	A species of brown alga
	Polysiphonia fucoides	A species of red alga
	Tolypella nidifica	Bird's nest stonewort
Mammals	*Phoca vitulina*	Common seal
Birds	*Anser anser*	Greylag goose
	Aythya fuligula	Tufted duck
	Haliaeetus albicilla	White-tailed eagle
	Larus argentatus	Herring gull
	Larus canus	Common gull
	Larus marinus	Great black-backed gull
	Mergus serrator	Red-breasted merganser
	Phalacrocorax carbo	Great cormorant
	Somateria molissima	Common eider
Fishes	*Alburnus alburnus*	Common bleak
	Anguilla anguilla	Eel
	Clupea harengus	Atlantic herring
	Coregonus lavaretus	Common whitefish
	Esox lucius	Northern pike
	Gasterosteus aculeatus	Three-spined stickleback
	Gobiusculus flavescens	Spotted goby
	Gobius niger	Black goby
	Perca fluviatilis	European perch
	Platichtys flesus	Flounder
	Pomatoschistus minutus	Sand goby
	Rutilus rutilus	Common roach
	Salmo salar	Atlantic salmon
	Salmo trutta	Trout
	Syngnathus typhle	Broad-nosed pipefish
	Vimba vimba	Vimba
	Zoarces viviparus	Viviparous eelpout
Insects	*Laccophilus poecilus*	A species of water beetle

Molluscs	*Cerastoderma lamarckii*	Brackish water cockle
	Hydrobia ulvae	Laver spire shell
	Hydrobia ventrosa	Mud snail
	Lymnea peregra	Wandering snail
	Lymnea stagnalis	Great pond snail
	Macoma baltica	Baltic macoma
	Mya arenaria	Soft-shell clam
	Mytilus edulis	Blue mussel
	Nesovitrea hammonis	A species of snail
	Potamopyrgus antipodarum	New Zealand mud snail
	Theodoxus fluviatilis	River nerite
Crustaceans	*Balanus improvisus*	Bay barnacle
	Bathyporeia pilosa	A species of amphipod
	Crangon crangon	Sand shrimp
	Gammarus locusta	A species of amphipod
	Idothea baltica	Marine woodlice
	Palaemon adspersus	Baltic prawn
	Monoporeia affinis	A species of amphipod
	Mysis spp.	Opossum shrimps
	Saduria entomon	Aquatic sow bug
Other invertebrates	*Aurelia aurita*	Common jellyfish
	Chironomidae	Non-biting midges
	Nereis diversicolor	A species of sand worm

12.7.2 Important natural processes

Natural process	***Description***
Icing (partly relevant also for the outer archipelago)	The ice often has a major impact on the upper belt of mussels, barnacles and perennial algae since these are scraped off by or freeze into the ice and are pulled away at increased water levels. Shallow bays with low water circulation can suffer from lack of oxygen during prolonged ice coverage.
Sedimentation	Water-borne particles settle on the bottom in areas with little water movement. This leads to a gradual shallowing, which can be accelerated by the overgrowth of reeds and other plants. Sedimentation is affected by eutrophication, by increasing the amount of organic particles that settle. Sedimentation also leads to environmental toxins in the sediment over time being buried into the sediments that become unavailable for aquatic organisms.
Currents	Sea currents along the coast rearrange and transport sand and fine-grained materials. Outflow of water from rivers brings fine-grained materials that settle on the seabed.

Temperature stratification	In spring, a heated water layer forms closest to the surface. This layer is mostly developed in sheltered areas with little mixing of the water. The heated water is an important condition for life for many fish and other organisms that take advantage of it for reproduction and nursery. Therefore, measures to increase water turnover sometimes cause adverse effects.
Sea level variations	Variations between high and low water levels occur primarily as a result of fluctuations between high and low pressure. The variation is very important for water exchange in shallow and enclosed sea areas.
Waves	Wave formation in combination with changing water levels can cause erosion of beaches. In exposed areas, only organisms that are adapted to waves can survive.

12.7.3 Main human impact

Human impact	***Description***
Eutrophication	Emissions of nutrients such as nitrogen and phosphorus from land contribute to, e.g. increased phytoplankton abundance and clouding of the water, which in turn leads to deterioration of oxygen conditions. In addition, the algae growth increases on bottoms and higher plants. Emissions occur from both diffuse and specific sources.
Beach grazing	Beach grazing maintains used meadows, but also often results in the reduction or disappearance of the reed belt. This can affect water quality and growth conditions for many fish species.
Environmental toxins	Heavy metals, organic pollutants, etc. from human activities fall into the sea and are concentrated up through the food chain.
Fishing	Ever since people settled in the area, fishing has had a significant impact on the population. From a national perspective, the commercial eel fishing with gillnets is relatively extensive, while fishing for trout, salmon, pike, perch and flounder is more small scale. Subsistence and recreational fishing is relatively extensive.
Hunting	Within the archipelago there is some hunting of mostly seabirds.
Boating	The archipelago is attractive for boating activities (including recreational fishing). During the summer, there is extensive recreational traffic throughout the area, which leads to, among other things, emission of pollutants, noise and disturbance to bird life. PWCs (personal water craft) may also cause local disruption.

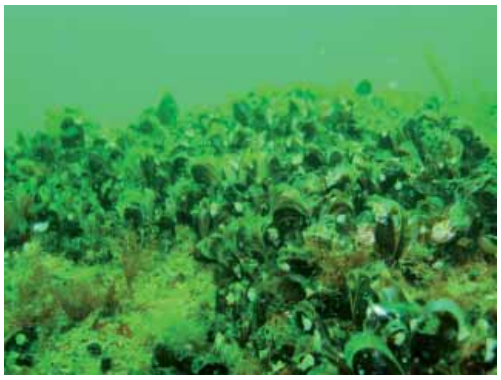
Dredging	Dredging and deepening of main ports and waterways occur, usually in order to facilitate boat traffic. Dredging is sometimes done in order to increase water flow and boat traffic in straits that are in the process of becoming overgrown.
Padding/dumping	Padding occurs mostly in shallow water areas adjacent to urban areas, in order to allow for new settlements or to prevent flooding.

12.7.4 Relevant management practices

Management practices	***Description***
Reduction of nutrient substances and other pollutants	• The application of cultivation and farming techniques that reduce nutrient leaching from agricultural fields and woodlands • Restoration of wetlands in the agricultural landscape that can absorb nutrients • High cleaning effect on public or private sewage systems • Collection of algae that have floated ashore can reduce the load of nutrients in the ocean • Establishment of boat washing facilities and other measures that reduce the need for toxic antifouling paints • Drainage of sediment and soil around marinas where toxins from antifouling paints are sedimented
Fisheries management	• A sustainable fishery, with practices, quotas and fishing times in the proposed biosphere reserve's inner archipelago which ensures good stocks of all indigenous fish • Sustainable management of the inner archipelago reproduction and nursery areas • Fishing methods to prevent bycatch of porpoises and sea birds, and reduces seal damages
Respectful use of the inner archipelago	Limitation of noise and other disturbances in the archipelago's most sensitive parts should be done, for instance through targeted information activities.

12.8 Eighth type of nature type/land use: outer archipelago

Covers virtually the entire outer part of the sea area included in the proposed biosphere reserve.



Around the Utklippan islands, mussels grow on the sea bottom.

Eco system	***Description***
Open sea (Regional/Local)	The outer archipelago includes the open and exposed sea area off the larger islands, and has a water depth that usually exceeds six meters. On the shallow east coast the open and exposed areas are, however, shallower. The bottom consists mainly of minerogenic materials (sand, gravel) and in some places there are also elements of underwater rocks (reefs). Hard bottoms are usually covered with red algae, while soft bottoms lack vegetation. Wreckages constitute protective habitats for fish. The salinity of the outer archipelago's surface water is about 8 per mil.

12.8.1 Characteristic species

Group	**Scientific name**	**Common English name**
Macroalgae	*Desmarestia aculeata*	Witch's hair
	Ectocarpus spp	Brown algae
	Fucus serratus	Toothed wrack
	Fucus vesiculosus	Bladder wrack
	Furcellaria lumbricalis	A species of red alga
	Polyciphonia fucoides	A species of red alga
	Rhodomela confervoides	A species of red alga
Mammals	*Halichoerus grypus*	Grey seal
	Phoca vitulina	Common seal
Birds	*Larus argentatus*	Herring gull
	Larus canus	Common gull
	Larus marinus	Great black-backed gull
	Somateria molissima	Common eider
	Sterna caspia	Caspian tern
	Sterna sandvicensis	Sandwich tern

Fishes	*Ammodytes tobianus*	Lesser sand eel
	Clupea harengus	Atlantic herring
	Cottus spp	Freshwater sculpins
	Gladus morhua	Atlantic cod
	Platichtys flesus	Flounder
	Psetta maxima	Turbot
	Salmo salar	Atlantic salmon
	Salmo trutta	Trout
	Sprattus sprattus	European sprat
Molluscs	*Cerastoderma lamarckii*	Brackish water cockle
	Macoma baltica	Baltic macoma
	Mya arenaria	Soft-shell clam
	Mytilus edulis	Blue mussel
Crustaceans	*Gammarus locusta*	A species of amphipod
	Idothea baltica	Marine woodlice
	Palaemon adspersus	Baltic prawn
	Saduria entomon	Aquatic sow bug
Other invertebrates	*Aurelia aurita*	Common jellyfish

12.8.2 Important natural processes

Natural process	***Description***
Currents	Currents along the coast rearrange and transport sand and fine-grained materials. So-called ”upwelling” means that deep water flows up to the surface close to shore. This occurs in Hanö bay, injecting nutrients in the water.
Nitrogen fixation	During conditions of lack of nitrogen and a good supply of phosphorus, Cyanobacteria, also known as blue-green algae, can bind large amounts of dissolved atmospheric nitrogen, thus making it available for other types of algae, which contributes to further eutrophication. Cyanobacteria can often be very abundant at sea during the summer, so-called blooms.
Grey seal	The present relatively large population of grey seals in the southern Baltic Sea affects fish stocks in the proposed biosphere reserve’s outer archipelago.

12.8.3 Main human impact

Human impact	*Description*
Eutrophication	Emissions of nutrients such as nitrogen and phosphorus from land contribute e.g. to increased phytoplankton abundance and clouding of the water, which in turn leads to deterioration of oxygen conditions. In addition, algae growth increases on bottoms and on other higher vegetation. Emissions are both diffuse (e.g. leakage from agricultural industry) and from point source (e.g. air emissions from industries).
Environmental toxins	Heavy metals, organic pollutants, etc. from human activities fall into the sea and are concentrated through the food chain.
Fishing	Ever since humans settled in the area, fishing has had significant impact on the population. In the outer archipelago of the proposed biosphere reserve (open sea), fishing is mostly on a small scale for mainly cod, herring and sprat.
Water transportation	The proposed biosphere reserve is crossed by several routes and the heavy sea traffic is extensive. Sea transport, including ferries, emits both air and water pollution and also generates noise.
Other	• Dumping of dredge spoil • Leakage of substances from dumped old munitions • Leakage of oil etc. from wrecks

12.8.4 Relevant management practices

Management practices	*Description*
Reduction of eutrophicating substances and other pollutants	• The application of cultivation and farming techniques that reduce nutrient leaching from agricultural fields and woodlands • Restoration of wetlands in the agricultural landscape that can absorb nutrients • High cleaning effect on public or private sewage systems • Reduced air and water pollution from shipping
Fisheries management	A sustainable fishery, with practices, quotas and fishing times in the proposed biosphere reserve's inner archipelago which ensures good stocks of all indigenous fish.

The name Blekinge is believed to originate from the word "bleke", which can be translated the pale sea. Picture taken by Tjärö.

12.9 Ninth type of nature type/land use: beaches, islands and skerries

The nature and land use type includes the coastal ecosystems on land (mainly beaches and small islands and reefs) that could not be included as natural grassland or other habitats. They are commonly occurring throughout the proposed biosphere reserve coast.

Eco system	***Description***
Rocky and sandy beaches and moraines (Regional/Local)	Rocky beaches as well as moraine beaches are common features along the southern coast of the proposed biosphere reserve. Larger sandy beaches are rare, however. The longest can be found in the southern part of Utlängan in the Eastern archipelago.
Small islands and skerries (Regional/Local)	Along the area's southern coast there are plenty of more or less exposed small granite islands, moraine islands, and skerries. The small islands often lack a tree layer, and shrub layers tend to be more or less non-existent. The smaller islands are important breeding sites for seabirds, including terns, and are therefore often strongly impacted by bird manure.

12.9.1 Characteristic species

Group	**Scientific name**	**Common English name**
Vascular plants	*Allium schoenoprasum*	Chives
	Lemna gibba	Duckweed
	Lythrum salicaria	Purple loosestrife
	Sedum acre	Goldmoss stonecrop
	Silene viscosa	White sticky catchfly
	Tripolium vulgare	Seaside aster
	Viola tricolor	Heartsease
Mammals	*Mustela vison*	Mink

Birds	*Anser anser*	Greylag goose
	Branta leucopsis	Barnacle goose
	Haematopus ostralegus	Oystercatcher
	Larus argentatus	Herring gull
	Larus canus	Common gull
	Larus marinus	Great black-backed gull
	Phalacrocorax carbo	Great cormorant
	Somateria molissima	Common eider
	Sterna albifrons	Little tern
	Sterna caspia	Caspian tern
	Sterna hirundo	Common tern
	Sterna paradisaea	Arctic tern
	Sterna sandvicensis	Sandwich tern
	Tringa totanus	Common redshank
Amphibians	*Bufo calamita*	Natterjack toad
	Bufo viridis	European green toad
Insects	*Arenostola elymi*	Lyme grass moth
	Coenonympha pamphilus	Small heath
	Cryphia raptricula	Marbled grey
	Hesperia comma	Silver-spotted skipper
	Hipparchia semele	Grayling
	Lasiommata megera	Wall brown
	Nola aerugula	Scarce black arches
Molluscs	*Nesovitrea hammonis*	A species of snail
	Truncatellina pupilla	A species of snail

12.9.2 Important natural processes

Natural process	***Description***
Waves	Wave formation in combination with changing water levels can cause erosion of beaches. The waves also wash ashore seaweed and algae.
Currents	Sea currents along the coast rearrange and transport sand and fine-grained materials. Islands of sand and gravel can thus both be eroded and filled in.
Grazing by wild animals	Low-lying islands with beach meadow vegetation are partly used for grazing by wild geese, mostly greylag and barnacle geese.
Bird colonies	Colonies of nesting birds such as cormorants and herring gulls affect vegetation on the islands where they nest. The effect of bird manure cause some disadvantages to some species (e.g. trees and bushes), while others benefit (e.g. species of goosefoots, sorrels etc.).

12.9.3 Main human impact

Human impact	*Description*
Boating	The archipelago is attractive for boating activities. During the summer there is extensive recreational traffic (including PWCs), which leads to, among other things, certain emission of pollutants, as well as noise, waves (which may cause erosion of beaches), and disturbances of birds.
Water transportation	Noise and waves from ferries and other shipping occurs in connection to ports and waterways.
Hunting	Within the archipelago, on beaches and islands, there is some hunting of mostly seabirds.
Padding or other physical exploitation of beaches	Physical exploitation of beaches is only minor, and mainly associated with urban development.

12.9.4 Relevant management practices

Management practices	*Description*
Respectful use of the inner archipelago	Limitation of noise and other disturbances in the archipelago's most sensitive parts should be done, for instance through targeted information activities.

13 Conservation Function

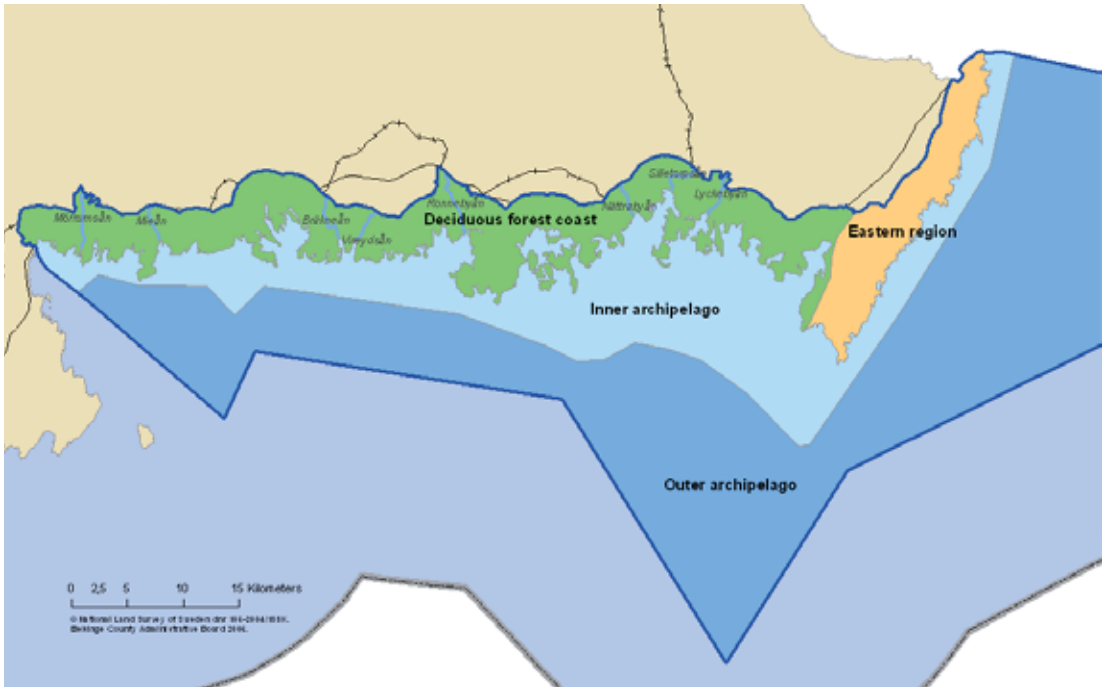
13.1 Contribution to the conservation of landscape and ecosystem biodiversity

[Describe and give location of landscapes, ecosystems, habitats and/or land cover types of particular significance for the conservation of biological diversity.]

The proposed biosphere reserve includes the coastal and island areas from the Pukavik Bay's innermost part in the west to Bröms at the border with Kalmar County in the east, to a width of 3 kilometers into the mainland. The whole area is a highly cultivated landscape of farmland, meadows and pastures, deciduous and coniferous forests, towns and villages, and a large sea area covering both the inner archipelago's shallow inlets and bays, and the open sea outside. A number of nature types and land use types have been identified among which all have a significant impact on biodiversity. Within the proposed biosphere reserve there are a total of 37 nature reserves, 1 culture reserve and 72 Natura 2000 sites.

Within the proposed biosphere reserve a number of geographical areas with particularly high environmental values have been identified. The following description deals with these areas, which are:

- The deciduous forest coast (the broadleaf dominated forests by the seashore)
- The eastern region
- The Mörrum River and the other larger rivers
- The inner archipelago with its islands, shallow inlets and bays
- The outer archipelago (the open sea).



Deciduous forested coastland dominates Blekinge Archipelago except in the eastern part.

In Blekinge Archipelago the deciduous trees grow all the way down to the sea.

Deciduous forest coast

The "deciduous forest coast" was coined as a concept in 1963 by Carl Fries in his book The Swedish South, which includes a vivid description of the Blekinge coastal hardwood forests. The deciduous forest coast includes the coastal route between Pukavik and Torhamn, and has its heart in the area between Ronneby and Karlskrona. It is the only archipelago in the Baltic Sea area where deciduous forest leaves its mark on the landscape. Examples of important areas are Stensnäs close to Pukavik, the Eriksberg–Tjärö–Biskopsmåla peninsula, Göholm, the Tromtö–Vambåsa–Listerby archipelago, Skärva–Karlskrona and Hallarum Bay–Färskesjö region on the Torhamn Peninsula. The area is characterized by broadleaf forests of oak and beech, which reach right out to the sea. It contains both the nutrient-rich oak and beech forests with rich grove-like vascular plant flora and many different species of fungi, and nutrient-poor mountain-locked scrub forests with low formations of oak. The favorable climate with mild winters and warm summers and autumns makes it possible for many southern warmth-demanding species (relicts from tropical and subtropical times) of mainly wood-living insects to be present in the area.

In the area there is also a significant element of oak pastures whose centuries-old oak trees have a high biodiversity of organisms, including many endangered species. The element of ancient semi-natural oak trees (giant oaks) is particularly high in the manor houses in the area, such as Stensnäs, Göholm, Vambåsa, Tromtö, Skärva and Augerum. The old broadleaf trees, both in the pasture environment and forests, contain a rich lichen flora, worthy of protection, that is unparalleled in the country.

Both in and adjacent to the three towns of Karlskrona, Ronneby and Karlshamn old broadleaf forests with very high biological values can be found. Forests are often also very important for outdoor recreation close to urban areas and the significant cultural heritage. Examples of such forests are Sternö and Bellevue Park in Karlshamn, the Ronneby Brunn forest and Vämö park and Lorentsberg–Skönstavik in Karlskrona.

Within the "deciduous forest coast" there are 20 nature reserves (18 of which also affect the inner archipelago), 1 culture reserve and 38 Natura 2000 sites (of which 16 also affect the inner archipelago), most of them with elements of broadleaf forests and oak pastures.

Eastern region

The eastern region is characterized by flat land and has a different geology to the rest of the area.

The eastern region covers the thin granite plains stretching from the Torhamn Peninsula in the south to the border with Kalmar county in the north. Along the coast there is a more or less continuous band of shore meadows. The low moraine islands at Kristianopel and Konungshamn are also largely dominated by shore meadows. These are very important for the species of wader birds that nest and rest here. Inland from the shore meadows there are wide sandy farmlands. Cultivable areas are bounded to the west by the sand bank from the Littorina era that runs along the entire coastline, and where the farms are mostly located. In connection with the sand bank, there are some elements of sand fields and fossil sand dunes that house, *inter alia* many red listed species of vascular plants, fungi, lichens and insects.

Within the eastern region there are 5 nature reserves and 13 Natura 2000 sites.

The Mörrum River, the largest river in Blekinge, is famous for its salmon fishing which has a long history.

The Mörrum River and the other larger rivers

Mörrum River is one of southern Sweden's largest rivers. The lower portion flows through and has its estuary in the proposed biosphere reserve. The river is best known for its stock of trout and salmon, but it also contains a large number of other protection worthy and interesting plant and animal species. Both fish and bottom fauna are exceptionally species-rich. Inventories conducted in the 1980s showed that the Mörrum River is one of the country's most species-rich streams. This can probably be explained by its southern location which provides a favorable climate. On the nutrient-rich river bed the vascular plant flora is particularly rich in species with several red listed or otherwise rare species. Although none of the other rivers can match the Mörrum River for its biological diversity, they have nonetheless significant natural values. The Bräkne River contains red listed species of large clams and also has fishery biological value. The Mie, Ronneby, Vieryd, Nättraby, Silletorp and Lyckeby rivers all have significant biological qualities.

In the rivers' lower parts there is a nature reserve (Sonekulla, covering Bräkne River estuary). The entire Mörrum River is included in Natura 2000, under the Habitats Directive. The Mörrum River is also included in the Ramsar site Mörrum River–Pukavik Bay. Bräkne River is also covered by Natura 2000 (subdivided into two different Natura 2000 sites), while the Silletorp and Lyckeby rivers respectively are covered by two smaller Natura 2000 sites.

Charale weeds (Chara tomentosa) are often spread on the bottom of the inner archipelago.

The inner archipelago with its islands, shallow inlets and bays

The archipelago's innermost inlets and bays usually have lower salinity (about 6 per mil) than the open sea. They consist often of plant and animal species that normally live in freshwater. The protected shallow bays and lagoons with soft bottoms sometimes contain sprawling underwater beds of charale weeds while stocks of bladder wracks floats on the surface. The shallow bays and rich vegetation are very important as nursery and feeding areas for several fish species, and they are also of great importance for many nesting, migrating and wintering birds. Examples of major coves with beds of charale weeds include the Tromtesunda bay, Runsten bay, Sibbaboda bay and Pajen. The inner archipelago also contains coves with sand and gravel bottoms. On sandy bottoms down to about 6 meters deep are extended underwater beds of eelgrass. Like the charale weeds beds they also provide protection and food for many fish species. On hard bottoms with boulders and cliffs bladder wrack grows that in turn houses a large number of species of lower plants and animals that are all important food resources for many fish and bird species. The common eider, a characteristic species of the archipelago, is entirely dependent on the mussels that are either stuck to the bladder wrack or form "mussel banks" on underwater rocks.

The archipelago's islands form a cultural landscape that, since many centuries, has been marked by fishing and grazing. During the 1800s there was also extensive quarrying on all the major islands, which today the many scrap stone mounds testify. Most of the islands are mountain-bound which makes marine meadows often limited to narrow strips. Almost every island in the archipelago has been grazed. Today, however, the number of grazing animals is too small to hold all the islands used for grazing. However, the slow overgrowth, often with birch and juniper shrubs, allows the centuries-old grazing character to still be evident in many parts of the archipelago. Significant tree layers are only found on the largest islands, where former pastures and grazed scrub now largely have become part of the forest. On some of the larger islands, such as Sturkö and Senoren, there is arable land that is still used and that contain remnants of the ancient weed flora that is now threatened. Sturkö and Senoren also contain long-used meadows with rich flora and elements of red listed species.

In the archipelago's internal parts there are 28 nature reserves (18 of which are also part of the "deciduous forest coast") and 37 Natura 2000 sites (16 of which are also part of "deciduous forest coast" 1 is the Mörrum estuary). Within the archipelago there are also 2 Ramsar sites; Mörrum River–Pukavik Bay and Blekinge archipelago (3 geographically distinct areas).

The outer archipelago (the open sea)

Sunset at Utklippan islands, the most southern outpost of Blekinge Archipelago.

The open sea off the larger islands varies in water depth from about 6 to 40 meters. At underwater reefs, the depth can be one or two meters only. The salinity of the surface layer is 8 per mil. Sand, gravel and rocky bottoms predominate, and the vegetation consists entirely of colonies of algae with various species of green, brown, and red algae. On underwater rocks and reefs there are blue mussel banks. At larger depths there are also soft bottoms, where primarily the Baltic mussel is a characteristic feature. Pelagic fish such as cod, herring and sprat are common.

In the open sea area there is 1 nature reserve (Utklippan) and 2 Natura 2000 sites (Utklippan and Pukavik Bay, the latter involving also the inner archipelago)

13.2 Conservation of species biodiversity

[Identify main species (with scientific names) or groups of species of particular interest for the conservation of biological diversity, in particular if they are rare or threatened with extinction; use additional sheets if need be.]

Globally and nationally red listed species and the EU-listed species

Within the proposed biosphere reserve 449 nationally red listed species are found. In addition, there are 18 globally red listed species and 49 European species, whereof 36 bird species listed in the EU Birds Directive and 13 species listed in the EU Habitats Directive. For some groups of species there is sufficient knowledge, while others are poorly known. The compilation is based on data from the 1970s onwards. The comprehensive list of national and global red listed species and EU-listed species can found in Appendix 6.

Many of the red listed species, as well as a number of other protection-worthy species are important for biodiversity in the area, either since other organisms depend on them or because they have specific demands on the environment they live in or are sensitive to changes and by their presence indicate areas of high natural value. The summary that follows describes the nationally and globally red listed species, as well as the EU-listed species on the basis of different plant and animal groups.

Rosa tomentella grows in pastures, forest edges and on flat rock lands.

Vascular plants

Vascular plants covered by the EU Habitats Directive are not present in the proposed biosphere reserve. By contrast, there are over 70 nationally red listed species. One of them, water dropwort (*Oenanthe lachenalii*), which grows on marshy beaches, has its only known occurrences in the country in the vicinity of Ronneby. Another species, spring candy flower (*Montia minor*), which also grows on beaches or in coastal pastures, has its main Swedish distribution along the Blekinge coast, and the same applies to *Rosa tomentella* which mainly grows in pastures, forest edges and on flat rock lands near the sea.

Vascular plants related to broadleaf forests

Only two nationally red listed vascular plants that occur within the proposed biosphere reserve are more or less linked to the broadleaf forests. It is greater chickweed (*Stellaria neglecta*) and yew (*Taxus baccata*). The latter can sometimes form their own smaller stocks, but occurs most often as part of coastal oak and beech forest.

Vascular plants related to natural grazing lands

Within the reserve there are nearly 20 nationally red listed vascular plant species associated with natural pastures and hay meadows. The above mentioned *Montia minor* is one of them. Other examples are the spruce sprout (*Pedicularis sylvatica*), Hartman sedge (*Carex hartmannii*), brome fescue (*Vulpia bromoides*), trailing St. John's-wort (*Hypericum humifusum*) and small marsh dandelion (*Taraxacum littorale*).

Vascular plants associated with running water

In or by the running water of the proposed biosphere reserve, there are three species that are nationally red listed. *Baldellia repens*, which has one of its few known habitats in the country by the Mörrum River, as well as rice cutgrass (*Leersia oryzoides*), (grows by many of the rivers) and *Apium inundatum*, a species of marshwort (Vieryd River).

One of the country's most rich occurrences of a species of marshwort can be found by the Vieryd River.

Vascular plants associated with sand environments

Surfaces with open sand are a scarce commodity in nature, and appear mostly as fragments in the landscape. Major sand areas are mainly located in the proposed biosphere reserve's eastern part, around Jämjö (in old gravel pits), Sibbaboda (sand boxes beside the Littorina bank) and Högasand north of Kristianopel (fossil dunes). Red listed vascular plants in the reserve that are more or less dependent on sand include leafybract dwarf rush (*Juncus capitatus*), allseed (*Radiola linoides*), silver hairgrass (*Aira caryophyllea*), soap wort (*Gypsophila muralis*), pimpernels (*Anagallis minima*), sand fescue (*Festuca polesica*) and land-sedge (*Carex ligerica*). Some of these species also exist as weeds in sandy fields, especially in those that lie fallow.

Mosses

One EU-listed species of moss, the dichelyma moss (*Dichelyma capillaceum*), is known in the area. It grows in Lyckeby River at Augerum. The species is also nationally red listed, as is Dicranum moss (*Dicranum fulvum*), short-beaked wood moss (*Loeskeobryum brevirostre*), and dwarf neckera (*Neckera pumila*).

The moss Dicranum fulvum is listed by the EU as a threatened species.

Fungi

Globally red listed macrofungi are not found in the proposed biosphere reserve, and the EU Habitats Directive contains in general no fungi. However, there are nearly 90 nationally red listed species of macrofungi within the reserve.

Inonotus cuticularis grows on the smooth stems of old beech trees.

Fungi associated with broadleaf forests and broadleaf pastures

About 40 species of nationally red listed macrofungi are found in broadleaf forests within the proposed biosphere reserve. Most are associated with oak, and many of them are wood-living. Oak living species such as Ox tongue *Fistulina hepatica*, *Inonotus dryadeus*, *Ganoderma resinaceum*, Hen of the Woods *Grifola frondosa* and *Collybia fusipes* have a large share of their Swedish distribution within the proposed biosphere reserve. The same goes for the beech living species *Inonotus cuticularis*.

Fungi associated with natural grazing lands

A total of about 15 red listed fungi occur in the proposed biosphere reserve's well-used meadows and pastures. Most belong to the genus gilled mushrooms. Examples of red listed species are *Entoloma dichroum, E. placidum, E. prunuloides, Hygrocybe russocoriacea*, *Camarophyllopsis schulzeri* and *Clavaria fumosa*.

Lichen

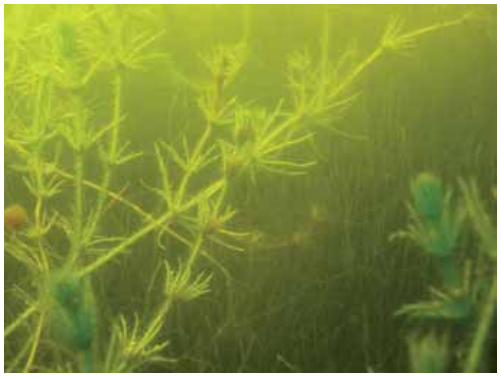
The proposed biosphere reserve flora of nationally red listed lichens contains mainly arboreal species. Inventories in recent years have shown that especially the oak living lichens are unique, and probably not just from a Swedish perspective, but also internationally. Two arboreal species are worth particular mentioning. Rock zone lichen (*Enterographa hutchinsiae*) appearing on hornbeam and beech, has only a few plant locations in

The lichen Stereocaulun incrustatum grows on only three sites in Sweden, one of which is within Blekinge Archipelago.

the country, and *Megalaria laureri* has probably its greatest population in the country in Blekinge. The area also includes a sand-living species, *Stereocaulon incrustatum*, which in addition to the presence at Högasand exists only in two other locations in the country. A total of 31 nationally red listed lichens are known in the reserve.

Lichen associated with broadleaf forests and broadleaf pastures

Of the arboreal red listed species that are known in the area it is primarily the oak living lichen that stands out. Species such as *Lecanographa amylacea, Schismatomma decolerans, Bactrospora corticola, Arthonia pruinata* and *Opegrapha vermicellifera* have their most rich presence in the coastal oak forests and oak pastures in the proposed biosphere reserve.



The Baltic stonewort Chara horrida grows only in the Baltic Sea and is important for fish as well as for birds.

Macroalgae

The only nationally red listed macroalgae that exist within the proposed biosphere reserve are two species of Charales. One of them grows in freshwater, *Nitella gracilis*, while the other, *Chara horrida*, lives in brackish water. The *Chara horrida* is endemic to the Baltic Sea and like other species living in brackish water, it can form underwater beds that are important spawning and nursery areas for fish, and feeding areas for birds.

Arachnids

The great raft spider (*Dolomedes plantarius*) occurs in stagnant water within the proposed biosphere reserve. It is the only arachnid in the proposed biosphere reserve that appears on the global red list. A species that occur in a few places, the *Anthrenochernes stellae*, is covered by the EU Habitats Directive and is also on the national red list.

Molluscs

Several red listed species of molluscs are known to be present in the proposed biosphere reserve. Two species are globally red listed: thick shelled river mussel *Unio crassus* and freshwater pearl mussel *Margaritifera margaritifera*. Both occur in running water in the reserve. Both species are also on European and national red lists. On the national red list is also the common chrysalis snail (*Lauria cylindracea*), which has been found on Utklippan.

Both freshwater pearl mussel (top) and thick shelled river mussel (bottom) are present within Blekinge Archipelago.

Crustaceans

One nationally red listed species occur within the proposed biosphere reserve: the European crayfish *Astacus astacus*, which still exists in a few waters.

Insects

Hermit beetle is one of the insects that depend on old oak trees.

The proposed biosphere reserve includes a large number of red listed insect species. Knowledge of different insect groups varies greatly. Those who have been carefully inventoried include wood-living beetles, butterflies and stinging wasps. Of the insect species that are currently known there are three that are globally red listed. These are the red wood ant (*Formica rufa*), the large blue (*Maculinea arion*) and the hermit beetle (*Osmoderma eremita*). Species that are listed in the EU Habitats Directive include large white-faced darter (*Leucorrhinia pectoralis*), and stag beetle (*Lucanus cervus*). The latter are not at all unusual in the area. The nationally red listed insect species are about 180. No fewer than 110 of these are beetles. Insect species that should be particularly emphasized are European mole cricket (*Gryllotalpa gryllotalpa*), *Psophus stridulus*, clouded Apollo (*Parnassius mnemosyne*) and the Sussex diving beetle (*Laccophilus poecilus*). The latter lives in brackish water and probably has its only current presence in Sweden in the sea between Ronneby and Karlskrona.

Insects associated with broadleaf forests and broadleaf pastures

The substantial area of broadleaf forests and pastures, the long continuity of trees and the favorable climate means that many southern, heat-loving insects associated with broadleaf environments occur in the area. Many of the nationally red listed insect species are such species. Among the most significant are stag beetle, hermit beetle and scarabeid beetle (*Aesalus scarabaeoides*) as well as an important group of beetle species living in the dry branches of oak (especially in coastal rock-bound oak forests). Examples of the latter group are the longhorn beetles *Poecilium alni* and *Grammoptera ustulata*.

Fishes

Fish fauna in the area is species-rich and contains both species that live in fresh and those who live in brackish water. One of the area's most important fish species, ecologically and economically, is the EU Habitats Directive listed salmon (*Salmo salar*). Three species are globally red listed: Atlantic cod (*Gadus morrhua*), European river lamprey (*Lampetra fluviatilis*), and brook lamprey (*Lampetra planeri*). The national red listed fish species are six. In addition to Atlantic cod and European river lamprey they are the eel (*Anguila anguila*), European turbot (*Psetta maxima*), vimba (*Vimba vimba*) and viviparous eelpout (*Zoarces viviparous*).

Reptiles and Amphibians

No globally red listed reptiles and amphibians are located within the proposed biosphere reserve. However, the EU-listed species great crested newt (*Triturus cristatus*) is common. In addition, the following nationally red listed species exist: Natterjack toad (*Bufo calamita*), European Green Toad (*Bufo viridis*), sand lizard (*Lacerta agilis*), smooth snake (*Coronella austriaca*), grass snake (*Natrix natrix*) and Agile Frog (*Rana dalmatina*).

European green toad has a population on the Utklippan islands.

Birds

Two globally red listed bird species occur regularly in the proposed biosphere reserve. It is the corncrake (*Crex crex*) and white-tailed eagle (*Haliaeetus albicilla*). The white-tailed eagle is both nesting and wintering in the reserve. The status of the corncrake is unclear, but territory claiming birds are found almost annually. The EU Birds Directive covers 36 species of birds that regularly nest, rest or winter in the proposed biosphere reserve. The nationally red listed species in the reserve amounts to 50.

Birds associated with forests

Within the proposed biosphere reserve there are seven forest species that are listed in the EU Birds Directive. Most occur in broadleaf forests, but a species of nightjar (*Caprimulgus europaeus*) occurs in both thin broadleaf forests as well as in thin pine forests. The species has one of its strongholds in the country in the proposed biosphere reserve. Other species are woodlark (*Lullula arborea*), red kite (*Milvus milvus*) and honey buzzard (*Pernis apivorus*). The nationally red listed forest bird species are approximately 10 in the reserve.

Birds associated with the sea and the archipelago

The EU Birds Directive contains about 10 bird species that regularly occur in the archipelago, either as nesting, resting or wintering. Species that are particularly important to highlight are the terns; little tern (*Sterna albifrons*), Caspian tern (*Sterna caspia*), common tern (*Sterna hirundo*), Arctic tern (*Sterna paradisaea*), and sandwich tern (*Sterna sandvicensis*). The nationally red listed coastal bird species in the area are approximately 10, including the bean goose, *Anser fabalis ssp. fabalis* (resting) and the long-tailed duck, *Clangula hyemalis* (wintering).

In the Baltic Sea there are three species of seal. In Blekinge, the common seal is the most frequent.

Mammals

Within the proposed biosphere reserve four globally red listed species of mammals appear regularly. These are otter (*Lutra lutra*), Hazel dormouse (*Muscardinus avellanarius*), pond bat (*Myotis dascymne*) and red squirrel (*Sciurus vulgaris*). The EU Habitats Directive includes four species that occur in the reserve: the grey seal (*Halichoerus grypus*), and common seal (*Phoca vitulina*), and the aforementioned otter and pond bat. There are four nationally red listed species occurring in the reserve including the aforementioned common seal and pond bat as well as Natterer's bat (*Myotis nattereri*) and Nathusius' pipistrelle (*Pipistrellus nathusii*). The porpoise (*Phocaena phocaena*), which is globally and nationally red listed as well as listed in the EU Habitats Directive, previously occurred regularly in the area but is now only temporary and highly uncommon. With proper management of the marine environment a resident aggregation might be possible in the proposed biosphere reserve.

13.3 Conservation of genetic biodiversity

[Indicate species or varieties of traditional or economic importance and their uses, e.g. for medicine, food production, etc.]

A few old vegetable varieties that have been traditionally grown in the proposed biosphere reserve have been preserved, and are grown today at a very modest scale. The most interesting is a bean *Phaseolus vulgaris* with the name "Signe" (an old form of brown beans), and an onion, *Allium cepa*, the "Åby" (an *Allium Liliaceae*), both derived from Åby, south of Ramdala. They have recently attracted attention, and the cultivator who preserved them has been rewarded with a special award from POM (Program for cultivated variety). "Signe" was selected as the best bean at a tasting of some 20 beans that have been submitted to "Seed call", POM:s call for older vegetable varieties. The award motivation read "beautiful, gentle and good with a nice balance between salty and sour." The bean, as well as the onion "Åby", is on the menu at the recently opened Stockholm restaurant Frantzén and Lindenberg. In addition, there is an old variety of the common bean (*Phaseolus vulgaris*), called the "Asarum." The bean's origin is poorly known but it probably comes from the Asarum region in the western part of the reserve.

The small "island horse" was an old native breed that no longer exists.

Within the proposed biosphere reserve there have previously been several native breeds of domestic animals that are extinct today. The best known example is probably the small "island horse" that existed in parts of the eastern archipelago well into the 1900s.

The last known specimen died in the 1940s. The only traditional native breed that is left, although in small numbers, is the Blekinge duck which is an old breed of domesticated mallard (*Anas platyrhynchos*). In 1994 a small flock of these ducks was found on Ungskär in Blekinge's outer archipelago. Traditionally, the ducks were raised and propagated in the stables during the winter and were then released into the marine band, where they, besides feeding on fishguts, pretty much had to fend for themselves. In 1996, gene bank operations started with 37 ducks. The number of registered animals in the gene bank amounted to 39 pieces in 9 groups in 2002, meaning that the rural species is still very much under the threat of extinction.

Knowledge of the genetic diversity of wild plants is very limited. Some local provenances of tree species have been noted; particularly the Blekinge coastal pine, which today has its largest presence on Aspö in Karlskrona municipality. This provenance, which is naturally adapted to the archipelago's coastal climate, is important to maintain and may have a greater economic impact in the future.

Among wild animals Mörrum's genetically unique strain of salmon is of particular interest. The Mörrum salmon is very important for the salmon presence across the southern Baltic Sea, and its economic value is very high. In recent years, a genetically unique form of three-spined stickleback has been noted in the area south of Verkö, Karlskrona. The stickleback, known in the mass media as the Borg stickleback, has a different color during lekking than the common three-spined stickleback and researchers believe that it is evolving into a separate species.

14 Development Function

14.1 Potential for fostering economic and human development which is socio-culturally and ecologically sustainable

[Describe how the area has potential to serve as a pilot site for promoting the sustainable development of its region or ”eco-region.”].

Blekinge Archipelago is characterized by its location in the southern Baltic Sea with the open sea areas, a relatively sparsely populated archipelago and a densely populated coast. Humans have been part of and shaped the landscape since the end of the last ice age. Blekinge Archipelago is today a unique environment and very attractive for residents, tourist activities and for outdoor recreation. Sustainable development requires that we can both preserve and exploit the natural and cultural values that exist in the area, that there are economic activities and services of various kinds, and that innovation and entrepreneurship are stimulated. Sustainable development of Blekinge Archipelago needs to build on the existing landscape and its character and circumstances. We must strive towards a holistic approach and find a good balance between the people, economy and environment. A sustainable and vibrant archipelago is a very important part in this.

A number of projects and activities with a bearing on sustainable development are already carried out within the proposed biosphere reserve, by the municipalities and the county administrative board as well as by other actors. During the local process to form a biosphere reserve in Blekinge archipelago and the coastal landscape a number of initiatives were taken in order to promote socio-culturally and ecologically sustainable economic development and community development. The proposed biosphere reserve has initiated and been instrumental in various projects during the candidate phase. Several of the projects and initiatives have been pilot activities regionally as well as nationally. Projects and activities that demonstrate the breadth and potential of the reserve to serve as a demonstration area for sustainable development are described below.

The regional steering documents

The biosphere reserve work will be linked to the Regional Growth Program (2008-2013, Region Blekinge) and a number of the areas of intervention in the program are directly applicable to the sustainable development that will be undertaken in the reserve. For example, under *priority 5: Attractiveness and regional identity* the following is stated: “The goal is to reach higher attractiveness and hence increased growth. This work will lead to a regional focus and stronger priorities in the coming years. By enhancing what is unique and attractive in Blekinge as well as offer new attractive experiences growth can occur.”

The Regional Development Program (2006-2013, Region Blekinge) also links to the intentions of the Blekinge Archipelago biosphere reserve: “Blekinge has every chance to develop into an even more attractive region” [...] “Blekinge’s rural areas have potential for good quality of life, attractive housing, recreation and business.”

Development of entrepreneurship and business

To promote economic, social and ecological development, it is important that there are conditions for work and livelihood. It is important that existing activities within different business areas can be developed and strengthened in a sustainable manner, but also that new jobs, and thus livelihoods, can be created.

Transporting tourists on a tractor trailer is one possible way to make an income in the archipelago.

The individual entrepreneurship by local entrepreneurs in different industries is of utmost importance. Their initiatives in various sectors can provide new and sustainable possibilities for incomes and future-targeted activities within the proposed biosphere reserve. These can be, among other things, in the hospitality industry and tourism, but also in traditional industries, such as agriculture and fisheries. It is important to also see opportunities for combined companies with several different activities. These activities include rented accommodation, guided tours of various kinds, services of various types, grazing and nature conservation, local processing of products from the area or social functions in various combinations.

The cooperation between various activities and entrepreneurs may also be a possible way to broaden and stimulate new thinking and lead to coordination advantages that will benefit the economic development of the reserve.

Examples of areas for development within the biosphere reserve

Today, there are many associations and organizations in the Ronneby and Karlshamn municipalities that are important to the development of the area, including Leader Blekinge, Coompanion et al. The municipal council in Ronneby, which functions as a gathering forum for all rural associations and cooperation between different actors, is under development.

In Karlskrona municipality there are networks of associations and business groups that together form development fora for their own district. In this work, the municipality may also be involved.

An active biosphere reserve office can become a meeting point for linking various entrepreneurs and businesses in the area. It can also be a place where new businesses can gather in an initial stage to wider disseminate developing new business ideas in areas such as eco-tourism and service.

The biosphere reserve office also wants to work and network with local companies to obtain a holistic view of sustainable agriculture, fishing and other businesses. Consumers demand more and more locally produced as well as organically grown foods. Blekinge Archipelago can become a model for a new approach where the individual entrepreneur’s ability and potential for developing the area’s natural conditions are

At the smokery Sturkö Rökeri, the locally caught fish is prepared.

stimulated. In a vibrant region it is important that different activities can be developed and not just become companies that sustain individuals but also lead to more new jobs.

There is also a potential for development of companies outside the proposed biosphere reserve placing part of their activities within the reserve. This could give further possibilities for the development of new technology, especially in telecommunications. Such a development could provide opportunities for people to not only live but also have their workplace and livelihood within the biosphere reserve.

Today, Telecom City is part of entrepreneurs' development of investments in, for instance tourist information in mobile phones. Because of the development of the Internet, there are also opportunities to market the biosphere reserve through the active use of Google Earth, where visitors, using their own words, could become ambassadors for the area.

A healthy Baltic Sea environment – a cornerstone of Blekinge Archipelago future development

The Baltic Sea is a unique and sensitive inland sea, with many islands and shallow, hard-to-navigate passages and slow water circulation. Countries around the Baltic Sea have a combined population of over 100 million people. The sea is a vital, heavily trafficked maritime transport route. The International Maritime Organization IMO has classified the Baltic Sea as a Particularly Sensitive Sea Area (PSSA). The EU has adopted a marine directive (Marine Strategy Framework Directive) and the Helsinki Commission, HELCOM, has produced an action plan for the Baltic Sea, Baltic Sea Action Plan (BSAP), both of which aim to achieve good ecological status of the marine environment by 2021. The EU is also developing a regional strategy for the Baltic region, with four objectives: the Baltic Sea region should (1) have a good environment; (2) be characterized by sustainable economic development; (3) be accessible and attractive; and (4) be safe.

A large part of the proposed biosphere reserve Blekinge Archipelago consists of coastal marine environments and marine environmental issues are central in the future biosphere work. Blekinge Archipelago intends to initiate a dialogue with the South Baltic River Basin District Authority for cooperation regarding questions on coastal waters. Apart from being home for very important natural and cultural values, the marine area has long had a significant impact on food supply and is now also important for different types of recreational activities. The area's development potential is based to a high extent on local conditions, but can also be strengthened through inspiration, exchange of experiences, and cooperation with other coastal areas around the Baltic Sea and other parts of the world.

Marine collaboration

During 2008, the Swedish Environmental Protection Agency initiated a pilot project called, "Collaboration plans for valuable coastal and sea areas," which aims to develop management plans during 2008 – 2010 for conservation and sustainable use of larger valuable coastal and marine areas that lack formal protection. The project will lead to the development of collaboration/management plans, in close cooperation between county administrative boards and concerned groups in the five pilot areas that contain BSPA (Baltic Sea Protected Areas) or MPA areas (Marine Protected Areas) in Sweden. The plans will form the basis for the future management of each area. They will not be binding, but because they are formulated in close collaboration with various concerned parties, they will be based on the areas' actual conditions and needs, making them an effective tool in the continued development and conservation of the areas. The pilot project will also serve as the basis for the Swedish Environmental Protection Agency's future guidelines for the management of coastal and marine areas, and help achieve national environmental objectives and international commitments.

Blekinge Archipelago is one of the pilot areas and was provided, through participation in this project, the opportunity to actively work with sustainable development from a marine perspective already during the candidacy phase. A review of the delimitation of the BSPA designated area "Torhamn archipelago" and an investigation into whether the monitoring and follow-up carried out are sufficient, will be implemented within the framework of this project. The collaboration plan will take into account *the whole* proposed biosphere reserve, not only the BSPA area. The pilot project complements the biosphere work in Blekinge and the two visions for the future are similar, where sustainable development of the marine environment meets ecosystem conservation programs and functions in the future. The goal is to create a sustainable scenario for the future that most concerned parties believe in and are willing to work for, through establishing a consensus among various stakeholders while maintaining a holistic view of the landscape. At the same time Blekinge Archipelago will have the opportunity to exchange experiences with other areas that also are working to find ways for new work methods.

The project will largely depend on the collaboration with and utilization of existing regulations and legal instruments. In order for agencies and other central authorities to be able to make good decisions on an area's development, dialogue and knowledge need to come from those who know the area well; in many issues those interlocutors are the local residents. The process of participation with a focus on dialogue and exchange of knowledge between target groups at different levels and with different approaches needs to be developed and integrated. Blekinge Archipelago is working to establish networks and dialogue fora with representatives from stakeholders involved in the planned biosphere reserve. It is important to use the existing networks that are continuously growing, in order to form thematic groups based on the issues and needs that exist today and which arise as the area is changing and developing.

Tools to create awareness and interest in how the Blekinge Archipelago will be managed, is among other various awareness-raising activities about the sea, such as seminars, workshops, theme days, etc.; the implementation of various sub-projects within the framework of sustainable archipelago development, and meetings between various stakeholders and business sectors.

Examples of projects and activities carried out in Blekinge Archipelago in the pilot project on marine collaboration plans are:

- Snorkeling route in Kollevik. In the summer of 2008, Sweden's first permanent snorkeling route was established in Kollevik in Karlshamn. The purpose of the route is to give experienced and inexperienced swimmers the possibility to discover the life under water, and to get information about the area's aquatic species and other marine issues with the help of information boards along a route on the sea bottom. The natural and cultural landscape below the surface is unknown to many, but with increased knowledge awareness and often involvement increase as well.

The snorkeling route in Kollevik offers non-divers to discover what's hidden under the surface.

- Seminar on Blekinge Archipelago underwater environments. In September 2008 a marine biology lecture open to the public was given during which underwater films from the area helped to illustrate how healthy underwater vegetation and underwater areas in poorer condition look like.
- Seminar on nature as security in a changing world. In January 2009, a workshop for officials and a public lecture on ecology, economy and change were arranged. The theme was how we can use nature's ecosystem services in a positive and sustainable manner so that they support human welfare and development.
- Seminar on management of marine resources. In March 2009, the proposed biosphere reserve in collaboration with WWF and fishing organizations in Blekinge conducted a seminar on integrated water management of the Baltic Sea in general and with particular focus on fishing industry issues and sustainable development of Blekinge archipelago. The purpose of the seminar was to highlight the link between the international processes underway in for instance EU and HELCOM and concrete local initiatives, such as Blekinge Archipelago. The seminar was part of efforts to find solutions on how we can manage the sea in a way that contributes to the implementation of international agreements to protect the marine environment as well as leads to the sustainable development of our local area.

The collaboration plan to be worked out within the project will act as a dynamic tool in the continuing work in Blekinge Archipelago. The experience learned can also be a support for other projects. All five pilot counties will use the method *Open Standards*, which facilitates the exchange of experience. The method provides a clear structure of the work and support to move forward in efforts to develop the collaboration plan with the help of external experts. In 2009 and 2010, Blekinge Archipelago will participate in a couple of workshops and step by step achieve a targeted remote support system and get opportunity to exchange experiences with other pilot counties.

The overall planned moment during the work to develop a good collaboration plan (management plan):

- Studies of existing plans and programs that may be relevant to the present work.
- Discussion on the design of management plans with other biosphere reserves, Swedish MAB Committee, Swedish World Heritages, Swedish Environmental Protection Agency, Swedish National Heritage Board, Swedish Board of Fisheries, World Wildlife Fund et al.
- Outreach at local and regional level, with input, dialogue and exchange of views on the needs and future development of the area and its activities, with particular emphasis on the sea and marine-related activities.
- Using the method of Open Standards as a means to move the process forward and organize the work.
- Compile existing monitoring programs / projects / collaborations, and identify gaps in knowledge and follow-ups.
- Cross-border spatial planning is essential, as both landbased and waterbased activities affect the marine environment, sometimes synergistically. The result will form the basis for a proposal of guidelines for future work on marine protection and management.
- To get people involved and to get them to form opinions, they need sufficient knowledge of marine issues and their connection with other operations and activities; therefore, awareness-raising activities will be organized.
- Find good forms of work to facilitate local participation and collaboration.
- Network building (council-/collaboration-/advisory group) can be a resource for the development and continuous updating of the collaboration plan.
- Produce information material.
- Form thematic groups that discuss how the area is best managed with focus on their particular area of interest.

The collaboration plan will be designed and documented in such a way that an awareness-raising follow-up is promoted. New experiences and the development of Blekinge Archipelago will be taken into account and used to continuously optimize the management. We live in close proximity to the sea and depend on the services and functions of the ecosystems. A shared and comprehensive aim and collaboration is essential in order for us to be able to live in harmony with the marine environment in the future.

Small-scale infiltration plant for sewage treatment.

Water and sewer issues

In order to preserve the natural values and qualities that attract more and more visitors to the Blekinge coastal and archipelago areas, the increased sewage volumes and the growing need for drinking water must be handled. The question of drinking water includes, among other things, the problem that

excessive water abstraction leads to a reduction in groundwater levels, which may lead to saltwater intrusion in wells, and consequently a lack of potable water. In Blekinge Archipelago there is a commitment to find new and environmentally sustainable solutions for water and sewage issues. This applies to both permanent residents and summer cottage owners as well as for boat people and tourists. It is important to create robust and environmentally sustainable facilities that can also meet future demands. Another need is receiving stations where pleasure craft can empty their sewage tanks.

In many places within the proposed biosphere reserve there are ideas and projects aimed at finding small- and large-scale drainage solutions to reduce emissions into the Baltic Sea. Plans exist to carry out explorations to measure the effects of improved drainage solutions and then show these for positive educational purposes.

Boat bottom washing

During 2009 the first washing service for boat bottoms in Blekinge will be established.

Blekinge has a fantastic archipelago for boating. Many recreational boats are painted in the spring of anti-fouling paints to prevent fouling of, for instance, algae and barnacles. However, anti-fouling paints most often contain toxins harmful to marine life in general, not just the organisms that grow on the hull. An alternative to anti-fouling paints is that the boat is cleaned mechanically during a boat hull cleaning, which works much like a car wash. Waste water and paint residue is then also taken care of. With the aim of reducing toxic and nutritive salt stress in Blekinge's part of the Baltic Sea, there is ongoing work in the proposed biosphere reserve to establish boat bottom washing stations in all three municipalities of the reserve.

Baltic Master

Region Blekinge runs an EU project in collaboration with several partners from all Baltic countries, called Baltic Master (Maritime Safety and the Environment in the South Baltic Sea Region). The project aims to enhance maritime safety by clarifying and advancing local and regional perspectives on these issues. The project was nominated best maritime project in Europe in 2007. A follow-up project, Baltic Master II, has received funding from the EU Baltic Sea Program and was launched in January 2009, intended to last for three years. Baltic Master II aims at continuing to raise local and regional perspectives on maritime safety issues and to continue to work and implement the results of the first project. The focus of the Baltic Master II is on contingency planning against oil spills and preventive measures of various emissions from waterway traffic. The project involves 48 different organizations and agencies. All Baltic Sea countries are represented.

Blekinge Archipelago – a cultural landscape marked by man's long presence

Blekinge archipelago and the coastal landscape is a distinct cultural landscape shaped by man's long-term use. The local population's opportunities to live and work in the area and to continue to use it are therefore vital for the preservation of its high natural values and rich cultural heritage.

Without grazing animals in the archipelago the landscape would quickly scrub over.

SamarBETE

Domestic species' grazing has long played a major role in human use of the archipelago's islands and the coast, which has formed and shaped the current landscape, creating conditions for today's biological diversity in the cultural landscape. Structural changes in the agricultural sector and changes in living and lifestyle in recent decades have led to a sharp decline of grazing stock, which in turn means that the landscape changes character and that many values decrease or disappear. Grazing in the archipelago is hampered by transportation and supervision, and animal husbandry in wintertime.

The SamarBETE project aims to facilitate the grazing activities in the archipelago and the coastal landscape. Elsewhere in the country there are already experiences of how to solve the archipelago grazing problem with, for instance, common animal housing and shared responsibility for monitoring. Farmers and livestock owners in Blekinge, together with representatives of proposed biosphere reserve Blekinge Archipelago, have traveled on study tours to gather inspiration and knowledge for practical solutions. There exists still a genuine knowledge of archipelago grazing and restoration among Blekinge livestock owners and farmers, which forms a good basis for further work on these issues. An important part of the continuing project is the mapping of island use, with regard to used land acreage, species, farmers and their age, gender, etc. in order to secure the use, the archipelago life and landscape for the future. Today there is a small group working actively to implement measures to improve conditions for archipelago grazing. A long-term goal is the launch of organically produced "Archipelago meat" from the coast and archipelago in the biosphere reserve. Today the group works mainly with networking between archipelago farmers, not least to improve working conditions, but also to facilitate monitoring.

Natural and cultural tourism

Natural and cultural tourism is still relatively undeveloped in the area, but given the high natural and cultural values of the Blekinge Archipelago, there is great interest and great potential to develop a sustainable future. Within the biosphere work there have been, for instance, some seminars on eco-tourism for tourism entrepreneurs, to inspire and show possible development niches.

A guided tour in the old Ropewalk, situated in the naval base in Karlskrona.

Blekinge County Administrative Board is currently conducting an entrepreneurship and heritage project, which aims to increase tourism linked to heritage tourism in the county and thus stimulate employment and entrepreneurship. This project has several points of contact with the work with biosphere reserve Blekinge Archipelago.

Municipalities' work for sustainable development

The proposed biosphere reserve is located in the municipalities of Karlshamn, Karlskrona and Ronneby. All three municipalities are actively working with various projects and activities related to sustainable development and already have well-structured organizations for continued work with sustainable development from a biosphere perspective. Sweden's municipalities are autonomous, which among other things means that the overall responsibility for spatial planning and urban development is located at the municipal level. Through the formation of biosphere reserve Blekinge Archipelago, the reserve's three affected municipalities see positive opportunities for an expanded municipal joint planning for the shared archipelago and coastal landscape, which would also benefit the area's development potential in a broader context.

In 2006, Karlshamn Municipality adopted an archipelago program in close coordination with residents in the area. The program will provide support and guidance for increased collaboration toward sustainable development in the archipelago. The program focuses on 5 strategic areas: Housing and Communication, Business and Services, Outdoor Recreation and Tourism, Matvik Port, and Water and Sewage. An updated program for 2008-2010 has also been developed.

In Karlshamn a political action program for sustainable development has also been adopted in which approaches and conditions for the local sustainability work and its implementation are presented. In the program, the municipality also points to a number of focus areas for the years 2007-2010. These are: municipal energy planning, municipal transport, communications and travel, municipal contracts, municipal operational environmental work, municipal involvement in the biosphere reserve Blekinge Archipelago, municipal work with sustainable economy, and municipal work for a socially sustainable society.

At the end of 1999, Karlskrona municipality developed a "Comprehensive plan for Karlskrona municipality, with specific emphasis on the archipelago." The aim of the plan was to work with the archipelago population and others active in the archipelago

to develop plans to maintain and develop a living archipelago. A prerequisite for the successful implementation of the final plan is that an open-minded, creative and constructive way of thinking characterizes the work. The plan is one of the documents that form the basis for the municipality's commitment and active participation in the process of creating a biosphere reserve in the Blekinge archipelago and coastal landscapes.

There are several regional, national and international networks that aim to strengthen work on sustainable development. Karlshamn and Karlskrona municipalities are members of the Association of Swedish eco-municipalities, which works for the sustainability of Swedish municipalities. Karlskrona Municipality is also included in the program Sustainable Municipality, which is a collaboration between the Swedish Energy Agency and more than a fifth of Sweden's municipalities. The program highlights the energy perspective of sustainable development and climate work. Karlskrona is also part of the Union of Baltic Cities (UBC), which is a cooperation network among approximately one hundred cities around the Baltic Sea. The network's aim is, among other things, to strengthen cooperation and exchange of knowledge within sustainable development between cities in the Baltic region. Ronneby is certified a Fair Trade City, which means a commitment to ethical consumption. Karlshamn, Karlskrona and Ronneby municipalities are all members of the Environmental Resource Linnaeus, which is a non-profit organization working on environment and sustainable development, among other things, focusing on organic food in public and private sectors. All three municipalities within the proposed biosphere reserve are also involved in the Energy Agency for Southeast Sweden, working on energy efficiency and renewable energy in southeast Sweden.

Issues concerning water and sanitation are prioritized in municipal work and a number of inventories and sanitation of various sites have occurred. Measurements of air quality are carried out at several locations in the municipalities and the results are reported in different ways.

Collaboration also takes place with associations and organizations in the environmental field. One example is Karlshamn Municipality's annual dialogue sessions with the Swedish Society for Nature Conservation on various current questions concerning social planning.

Further examples of projects and initiatives concerning sustainable development undertaken by the three municipalities are:

- *Environmental investments LIP and KLIMP*: LIP and KLIMP are government support funds for long-term environmental investments for municipalities and other local actors. LIP existed until 2003 and was then replaced by KLIMP. Since the early 2000s, the municipalities have carried out various projects with the help of these grants. The projects have dealt with, for instance, the construction of wetlands and energy efficiency.
- *Energy and climate advice*: The municipalities have energy and climate advisors employed to provide municipal residents advice and information on energy savings and climate protection. The municipal energy plans are updated annually

and ratified. The plans can be found on the municipalities' websites, where they are available for local residents, along with other plans and policy documents. Among these other documents one finds environmental plans, Agenda 21 documents, comprehensive plans and environment policies.

- *Environmental management*: Environmental management is a tool that can be used to structure and systematize the environmental work of organizations. Parts of the municipal activities are environmentally certified in accordance to ISO 14001. In Karlskrona Municipality this certification applies to the entire technical department and a municipality-owned company Affärsverken Karlskrona AB. Within these two entities, one finds water and sewage systems, as well as solid waste management and district heating. In Ronneby Municipality there is the equivalent certification for the municipal labor unit. Parts of the activities in Karlshamn Municipality are also certified under ISO 14001. This applies to the municipality-owned companies as well as for the Work Center, an organization for job market projects such as workplace training and educational components for unemployed municipal residents.
- *Sustainable development in schools*: The Green Flag is an environmental award customized for school and pre-school. The Green Flag is the visible proof that in daily practice the school gives priority to action-oriented environmental efforts and that it works towards sustainable development. The Green Flag is awarded by The Keep Sweden Tidy Foundation and is the Swedish version of an international environmental award, which is headed by FEE (Foundation for Environmental Education). In the proposed biosphere reserve there are 12 schools that have the Green Flag. The Swedish National Agency for Education gives out the School Award for Sustainable Development to schools (pre-school to adult education) that have demonstrated that learning for sustainable development is an active part in their educational work. Within the proposed biosphere reserve 10 schools have received the award (Dec. 2008).
- *Blue Flag*: The Keep Sweden Tidy Foundation also awards the Blue Flag, which has been successful for the certification of various beaches and marinas. The award means that one works particularly with environment issues, thereby also disseminates information about them to the visitors.

National, regional and local environmental objectives to support sustainable development in the area

In 1999 the Swedish Parliament decided on a new structure for the work on environmental objectives and 15 national environmental quality objectives were established. In 2005 a 16th environmental objective was added. The objectives describe the quality and the state of Sweden's environmental, natural and cultural resources that are ecologically sustainable in the long run. Environmental quality objectives aim to:

- promote human health
- safeguard biodiversity and the natural environment
- preserve the cultural environment and cultural heritage
- maintain long-term ecosystem productivity and
- ensure wise management of natural resources.

The ambition is that the next generation, i.e. 2020-25, have solved the major environmental problems. This so called generational goal includes that the impact on the environment and human health should be reduced to a level that is sustainable. Sweden's national environmental objectives are:

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

Illustration: Tobias Flygar

Sweden's 16 environmental quality objectives.

The proposed biosphere reserve is affected by all the national environmental quality objectives, except Magnificent Mountain Landscape. At a regional level, in collaboration with stakeholders, Blekinge County Administrative Board is responsible for adapting, concretizing, and making precise 14 of the national environmental quality objectives that relate to the county. In addition, the board is responsible for developing action plans and for monitoring. The Swedish Forest Agency has equivalent responsibilities for the environmental quality objective Sustainable Forests.

Municipalities are also working actively to transform the national environmental quality objectives at the local level. Karlskrona Municipality implemented an environmental plan in 2001. Ronneby Municipality established new local environmental targets in 2007 – ”Ronneby towards new goals.” The governing document is based on three visions for sustainable development in Ronneby municipality: A fossil fuel-free municipality, Healthy Nature and Sustainable Consumption. In conjunction to the three visions there are 17 goals and related measures. To raise awareness about the new local environmental objectives an environmental Almanac for the year 2009 was produced, which was distributed to all households in the municipality.

Blekinge Archipelago biosphere reserve – a future model area for sustainable development

During the autumn of 2008 some 20 persons from various fields of interest in Blekinge Archipelago were gathered for a discussion of needs and ideas concerning opportunities for sustainable development in the future biosphere reserve. This was a first attempt to begin the discussions of how Blekinge Archipelago can serve as a model area for sustainable development in the future, how the area can develop in a sustainable manner and the focus areas this work should have. The discussion centered around three main themes: ”Biosphere as an arena for planning”, ”Tourism and other industries” and ”Natural and cultural heritage values as a driving force in social development”. The following is mainly taken from the report about the meetings.

Biosphere reserve – an arena for dialogue and planning from a citizen perspective

The three municipalities within the proposed biosphere reserve – Karlshamn, Karlskrona and Ronneby – together with the Blekinge County Administrative Board are ultimately responsible for the formal planning and operation of the proposed biosphere reserve. In order to get support and a local driving force dialogue, participation and ”use-planning” together with residents, interest groups, professionals, entrepreneurs, researchers, authorities and other actors are imperative. Within the framework of the biosphere reserve a common, unifying arena needs to be established where various stakeholders and operators can meet and jointly discuss various parts of the area’s future development.

There is a need to form a wide area network (part of it may very well be web-based) that can provide support for the decision process with knowledge and ideas that promote development in the area.

An Archipelago Council formed during spring 2009 and had its first meeting. The composition of the group is based on the idea of representation from public administration as well as business and interest groups (see appendix 9). The goal is to form a stable group of about 20-25 people. For the first meeting, invitations were sent to a little over 30 people and organizations, ranging from archipelago associations to the Swedish Armed Forces.

The biosphere reserve as a common arena is to be used for dialogue about conflicting objectives such as between the desire for the preservation and the wish for extension of service, between established residents and visitors' interests, etc. The Council has an important supporting role in the ongoing work on the collaboration plan.

Model Chapter for sustainable development – with pride and ambition

An important part of efforts to establish biosphere reserve Blekinge Archipelago is about creating pride and confidence. This means that the actors involved, especially municipal and state, are prepared to implement concrete measures also in the short term. Stamina and endurance must therefore be combined with such measures that can be started quickly without impeding future freedom of action.

Within the municipalities, many sustainable development initiatives have been taken. These can be further developed within the framework of cooperation in Blekinge Archipelago. This suggests the need for the coordination and planning arena that the biosphere reserve has to offer.

Many of us are too close to see all the potential values that exist in Blekinge Archipelago. It is important to compile information on the attractions and values of the area in an orderly, attractive and accessible way. Knowledge, experience and good practice must be collected and disseminated with quality control. This quality control can be obtained through, among others, Folk Life Archives, The Blekinge Museum, and Blekinge Institute of Technology (BTH). Education and information about the area will be developed in collaboration with local community groups, communities, local businesses, schools, etc.

BTH is an important player and partner in research on community planning and implementation of planning under the Planning and Building Act, sustainable development and regional development. There is also expertise in tourism at BTH.

We must have respect for the various formal barriers and various restrictions – perhaps we can sometimes turn it around and see them as opportunities instead? The freedom to roam is one example; shore protection another. There are a few such ”model questions” to continue working from.

A major concern in the biosphere reserve work is the development of entrepreneurship, by creating conditions for e.g. processing of old local varieties of fruit and vegetables and, linked to this, investing in tourism and marketing of products from Blekinge. This is already underway and will be developed through, for instance, the cooperative effort Coompanion food project. It can give a lift to the agricultural industry in the whole area as well as markedly increase the interest in preserving the ”true traditions of Blekinge” while creating new ones.

Many exciting local specialties can be offered in courtyard cafes and restaurants during theme nights, which can help make Blekinge a popular tourist destination outside of the traditional tourist season. ”Conservation through consumption” and ”agriculture and tourism hand in hand” are key concepts for the Rhine farmers in Germany, and it may also be in Blekinge. In Karlskrona two days of activities were organized in spring 2009, during which country and city were able to get to know each other. Rural entrepreneurs with vegetables, flowers, animals, tractors and machinery came to the city for a day. And the countryside invited city residents for ”open house” day. This arrangement is carried out twice a year, spring and autumn.

In the biosphere reserve, we want to work with local companies to gain a holistic view on sustainable agriculture and fisheries. Consumers increasingly demand both locally produced and organically grown foods.

- Show good practice examples, develop training, and highlight an economically viable model for community-based agriculture and fisheries.
- Work for delivering quality food for local markets.
- Bring together local businesses with technology-based companies to jointly create conditions for development in various fields, where Telecom City is part of the network.

An example of new development areas within the biosphere reserve is to start businesses involved with wood waste, that is, to transform raw wood chips to quality checked topsoil. A local ”station” could be constructed which receives wood waste from both individuals and businesses. This healthy organic soil can then be used, as recomposed soil, in greenhouse and garden crops.

Development of the biosphere reserve can be improved with the help of ”models” that interactively demonstrate future visions. An interactive ”map” in which citizens and entrepreneurs, nature and culture fit in the future biosphere reserve. Such a digital map can be done with students from Hyper Island or BTH.

Tourism as a guide

Historically and today fishing, water transportation and agriculture are the main sources of supply in the archipelago. The ability to work with many things is an important skill for people living in the archipelago. The opportunities for making a living locally and on a small scale should be developed alongside larger and established tourism operators. The tourism industry has great development potential. Ecotourism based on tourists being offered various activities which seek to preserve landscapes and environments is an evolving concept.

Drying of fishing nets, Östra Hästholmen in Torhamn archipelago.

In order for Blekinge Archipelago to become an established concept various stakeholders need to collaborate. It is important that tourists and visitors are offered infor-

mation and booking service throughout the area with regard to various attractions, accommodation etc.. Such a holistic approach gives the idea of the archipelago a content which helps to view Blekinge Archipelago as an asset and a driving force for tourism throughout the region. Collaboration within the biosphere reserve arena opens up opportunities for, e.g. the municipalities to not only work with marketing of their own area but to gather all forces to collaborate in the region as a whole.

In order to build further on the idea of sustainable, tourism environmentally friendly transport, good service facilities of various kinds, waste management and other infrastructure are required. Drainage and water supply issues are highly pertinent and crucial for the development of living as well as business in the archipelago. The issues must be discussed seriously and not be dismissed with a simplistic explanation that the one who settles in the archipelago only has himself to blame. The ability to serve as a model area for different solutions must be fully exploited.

During the study and candidacy phases, two ”Archipelago Days” were organized in order to obtain a basis for this chapter. Some business ideas with tourists as customers came up during these days:

- Base the ideas on local identity.
- Establish a boat tour that goes across the area, including stops by major sites such as Eriksberg, Tjärö, Karö, Ronneby Brunn, UNESCO World Heritage Site Naval City of Karlskrona. “Move out” the regional museum by having activities in several parts of the county.
- Offer commercial guided tours and ”story-telling.” Important task and opportunity for village communities as well as local contractors.
- The Blekinge trail – but along the coast. Eider courting and other bird-watching, common seal safaris, tours of various types, experiences that follow the changing seasons.
- Offer commercial boat knowledge through courses and offer opportunities to experience boating – boat building, renovating, tarring boats, producing ropes, repairing fishing nets, fishing, construct a historic boat tour etc. Possible sites for such activities would be the boatyards in Saxemara and Hästholmen, boat builders in Matvik, and not least at Litorina Folk High School.

Also in winter, birds can be seen in the archipelago, e.g. tufted duck and coot.

- Night Safaris with seal song, toad courting, bats, “archipelago light phenomena” etc.
- Local service to visitors – selling by boat of fish, dumplings, local products, etc.
- Waterfowl hunting.
- Fishing tourism.
- Blekinge sea baths – set up several sea baths with support services.

- Arrangements with local food such as crayfish parties, herring banquets, etc.
- National food competitions for the best herring recipe and the best herring chef.
- Blekinge stone masonry history with guided tours along the coast. The old quarries are an exciting place to stop and experience different things as bathing in the quarries, seeing concerts, getting information about Blekinge mountains, etc.
- Similar idea as above but focused on the military history of the coast with preparation of authentic environments such as rock shelters, barracks, etc.
- Stay on a farm and help with and learn about various chores such as reaping crops by scythe, etc.
- Arts and crafts tours in the archipelago – try different skilled trades.
- Opportunities generally – service in the form of food, housing, information, reservations, souvenirs, etc. in connection with the trails. Interaction between entrepreneurs. More beds are needed in summer.
- A first example is the established snorkeling route. How can entrepreneurs create packet experiences on this?
- Rental of sites for boat shoring and docking.
- Collaboration with, for instance the Swedish Road Administration to showcase Blekinge along the transportation routes.

Housing as added value in life

The archipelago and the coastal area are attractive to residents in many ways. It is not just about the high landscape values. The proximity to towns, the ability to work and access to communications, water and sanitation, access to boat, bicycle facilities and other services are often decisive factors for seeking housing in the archipelago.

In some areas of the archipelago, exploitation pressure is high.

With more residents who can share the cost increases the possibility for producing effective systems of transportation, drainage and water supply etc. This in turn increases the demand for housing even more, leading to increased exploitation pressure. In order to achieve a sustainable land development, it is important that planning is based on the existing values in the area. The municipalities' comprehensive plans give a general description of the area of the archipelago and its living facilities and developing areas selected for housing are also outlined. How the issue should be handled in effect is assessed and regulated in the detailed development plans or in the preparation of area regulations as well as during the building permit review. Access to land for construction is not sufficiently investigated. This is a field of work that needs to be clarified also in the context of the biosphere reserve.

Interest to acquire second homes in the archipelago is great. This means that real estate prices are driven up and those who have their roots in the district may not always afford to compete. This is a real problem and a threat to the goal of having living regions throughout the year. However, part-time housing gives vitality to the archipelago and form part of the basis for activities that can provide local income opportunities. It is nevertheless important that services can survive all year round so that local full-time residents feel secure.

In recent years, the proportion of immigrants from the Netherlands, Germany and Denmark has increased. One of the reasons indicated that they choose to live in the countryside is that it is quiet, better for children, and with short commuting distances between rural areas and work in the towns.

Nature and culture as a driving force

The entrepreneurial spirit and desire for change and cooperation as outlined above assume that the vibrant and attractive archipelago is fundamentally a cultural landscape that has been marked and characterized by industries, agriculture, animal husbandry and fisheries.

Examples of basic natural and cultural values:

- Mosaic landscape and biodiversity
- Coastal broadleaf forests and deciduous forests in the archipelago
- Granite rocks and other geological sites
- Sites of flights of birds
- Grazed and maintained meadows
- Orchid meadows
- The landscape beneath the surface
- The three towns with their history and nature

The users of the landscape should have the potential to continue with their businesses and to develop ”more legs to stand on” such as tourist activities. It is a challenge to preserve ”old knowledge” while conducting business under current terms and conditions. One such challenge is to improve the raw materials produced in the biosphere reserve and market them with a “sustainability seal.” Development of local meat processing, with sales of sustainable products can be one opportunity to create better conditions for livestock and thereby preserve the grazed landscape. Raw materials from fields can also be processed and marketed – perhaps such items as ”Archipelago Snaps.” Another possibility is to target the sale of food and services toward the growing horse industry. There is also a great potential in agricultural production within ”green energy.”

The small-scale traditional fishing maintains the archipelago in the best way.

In the case of fishing in general the proposed biosphere reserve should strive to become a model area for small-scale, inshore and sustainable fishing by way of connecting the fishing industry with scientists and authorities. Experimental and demonstration plants should be encouraged, as well as conservation and development of the local fish processing industry. In this context, the ports used by commercial fishing are also important. We can also become much better at taking care of herring locally and make it more attractive to consumers. It is important to provide better opportunities for young fishermen to remain in the small-scale fishing industry or to establish themselves, in order for the industry to survive.

Increased tourism and outdoor recreation may pose a risk of disruption and damage to the natural and cultural values that require planning of pedestrian areas, outlooks etc. A good and clear biosphere reserve map could be useful in this regard.

The eutrophication and overgrowth of fine bays, and climate effects are examples of environmental problems that require collective action. Knowledge and monitoring of environmental factors that are relevant to the experience and attraction of the area need to be improved. Research about this is conducted in the area. It is worth expanding on the Ire nature and culture school concept with an extended focus to include the Blekinge Archipelago area (above and below the surface) and addressed to all pupils.

14.2 If tourism is a major activity

– How many visitors come to the proposed biosphere reserve each year?

Blekinge archipelago and coastal landscape which the proposed biosphere reserve covers is one of the strongest reasons for visiting for many of those traveling to Blekinge. It is precisely this area which represents some of the region's uniqueness and specificity. The relatively pristine archipelago and the more or less lively and authentic coastal communities strongly contribute to the image many have of Blekinge. All the major urban areas within the proposed biosphere reserve are located on the coast and it is in the towns the numbers of visitors are the highest.

There are no studies that measure concretely the number of visitors within the proposed biosphere reserve. There are, on the other hand, annual measures of guest nights at commercial establishments in Blekinge county. According to the 2007 measurement, the total number of commercial overnight stays in the area was 850,000. The number represents the total number of guest nights in the three municipalities: Karlshamn, Karlskrona and Ronneby. A large proportion of the total number of guest nights is at sites within the proposed biosphere reserve, since most of the facilities in the three municipalities are located within this area. The share of international visitor nights is around 15%.

In the report that is produced annually, there is also an estimate of the number of non-commercial guest nights (holiday homes, family and friends) which in 2007 amounted to 900,000. In addition, there is an estimation of the number of day visits and transit passengers in Blekinge, which shows that approximately another one million people pass through or visit the municipalities in the area during a year.

The visitors who come to Blekinge mainly go to coastal areas and the archipelago. The area has many visitors during the summer months and most of the total turnover in the sector is precisely during this intensive period.

Most tourists visit Blekinge Archipelago in summertime.

In addition to the visitors coming from outside Blekinge, Blekinge residents themselves visit within the proposed biosphere reserve. The whole Blekinge archipelago is an important area for recreation and outdoor activities. There is a large number of pleasure craft in the area and the archipelago traffic serving the majority of islands, most of them during the summer months. Some islands in the area are served even in wintertime.

- Is there a trend towards increasing numbers of visitors? (Give some figures if possible)

Since the above-mentioned annual compilation has been made for a number of years there is evidence that the number of visitors in Blekinge increases over time. During the last three-year period, the commercial guest nights increased by 14.7% out of which most of the increase can be attributed to more people at campsites.

The increase in overnight stays in guest harbors in the proposed biosphere reserve total approximately 46,000 and shows an increase of around 60% in the 2000s.

14.2.1 Type(s) of tourism

[Study of flora and fauna, recreation, camping, hiking, sailing, horse riding, fishing, hunting, skiing, etc.]

In the area there is a number of different types of visitors. The indigenous population as well as visitors consider the area to be a recreational space for different types of activities, nature experiences such as swimming, boating, angling and fishing, canoeing and kayaking, hiking, biking, horseback riding, hunting, and bird watching. In the area there are also several campsites. The urban centers in the area offer cultural experiences of different character.

Within the area there are also several major attractions, see the description 14.2.2.

Sport fishing is one of the activities in the archipelago that attracts tourists.

14.2.2 Tourist facilities and description of each of the zone of the Biosphere Reserve is located

Mörrum Salmon Fishing is located at one of the core areas at the very far west of the proposed biosphere reserve. Salmon fishing in Mörrum is very old and since ancient time royal (that is it used to belong to the Crown). It is described for the first time already in 1231 in the Danish Census Book of King Valdemar II. All other salmon and trout fishing is practiced today as sport fishing.

Eriksberg wildlife sanctuary is located in the western part of the area, in one of its core areas. Eriksberg is a unique natural area in the Blekinge archipelago, known for its lush broadleaf forests and its diverse coastal landscape. With its nine hundred hectares the nature reserve Eriksberg is also one of northern Europe's largest wildlife sanctuaries. Here the red deer and fallow deer, bison, wild boar and mouflon roam freely.

Tjärö Hostel offers visitors a genuine island experience. The island is a nature reserve, located in the core area in the western part of the proposed site and since the 1930s the Swedish Tourist Association has operated on the island, now privately owned. There are services in the form of accommodation, restaurant and a marina. This is one of the major tourist sites in the archipelago.

Kreativum in Strömma, Karlshamn is a science center for all ages that wants to stimulate curiosity and creativity around technology and science, with focus on discovery. Kreativum is situated in a development area on the outskirts of central Karlshamn.

Karlshamn Museum has its collections in several of the old houses in the town's cultural quarter. In the Smith house there are exhibits reflecting the town's history and industries. Boat models, fishing gear and ship paintings reveal the strong ties to the sea. In the museum courtyard one finds the "Dutch house," the town's oldest house. Down by the river is the art gallery and behind this the museum's biggest attraction: the Von Bergen Arrack Punsch factory.

The Skottsberg mansion is a very representative example of 1800th century Karlshamn architecture. In the basement there is a village shop that looks the same as it did in the 19th century.

The Director's villa in the park was constructed in 1884 by Hotel Director Heidenstam. With its tall tower it is the most spectacular building in the park.

Ronneby Brunn is the area's largest tourist attraction, situated in Ronneby Brunnspark which since 2003 is a culture reserve. Ronneby Brunn is located in the core area south of central Ronneby and is one of southern Sweden's largest hotel and conference facilities. Ronneby was long a famous spa resort. From the 1700s until the 1920s, people came to drink curative, mineral-rich waters and to take strengthening walks in the beautiful surroundings. Most buildings in the park are from the late 1800s. The facility currently receives business and conference guests as well as private guests. The hotel has a clear focus on health and wellness and it has had a modern spa for some years now.

Naturum Blekinge, which is also located in Ronneby Brunnspark, is a visitors' center with information about Blekinge's nature, environmental and culture landscapes and the culture reserve Ronneby Brunnspark.

Naval City of Karlskrona was admitted in 1998 as object No 560 on the UNESCO World Heritage List of sites of outstanding universal value. The town is internationally attractive as a unique example of a coherently constructed, fortified town and naval armory from 1600s and 1700s. In Karlskrona there are a number of popular locations that are part of the world heritage site.

The Naval Museum moved to a new location in 1999, next to the Launch- and Longboat shed with its strange roof.

At Karlskrona's *Naval Museum* you can take part in exhibitions about the Swedish Navy's role in Sweden's era of great power during the 1600s when the continuing conflicts and battles marked the lives of thousands of Swedes. The visitor will be confronted by the harsh reality of the naval wars during the era of the sailing Navy.

Blekinge Museum is a regional museum with a brief to enhance and clarify the understanding of cultural heritage, especially that of Blekinge, and provide a forum for current social debate. The brief includes maintaining a broad competence in all parts of the three-pronged concept of a museum: *collect – take care of – display* and to help with museum skills throughout Blekinge in cooperation with the municipalities, members of the Swedish local heritage movement and other stakeholders. The museum is located in the center of Karlskrona, in the buffer zone.

Within the reserve there are *ferries* that take passengers to and through the archipelago. Hällaryd archipelago in the western part of the area is served by Blekinge Archipelago Tours, by Matvik–Tärnö-line and by Tjärö Hostel. Affärsverken's ferry services operate in the Eastern Archipelago. Affärsverken have guided tours and theme nights during the summer and it is also possible to charter ferries.

Telenor Arena Karlskrona is located just outside central Karlskrona, in the development area and is a modern sports facility. The arena has a flexible system with several facilities indoors and outdoors, and can also function as a conference facility. With generous spaces and very good parking facilities the arena is adapted to major and minor sporting events and other events.

Kristianopel, in the north-east of the reserve, was built during the 1600s and was a major town during the region's Danish period. Several battles were fought here before Denmark and Sweden made peace in 1645. The old walls remain, and mainly enclose the heart of the village. The old environment is well preserved with the old defense walls, buildings and back streets. Companies in Kristianopel are mainly engaged in tourism.

14.2.3 Indicate positive and/or negative impacts of tourism at present or foreseen

The advantage that can be linked to tourism is mainly the economic contribution resulting from visitors staying, eating, as well as consuming experiences, and other services in the area. Through enhanced entrepreneurship this can contribute to more jobs through higher turnover in local businesses. Many visitors can also mean that some smaller places / villages can offer a better service for the local population all year round since one can increase revenues during the intense period of visits and thereby enhance viability.

Tourism requires that all parts of the value chain which visitors encounter work. This is why there is a need in this particular context for necessary interaction between the private, public and nonprofit sectors; a need which often creates a significant local commitment.

If tourism is strengthened in the area more people will become aware of the need to nurture and, to some extent, protect and ensure the high natural and cultural values that exist.

It is a challenge to create a balanced tourism from a user perspective. Too many visitors to a particular area may cause excessive wear on the defined geographical nature areas as well as on the available infrastructural facilities. Similarly, increased tourism can cause increased noise levels from increased traffic in the coastal and archipelago area. Through conscious management of sites and resources, combined with educational efforts a growing demand can be met in a sustainable manner.

Tourism development can also be a cause of conflict between residents, summer residents and visitors.

14.3 Benefits of economic activities to local people

[Indicate for the activities described above whether the local communities derive any income or benefits directly or indirectly from the site proposed as a Biosphere Reserve and through what mechanism]

Tourism shows a growing economic force for destinations throughout the world and in recent years has been one of the sectors that are growing the most. This can be explained by the globalization that has taken place. More and more people are able to travel more and longer.

Development of tourism is to develop places and regions based on the prevailing conditions in the area. Tourism is employment intensive and is an industry that can never be moved to another location; it is linked to the site and its offerings.

There is no method that allows for a safe indication of how much tourism revenue is generated in the specific reserve, but in the region (entire Blekinge) tourism revenue is estimated at 1.5 billion SEK. The revenue is based on cross-sector visitor consumption, that is, the total estimated consumption for all visitors in Blekinge (entire region).

On the island of Aspö the old Pilot's tower is transformed into a youth hostel.

We know that two thirds of the commercial guest nights in the region (entire Blekinge) are located in the municipalities in the proposed biosphere reserve. It can be assumed that an approximately equal share of tourism revenue is made in these municipalities. This would mean that the turnover amounts to approximately one billion SEK.

Tourist companies in the proposed biosphere reserve are largely artisanal. This means that many of the companies that have revenue related to tourism are often owned by local people.

15 Logistic Support Function

15.1 Research and monitoring

Research has been conducted with varying intensity in different subject areas and over a long period of time within the proposed biosphere reserve. The creation of a biosphere reserve means that institutions of higher education located in, in close proximity to or operating in the area may be given new opportunities to develop their research activities. Students linked to the educational institutions may be better able to practically apply their knowledge through projects and thesis projects directly related to activities in the biosphere reserve.

One of the education areas at the Blekinge Institute of Technology is land use planning.

Within the area Blekinge Institute of Technology (BTH) is located, which has ”applied IT and sustainable development of business and society” as its profile areas. A sustainability focus is added in all three areas of BTH: education, research and interaction with the surrounding community. At BTH research and higher education are conducted, specializing, among other things, in land use planning and environmental impact assessment, innovation and regional development, sustainable product development and strategic leadership for sustainability. BTH has successful international education programs in these areas. BTH has as one of three universities in Sweden received special, long-term funding for co-production to enhance collaboration between the university and the region’s economy and public institutions in the so-called ”triple helix” model. The regional involvement in research and education will thus be further strengthened. Swedish National Commission for UNESCO has endorsed an application from BTH for a UNESCO Chair focusing on education for sustainability in spatial planning.

In the proximity of the area there are several colleges and universities that have engaged in and still conduct extensive research in the field. Especially worth mentioning are: Lund University, The Swedish University of Agricultural Sciences (Alnarp campus) and University of Kalmar, which will form Linnaeus University in 2010 together with Växjö University, and Kristianstad University College, with extensive experience in the development of the Biosphere Reserve Kristianstads Vattenrike. The World Maritime University in Malmö is involved with BTH in the development of contingency planning for accidents in the Baltic region. Agencies with research and development expertise also exist within the region: the Swedish Board of Fisheries, The National Board of Housing, Building and Planning, county administrative entities (environment, nature, and cultural heritage protection).

The prospects for research collaboration around key issues in the biosphere reserve are therefore good. In particular, one can point to opportunities for research concerning:

- interdisciplinary cooperation on natural and cultural landscape development
- effects of strategies for natural resource management, particularly fisheries management
- development of integrated planning of the sea, coastal zone, and water management at local and regional levels within the biosphere reserve as an interaction arena for the municipal planning monopoly
- local involvement in the development and expansion of new industries and technologies such as eco-tourism, wind and wave power, small-scale demonstration plants for sewage treatment in the archipelago
- development and evaluation of the interaction between maintenance and exploitation of the biosphere reserve zonation model in a mosaic landscape
- research-based knowledge support for the planning of sustainable tourism

In Stilleryd in Karlshamn municipality there are three wind power stations.

Research and Higher Education in the biosphere reserve is described in detail below with emphasis on current and future research.

Environmental monitoring has existed during a long time. Internationally speaking, Sweden's system of long-term and regular monitoring is relatively well-developed, with measurement series, which in many cases has no equivalent in other parts of the world. In addition to the environmental monitoring conducted by state authorities, many important studies are conducted by other entities, such as, the municipalities, water protection associations, universities or non-profit organizations. In 2008, comprehensive work was carried out at Sweden's county administrative boards concerning environmental monitoring. The environmental monitoring programs of the regions were revised and all the environmental monitoring carried out in the counties was screened and needs analyses were performed. Knowledge of current environmental monitoring may therefore be updated in the future. As part of the revision an attempt to collect information about all the monitoring that occurs today has been carried out by the Blekinge County Administrative Board in order to get a better grip on where the weaknesses are and how we should organize monitoring in the future. The work is not yet entirely finished but we know that within the proposed biosphere reserve there are about 950 locations that are or have been included in some type of monitoring. The Swedish environmental monitoring is conducted within program areas; each program area encompasses both abiotic as well as biotic environmental monitoring. A more comprehensive description based on the environmental monitoring program areas can be found in Appendix 8.

15.1.1 To what extent has the past and planned research and monitoring program been designed to address specific management questions in the potential biosphere reserve?

(For example, to identify areas needing strict protection as core areas, or to determine causes of and means to halt soil erosion, etc.).

In the proposed biosphere reserve, there has long existed a large number of basic inventories and monitoring of municipalities, government agencies, regional organizations and voluntary associations. In recent times, studies have been conducted, in freshwater, and terrestrial and marine environments, to see where the extra protection worthy areas are and also how to protect, manage and conserve threatened species – see list below concerning inventories of marine reserves. Research on the Blekinge cultural landscape development undertaken mainly from Lund University is an important base for maintenance issues within the biosphere reserve. This also applies to the intensive studies carried out by SLU in Bräkne River valley. One example of studies of individual species is the genetic study of Blekinge freshwater pearl mussel, which was carried out in 2006 by Karlstad University. The study was conducted in order to be able to see how the genetic variation appeared, and to get a good basis for work with possible support activities. Habitat mapping and natural value assessment of 8 rivers in the area have also been conducted. Several marine areas have been put in inventory in recent years, with the aim to identify areas that are appropriate to designate as marine reserves. The base inventory has produced knowledge of where in the county Natura 2000-habitats exist, and what protection-worthy species and functions exist in the area. Action programs for endangered species have been developed based on work in cooperation with research institutions, county administrative boards, municipal administrations and non-profit organizations, which is an example of how local involvement can be utilized for maintenance issues.

The research on planning for outdoor recreation and nature tourism activities that is carried out at BTH in cooperation with the European Tourism Research Institute, ETOUR, and also in cooperation with other Baltic countries focuses in particular on conflict resolution and resource management with zoning as a tool. To develop more sophisticated systems of zonation is an important task to make biosphere reserve management to work with local spatial planning. Development of web-based support of planning has taken place and is managed by BTH.

Research on bird populations, bird migration, etc., see below, is of great importance to issues concerning the balance between exploitation and protection of the coastal zone.

15.1.2 Brief description of past research and/or monitoring activities

[Indicate the dates of these activities and extent to which the research and monitoring programs are of local/national importance and/or of international importance.]

Research in Sweden is mainly conducted in projects at universities and colleges. An overall view of the example registry form of research – either past or present – does not exist. It has therefore not been possible to make a detailed inventory of previous research. This section therefore addresses the kind of research that has been made known or has emerged from respondents' comments. It is our assessment that this lack of information is not of importance. The most important previous research concerning

the biosphere reserve was most probably mainly carried out by institutions that are still active and are therefore reflected in the presentation of ongoing research. This section is to be seen as an exemplification of known previous research, but it is ongoing and future research that are most important for the reserve. As initially noted environment monitoring is largely conducted in such a manner that division between abiotic and biotic research becomes artificial.

Abiotic research and monitoring [climatology, hydrology, geomorphology, etc.]

Abiotic research of international interest

Extensive geological research, with emphasis on Quaternary geology and landscape development in the area has been conducted primarily by Lund University. For example, deglaciation, shore displacement and the Baltic geological history have been documented in about 15 degree theses, and scholarly and popular publications since the 1960s.

The doctoral thesis *Kusters Hydrodynamik* (The Hydrodynamics of Coasts) (Thierfelder 1995 Uppsala University), based *inter alia* on a study of the effects of water circulation by the bridge construction at Möcklösund, located within the proposed biosphere reserve.

Abiotic environmental monitoring of international interest

Studies that deal with the international state of the environment belong to the abiotic environmental monitoring that are of international interest and which are now closed. To such monitoring one can include:

- Water chemical sampling, approximately 105 premises that were relevant during the 1950s to the 1980s.
- Groundwater monitoring (1 well and 10 sources) which was conducted in the late 1900s.
- 4 precipitation stations on islands in the archipelago.

Biotic research and environmental monitoring [flora, fauna, etc..]

Biotic research and monitoring of international interest

Comprehensive and internationally acclaimed paleoecological research has been conducted in the area by Lund University, in particular concerning forest history and cultural landscape emergence. The research is documented in numerous publications (about 20) and has also served as the basis for graduate courses on cultural landscape development over a long period of years, which were conducted within the framework of the Nordic College of Ecology. This research has been continued through for instance the development of methodology that makes it possible to use fossils in order to reconstruct historic and prehistoric landscapes as precisely as possible in terms of distribution of forests, various types of open land and vegetation composition. The interpretation methodologies which are currently available do not provide that opportunity. Field studies have been conducted in Blekinge, in particular. The methodology has been published in the thesis “Estimating source area of pollen and pollen productivity in the cultural landscapes of southern Sweden – developing a palynological tool for quantifying past plant cover” (Lund University, 2002). *Studien über die Algenvegetation von Blekinge, Südschweden* (doctoral thesis Tore Levrings, 1940 Lund Uni-

versity) is an important reference material for research and environmental monitoring, for instance concerning the effects of increasing eutrophication of coastal zone waters. In natural resource management one can mention “The Fishery of Eel” (provisional title) – Master degree thesis studying different perspectives on the ban of eel fishing and how to communicate decisions, etc.

The impact on public health of ecological changes has been made clear regarding tick-transmitted Borrelia infection. The disease has attracted increasing attention in recent years due to increased penetration and presence, which some scientists linked to changes in ecology and climate. Field studies have been carried out on Aspö in the Blekinge archipelago, among other places. (Doctoral thesis Epidemiology and Clinical Manifestations of Lyme borreliosis 1996). The research has great significance for further environmental monitoring.

To biotic environmental monitoring one should count above all the monitoring and inventory of species included in any of the international directives that are listed as endangered species and problems that are international, e.g. the waterfowl loss. The following can be expected in such monitoring:

- Waterfowl loss on two islands. Inventory has been carried out in collaboration with local ornithologists.
- Inventory of 49 ponds for great crested newt.
- Studies of long-term development of the nesting bird fauna have been conducted under the Swedish Ornithological Society’s Bird Atlas project. The work is of great importance as a reference for monitoring the effects of climate change and business development in agriculture and forestry.
- Migratory bird counts at the station on Torhamn’s cape is part of a larger national effort of ringing and migration studies, which form the basis for assessments of environmental change and regional importance for studies of effects of oil spills, large-scale wind power, etc.

Biotic research and monitoring of regional / national interest

Roland Gustavsson, The Swedish University of Agricultural Sciences Alnarp, has since 1975 pursued a number of research projects on landscape development and cultural development in the Bräkne River valley. For example, in 1972-1974 a thesis was carried out in which the valley is described in detail, both abiotically and biotically. This work was primarily meant to be used as basis for a conservation plan. The work is called: ”Basis for the Environmental Protection Plan for the Bräkne River valley”. The project also has a study involving the Bräkne River valley called ”Fewer and fewer hands – interviews for tomorrow’s landscape managers in a small-scale agricultural landscape”

The study, “Shallow bays along the Swedish coast: year-to-year variation in underwater vegetation and fish fry occurrence” was carried out in several coastal regions during the period 2005 – 2007. The study, which is both of inventory and research character, sheds light on the nature of the relationships between vegetation and fish recruitment and contributes to the identification of the recruitment disturbances that have occurred, among others, in populations of pike and perch along large parts of the Baltic Sea coast.

A large number of inventories of marine nature have been conducted to provide guidance for possible marine nature reserves.

- Inventories of underwater vegetation in the Karlskrona region. Ingvar Lagenfeldt, Swedish Board of Fisheries, 1983 - 1984
- Monitoring of zoobenthos in the Torhamn area. Lars-Eric Persson, Kalmar Strait Lab (published 1991)
- Sturkö archipelago marine inventory. Jonas Nilsson, Kalmar Strait Lab (published 1995)
- Inventory of fish communities at Tromtö in Blekinge, August 2001. Jan Andersson, The Coastal Laboratory (published 2001)
- Biological inventory at Tromtö. Stefan Tobiasson, University of Kalmar (published 2002)
- Marine inventory of macro-vegetation on Almö, Kvalmsö and Listerby archipelago's nature reserves in Blekinge, in autumn 2005. Jonas Nilsson and Olof Lövgren, University of Kalmar (published 2006)
- Marine inventory of macro-vegetation at Gö in Blekinge, in autumn 2005. Jonas Nilsson and Olof Lövgren, University of Kalmar (published 2006)
- Exploratory fishing in the water sector belonging to Elleholm nature reserve in Blekinge, August 2006. Jonas Nilsson, University of Kalmar (published 2007)
- Marine inventory of macroalgae in relation to Utklippan nature reserve in Blekinge, October 2007. Jonas Nilsson, University of Kalmar (published 2008)
- Marine inventory of macro-vegetation in the water sector belonging to Eriksberg, Eriksberg beaches, Bockö-Mjöö and Tjärö nature reserves in Blekinge County, in autumn 2007. Jonas Nilsson, University of Kalmar (published 2008)

Additional studies were performed in order to develop methods and explore various aspects of coastal ecosystems.

- Environmental toxins in blue mussels along the Swedish Baltic coast. Action Group South (published 1999)
- Development of methodology for the monitoring of higher plants in shallow vegetation-covered soft bottoms. The county administrative boards in Blekinge and Kalmar, University of Kalmar (published 2000)
- Distribution of bladder and toothed wrack seaweed, Kalmar and Blekinge counties: evaluation and quality assurance of data. Roland Engkvist, Jonas Nilsson and Stefan Tobiasson, University of Kalmar (published 2002)
- Shallow coastal bays along the Swedish coast: Intermediate year variation of underwater vegetation and fish fry abundance. Uppland Foundation and the Uppsala County Administrative Board (published 2008)
- 6 sites have been determined for macro algae in streams.

Socio-economic research [demography, economics, traditional knowledge, etc.]

Earlier social sciences and humanities research address significant aspects of the region's cultural history, including the transition from Danish to Swedish rule. Also archaeological research conducted by university departments and museums is important for the understanding of the cultural landscape and the conditions of natural and cultural tourism. Examples of such research, mostly from Lund University and SLU, include:

- Beyond nation-formation. People, Landscape and power in South Scandinavia (2007) – examines previous research on the Danish nation-formation and is based on a landscape archaeological perspective. Four areas are examined in a landscape archaeological perspective: Eastern Blekinge, the Lund plain in southern Sweden, the Ätra Valley in Halland, and the island of Bornholm.
- Decolonizing the Viking Age 1 (Volume 1); Death Rituals in South-east Scandinavia AD 800-1000. Decolonizing the Viking Age 2 (Volume 2) (2003) argue that the Scandinavian Viking Age can be seen as a theoretical construction that is essentially developed in the late 1800s. This system of thought has been essentially reproduced to this day.
- The landscape of things and thoughts. Experiments in relationship with nature with archaeological examples from Blekinge's and Småland's history (2003) looking for archaeological methods and theories for a humanistic rapprochement of early human relationship with nature. Three of the case studies explore the Stone Age in Blekinge and Halland, while one focuses on two historical fishing situations in Blekinge, salmon fishing in Mörrum and pike fishing in the eastern Blekinge archipelago.
- The stripes never fade: historical study of buildings in Danish Blekinge. Lund studies in medieval archeology 2 (published 1986)
- Water, hiking, recreation, views & variation: the Swedish spa gardens' design ideas, the example of Ronneby Brunnspark (2004) – both a description and an analysis of the spa gardens/spa facility Ronneby Brunnspark's design concerning the external environment from the early 1700s until today, and a more detailed study of the spa facility and spa gardens Ronneby Brunnspark's basic shapes (design ideas) and implementation (design) in the late 1800s.

The Blekinge County Administrative Board carried out a marine archaeological project in 2008 called, "Mapping of maritime relics in Blekinge", with the aim to raise awareness of maritime heritage in the area. The project involved extensive contacts with scuba divers, fishermen, local museums, etc., which all have local knowledge of the archipelago and the remains of human activity that exist. The follow-up has led to more maritime relics being identified and in 2009 these will be recorded in Swedish National Heritage Board's database Fornsök. The number of known remnants has almost doubled, but there is still much more information to gather in this area.

Sustainable community development in Blekinge. Present and Future (2005) Blekinge shares the pattern of population trends that apply to many regions of the country as

concerns population development. One municipality, Karlskrona, has had a balanced population growth and in recent years, the number of residents has increased. The other municipalities have, to varying degrees had a negative population growth. The analyses in this report are based on different scenarios of either population decline or growth in all the municipalities and what they entail.

BTH has conducted scenario studies of the pressure on the coastal zone if there is stronger economic and population growth and from the challenges of demographic transition. The studies were carried out in the project ”Blekinge face the future” funded by the County Administrative Board. The project has continued with a focus on recreation and tourism in the archipelago and the coastal zone with special emphasis on knowledge building for planning and development.

15.1.3 Brief description of on-going research and/or monitoring activities

Ongoing research is as stated in the introductory of this chapter to a large extent the continuation of previous research in key areas of abiotic and biotic research such as landscape development, marine environmental research, research on natural resource management and environmental research, etc. BTH, which has been active in the region for 20 years, has built up research of central importance for both local and regional business development, planning for the integrated management of oceans and coasts, development of energy efficient and environmentally friendly technology that has the potential to be used in the area. The coproduction program, ProVision, at BTH will particularly encourage research and development with local and regional engagement with a focus on innovation and sustainable development. Important research actors in the biosphere reserve, in addition to BTH, are Lund University, SLU, University of Kalmar, Växjö University, and World Maritime University, Malmö.

Freshwater habitat is one of the program areas within the Swedish Environmental Protection Agency's environmental monitoring.

Environmental monitoring has been carried out during a long time. Internationally speaking, Sweden's system of long-term and regular monitoring is relatively well-developed with measurement series, which in many cases have no equivalent in other parts of the world. The part of the environmental monitoring that is state-funded is coordinated by the Swedish Environmental Protection Agency and conducted in ten different program areas, broken down by different types of habitats such as freshwater, farmland, wetlands and forest. In addition to the environmental monitoring conducted by state authorities, many important studies are made by others, e.g. the municipalities, water protection associations, universities or non-profit organizations. The section ”Earlier monitoring” includes contributions from the early 1900s until 2008 but that are now finished. Some finished monitoring efforts are individual stations that were closed down or replaced, others are those in which the monitoring has ceased entirely.

In 2008, extensive work was carried out in Sweden's county administrative boards concerning environmental monitoring. The environmental monitoring programs of the county administrative boards were revised and all the environmental monitoring carried out in the counties were screened and needs' analyses were performed. It is therefore difficult in the current situation (June 2009) to state for certain what monitoring will be carried out in the proposed biosphere reserve in the future. What is mentioned here thus refers to the monitoring we know now. Knowledge of current environmental monitoring may therefore possibly be updated in the future. As part of the revision an attempt to gather all the monitoring which is carried out today was made by the Blekinge County Administrative Board in order to get a better understanding of where the weaknesses are and how we should arrange monitoring in the future. Yet the work is not entirely finished but we know that within the proposed biosphere reserve there are about 950 locations that are or have been included in some type of monitoring. Since Swedish environmental monitoring is conducted within the program areas, where each program area encompasses both abiotic and biotic environmental monitoring, only examples of studies are presented in this case. A more comprehensive description based on program areas can be found in Appendix 8.

Abiotic research and monitoring [climatology, hydrology, geomorphology, etc.]

The abiotic monitoring conducted in the area today concerns air monitoring and hydrological measurements in the form of groundwater monitoring, water chemical sampling within lime efficiency follow-ups and coordinated recipient control (freshwater and sea), as well as monitoring under the bathing water directive. The activities in progress are as follows:

- Coordinated recipient control sea: under the management of the Blekinge Coast Water Protection Association measurements are carried out since 1990 of environmental toxins in mussels and sediments, control of hydrography and nutrients (15 sites), water, chemical analysis and sediment (basic survey) at 9 stations
- Coordinated recipient control, fresh water: the water protection associations for Lyckeby River, Mörrum River, Ronneby River and Bräkne River carry out monitoring of water chemistry in streams and of metals in the water.
- Regional monitoring in the county: Groundwater monitoring (1 well and 2 sources), within lime efficiency follow-ups there are water chemistry sampling conducted at 4 sites, habitat mapping and natural value assessment of 8 streams. Screening of environmental pollutants are carried out annually at about 20-30 sites
- National monitoring in the county: trend monitoring of the open water, metals and organic pollutants in biota (3 stations, coastal), analysis of metals in moss in 12 stations), water chemistry is sampled in 3 lakes (trend, reference and temporal series lake) and chemical parameters are in two streams within the National Estuary Program
- 1 precipitation station
- 2 water discharge stations
- Local monitoring: 10 water chemical stations, (nutrients, Ronneby municipality), one site for typical areas of agricultural land (nutrients, Ronneby municipality), air pollution measurements in Ronneby, particle measuring in Karlskrona, particle measuring in Karlshamn, monitoring according to the Bathing water directive in 19 stations

Biotic research and monitoring [flora, fauna]

There is much biotic research and observation conducted in the proposed biosphere reserve. In addition to the research conducted by scientists at various universities a couple of ongoing thesis projects can also be mentioned. Research in the area is conducted by university departments from several of the country's universities. As noted above, there is no comprehensive overview of Swedish research. The enumeration below is therefore to ensure an instantiation of ongoing research. Important institutions in the biotic research in the area are SLU, Lund University, and University of Kalmar.

Via the annually awarded Eriksberg scholarship, research is stimulated in natural resource management and tourism with a focus on ecotourism in Eriksberg Wildlife Sanctuary. Research conducted with this aid includes studies of wild animal management, fisheries management, fishing tourism etc. Gö Peninsula and the Göholm mansion with its foundation form an important resource for research on the cultural landscape of the coastal zone. Research is built up among others by works from SLU that focus on the collection, processing and making available basic information about Göholm.

Examples of biotic research that is relevant to the biosphere reserve management and environmental monitoring are:

- In Mara Bay in Eriksberg Wildlife Sanctuary there is an ongoing investigation into the release of pike caught in sport fishing. The project began in 2006, and is operated by Umeå University and The Swedish University of Agricultural Sciences in Umeå.
- One of the county's finest streams for freshwater pearl mussels exists in the reserve and in it there are two projects in progress relating to the question regarding the reproduction of the freshwater pearl mussel. In the lower parts of the river (within the proposed biosphere reserve) one finds the regeneration of the two red listed species thick shelled river mussel and freshwater pearl mussel. On the other hand, there is no regeneration in the northern part of the stream. The two projects deal with this problem from two different aspects. Could there be something in the stream's natural environment that prevents reproduction of the upper parts? To test this sedimentation traps were set out to see if there was a large amount of sediment upstream where no reproduction occurs in comparison to the downstream sections where reproduction occurs. Is the reproduction in mussels functioning at all? Glochidia larvae test plus electric fishing have been carried out. If there are enough trout and the trout gills are infected with glochidia larvae the reproduction functions but then there is something else that effects the small mussels' survival after the release from the host fish.
- Factors that determine local biodiversity of woodboring beetles in southern Swedish natural value forests and landscape. Studies conducted at Gö in Ronneby municipality.
- The Gö Peninsula's forest dynamics as a biological resource. Conducted at Gö.
- The mixed oak forests' development for multiple uses – Concept and development of ideas
- Increasing accessibility in combination with attractiveness and multi-functionality along the Bräkne river

Environmental monitoring ongoing in the area:

- Coordinated recipient control, sea: under the management of the Blekinge Coast Water Protection Association measurements are carried out since 1990 of macro-algae at 12 stations, soft bottom fauna at 26 stations, the state of health of coastal fisheries (annual exploratory fishing at 3 sites of bass to demonstrate long-term impact changes of metals and organic pollutants), environmental toxins in blue mussels.
- Two national trend areas of macro-algae exist within the proposed biosphere reserve, one on Tärnö and one between Sturkö and Utlängan in the eastern archipelago. In each area ten fixed transects are examined annually.
- Coordinated recipient control, fresh water: water protection associations for Lyckeby River, Mörrum River, Ronneby River and Bräkne River conduct in the area monitoring of benthic fauna in streams and perform electric fishing.
- The Blekinge air pollution control associations monitor lichens and air quality on a few trees in the area.
- Exploratory net fishing and physiological analyses of perch in the Torhamn area have been conducted since 2002 by the Swedish Board of Fisheries. The survey is part of an international network of reference sites for coastal fisheries in the Baltic Sea.
- Regional Environmental Monitoring: monitoring of the nesting success of eider on Utklippan since 1984, and sandwich tern along the coast since 1996, monitoring of seals at Utklippan since 2000, monitoring of rates of coastal fowl loss on 9 islands, monitoring of nesting success of grey wagtail (2 sites) and white-throated dipper (4 sites), monitoring of 10 vegetation-covered bottoms (coast), electric fishing and benthic sampling carried out within the framework of lime efficiency monitoring, habitat mapping and nature value assessment of 8 rivers, monitoring of large mussels on 32 premises, monitoring of epiphytes in 3 selected key broadleaf biotopes, testing of diatoms in 1 lake and 3 ponds, general inventory of macrophytes in lakes, 56 sites with regard to bats have been determined in the field (ÅGP), clouded apollo butterfly is monitored in 17 sites and butterflies in 9 sites and monitoring of amphibians made at 184 sites.

Nesting success of eider is part of the regional environmental monitoring.

- National Surveillance in the county: trend areas of soft bottom macro fauna (two sites), health of coastal fish (annual exploratory fishing at one site of perch to demonstrate long-term impact changes of metals and organic pollutants), supervision of stock development and reproductive success of seals and sea eagles since 1984, analysis of metals in moss at 12 sites, analysis of phytoplankton and benthic fauna in 3 lakes.
- Local monitoring: monitoring of fungi is conducted of the Blekinge Flora Association on 109 sites in the area, vascular plants are monitored annually at over 200 sites under the auspices of flora monitoring.

Socio-economic research [demography, economics, traditional knowledge, etc.]:

Ongoing research at Blekinge Institute of Technology (BTH):

The Center for Territorial Planning and Regional Development, CTUP, at BTH conducts research on regional development and participates in the research program ”Environment Strategic tools”. The center’s board of directors and stakeholders come from central authorities including The National Board of Housing, Building and Planning, Swedish Environmental Protection Agency, the Swedish National Heritage Board, Nutek and the County Administrative Board. CTUP has implemented among other things, the above-mentioned study, ”Blekinge faces the future” which raises demographic development, development pressures on the coastal zone, etc.

Research on environmentally sound product development, intelligent logistics, etc. at BTH has direct applications in the field in terms of development and start-up companies. Research within information technology has potential for education and information in the biosphere reserve. At BTH’s Campus Karlshamn there are leading courses in game development that could participate with new and advanced technology for information projects in the biosphere reserve.

The Swedish School of Planning is responsible for a major national research program ”Environment Strategic tools” funded by the Swedish Environmental Protection Agency. The program represents the core of the research on environmental assessment conducted at BTH. In the program a dozen of the country’s leading research institutions within planning and assessment are active. At the Swedish School of Planning research has been conducted through long-term international cooperation about zonation as a planning and management tool. Most of this research concerns planning models such as ROS, recreation opportunity spectrum, LAC, limits of acceptable change and the evolution of these models. The most part of this research was previously done in the Scandinavian mountains and in the Arctic, but through research in the Blekinge archipelago the work has subsequently extended to be of relevance to the planning and management of the biosphere reserve.

The project “Planning for nature tourism and outdoor recreation” is a part of the national research program ”Outdoor Recreation in Change.” The research of the subproject focuses on how the municipal land use planning takes into account the interests of recreational activities and land needs in different planning documents and in its production process. Key issues in research include, for example, management of conflicts of interest, stakeholders in the planning process, strategic positions on conservation versus exploitation, availability of protected shore areas and the impact on recreational areas in a changing climate. One of the project’s case studies is Blekinge archipelago and coastal zone. The School of Health Science at BTH is involved in research concerning outdoor activities and planning with a graduate student who studies the interaction between recreational outdoor life and public health.

Knowledge of supply of tourism and recreation in the planning of the Swedish coastal landscapes. A user survey in the Blekinge archipelago. Knowledge of the conflicts in Swedish coastal landscapes is the starting point for this project, whose analyses are ba-

sed on the results of a questionnaire targeted to visitors and cottage owners in the Blekinge archipelago in 2007. In addition to providing a current picture of the conflicts in the Blekinge archipelago, conflict management is important from a planning perspective. Since none of the planning authorities have any knowledge supply about tourism and outdoor recreation, it is important that the development of a possible biosphere reserve in Blekinge helps to alert people through knowledge of the visitor. The project is part of Rosemarie Ankre's doctoral dissertation, which is partly financed by Interreg III B Project Network Sustainable Tourism Development in the Baltic Sea Region, who will partake in the results. This network consists of researchers, practitioners and authorities / organizations around the Baltic Sea. The research program "Outdoor Recreation in Change" is another project where the results will be disseminated. Studies of planning for recreational outdoor life and nature tourism have thus far resulted in the thesis "Understanding the visitor – a prerequisite for coastal zone planning".

Stockholm Resilience Centre is conducting a national and international cooperation project "Ecological knowledge and sustainable resource management: The role of knowledge acquisition in enhancing the adaptive capacity of co-management arrangement". The studies in Blekinge are part of a large group of international studies of adaptive co-management. The main steps are: different groups' view on natural resources related to their dependence on the resource, how the local resource users' knowledge is created and the impact on the resource, and how this knowledge affects the use and management, communication between different groups of users and researchers, managers and local interests.

The Swedish University of Agricultural Sciences conducts extensive research on planning and management of cultural landscapes in the coastal zone. The research is closely linked to Swedish higher education as well as with a high profile international educating of "landscape ambassadors": The SLU efforts include:

- Local presence and strengthening communicative approaches to planning and management of the landscape.
- Restoration of oak forests – a study of competition and facilitation from bushes at the establishment of seedlings. Conducted at Gö.
- Studies of the dynamics of typical Blekinge traditional use systems such as groves, mixed forest, tree and shrub rich natural grasslands, and scrub and forest edges.

Educational courses at Master level, as part of the university's connection to practice and as part of different European networks.

- Subproject A. Landscape Ambassador course.
- Subproject B. The Tjärö and Karö model.
- Subproject C. Sustainable landscape planning, management and design. Example: Ronneby meets the Baltic Sea.
- Subproject D. A South Scandinavian line of reference landscapes from Jutland to the World Heritage sites Karlskrona and Öland.

15.1.4 Brief description of planned research and/or monitoring activities:

Since the dominant volume of Swedish research is conducted as appropriations-funded university research, there is no comprehensive overview of the planned research. The planned research and observation that we can report here are on the one hand such research that is planned under the management of state as well as those research projects that are known by use thanks to early contacts with research institutions.

Since the regional environmental monitoring program is undergoing revision, much is uncertain concerning what will be monitored in the future. Quite a few new monitoring activities are discussed but nothing is yet decided. What is reported below are therefore such projects that might be carried out in the future but nothing is currently decided. Thus, this part may be updated when the review is completed.

Abiotic research and monitoring [climatology, hydrology, geomorphology, etc.]:

- Coordination of measurements of air quality in urban areas (MIKSA). Today such measurements are made in some municipalities but not all. Hopefully more parameters will be sampled in the future and more municipalities participate.
- Ground-level ozone. The aim of the program is to measure ozone in a way that makes it possible to answer the question whether we will achieve the environmental quality standard for ozone in outdoor air, and the environmental objectives for ozone.
- Increased groundwater sampling: Complement existing sampling of wells and sources and adapt to water regulation. The parameters specified as mandatory and recommended according to the Swedish Ordinance on quality of the water environment should be measured in the wells and springs included in the MÖ-program. In addition, sampling of wells in coastal areas is needed to keep track of long-term changes in groundwater chloride content due to water use.
- Follow-up of newly constructed wetlands. We need follow-ups of newly constructed wetlands to see what effect they actually have on the nutrient dissemination into the sea and its biodiversity.
- Evaluation of health-related data in the county: measurements are carried out in the county by the municipalities, Swedish Road Administration, etc. that could be used to monitor what people are exposed to in everyday life. Examples of the measurements include radon, noise, air sampling and groundwater sampling of private wells. A compilation and evaluation of existing data could provide a basis for the environmental objectives: A Non-Toxic Environment, Clean Air and A Good Built Environment.
- Monitoring of the Water Framework Directive’s prioritized subject areas: The Water Framework Directive requires the monitoring of prioritized substances in order to be able to indicate the chemical status of a body of water (and other specific pollutants). In order for the chemical status to be assessed monitoring of relevant parameters needs to be developed and implemented.
- The formation of the Water Users Partnership of the Hanö Bight, County of Blekinge: the Water Protection Association of the Hanö Bight County of Blekinge has plans to start a water council in collaboration with organizations of the major rivers which flow into the Hanö bay along the Blekinge coast: Lyckeby

River, Nättraby River, Ronneby River, Bräkne River and Mörrum River. These have their sources in the Kronoberg, Kalmar and Blekinge counties. The water protection associations of these rivers are members of the Water Protection Association of the Hanö Bight County of Blekinge. Mie River has no water protection association but should be part in a water users partnership.

Biotic research and monitoring [flora, fauna]:

- Vegetation and fish spawn in shallow coastal bays and lagoons: Shallow vegetation-covered bottoms are probably the most ecologically valuable marine environment, and it also has great value for outdoor recreation. Limited water circulation and proximity to land means that these habitats are vulnerable to human impact, especially eutrophication.
- Otter: Has been surveyed in 2000 and 2008. Monitoring will take place starting in 2012.
- Water meadow birds. Within this priority subproject the aim is to monitor waders every 5 years.
- Monitoring of species – great crested newt: In 2009 a major survey has been carried out to obtain a picture of the species' distribution in the county. The species will be monitored in protected areas (nature reserves, habitat protection areas and Natura 2000 sites).
- Bird monitoring in forests and in the agricultural landscape.
- Monitoring of freshwater and marine phytoplankton: the Blekinge Flora Association has started a section for algae. The purpose of the section shall be to through inventory identify the existence and distribution of freshwater as well as marine algal species. The intention is to first develop a checklist of previously known species and their distribution, revised for the modern taxonomy. This will be done through studies of data in the relevant literature. For the marine part this would mainly be based on Levring (1940) "*Studien Über die Algenvegetation von Blekinge*" and various smaller publications and reports. Step two is to update the inventory checklist and prepare scientific and popular publications.
- Monitoring of key biotopes: Follow-up of key habitats will be conducted by the National Forest Service and is designed to monitor biodiversity changes in different types of habitats. The project aims to develop an operational plan for the monitoring of biological diversity in forests with high natural values. The monitoring program will highlight the causes of change, in particular the importance of natural population development and management. The program will also follow up the importance of land use that occurs in the surrounding landscape. The work will be started during 2009. Blekinge will annually be subject to monitoring in 2-3 key biotopes.

Great crested newt. During the mating season, the male's stomach turns yellow.

Socio-economic research [demography, economics and traditional knowledge]:

The research program ”Environment Strategic tools” will be further implemented through the development of web-based information tools for planning. The focus of future development will partly be on environmental assessment of strategic decisions and planning and how planning and management can interact in a better way. The biosphere reserve, through its interaction forms could be an important case study for this program. BTH has made unit head Mårten Dunér, The National Board of Housing, Building and Planning, an adjunct professor at BTH to link the research program more closely to practical management.

Sweden is currently implementing a number of EU directives regarding water, marine and coastal zone planning. New legislation and partly altered authority structures are underway. Among other things, within the Interreg project Baltic Masters II, led by Region Blekinge, research will be conducted around this development in order to support the municipalities in their expanded responsibilities. The Blekinge coastal communities constitute one of the case studies. A doctoral student has just been hired to do thesis work in the field. As part of the thesis project the doctoral student will study the management planning that is now directed by the Swedish Environmental Protection Agency and the county administrative board.

If Blekinge Archipelago becomes a biosphere reserve the School of Planning at BTH will develop research around zonation as a planning and management tool.

BTH is developing in cooperation with national and regional players, a Center for Maritime Security under which responsible civil and military authorities will interact with research in particular concerning the development of security systems and surveillance, including environmental monitoring.

15.1.5 Estimated number of national scientists participating in research within the proposed biosphere reserve on:

The lack of central view or registration of research means that the estimates are very approximate.

- a permanent basis: approx. 20
- an occasional basis: approx. 50

15.1.6 Estimated number of foreign scientists participating in research activities in the proposed biosphere reserve on:

- a permanent basis: approx. 15
- an occasional basis: approx. 50

15.1.7 Estimated number of Master's and / or doctoral theses carried out in the proposed Biosphere Reserve each year:

At Blekinge Institute of Technology, the number of dissertations (Ph.D., Licentiate and Master's) with a direct bearing on the biosphere reserve is estimated at about 20 per year.

Other educational institutions: roughly estimated about 35

15.1.8 Research station(s) within the proposed biosphere reserve

[2] = permanent [0] = temporary

Blekinge Institute of Technology (address: 371 79 Karlskrona) lies within the proposed biosphere reserve, with the main campus in Karlskrona. In 2007, BTH had about 7,300 registered students, of whom about 1,000 were international students. Staff amounted to approximately 545 employees, including 26 professors. In 2008, BTH decided to become an entirely climate-neutral university college.

The Swedish Board of Fisheries' Sea Fish Laboratory has a local office in Karlskrona (address: Utövägen 5, 371 37 Karlskrona). In the laboratory five people work with sampling and analysis of commercial fishing catches. Another five people who are involved in the control of commercial fishery landings are also stationed at the laboratory.

The Department of Geology at Lund University manages Johannishus field station.

Eriksberg's nature reserve (Eriksberg's Wildlife Sanctuary) and Göholm's mansion constitute key research areas with housing. Eriksberg has extensive facilities for the rearing of game and waterfowl.

15.1.9 Permanent research station(s) outside the proposed biosphere reserve:

[If no permanent research station exists within the proposed biosphere reserve, indicate the location, distance to the core area, name and address of the most relevant research station]

- Kristianstad University College, about 50 km west of the proposed biosphere reserve's western border
- University of Kalmar, about 60 km north of the proposed biosphere reserve's northeastern border Karlskrona
- Växjö University, about 80 km north of the proposed biosphere reserve's northern border
- Lund University, about 120 km southwest of the proposed biosphere reserve's western border
- The Swedish University of Agricultural Sciences, Alnarp, about 130 km southwest of the proposed biosphere reserve's western border

15.1.10 Permanent monitoring plots

[Indicate the year established, the objective of monitoring, the type and frequency of observations and measurements, and whether an internationally recognized protocol is being used, for example the Smithsonian-MAB MAPMON protocol for monitoring forest biodiversity]:

For details see Appendix 8 Environmental monitoring

15.1.11 Research facilities of research station(s)

[meteorological and/or hydrological station, experimental plots, laboratory, computerized databases, Geographical Information System, library, vehicles, etc.]:

In the proposed biosphere reserve, there are three meteorological stations as part of a national network of observation points.

Blekinge Institute of Technology is a modern university with a focus on information technology equipped with the basic technology that this focus demands. BTH has one campus in Karlskrona, with research and education with specialization in GIS, advanced signal processing, computer-aided design, etc. Campus Karlshamn has modern equipment for game development and the experience industry. BTH has a modern library.

The Swedish Board of Fisheries' Sea Fish Laboratory, Karlskrona branch, has laboratory facilities for dry laboratory, wet laboratory, cold rooms, etc.

At Blekinge Museum, there is a library and research rooms.

The county administrative board, the Swedish Forest Agency and the municipalities have well-developed GIS databases of a number of sectors of society and of conducted nature survey. The county administrative board and the municipalities have access to cars for official functions.

15.1.12 Facilities

[e.g. facilities for lodging or for overnight accommodation for scientists etc.]:

There is a wide selection of accommodation in different price ranges, both in the urban and rural areas within the proposed biosphere reserve.

15.1.13 Does the proposed biosphere reserve have an Internet connection?

Yes, with broadband connection.

15.2 Environmental education and public awareness

Blekinge Institute of Technology's (BTH's) focus on interaction with society and sustainable development has a major impact in terms of specific courses in engineering and planning as well as through the integration of sustainability aspects. BTH has applied to receive Sweden's fourth Chair in Education for Sustainability, with BTH's special focus on spatial planning.

15.2.1 Describe environmental education and public awareness activities, indicating the target group(s):

There are several examples of activities of environmental education and public information within the proposed biosphere reserve. BTH, with activities at different towns in the area, has, through its offering of educational programs and various courses, a broad relevant direction for the biosphere reserve. Examples are several master's programs in environmental education and in planning. Different companies have within their own organization different activities within the environment field. Such activities can also be found in professional organizations in fields such as agriculture, forestry and fishery. Through the various forms of assistance from the EU that are linked to the rural and agricultural sectors, various courses and training have been implemented in the area. Other organizations, both linked to business as well as non-profit organizations, are very active with training, field trips and other activities for their members as well as for the public.

The County Council of Blekinge, with operations across Blekinge County, has been noted for their linking of their activities to environmental issues. One example of such activities is the project concerning drug residues in sewage and sewage sludge at the municipal treatment plants. Another example is the various forms of health information related to public health and lifestyles. Information on this and other current environmental issues within the County Council of Blekinge is disseminated through information to all households and via their webpage.

The country's naval base is located in the reserve and one of the country's three air wings lies in its immediate vicinity. The Armed Forces has an extensive environmental program which is reflected in the training of the employees as well as in various information activities in separate areas of operation. The Armed Forces is also a major user of various locations within the proposed biosphere reserve and has, through cleaning and sanitation of such training areas, contributed to that several areas can now serve the public. Some of these areas are under protection as nature reserves or Natura 2000 sites.

The county administrative board is currently working with environmental monitoring, regional development and cultural heritage preservation within the proposed biosphere reserve. There are also information campaigns addressed to the local residents as well as visitors linked to this work. Different specialty competencies, for example within fishing, also interact with the population in order to develop activities and disseminate information to entrepreneurs and other interested parties in the reserve.

In the three municipalities within the reserve there are several activities that act as large and important resources, and that are actively involved in environmental education and information. This work happens both within each municipality as well as directed towards the residents and the general public. Examples of such activities are listed below.

Environmental work in school is important to build a foundation for children's understanding for our environment.

Environmental work is a natural part of school work and various activities linked to basic education can be found in the reserve. Among these activities one finds the specific educational material that Karlskrona Municipality has paid for during 10 consecutive years in order to provide it to all students within the municipality in grades 4, 5 and 6. This material, called the Nature and Environment folder, is used in different ways in teaching and the pupils can keep the folder. A special training program that connects to the material is offered to the teachers. This teaching material also exists in other municipalities. Ire Nature and Culture school, about 20 kilometers north of Karlshamn, is located in a cultural nature reserve of national interest. Since more than twenty years nature and sustainability education is offered for pupils in all the school's activities in addition to training of municipal staff. Ire school also receives school classes from other municipalities. Various schools throughout the municipalities have practical teaching opportunities in order to teach pupils knowledge of different environmental and cultural issues. Some schools are also actively involved in the management of nature reserves.

The municipalities are also members of various water protection associations linked to various rivers in the area. Examples of these rivers are Mörrum River, Bräkne River and Lyckeby River. For example, Lyckeby River Water Protection Association has developed a specific learning kit. The material which deals with water issues and environmental issues related to water are lent to schools. There are also visits and excursions with school classes. The associations also arrange different theme days about water and water use. These theme days are addressed to the general public.

Within the various departments and companies of the municipalities there is ongoing environmental work. In Karlskrona municipality there are appointed Agenda 21 managers in the municipality departments and companies. Their mission is to provide a channel of communication in current environmental issues for each activity. For these people different meetings are organized. Among the themes that have been discussed one finds energy, environment, waste management and conservation issues. During meetings they receive information about ongoing environmental work in the municipality and within the various departments and companies. Karlskrona Municipality also has special appointments such as environmental strategist and Agenda 21 coordinator. Their role is to assist both the organization and the public with support and information in various environmental and sustainability issues. In Ronneby Municipality a special series of seminars were held for staff in connection with decisions

on new environmental goals. These seminars were addressed to staff and politicians as well as to the public. In Karlshamn Municipality there is a special appointment as environmental engineer for the management of the municipality's internal environmental work. Furthermore, Karlshamn Municipality is organizing, in collaboration with the Science Center Kreativum, Energy and Climate days. These arrangements are aimed at individuals as well as to businesses, associations and organizations.

Training in eco-driving has been carried out for parts of the municipalities' and county administrative board's staff. In conjunction with this training significant aspects concerning travel are highlighted. Different groups of the municipalities' staff have also participated in the thematic meetings on climate issues. Such meetings and briefings have also been offered to the public. For new employees in the municipalities there are information sessions during which information about development issues and environmental issues is included.

The municipalities have also borne the cost of mailing magazines to all households within the municipality on various themes such as energy, transportation/traffic and climate. The municipalities also give energy advice to individual residents. This work also includes various theme nights and participation in public information at various exhibitions and fairs.

The European Mobility Week is organized every year in Karlskrona, among other places. In connection with these arrangements environmental information is provided to the public about communications, public transport and alternative fuels. One also informs about the current plans of the municipality as well as about various foods and their impact on the environment. Special activities are also organized for children.

Educational associations have an important role in information and knowledge dissemination to and among the residents. Karlskrona Municipality has previously collaborated in a project with educational associations, the Red Cross, the Swedish Church and Swedish Society for Nature Conservation in a campaign called ”klimat.nu”. This work consisted of targeting information about climate issues to the public. The information included tips on how to be better able to conserve and save energy and the environment through simple behavioral changes in one's daily life such as energy-efficient lighting and travel. In Karlshamn Municipality there is an initiative for collaboration between the municipality, educational associations and insurance companies to conduct public education efforts focusing on sustainable development. Similar projects have previously been implemented in conjunction with the introduction of the work with Agenda 21.

Various seminars and theme days linked to the environment and local development have been organized. There is an annual “Rural Day” in Karlskrona municipality with various themes. These themes include ecotourism, biosphere reserve, organic food, new forms of housing such as senior housing in rural areas, and women entrepreneurship.

A large and widely noticed seminar on wind energy was held in 2008 in the area. It was very well attended by the public and information was given, among other things, about

wind power as an energy source and plans for wind power particularly in the eastern part of the reserve. In 2007, a seminar in Karlskrona was held for the general public and businesses on climate issues with particular focus on the municipality's coastal and archipelago areas and the possibility of sea-levels rising. There have been other seminars with themes on solar energy and biogas and low energy houses.

The energy plans of the municipalities are updated annually and ratified. They are available to the public on websites along with other plans and policy documents that are made available for interested citizens. Among these other documents one finds environmental plan, Agenda 21 document, comprehensive plan and environmental policy.

Karlskrona Municipality gives each year an environmental award. The public has the opportunity to submit proposals for suitable candidates, who, in various forms have been working to spread knowledge about and improve the environment in the municipality. The winners include individuals as well as companies and organizations. A similar environmental award is also given by the Blekinge County Council and people within the various municipalities have been acknowledged for significant efforts in environmental protection.

In the annual municipal financial statements there are various sections related to the environment and sustainable development. These sections amount to an official presentation of the work that the municipalities have carried out internally as well as towards the general public on these issues. Karlskrona and Ronneby municipalities also issue separate environmental statements.

In printed information from the municipalities the households are informed about various development issues and environmental issues, such as entrepreneurship, business development, work on environmental issues and traffic issues. At times, the municipalities also distribute special calendars with environmental themes to households.

Through the municipalities' membership in Energy Office Southeast and Environmental Resource Linnaeus different training and information activities have been carried out. These efforts focused on issues related to energy as well as outdoor environments in school playgrounds as well as organic food and local produce used in the municipal organization. Through collaboration with other municipalities in the Swedish Energy Agency project "Sustainable Municipality," Karlskrona Municipality works to strengthen public information as concerns the organization and its staff on attitudes and behavior in order to enhance ecological, economic and social sustainability.

An agricultural high school, with Ronneby Municipality as principal manager, is located in Bräkne-Hoby. The high school educates young people in the areas of agriculture, forestry and animal husbandry. The training includes special sections on, inter alia, environmental effects and entrepreneurship. Many of the pupils work in the region after their education and their knowledge and activities are of significance for the development of the coast and archipelago.

Various hiking and biking trails involve all or part of the area. Adjacent to these trails one finds information about the region's natural and cultural history as well as its flora and fauna. Such information is also available in conjunction with various nature re-

serves in the area. The municipalities also provide various types of maps for both residents and visitors. These maps show attractions of various kinds, and are also available of certain parts of the areas, indicating suitable bike trails or the like.

The municipalities' environment and health protection work is conducted by the Karlskrona and Ronneby municipalities themselves. Karlshamn Municipality carries out these activities in cooperation with nearby municipalities under a municipal council. In addition to the monitoring, and the exercising of public authority, these functions provide information and advice to local residents in various environmental issues such as water and sanitation or waste management.

Within the municipalities there are various programs and plans for development in various sectors. These include municipal comprehensive plans, policies for development of countryside and archipelago, environmental plans and similar documents. These are intermittently adjusted, and in the process of development and implementation of the documents support is sought from the residents of the municipality and various stakeholders. Different types of data are often produced in cooperation with individuals and organizations and associations in relevant areas and the public has the opportunity to comment on the documents before they are ratified. Many of the proposals that emerge on these occasions have led to various efforts in the area. Among these efforts one finds improvements with regard to water and sanitation in the archipelago areas or development of public transport.

15.2.2 Indicate facilities for environmental education and public awareness activities

[visitors' centre; interpretative programs for visitors and tourists; nature trails; ecomuseum demonstration projects on sustainable use of natural resources]:

Naturum

The Sea exhibition at naturum discusses the situation of cod in the Baltic Sea.

In Ronneby Brunnspark one finds naturum Blekinge, which is a visitors' center with information about Blekinge's natural, environmental and cultural landscapes. Naturum is a famous attraction that has existed since 1976. In 2000, the county administrative board took ownership and in 2006 naturum moved to new premises and had new exhibitions. Naturum is now located centrally in the culture reserve in an old gymnastics building. The exhibition area is over 500 square meters. In connection with the renewal, naturum Blekinge worked on both issues of culture and nature, leading to an increased importance of humans and the cultural landscape in exhibitions and activities.

The new efforts have meant that the number of visits, hours of operation and the activities increase year to year. Entrance and school guiding tours are free. In 2008, naturum Blekinge was open daily in the summer and on weekends during September to November. The visitor center was open for pre-booked visits from May to November.

In 2008 it fielded 31,500 visitors, offered 45 pre-announcement tours and conducted 75 booked tours of which 50 were school groups. A total of 800 persons were guided in the center. In addition, the visitors' center conducted in 2008 a dozen events and lectures during which over 2000 people attended. In 2009, planned activities and opening hours will increase.

Current exhibitions can be said to consist of three major themes; The culture reserve Ronneby Brunnspark, Bräkne River valley and The Sea and fishing industry in Blekinge. The maritime exhibition addresses the situation of cod in the Baltic Sea and offers thoughts on how the industry can develop in a sustainable manner. In this section, new parts on Blekinge's sea, coast and archipelago are being planned, that will also reflect elements of the biosphere reserve efforts. Naturum Blekinge also has a small cinema, where current films on exhibition themes are shown. There is also a "lab department" that includes aquariums and comparison microscopes.

Snorkeling route in Kollevik

In the summer of 2008 the biosphere reserve candidacy organization together with the South coast Scuba Divers' Club established Sweden's first permanent snorkeling route in Kollevik in Karlshamn. The purpose of the route is to attract visitors to easily discover the life and landscape under water. The route is divided into a lighter, shallower part and a bit deeper, more difficult part. On the sea bottom along the route there are information boards telling about the area's aquatic species and other marine issues. Directly linked to the route, on land, further information can be found. At the adjacent camping site snorkeling equipment can be rented during parts of the year.

Blekinge Museum

Blekinge Museum is a regional museum in Blekinge with the task of deepening and clarifying the understanding of the cultural heritage, particularly that of Blekinge, and provide a forum for current social debates. The museum is located in Karlskrona, but is working with the whole of Blekinge. Operators of the museum are the County Council of Blekinge, Karlskrona Municipality and Blekinge Local Heritage Society.

The museum collects memories and remnants of human history in Blekinge, in the form of object collections, a cultural history library, archive collections, photographic archives and art. The museum holds exhibitions on various themes. It also organizes shows, lectures, programs, city tours and other events for the public. Together with the Blekinge County Administrative Board the museum is also responsible for the information of the cultural landscape. In Förkärla, Nättraby and Tjurkö, among other places, they have constructed signposted hiking trails. Exhibitions are also held at the Karlshamn fortification and on Tjurkö. In addition, Blekinge Museum performs archaeological studies, cultural environment studies, and offers advice on building conservation matters.

Two of the museum's current profiles are "Coast and archipelago," and "World Heritage Karlskrona." From the 1950s onwards, the Blekinge Museum has documented the older coastal and island cultures as well as the local industries, which includes traditional boatbuilding. Since a few years the museum also owns Saxemara boatyard in Ronneby municipality, where today a local entrepreneur builds wooden boats of

traditional type. The museum's coastal culture study collects extensive knowledge in their records, photographs and archival materials, such as boat plans.

The Naval Museum

The Naval Museum on Stumholmen in Karlskrona is part of the Swedish National Maritime Museums (SMM). The museum is working with dissemination of information about the Swedish navy's history, Karlskrona's marine habitats and the World Heritage site Naval City of Karlskrona. In the museum there are ship models, figureheads, and a number of older museum ships and an underwater tunnel. In the dry tunnel, visitors are underwater and can look at the centuries-old wrecks located under the museum. In the tunnel, which is kept dark, there are illuminated images, texts, designs and items that provide a window to Sweden's underwater world. A world that is full of archaeological and historical remains. In the museum there is also a marine activity deck for children and adults, with for example Sweden's only public ship simulator.

World Heritage site Naval City of Karlskrona

The Naval City of Karlskrona is on UNESCO's list of irreplaceable world heritage sites. The city was built in the 1680s and is a well-preserved and unique example of a fortified naval town. Karlskrona is also one of a few historic naval bases, which is still in use. Information about guided tours of the world heritage area is arranged by the Naval Museum, Karlskrona Tourist Office, and private contractors. To coordinate interests concerning conservation, development, tourist and business issues as well as accessibility and participation in the World Heritage Site there is a specific World Heritage Council.

Visitors' Center for the World Heritage Site the Naval City of Karlskrona

At Stortorget, the main square in Karlskrona, the Church of the Holy Trinity, also called the German Church, is situated. The church serves both as a sacred place and as host for a World Heritage Visitors' Center. The visitors' center offers information and exhibitions on the Naval City of Karlskrona as well as a studio where the visitor can put together her own information about the world heritage site. During the tourist season the visitors' center mainly works as a point of information in order to guide visitors to discover the world heritage site. During the rest of the year the visitors' center is an arena for discussions and exhibitions concerning the town of Karlskrona, e.g. spatial planning, conservation and development.

Kreativum with Kreanova

Kreativum in Strömma, Karlshamn is a Science Center for visitors of all ages, who want to stimulate their curiosity and creativity concerning technology and science, with a particular focus on the joys of discovery. The center has hundreds of ”trial” stations with interactive exhibits and both indoors and outdoors experiments. Kreativum seeks to be a meeting place between schools, business and society. Kreativum was inaugurated in 1999 and is operated by a non-profit organization, Creative and Technical Forum in Blekinge, which works to generate interest in technology and in facilitating innovation and technological development. Since 2000, there is also the MegaDome-cinema Kreanova in Kreativum.

Red deer is one of the wild animals one can see at Eriksberg wildlife sanctuary.

Eriksberg Wildlife Sanctuary

Eriksberg Wildlife Sanctuary in Karlshamn municipality is with its approximately 900 hectares one of northern Europe's largest wildlife sanctuaries. In the area red deer and fallow deer, European bison, wild boar and mouflon roam free. Eriksberg works to save the European bison from extinction, among other things. In the park, visitors can go on safari tours, fish, and walk along themed trails etc. At the manor there are exhibitions, a café, "Eriksberg for children" and a conference center. Erikberg's owner and Karlshamn Municipality annually awards the Eriksberg Prize, which is a scholarship for a thesis or project located at Eriksberg. The winner should, through their work, help to create conditions in land and water use for a positive evolution of nature's many values, both economic as well as social and environmental.

Salmon fishing in Mörrum

The Mörrum Salmon Fishing in Karlshamn municipality is run by Sveaskog. Operations are focused on fish conservation in Mörrum River and to provide sustainable sport fishing for salmon and sea trout. The Mörrum Salmon Fishing arranges events, such as events that are labeled with Nature's Best, a national quality mark for responsible natural tourist experiences in Sweden.

The Mörrum Salmon Fishing also has a visitors' center, The House of Salmon, which is situated next to the Mörrum River in Mörrum. There are exhibitions about salmon in the Mörrum River, river wildlife and the history of fishing, from ancient times to today's well-known sport fishing. There is also an aquarium with lots of river fish and a sport fishing office. The House of Salmon is a key site for information and knowledge about the naturally reproducing Mörrum River salmon and environmental issues related to running water.

Laxaleden (The Salmon Trail)

Laxaleden is a 30 km long natural and cultural history trail along the Mörrum River, from Elleholm in the south to the Hovman district in the north, in Karlshamn municipality. The trail's southern parts are within the proposed biosphere reserve. Along the trail there are information boards describing the history and culture that over time formed life along the fish-rich and (in south Swedish terms) large river.

Nature and Culture in the Eastern Archipelago

In the eastern archipelago of Karlskrona municipality the community associations on the islands Inlängan, Ungskär and Stenshamn-Utlängan and Långören's Local Heritage Society, have conducted several projects within the framework of Swedish Environmental Protection Agency's national project "Local Environmental Protection Projects" (Lona). The projects have, among other things, resulted in construction of natural and cultural trails with related information materials on the islands and in the establishment of a smaller archipelago museum on Stenshamn, in order to increase knowledge and interest in the islands' natural and cultural environments.

In a previous project, co-financed by Mål 2 islands, information boards have been developed for every inhabited island in the eastern archipelago. Among the information material one finds a map of each island as well as information on bird conservation, the Swedish "right to roam" and history of the individual islands. Other projects to stimulate tourism have also been carried out. For example, one can ride a tractor transport from Stenshamn to the Utlängan village and the picturesque lighthouse area furthest south on the island. All ornithologists surely appreciate this possibility since Utlängan is a very well-attended bird site and over 300 different bird species have been recorded.

Informative signs on the islands in the Eastern archipelago help visitors to find their way around.

The Bräkne Trail

The association "Region in Cooperation" in Bräkne-Hoby, Ronneby municipality, has developed a 60 kilometer long bike trail, the Bräkne trail, along the Bräkne River valley. The trail's southern parts are part of the proposed biosphere reserve. Along the trail there are signs with information about the nature, relics, cultural history, past and present activities, childhood memories, etc. There is also an accompanying book, "The Bräkne trail, the Bräkne River valley – a guide to interpreting nature and culture," with information, pictures and maps. Since a few years there is also an annual bicycle race, the Bräkne tread, along the trail.

Other

The local tourist offices have information about different attractions in the area. In the three towns, Karlshamn, Karlskrona and Ronneby, of the proposed biosphere reserve there are also cultural and historical guided tours. Some local heritage and community associations also arrange guided tours of their districts on the theme of nature and culture.

In addition to the aforementioned project "Nature and Culture in the Eastern Archipelago" other areas in the municipalities, too, have been cleared and restored under the Swedish Environmental Protection Agency's national effort Local Environmental Protection Projects (Lona). In areas close to the towns footpaths with information boards have been constructed. This work has largely taken place thanks to the active efforts of local businesses and individual citizens. This work has been well received and footpaths are widely used.

In the port of Torhamn a local association, in collaboration with the municipality, has built a visitors' center with information on the district and the eastern part of the municipality's archipelago.

15.3 Specialist training

[Acquisition of professional skills by managers, university students, decision-makers etc.]

[Describe specialist training activities: for example research projects for students; professional training and workshops for scientists; professional training and workshops for resource managers and planners; extension services to local people; training for staff in protected area management]

Several colleges and universities regularly offer courses and research projects for students within the proposed biosphere reserve. The prime example is Blekinge Institute of Technology (BTH), which lies within the proposed biosphere reserve. BTH has sustainable development of economy and society as one of its profile areas, and research as well as national and international training are carried out in areas such as sustainable product development and environmental assessment. At BTH one finds Sweden's only coherent Master's Degree in Regional Planning and the university also has a professorship in environmental impact assessment. Several international master's programs at BTH, among others, European Spatial Planning and Regional Development, and Strategic Leadership for Sustainability and Innovative Regions have a clear focus on sustainability issues and they are internationally successful both in terms of recruitment and cooperation with other universities. The research program Environmental Strategic tool has during a number of years conducted a graduate school. The Outdoor Recreation Program conducts annual research conferences about outdoor recreation and nature tourism, and BTH participates with subprojects.

Research in emerging sea and coastal planning will lead to new courses for civic planners. In 2009 BTH starts a new Bachelor's program in Public Health and Community Planning.

The Swedish University of Agricultural Sciences (SLU) in Alnarp has regular national and international courses in Landscape Development within the reserve.

Lecturers from the Stockholm Resilience Center have been conducting training in the concept of ecosystem services to politicians and officials from the three municipalities within the proposed biosphere reserve. Staff at the county administrative board's natural and cultural units receives training on the management of protected areas. Municipalities and the county administrative board also receive trainees from colleges and universities.

15.4 Potential to contribute to the World Network of Biosphere Reserves

[Collaboration among biosphere reserves at a national, regional and global level in terms of exchange of scientific information, experience in conservation and sustainable use, study tours of personnel, joint seminars and workshops, Internet connections and discussion groups, etc.]

15.4.1 Collaboration with existing biosphere reserves at the national level

(indicate on-going or planned activities):

The proposed biosphere reserve has been in regular contact with the biosphere reserve Kristianstads Vattenrike and the proposed biosphere reserve Lake Vänern Archipelago and Mount Kinnekulle. Contacts and exchanges of experience also occur with other Swedish areas that are undergoing a process towards a biosphere reserve, such as the Eastern Slopes of Lake Vättern.

Close cooperation can evolve in the future with the neighboring Kristianstads Vattenrike Biosphere Reserve, for example in employment and entrepreneurship issues for the development function of the reserve, as well as in research, information and education. An exchange of experiences and lessons learned, as well as the ability to discuss different issues will strengthen both areas in the continued biosphere reserve work. Collaboration is also expected to evolve with the proposed biosphere reserve Lake Vänern Archipelago and Mount Kinnekulle on subjects such as landscape and archipelago issues and municipal planning. Since both Lake Vänern Archipelago and Mount Kinnekulle and Blekinge Archipelago involve three municipalities there are also opportunities for experience-sharing in how biosphere reserves that are located in several municipalities can be organized and operated.

Research at the School of Planning is planned to effectively be able to contribute to the development of zonation models.

15.4.2 Collaboration with existing biosphere reserves at the regional or sub-regional levels, including promoting transfrontier sites and twinning arrangements

(indicate on-going or planned activities)

[Here, ‘regional’ refers to the regions as Africa, Arab region, Asia and Pacific Latin America and the Caribbean, Europe. Transfrontier biosphere reserves can be created by two or more contiguous countries to promote cooperation to conserve and sustainably use ecosystems which straddle the international boundaries. Twinning arrangements usually consist of agreements between sites located at some distance in different countries to promote activities such as cooperative research projects, cultural exchanges for schoolchildren and adults, etc.]

Blekinge Archipelago established contacts with the Archipelago Sea Area biosphere reserve in Finland early in the process, because it is the biosphere reserve that has the most similarities with Blekinge Archipelago in terms of type of landscape. The areas have several points of contact and common areas of interest relating to the Baltic Sea and archipelago issues. Discussions have been held about initiating cooperation on fishery issues, the natural landscape, and population issues. Such transnational Baltic Sea cooperation provides a solid foundation for developing good examples of local sustainable solutions in different Baltic issues.

15.4.3 Collaboration with existing biosphere reserves in thematic networks at the regional or international levels

(indicate ongoing and planned activities)

[Networks of sites which have a common geographic theme such as islands and archipelagoes, mountains, or grassland systems, or a common topic of interest such as ecotourism, ethnobiology etc.]

In addition to the above regional contacts with the Archipelago Sea Area in Finland, Blekinge Archipelago participated in the thematic group of islands and seas at the 3rd World Congress of Biosphere Reserves in Madrid (2008). Other participants in this group included West Estonian Archipelago in Estonia, Ngaremeduu (Palao in the South Pacific), Archipiélago de Colón (Galapagos off Ecuador), the Canary Island of La Palma, the Spanish Mediterranean island of Menorca as well as a number of other biosphere reserves in France, the Philippines, Colombia, Cuba and Mexico. Within this thematic network there is great potential for international cooperation with other biosphere reserves in the future. During the World Congress Blekinge Archipelago also initiated contacts with the North Vidzeme Biosphere Reserve in Latvia. Apart from also bordering the Baltic Sea, they have also a salmon river in their biosphere reserve like the Mörrum River in Blekinge Archipelago. Other possible thematic international networks that Blekinge Archipelago wants to build in the future concerns the development function, in which it may be interesting to seek contacts with, for example, the North Karelian Biosphere Reserve in Finland.

15.4.4 Collaboration with existing biosphere reserves at the international level

(indicate ongoing and planned activities:

[Notably through Internet connections, twinning arrangements, bilateral collaborative research activities, etc.]

Blekinge Archipelago has not yet established collaborations with other biosphere reserves at the international level. During its participation in the III World Congress of Biosphere Reserves in Madrid (2008) several interesting contacts were made that in the future could lead to possible twinning and collaborative projects.

16 Uses and Activities

16.1 Core Area(s)

16.1.1 Describe the uses and activities occurring within the core area(s)

[While the core area is intended to be strictly protected, certain activities and uses may be occurring or allowed, consistent with the conservation objectives of the core area.]

The core areas that contain strictly protected natural values of the proposed biosphere reserve consist mainly of *broadleaf forests* (e.g. in the nature reserves Elleholm, Gö, Tromtö and Färskesjön), *marine areas* and adjacent *islands and reefs* (e.g. in the nature reserves Elleholm, Gö, Tromtö, Listerby archipelago and Hästholmen–Ytterön) and *natural grazing lands* such as shore meadows, hay meadows and pastures (e.g. in the nature reserves Listerby archipelago, Skärva, Steneryd, Cape Torhamn, and the Natura 2000 site Uttorp). In addition to these there are also smaller core areas consisting of *lakes* (the nature reserve Färskesjön) and *rivers* (the Natura 2000 sites Mörrum River and Bräkne River), *pine forests* (the nature reserve Högasand) and *small bogs* (e.g. in the nature reserves Gö and Färskesjön).

The culture reserve Ronneby Brunnspark also contains mostly extensively managed broadleaf forests, but this is also a relic landscape and a landscaped park with several buildings that constitute the core of the former spa facilities.

Activities and operations currently occurring within the core areas are e.g.:

- Hay and grazing use, and clearing
- Conservation oriented forestry
- Hunting and fishing
- Rivers and seas as recipients
- Surface water abstraction for irrigation
- Boating
- Natural tourism and recreational activities
- Tourism
- Education
- Research and environment monitoring
- Military training activities
- Water transportation, and waterway management

16.1.2 Possible adverse effects on the core area(s) of uses or activities occurring within or outside the core area(s)

(Indicate trends and give statistics if available)

Much of the negative impact on the core area comes from land use and activities outside the core area (e.g. from agriculture and forestry), in some cases even outside the proposed biosphere reserve. For instance, the chemistry of the watercourses is affected

because their river basins are for the most part outside and upstream of the proposed biosphere reserve. The forested and partly bog-rich lands in the upper parts of the river basins emit, among other things, acid and humus-rich water in connection with the rational use of coniferous forests, which means that the water in the Mörrum River and Bräkne River over the years has become more brownish. The reason for the brown coloration is not fully elucidated and may have other causes. The rivers that flow into the sea in the area also affect the proposed biosphere reserve's marine parts, through the supply of nutrients, humus, and environmental toxins. In the management plan, Blekinge Archipelago will develop a strategy for how cooperation with municipalities upstream will be carried out in order to result in a decreased impact on the biosphere reserve (e.g. transportation of nutrients, brownification of water courses).

Examples of negative impact on core areas are e.g.:

- Eutrophication through water and air
- Deterioration of light conditions and siltation due to increased humus levels (brown coloration of the water)
- Acidification of soil and water through precipitation
- Environmental toxin impact through water and air
- Water regulations which impedes salmon runs in streams
- Intensive agriculture and forestry, which leads to fragmentation of the landscape and decreased biodiversity
- Erosion of beaches, as a result of waves from boat traffic
- Insufficient water flow in small streams, as a result of surface water abstraction
- Military training activities
- Waterway dredging

16.2 Buffer Zone(s)

16.2.1 Describe the main land uses and economic activities in the buffer zone(s)

[Buffer zones may support a variety of human uses which promote the multiple functions of a Biosphere Reserve while helping to ensure the protection and natural evolution of the core area(s).]

The buffer zones on land are for the most part privately owned land and consist mainly of woodland and farmland. A large part of the buffer zones is also made up of water, especially areas bordering directly to the marine core areas.

Land uses and activities that occur in the buffer zone include:

- Agricultural cultivation, hay and pasture use
- Forestry
- Hunting and fishing
- Surface water abstraction for irrigation

- Rivers and seas as recipients
- Boating
- Natural tourism and recreational activities
- Education
- Research and environmental monitoring
- Tourism
- Infrastructure: roads and railways
- Exploitation of land and water for e.g. new buildings and infrastructure
- Military training activities
- Water transportation and waterway management

16.2.2 Possible adverse effects on the buffer zone(s) of uses or activities occurring within or outside the buffer zone(s) in the near and longer terms

The negative impact on the buffer zones is mostly the same as that on core areas due to land use and activities outside the zone and outside the proposed biosphere reserve (see above, section 16.1.2). Near or adjacent to urban areas development for buildings and infrastructure affect parts of the buffer zones in a negative manner. In the management plan, Blekinge Archipelago will develop a strategy for how cooperation with municipalities upstream will be carried out in order to result in a decreased impact on the biosphere reserve (e.g. transportation of nutrients, brownification of water courses).

Examples of negative impact on the buffer zones include:

- Eutrophication through water and air
- Deterioration of light conditions and siltation due to increased humus levels (brown coloration of the water)
- Acidification of soil and water through precipitation
- Environmental toxin impact through water and air
- Non-sustainable fishing with negative impact on strains of fish.
- Water regulations which impedes salmon runs in streams
- Intensive development of land and water, which leads to fragmentation of the landscape and decreased biodiversity
- Erosion of beaches, as a result of waves from boat traffic
- Insufficient water flow in small streams, as a result of surface water abstraction
- Noise disturbance from transportation
- Padding / disposal of soil, etc.
- Dredging and dumping of dredge spoil into the sea
- Military training activities
- Waterway dredging

16.3 Transition Area

[The Seville Strategy gave increased emphasis to the transition area since this is the area where the key issues on environment and development of a given region are to be addressed. The transition area is by definition not delimited in space, but rather is changing in size according to the problems that arise over time.]

16.3.1 Describe the main land uses and major economic activities in the transition area(s)

The transition area within the proposed biosphere reserve consists of, among other things, woodland, farmland and urban areas and dispersed settlements. The biggest area of development is comprised of public waters, i.e. the sea, both in the inner and outer archipelagoes. Shipping is important and has great significance for the area. Karlshamn is southeast Sweden's largest port and Karlskrona has extensive ferry services to Poland.

Examples of land use and activities in the transition area are e.g.:

- Forestry
- Agriculture and grazing
- Groundwater abstraction for human consumption, industry and irrigation
- Surface water abstraction for irrigation
- Liming of lakes and streams (limited)
- Hunting and fishing
- Transportation via roads, railways, ports, etc.
- Shipping
- Exploitation of land and water for e.g. new developments
- Commercial and industrial activities
- Natural tourism and recreational activities
- Education
- Research and environmental monitoring
- Tourism
- Military training activities
- Water transportation and waterway management

16.3.2 Possible adverse effects of land uses or activities on the transition area(s)

Within the transition area there is intensive agriculture as well as intensive forestry, which may mean a more or less strong negative impact on the natural environment. Also most of the urban development and infrastructure development that relates to the proposed biosphere reserve take place within the transition area.

Examples of negative impact on the transition area from land use and activities are e.g.:

- Eutrophication through water and air
- Environmental toxin impact through water and air and from contaminated soils

- Intensive agriculture and forestry, which leads to fragmentation of the landscape and decreased biodiversity
- Non-sustainable fishing with negative impact on strains of fish
- Fish farming, partly because of nutrient overload and spreading of disease
- Exploitation of land and water for, among other things, new buildings or infrastructure, which leads to, among other things, fragmentation of the landscape and biodiversity
- Noise disturbance from transportation
- Erosion of beaches, as a result of waves from boat traffic
- Padding/disposal of soil, etc.
- Dredging and dumping of dredge spoil in the sea
- Military training activities
- Waterway dredging

17 Institutional Aspects

17.1 State, province, region or other administrative units

[List in hierarchical order administrative division(s) in which the proposed Biosphere Reserve is located (e.g. state(s), counties, districts)]

Country: Sweden

County: Blekinge

Municipalities: Karlshamn, Ronneby, Karlskrona

17.2 Units of the proposed biosphere reserve

[Indicate the name of the different land management units (as appropriate, e.g. protected area, territories of municipalities, private lands) making up the core area(s), the buffer zone(s) and the transition area].

Core areas include nature reserves (not Yttre Stekön, see motivation in chapter 7), Natura 2000 sites, one culture reserve and habitat protection areas.

The buffer zones consist of Ramsar sites, BSPA-areas (HELCOM), UNESCO World Heritage site, areas of national interest for nature conservation and conservation of the cultural environment, shore protection areas along the coast and major rivers, forest management agreements and flora and fauna protection areas.

The transition area constitutes other land.

17.2.1 Are these units contiguous or are they separate?

[A Biosphere Reserve made up of several geographically separate units is called a ”cluster Biosphere Reserve”. Please state if this is the case for the proposed Biosphere Reserve.]

The proposed biosphere reserve is contiguous.

17.3 Protection Regime of the core area(s) and, if appropriate, of the buffer zone(s)

The starting point for the zone of the proposed biosphere reserve Blekinge Archipelago requires no new legislation, but relies entirely on the Swedish Environmental Code (1998:808).

17.3.1 Core Area(s):

[Indicate the type (e.g. under national legislation) and date since when the legal protection came into being and provide supportive documents (with English or French summary of the main features)]

Core areas consist of nature reserves, one culture reserve, Natura 2000 sites and habitat protection areas, all of which have protection under Swedish law under the En-

vironmental Code (1998:808), which came into force in January 1999. Supportive documents of these areas are available as Appendix 4. The nature reserve Yttre Stekön is excluded as core area, see motivation in section 7.4.

The core area within the proposed biosphere reserve covers 20,962 ha (10% of the proposed biosphere reserve area), out of which 15,642 ha is protected as nature or culture reserves, 14,191 ha are Natura 2000 sites under the EU Habitats Directive (92/43/EEC) and 7,944 ha are Natura 2000 sites under the EU Birds Directive (79/409/EEC). Several of the areas are both Natura 2000 sites under the EU Habitats Directive and Birds Directive, and sometimes also nature or culture reserves.

Nature reserves and culture reserves

Nature and culture reserves are established by the county administration or the municipality (Municipal Reserves) with the support of legislation in the Swedish Environmental Code, chapter 7.

Each nature reserve is unique and has its own regulations under the Regulation of Protection of Areas (1998:1252), in order to preserve the natural values or values for outdoor recreation. The purpose of the reserve will determine what restrictions apply in the particular area. Forestry can for instance be prohibited in order to conserve and promote the natural values associated with old forest. Because of the Environmental Code and the compensation paid to landowners, nature reserves with land use regulations have proven to be effective in protecting the natural habitats and the species concerned.

At the formation of culture reserves, it is primarily the cultural values that require protection for an entire area. The values that justify the formation of culture reserves have largely been created by human activity, but through long human use, there are high natural values as well. The proposed biosphere reserve has one culture reserve, Ronneby Brunnspark. The reserve covers the spa facilities with its park from the late 1800s, former out field forests with ancient relics and traces of old fencing and road systems as well as a relic farming landscape. Most of the culture reserve is also protected under Natura 2000. Culture reserve Ronneby Brunnspark is managed by the Blekinge County Administrative Board, while Ronneby Municipality is responsible for the care according to the care management plan. The spa facilities and the park are also listed buildings under the Heritage Conservation Act (1988:950).

There are 38 nature and culture reserves within the proposed biosphere reserve, with a total area of 12,805 ha, 52% of the acreage of the core area, and 5% of the entire biosphere reserve. Work with forming more reserves is in progress in other areas. Areas for the upcoming decisions are included as core areas and covers Jordö and Utklippan. The total area is 2,837 hectares.

Habitat protection areas

Individual land or water areas that are deemed protection worthy may be declared habitat protection areas by the Swedish Forest Agency under section 6, and by the county administrative board under section 7 of the Regulation on protection of areas.

Habitat protection areas are used to conserve smaller habitats for nationally threatened species and low conservation value habitats in forest or agricultural landscapes under the Environmental Code (chapter 7, section 11). The landowner retains ownership. Within the proposed biosphere reserve there are 31 habitat protection areas with a total area of 103 ha. Of these, five areas (13 ha) cover farmed landscape, and 26 areas (90 ha) cover forests. It is particularly natural broadleaf forests, rock precipices and natural grazing lands that have been classified as habitat protection areas.

Natura 2000

Natura 2000 is the network of areas that all EU member states will help to create according to two EC Directives, Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC), both of which are binding. The purpose is to contribute to the conservation of biological diversity within the European Union by way of all countries taking responsibility for securing their share of the common natural heritage. The areas included have been selected by county administrative boards and are then reviewed by the Swedish Environmental Protection Agency. The Swedish government then decides whether to approve the area and suggests to the Commission to include the areas in the Natura 2000 network. The Commission examines the selection scientifically and determines biogeographical lists.

In Sweden, the Natura 2000 sites are protected under the Environmental Code, and all are classified as national interests. Specific permission is required if someone wants to conduct activities or otherwise act in ways that can impact significantly on the environment at a Natura 2000 site (chapter 7, section 28a Environmental Code). Member states must ensure that the necessary conservation measures are carried out in Natura 2000 sites. Habitats and species, which formed the basis for the designation of the area to the network must be maintained in favorable conservation status, as defined in the Regulation on the Protection of Areas under the Environmental Code (1998:1252).

Within the proposed biosphere reserve there are 65 sites under the Habitats Directive, with a total area of 14,193 ha and 15 areas that have been designated under the Birds Directive, with an area of 7,959 ha. Some areas are designated under both the Habitats and Birds Directive and the total area without overlap is 15,584 ha, which constitutes 74% of the core area of the reserve.

17.3.2 Buffer Zone(s)

[Indicate the type (e.g. under national legislation) and date since the legal protection came into being and provide supportive documents (with English or French summary of the main features. If the buffer zone does not have legal protection, indicate the regulations that apply for its management.]

The buffer zones within the proposed biosphere reserve have an area of 47,212 ha (22% of the proposed biosphere reserve area). They constitute areas that have been designated Ramsar sites, areas of national interest for nature conservation and conservation of the cultural environment, shore protection areas in the coastal area and along the major rivers, lands where the state through the Swedish Forest Agency signed long-term conservation agreements with landowners, bird and seal protection areas, BSPA-area identified by HELCOM and the World Heritage site Naval City of Karlskrona. Appendix 4 contains supportive records of these areas.

Areas closed off for fishing are not indicated in the digital information formats available at present; they would otherwise have been suitable buffer zones. Most fall under other existing protection, such as Natura 2000 or national interests. Smaller areas outside major estuary ports are instead part of the transition areas. Blekinge Archipelago biosphere reserve will continue working on the review of these areas as well as appropriate zonation.

Within the proposed biosphere reserve there are 14 areas of national interest for conservation of the cultural environment (10,940 ha), three of which extend partially outside the reserve, 18 areas of national interest for nature conservation (52,934 ha), five of which extend partially outside the reserve. There are also two Ramsar sites (13,578 ha), 18 forest conservation agreements (227 ha), a World Heritage site (1,425 ha), a BSPA site of 10,556 ha and 136 animal protection areas comprising 1,321 ha. The various conservation areas often overlap. In December 2009, environmental standards for all designated water bodies will be determined. The environmental requirements that are to be met will be formulated as environmental quality standards and be handled under the Environmental Code, chapter 5. Blekinge Archipelago biosphere reserve includes 55 bodies of water (35 coastal areas, 2 lakes, 15 rivers and 3 groundwater sources).

Ramsar

The world's natural wetlands and aquatic environments are very valuable and have many features beneficial to humans as well. As more and more of these valuable sites disappear necessary international and national measures are needed to protect, conserve, and manage wetlands and aquatic environments. A wise and sustainable use of these environments is a prerequisite for achieving sustainable development worldwide. Ramsar is a global conservation convention aiming to preserve wetlands and aquatic environments and utilize them in a sustainable manner. The Convention of Wetlands was signed in 1971 and came into effect in 1975. The criteria for designation are based on ecological, botanical, zoological, limnological and hydrological significance. Countries that embrace the Ramsar Convention undertake to promote regional planning and management that take into account wetlands and aquatic environments, promote research and education, and cooperate with other countries on issues relating to the Convention – especially regarding transboundary wetlands and water systems. Each member country undertakes to designate and preserve at least one area of international importance, known as a Ramsar site, which are listed on a special list. Blekinge Archipelago biosphere reserve has two Ramsar sites comprising 13,578 ha. These are Mörrum River–Pukavik Bay, which lies partially outside the Blekinge Archipelago biosphere reserve, and Blekinge archipelago which comprises three geographically separate areas, the Bräkne-Hoby, Listerby and Torhamn archipelagoes.

Most of the Ramsar sites is now protected as nature reserves or Natura 2000 sites and included in the core area, while the rest is part of the buffer zone. The entire Ramsar site is at the same time also of national interest for nature conservation and covered by the legislation described below.

Shore protection, coast and watercourses

Shore protection along the rivers, lakes and beaches exist so that the public have access to beaches for recreational purposes and to preserve good living conditions for animals and plants in coastal areas. The protection includes land and water areas up

to 100 meters from the shoreline of seas, lakes and streams throughout Sweden. The protection zone can be extended to a maximum of 300 meters. It is prohibited to construct new buildings in the shore protection area. Exceptions may be granted if there are special reasons. Protection of beaches was introduced already in the 1950s. Shore protection is now governed in the Environmental Code, chapter seven.

The amendment to the shore protection provisions of the Environmental Code (2009:622 and 2009:623) came into force on July 1, 2009. In those parts of the coastal zone that are protected under the Environmental Code chapter seven the amendment meant no major changes as compared to previous legislation. This means that the Blekinge County Administrative Board in the areas that concern Blekinge Archipelago will continue to be responsible for handling dispensations within the shore protection. For parts of the country's coastline, that have no protection under the Environmental Code chapter seven, the municipalities have the opportunity to identify areas for rural development.

The total area of shore protected land within the proposed biosphere reserve is 20,249 ha, of which 14,821 ha (almost 75%) lie within the buffer zone. Parts of the shore protection areas are already earmarked as nature reserves or Natura 2000 sites and are therefore included in the core area.

Areas of national interest for nature conservation and conservation of the cultural environment

Areas of national interest for nature conservation and national interest for conservation of the cultural environment are included in the buffer zone. National interests are defined and regulated in the third and fourth chapters of the Environmental Code. In order for an environment or object to be of national interest the area must have such great values to be deemed important from a national perspective. The purpose of delimiting a national interest is to ensure its use, or to preserve something for the future. Areas of national interest should be protected from actions resulting in significant damage to the environment. The provisions, however, only have direct effect when development projects, that according to the law imply changes in land use, are examined (e.g. when forest land is replaced by urban development). During continued land use of a particular type the current law provisions only have an advisory function. National interest provisions do not prevent the urban development or local entrepreneurship in these areas, if other suitable alternatives do not exist.

In addition to the national interests, which the Swedish Environmental Protection Agency, the Swedish National Heritage Board and the county administrative board have selected, there are also a number of areas, mentioned in the legal text (chapter 4, Environmental Code) that have such great natural and cultural values that they are of national interest. The areas in question shall not be subjected to exploitation, which may significantly harm those values. Among those named areas are e.g. the Mörrum and Bräkne Rivers. The Environmental Protection Agency and the county administrative boards select within each natural geographic region those areas that best represent the region's different landscape and habitat types. The following relevant statues covering national interests exist within Blekinge Archipelago biosphere reserve:

- national interest for the purpose of nature conservation.
- national interest for the purpose of the conservation of the cultural environment.
- national interest for outdoor recreation.
- national interest for commercial fishing.
- national interest of the coastal area.
- national interest chapter 4, section 2, takes into consideration the interests of outdoor recreation along *inter alia* the Mörrum River to Pukavik Bay and Listerlandet.
- national interest chapter 4, section 3 regulates permissions for larger activities, such as nuclear activities, motorways, railways etc. within the designated areas.
- national interest chapter 4, section 4, in parts of the coastal areas secondary homes may be constructed only in the form of additions to existing buildings. If there are special reasons other construction may be permitted, preferably such that meets the variable needs of outdoor recreation, or such construction of simpler cottages near the large urban regions.
- national interest chapter 4, section 6, includes the use of Mörrum and Bräkne Rivers for hydropower.
- national interest for shipping. Routes leading into Stilleryd, Karlshamn and Karlskrona. Deep and protected locations for the putting up of ships west of Tjurkö.

Areas of national interest for nature conservation should represent the main features of the Swedish landscape, highlighting the landscape development and demonstrate the diversity of nature. Priority has been given to large and continuous areas of characteristic habitats. But also smaller areas have been identified as of national interest, for example if they contain rare geological forms or habitats. There is continuously new knowledge, which can lead to a revision from time to time of the selection and boundaries of areas of national interest.

The areas of national interest for the conservation of the cultural environment that are singled out by the Swedish National Heritage Board and the county administrative board, range from limited environments that reflect a particular historical epoch to larger landscape sections, developed over time. These may be both dense urban environments as well as different types of landscapes, and the values to be preserved may be of representative character as well as of unique qualities. National interests in the proposed biosphere reserve represent a broad spectrum of cultural values. Some of these, located within the buffer zone, should be mentioned in particular:

- *Karlskrona town with fortifications.* Seat of the county government and the main station of the Royal Swedish Navy since the 1680s, with an original town plan with baroque features and monumental square architecture.
- *Verstorp, Skärva, Trantorp, Västeråkra and St Boråkra.* Manor houses near Karlskrona with strong links to the city and its supply.
- *Kristianopel.* Pedagogically well-arranged fortress town from the early 1600s, that reflects the Danish kingdom’s needs of support points along the border with Sweden.

- *Eastern archipelago in Blekinge.* Archipelago that particularly reflects different aspects of coastal culture industries since prehistoric times to present day.
- *Hallarumsviken Bay, Jämjö central district.* Beach bound ancient environment from the Bronze and Iron Ages, which mirrors the eastern Blekinge's most complex prehistoric central district. The peasant port Hammarby Vik, sheltered by an ancient castle site and pole barriers.
- *Tjurkö, the stone masonry by Herrgården.* One of the oldest industrial quarries in the country with features adapted for direct export to Germany.
- *Ronneby Brunn/Blekan – Fridhem – Rönninge.* Well developed spa facilities with park and surrounding features from the late 1800s. It was one of the country's most visited resorts originating in the early 1700s.
- *Förkärla central district – Tromtö.* Manor landscape where the county's largest contiguous area of ancient remains along with a strange port from the Viking era reflect a long continuous settlement until the 19th century agrarian revolution.
- *Karlshamn town, the Citadel and Boön island.* One of Sweden's best-preserved wooden towns, with construction according to a grid plan from 1665, and with fortifications.
- *Mörrum.* One of the most important centers for salmon in the country since the late Middle Ages.

The total area of national interest for the purpose of the conservation of the cultural environment is 10,940 ha (14 sites, in whole or in part within the proposed biosphere reserve) and the national interest for the purposes of nature conservation amounts to 52,934 ha (18 sites, in whole or in part within the proposed biosphere reserve) within the proposed biosphere reserve. Parts of the national interest areas are already earmarked as nature reserves or Natura 2000 sites and are therefore included in the core area.

Nature conservation agreements in forests

Nature conservation agreements are civil contracts signed by the Swedish Forest Agency and landowners to conserve and develop the natural values of a forest. Nature conservation agreements are an opportunity for landowners to voluntarily participate and contribute to the conservation of high natural values and biodiversity. The contract agreement spans mostly 50 years. Ownership or hunting rights are not affected by the agreement. The agreement details what actions can be taken to promote and develop the natural assets. Conservation agreements may also provide protection for cultural heritage sites. The government is now a driving force behind increasing the share of voluntary agreements over formal protection.

Within the proposed biosphere reserve there are 18 conservation agreements signed for a total area of 227 ha.

Bird and seal protection areas

The county administrative board has established animal and plant protection areas for the protection of birds and seals in particular. The protection can mean restrictions on hunting and fishing (such restrictions are however not active in Blekinge county) or public access, which is decided in connection with the adoption of the protection

and is adapted to the species that is to be protected. In Blekinge Archipelago biosphere reserve there are several animal protection areas in which landing bans are active during specific parts of the year. Generally, the conservation areas within the proposed biosphere reserve have landing bans and bans against coming closer than 50 meters to the beaches during April 1 to July 15. For areas that are protected for seal, the landing bans are active from April 1 to September 30. In Blekinge Archipelago there are 136 animal protection areas comprising 1,321 ha. In all but one the aim is to protect birds, especially terns (Caspian tern, common tern, Arctic tern, little tern, and Sandwich tern), avocet and eagles. In Karlskrona municipality one finds the Isak hillock, the county's only sanctuary for harbor seal. Plant Protection Areas do not exist in Blekinge Archipelago. Parts of the animal protection areas are designated nature reserves or Natura 2000 sites and are therefore included in the core area.

HELCOM – BSPA (Baltic Sea Protected Areas)

HELCOM (executive body Helsinki Commission) is a convention for the protection of the marine environment. It is also called the Helsinki Convention or the Baltic Convention. The first convention was drafted between the then Baltic States as a standalone convention, not within the framework of international intergovernmental organizations. The convention was signed in 1974 and came into effect in 1980. In light of developments in environmental work and the changes in the Baltic region there was a need to modernize the convention in the 1990s. The new convention was signed in 1992 and came into effect in 2000.

The goal is to restore the environment of the Baltic region and "preserve its ecological balance." Basic environmental principles as the precautionary principle and the polluter pays principle are included. Countries shall as far as possible take measures against water and air pollution emanating from activities on land, as well as emissions to air and water from ships, dumping from ships and pollution associated with prospecting or extraction of oil and other resources on the seabed. Priority should be given to efforts that reduce eutrophication, the emission of environmentally hazardous substances, pollutants from activities on land (including transport) and pollution by ships (including the implementation of the so called Baltic strategy for the management of waste from ships). The environmental impact of fishing in the Baltic Sea is covered, as is the protection and conservation of the biodiversity of the sea and coastline. Through the Helsinki Convention Sweden has undertaken to protect a representative network of coastal and marine habitats (Coastal and Marine Baltic Sea Protected Areas, BSPA). The HELCOM area comprises the entire Baltic Sea and Kattegat.

BSPA-designated areas will, by 2010, have long-term protection or contain one or more core areas that are under long-term protection. A management plan for the entire area should also be in place. According to HELCOM the biosphere reserve counts as long-term protection and we are working within the Blekinge Archipelago to develop a collaboration plan for management. Within the framework of this development, a review of the boundaries of the BSPA-area will be conducted. In Blekinge the Torhamn archipelago is included in the HELCOM and constitutes a BSPA-area of 10,556 ha. Parts of the BSPA area is protected as nature reserves or as Natura 2000 sites and are therefore included in the core area.

World Heritage Site

The World Heritage Site Naval City of Karlskrona lies within the proposed biosphere reserve. It was admitted in 1998 to the World Heritage List, UNESCO's list of cultural and natural heritage sites with outstanding universal value. Being on the World Heritage List offers no legal protection in itself, but under the World Heritage Convention each country that nominates a World Heritage Site commits to preserving and protecting it through the country's national laws. Naval City of Karlskrona is thus preserved and developed under the Planning and Building Act, the Heritage Conservation Act, the Ordinance on state-owned cultural heritage buildings and the Environmental Code. World Heritage Site Naval City of Karlskrona is a remarkably well-preserved example of a coherently realized marine armory and urban construction from the 1600s and 1700s. Karlskrona was founded in 1680 and the town's developments within shipbuilding, architecture and urban design, as well as construction and defense technologies were a model throughout Europe during the 1700s. Both the naval base and the shipyard have been used continuously since their foundation. The resources required to support these operations and supply the town have had a strong impact on both nature and cultural sites in the surrounding landscape for centuries.

The World Heritage Site extends beyond the central town, naval base and shipyard to include eight fortifications on surrounding islands, and two satellite sites on the mainland, Skärva mansion and Lyckeby crown mill. The total area is 1,425 ha. The World Heritage Site has a management plan (General and Management Plan) developed by the steering group and management team for World Heritage Site Naval City of Karlskrona.

17.4 Land use regulations or agreements applicable to the transition area

(if relevant)

There are several laws concerning the various processes that regulate land use in Sweden. Within spatial planning and construction, land and water use are regulated by PBL (the Planning and Building Act). The activities within the reserve are governed primarily by the Environmental Code. A number of other laws that impact on land use are also described in the section.

Planning and Building Act, PBL (1987:10)

The Planning and Building Act was implemented in 1987. Significant changes were made in 1996, which meant that the municipalities had the overall responsibility for regional planning. The law regulates how planning of land and water areas in Sweden function from overview plans down to details. As concerns spatial planning the individual municipality assesses and determines what different areas should be used for, e.g. housing, nature areas, or specific types of activity, such as industry, commerce or communications.

The municipalities have a monopoly on all planning and they are required to keep a current comprehensive plan. The municipality-wide comprehensive plan is a long term vision for the municipality's development of land and water use. The plan is also a vision for future housing, new jobs, infrastructure and green spaces. The detailed deve-

lopment plans regulate *inter alia* land use and the location and design of buildings. All planning takes place in a wide and open process with the general public, businesses, associations and concerned authorities.

All three municipalities within the proposed biosphere reserve have fairly up-to-date comprehensive plans. Karlshamn's comprehensive plan is from 2007 and Ronneby's is from 2006. Karlskrona's comprehensive plan is somewhat older, from 2002. The municipal assembly in Karlskrona has made the decision to begin work on a new comprehensive plan. Introductory information sessions have taken place and a working group is appointed. The aim is that the municipal assembly would be able to make a decision on a new comprehensive plan during spring 2010.

The Swedish Environmental Code (1998:808)

The Swedish Environmental Code aims to promote sustainable development and thus to assure living and future generations a good living environment. This aim is articulated such that it is clear that nature is not only a habitat for humans, but is worthy of protection in its own right.

There are areas of national interest for outdoor recreation and commercial fishing within the transition area. These areas are addressed in the Environmental Code, chapter three, which states that as far as possible they should be protected against measures that may significantly harm them. The transition area of the proposed biosphere reserve is covered to a large extent by national interest according to chapter four, section four of the Environmental Code, in what is called the "coastal zone," which regulates construction of new holiday homes on the coast.

Some smaller land or water areas are covered by general habitat protection under chapter seven, section eleven of the Environmental Code. Examples of such habitats are stone walls on agricultural land, stone mounds on agricultural land, small non-arable outcrops (*åkerholmar*), and small wetlands on agricultural land (ponds or open ditches). Within habitat protection areas no action can be taken that could damage the natural environment. The county administrative board may grant dispensation for such action if there are exceptional circumstances.

Water activities are regulated in chapter eleven of the Environmental Code. Permit or notification is required for water activities that harm public or private interests through the water activity's impact on the water conditions. For land drainage exemption and permit are required.

Environmentally hazardous activities are regulated by chapter nine of the Environmental Code. In order to conduct environmentally hazardous activities a permit or notification may be required for the activities listed in the Ordinance concerning Environmentally Hazardous Activities and the Protection of Public Health (1998:899).

For activities not requiring permit or that are otherwise notifiable under the Environmental Code a notice of consultation shall be made if the activity or measure is liable to have a significant impact on the natural environment (chapter 12, section 6 Environmental Code).

Agricultural land use is regulated in part by the Environmental Code and the Environmental Concerns in Agriculture Ordinance. In these laws issues about livestock and manure management are regulated, for instance that 60% of the land must be plant-covered in autumn and winter in order to reduce leaching of nutrients.

A number of animal and plant species are protected (chapter 8 of the Environmental Code). These animals may not be injured, captured or killed. The plants must not be damaged or removed and no parts of the plant may be collected. In Blekinge there are about 57 species protected under the Environmental Code. In addition to these, all birds and mammals are protected in the legislation on hunting, except during hunting season for some species. Species of freshwater pearl mussel (*Margaritifera margaritifera*) and thick shelled river mussel (*Unio crassus*) occur in the proposed biosphere reserve; both are protected in the legislation on fishing.

The Heritage Conservation Act (1988:950)

This law governs the protection of ancient remains, listed buildings and churches and church sites that were constructed before 1939. Ancient remains are remnants of human activity from ancient times, produced by human use during an earlier era and now permanently abandoned. Shipwrecks older than 100 years are also considered to be ancient remains. Buildings and facilities, such as parks, can be declared cultural heritage buildings if they are deemed to be of very high cultural and historical value. Within the proposed biosphere reserve there are 71 listed buildings. Some of them contain several buildings and parks. There are also several protected churches. The Act requires a permit for changes of churches, farms and buildings, or interference with ancient remains.

Ordinance on state-owned cultural heritage buildings (1988:1229)

State-owned cultural heritage buildings are owned by the state and give evidence of significant parts of the history of Sweden and of the public administration. It is the government that decides whether a state-owned building or facility should become a state-owned cultural heritage building. The Swedish National Heritage Board proposes new state-owned cultural heritage buildings and is responsible for their supervision. The Ordinance governs the protection of state-owned cultural heritage buildings. Safety regulations in accordance with the Ordinance can specify the manner in which the building must be cared for and maintained and in what respects it cannot be altered.

Within the biosphere reserve there are 10 state-owned cultural heritage buildings, which includes several units, all within Karlskrona municipality.

Species Protection Ordinance (2007:845)

By the provisions of the Species Protection Ordinance the trade and keeping of endangered species are protected. The Ordinance regulates the requirements for permits and approvals. In addition, the Ordinance regulates what species are protected in the country. Activities or measures that may harm protected species or their habitats, may not take place without the county administrative board’s authorization.

Landscape Protection Area

In some parts of the proposed biosphere reserve there are Landscape Protection Areas (*landskapsbildsskydd*) according to section 19 of the Nature Conservation Act. A Landscape Protection Area requires a permit for certain activities or measures that may affect the landscape, such as the construction of new buildings. The regulations apply until the county administrative board appoints another one or terminates the protection. In 2007, the county administrative board terminated a number of such Landscape Protection Areas in Karlskrona municipality.

Other environmental legislation

In addition to the Environmental Code and the Planning and Building Act, there is a number of laws that are relevant.

In The Forestry Act (1979:429), which equates environmental objectives with production aims, it is stated in the first section that: “The forest is a national resource. It shall be managed in such a way as to provide a valuable yield and at the same time preserve biodiversity.” Further, the Act regulates felling procedures and what considerations must be taken. Felling of broadleaf forests may not occur without felling permission and broadleaf forests may not be replaced by other kinds of forests after felling (sections 22-28).

Fishing and hunting is regulated in the Fisheries Act (1993:787) and the Hunting Act (1987:259). Other laws with implications for land use are the Roads Act (1971:948) and the Railways Act (1995:1649).

Other forms of agreements

Land use is also regulated through voluntary agreements and contracts. This is the case for compensations for farmland *inter alia* for the conservation of pastures and hayfields, as well as various measures to reduce nutrient leaching. One form of protection is the voluntary nature conservation agreements that are signed by the Swedish Forest Agency for the conservation of forests worthy of protection, and by the county administrative board for other kinds of natural values worthy of protection. The county administrative board can also sign agreements with landowners for the maintenance of certain habitats worthy of protection. In addition, there are the industry’s own arrangements, including certification of forests (such as FSC and PEFC) and farmlands for organic farming (e.g. KRAV).

17.5 Land tenure of each zone

[describe and give the relative percentage of ownership in terms of national, state/provincial, local government, private ownership, etc. for each zone.]

17.5.1 Core Area(s)

The core areas comprise 271 property units covering 20,962 ha
Municipal and County Council land: 12%
State-owned land: 20 %
Other owners: 68 %

17.5.2 Buffer Zone(s)

The buffer zones comprise 7,468 property units covering 47,212 ha
Municipal and County Council land: 5 %
State-owned land: 4 %
Other owners: 91 %

17.5.3 Transition Area(s)

The transition areas comprise 22,700 property units covering 144,623 ha
Municipal and County Council land: 4 %
State-owned land: 1 %
Other owners: 95 %

17.5.4 Foreseen changes in land tenure

[Is there a land acquisition programme, e.g. to purchase private lands, or plans for privatization of state-owned lands?]

There are currently no such plans.

17.6 Management plan or policy and mechanisms for implementation

[The Seville Strategy recommends promoting the management of each biosphere reserves essentially as a ”pact” between the local community and society as a whole. Management should be open, evolving and adaptive. While the aim is to establish a process leading to elaborating a comprehensive management plan for the whole site reflecting these ideas and involving all stakeholders, this may not yet exist at the time of nomination. In this case however, it is necessary to indicate the main features of the management policy which is being applied to guide land use at present for the area as a whole, and the ‘vision’ for the future.]

The proposed biosphere reserve’s land use is governed today and will continue to be regulated in accordance with existing laws and regulations. (See detailed description in chapter 17.3-17.4).

Currently an intensive work is under way to develop management and collaboration plans for Blekinge Archipelago within the framework of the national pilot project that the Swedish Environmental Protection Agency is running with relevant partners. The aim of the project is to develop management plans – in large-scale collaboration with relevant partners in the pilot areas – for larger valuable coastal and archipelago regions that currently lack formal legal protection. The plans will be completed in 2010, when the pilot project will be completed.

The goal for Blekinge Archipelago is that this management plan will be a dynamic tool in the continuing work with sustainable development within Blekinge Archipelago. (See further description in chapter 14, section Marine collaboration).

17.6.1 Indicate how and to what extent the local communities living within and next to the proposed biosphere reserve have been associated with the nomination process

[This can range from being an entirely locally driven initiative, to a more ‘top down’ approach led by government authorities or scientific institutions. Describe the steps taken and the stakeholders involved]

The initiative to try to establish a biosphere reserve in the Blekinge archipelago and coastal areas originated from the Blekinge County Administrative Board, who subsequently shared ownership of the continuing work with three municipalities concerned: Karlshamn, Karlskrona and Ronneby. The continued nomination process has been led by a steering group composed of representatives of the four principals.

Already at the beginning of the process, in 2005, contacts were made with local operators such as associations, entrepreneurs, scientists, museums *et al* to explore the interest in setting up a biosphere reserve in order to jointly promote the sustainable development of the area. There was a great interest among various organizations and activities. To proceed from local conditions and needs constituted a new way of working for the region.

During Blekinge Archipelago's study phase in 2006 and 2007 the ideas of the biosphere reserve were discussed at numerous larger and smaller meetings. A hundred or so clubs and organizations as well as a large number of individuals thus came into contact with the biosphere reserve process. A contact network was established, which during the candidacy phase led to the initiation of several projects and partnerships concerning various local ideas and interests. This network has also been the basis for the formation of the local consultation group called the Archipelago Council. The Archipelago Council will have an advisory and initiating role for the continued work with the biosphere reserve. The Council seeks to reach broad representation from principals as well as from other stakeholders, see also chapter 14.1.

17.6.2 Main features of management plan or land use policy

(Describe the 'vision' of what the proposed biosphere reserve is expected to achieve in the short and longer term, and the benefits foreseen for the local communities and other stakeholders)

During the process of developing a management plan and a collaboration plan for the Blekinge Archipelago, a vision for the biosphere reserve has been formulated and adopted by the steering group:

Blekinge Archipelago – a Sea of Opportunities!

Blekinge Archipelago represents a living coast and archipelago where development is in harmony with business and ecology. The foundation is local commitment and concern for the future of coming generations.

Part of the process of finalizing a management plan is the formulation of concrete objectives for the preservation of important natural and cultural values in the Blekinge Archipelago, which forms the basis for this Biosphere Reserve Nomination application. These values concern characteristic and partly unique landscape environments and ecosystems such as the coastal deciduous forest and pasture, the open undulating cultural landscape with its sensitive habitats and the various natural marine environments. The management plan also focuses on the substantial number of physical cultural remains in the area, from prehistoric times onwards, that usually form complex historical monuments and built environments.

Another part of the ongoing management plan process is the design and adoption of specific goals and strategies for a positive social development in the future biosphere reserve, where landscape values (see above) and local knowledge are to be considered basic resources. Some of the key strategy areas for sustainable development of Blekinge Archipelago are:

- Coordination of **spatial planning** with regard to the guidelines for building development in coastal areas and in the archipelago, as well as the development of infrastructure such as transport, social services, IT, water supply and sewerage. Likewise, planning for and development of renewable energy sources and so-called areas of special consideration are issues in which the intentions of the biosphere reserve should be incorporated into the municipal comprehensive plans.
- Support for the development of the fishing industry toward **small-scale, inshore fishing**. This can be done with regard to conditions for the fishermen but may also apply to the use of tools, development of fishing methods and processing industry.
- Investment in increasing **employment and entrepreneurship** in the biosphere reserve, both within agricultural sciences (which includes forestry, horticulture, veterinary medicine, food and fish) as well as business at large. Opportunities for the individual to income that if necessary, has multiple sources, should be emphasized. Traditionally, such distributed income sources have been a necessity in the archipelago areas and should be facilitated in practice to allow for residency all year round.
- Investments in the hospitality industry and mobile outdoor recreation in the Blekinge Archipelago should be profiled toward **eco-tourism** with emphasis on the region's cultural and natural values and great recreational opportunities. The area should have a cohesive marketing and develop into a famous eco-tourist destination internationally and nationally.

In the cross-sectoral approach that is pursued different policy areas are closely intertwined. The continued work with the collaboration plan and implementation process takes place within the various programs and efforts already undertaken by the involved community agencies and individual inhabitants.

17.6.3 The designated authority or coordination mechanisms to implement this plan or policy

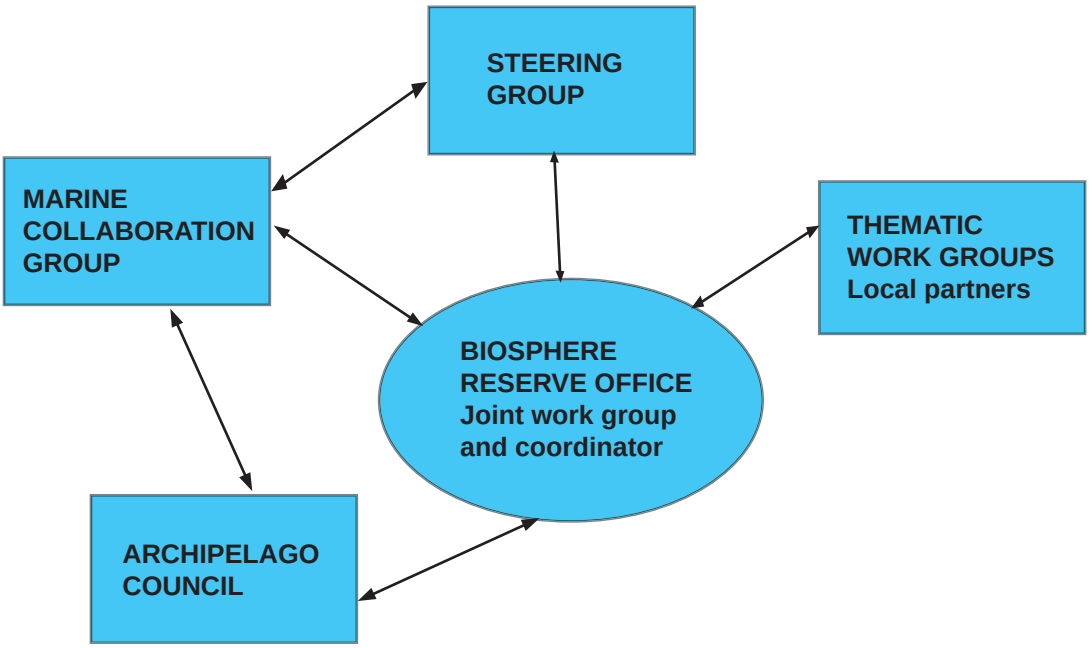
(Name, structure and composition, its functioning to date)

The proposed biosphere reserve is planned to be formally run as a collaboration between four equal partners: Karlshamn Municipality, Karlskrona Municipality, Ronneby Municipality and the Blekinge County Administrative Board, who have a joint steering group for the biosphere reserve work.

A Biosphere Reserve Office will be set up with multiple functions. It will serve as a platform for information dissemination and knowledge building in the biosphere issues, as a meeting point for traders in the area and as a driving and supporting party in various projects. In addition to the coordinator there will also be staff from the four

principles involved in the Biosphere Reserve Office operations, according to the model of the biosphere joint work group that operated under the candidacy phase. This model also provides a good anchorage of the biosphere reserve work in the respective organization.

In addition, a consultation group, the Archipelago Council, will have a key advisory role for Blekinge Archipelago's activities.



Proposed organization for Blekinge Archipelago.

17.6.4 The means of application of the management plan or policy

(For example through contractual agreements with landowners or resources users, traditional users' rights, financial incentives, etc.)

Within the proposed biosphere reserve there are geographical areas whose land use is regulated by Swedish law and separate voluntary arrangements. Similarly, there are various financial incentives, such as nature conservation agreements, management agreements, conservation grants, and various EU-funded grants in the Rural Development program 2007–2013 (e.g., environmental funding).

There will also be opportunities to seek funding for various projects related to the future management plan, from public regional, national and international agencies and from organizations and companies that tend to subsidize such activities.

17.6.5 Indicate how and to what extent the local communities participate in the formulation and the implementation of the management plan or policy

(informed/consulted: decision making role etc.)

The management plan is to be developed in widescale cooperation with various actors in the future biosphere reserve. The goal is a shared vision of sustainable development in Blekinge Archipelago that pays attention to the entire landscape with its different values and resources. The plan will not be binding, but because it is formulated in clo-

se collaboration with the local community it will have strong relevance and timeliness, which likely makes it effective for the purposes of the biosphere reserve.

Tools used in the process of the design and implementation of the management plan include information and knowledge dissemination in the form of seminars, workshops and theme days targeted at the local inhabitants, businessmen, politicians and public officials. Such efforts have been focused on, on the one hand, specific topics such as the marine environment, fisheries and eco-tourism, and on the other hand broader issues, such as sustainable community development.

Several activity-based sub-projects related to sustainable development for the archipelago have been carried out within the framework of Blekinge Archipelago, as well as a series of meetings among different interest groups in the area.

During the aforementioned activities, there were many fruitful dialogues among the representatives from private and public interests. The experience and knowledge that these conversations and contacts generated will be taken into consideration during the collaboration with the management plan.

17.6.6 The year of start of implementation of the management plan or policy

The implementation of the collaboration plan begun in 2009 and is regarded as part of the projection process. The collaboration plan is designed according to an adaptive management model, which means that the goals and implemented measures will be continuously evaluated and modified. This method assumes that natural resources and ecosystems are in themselves constantly changing and therefore require a management that is adapted to these conditions in order to be effective.

The basis for the adaptive management plan is the existing knowledge about the resource system that is currently managed, and by knowledge we refer to science and proven experience. In the process new knowledge and experiences are continuously documented and are utilized in the continuous management. Continuous evaluation and modification will occur in continued collaboration between stakeholders.

17.7 Financial source(s) and yearly budget

[Biosphere reserves require technical and financial support for their management and for addressing interrelated environmental, land use, and socio-economic development problems. Indicate the source and the relative percentage of the funding (e.g. from national, regional, local administrations, private funding, international sources etc.) and the estimated yearly budget in the national currency]

The management of the proposed biosphere reserve is complex. Already, there are structured systems for management of land and water areas in Blekinge archipelago and coastal landscape. Protected areas, nature reserves and Natura 2000 sites, are largely managed by the county administrative board and are financed by maintenance funds from the Swedish Environmental Protection Agency via the county administrative board.

The proposed biosphere reserve organization's core activities will be financed by state funds through the Environmental Protection Agency and the Blekinge County Administrative Board as well as by the three municipalities concerned. In addition, external funding will be sought from EU programs, rural programs, etc. for specific projects within the biosphere reserve. In order to facilitate economic, ecological and social sustainable development of rural areas, investments can be supported through the Rural Development program 2007-2013. 75% of the financial support goes to environmental efforts, the remaining 25% goes for instance to the fostering of business and quality of life in rural areas. The program is administered by the county administrative board. Archipelago preservation and maintenance of service functions are also provided by various municipal administrative bodies.

The budget during the candidate phase consisted of funding from the Swedish Environmental Protection Agency in the sum of 570,000 SEK for coordination, as well as man hours from each principal of at least 25% of a full position. In addition, the proposed biosphere reserve has received funding for work with the collaboration plan, seminars and other events during the candidate phase from the Swedish Environmental Protection Agency, the County Council and Region Blekinge.

The budget of the biosphere reserve will be divided as follows:

National funding:	570,000 SEK (40%)
Regional funding:	350,000 SEK (25%)
Local funding:	500,000 SEK (35%)
Total:	**1,420,000 SEK**

Personnel costs (in addition to the coordinator) are charged to the respective principal's regular budget and are estimated to be at least a 50% position divided on two people. Although other costs for personnel from the principals such as travel, conference fees, courses and steering group participation are assumed to be covered in the budget of the respective principal.

The Biosphere Reserve Office is located in Ronneby Brunnspark, in the municipality in the middle of the biosphere reserve. The county administrative board will be the legal principal during the construction phase (2010-2011), and act as the employer of the coordinator. The working group and steering group with representatives from each principal will continue their work as during the candidate phase.

17.8 Authority(ies) in charge

17.8.1 The proposed biosphere reserve as a whole:

Name:

Blekinge County Administrative Board
Karlshamn Municipality
Karlskrona Municipality
Ronneby Municipality

If appropriate, name the National (or State or Provincial) administration to which this authority reports:

Currently this is not relevant in the case of the proposed biosphere reserve.

17.8.2 The Core Area(s)

[Indicate the name of the authority or authorities in charge of administering its legal powers (in original language with English or French translation]

In Sweden, coordination and administration occurs at the central level in a number of government agencies, e.g. Swedish Environmental Protection Agency, Swedish National Heritage Board, Swedish Forest Agency, Swedish Board of Fisheries and The National Board of Housing, Building and Planning. Regional and local authorities ensure that existing laws are followed.

The proposed biosphere reserve's core areas are administered at the central level by the Swedish Environmental Protection Agency, Swedish National Heritage Board and the Swedish Forest Agency.

Regional authorities: Blekinge County Administrative Board, Swedish Forest Agency Blekinge, the Swedish Coast Guard Region South, and the South Baltic River Basin District Authority.

Local authorities: Karlshamn Municipality, Karlskrona Municipality, Ronneby Municipality, Environmental Association Blekinge West.

(For addresses, see chapter 20)

17.8.3 The Buffer Zone(s)

The proposed biosphere reserve's buffer zones are administered at the central level by the Swedish Environmental Protection Agency, Swedish National Heritage Board, and the Swedish Forest Agency.

Regional authorities: Blekinge County Administrative Board, Swedish Forest Agency Blekinge, the Swedish Coast Guard Region South, and the South Baltic River Basin District Authority.

Local authorities: Karlshamn Municipality, Karlskrona Municipality, Ronneby Municipality,

(For addresses, see chapter 20)

18 Special Designations

[Special designations recognize the importance of particular sites in carrying out the functions important in a biosphere reserve, such as conservation, monitoring, experimental research, and environmental education. These designations can help strengthen these functions where they exist or provide opportunities for developing them. Special designations may apply to an entire proposed biosphere reserve or to a site included within. They are therefore complementary and reinforcing of the designation as a biosphere reserve. They are therefore complementary and reinforcing to designation as a biosphere reserve. Check each designation that applies to the proposed biosphere reserve and indicate its name]

(X) UNESCO World Heritage Site

World Heritage Site Naval City of Karlskrona

(X) RAMSAR Wetland Convention Site

- **Ramsar site Mörrumsån–Pukavik Bay**
- **Ramsar site Blekinge archipelago** (comprises three geographically separate areas, the Bräkne-Hoby, Listerby and Torhamn archipelagoes)

(X) Other international/regional conservation conventions/directives [Please specify]

- **Birds directive**
  Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (Birds Directive)
- **Habitats Directive**
  Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive).
- **HELCOM** – Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki commission). System of Coastal and Marine Baltic Sea Protected Areas (BSPA-area) Torhamn archipelago.

(X) Long term monitoring site [Please specify]

See **Appendix 8** Summary of environmental monitoring within the proposed biosphere reserve Blekinge Archipelago

( ) Other [Please specify]

19 Supporting Documents

(to be submitted with nomination form)

[Clear, well-labelled maps are indispensable for evaluating Biosphere Reserve proposals. The maps to be provided should be referenced to standard coordinates wherever possible. Electronic versions are encouraged]

(X) General location map

[A GENERAL LOCATION MAP of small or medium scale must be provided showing the location of the proposed Biosphere Reserve, and all included administrative areas, within the country, and its position with respect to major rivers, mountain ranges, principal towns, etc.]

Appendix 1

(X) Biosphere Reserve zonation map (large scale, preferably in black & white for photocopy reproduction)

[A BIOSPHERE RESERVE ZONATION MAP of a larger scale showing the delimitations of all core area(s) and buffer zone(s) must be provided. The approximate extent of the transition area(s) should be shown, if possible. While large scale and large format maps in colour are advisable for reference purposes, it is recommended to also enclose a Biosphere Reserve zonation map in a A-4 writing paper format in black & white for easy photocopy reproduction. It is recommended that an electonic version of the zonation map be provided]

Appendix 2

(X) Vegetation map or land cover map

[A VEGETATION MAP or LAND COVER MAP showing the principal habitats and land cover types of the proposed Biosphere Reserve should be provided, if available].

Appendix 3

(X) List of legal documents (if possible with English or French translation)

[List the principal LEGAL DOCUMENTS authorizing the establishment and governing use and management of the proposed Biosphere Reserve and any administrative area(s) they contain. Please provide a copy of these documents, if possible with English or French translation].

Appendix 4

(X) List of land use and management plans

[List existing LAND USE and MANAGEMENT PLANS (with dates and reference numbers) for the administrative area(s) included within the proposed Biosphere Reserve. Provide a copy of these documents]

Appendix 5

(X) Species list (to be annexed)

[Provide a LIST OF IMPORTANT SPECIES (threatened species as well as economically important species) occurring within the proposed Biosphere Reserve, including common names, wherever possible.]

Appendix 6

(X) List of main bibliographic references (to be annexed)

[Provide a list of the main publications and articles of relevance to the proposed biosphere reserve over the past 5-10 years].

Appendix 7

(X) Summary of environmental monitoring within the proposed biosphere reserve Blekinge Archipelago

Appendix 8

20 Addresses

20.1 Contact address of the proposed biosphere reserve

[Government agency, organization, or other entity (entities) to serve as the main contact on the MABnet to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

Name: Biosfärområde Blekinge Archipelago
Street or P.O. Box: Ronneby Brunnspark
City with postal code: SE 372 36 RONNEBY
Country: Sweden
Telephone: (+46) 455 87 000
Telefax (or telex): (+46) 455 87 001
E-mail: info@blekingearkipelag.se
Web site: www.blekingearkipelag.se

20.2 Administering entity of the core area

There are several authorities within the proposed biosphere reserve that administer and manage core areas (see sections 17.2-17.4 and 17.8). Information about these different authorities can be found on the following web pages:

Name: Swedish Environmental Protection Agency
www.naturvardsverket.se

Name: Swedish National Heritage Board
www.raa.se

Name: Swedish Forest Agency
www.svo.se

Name: The South Baltic River Basin District Authority
www.vattenmyndigheterna.se/vattenmyndigheten/amnen/Sodra+Ostersjon/

Name: Blekinge County Administrative Board
www.lansstyrelsen.se/blekinge

Name: Karlshamn Municipality
www.karlshamn.se

Name: Karlskrona Municipality
www.karlskrona.se

Namn: Ronneby Municipality
www.ronneby.se

20.3 Administering entity of the buffer zone

There are several authorities within the proposed biosphere reserve that administer and manage the buffer zone areas (see chapters 17.2-17.4 and 17.8). Information on these different authorities can be found on the following web pages:

Name: Swedish Environmental Protection Agency
www.naturvardsverket.se

Name: Swedish National Heritage Board
www.raa.se

Name: South Baltic River Basin District Authority
www.vattenmyndigheterna.se/vattenmyndigheten/amnen/Sodra+Ostersjon/

Name: Blekinge County Administrative Board
www.lansstyrelsen.se/blekinge

Name: Swedish Forest Agency, Region East, District Blekinge
www.svo.se

Name: Swedish Maritime Administration
www.sjofartsverket.se

Environmental Association Blekinge West
www.miljovast.se

Name: Karlshamn Municipality
www.karlshamn.se

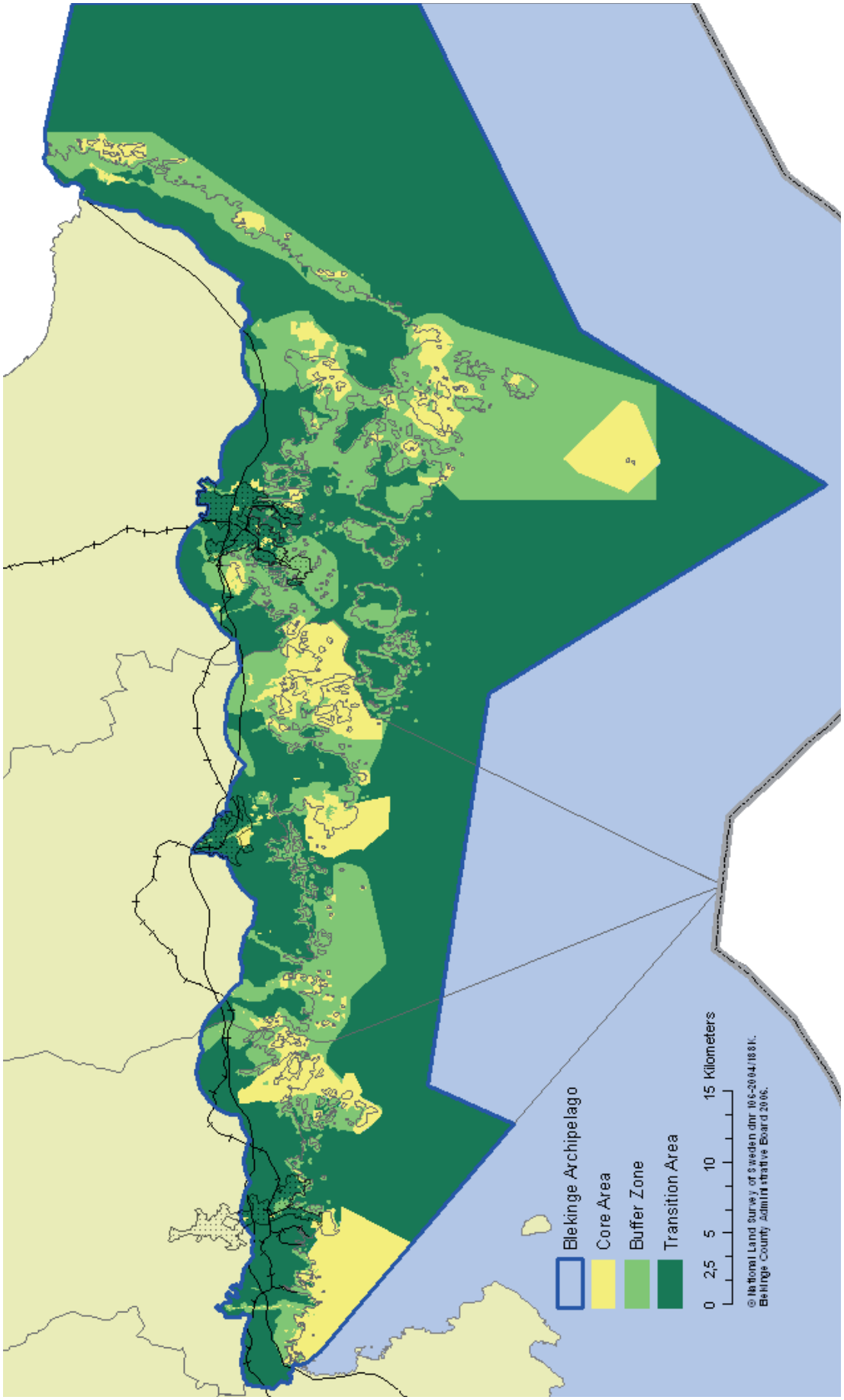
Name: Karlskrona Municipality
www.karlskrona.se

Name: Ronneby Municipality
www.ronneby.se

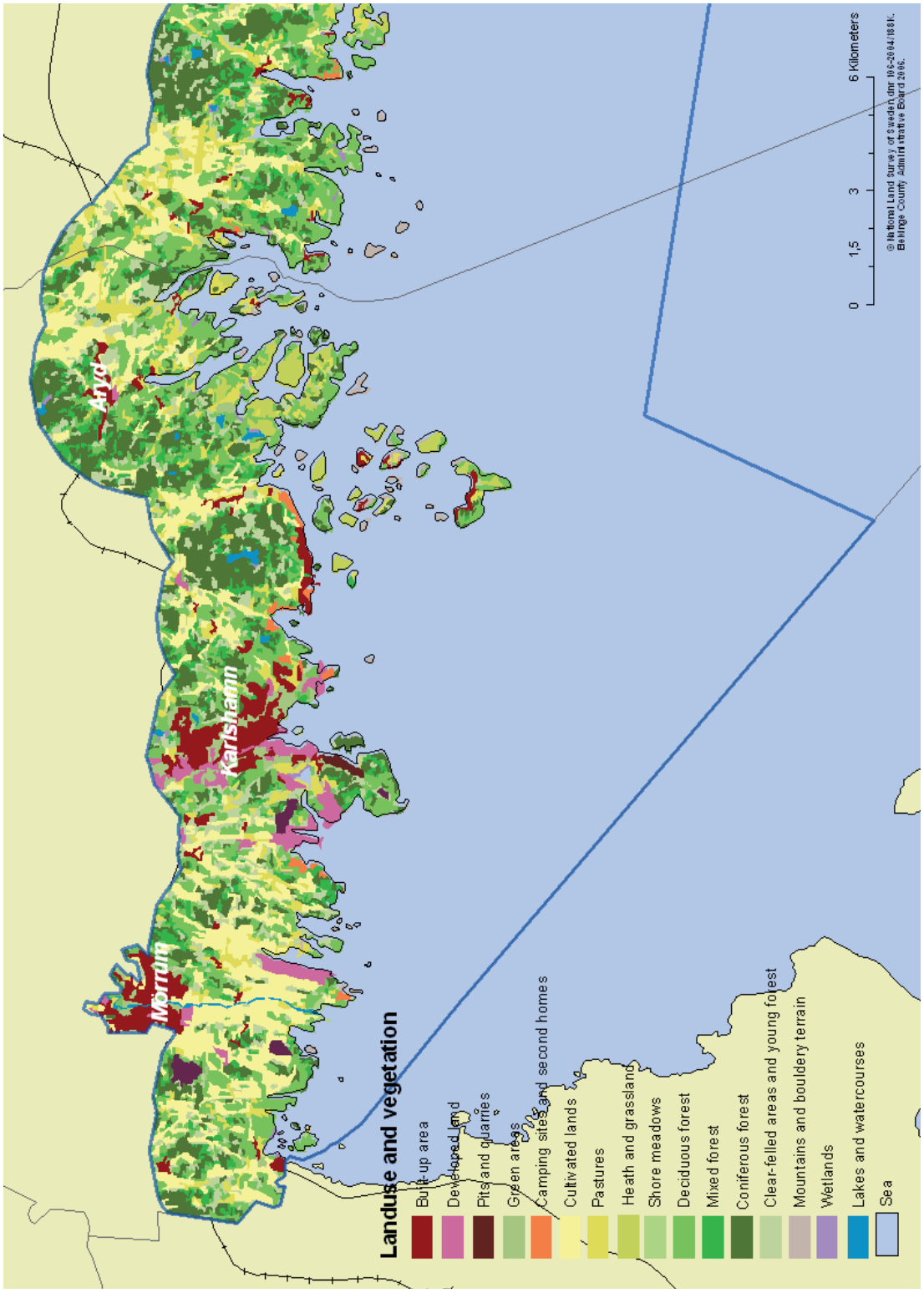
Appendix 1 General location map

http://europa.eu/abc/maps/members/sweden_sv.htm

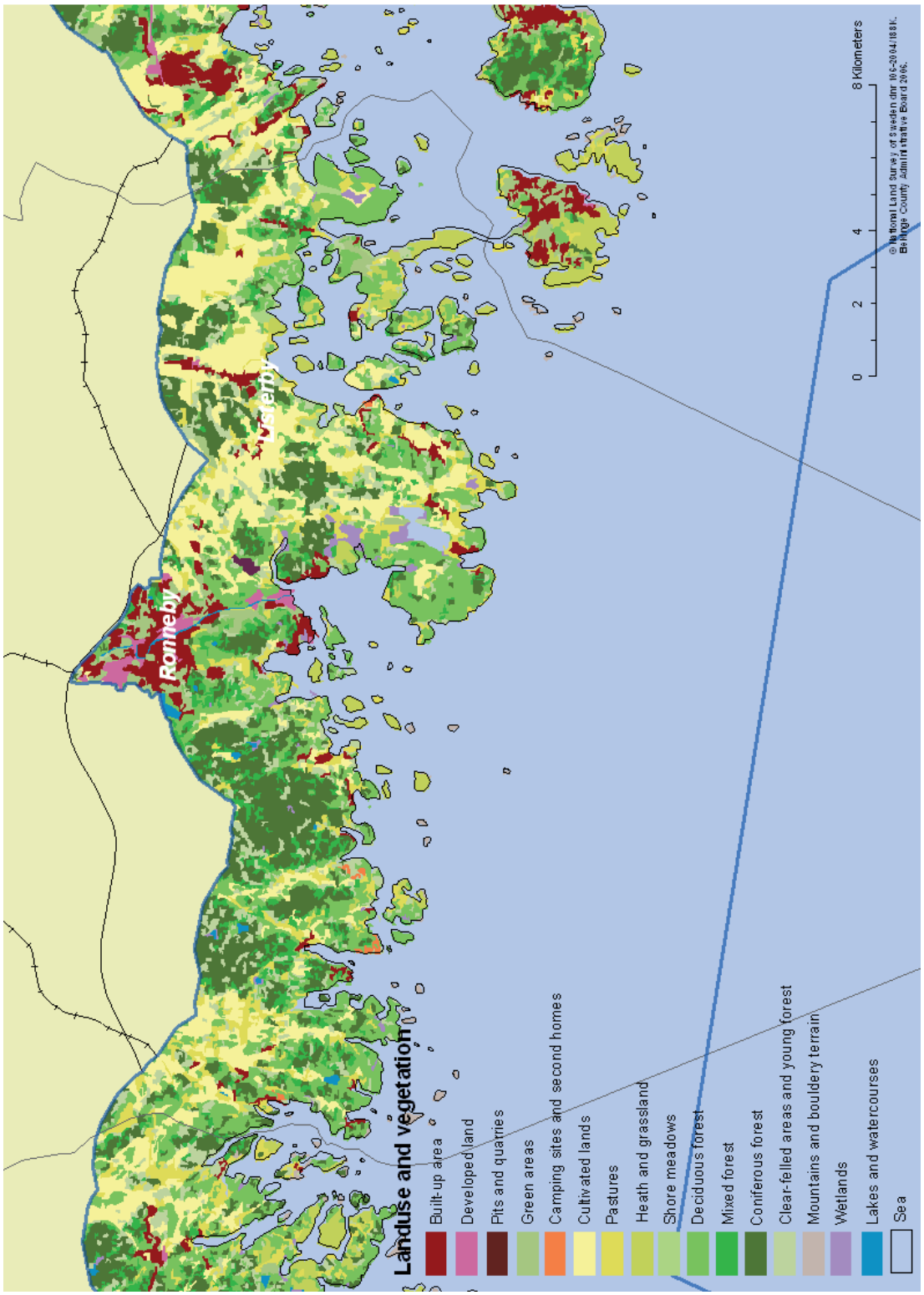
Appendix 2 Biosphere Reserve Zonation map



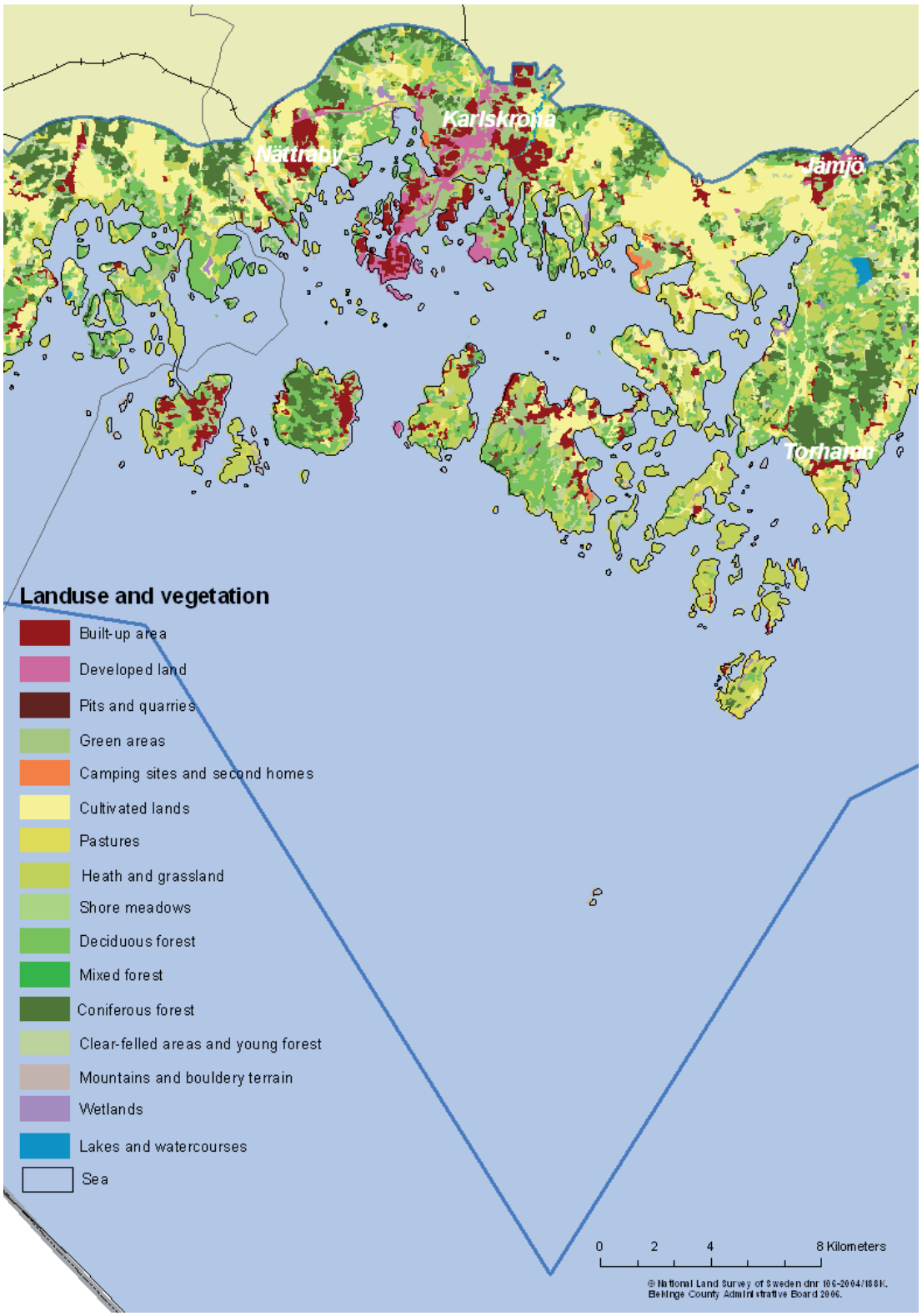
Appendix 3a Vegetation map Karlshamn



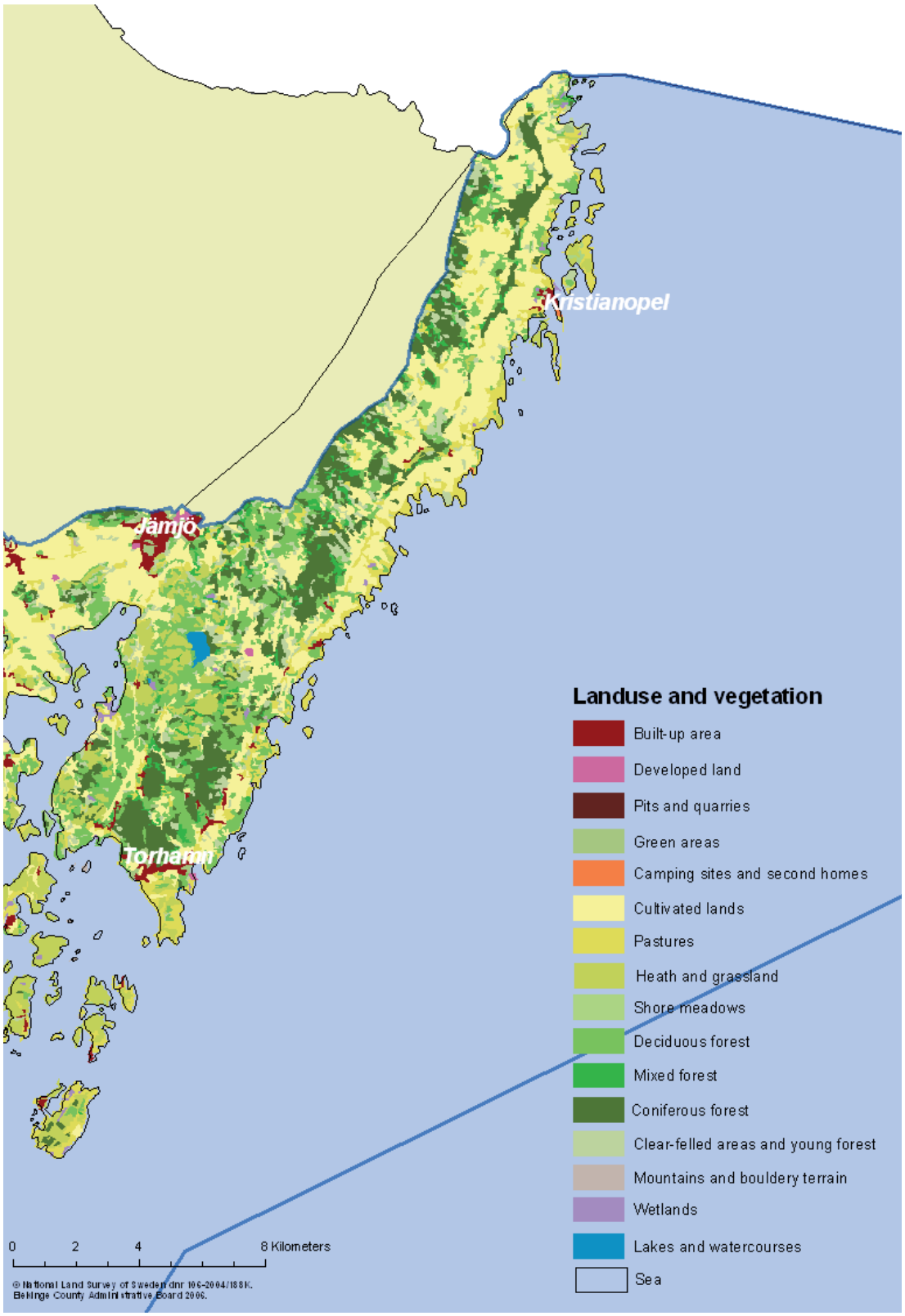
Appendix 3b Vegetation map Ronneby



Appendix 3c Vegetation map Karlskrona west



Appendix 3d Vegetation map Karlskrona east



Appendix 4 List of legal documents

Habitat protection areas and nature conservation agreements.
Supporting document from the Swedish Forest Agency, Blekinge District.

SKOGSSTYRELSEN

1(2)

Datum
2009-07-03

Diarienr
2009/748

Er referens
Ulrika Widgren

Blekinge distrikt
Bengt Nilsson
Box 241, 372 21 Ronneby
bengt.nilsson@skogsstyrelsen.se
Tfn 0457-455188

Länsstyrelsen Blekinge län
Ink 2009 -07- 06
Dnr

Biosfärskandidatområde Blekinge Arkipelag
Länsstyrelsen
371 86 Karlskrona

Beslutade biotopskyddsområden och upprättade naturvårdsavtal inom Biosfärsområde Blekinge Arkipelag

Följande områden utgör av Skogsstyrelsen beslutade **biotopskyddsområden** enligt 7 kap 11 § miljöbalken (1998:808).

Beslutsdatum	Diarienummer	Område	Areal (ha)
1998-04-16	127/1998	Elleholm 43:1	3,2
1999-08-22	159/1998	Boråkra 12:1	4,2
2001-04-26	581/2000	Marielund 3:2	2,4
2001-04-26	582/2000	Marielund 3:2	1,4
2001-04-26	580/2000	Marielund 3:2	4,7
2003-07-17	034/2003	Fornanäs 1:17, 1:3	2,8
2003-12-30	463/2002	Gullbernahult 1	2,8
2004-01-15	629/2002	Verkö 3:1	6,4
2003-07-17	033/2003	Fornanäs 1:3	3,3
2004-09-03	081/2004	Fornanäs 1:20	3,9
2004-09-03	140/2004	Påtorp 1:7 och 2:1	3,3
2004-11-05	334/2004	Fornanäs 1:3	1
2004-11-05	333/2004	Fornanäs 1:3	5,1
2004-11-05	439/2003	Fornanäs 1:3	3
2005-08-22	318/2004	Elleholm	2,8
2005-12-06	135/2005	Karlshamn 5:1	2,5
2005-12-06	131/2005	Karlshamn 5:1	2,5
2005-12-06	133/2005	Karlshamn 5:1	5,5
2005-12-22	449/2005	Anglemåla 1:3, Almängen 1:1	3,6
2005-12-22	450/2005	Anglemåla 1:3	6
2005-12-22	451/2005	Anglemåla 1:3	1,4
2005-12-22	452/2005	Anglemåla 1:3, Angelskog 1:1	2,2
2006-03-22	343/2006	Strömma 1:1	2,3
2006-11-14	1176/2006	Anglemåla 1:3	6,8
2006-08-31	598/2006	Augerums-Ryd 1:2	4,2
2007-10-05	3484/2007	Hoby 19:1	1,8
2007-11-14	1833/2007	Verstorp 2:14	3,1
2008-04-21	203/2008	Torkö 1:3	3,2
2008-05-23	1834/2007	Augerum S:1	4,8
		Totalt:	**100,2**

Postadress
Huvudkontor
Skogsstyrelsen
551 83 Jönköping

Besöksadress
Vallgatan 8
Jönköping

Telefon
036-35 93 00
Fax
036-16 61 70

Organisationsnr
202100-5612
Momsreg.nr
SE202100561201

E-post
skogsstyrelsen@skogsstyrelsen.se
www.skogsstyrelsen.se

Skogsstyrelsen 2009-07-03 2(2)

Följande områden omfattas av Skogsstyrelsen och berörd markägare upprättade naturvårdsavtal.

Beslutsdatum	Diarienummer	Område	Areal (ha)
1998-05-28	363/1998	Garnanäs 1:3	20,8
2001-05-16	583/2000	Marielund 3:2	13,2
2002-11-28	469/2002	Vambåsa 1:4	23,6
2002-12-16	590/2002	Hästaryd 24:1	0,7
2003-03-01	537/2002	Tärnö 1:3	8,3
2003-04-24	113/2003	Trantorp 3:1	16
2003-10-09	582/2002	Rävabygget 1:8	6,7
2004-03-17	204/2003	Risanäs 7:2	6,4
2004-12-14	461/2004	Aspö 2:33, 3:24	3,7
2004-12-14	264/2004	Fornanäs 1:3	3,9
2005-12-07	385/2005	Karlshamn 6:1	5,8
2005-12-08	384/2005	Angelskog 1:1, Almängen 1:1, Anglemåla 1:3	67,7
2006-02-08	547/2006	Aspö 3:14	3,8
2006-04-24	344/2006	Strömma 1:7	4,3
2006-05-31	605/2006	Lunnatorp 1:18	17,5
2006-09-01	621/2006	Lunnatorp 1:18	5,4
2006-11-15	1248/2006	Fornanäs 1:3	1,8
2006-12-14	1175/2006	Anglemåla 1:3, Angelskog 1:1	17,6
		Totalt:	**227,2**

På Skogsstyrelsens vägnar

Bengt Nilsson
Distriktschef

Nature and culture reserves, Natura 2000 sites, habitat protection areas, bird and seal protection areas, and areas of interest for nature conservation and conservation of the cultural heritage.
Supporting document from Blekinge County Administrative Board.

2009-07-03 Dnr 100-2307-2008

LÄNSSTYRELSEN
BLEKINGE LÄN

Naturenheten

Biosfärkandidatområde Blekinge Arkipelag
Ulrika Widgren

Beslutade natur- och kulturreservat, Natura 2000-områden, biotopskyddsområden, fågel- och sälskyddsområden samt Riksintresseområden för naturvård och kulturmiljövård inom biosfärkandidatområde Blekinge Arkipelag

Följande områden utgör beslutade **natur- eller kulturreservat** (KR) enligt 7 kap 4 § miljöbalken (1998:808).

Beslutsdatum	Namn	Areal (ha)
1964-06-24	Steneryd	7,6
1964-11-18	Yttre Stekön	20,2
1967-08-01	Stilleryd	76,6
1969-09-12	Ekebacken	13,5
1971-12-13	Västra Skällön	42,2
1971-12-13	Järnavik	151
1973-02-05	Sonekulla-Biskopsmåla	62,9
1973-05-07	Hallarumsviken	51,4
1974-12-02	Fölsö	42,3
1975-04-07	Bockön-Mjöö	302,2
1975-05-05	Svenö	87,9
1975-06-24	Järkö	124,3
1975-12-01	Hästholmen-Ytterön	1151,2
1976-04-05	Tjärö	306,5
1976-10-04	Eriksbergs stränder	416
1977-06-06	Torhamns udde	511,3
1980-01-11	Tärnö	18,9
1980-01-11	Uttorp	21,1
1981-10-15	Listerby skärgård	1004,4
1982-03-10	Knösö	67,1
1982-06-07	Vambåsa hagmarker	90,9
1982-06-10	Tromtö	1222,3
1986-11-04	Kvalmsö	174,3
1987-03-02	Almö	889,8
1987-03-02	Pagelsborg	1,6
1988-01-28	Tärnö II	87,4
1988-03-07	Utklippan	117,7
1990-06-19	Lindö udde	69,4
1995-06-01	Skärva	234,7
2001-12-03	Stora Rom	24,6
2003-04-04	Ronneby brunnspark (KR)	102,2
2004-12-20	Elleholm	231,3
2004-12-20	Häljarum	1,7
2005-10-27	Högasand	92,4

Postadress: SE-371 86 KARLSKRONA
Bilaga 4 Lst underskrift o
Besöksadress: Ronnebygatan 22
Telefon/Telefax: 0455-870 00, 0455-87001
E-post/webbplats: blekinge@lansstyrelsen.se, www.lansstyrelsen.se/blekinge
Org.nr: 202100-2320

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2007-12-07	Färskesjön	308,9
2007-12-18	Prästamarken	33,3
2008-01-02	Eriksberg	875,9
2008-10-13	Gö	1924,7
	Totalareal:	**10962**

Följande områden utgör av regeringen, med stöd av 7 kap 28 § Miljöbalken (1998:808) utpekade **Natura 2000-områden enligt habitatdirektivet** (SCI).

Objektnummer	Namn	Fastställan (SCI)	Senaste re-videring	Areal (ha)
SE0410210	Angelskog	200412	200311	7,6
SE0410195	Bellevueparken	200412	200311	5,7
SE0410148	Bergudden	200412	200311	6,4
SE0410047	Björkeskärven	200412	200201	40,7
SE0410176	Blötö-Kidö	200412	200201	82
SE0410124	Bockön-Mjöön	200412	200205	301,9
SE0410208	Brunnsskogen	200412	200304	73,3
SE0410046	Bräkne-Hoby skärgård	200412	200304	212,6
SE0410168	Bräkneån	200412	200605	5,9
SE0410233	Elleholm	200412	200610	234,4
SE0410143	Elleholm Norra	200412	200311	3,5
SE0410123	Eriksberg	200412	200205	130
SE0410209	Fornanäs	200412	200311	3,3
SE0410232	Fornanäs östra	200412	-	8
SE0410105	Färskesjön	200412	200605	310,4
SE0410125	Fölsö	200412	200205	42,5
SE0410220	Gullberna	200412	200311	2,8
SE0410212	Gåsfeten	200412	-	10,4
SE0410175	Gö bokskog	200412	-	19,8
SE0410174	Gömarken	200412	200201	111,8
SE0410092	Haglö	200412	200610	160,7
SE0410097	Hallarum	200412	200205	51,4
SE0410099	Hästholmen-Öppenskär	200412	200304	1150,6
SE0410112	Högasand	200501	200610	26,6
SE0410221	Idholm	200412	200304	25
SE0410113	Isaks kläpp	200501	200205	124,8
SE0410206	Ivö	200412	-	72,5
SE0410098	Järkö	200412	200205	124,3
SE0410088	Järnavik	200412	200205	151
SE0410114	Knösö	200412	200304	67,1
SE0410219	Kummeln	200501	-	18
SE0410121	Lindö udde	200412	200605	21,3
SE0410129	Lyckeby ekebacke	200501	200304	13,5
SE0410218	Lyckebyåns dalgång	200501	200610	11,9
SE0410213	Marielund	200501	200610	17,9

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SE0410128	Mörrumsån	200412	200610	47,9
SE0410229	Näsmarken	200412	200807	38,1
SE0410115	Pagelsborg	200412	200205	1,5
SE0410068	Pukaviksbukten	200412	200807	3932,4
SE0410231	Ryamad	200412	200610	0,4
SE0410225	Sandhamn	200412	200205	26,8
SE0410100	Senora Svenö	200412	200205	87,8
SE0410215	Silletorpsån	200501	200610	1
SE0410094	Skärva	200412	200205	233,3
SE0410173	Smygen	200412	-	22,9
SE0410089	Sonekulla	200412	200205	62,9
SE0410107	Steneryd	200412	200304	7,4
SE0410181	Stora Hammar-Varö-Lillö	200412	200304	486,2
SE0410130	Stora Rom	200412	200304	16,7
SE0410196	Strömma	200412	200311	7,2
SE0410071	Stärnö	200412	200304	213,3
SE0410134	Tjärö	200412	200304	306,7
SE0410104	Torhamns udde	200412	200304	514
SE0410042	Tromtö-Almö	200412	200304	3361,2
SE0410163	Tärnö-Harö-Brorsö	200412	200304	492,4
SE0410040	Utklippan	200412	200304	117,7
SE0410224	Utlängan	200412	-	63,4
SE0410101	Uttorp	200412	200610	77,1
SE0410226	Valludden	200501	200304	5,6
SE0410120	Vambåsa norra	200412	200304	24,6
SE0410205	Vambåsanäs	200412	200304	141,4
SE0410211	Vångsö-Biskopsmåla	200412	200304	83,9
SE0410151	Vämöparken	200412	200304	34,6
SE0410222	Östra Möcklö	200412	200205	27,5
			Totalareal:	**14085,5**

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BLEKINGE LÄN

Följande områden utgör av regeringen, med stöd av 7 kap 28 § Miljöbalken (1998:808) utpekade **Natura 2000-områden enligt fågeldirektivet** (SPA).

Objektnummer	Namn	Fastställan (SCI)	Senaste revidering	Areal (ha)
SE0410051	Abramsäng	199612	200205	229,5
SE0410047	Björkeskärven	199612	20201	40,8
SE0410049	Björnön-Varö	199612	200205	97,7
SE0410046	Bräkne-Hoby skärgård	199612	200304	212,6
SE0410184	Danaflöt	200007	-	4,7
SE0410105	Färskesjön	200007	200605	310,4
SE0410050	Gräsör m fl öar	199612	200205	89
SE0410053	Kristianopels skärgård	199612	200304	538,5
SE0410052	Majö	199612	200205	27,6
SE0410048	Ronnekläppen	199612	200205	60,8
SE0410043	Tjärö-Bockön-Eriksberg	199603	200304	1024,7
SE0410041	Torhamn-Hästholmen	199603	200304	1811,3
SE0410042	Tromtö-Almö	199603	200304	3361,2
SE0410185	Tärningsörarna	200007	-	18,1
SE0410040	Utklippan	199603	200304	117,7
			Totalareal:	**7944,6**

Följande områden utgör av länsstyrelsen beslutade **biotopskyddsområden** enligt 7 kap 11 § Miljöbalken (1998:808).

Beslutsdatum	Namn	Areal (ha)
1997-12-17	Gundlatorp 1:10	1,4
1999-09-13	Oxlaby 1:13	5
1998-12-22	Klakebäck 2:17, 2:21	2,3
1998-12-22	Bredavik 20:5	0,3
1996-10-30	Askeboda 1:3	4,2
	Totalareal:	**13,2**

Följande områden utgör av länsstyrelsen beslutade **fågel- och sälskyddsområden** enligt 7 kap 12 § Miljöbalken (1998:808).

Namn	Kommun	Beslutsdatum	Areal (ha)
Andskärvet	Karlshamn	1985-03-28	2,4
Bengtsörarna 1	Karlshamn	1985-03-28	3,5
Bengtsörarna 2	Karlshamn	1985-03-28	4,5
Betesskärven	Karlshamn	1985-03-28	3,8
Eneskärven	Karlshamn	1985-03-28	7,4
Furöholm	Karlshamn	1985-03-28	5,4
Garnbodskärv	Karlshamn	1985-03-28	4,1
Haröskärv	Karlshamn	1985-03-28	7,3
Hattaholm	Karlshamn	1985-03-28	8,2
Jordskärvet	Karlshamn	1985-03-28	4,5
Jyspaholmen	Karlshamn	1985-03-28	3,6

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Knivlösarna	Karlshamn	1985-03-28	8,6
Ljungholmen_Bjärnö örar	Karlshamn	1985-03-28	7,8
Mjöö-Mjööskärv	Karlshamn	1985-03-28	35,4
Skaftholmarna	Karlshamn	1985-03-28	25,4
Svartaskären 1	Karlshamn	1985-03-28	2,7
Svartaskären 2	Karlshamn	1985-03-28	9,1
Västra Åskärvet	Karlshamn	1985-03-28	2,6
Älleskär	Karlshamn	1985-03-28	3,9
Östra Mjööskärv	Karlshamn	1985-03-28	6,9
Östra Åskärvet	Karlshamn	1985-03-28	1,9
Bertilsöarna	Ronneby	1985-03-28	7,1
Ekö Kläppar	Ronneby	1985-03-28	7,8
Eneskärvet	Ronneby	1985-03-28	8,2
Fjordflätten	Ronneby	1985-03-28	1,3
Flatskär	Ronneby	1985-03-28	2,5
Flatskäret	Ronneby	1985-03-28	1,8
Fröstensskärv 1	Ronneby	1985-03-28	14
Fröstensskärv 2	Ronneby	1985-03-28	1,4
Fröstensskärv 3	Ronneby	1985-03-28	1,2
Fröstensskärv 4	Ronneby	1985-03-28	1,2
Fröstensskärv 5	Ronneby	1985-03-28	1,3
Gråskärv	Ronneby	1985-03-28	3,4
Gråskärvsklimpen	Ronneby	1985-03-28	2,4
Högaskärv	Ronneby	1985-03-28	5,7
Högaskärven	Ronneby	1985-03-28	7,1
Järnaskären	Ronneby	1985-03-28	4,8
Kajeskärvet_Stugeskärvet	Ronneby	1985-03-28	7,8
Lilla Eneskär	Ronneby	1985-03-28	1,8
Lilla Färjan	Ronneby	1985-03-28	5,4
Lågaskärv	Ronneby	1985-03-28	5,1
Långaholmen	Ronneby	1985-03-28	4,3
Måkeflättarna	Ronneby	1985-03-28	3
Rödaskärv	Ronneby	1985-03-28	4
Rödaskärvsklimpen	Ronneby	1985-03-28	1,8
Rönneskär	Ronneby	1985-03-28	5,4
Sandvikaholmen	Ronneby	1985-03-28	7
Skaftö	Ronneby	1985-03-28	9,5
Skaftö hällor	Ronneby	1985-03-28	2,4
Skräddarön	Ronneby	1985-03-28	5,5
Skrävlingarna	Ronneby	1985-03-28	6,9
Slättön	Ronneby	1985-03-28	16,3
Spjutsö	Ronneby	1985-03-28	18,7
Spjutsöflättar	Ronneby	1985-03-28	3,2
Stora Ekeskär	Ronneby	1985-03-28	4
Stora Funnen_Lilla Funnen	Ronneby	1985-03-28	24,3
Stora Färjan	Ronneby	1985-03-28	12,7
Stora Kråkan	Ronneby	1985-03-28	2,8
Stångskär	Ronneby	1985-03-28	8,2
Stångskärsflöt	Ronneby	1985-03-28	1,3
Sutareflätten	Ronneby	1985-03-28	1,3

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Tvägöl	Ronneby	1985-03-28	5,3
Tvägölsbåden färg	Ronneby	1985-03-28	1,7
Tärnören	Ronneby	1985-03-28	1,8
Utö	Ronneby	1985-03-28	18,1
Vindskärven	Ronneby	1985-03-28	6
Vitaskär	Ronneby	1985-03-28	6,8
Västra Björkeskärvet	Ronneby	1985-03-28	8,9
Åholmen	Ronneby	1985-03-28	6
Östra Björkeskärvet	Ronneby	1985-03-28	9,5
Östra_Västra Törneholmen	Ronneby	1985-03-28	6,4
Annaskär	Karlskrona	1985-03-28	5,7
Asla	Karlskrona	1985-03-28	5,7
Björnbärsholmen	Karlskrona	1985-03-28	3,4
Björnön	Karlskrona	1985-03-28	39,4
Blötören	Karlskrona	1985-03-28	1,2
Båtaskär	Karlskrona	1985-03-28	4,3
Danaflöt	Karlskrona	1985-03-28	5,3
Danmark	Karlskrona	1985-03-28	2,6
Danör	Karlskrona	1985-03-28	12,6
Djäknatomten	Karlskrona	1985-03-28	3,8
Eneskär	Karlskrona	1985-03-28	9,2
Eneskärskläppar	Karlskrona	1985-03-28	9,7
Finaflötarna	Karlskrona	1985-03-28	4,7
Gräsholmen mfl	Karlskrona	1985-03-28	8,6
Grönholmen	Karlskrona	1985-03-28	2,1
Hammaröra	Karlskrona	1985-03-28	13
Hamnasten	Karlskrona	1985-03-28	1,2
Holländaren	Karlskrona	1985-03-28	1,7
Hylteskär	Karlskrona	1985-03-28	48,9
Isaks kläpp	Karlskrona	1986-12-22	129
Jössegrund	Karlskrona	1985-03-28	3,8
Jössegrundsören	Karlskrona	1985-03-28	3,8
Knorren	Karlskrona	1985-03-28	1,3
Korsaskär	Karlskrona	1985-03-28	14,8
Kuggaskär	Karlskrona	1985-03-28	17,5
Kvarken m.fl	Karlskrona	1985-03-28	15,9
Kycklingen	Karlskrona	1985-03-28	1,5
Kålleskär	Karlskrona	1985-03-28	19,2
Kärramissen	Karlskrona	1985-03-28	1,8
L Käringen	Karlskrona	1985-03-28	1,6
L Tärningsören	Karlskrona	1985-03-28	4,7
Leragrund	Karlskrona	1985-03-28	8,1
Lilla Anna	Karlskrona	1985-03-28	2,2
Lilla Bommeskär	Karlskrona	1985-03-28	8,7
Lilla Kyrkoskär	Karlskrona	1985-03-28	5
Lilla Mölleskär	Karlskrona	1985-03-28	1,6
Låga Kuttaskär	Karlskrona	1985-03-28	4,8
Långaskär	Karlskrona	1985-03-28	35,1
Majö	Karlskrona	1985-03-28	24,6
Musaskär	Karlskrona	1985-03-28	9,4

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Mölleskär	Karlskrona	1985-03-28	255,5
Mördarkläppen	Karlskrona	1985-03-28	6,6
Reveln	Karlskrona	1985-03-28	16,5
Rönneskär	Karlskrona	1985-03-28	45,9
S Tärningsören	Karlskrona	1985-03-28	7,8
Saltgrund	Karlskrona	1985-03-28	1,7
Soneskären	Karlskrona	1985-03-28	7,1
St Kalvaholmen	Karlskrona	1985-03-28	2,9
Stolp	Karlskrona	1985-03-28	32,8
Stora Bommeskär	Karlskrona	1985-03-28	7,3
Stora Kyrkoskär	Karlskrona	1985-03-28	4,6
Stora ören mfl	Karlskrona	1985-03-28	21,9
Stämmaskär	Karlskrona	1985-03-28	12,8
Södra Kyrkoskär	Karlskrona	1985-03-28	2
Tjärekläppen	Karlskrona	1985-03-28	2,4
Torraskär	Karlskrona	1985-03-28	8,2
Tvägölja	Karlskrona	1985-03-28	13,9
Varpan	Karlskrona	1985-03-28	2,9
Varökung/-ör	Karlskrona	1985-03-28	17,9
Västra Törneskär	Karlskrona	1985-03-28	4,2
Äggaskär	Karlskrona	1985-03-28	2,3
Ärlaskär	Karlskrona	1985-03-28	3,3
Öningen	Karlskrona	1985-03-28	2,9
Östra Törneskär	Karlskrona	1985-03-28	6,1
		Totalareal:	**1450,4**

Följande områden utgör **riksintresse för naturvård** enligt 3 kap 6 § Miljöbalken, beslutade av Naturvårdsverket.

Områdesnamn	Beslutsdatum	Id
Aspö	2000-02-09	NK17
Blekinges östkust	2000-02-09	NK20
Bräkne-Hoby skärgård	2000-02-09	NK10
Bräkneån	2000-02-09	NK9
Eriksberg – Tjärö – Järnavik – Tärnö	2000-02-09	NK8
Färskesjön – Steneryd	2000-02-09	NK25
Grimskula	2000-02-09	NK26
Gö	2000-02-09	NK20
Hallarumsviken – Möcklö – Kyrkfjärden	2000-02-09	NK20
Listerby skärgård-Tromtö	2000-02-09	NK16
Mörrumsåns dalgång	2000-02-09	NK6
Nässjön – Vierydsåns dalgång	2000-02-09	NK34
Skärva-Danmarksfjärden – Nättrabyån	2000-02-09	NK18
Stensnäs – Elleholm	2000-02-09	NK5
Stärnö	2000-02-09	NK38
Södra Sturkö	2000-02-09	NK24
Torhamns skärgård	2000-02-09	NK23
Vambåsa hagmarker – Förkärla – Blötö	2000-02-09	NK15
Västra Hasslö	2000-02-09	NK33

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Följande områden utgör **riksintresse för kulturmiljövård** enligt 3 kap 6 § Miljöbalken, beslutade av Riksantikvarieämbetet.

Områdesnamn	Beslutsdatum	Id
Brömsebro	1998-10-23	K21
Elleholm	1998-10-23	K4
Flakskär/ Ormskär, Utlängan, Stenshamn, Ungskär, Långören	1998-10-23	K17
Förkärla sockens centralbygd, Tromtö	1998-10-23	K12
Hallarumsviken , Jämjö sockens centralbygd	1998-10-23	K20
Herrgården, Tjurkö stenhuggeri	1998-10-23	K16
Karlshamns stad, Kastellet och Boön	1998-10-23	K6
Karlskrona stad, befästningarna	1998-10-23	K15
Kristianopel	1998-10-23	K22
Mörrum	1998-10-23	K5
Ronneby brunn/Blekan, Fridhem, Rönning	1998-10-23	K10
Verstorp, Skärva, Trantorp, Västeråkra, St Boråkra	1998-10-23	K14

På Länsstyrelsens vägnar

Charlotta Kabo Stenberg
Länsråd

Appendix 5 List of land use and management plans

Approved management plans for nature and culture reserves and Natura 2000 conservation plans.
Supporting document from Blekinge County Administrative Board.

LÄNSSTYRELSEN
BLEKINGE LÄN

1 (3)

2009-07-03

Dnr 100-2307-2008

Naturenheten

Biosfärkandidatområde Blekinge Arkipelag
Ulrika Widgren

Förteckning över beslutade skötselplaner för natur- och kulturreservat och fastställda bevarandeplaner för Natura 2000-områden

Förteckning över beslutade skötselplaner för **naturreservat och kulturreservat** inom det planerade biosfärområdet Blekinge Arkipelag

Namn	Reservatsbeslut	Skötselplanebeslut
Almö	1987-03-02	1987-03-02
Bockön-Mjöö	1975-04-07	1981-10-14
Ekebacken	1969-09-12	1973-10-10
Elleholm	2004-12-20	2004-12-20
Eriksberg	2008-01-02	1976-10-04
Eriksbergs stränder	1976-10-04	-
Färskesjön	2007-12-07	2002-01-21, 2007-12-07
Fölsö	1974-12-02	1986-02-05
Gö	2008-10-13	fastställs 2009
Hallarumsviken	1973-05-07	1985-11-20
Häljarum	2004-12-20	2004-12-20
Hästholmen-Ytterön	1975-12-01	1975-12-01
Högasand	2005-10-27	2005-10-27
Järkö	1975-06-24	1986-04-11
Järnavik	1971-12-13	1981-04-28
Knösö	1982-03-10	1988-06-23
Kvalmsö	1986-11-04	1986-11-04
Lindö udde	1990-06-19	1990-06-19
Listerby skärgård	1981-10-15	1981-10-15
Pagelsborg	1987-03-02	1987-03-02
Prästamarken	2007-12-18	2007-12-18
Ronneby brunnspark (KR)	2003-04-04	2003-04-04
Skärva	1995-06-01	1995-06-01
Sonekulla-Biskopsmåla	1973-02-05	-
Steneryd	1964-06-24	-
Stilleryd	1967-08-01	1983-06-20
Stora Rom	2001-12-03	2001-12-03
Svenö	1975-05-05	1986-04-11
Tjärö	1976-04-05	1990-06-27
Torhamns udde	1977-06-06	1977-06-06
Tromtö	1982-06-10	1982-06-10
Tärnö	1980-01-11	1980-01-11
Tärnö II	1988-01-28	1988-01-28
Utklippan	1988-03-07	1988-03-07
Uttorp	1980-01-11	1980-01-01
Vambåsa hagmarker	1982-06-07	1982-06-07

Postadress: SE-371 86 KARLSKRONA
Besöksadress: Ronnebygatan 22
Telefon/Telefax: 0455-870 00, 0455-87001
E-post/webbplats: blekinge@lansstyrelsen.se, www.lansstyrelsen.se/blekinge
Org.nr: 202100-2320
Bilaga 5 1:st underskrift och

LÄNSSTYRELSEN
BLEKINGE LÄN

Västra Skällön	1971-12-13	1985-11-06
Yttre Stekön	1964-11-18	-

Förteckning över fastställda bevarandeplaner till **Natura 2000-områden** inom det planerade biosfärområdet Blekinge Arkipelag

Områden enligt habitatdirektivet - SCI

Namn	Objektnummer	Fastställd
Angelskog	SE0410210	2005-09-09
Bellevueparken	SE0410195	2005-09-09
Bergudden	SE0410148	2005-09-09
Björkeskärven	SE0410047	2005-09-09
Blötö-Kidö	SE0410176	2006-01-27
Bockön-Mjöön	SE0410124	2005-09-09
Brunnsskogen	SE0410208	2005-09-09
Bräkne-Hoby skärgård	SE0410046	2005-09-09
Bräkneån	SE0410168	2005-09-09
Elleholm	SE0410233	2006-01-27
Elleholm Norra	SE0410143	2005-09-09
Eriksberg	SE0410123	2005-09-09
Fornanäs	SE0410209	2005-09-09
Fornanäs östra	SE0410232	2005-09-09
Färskesjön	SE0410105	2006-01-27
Fölsö	SE0410125	2005-09-09
Gullberna	SE0410220	2005-09-09
Gåsfeten	SE0410212	2005-09-09
Gö bokskog	SE0410175	2006-01-27
Gömarken	SE0410174	2006-01-27
Haglö	SE0410092	2005-09-09
Hallarum	SE0410097	2005-09-09
Hästholmen-Öppenskär	SE0410099	2005-09-09
Högasand	SE0410112	2005-09-09
Idholm	SE0410221	2005-09-09
Isaks kläpp	SE0410113	2005-09-09
Ivö	SE0410206	2005-09-09
Järkö	SE0410098	2005-09-09
Järnavik	SE0410088	2005-09-09
Knösö	SE0410114	2005-09-09
Kummeln	SE0410219	2005-09-09
Lindö udde	SE0410121	2005-09-09
Lyckeby ekebacke	SE0410129	2005-09-09
Lyckebyåns dalgång	SE0410218	2005-09-09
Marielund	SE0410213	2006-01-27
Mörrumsån	SE0410128	2005-09-09
Näsmarken	SE0410229	2005-09-09
Pagelsborg	SE0410115	2005-09-09
Pukaviksbuktwen	SE0410068	2005-09-09
Ryamad	SE0410231	2005-09-09
Sandhamn	SE0410225	2005-09-09

LÄNSSTYRELSEN
BLEKINGE LÄN

Senora Svenö	SE0410100	2005-09-09
Silletorpsån	SE0410215	2006-01-27
Skärva	SE0410094	2006-01-27
Smygen	SE0410173	2005-09-09
Sonekulla	SE0410089	2005-09-09
Steneryd	SE0410107	2005-09-09
Stora Hammar-Varö-Lillö	SE0410181	2005-09-09
Stora Rom	SE0410130	2005-09-09
Strömma	SE0410196	2006-01-27
Stärnö	SE0410071	2005-09-09
Tjärö	SE0410134	2005-09-09
Torhamns udde	SE0410104	2005-09-09
Tromtö-Almö	SE0410042	2006-01-29
Tärnö-Harö-Brorsö	SE0410163	2006-01-27
Utklippan	SE0410040	2005-09-09
Utlängan	SE0410224	2005-09-09
Uttorp	SE0410101	2005-09-09
Valludden	SE0410226	2005-09-09
Vambåsa norra	SE0410120	2005-09-09
Vambåsanäs	SE0410205	2005-09-09
Vångsö-Biskopsmåla	SE0410211	2005-09-09
Vämöparken	SE0410151	2005-09-09
Östra Möcklö	SE0410222	2005-09-09

Områden enligt fågeldirektivet – SPA

Namn	Objektnummer	Fastställd
Danaflöt	SE0410184	2005-09-09
Tärningsörarna	SE0410185	2005-09-09
Gräsör m fl öar	SE0410050	2005-09-09
Abramsäng	SE0410051	2005-09-09
Tromtö-Almö	SE0410042	2006-01-29
Färskesjön	SE0410105	2006-01-29
Björkeskärven	SE0410047	2005-09-09
Björnön-Varö	SE0410049	2005-09-09
Bräkne-Hoby skärgård	SE0410046	2005-09-09
Ronnekläppen	SE0410048	2005-09-09
Majö	SE0410052	2005-09-09
Torhamn-Hästholmen	SE0410041	2005-09-09
Utklippan	SE0410040	2005-09-09
Kristianopels skärgård	SE0410053	2005-09-09
Tjärö-Bockön-Eriksberg	SE0410043	2005-09-09

På Länsstyrelsens vägnar

Charlotta Kåbo Stenberg
Länsråd

Appendix 6a Species list – Threatened species

Globally and nationally red listed species and species listed by the EU

Both in Sweden and internationally lists are made of species that are threatened in some way or other. These compilations are known as “red lists”. A red list divides species into different threat categories (see the table below). The red list is, in other words, an objective tool that can be used to assess whether some kind of intervention is necessary to support conservation and, if so, what measures need to be taken.

In Sweden the Swedish Species Information Centre is one of the bodies that collects and compiles information about Sweden’s flora and fauna. The Species Information Centre conducts research into and provides information about the habits and range of red listed species, their habitat demands and the reasons behind the various threats to their existence. Red lists are compiled and presented in accordance with guidelines issued by the World Conservation Union (IUCN). In Sweden the current red list, published on 11 May 2005, adopts the same division into categories.

Red List Categories in Sweden (2005)

RE *Regionally Extinct*	*A species is Regionally Extinct when there is no reasonable doubt that the last individual potentially capable of reproduction within the country (region) has died or disappeared from the country (region) .*
CR *Critically Endangered*	*A species is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria A to E for that category.*
EN *Endangered*	*A species is Endangered when it is not Critically Endangered but nevertheless faces a very high risk of extinction in the wild in the near future, as defined by any of the criteria A to E for that category.*
VU *Vulnerable*	*A species is Vulnerable when it is not Critically Endangered or Endangered but nevertheless faces a high risk of extinction in the wild in the medium-term future, as defined by any of the criteria A to D for that category.*
NT *Near Threatened*	*A species is Near Threatened when it does not satisfy the criteria of any of the categories Critically Endangered, Endangered or Vulnerable, but is close to qualifying for Vulnerable.*
DD *Data Deficient*	*A species is assigned to Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. According to the guidelines adopted for this Red List no species should, however, be placed in this category unless there is some indication that it may be threatened or even regionally extinct.*

EU listed species

The EU Habitat Directive and the EU Birds Directive list more than 900 species of plants and animals and more than 170 habitats as endangered or unique from a European viewpoint. Appendix 6c lists the species that occur in the proposed biosphere reserve and which are named in the Habitat Directive (Annex 2) or the Birds Directive (Annex 1).

Red listed species within the proposed biosphere reserve

The proposed biosphere reserve contains 18 globally red listed species (IUCN Red list), 36 bird species listed by the EU Birds Directive and 13 EU-listed species of other plants and animals, and 449 nationally listed species. Up-to-date information has been compiled for many species groups, but much work in the form of inventories, syntheses, etc., remains to be done in order to provide details of the actual occurrence and range of all the groups. The lists on the following pages are based on information from the Swedish Species Information Centre, supplemented by several hundred new observations from some 20 species experts. The data presented relate to observations from 1970 onwards. As far as red listed species of birds are concerned, the lists report regularly breeding and regularly resting species.

Appendix 6b Globally red listed species

Species in the proposed biosphere reserve that are globally red listed according to IUCN Red List of threatened species.

Group	**Scientific name**	**Common English name**	**IUCN category**	**Presence in the biosphere reserve**
Mammals	*Lutra lutra*	Otter	NT	Rare
Mammals	*Muscardinus avellanarius*	Hazel dormouse	LR/nt	Rare
Mammals	*Myotis dasycneme*	Pond bat	VU	Rare
Mammals	*Sciurus vulgaris*	Red squirrel	NT	Common
Birds	*Crex crex*	Corncrake	NT	Regularly trying to nest
Birds	*Haliaeetus albicilla*	White-tailed eagle	NT	Breeding rarely, quite common wintering
Fish	*Carassius carassius*	Crucian carp	LR/nt	Rare
Fish	*Lampetra fluviatilis*	European river lamprey	LR/nt	Rare
Fish	*Lampetra planeri*	Brook lamprey	LR/nt	Rare
Fish	*Gadus morhua*	Atlantic cod	VU	Relatively common
Ants	*Formica rufa*	Red wood ant	LR/nt	Common
Butterflies and moths	*Maculinea arion*	Large blue	VU	Rare

Beetles	*Osmoderma eremita*	Hermit beetle	VU	Rare
Spiders	*Dolomedes plantarius*	Great raft spider	VU	Insufficiently known but probably quite common
Crustaceans	*Astacus astacus*	European crayfish	VU	Rare
Crustaceans	*Margaritifera margaritifera*	Freshwater pearl mussel	VU	Rare
Crustaceans	*Unio crassus*	Thick shelled river mussel	LR/nt	Rare
Crustaceans	*Pseudanodonta complanata*	Depressed river mussel	LR/nt	Rare

IUCN red list categories:

Critically endangered (CR)
Endangered (EN)
Vulnerable (VU)
Lower risk (LR) Conservation Dependent LR(cd)
Near Threatened LR(nt)
Least Concern LR(lc)

Appendix 6c EU-listed species

Species in the proposed biosphere reserve that are listed in the EU Birds Directive (Annex 1) and the EU Habitat Directive (Annex 2).

Species from Birds Directive (Annex 1) that regularly breed or regularly rest in the area.

Scientific name	**Common English name**	**EU-code**
Alcedo atthis	Kingfisher	A229
Aquila chrysaetos	Golden eagle	A091
Asio flammeus	Short-eared owl	A222
Branta leucopsis	Barnacle goose	A045
Bubo bubo	Eurasian eagle owl	A215
Calidris alpina schinzii	Dunlin	A466
Caprimulgus europaeus	European Nightjar	A224
Circus aeruginosus	Marsh harrier	A081
Circus cyaneus	Hen harrier	A082
Crex crex	Corncrake	A122
Cygnus columbianus bewickii	Bewick's swan	A037
Cygnus cygnus	Whooper swan	A038
Dryocopus martius	Black woodpecker	A236
Ficedula parva	Red-breasted flycatcher	A320
Gavia arctica	Black-throated loon	A002
Grus grus	Crane	A127
Haliaeetus albicilla	White-tailed eagle	A075
Lanius collurio	Red-backed shrike	A338
Limosa lapponica	Bar-tailed godwit	A157
Lullula arborea	Woodlark	A246
Luscinia svecica	Bluethroat	A272
Mergus albellus	Smew	A068
Milvus milvus	Red kite	A074
Pandion haliaetus	Osprey	A094
Pernis apivorus	Honey buzzard	A072
Philomachus pugnax	Ruff	A151
Pluvialis apricaria	Golden plover	A140
Podiceps auritus	Horned grebe	A007
Recurvirostra avosetta	Avocet	A132
Sterna albifrons	Little tern	A195
Sterna caspia	Caspian tern	A190
Sterna hirundo	Common tern	A193
Sterna paradisaea	Arctic tern	A194
Sterna sandvicensis	Sandwich tern	A191
Sylvia nisoria	Barred warbler	A307
Tringa glareola	Wood sandpiper	A166

Species from Habitat Directive (Annex 2) that occur in the area.

Group	Scientific name	Common English name	EU-code
Mammals	*Halichoerus grypus*	Grey seal	1364
Mammals	*Phoca vitulina*	Common seal	1365
Mammals	*Lutra lutra*	Otter	1355
Mammals	*Myotis dasycneme*	Pond bat	1318
Amphibians and reptiles	*Triturus cristatus*	Great crested newt	1166
Fish	*Salmo salar*	Atlantic salmon	1106
Beetles	*Lucanus cervus*	Stag beetle	1083
Beetles	*Osmoderma eremita*	Hermit beetle	1084
Pseudoscorpions	*Anthrenochernes stellae*	A false scorpion	1936
Dragonflies	*Leucorrhinia pectoralis*	Large white-faced darter	1042
Molluscs	*Margaritifera margaritifera*	Freshwater pearl mussel	1029
Molluscs	*Unio crassus*	Thick shelled river mussel	1032
Mosses	*Dichelyma capillaceum*	Dichelyma moss	1383

Appendix 6d Nationally red listed species in the category Critically Edangered

Species in the proposed biosphere reserve that are nationally red listed so far according to the Official Swedish Red List by the Swedish Species Information Centre 2005 in the Critically Endangered (CR) category.

Group	Scientific name	Common English name
Birds	*Upupa epops*	Hoopoe
Fish	*Anguilla anguilla*	Eel
Amphibians and reptiles	*Bufo viridis*	European green toad
Macrofungi	*Hapalopilus croceus*	No common English name
Macrofungi	*Hericium erinaceus*	Bearded Tooth
Hymenoptera	*Polyergus rufescens*	A slave-making ant
Beetles	*Ischnodes sanguinicollis*	A click beetle
Lichen	*Stereocaulon incrustatum*	A snow lichen

Appendix 6e Nationally red listed species in the category Endangered

Species in the proposed biosphere reserve that are nationally red listed so far according to the Official Swedish Red List by the Swedish Species Information Centre 2005 in the Endangered (EN) category.

Group	**Scientific name**	**Common English name**
Mammals	*Myotis dasycneme*	Pond bat
Birds	*Oriolus oriolus*	Golden oriole
Birds	*Pernis apivorus*	Honey buzzard
Amphibians and reptiles	*Bufo calamita*	Natterjack toad
Fish	*Gadus morrhua*	Atlantic cod
Hymenoptera	*Nomada armata*	A cuckoo bee
Hymenoptera	*Nomada fuscicornis*	A cuckoo bee
Butterflies and moths	*Eremobina pabulatricula*	Union rustic
Butterflies and moths	*Hemistola chrysoprasaria*	Small emerald
Butterflies and moths	*Horisme aquata*	Cumbrian umber
Butterflies and moths	*Lithostege griseata*	Grey carpet
Butterflies and moths	*Parnassius mnemosyne*	Clouded apollo
Hemiptera	*Adelphocoris ticinensis*	A plant bug
Beetles	*Aesalus scarabaeoides*	A stag beetle
Beetles	*Allecula rhenana*	A darkling beetle
Beetles	*Bibloporus mayeti*	A short-winged mould beetle
Beetles	*Elater ferrugineus*	A click beetle
Beetles	*Gnorimus variabilis*	Variable Chafer
Beetles	*Laccophilus poecilus*	A water beetle
Beetles	*Platydema violaceum*	A darkling beetle
Beetles	*Tetratoma desmarestii*	A shiny fungus beetle
Orthoptera	*Gryllotalpa gryllotalpa*	Mole cricket
Orthoptera	*Psophus stridulus*	A grasshopper
Diptera	*Criorhina floccosa*	A flower fly
Crustaceans	*Astacus astacus*	European crayfish
Molluscs	*Unio crassus*	Thick shelled river mussel
Vascular plants	*Agrostemma githago*	Corncockle
Vascular plants	*Apium inundatum*	Lesser marshwort
Vascular plants	*Arnoseris minima*	Lamb’s succory
Vascular plants	*Baldellia repens*	A lesser water-plantain
Vascular plants	*Dianthus armeria*	Deptford pink
Vascular plants	*Gypsophila muralis*	A soap wort
Vascular plants	*Hypericum humifusum*	Trailing St John’s-wort
Vascular plants	*Juncus capitatus*	Dwarf rush
Vascular plants	*Mentha × gracilis*	A mint
Vascular plants	*Ornithopus perpusillus*	Bird’s-foot

Vascular plants	*Petrorhagia saxifraga*	Tunicflower
Vascular plants	*Peucedanum oreoselinum*	backsilja
Vascular plants	*Rhinanthus serotinus ssp. apterus*	A narrow-leaved rattle
Vascular plants	*Rubus glauciformis*	A blackberry
Vascular plants	*Rubus lidforssii*	A blackberry
Vascular plants	*Rubus walsemannii*	A blackberry
Vascular plants	*Vulpia bromoides*	Squirreltail fescue
Macrofungi	*Ganoderma pfeifferi*	No common English name
Macrofungi	*Ganoderma resinaceum*	No common English name
Macrofungi	*Geastrum elegans*	Elegant Earthstar
Macrofungi	*Geoglossum difforme*	No common English name
Macrofungi	*Inonotus dryadeus*	Oak Bracket
Macrofungi	*Piptoporus quercinus*	Oak Polypore
Macrofungi	*Scleroderma sepa*	No common English name
Algae	*Nitella gracilis*	Slender stonewort
Lichen	*Enterographa hutchinsiae*	A lichen
Lichen	*Megalaria laureri*	A lichen
Lichen	*Schismatomma graphidioides*	A lichen

Appendix 6f Nationally red listed species in the category Vulnerable

Species in the proposed biosphere reserve that are nationally red listed so far according to the Official Swedish Red List by the Swedish Species Information Centre 2005 in the Vulnerable (VU) category.

Group	**Scientific name**	**Common English name**
Mammals	*Lutra lutra*	Otter
Mammals	*Myotis nattereri*	Natterer's bat
Birds	*Alcedo atthis*	Kingfisher
Birds	*Anas querquedula*	Garganey
Birds	*Arenaria interpres*	Ruddy Turnstone
Birds	*Caprimulgus europaeus*	Nightjar
Birds	*Carduelis flavirostris*	Twite (resting)
Birds	*Circus cyaneus*	Hen harrier (resting)
Birds	*Clangula hyemalis*	Long-tailed duck (wintering)
Birds	*Crex crex*	Corncrake
Birds	*Larus fuscus*	Lesser black-backed gull
Birds	*Limosa lapponica*	Bar-tailed godwit (resting)
Birds	*Philomachus pugnax*	Ruff (resting)
Birds	*Podiceps auritus*	Horned grebe
Birds	*Porzana porzana*	Spotted crake
Birds	*Sterna albifrons*	Little tern
Birds	*Sterna caspia*	Caspian tern
Birds	*Sterna sandvicensis*	Sandwich tern
Birds	*Streptopelia decaocto*	Collared dove
Amphibians and reptiles	*Coronella austriaca*	Smooth snake
Amphibians and reptiles	*Lacerta agilis*	Sand Lizard
Amphibians and reptiles	*Rana dalmatina*	Agile frog
Hymenoptera	*Andrena hattorfiana*	A mining bee
Hymenoptera	*Anthophora retusa*	Potter Flower Bee
Hymenoptera	*Dufourea halictula*	A solitary bee
Hymenoptera	*Lasioglossum brevicorne*	A solitary bee
Hymenoptera	*Panurgus banksianus*	A solitary bee
Butterflies and moths	*Acronicta tridens*	Dark Dagger
Butterflies and moths	*Agonopterix bipunctosa*	A micro-moth
Butterflies and moths	*Bacotia claustrella*	A bagworm moth
Butterflies and moths	*Catarhoe rubidata*	Ruddy Carpet
Butterflies and moths	*Coleophora partitella*	A case-bearer moth
Butterflies and moths	*Eublemma minutata*	Scarce Marbled
Butterflies and moths	*Heliothis viriplaca*	Marbled Clover

Butterflies and moths	*Maculinea arion*	Large Blue
Butterflies and moths	*Pareulype berberata*	Barberry Carpet
Heteroptera	*Acetropis gimmerthalii*	A grass bug
Beetles	*Abraeus granulum*	A carrion beetle
Beetles	*Agrilus biguttatus*	A jewel beetle
Beetles	*Ampedus rufipennis*	A click beetle
Beetles	*Anaesthetis testacea*	A longhorn beetle
Beetles	*Anoplodera scutellata*	A longhorn beetle
Beetles	*Attagenus punctatus*	A hide beetle
Beetles	*Batrisodes adnexus*	A short-winged mould beetle
Beetles	*Brachytemnus porcatus*	A weevil
Beetles	*Carphacis striatus*	A rove beetle
Beetles	*Corticeus fasciatus*	A darkling beetle
Beetles	*Crepidophorus mutilatus*	A click beetle
Beetles	*Eucnemis capucina*	A false click beetle
Beetles	*Euryusa optabilis*	A rove beetle
Beetles	*Euthiconus conicicollis*	A small antlike beetle
Beetles	*Galeruca interrupta*	A leaf beetle
Beetles	*Mycetophagus quadriguttatus*	A hairy fungus beetle
Beetles	*Pediacus depressus*	A flat bark beetle
Beetles	*Prionychus melanarius*	A darkling beetle
Beetles	*Rhagium sycophanta*	A longhorn beetle
Beetles	*Stenagostus rhombeus*	A click beetle
Beetles	*Stereocorynes truncorum*	A weevil
Beetles	*Tenebrio opacus*	A mealworm
Beetles	*Xyleborus monographus*	An ambrosia beetle
Odonata	*Libellula fulva*	Scarce Chaser
Fly	*Ferdinandea ruficornis*	A hoverfly
Molluscs	*Margaritifera margaritifera*	Freshwater pearl mussel
Vascular plants	*Aira caryophyllea*	Silver Hair-grass
Vascular plants	*Alyssum alyssoides*	Small Alison
Vascular plants	*Anagallis minima*	Chaffweed
Vascular plants	*Anthriscus caucalis*	Bur Chervil
Vascular plants	*Camelina microcarpa*	Lesser Gold-of-pleasure
Vascular plants	*Carex hartmanii*	A sedge
Vascular plants	*Centaurium erythraea*	Common Centaury
Vascular plants	*Coronopus squamatus*	Swine-cress
Vascular plants	*Cuscuta epithymum*	Dodder
Vascular plants	*Gagea villosa*	Hairy Star of Bethlehem
Vascular plants	*Holosteum umbellatum*	Jagged Chickweed
Vascular plants	*Lathyrus tuberosus*	Tuberous Pea
Vascular plants	*Leersia oryzoides*	Cut-grass

Vascular plants	*Malva pusilla*	Small Mallow
Vascular plants	*Montia minor*	Dwarf Montia
Vascular plants	*Neslia paniculata*	Ball Mustard
Vascular plants	*Oenanthe lachenalii*	Parsley Water-dropwort
Vascular plants	*Pilularia globulifera*	Pillwort
Vascular plants	*Pulsatilla vernalis*	Pasqueflower
Vascular plants	*Radiola linoides*	Allseed
Vascular plants	*Rubus hylanderi*	A blackberry
Vascular plants	*Sherardia arvensis*	Field Madder
Vascular plants	*Sparganium erectum ssp. oocarpum*	Branched Bur-reed
Vascular plants	*Stachys arvensis*	Field Woundwort
Vascular plants	*Stellaria neglecta*	Greater Chickweed
Vascular plants	*Taraxacum litorale*	Shore Dandelion
Vascular plants	*Thymus pulegioides*	Large Thyme
Vascular plants	*Veronica triphyllos*	Fingered Speedwell
Macrofungi	*Aleuria rhenana*	No common English name
Macrofungi	*Amanita franchetii*	Warty Deathcap
Macrofungi	*Boletus fechtneri*	Pale Bolete
Macrofungi	*Boletus impolitus*	Iodine Bolete
Macrofungi	*Elaphomyces anthracinus*	No common English name
Macrofungi	*Hydnellum compactum*	No common English name
Macrofungi	*Hygrocybe ingrata*	No common English name
Macrofungi	*Hygrophorus poetarum*	No common English name
Macrofungi	*Inonotus cuticularis*	No common English name
Macrofungi	*Ischnoderma resinosum*	No common English name
Macrofungi	*Pycnoporellus fulgens*	No common English name
Macrofungi	*Ramaria paludosa*	No common English name
Macrofungi	*Sarcodon glaucopus*	Greenfoot Tooth
Macrofungi	*Tricholoma apium*	No common English name
Macrofungi	*Tyromyces fissilis*	No common English name
Macrofungi	*Volvariella bombycina*	Silky Rosegill
Algae	*Chara horrida*	A Baltic Stonewort
Lichen	*Arthonia pruinata*	A lichen
Lichen	*Bactrospora corticola*	A lichen
Lichen	*Calicium quercinum*	Spike Lichen
Lichen	*Lecanographa amylacea*	A lichen
Lichen	*Gyalecta derivata*	A lichen
Lichen	*Opegrapha vermicellifera*	A lichen
Lichen	*Pachyphiale carneola*	A lichen

Within the proposed biosphere reserve there are 256 species in the category, NT (Near Threatened), 10 within the category DD (Data Deficient) and 1 species within the category RE (Regionally Extinct).

Appendix 6g Economically important species

Group	Scientific name	Common English name
Agriculture, crops	*Beta vulgaris*	Beet
Agriculture, crops	*Brassica rapa,ssp. oleifera*	Field mustard
Agriculture, crops	*Brassica napus ssp. napus*	Rapeseed
Agriculture, crops	*Hordeum vulgare*	Barley
Agriculture, crops	*Secale cereale*	Rye
Agriculture, crops	*Solanum tuberosum*	Potato
Agriculture, crops	*Triticum aestivum*	Wheat
Agriculture, crops	*Fragaria x ananassa*	Strawberry
Agriculture, livestock	*Apis mellifera*	European honey bee
Agriculture, livestock	*Bos taurus*	Cattle
Agriculture, livestock	*Equus caballus*	Horse
Agriculture, livestock	*Sus scrofa*	Pig
Forestry	*Picea abies*	Norwegian spruce
Forestry	*Betula pendula*	Silver Birch
Forestry	*Fagus sylvatica*	Beech
Forestry	*Pinus sylvestris*	Pine
Forestry	*Quercus robur*	Pedunculate oak
Fishing	*Astacus astacus*	European crayfish
Fishing	*Clupea harengus*	Herring
Fishing	*Esox lucius*	Northern pike
Fishing	*Pacifastacus leniusculus*	Signal crayfish
Fishing	*Perca fluviatilis*	European perch
Fishing	*Platichthys flesus*	European Flounder
Fishing	*Salmo salar*	Atlantic salmon
Fishing	*Sprattus sprattus*	European sprat
Fishing	*Gadus morhua*	Atlantic cod
Fishing	*Anguilla anguilla*	Eel
Fishing	*Salmo trutta*	Trout
Hunting	*Alces alces*	Elk
Hunting	*Anser anser*	Greylag goose
Hunting	*Capreolus capreolus*	Roe deer
Hunting	*Cervus elaphus*	Red deer
Hunting	*Dama dama*	Fallow deer
Hunting	*Sus scrofa*	Wild boar

Appendix 7 List of main bibliographic references

Literature

Andersson, J. 2001. *Inventering av fisksamhällen vid Tromtö i Blekinge.* Fiskeriverket.

Asp, T. 2004. *Ejder i Blekinge 1984 – 2004. 21 års inventeringar av ejderpopulationen på Utklippan.* Länsstyrelsen i Blekinge. Rapport 2004:10.

Asp, T. 2006. *Kentsk tärna i Blekinge 1996-2006. Sammanställning av 10 års övervakning.* Länsstyrelsen i Blekinge. Rapport 2006:14.

Atterman, I. 1980. *På Pilkaholmen. Glimtar ur livet i ett blekingskt fiskeläger.* Blekingeboken 1980. Blekinge läns museum.

Berglund, M. 2000. *Vambåsalandskapet – om natur- och kulturmiljövård i Blekinges kustbygd.* Examensarbete vid institutionen för landskapsplanering, SLU Alnarp.

Bergman, K. 1995. *Bland blekingska månglare på 1670-talet – lokalsamhällets möte med centralmakten.* Blekingeboken 1995. Blekinge läns museum.

Bignert, A., Olsson, M. & Greyerz, E. 2000. *Miljögifter i blåmussla längs svenska Östersjökusten 1999.* Gruppen för miljögiftsforskning. Naturhistoriska riksmuseet.

Bilén, A-K. 2004. *Miljöövervakning i Blekinge 2003-2006.* Länsstyrelsen i Blekinge län. Rapport 2004:3.

Björkqvist, K.-A. & Persson, T. 1973. *Gambal landz wäg kongs lÿden kallad.* Blekingeboken 1973. Blekinge läns museum.

Björnsson, S. 1946. *Blekinge. En studie av det blekingska kulturlandskapet.* Medd. från Lunds Universitets geografiska institution, avh. IX. Lund.

Brunet, J. 2003. *Blekinges Skogar – biologisk mångfald samt urval och skötsel av skogsreservat.* Rapporter Länsstyrelsen Blekinge län 2003:1.

Carlsson, M. 2008. *Grundvatten i Blekinge. Övervakning av brunnar och källor.* Länsstyrelsen i Blekinge. Rapport nr 2008:6.

Engkvist, R., Nilsson, J. & Tobiasson, S. 2002. *Utbredning av blås- och sågtång i Kalmar och Blekinge län: utvärdering och kvalitetssäkring av regionala data.* Länsstyrelsen i Blekinge. Rapport 2002:10.

Forsström, M. 1983. *Blekinges medeltida städer och projektet Medeltidsstaden.* Blekingeboken 1983. Blekinge läns museum.

Fröberg, L. 2006. *Blekinges Flora.* SBF-förlaget, Uppsala.

Granqvist, I. & Hassgård, J. 2005. *Fiskarebönder och landskapet i Karlshamns skärgård förr och nu.* Examensarbete. Landskapsvetarprogrammet Högskolan i Kristianstad.

Haeger-Eugensson, M., Jerksjö, M., Persson, K. & Sjöberg, K. 2006. *Luftkvalitet i Sverige sommaren 2006 och vinter 2006/2007.* Resultat från mätningar inom URBAN-nätverket. IVL rapport B1744.

Having, E. (red). 2002. *Modellkammaren 250 år. Ett marinmuseums födelse.* Marinmuseum (SMM).

Hildingson, A. 2006. *Tillväxtstudie på Skogsstyrelsens obsytor.* Rapport 2006:25.

Holmberg, J-E. & Svanstein, H. 2007. *Fiskehamnar i Blekinge – förr och nu.*

Hårdh, B. 1977. *Fynd av guld och silver i Blekinge. Om ekonomi och handelskontakter under vikingatiden.* Blekingeboken 1977. Blekinge läns museum.

Högberg, L. & Sjögren, J. 2004. *Blekinge: det hemliga landskapet.* Del 1, Fort & Bunker.

Johannesson, R. 1999. *Mer liv i skärgården.* Regionalt miljö- och hushållningsprogram för Blekinge skärgård, Länsstyrelsen Blekinge län.

Johansson, A. 2003. *Beslut om kulturreservat Ronneby Brunn.* Länsstyrelsen Blekinge län, Dnr 436-4595-02.

Kornfält, K.-A. & Bergström, J. 1986. Beskrivning till berggrundskartan Karlshamn NO. SGU serie Af 154.

Kornfält, K.-A. & Bergström, J. 1990. Beskrivning till berggrundskartorna Karlshamn SV och SO. SGU serie Af 167 och 168.

Kornfält, K.-A. 1993. Beskrivning till berggrundskartan 3F Karlskrona NV/SV. SGU serie Af 179.

Kornfält, K.-A. 1999 a. Beskrivning till berggrundskartan 3F Karlskrona NO. SGU serie Af 199.

Kornfält, K.-A. 1999 b. Beskrivning till berggrundskartan 3F Karlskrona SO. SGU serie Af 205.

Kornfält, K.-A. 2002. Beskrivning till berggrundskartan 3G Kristianopel NV. SGU serie Af 211.

Larsson, G. 1995. *Blekinge i den nordiska storpolitikens skugga 1560-1658.* Blekingeboken 1995.

Lidmar-Bergström, K. 1986. *Berggrundens former i Blekinge*. Blekinges Natur 1986.

Lindén, H. 1982. *Hällarydsskärgården.* Blekingeboken 1982.

Lundgren, K. 1999. *De stora örlogsskeppen från Karlshamn 1659-1676.* Karlshamns museum.

Malmqvist, A. 2008. *LAVAR OCH LUFTKVALITÉ – Uppföljning av lavfloran i Blekinge län 2008.* Naturcentrum.

Mikaelsson, J. 1978. *Strandvallskomplexet vid Olsäng.* Blekinges Natur 1978.

Nilsson, B. 1995. *Mjöviksoffret – märkliga yxor från äldre stenålder.* Blekingeboken 1995.

Nilsson, J. & Lövgren, O. 2006. *Marin inventering av makrovegetation vid Gö i Blekinge, hösten 2005.* Kalmar högskola. Rapport 2006:2.

Nilsson, J., Lövgren, O. 2006. *Marin inventering av makrovegetation vid Almö, Kvalmsö och Listerby skärgårds naturreservat i Blekinge, hösten 2005.* Kalmar högskola. Rapport 2006:1.

Nilsson, J., Lövgren, O. 2006. *Marin inventering av makrovegetation vid öster om Listershuvuds naturreservat, runt Hanö och Malkvarn hösten 2006.* Kalmar högskola. Rapport 2006:10.

Nydén, T. & Johansson, P. 2007. *VANDRINGSHINDER FÖR FISK I BRÄKNEÅN – förslag på förbättrade möjligheter till fiskvandring.* Emåförbundet.

Nöbelin, F. 2008. *Elfisken i Blekinge län. Utvärdering av elfisken i 20 lokaler.* Länsstyrelsen i Blekinge. Rapport nr 2008:15.

Olofsson, H. 2008. *Källfördelning-kväve och fosfor. Metodik för Blekinge läns avrinningsområde 1991-2006.* Länsstyrelsen i Blekinge. Rapport nr 2008:4.

Persson, T. 2000. *Karlshamns skärgård – kulturlandskapsutredning.* Blekinge museum.

Pihl Karlsson, G., Nettelbladt, A., Akselsson, C., Hellsten, S., Karlsson, P.E., Kronnäs, V. & Malm,G. 2008. *Övervakning av luftföroreningar i Blekinge län – mätningar och modellering. Resultat till och med september 2007.* IVL-rapport B1776.

Pröjts, J. 2008. *Bottenfauna i Blekinge län 2007. Undersökning av 20 lokaler i vattendrag.* Länsstyrelsen i Blekinge. Rapport nr 2008:13.

Rosén, M. 1974. *Ronneby fisktorg. En studie av fiskförsäljningen 1900-1957.* Blekingeboken 1974.

Rosén, M. 1983. *En studie av blekingefiskets utveckling.* Blekingeboken 1983.

Stenholm. L. 1986. *Ränderna går aldrig ur.* Lunds Universitet. Inst. of Archaeology.

Svanberg, F. 1995. *Marina spärranläggningar i östra Blekinge. Nya undersökningar 1995 och sammanställning av arkeologiskt arbete 1966-1974.* Blekinge museum.

Swensson, M. 1971. *Ättika, kläde, salt och öl, ved och enestakar. Om Ronneby som handelshamn under 1600-talets förra hälft.* Blekingeboken 1971.

Tobiasson, S. 2002. *Biologisk inventering vid Tromtö, Karlskrona kommun.* Kalmar högskola. Rapport 2002:20.

Tobiasson, S., Engkvist, R., Ingemansson, A. & Sjölin, A. 2007. *Hanöbukten Kust-vattenmiljö 2007.* Blekingekustens Vattenvårdsförbund och Vattenvårdsförbundet för västra Hanöbukten. Årsrapport 2007. Kalmar högskola. Rapport 2008:3.

Uggla, E., Hallgren, Larsson, E. & Malm, G. 2004. *Krondroppsnätet – tidsutveckling, trendbrott och nationella miljömål.* IVL-rapport B1599.

Ullén, M. (red). 2003. *Blekinge – landskapets kyrkor.* Riksantikvarieämbetet.

Wiklander, U. 1973. *Blekinges urberg.* Blekinges Natur 1973.

Agenda 21, måldokument för Karlskrona kommun, antagen av kommunfullmäktige 2001-12-20.

Bräkneån 2006. Bräkneåns vattenvårdsförbund. Årsrapport 2006.

Bräkneån 2007. Bräkneåns vattenvårdsförbund. Årsrapport 2007

Budget 2009 med flerårsplan 2010-2011, antagen KF 2008-06-10. Karlshamns kommun

Budget 2008, plan 2009-2010 antagen KF 2007-11-29, Ronneby kommun

Handlingsprogram för hållbar utveckling i Karlshamn, antaget av kommunfullmäktige i oktober 2007

Kulturmiljöer i Karlskrona skärgård. Utredning inför fördjupad översiktsplan 1998. Blekinge museum

Landsbygsprogram Karlshamn, antaget av kommunfullmäktige 2007-04-02

Lyckebyån 2007. Lyckebyåns vattenförbund. Årsrapport 2007

Miljöbokslut 2007, antaget av kommunfullmäktige 2008-08-28

Miljömål antagna KF 2007-12-13, Ronneby kommun

Miljöplan, Karlskrona kommun, antagen av kommunfullmäktige 2001-12-20

Miljöpolicy för Karlskrona kommun, antagen av kommunfullmäktige 2000-03-23

Mörrumsån 2006. Mörrumsåns vattenvårdsförbund. Årsrapport 2006

Näringspolitiskt program, Karlshamn antaget av KF i december 2008

Regionalt kulturmiljövårdsprogram för Blekinge.1983, Del I & II. Länsstyrelsen Blekinge län

Ronnebyån 2006. Ronnebyåns vattenvårdsförbund. Årsrapport 2006

SCB, inkvarteringsstatistik 2007. Resurs AB, TEM Blekinge 2007. Karlshamns kommun

Skolplan, antagen KF 2008-06-17. Karlshamns kommun

Skolplan senast reviderad av KF 2002-10-31. Ronneby kommun

Skärgårdsprogram Karlshamn, antaget av kommunfullmäktige 2006-05-08

Utvecklingsprogram för Karlskrona landsbygd 2007 – 2011, antaget av kommunfullmäktige 2007-06-20

Världsarvsansökan Örlogsstaden Karlskrona, 1997. Länsstyrelsen Blekinge län

Översiktsplan, antagen KF 2007-03-05. Karlshamns kommun

Översiktsplan, antagen KF 2006-11-30. Ronneby kommun

Översiktsplan, antagen av kommunfullmäktige augusti 2002. Karlskrona kommun

Översiktsplan för Karskrona kommun, fördjupning beträffande skärgården, antagen av kommunfullmäktige december 1999

Oral references

Bergendorff , Christer, 2008. Sölvesborg. (Fjärilar).

Hellström, Sverker, 2008. Sveriges Meteorologiska Hydrologiska Institut (SMHI).

Hemberg, Joakim, 2008. Skogsstyrelsen. (Lavar och mossor).

Isacsson, Gunnar, 2008. Skogsstyrelsen. (Vedinsekter).

Karlsson, Åke, 2008. Fridlevstad. Lantbrukare. (Lantsorter).

Nygårds, Lena, 2008. Sveriges Lantbruksuniversitet (SLU), Uppsala. (Lantsorter).

Persson, Karin, 2008. Listerby. Lantbrukare. (Lantsorter).

Randsalu, Toomas, 2008. Karlshamns kommun. GIS- och kartsamordnare.

Stranne, Yvonne, 2008. Ronneby kommun. GIS- och IT-säkerhetssamordnare.

Ryberg, Arne, 2008, Jämshög. (Svamp).

Wirbrand, Mikael, 2008. Karlskrona kommun. GIS-ingenjör / markförvaltare.

Internet

Organization and web address. Search words in italic.

ArtDatabanken (artfaktablad):
www.artdata.slu.se/rodlista/alla_artfaktablad.cfm

Blekinge museum:
www.blekingemuseum.se
Stenindustri (Stone industry)

Eniro (Avståndsberäkningar):
www.eniro.se
Kartor (Maps)

Entomologer i Blekinge:
Bertil Ericsson. 2008.
http://web.telia.com/~u45422606/

EU (Sverigekarta):
http://europa.eu.int/
EU – en överblick, Länder, Sverige

Lyckebyåns vattenvårdsförbund:
www.lyckebyan.org/

Långörens portalsida:
Berglund, B.E. 2008.
www.langoren.info
Natur. Land och hav (Nature. Land and sea)

Länsstyrelsen i Blekinge:
www.lansstyrelsen.se/blekinge/
Riksintresse för kulturmiljö (Area of national interest for the conservation of the cultural heritage)
Miljöövervakningsrapporter (Reports on environmental monitoring)

Naturhistoriska riksmuseet:
www.nrm.se
Blekinges berggrund (Bedrock of Blekinge)
Den geologiska tidsskalan (The geological time-line)
Sveriges geologi (Geology of Sweden)
Säl och havsörn (Seal and white eagle)

Naturvårdsverket:
http://www.naturvardsverket.se
Miljöövervakning (Environmental monitoring)
Lagar och andra styrmedel (Laws and other guidelines)
Arbete med naturvård (Nature conservation work)

Programmet för odlad mångfald:
Guldärta till odlare av lovprisad böna. Maj 2008.
www.pom.info/guldartan/080527.htm

Riksantikvarieämbetet:
Fornsök: www.raa.se

Skogsstyrelsen:
www.skogsstyrelsen.se/
Naturvårdsavtal (Nature conservation agreements)
Nyckelbiotoper (Key biotopes)

Svenska Lanthönsklubben:
Blekingeanka. 2004. *(The Blekinge duck)*
www.kackel.se/Old/blekingeanka.htm

Svenska miljöinstitutet:
www.ivl.se

Sveriges geologiska undersökning:
www.sgu.se
Berggrundskarta: http://maps.sgu.se *(Bedrock map)*

Sveriges lantbrukuniversitet:
www.slu.se
Den svenska berggrunden: www-markinfo.slu.se *(The Swedish bedrock)*

Appendix 8 Summary of environmental monitoring within the proposed biosphere reserve Blekinge Archipelago

The following appendix presents in brief the environmental monitoring that occurs or has occurred within the proposed Biosphere Reserve. The account follows the program areas that the state-funded environmental monitoring is divided into.

Program area: Air

- The focus of the county's environmental monitoring of air is the well-established association Blekinge County Air Pollution Control Association. The County Administrative Board is actively involved in the activities of the association. However, there are no stations under the Air Pollution Control Association's control in the proposed Biosphere Reserve. However, air monitoring is conducted at national and local operators in the biosphere reserve area.
- Lichens and air quality is a study carried out on two occasions (in 2003 and 2008) on behalf of Blekinge Air Pollution Control Association. In 2003, it comprised 30 trees spread over six sites, including 5 trees within the proposed Biosphere Reserve. The trees are at Horsaryd and counted in the category of peripheral urban trees. The purpose of the study is to examine and describe any differences in lichen flora in different areas with varying levels of pollution and to serve as a control program for epiphytic lichens in which recovery or deterioration is monitored. A report is available at Blekinge County Air Pollution Control Association website.
- On a national basis, analyses of concentrations of heavy metals in mosses are carried out. Deposition of metals (arsenic, lead, iron, cadmium, copper, chromium, mercury, nickel, vanadium and zinc) across Sweden has been investigated since the 1970s by analyzing these elements in moss samples. The methodology is based on the ability of moss to pick up metals almost exclusively from the air and precipitation, but not from the ground on which they grow. Their metal content is thus a measure of the supply from the air. The monitoring is carried out every 5th year and in the proposed biosphere reserve there are 12 sites.

Similar nationwide surveys are conducted every five years since 1970. From 1980 onwards these studies expanded to include several Nordic countries and from 1990 they involve a wide range of other European countries. The surveys are now part of an international network ICP Vegetation under the Convention on Long-Range Transboundary Air Pollution (LRTAP). More about this can be found on the IVL's (Swedish Environmental Research Institute) website.

Local air monitoring is conducted by the municipalities:

In Ronneby the following substances are monitored yearly:
Ozone: May to August (every 2 weeks)
VOCs: Dec to Jan (once a week)
NO2: Oct to March (monthly)
SO2: Oct to March (monthly) every other winter (next 09/10)
PM10 (monitoring of particulate matter): Dec to April (daily)

In Karlshamn the following substances are monitored yearly:
PM10 continuously
Until 2006 there was a yearly monitoring of an urban location in central Karlshamn in collaboration with IVL within the so called URBAN monitoring network:
PM10 (daily)
VOCs (weekly), Nov to April. Volatile organic compounds.
SO2 and NO2 every 5 years (no yearly monitoring due to low percentages).

I Karlskrona the following substances are monitored yearly:
PM10 continuously

Karlskrona was earlier also a part of the URBAN monitoring network at which time SO2, soot, and NO2 were monitored daily. In addition weekly measurements were taken on three specific street locations of VOCs and monthly measurements of ozone. These measurements were dis-continued in 2004.

Program area: Sea

- The focus of the county's environmental monitoring of the sea is the well-established association Water Protection Association of the Hanö Bight County of Blekinge (BKVF). The County Administrative Board is actively involved in the activities of the association. Under the auspices of BKVF there has been regular monitoring since 1990. The following is monitored:
  - Measurements of environmental pollutants in sediments (10 sites)
  - Monitoring of hydrography and nutrients (15 locations)
  - Chemical analysis of water and sediment (basic survey) at 9 sites
  - Inventory of macroalgae at 12 sites
  - Soft bottom fauna at 26 sites
  - Health of coastal fisheries (annual exploratory fishing of perch on three locations to demonstrate long-term impact changes of metals and organic pollutants);
  - Environmental toxins in blue mussels (4 sites)

- Coordinated seal inventories in Sweden, Finland, Estonia and Russia are conducted since several years in order to monitor the development of the Baltic stock. Karlskrona Ornithological Club (KOK) is carrying out twice a year a seal inventory from the lighthouse at Utklippan on behalf of the County Administrative Board. The inventories are carried out within a two-week period during the seals' time of change of fur in May/June and in August. In May 2008, some 130 to 180 seals were counted at Utklippan, roughly in line with the previous year's numbers, but significantly higher than in 2005. In August, an average of about 70 grey seals were found, compared with about 50 seals in 2005 and in 2006. The inventory is part of a national effort coordinated by the Swedish Museum of Natural History.

- Species monitoring of coastal birds. Since 1984, the breeding success of the eider population in Utklippan nature reserve is monitored and since 1996 the sandwich tern is monitored on the islands where one is aware of nesting (currently on one island) while more nests are sought annually.
- Monitoring of bird deaths has been carried out on 9 islands in the area since 2000.

Within the national environmental monitoring, the following is monitored:

- Two national so called trend areas of vegetation-covered bottoms are within the Biospehere Reserve, one at Tärnö and one between Sturkö and Utlängan in the Eastern Archipelago. In each area ten fixed transects are examined yearly since 2007. The results will form the basis for an assessment of large-scale changes in the environment and they are coordinated with similar surveys in other areas of the Baltic Sea. The survey is conducted by the University of Kalmar and is coordinated by the Swedish Environmental Protection Agency.
- In 2007 and 2008 samples of the soft bottom macro-fauna was tested in two trend areas along the Blekinge coast. In the coastal area outside Karlskrona archipelago, 20 bottom tests were taken yearly and in the open sea at Utklippan 10 tests were taken. The results will form the basis for the assessment of large-scale changes in the environment and will be coordinated with similar surveys in other areas of the Baltic Sea. At present it is doubtful whether the sampling in the coastal area will continue. The survey is conducted by the University of Kalmar and coordinated by the Swedish Environmental Protection Agency.
- The health status of coastal fish (annual exploratory fishing of perch on one site to demonstrate long-term impact changes of metals and organic pollutants). The Swedish Board of Fisheries carries out an annual sampling of a national reference area for coastal fish. The archipelago between Torhamn and Sturkö is one of four reference areas for coastal fish in the national environmental monitoring. The Swedish Board of Fisheries test fish in the area in August every year since 2002 with the aim to follow the long-term development of the fish stock and to put its development in relation to natural and anthropogenic environmental impact. The program includes monitoring yearly class strength, growth, condition and mortality rates of the model species perch. The fish ecological program is coordinated with the surveillance program of perch health status and the impact of pollutants under the auspices of the University of Gothenburg and The Swedish Museum of Natural History.

Report: ”*Integrerad kustfiskövervakning i Östersjön, 2008, Torhamn*”. (”Integrated coastal fish monitoring in the Baltic, 2008, Torhamn”) March 2008. The Swedish Environmental Protection Agency, the Swedish Board of Fisheries, the Swedish Museum of Natural History, and the University of Gothenburg.

- Monitoring of development of stock development and success of reproduction of seal and sea eagle since 1984.
- Free water mass, trend monitoring (one location). The aim is to document the fast changes that occur in the free water mass.

Program area: Fresh water

- In the county there are five well established water protection associations or equivalent concerning fresh water (Lyckeby River Water Management Association), Ronneby River Water Management Association, Bräkne River Water Management Association, Mörrums River Water Management Association, and Skräbe River Water Management Committee. The County Administrative Board participates actively in all the associations' activities. The river water management associations for Lyckeby, Mörrums, Ronneby, and Bräkne rivers have in the area six locations where monitoring is carried out of the bottom fauna in watercourses (tested one time per year) and electric fishing (once a year in four of the locations and every 3 years in two locations). In addition, tests are taken for nutrients, salinity, acidification parameters and oxygen levels in four of the six locations. Water chemical testing is carried out once a month except in one location where testing is carried once every other month. Testing is carried out yearly and has been since 1984 in Lyckeby River, since 1964 in the upper Mörrum River Water Management Association, since 1968 in the nether Mörrum River Water Management Association in Mörrum River (since 1973 the two associations have been united); since 1971 in Ronneby River and since 1983 in Bräkne River.
- Ground water monitoring has been carried out since the 1980s in the county. Regional envi-ronmental financing is spent in the region on well-water and spring sampling. In collaboration with the county's municipalities 19 wells are sampled annually in September; the County Administrative Board pays for the analyses and the municipalities for the testing. This has been carried out since the 1980s. Within the proposed biosphere reserve one well is sampled and previously testing was taken from an additional well in the area. In addition to wells, approximately 25 springs in the county are sampled annually. Within the proposed biosphere reserve two springs are tested and previously an additional ten sources in the area were tested. The results from conducted analyses are entered into the SGU (Geological Survey of Sweden) environmental monitoring database which is available via their website. Via the map service at the SGU website one can access interesting diagrams of particular parameters from each individual well and spring. Until 2003, analysis data was collected yearly from ten municipal groundwater supply sources by the County Administrative Board. This has not been done lately since data is now directly inserted into the Groundwater Bodies and Water Sources Database (DGV). A summary and evaluation of groundwater monitoring in Blekinge which has been carried out since the 1980s was conducted in the past year. The result can be found in report 2008:6 "Ground water in Blekinge: monitoring of wells and springs", which is available on the County Administrative Board webpage.
- In order to meet the Water Directive's demand for controlled monitoring of the ground water monitoring has been supplemented by the Swedish River Basin District Authorities during 2007 and 2008. The additional funds have meant the following additions for the biosphere reserve:
    - Analyses at all RMÖ (Regional monitoring) wells and the 25 springs with yearly testing are complemented by the parameter of oxygen (tested once a year).

  - A new location is tested twice a year, one single water supply source on Sturkö (common land)
  - Raw water analyses at two municipal water supply sources are complemented by several parameters and tested twice a year (Mörrum and Kärragården)
  - Pesticide residue is analyzed on two locations Kärragården water purification plant and the Sturkö common land well, once a year.
- Monitoring of dippers (four locations) and grey wagtail (two locations) is carried out in the area. Dippers have been monitored since 1990 and the grey wagtail since 2002. The monitoring is carried out annually in cooperation with Karlskrona Ornithological Club and that which is being examined is primarily the breeding success, and also for the dipper the number of overwintering couples.
- Biotope mapping of watercourses has been carried out since the late 1990s in Blekinge. To date, biotope mapping of eight streams has been carried out within the Biosphere Reserve. In 2008 there was also a natural value assessment of these waters to gain insight on where the most valuable habitats existed in the county and the water one should work further on, to raise their status.
- Within the proposed biosphere reserve there are 207 chemical water sampling points in total. 135 of these occur in rivers and 72 in lakes. The majority of those are still sampled, but some of them (86) were sampled during the 1950s to the 1970s.
- In the lime effect follow-up the following tests are conducted since 1983:
  - Water chemistry in 4 lakes (once per year)
  - Water chemistry in a stream (bimonthly)
  - Electric fishing in 8 locations (two each year, six every other year)
  - Bottom fauna in one local (every third year)
- In addition to funds from the action plans (for endangered species) and to some extent follow-up of protected nature, the County Administrative Board, together with the regional environmental monitoring funds have been able to invest heavily into inventory, and working with the sub-program Species monitoring - large freshwater mussels. Within the proposed biosphere reserve there are 32 large freshwater mussel locations distributed in 6 streams. Monitoring has been ongoing since the 1980s, but there are older data from some of the watercourses.
- Test net fishing was carried out in Färskesjön in 2006 with the help of funds from the project “Follow-up in protected areas and Natura 2000”.
- In Blekinge, yearly overview macrophyte inventories in lakes have been carried out since 1996. Approximately 10 lakes are visited yearly and so far about 114 lakes in the county have been visited. Most of these are within the proposed biosphere reserve. The overview consists of a qualitative monitoring of the plant species that occur in the lake and along the lake shores.
- Monitoring of the charales slender stonewort is carried out yearly since the end of the 1990s in Svinarydssjön.

- Within the national environmental monitoring the following monitoring is carried out:
  - Testing in a national trend lake (Svinaryd lake) since 1983. Water chemistry and chlorophyll are tested (four times a year), phytoplankton and bottom fauna (once a year).
  - Within the sub-program Estuaries, whose aim is to quantify the material transport of the rivers to the surrounding coastal areas, two watercourses in the proposed biosphere reserve are tested: Mörrum River and Lyckeby River.
- Local monitoring that has been and is conducted:
  - Monitoring according to the 2006 Bathing Water Directive on 19 locations.

Program area: Landscape

- Species monitoring of *Parnassius mnemosyne* (Clouded Apollo) is performed annually at 17 locations in the proposed biosphere reserve. Monitoring has been ongoing since the late 1980s.
- Species monitoring of butterflies is carried out in 9 locations in the proposed biosphere reserve. A first inventory was carried out in Vambåsa pastures by researchers from Lund University in 1981 and 1982, and then the County Administrative Board carried out a reinventory of the location in 2001. The same year an inventory of Tromtö nature reserve was also conducted. In 1994 an inventory of 21 pastures in Blekinge was carried out and eight of these lie within the proposed biosphere reserve. In 2008 all 21 locations were re-inventoried and an additional 20 sites were inventoried. Of these 9 are in the proposed biosphere reserve. All of these inventories will serve as a basis for selection of the locations that are best suited for continued monitoring in the future.
- Vascular plants are monitored annually by the Blekinge Flora Association since 1994, at over 200 locations within the framework of flora watching.
- 56 locations concerning bats have been inventoried within the framework of the action plans (for endangered species) in the area during 2007 and 2008.
- Inventory of great crested newt has been carried out in 2006-2007 and in 2009 in 49 water locations within the proposed biosphere reserve. Of these, the species has been found in 16.
- Species monitoring of natterjack toad has been performed since the early 2000s in the area. There are 18 current monitoring locations. Within the proposed biosphere reserve there are seven current locations of natterjack toad. These are Hoboda, Krogsnäs, Bredaviksudde, Stålemara, Gullholma, Attanäs and Utklippan.
- Species monitoring of agile frog is performed since the early 2000s and the species has been found at 139 locations within the Biosphere Reserve.
- Species monitoring of the European green toad occurs since the 1990s on one location in Blekinge, Utklippan.

Program are: Forest

- Within the subprogram ”Forest environments with known natural values” three key biotopes within the proposed biosphere reserve have been inventoried on two occasions, 1997/98 and 2003/04 with a current inventory (2008/2009) concerning epiphytic indicator species. The inventory is carried out in collaboration with the Swedish Forest Agency.
- The Swedish Forest Agency has 15 permanent observation areas in Blekinge. Monitoring is carried out within these areas since 1995 on how the forest is affected by different environmental factors and pests. The following is measured: tree vitality (annually), foliar chemistry (biannually), tree growth (every 5 years), soil chemistry and deposition, soil water, and air quality (monthly).
- Local monitoring of forest that occurs in the reserve:
  - monitoring of fungi. So far, 109 fungi locations have been inventoried by Blekinge Flora Association since the start in 1998.
  - run-off from managed forests is measured since 1990 in Vambåsa stream by Ronneby Municipality (nutrients, pH, alkalinity, conductivity and color, once a month.

Program area: Farmland

Local monitoring that is or has been conducted in the area:

- Measurements of Heaby stream in Ronneby municipality has been going on continuously since 1993/94 and have been evaluated since 1998/99 by the Swedish University of Agricultural Sciences (SLU). The investigation into Heaby stream is fully organized by Ronneby municipality since July 1, 2003. The following is measured: pH, alkalinity, conductivity, coloration, nitrate + nitrite nitrogen, ammonium nitrogen, total nitrogen, total phosphorus, phosphate phosphorus, suspended solids (SS), total organic carbon (TOC), particulate-P. Sampling occurs every fortnight. Analysis and compilation of the sampling data is carried out by SLU. Data is available in the database for ”*Typområden för Jordbruksmark.*” Results of sampling conducted are reported in SLU’s reports ”Nutrient losses in small agricultural dominated catchments, annual report for the environmental monitoring program “*Typområden på jordbruksmark*” (Type areas on agricultural land). The reports are available at SLU’s website
- In addition to what is measured in Heaby stream, phosphorus and nitrogen fractions (nitrate + nitrite nitrogen, ammonium-nitrogen, total nitrogen, total phosphorus, phosphate phosphorus) are measured annually in 10 rivers in the Ronneby municipality. Measurements are made every month for six of the locations, and on the other four locations testing is carried out on a quar-terly basis. The measurements began in the early 1980s and were initially designed to calculate the transport of nitrogen and phosphorus to the Baltic Sea as a basis for establishing a local environmental protection program. Recipient sampling was then determined in an environmental monitoring program, last revised in 2000. Today, the analyses and calculations constitute key indicators for the follow-up of the local environmental objectives on reducing emissions of nitrogen and phosphorus.

Program area: Health related environmental monitoring

- Environmental Health Surveys are sent out every 4th year in Sweden. The survey alternates between relating to adults' environment and health and children's environment and health. The results are presented in reports; the results of the latest survey will be presented in Environmental Health Report 2009. The Blekinge County Council ordered a regional densification of the mailing of questionnaires in 2008. An evaluation of the Southern Region will be conducted, equivalent to the report "Children, Environment and Health".
- In spring 2007, the County Administrative Board organized a workshop with the Blekinge County Council on "Pharmaceuticals in the environment in Blekinge" during which among other things, the outcome of the 2006 screening of environmental toxins was presented. The seminar was held in Karlskrona.
- The County Administrative Board participated in the project on water quality in private drink-ing water which the Swedish National Board of Health and Welfare ran together with the Geological Survey of Sweden (SGU). In 2007, the County Administrative Board and the county's municipalities offered inhabitants with their own wells to sample the water. The results have been delivered to a database at SGU and the Swedish National Board of Health and Welfare has evaluated the results.

General information

Information

- Three issues of the County Administrative Board newsletter on environmental work in Blekinge "MiljöEKstra" are published annually. The newsletter is sent out to the general public in Blekinge and has received very positive feedback. The coordinator of the regional environmental monitoring is editor, together with the environmental objectives coordinator.

Databases and geographic information material

- During 2007, the County Administrative Board has continued its participation in the development project run by the Örebro County Administrative Board: "Collaboration on biodiversity data". This project aims at facilitating the management of species data and that the Species Gateway is developed so that administrators can easily obtain GIS layers of threatened species.
- Groundwater chemistry from wells and springs, and surface water chemistry from lime effect monitoring and recipient control are collected in databases in order for the material to be easily accessible.
- Work to create an access database where information on all environmental monitoring that is going on in the county has begun. Major work on this database was done in 2008. The Swedish Environmental Protection Agency is looking into establishing a national portal for ongoing environmental monitoring and data that has been entered for Blekinge will be included in the national portal.

Activities in development and evaluation projects

- In addition to the activities that are conducted annually as part of the regional environmental monitoring the County Administrative Board has the possibility of seeking additional funds from the Swedish Environmental Protection Agency to work in various projects. The following describes projects that concern the proposed biosphere reserve.

Lagoon project

The County Administrative Board has conducted a survey of plant communities and the occurrence of fish fry in five bays in Blekinge. The study is part of a three-year project in collaboration with the Uppland Foundation, and other country administrative boards and aims to further develop methodologies for vegetation mapping and sampling of fish fry. For Blekinge, the study is of particular interest in light of the recruitment disturbances, that is, low presence of juvenile fish, which have been reported from parts of the Baltic Sea coast. The results have been presented in the report "*Grunda havsvikar längs Sveriges kust: Mellanårsvariation i undervattens-vegetation och fiskyngelförekomst*." ("Shallow bays along the Swedish coast: year-to-year variation of underwater vegetation and fish fry occurrence.") The Uppland Foundation and the Uppsala County Administrative Board (published in 2008).

Shallow and cut-off bays play a key role for many fish species' reproduction partly through the plants that thrive in this environment, and partly due to that the temperature during the summer months are often substantially higher than in the surrounding sea. Three such bays were investigated in summer 2005, Södra Maren on Tjurkö, Brunnsviken on the Gö Peninsula and Vångsösund north of Vångsö. In 2006 and 2007, the same bays were studied in addition to two other bays along the northern coast of Blekinge, Pajen, just south of Kristianopel and an unnamed creek near Trolleboda.

The results show well-developed stock of underwater plants. The availability of newly recruited fish fry in the three bays along the southern coast was good during 2005 and 2006. However, fears concerning recruitment on the east coast were confirmed. The investigation into the two bays yielded no pike and only one perch. On the other hand, roach fish, such as bleak and stickleback, were fairly abundant. The reason for the recruitment disturbances is not yet known, but hopefully the mapping can lead to an identification of environmental factors that may be linked to the geo-graphical distribution of the problem. In 2007, a sharp deterioration of water quality and plant stock in Brunnsviken on the Gö peninsula in Ronneby municipality was noted. Where previously dense populations of particular charale weeds were found, there were now mostly dead plants overgrown by filamentous algae. The quantity of fish fry was generally lower in 2007 than during the previous two years. The deteriorating water quality and the elimination of the plant stocks may be related to the rainy summer. The reduction of juvenile fish may also be an effect of worse (colder) weather.

Vegetation-covered soft bottoms

In 1999 the University of Kalmar conducted a literature review and field investigations to evaluate different methods that can be used for monitoring of shallow marine soft bottoms. This work resulted in the report "Development of methodology for the monitoring of vascular plants in shallow vegetation-covered soft bottoms." The Blekinge and Kalmar County Administrative Boards and University of Kalmar (published 2000).

Under water video

In partnership with several county administrative boards along Sweden's Baltic Sea coast a development project has been carried out, aimed at developing methods to identify habitats on the seabed by a video camera. The project is funded by the Swedish Environmental Protection Agency, and will be fully reported in 2010.

Bird death

Since 2000, an unusually high number of seabirds have been found dead or dying along the Blekinge coast. In particular, they have been lari birds but also anseriformes have been affected. This extensive bird death has also affected other areas in Sweden and in 2005 the county administrative boards could apply for additional funds from the regional environmental monitoring in order to examine the scope of bird death in the individual counties. This inventory also continued in 2006 and then interested counties were offered the opportunity to apply for funds from the National Vet-erinary Institute (SVA). In Blekinge, inventory of the bird death has been conducted on islands in the western part of the county since 2000 and in 2005 and 2006 the area for inventory was ex-panded with a number of islands in the eastern archipelago to get an idea of the situation along the whole coastline. In 2006 an inventory was carried out on six islands in the Karlskrona archipelago: Gössagrund, Stora Korsaskär, Hammarören, Kuggaskär, Utklippan och Torraskär. In addition, con-tinued monitoring of the islands was carried out in the western part of the county that have been monitored since 2000 (except Vollholmen where SVA had its own special study in 2006): Skaftö and Spjutsö. In 2007, 10 islands along the Blekinge coast were inventoried: Torraskär, Kuggaskär, Hammaröra, Vadholmen, Jordskär, Glipeskär, Skaftö, Lågaskär, Västra Björkskär and Vollholmen. The inventory was conducted by Lasse Carlsson in accordance with SVA's inventory methodology. Overall, 11 locations distributed on 10 islands in Blekinge have been visited on 25 occasions. In Blekinge county there are still many dead birds reported, but the number of disease symptoms has declined significantly since the previous inventory. The results have reduced from 10% dead birds in 2005 to 2.5% in 2006 and 2.1% in 2008. From 2008, the county administrative boards no longer receive funds from SVA to support the inventory of bird death. Blekinge decided, however, as did Skåne, to continue to inventory to the same extent as in previous years, but with the regional envi-ronmental monitoring funds, since bird deaths still occur in the county. In 2008, a similar monitor-ing as the one in 2007 was carried out in the county. The results show a reduced number of birds with symptoms of illness so it is possible that there will be no further monitoring in the future.

Screening of environmental toxins

Blekinge participated in the national screening project since 2003. Screening refers to measurements being taken on one occasion to see if a particular substance can be found in the surrounding environment. Since its inception, the following substances have been prioritized and sampled in the county:

2003: bisphenol A, Bis(4-chlorophenyl)-sulfone (BCPS)and tetrabuthyldiphenol
2004: limonene and siloxane
2005: antibiotics, anti-inflammatory substances and hormones
2006: zinc pyrithione and a few groups of pharmaceuticals: analgesics, sleeping and anxiety drugs
2007: organic ionic compounds, silver, kathon and sucralose
2008: phthalates, phenols including triclosan, quaternary ammonium compounds and organotin compounds.

The screening project comprised 14 testing points and a total of 27 tests in 2008. Over the whole period, the screening in Blekinge has taken approximately 20-25 tests on 12 sites yearly (hospitals, municipal sewage and water plants, waste facilities, laundry (2007) and coves and harbors (2003 and 2008)). The County Council and the municipalities and municipal owned companies financed the analyses. All the municipalities in Blekinge participated. National reports concerning the screening results are compiled by the Swedish Environmental Research Institute and are available on their website. Reports on for instance zinc pyrithione (B1764 IVL) and pharmaceuticals (B1751IVL) are available.

The project was financed by the Swedish Environmental Protection Agency (development and evaluation project and regional monitoring funding), municipalities and municipal owned companies and County Council of Blekinge.

Threatened fungi in Blekinge

The Blekinge Flora Association monitors fungi locations in Blekinge that have occurrances of red listed species. The Swedish Mycological Society also arranges for inventories in Blekinge, such as Mycology Week in 2003. New locations are inventoried in order to register new finds. In 2005 180 red listed species were found in Blekinge. At these inventories fungi have been noted that are both new to Sweden and new to science.

In 1996 a compilation of the known fungi locations of threatened species was carried out in Blekinge. Since then, many new finds have been made and in 2007 a new compilation of known locations with red listed fungi was made. The purpose was to assure the quality of the finds of threatened species of fungi and to register and describe all known locations in Blekinge where finds had been made.

The report ”Threatened Fungi Species in Blekinge – compilation of finds as of 2006” gives an account of finds from the beginning of the 20th century up until 2006. The occurrence of fungi is very high in Blekinge and there are many species. Particularly the older broadleaf forests have a re-markably rich occurrence of red listed fungi. Several locations are among the most protection-worthy in southern Sweden.

The report was finished in 2007 and was financed by the Swedish Environmental Protection Agency (development and evaluation project and regional environmental monitoring funding)

Producing an inventory methodology for Lucanus cervus (Stag beetle)

A collaborative project between the Blekinge and Östergötland County Administrative Boards started in 2007 with the purpose of producing a good inventory methodology for *Lucanus cervus* (the Blekinge county animal). The *Lucanus cervus* has decreased significantly in northern Europe in recent decades. It is protected in the entire country, and except in Blekinge and some parts of Kalmar and Östergötland counties, the *Lucanus cervus* is a rare species. It is listed on the red list as near threatened (NT) and is included in the Natura 2000 as an Annex-II species, which means that Natura 2000 sites should be identified for the species and its status in the region to be reported. But currently, there is no good inventory methodology. The idea of this project is to develop an inventory methodology within environmental monitoring which can also be suitable for use within follow-up and monitoring of Natura 2000 protected areas in the future.

Several inventory methodologies were tested in Västra Götaland (Kungsbacka municipality) in the summer of 2006, but none of them worked really well. Based on *Lucanus cervus* requirements for habitats, and what might attract individuals to a particular area a couple of new ways to take stock of the species were selected to be tested in Blekinge and Östergötland. They investigated whether artificial oak sap could attract *Lucanus cervus* and if one could through GIS / landscape analysis detect possible presence of the species through certain habitat parameters, see below.

Experiments with artificial oak sap were carried out at known *Lucanus cervus* locations in both Östergötland and Blekinge during 2007 but with slightly different methods. In Östergötland a few oaks were felled and from these leaves, inner bark and some of the outermost wood were collected to then go through a fermentation process similar to that of wine making. The fermented product was then mixed with syrup and wooden chips to form a paste that was smeared onto traps made by oak (planks with roof, floor and a back wall with the bark still on it). These traps were then hung on sunlit oak trunks in known *Lucanus cervus* locations. In Blekinge the oak sap fermentation was tested directly on the trees. Ten oak trees were selected in three nature reserves. All the reserves are in the proposed biosphere reserve. The oaks that were selected were sunlit most of the day, not exposed to the winds, and not solitary. In the oaks a 2 decimeter vertical wound was cut into the trunk down to the splinter wood. A 20% sugar/alcohol solution was sprayed into these wounds. They were sprayed every three days for two weeks before the inventory started. During May and June an inventory was conducted in both counties' test areas. The locations were visited during the afternoon and at dusk when the inventory was carried out with night orientation lights. None of the methods can be said to have been successful.

Apart from field testing, a GIS analysis was conducted in Blekinge. The purpose of this analysis was to see if one could anticipate occurrence of *Lucanus cervus* by looking at certain habitat parameters. During 1995 to 1998 Project *Lucanus cervus* was

working in Blekinge with the aim to map the occurrence of the species in the county. This project and the Blekinge County Administrative Board website which allows the public to report occurrences of the species throughout the country have contributed to a fairly good knowledge about the spread of the species in Blekinge. These find locations were used in the analysis were a buffer zone of 100 meters and 500 meters were laid out around each find and analyses conducted within these areas. Among the parameters analyzed were: if a particular habitat was preferred, if any specific direction, and if closeness to water could be decisive. The results showed that *Lucanus cervus* prefer deciduous forests, arable land and pastures. They also revealed that Lucanus cervus prefer east, southwest, south, southeast and west with particular preference for south-facing slopes. According to this model there are many suitable habitats in Blekinge where there are yet to be any recorded findings.

Continued work is needed in order to get a good inventory methodology for *Lucanus cervus*. Therefore, Blekinge County Administrative Board has continued to work on the project during 2008, completing it during 2009. Collaboration with researchers in Europe that work with *Lucanus cervus* has been established and we will work on the following:

1. Test new inventory methods that have been used in England (different lure)
2. Calls to the general public to get additional information about findings.
3. Refine the GIS-analysis by adding additional parameters to reduce the number of possible suit-able habitat and thereby making it a better tool for field inventory
4. Test the GIS-model in the field by choosing a couple of areas that according to the GIS-analysis are suitable habitat and verify in the field.
5. Collaborate with the Swedish Species Information Centre and inventory Natura 2000 areas in Skåne, Blekinge and Kalmar with information about findings of *Lucanus cervus*.

Other activities concerning the biosphere reserve

- In order to increase the collaboration within the regional environmental monitoring, meetings are held twice a year with representatives from the municipalities, Environmental Association Blekinge West, the Swedish Forest Agency, the County Council and non-profit organizations.
- The Blekinge County Administrative Board is responsible for the flora monitoring in the county. Further, the County Administrative Board receives the results from the monitoring of fragrant orchid (*Gymnadenia conopsea*) at known locations in Blekinge.
- The Blekinge Flora Association has inventoried plants in Blekinge since 1994. The results were presented in 2006 in the publication “Blekinge Flora” which deals with all wild and naturalized flowering plants and ferns in the province. The flora presents the species with descriptions of spreading, environment, and when relevant, changes in frequency and/or variation in appearance. In addition, current and previous spreading is presented on approx. 750 propagation maps

and maps of detailed spreading for approx. 100 species. In the book 60 interesting excursion destinations with information about vegetation and species for each area. The book is richly illustrated with color photos of both plants and nature types.

- Since 1980 the rejuvenation of tawny owl is inventoried on an unpaid basis by Conny Philipsson. The inventory occurs yearly in approx 300 sites, primarily in the Karlskrona and Ronneby municipalities.
- In 2007, the following species were inventoried within the action plans for endangered species: the grasshopper *Psophus stridulus*, clouded apollo, agile frog, natterjack toad, European green toad, beetles, dung beetles, wild bees, eyebright, Gentiana, pig's ears (*Gomphus clavatus*), *Albatrellus cristatus*, great crested newt, threatened large mussels, bats, lichen *Stereocaulon incrustatum* and protection worthy trees. For more information about what threatened species occur in the proposed biosphere reserve, see appendix 6.
- Within the project Review of protected areas and Natura 2000, inventory and testing of methods have been carried out in grasslands (which are now part of the continuous activities), limnic environments (macrophytes and simple status description of large mussels) shallow marine habitats and forest habitats. In addition, the Blekinge County Administrative Board has participated in reference groups for the follow-up manuals concerning shallow marine habitats (lagoons), grasslands, forest and limnic environments (lakes and watercourses). The educational program Typical Species in Broadleaf Forests: species knowledge about mosses and lichen was held in Blekinge.
- During the follow-up work on environmental objectives in 2007, the county administrative board conducted a test of *Nostoc zetterstedtii* as indicator for stable marine environments and species richness. The results of this project can be found in the report: "The suitability of the *Nostoc zetterstedtii* as indicator for the environmental objectives Natural Acidification Only, Flourishing Lakes and Streams, and A Rich Diversity of Plant and Animal Life: statistical analysis of the inventory results from Blekinge, Skåne, Kronoberg, and Jönköping counties." During 2009, tests for the species' suitability as environmental objective's indicator for stable marine environments are carried out. The Blekinge County Administrative Board has together with the Jönköping County Administrative Board initiated a test of bats as indicators from valuable nature and culture environments and biological diversity. This project will continue through 2008 and be reported in 2009. In conclusion, the Blekinge County Administrative Board has carried out a project in collaboration with Karlstad University (KAU) in which the genetic population structure of Blekinge county's freshwater pearl mussels was investigated. During 2006, researchers from KAU took genetic samples from the mussels in all known watercourses with freshwater pearl mussels in Blekinge. The results showed that the freshwater pearl mussels from Mie River are genetically unique, while mussels from the Bräkne River, Nättraby River, and Silletorp River are more similar to each other. The results have been compared to results in adjacent counties and will be compared to other watercourses in Sweden that have been tested by the KAU team. The results of this project can be found in the report "Freshwater Pearl Mussel in Blekinge: Sur-

vey of Genetic Population Structure." The reports are available on the Blekinge County Administrative Board website.

- During 2009 the Blekinge County Administrative Board will work within the framework of the follow-up of the environmental objectives to produce a strategic model for environmental objective work within a drainage basin: pilot area Bräkne River. The purpose of the project is to work with the relevant environment objectives with a province perspective within the drainage basin of the Bräkne River in Blekinge county (approx 150 km2). Bräkne River is a Natura 2000 area and the river valley of Bräkne River is of national interest for the purpose of nature conservation (according to Chapter 3, section 6 of the Swedish Environmental Code). The majority of the catchment area consists primarily of distinct forest landscape in which the river runs through a clearly marked rift valley. The valley is characterized by an older cultural landscape with a varied set of different nature types and habitats. This has its roots in a mosaic-like historical use; for instance the area has one of the most distinct hay fields in the county. South of Bräkne-Hoby the landscape changes into an agricultural landscape and the river changes character from oligotrophic to eutrophic water-course. This part of the river is within the proposed biosphere reserve. The river valley of the Bräkne River is historically well documented and a number of inventories of both different land and water environments and species connected to those environments have been carried out. Today the area has a living countryside with an active local community.
- The aim is to produce a model for how one can work across sectors in a project in order to conserve natural and cultural environments (environmental monitoring, follow-up of environmental objectives, reserve management, fishery, cultural environment, water management, municipal and local population, the Swedish Forest Agency, SLU Alnarp, and land owners). There are obvious connections to the work with the biosphere reserve. The strategy that will be worked out within a drainage basin with direct bearing on the water directive can serve as best practice-example and be used in other areas in the future, as well as serve as compliment to the earlier work with regional province strategies carried out by the Swedish Environmental Protection Agency and seven pilot counties.
- In 2007, the County Administrative Board worked within the framework of the environ-mental objective Flourishing Lakes and Streams to restore three of our nationally valuable watercourses in the county: Bräkne River, Mie River, and Mörrum River. The aim was to improve the situation for the freshwater pearl mussel that lives in the rivers. A pre-study was carried out in Bräkne River which resulted in the report "Obstacles for fish runs in Bräkne River: Suggestions for improved fish runs" (available on the Blekinge County Ad-ministrative Board website). Similar pre-studies have been carried out in Mie River and Mörrum River during the spring of 2008 and there are compiled reports. An inventory of the cultural environment in these rivers have been carried out so that future measures take into consideration both natural and cultural values. Work continues in all three rivers during 2008 and 2009.
- In order to produce a larger knowledge base and get an assessment of the natural value in different areas in preparation for constituting new limnic reserves, the

following inventories have been carried out in some of the county's watercourses: (2007) macroalgae and macro-phytes, dragon flies and bottom fauna. The watercourses that were inventoried are: Bräkne River, Mörrum River, Lyckeby River, and Mie River. The result of the dragon fly and bottom fauna inventory is compiled in report form and be published on the County Administrative Board website. The report about macrophyte and macroalgae inventory was compiled in 2008 by algae expert Roland Bengtsson. Inventories have been carried out of dragon flies, bottom fauna, water beetles, diatoms, European river lamprey, *Nostoc zetterstedtii*, and biotope mapping. Lakes and watercourses that were inventoried are Bräkne River, Lyckeby River, Vieryd River, Blank Lake, Näs Lake. The results from the 2008 inventories are being compiled.

- Several shallow marine Natura 2000 areas have been base inventoried during 2006 to 2008 according to existing manuals. Generally, it seems that the plants on shallow soft bottoms flourish while plants on hard bottoms still carry traces of the decrease of the sea weed belts that occurred in the 1990s.
- Within the framework of manual testing as a reference county for follow-up methods, the County Administrative Board carried out surveys with different methods in 2007 and 2008 in the shallow marine Natura 2000-habitats Lagoons and Large Shallow Bays and Sounds. The work was carried out in collaboration with the responsible for manuals at Uppland Foundation.

A large amount of inventories of marine natural values have been conducted to provide material for future marine reserves

- Inventories of underwater vegetation in the Torhamn area. Ingvar Lagenfeldt, Swedish Board of Fisheries, 1983 – 1984.
- Monitoring of zoobenthos in the Torhamn area. Lars-Eric Persson, Kalmar Strait Lab (published in 1991).
- Sturkö inner archipelago marine inventory. Jonas Nilsson, Kalmar Strait Lab (published in 1995).
- Inventory of fish communities at Tromtö in Blekinge, August 2001. Jan Andersson, The Coastal Laboratory (publicerad 2001).
- Biological inventory at Tromtö. Stefan Tobiasson, University of Kalmar (published 2002)
- Marine inventory of macro-vegetation on Almö, Kvalmsö and Listerby archipelago's nature reserves in Blekinge, in autumn 2005. Jonas Nilsson and Olof Lövgren, University of Kalmar (published 2006)
- Marine inventory of macro-vegetation at Gö in Blekinge, in autumn 2005. Jonas Nilsson and Olof Lövgren, University of Kalmar (published 2006)
- Marine inventory of macro vegetation east of Listershuvuds nature reserve, around Hanö and Malkvarn in the autumn of 2006. Jonas Nilsson and Olof Lövgren, University of Kal-mar (published in 2006).
- Test fishing in the water area belonging to Elleholm nature reserve in Blekinge County, August 2006. Jonas Nilsson. University of Kalmar (published in 2007).

- Marine inventory of macro algae at Utklippan nature reserve, October 2007. Jonas Nilsson, University of Kalmar (published in 2008).
- Marine inventory of macro vegetation in the water area belonging to Eriksberg, Eriksberg beaches, Bockö-Mjöö and Tjärö nature reserves in Blekinge, Autumn 2007. Jonas Nilsson, University of Kalmar (published in 2008).

Additional studies have been carried out in order to investigate different aspects of coastal ecosystems

- Environmental toxins in blue mussels along the Swedish Baltic coast. Action Group South (published in 1999).
- Distribution of bladder and toothed wrack seaweed, Kalmar and Blekinge counties: evaluation and quality assurance of data. Roland Engkvist, Jonas Nilsson and Stefan Tobiasson, University of Kalmar (published in 2002)

Appendix 9 List of organizations in the Archipelago Council

Interest groups

Hästholmens & Ytteröns Samhällsförening

Östra Skärgårdens Samhällsförening

Östra Blekinge Hembygdsförening

Öriket/Aspö lotstorn

Hällaryds skärgårds fastighetsägarförening

Bygd i samverkan, Bräkne-Hoby

Blekinge Hembygdsförbund

Länsbygderådet

Svenska Kryssarklubben i Blekinge

Blekinges ornitologiska förening

Swedish Society for Nature Conservation Blekinge County (*Naturskyddsföreningen Blekinge län*)

Blekinge Båtförbund

Blekinge kustvattenvårdsförbund

Lyckebyåns vattenvårdsförbund

Individual and private

Sött & Salt, Kristianopel

Lantbruk Abrahamsäng

Svalemåla gård

Eriksbergs Vilt & Natur AB

Commersen

Lantbruk Esketorp, skärgårdsbete Listerby skärgård

Authorities and Institutions

Sweden Professional Fishermen's Economic Association (*Sveriges Yrkesfiskares Ek. förening*)

The Federation of Swedish Farmers (*Lantbrukarnas Riksförbund Sydost*)

National Association of Fishermen (*Sveriges Fiskares Riksförbund*)

Swedish Forest Agency (*Skogsstyrelsen*)

Blekinge Institute of Technology (*Blekinge Tekniska Högskola*)

Litorina Folk High School (*Litorina folkhögskola*)

Region Blekinge

Swedish Fortifications Agency (*Fortifikationsverket*)

The National Property Board (*Statens fastighetsverk*)

Swedish Armed Forces, Naval Base (*Försvarsmakten Marinbasen*)

Blekinge County Administrative Board (*Länsstyrelsen Blekinge län*)

Karlshamn Municipality (*Karlshamns Kommun*)

Karlskrona Municipality (*Karlskrona Kommun*)

Ronneby Municipality (*Ronneby Kommun*)

Appendix 10 Letters of endorsement

LÄNSSTYRELSEN
BLEKINGE LÄN

2010-03-10

1 (1)

Rekommendationsbrev inför bildandet av biosfärområdet Blekinge Arkipelag

Länsstyrelsen har under ett flertal år deltagit aktivt i arbetet att ta fram bakgrundsmaterial från det framtida biosfärområdet till en komplett ansökan.

Under denna period har nätverk byggts upp för att skapa en bred lokal förankring för hållbar utveckling inom biosfärområdet, både bland verksamhetsutövare, ideella föreningar och myndigheter/ institutioner.

Den unika kust- och skärgård som finns inom biosfärområdet med höga natur och kulturvärden, skall utvecklas på ett hållbart sätt. Det är av största vikt att den attraktionskraft som området hyser idag skall bibehållas samtidigt som området utvecklas till en "levande kust- och skärgård".

Det är vår förhoppning att arbetet inom Blekinge Arkipelag kommer att arbeta utifrån ledorden natur, kultur och entreprenörskap.

Länsstyrelsen är övertygad om att det kommunövergripande arbetet inom området kommer att ha en positiv påverkan på helhetssynen och att området kommer att utvecklas till ett modellområde för hållbar utveckling.

Länsstyrelsen tillstyrker att området utnämns av Unesco till biosfärområde.

Gunvor Engström
Landshövding

Postadress	Besöksadress	Telefon/Telefax	E-post/webbplats:	Org.nr
SE-371 86 KARLSKRONA	Ronnebygatan 22	0455-870 00	blekinge@lansstyrelsen.se	202100-2320
Rekommendationsbrev		0455-87001	www.lansstyrelsen.se/blekinge	

TRANSLATION OF ORIGINAL DOCUMENT

County Administrative Board March 10, 2010

Letter of Recommendation for the Establishment of Biosphere Reserve Blekinge Archipelago

Blekinge County Administrative Board has during several years actively participated in the work to produce background material about the future Biosphere Reserve to produce a complete application.

During this period, networks have been established to ensure a broad local commitment to sustainable development within the Biosphere Reserve, among businessmen, non-governmental organizations and public authorities.

The unique coastal landscape and archipelago that lie within the Biosphere Reserve with high natural and cultural values will be developed in a sustainable manner. It is of ut-most importance that the attraction the area holds today should be maintained while further developing the area to becoming a “flourishing coastal area and archipelago.”

It is our hope that the activities within Blekinge Archipelago will be grounded in the concepts of nature, culture, and entrepreneurship.

Blekinge County Administrative Board is convinced that the cross-municipal work within the Biosphere Reserve will have a positive effect on the holistic view and that the Biosphere Reserve will develop into a model area for sustainable development.

Blekinge County Administrative Board recommends that the area be appointed a Biosphere Reserve by UNESCO.

Gunvor Engström

County Governor

LANDSTINGET BLEKINGE

Landstingets Kansli
Programområde sek
Annika Christensson

2010-03-08

Dnr 2010/

Länsstyrelsen Blekinge län
Ink 2010 -03- 12
Dnr:

Till landshövdingen för Blekinge län
Gunvor Engström

Biosfärkandidatområde Blekinge Arkipelag- ansökan till Unesco

Länsstyrelsen i Blekinge har berett Landstinget Blekinge tillfälle att yttra sig inför ansökan om inrättandet av biosfärområde Blekinge Arkipelag.

Biosfärsområdets syfte är att främja en hållbar utveckling för Blekinge, vilket ligger helt i linje med landstingets strategier. Landstinget Blekinge ser därför mycket positivt på ansökan och tror att Blekinge Arkipelag har goda förutsättningar att bli ett bra biosfärområde.

Landstingets kansli

Östen Sjösten
Stf. landstingsdirektör

Annika Christensson
Miljöstrateg

Landstinget Blekinge
Landstingets kansli
Programområde Sek

E-post:
annika.christensson@ltblekinge.se

Postgiro:
Telefon: 0455 - 73 40 65,
0734- 47 10 27

Internet: www.ltblekinge.se

Org.nr: 232100-0081

TRANSLATION OF ORIGINAL DOCUMENT

County Council

County Council Secretariat | March 8, 2010 | Serial number: 2010/
Program area sek
Annika Christensson

To Blekinge County Governor
Gunvor Engström

Biosphere Reserve Blekinge Archipelago UNESCO application

Blekinge County Administrative Board has given the County Council the opportunity to respond to the application to establish the Biosphere Reserve Blekinge Archipelago.

The purpose of the Biosphere Reserve is to facilitate sustainable development for Blekinge, which is completely in line with the strategies of the County Council. Blekinge County Council is therefore very favorable to the application and believes that Blekinge Archipelago has great potential to become a good biosphere reserve

County Council Secretariat

Östen Sjösten — Deputy County Council Chief Executive

Annika Christensson — Environment Strategist

2010-03-05

Länsstyrelsen i Blekinge län
371 86 Karlskrona

Blekinge Tekniska Högskola tillstyrker ansökan om status som Biosfärområde för det kandidatområdet Blekinge Arkipelag.

Ett biosfärområde utgör en för Sverige relativt ny form av planerings- och samverkansarena för att främja långsiktig hållbar utveckling. Blekinge Tekniska Högskola är områdets högskola och har, som framgår av ansökan, landets ledande utbildning av planeringsarkitekter och är en ledande forskningsmiljö inom fysisk planering och miljöstyrning. Vid BTH har redan bedrivits forskning rörande planeringsmodeller där bl.a biosfärområdesmodellen och zonering av verksamheter ingår. Unesco har tilldelat BTH en "Unesco/Unitwin chair in sustainable development and spatial planning" där bl.a denna forskning utgör en viktig framtida verksamhet. Dessutom är BTHs vision enligt vår Forsknings- och utbildningsstrategi 2009-2012, " *"Blekinge Tekniska Högskola är en globalt attraktiv kunskapscommunity inom tillämpad IT och innovation för hållbar tillväxt."*. BTH ser därför mycket positivt på de möjligheter till forskning runt planering, miljöstyrning och naturvård som Blekinge Arkipelag skulle erbjuda. Den forskning som skulle bli möjlig kan också bidra till utveckling av biosfärområdeskonceptet.

Ursula Hass
Rektor

www.bth.se
BLEKINGE TEKNISKA HÖGSKOLA
Postadress: SE-371 79 Karlskrona Tel: 0455-38 50 00

TRANSLATION OF ORIGINAL DOCUMENT

Blekinge Institute of Technology

March 5, 2010

Blekinge County Administrative Board
371 86 Karlskrona

Blekinge Institute of Technology supports the application about awarding Blekinge Archipelago the status of Biosphere Reserve.

A Biosphere Reserve is for Sweden a relatively new form of planning and collaboration arena for the promotion of long-term sustainable development. Blekinge Institute of Technology is the university in the region, and has, as the application makes clear, Sweden's leading education of planning architect and is also a leading research environment as concerns spatial planning and environmental management. Research concerning planning models is conducted at BTH in which, among other things, the Biosphere Reserve model and zonation are part. UNESCO has awarded BTH a UNESCO/UNITWIN chair in sustainable development and spatial planning, of which this research is an important future activity. In addition, BTH's vision according to the Research and Educational Strategy for 2009 – 2012 is that "Blekinge Institute of Technology is a globally attractive knowledge community within applied IT and innovation for sustainable development". BTH is therefore very positive about the possibilities for research concerning planning, environmental management and nature conservation that Blekinge Archipelago could offer. The research that would be made possible can also contribute to developing the Biosphere Reserve concept.

Ursula Hass
Vice Chancellor

BLEKINGE MUSEUM

Länsstyrelsen i Blekinge
Att. Anders Thurén

371 86 Karlskrona

Biosfärkandidatområde Blekinge Arkipelag - ansökan till Unesco.

Blekinge museum har beretts möjlighet att lämna synpunkter inför ansökan till Unesco.

Blekingeskärgården och kustlandet innanför är ett kulturlandskap, präglat av människan under tusentals år. Av gammalt har det varit ett fångstland men också en viktig resurs för jordbruk, betesdrift och fodertäkt. Den skyddade farleden inomskärs och den flikiga kustens många hamnlägen gav tidigt förutsättningar för bosättning och handel. Utmed kusten anlades medeltidens städer och vid sidan av dessa växte en rad mera oreglerade hamnplatser fram. När Blekinge 1658 blev svenskt fick skärgården en militärstrategiskt viktig roll i östersjöområdet, vilken bestått ända fram till kalla krigets slut. Under 1800-talet skedde en kraftig inflyttning och befolkningstillväxt. Trycket på naturresurserna ökade. Vid sidan om fiske och jordbruk gav stenbrytning i industriell skala den växande befolkningen utkomstmöjligheter. Tiden efter andra världskriget medförde de hittills största förändringarna. Med motoriseringen av fiskeflottan och förändrad distribution avfolkades skärgården i snabb takt och blev till stor del ett område för fritid och rekreation.

Sammanfattningsvis är den blekingska kustbygden ett landskap med en utpräglad historisk dimension, där natur- och kulturvärdena i hög grad sammanfaller. Kustlandskapet är också idag attraktivt för rekreation och fritidsboende men än viktigare för områdets fortlevnad är möjligheterna till utkomst och åretruntboende. Länsmuseet ser bildandet av biosfärområdet Blekinge Arkipelag som en garant för en ekologiskt hållbar utveckling av kustzonen, där natur- och kulturvärdena bevaras och aktivt vårdas.

Karlskrona den 10 februari 2010
BLEKINGE MUSEUM

Tullan Gunér
länsmuseichef

Thomas Persson
1:e antikvarie

ADRESS
BORGMÄSTAREGATAN 21
371 32 KARLSKRONA
371 35 KARLSKRONA

TELEFON
0455-30 49 60
+46 455 30 49 60

TELEFAX
0455-30 49 73
+46 455 30 49 73

E-POST
blekingemuseum@karlskrona.se
www.blekingemuseum.se

TRANSLATION OF ORIGINAL DOCUMENT

Blekinge Museum

Blekinge County Administrative Board
To: Anders Thurén
371 86 Karlskrona

Biosphere Reserve Candidacy Blekinge Archipelago—UNESCO application

Blekinge Museum has been given the opportunity to respond to the UNESCO application.

Blekinge Archipelago and the coastal landscape is a cultural landscape that has been in human use for thousands of years. It has long been an area for hunting, but also an important resource for farming, grazing, and pasture land. The protected fairway inside the skerries and the uneven coastline's many harbours provided opportunities for living and trade early on. The medieval towns were settled along the cost and along these towns other less regulated harbours emerged. When Blekinge became Swedish in 1658, the archipelago was of military strategic importance in the Baltic region, a status that remained until the end of the cold war. During the 19th century there was a substantial immigration and increase in population. The pressure on the natural resources increased. Alongside fishing and farming, stonemasonry on an industrial scale gave the growing population additional income. The time after the Second World War brought the most substantial changes. With the motorization of the fishing fleet and the changed distribution, the archipelago was quickly depopulated and became an area largely for leisure activities and recreation.

In summary, the coastal landscape of Blekinge is a landscape with a distinct historical dimension with high natural and cultural values. Today, the coastal landscape is attractive for recreation and holiday living, but more important for the continued survival of the area are the possibilities for an income and all-year-round living. The county museum views the establishment of a biosphere reserve as a guarantee for an ecologically sustainable development of the coastal zone, where natural and cultural values are preserved and actively tended to.

Karlskrona, February 10th, 2010
BLEKINGE COUNTY MUSEUM

Tullan Gunér	Thomas Persson
County Museum Director	1st curator

BLEKINGE
BÅTFÖRBUND

Rekommendationsbrev

Som representanter för det båtburna friluftslivet stödjer vi den ansökan om nominering till biosfärområde, som Länsstyrelsen i Blekinge avser att lämna.

Vi ser därmed också förhoppningsfullt fram emot lösningar på de latrin- och soptömningsproblem, som nu råder i våra populära naturhamnar.

Lösningar till gagn främst för det stora flertalet mindre båtar, som inte har plats för toalett ombord, men som gärna och ofta vistas i Sveriges sydliga soliga skärgård.

Karlskrona 2010-02-01

Tommy Engvall

Ordförande i Blekinge Båtförbund

BLEKINGE BÅTFÖRBUNDS kansli SUNNAVÄGEN 5 - 371 39 KARLSKRONA

Tel. 0455-803 90 telefonsvarare - E-post: blekinge.batforbund@telia.com

TRANSLATION OF ORIGINAL DOCUMENT

Blekinge Boating Federation

Letter of Recommendation

As representatives for boat outdoor life activities we support the application for the nomination of a biosphere reserve that the County Administrative Board is about to submit.

We therefore look forward with hope to solutions for the problems of latrine and waste management that plague our popular natural harbors. We wish to see solutions for the large number of smaller boats that do not have their own facilities onboard, but gladly and often visit Sweden's southern sunny archipelago.

Karlskrona February 1st, 2010

Tommy Engvall

Chairman of Blekinge Boating Federation

KARLSHAMN

2010-02-03

Anders Thurén
Länsstyrelsen i Blekinge län

Blekinge Arkipelag – Utveckling av kust och skärgård i Blekinge

Arbetet med att få Blekinge Arkipelag klassat som biosfärområde har pågått sedan 2006. De tre kommunerna Karlshamn, Ronneby och Karlskrona har gemensamt och i samarbete med länsstyrelsen i Blekinge län verkat för utveckling av området till ett biosfärområde.

En utnämning till biosfärområde kommer att skapa nya möjligheter och öka förståelsen för ett hållbart brukande av området. Genom samverkan mellan medborgare, föreningar, företag, myndigheter och forskning kan vi fortsätta att bevara landskap och arter, skapa möjlighet för utveckling i området på ett hållbart sätt samt att stödja undervisning och forskning. För Karlshamns del är det viktigt att biosfärområdet bygger på lokalt engagemang och på den traditionella kunskap som finns inom området. Vi lägger stor vikt vid att

Karlshamns kommun har varit delaktig i arbetet sedan starten 2006. Vi har haft en politiker i den styrgrupp som lett arbetet samt haft tjänstemän aktiva i arbetsgruppen. Styr- och arbetsgruppen har tillsammans färdigställt nomineringshandlingarna till UNESCO. Det blivande biosfärområdets förhållningssätt, att verka för hållbar utveckling, stämmer väl överens med Karlshamns kommuns arbetssätt där hållbar utveckling ska genomsyra all verksamhet.

Det är vår övertygelse att "Blekinge Arkipelag" med dess intressanta landskap och engagerade människor kommer att fortsätter att driva arbetet med hållbar utveckling. Med biosfärkonceptet ökar möjligheten att skapa en ekonomisk utveckling som är ekologiskt och socialt hållbar. Utmärkelsen kommer att möjliggöra ett nationellt och internationellt stöd som kommunen ser som mycket positivt. Karlshamns kommun fortsätter att stödja arbetet enlig beslut i kommunstyrelsen 3 juni 2009.

Karlshamns kommun ger sina bästa rekommendationer till att Blekinge Arkipelag nomineras som ett internationellt biosfärområde av regeringen under 2010.

Sven-Åke Svensson
Kommunstyrelsens ordförande
Karlshamns kommun

Karlshamns kommun • Kommunledningsförvaltningen • Kansli
Rådhuset · 374 81 Karlshamn · Tel +46 454-81100 · Fax +46 454-81040
E-post: kommunkansli@karlshamn.se · Hemsida: http://www.karlshamn.se

TRANSLATION OF ORIGINAL DOCUMENT

February 3, 2010

Anders Thurén

Blekinge Country Administrative Board

Blekinge Archipelago – Development of coast and archipelago in Blekinge

The work to get Blekinge Archipelago classified as a Biosphere Reserve has been ongoing since 2006. The three municipalities Karlshamn, Ronneby, and Karlskrona have in unison and in collaboration with the Blekinge County Administrative Board worked for the establishment of the area as a Biosphere Reserve.

The nomination to become a Biosphere Reserve will create new opportunities and increase the understanding for sustainable use of the area. Through collaboration between citizens, organizations, companies, authorities, and research we can continue to preserve the landscape and species, to create opportunities in the area in a sustainable manner and support teaching and research. For Karlshamn Municipality it is important that the Biosphere Reserve is built upon local commitment and on the traditional knowledge of the area. We attach great importance to the fact that Karlshamn Municipality has been involved in the work to establish the reserve since the start in 2006. We have had a politician in the steering group that has directed the work as well as other officials active in the working group. The steering and work groups have jointly put together the nomination application to UNESCO. The future Biosphere Reserve and its work towards sustainable development are well suited with Karlshamn Municipality's work where sustainable development should permeate all municipal activities.

We are convinced that Blekinge Archipelago with its interesting landscape and committed people will continue to push the work with sustainable development forward. With the biosphere concept the possibilities to create an economic development that is ecologically and socially sustainable increase. The nomination will facilitate national and international support which the Municipality views as very positive. Karlshamn Municipality continues to support this work according to a decision in the Municipality Council June 3rd, 2009.

Karlshamn Municipality gives its best recommendations for the nomination of Blekinge Archipelago as an international Biosphere Reserve by the government in 2010.

Sven-Åke Svensson
Chairman of the Municipality Council
Karlshamn Municipality

KARLSKRONA KOMMUN

Handläggare	Direkt telefon	Vår beteckning	Er beteckning	Datum
S-O Petersson	0455-303352	KS 2008.207.430		2010-02-23

Till
Länsstyrelsen Blekinge län
Att: Anders Thurén
371 86 Karlskrona

Biosfärkandidatområde Blekinge Arkipelag – ansökan till Unesco
Rekommendationsbrev

I samverkan med Ronneby och Karlshamns kommuner samt Länsstyrelsen i Blekinge län har Karlskrona kommun sedan år 2006 bedrivit ett arbete med att skapa förutsättningar för att gemensamt kunna sända in en ansökan till Unesco för bildande av ett biosfärområde i delar av dessa tre kommuner benämnt Blekinge Arkipelag.

Ett biosfärområde skall vara ett modellområde för en, ur olika synvinklar, hållbar utveckling. I Karlskrona kommun arbetar vi aktivt med arbete mot hållbar utveckling och ett utnämnande av Blekinge Arkipelag till biosfärområde ligger väl i linje med detta arbete.

Det är viktigt att ta tillvara de olika resurser som finns i området och att dessa gynnas utan att nya restriktioner tillkommer utan att det sker genom ett lokalt engagemang som ger en hållbar utveckling av området och då inte minst ur ekologisk, social och ekonomisk synpunkt.

Ett utnämnande till biosfärområde ger en stabilare grund att stå på för en fortsatt hållbar utveckling av området men också inspirera till lokalt engagemang inom andra områden såväl nationellt som internationellt.

Karlskrona kommun har vid tidigare tillfällen genom beslut i kommunfullmäktige och kommunstyrelse, senast den 17 juni 2009, ställt sig positiva till en ansökan om bildande av rubricerat biosfärområde.

Karlskrona kommun ställer sig bakom en sådan ansökan till Unesco och rekommenderar att området också utses till biosfärområde av Unesco.

Karl-Gösta Svenson
Kommunstyrelsens ordförande

Sven-Olof Petersson
Agenda 21-samordnare

Kommunledningsförvaltningen

Postadress	Besöksadress	Telefon	Telefax	E-postadress
371 83 Karlskrona	Östra Hamngatan 7 B	0455-30 30 00 vx	0455-30 30 30	kommunledningsforvaltningen@karlskrona.se

TRANSLATION OF ORIGINAL DOCUMENT

Karlskrona Municipality

Official	*Telephone*	*Our reference*	*Your reference*	*Date*
S-O Pettersson	0455-303352	KS.2008.207.430		February 23, 2010

To
Blekinge County Administrative Board
To: Anders Thurén
371 86 Karlskrona

Biosphere Reserve Blekinge Archipelago—UNESCO application

Recommendation letter

Since 2006, in collaboration with Ronneby and Karlshamn Municipalities and Blekinge County Administrative Board, Karlskrona Municipality has conducted work to create the conditions necessary for a joint application to UNESCO concerning the establishment of a biosphere reserve across the three municipalities, called Blekinge Archipelago.

A Biosphere Reserve is meant to function as a model area for sustainable development from different viewpoints. In Karlskrona Municipality we work actively with sustainable development and the nomination of Blekinge Archipelago fits nicely with this ongoing commitment.

It is important to make use of the different resources in the area and to see to it that these resources are not put under new restrictions. Rather, it is important that the work is undertaken through local commitments that offer a sustainable development of the area, not least from ecological, social, and economic standpoints.

The nomination to become a Biosphere Reserve gives a more stable foundation for the continuing work with sustainable development in the area and also inspires local commitment in other areas nationally and internationally.

Karlskrona Municipality has on several occasions announced its support of the application to establish the nominated Biosphere Reserve through decisions in the Municipal Assembly, the most recent on June 17, 2009.

Karlskrona Municipality stands behind the UNESCO application and recommends that UNESCO so nominates the area to become a Biosphere Reserve.

Karl-Gösta Svenson
Chairman of the Municipality Council

Sven-Olof Petersson
Agenda 21-coordinator

Litorina
FOLKHÖGSKOLA I KARLSKRONA

ADRESS
Gullberna Park, Vasskär
SE-371 54 Karlskrona

TEL
+46 (0)455 36 76 00

FAX
+46 (0)455 36 76 01

E-POST
info@litorina.fhsk.se

HEMSIDA
www.litorina.fhsk.se

BANKGIRO
5115-6677

ORG NR
835000-9612

Biosfärkandidatområde Blekinge Arkipelag- ansökan till Unesco

Länsstyrelsen i Blekinge har berett Litorina folkhögskola tillfälle att yttra sig inför ansökan om inrättandet av biosfärområde Blekinge Arkipelag.

Litorina ser positivt på ansökan och tror att Blekinge Arkipelag har goda förutsättningar att bli ett bra biosfärområde. Litorina ser att folkbildningen har en roll i det utvecklingsarbete som är möjligt tack vare biosfärområde Blekinge Arkipelag. Litorina har tidigare yttrat sig i ärendet och har inga ytterligare synpunkter på ansökan till Unesco.

Agrita Martinsone
Rektor

Karin Söderberg
folkhögskolelärare

TRANSLATION OF ORIGINAL DOCUMENT

Litorina Folk High School

Biosphere Reserve Blekinge Archipelago – UNESCO application

Blekinge County Administrative Board has given Litorina Folk High School the opportunity to respond to the application to establish the Biosphere Reserve Blekinge Archipelago.

Litorina is in favor of the application and believes that Blekinge Archipelago has great potential to become a good biosphere reserve. Litorina believes that adult education has a role to play in the development work that is made possible thanks to the Biosphere Reserve Blekinge Archipelago. Litorina has already given its opinion in the matter and has no additional opinion about the UNESCO application.

Agrita Martinsone
Head Master

Karin Söderberg
Folk High School teacher

Boverket

Yttrande
Datum
2009-12-04

Diarienummer
20132-395/2009
Ert diarienummer
100-2307-08

Länsstyrelsen i Blekinge län
Blekinge Arkipelag
371 86 Karlskrona

Biosfärsområde Blekinge Arkipelag – ansökan till UNESCO

Länsstyrelsen i Blekinge län har berett Boverket tillfälle att yttra sig inför ansökan om inrättandet av biosfärområde Blekinge Arkipelag.

Boverket ser positivt på ansökan och tror att Blekinge Arkipelag har goda förutsättningar att bli ett bra biosfärområde. Boverket har tidigare yttrat sig i ärendet (2009-02-27) och har inga ytterligare synpunkter på ansökan till UNESCO.

Patrik Faming
Tf chef för stads- och regionenheten

Anette Löfgren
planeringsarkitekt

Box 534, 371 23 Karlskrona
Besök: Drottninggatan 18
Tel: 0455-35 30 00
Fax: 0455-35 31 00
E-post: registraturen@boverket.se
Webbplats: www.boverket.se

TRANSLATION OF ORIGINAL DOCUMENT

The National Board of Housing, Building and Planning

OPINION

Date	*Serial number*
Dec. 4, 2009	20132-395/2009
	Your Serial number
	100-2307-08

Blekinge County Administrative Board
Blekinge Archipelago
371 86 Karlskrona

Biosphere Reserve Blekinge Archipelago—UNESCO application

Blekinge County Administrative Board has given the National Board of Housing, Building and Planning the opportunity to respond to the application to establish the Biosphere Reserve Blekinge Archipelago

The National Board of Housing, Building and Planning is in favor of the application and believes that Blekinge Archipelago has great potential to become a good biosphere reserve. The National Board of Housing, Building and Planning has already given its opinion in the matter (February 27th, 2009) and has no additional opinion about the UNESCO application.

Patrik Faming
Acting Director of the Urban and Regional Unit

Anette Löfgren
Planning architect

Länsstyrelsen
att Elisabeth Wallsten
371 86 Karlskrona

Statens Fastighetsverks synpunkter angående ”Ansökningsformulär för biosfärsområde Blekinge arkipelag”.

SFV ser positivt på nämnda ansökan och hoppas att detta arbete ska öka intresset för området och att det kan skapa en mer hållbar och ekonomiskt bärkraftig utveckling i arkipelagen. Vi ser gärna att Statens fastighetsverk, som berörd myndighet och förvaltare till delar av örlogsstaden Karlskrona, Utklippan samt ett drygt 50-tal kronoholmar i området, nämns som en aktiv part i området. I denna ansökan finns vi ö h t inte omnämnda.

Umeå den 6 mars 2009

Per Linder, naturvårdsspecialist

TRANSLATION OF ORIGINAL DOCUMENT

County Administrative Board
To: Elisabeth Wallsten
371 86 Karlskrona

The National Property Board's Opinion Regarding the Application for Biosphere Reserve Blekinge Archipelago.

SFV is positive about the abovementioned application and hopes that this work will increase the interest for the area, and that it can produce a more sustainable and economically viable development in the archipelago. We would like to see that the National Property Board is mentioned as an actor in the Reserve, as a concerned public authority and trustee of parts of naval city Karlskrona, Utklippan, and approximately 50 state-owned islets. In this application we are not mentioned at all.

Umeå March 6, 2009

Per Linder, Conservation Specialist

REGION BLEKINGE

2010-02-10

Biosfärkandidatområde Blekinge Arkipelag - ansökan till Unesco.

Länsstyrelsen i Blekinge har berett Region Blekinge att yttra sig inför ansökan om inrättande av biosfärområde Blekinge Arkipelag.

Region Blekinge har 2009-04-16 (Dnr 111-49-2009) lämnat ett yttrande i samband med Blekinge Arkipelags remiss.

Region Blekinge framhåller bl a att biosfärområdet Blekinge Arkipelag väl överensstämmer med det regionala utvecklingsprogrammets (RUP:ens) vision om det hållbara Blekinge. Där det handlar om hushållning med såväl människor som naturresurser och aktsamhet om natur och kulturmiljö – samtidigt som en utveckling för ekonomi och sysselsättning ska ske.

REGION BLEKINGE

Anna-Lena Cederström

Regiondirektör

TRANSLATION OF ORIGINAL DOCUMENT

Region Blekinge

February 10, 2010

Biosphere Reserve Blekinge Archipelago - UNESCO application

Blekinge County Administrative Board has given Region Blekinge the opportunity to respond to the application to establish the Biosphere Reserve Blekinge Archipelago.

Region Blekinge has given an opinion in the matter April 16, 2009 (Serial no: 111-49-2009) when Blekinge Archipelago was referred to us for consideration.

Region Blekinge would like to emphasize that Biosphere Reserve Blekinge Archipelago is in accordance with the regional development program's (RUP) vision of a sustainable Blekinge. The vision deals with the economizing of people as well as natural resources, and the care for natural and cultural environments, while allowing for the development of the region's economy and employment opportunities.

REGION BLEKINGE

Anna-Lena Cederström
Region Director

RONNEBY KOMMUN

2010-02-08

Dnr: 2006/251

Länsstyrelsen i Blekinge län
371 86 KARLSKRONA

Rekommendationsbrev för Blekinge Arkipelag som Biosfärsområde

Blekinge har tre kommuner med en gemensamt kust- och skärgård som tillsammans vill bilda ett nytt Biosfärområde; Blekinge Arkipelag. Kommunerna har tillsammans med länsstyrelsen arbetat fram en gemensam ansökan som underlag för ett beslut om Biosfärområde. Området ska vara ett modellområde för hållbar utveckling. Syftet är att detta speciella område ska få utvecklas socialt, ekonomiskt etc och att detta ska gynna det lokala samhället utan nya restriktioner, men utvecklingen ska ändå vara hållbar.

Inom Ronneby kommun finns platser som är särskilt kulturhistoriskt intressanta, t ex Saxemara båtvarv och Brunnsparken. Naturen här ger också förutsättningar för speciell och unik flora genom att erbjuda betade strandängar. Kusten med sina grunda vikar fungerar som barnkammare för mycket av fisken i Östersjön och dess ekologi är därför viktig för ett stort område, både för oss människor, vår miljö och våra levnadsvillkor.

Rekommendation

Ronneby kommun är en av de tre kommuner som finns inom området för ansökan. Inställningen till beslut om att bilda ett Biosfärområde enligt ansökan är mycket positiv. Ronneby kommun ställer sig bakom den här ansökan och rekommenderar att området blir ett Biosfärområde efter beslut av UNESCO.

Vänliga hälsningar

JanAnders Palmqvist
Kommunstyrelsens ordförande

JanAnders Palmqvist
Kommunstyrelsens ordförande

Besöksadress Stadshuset, Karlshamnsvägen 4, Ronneby
Postadress 372 80 Ronneby
Webbplats www.ronneby.se

Telefon +46 (0) 457-61 82 30
Mobil +46 (0) 708-41 82 30
Fax +46 (0) 457-61 83 55
E-post jananders.palmqvist@ronneby.se

TRANSLATION OF ORIGINAL DOCUMENT

Ronneby Municipality

February 8, 2010 Serial no: 2006/251

Blekinge County Administrative Board
371 86 Karlskrona

Recommendation letter for Blekinge Archipelago as Biosphere Reserve

Blekinge has three municipalities with a common coast and archipelago that will jointly form a new Biosphere Reserve: Blekinge Archipelago. The municipalities have worked together with the County Administrative Board to produce a joint application to base a decision on concerning a biosphere reserve. The reserve is intended to be a model area for sustainable development. The aim is that this special reserve will be allowed to develop socially, economically etc., and that this will benefit the region without new restrictions while still maintaining a development that is sustainable.

Within Ronneby Municipality there are sites of particular cultural interest, such as Saxemara boatyard and Brunnsparken. The natural resources also provide conditions for special and unique flora on its grazed shore beaches. The coast with its shallow coves functions as a nursery for many species of fish in the Baltic Sea and its ecology is therefore important for a large area, for humans, for our environment and our living conditions.

Recommendation

Ronneby Municipality is one of the three municipalities within the proposed reserve. The municipality is very positive towards the decision of establishing a Biosphere Reserve as proposed in the application. Ronneby Municipality endorses the application and recommends that the area becomes a Biosphere Reserve after UNESCO's decision.

Warmest regards,

JanAnders Palmqvist
Chairman of the Municipality Council

FÖRSVARSMAKTEN
MARINBASEN

Datum
2010-02-12

MarinB beteckning
13 920:90242

Länsstyrelsen Blekinge län
Ink 2010 -02- 12
Dnr: 100-2307-08

Sida 1 (1)

Enligt sändlista

Ert tjänsteställe, handläggare
Lst Ble län, koordinator Anders Thurén

Ert datum
2010-01-12

Er beteckning
E-post

Vårt tjänsteställe, handläggare
C N0, Kerstin Carlson, 0455 - 852 60,
kerstin.carlson@mil.se

Vårt föregående datum
2009-03-06

Vår föregående beteckning
13 920:80358

Biosfärkandidatområde Blekinge Arkipelag - ansökan till Unesco

Länsstyrelsen i Blekinge Län har, tillsammans med Karlshamns, Ronneby och Karlskrona kommuner, samverkat för att bilda ett biosfärområde i Blekinges kust- och skärgårdslandskap.

Länsstyrelsen i Blekinge har berett MarinB tillfälle att yttra sig inför ansökan om inrättandet av biosfärområde Blekinge Arkipelag.

MarinB har tidigare yttrat sig i ärendet (MarinB yttrande 2009-03-06 nr 13 920:80358) och har inga ytterligare synpunkter på ansökan till Unesco.

Hans-Erik Fröberg
Sft C MarinB

Sändlista
Länsstyrelsen i Blekinge Län (+ digital kopia till anders.thuren@lansstyrelsen.se)

Inom MarinB
Stf C MarinB
N0
N2

Postadress
Box 527
371 23 KARLSKRONA

Besöksadress
Örlogshamnen
KARLSKRONA

Telefon
0455-850 00

Telefax
0455-864 64

E-post, Internet
exp-marinb@mil.se

TRANSLATION OF ORIGINAL DOCUMENT

The Swedish Armed Forces
The Naval Base

Date	*NavalB reference*
February 12, 2010	13 920:90242

Page 1 (1)

According to mailing list

Your position, official	*Your date*	*Your reference*
County Adm.Board, Coordinator Anders Thurén	January 12, 2010	E-mail

Our position, official	*Our previous date*	*Our prev. reference*
C N0, Kerstin Carlsson, 0455-852 60 kerstin.carlsson@mil.se	March 6, 2009	13 920:80358

Biosphere Reserve Blekinge Archipelago – UNESCO application

Blekinge County Administrative Board has, together with Karlshamn, Ronneby and Karlskrona Municipalities, cooperated to create a Biosphere Reserve in Blekinge coastal landscape and archipelago.

Blekinge County Administrative Board has given the Naval Base the opportunity to respond to the application to establish the Biosphere Reserve Blekinge Archipelago.

The Naval Base has already given its opinion in the matter (NavalB opinion March 6, 2009 number 13 920:80358) and has no additional opinion about the UNESCO application.

Hans-Erik Fröberg
Stf C Naval Base

Mailing list
Blekinge County Administrative Board (+digital copy to anders.thuren@lansstyrelsen.se)

Within NavalB
Stf C NavalB
N0
N2

FISKERIVERKET
Utredningskontoren

Datum	Beteckning
2010-02-01	Dnr 11-590-09
Ert Datum	Er beteckning

Länsstyrelsen Blekinge
371 86 Karlskrona

Länsstyrelsen Blekinge län
Ink 2010 -02- 12
Dnr 100-2307-08

Blekinge Arkipelag – nominering till biosfärområde av UNESCO

Fiskeriverket har inbjudits att formulera ett rekommendationsbrev för nominering av Blekinge Arkipelag som biosfärområde av UNESCO år 2011.

Fiskeriverket välkomnar en nominering av Blekinge Arkipelag som biosfärområde och ställer sig positivt till de samverkansformer och arbetssätt som inrättandet av ett biosfärområde innebär. Bildande av sådana områden har goda förutsättningar att bidra till en hållbar utveckling och ett hållbart nyttjande av de akvatiska resurserna.

Beslut om detta yttrande har fattats av t.f. avdelningschefen Inger Dahlgren efter föredragning av enhetschefen Fredrik Nordwall.

Inger Dahlgren

Fredrik Nordwall

Postadress	Besöksadress	Telefon	E-post	Telefax	Postgiro
Box 423 401 26 GÖTEBORG	Ekelundsgatan 1	031-743 03 00	fiskeriverket@fiskeriverket.se	031-743 04 44	1 56 92-7

TRANSLATION OF ORIGINAL DOCUMENT

Swedish Board of Fisheries	*Date*	*Designation*
Investigative Offices	February 1, 2010	Serial no: 11-590-09

Blekinge County Administrative Board
371 86 Karlskrona

Blekinge Archipelago—nomination to become a UNESCO Biosphere Reserve

The Swedish Board of Fisheries has been invited to formulate a letter of recommendation for the nomination of Blekinge Archipelago as a UNESCO Biosphere Reserve in the year 2011.

The Swedish Board of Fisheries welcomes a nomination of Blekinge Archipelago as Biosphere Reserve and is positive towards the forms of collaboration and work that the establishment of a biosphere reserve requires. The establishment of such reserves provides good opportunities to make a contribution to a sustainable development and sustainable use of the aquatic resources.

Decision in this matter was made by acting Unit Director Inger Dahlgren after a presentation of reports by Investigative Offices Director Fredrik Nordwall.

Inger Dahlgren

Fredrik Nordwall

NATUR VÅRDS VERKET

SWEDISH ENVIRONMENTAL PROTECTION AGENCY

Göran Blom
Tel: 08-698 85 11
goran.blom
@naturvardsverket.se

YTTRANDE
2010-02-04 Dnr 319-918-09 Nh

Länsstyrelsen Blekinge
Att: Anders Thurén
Ronnebygatan 22
371 86 Karlskrona

Rekommendationsbrev inför bildandet av biosfärområde Blekinge Arkipelag

Efter önskemål från Länsstyrelsen Blekinge om ett rekommendationsbrev vill Naturvårdsverket framhålla följande.

Naturvårdsverket har följt arbetet med att bilda biosfärområde Blekinge Arkipelag sedan starten och även bidragit ekonomiskt sedan 2008. Naturvårdsverket har även bidragit ekonomiskt till kunskapsuppbyggnad inom området genom stöd till länsstyrelsen samt till arbetet med att ta fram en förvaltningsplan för det blivande biosfärområdet genom arbetet med "Marina samverkansplaner för värdefulla kust och havsområden"

Torhamns skärgård, som är en del av Blekinge Arkipelag, är rapporterat till HELCOM som Baltic Sea Protected Area (BSPA-område). Enligt HELCOMs aktionsplan för Östersjön ska alla BSPA-områden ha förvaltningsplaner 2010. Naturvårdsverket, tillsammans med ansvariga för arbetet med Blekinge Arkipelag, bedömde det vara mer ändamålsenligt att arbeta med en förvaltningsplan för hela biosfärområdet. Arbetet med förvaltningsplanen startade 2008 och kommer, genom de krav som ställts för godkännande i Unescos program Man and the Biosphere, med stor sannolikhet vara klart i god tid.

Naturvårdsverket anser att Blekinge Arkipelag är en lämplig kandidat till att bli ett nytt biosfärområde i Sverige och stöder ansökan om detta. Naturvårdsverket anser att Blekinge Arkipelag kommer att kunna spela en viktig roll som nationell förebild i arbetet med en långsiktigt hållbar förvaltning av kust- och skärgårdsområden kring Östersjön.

Beslut om detta yttrande har fattats av direktören Eva Thörnelöf.

BESÖK: STOCKHOLM - VALHALLAVÄGEN 195
ÖSTERSUND - FORSKARENS VÄG 5, HUS UB
KIRUNA - KASERNGATAN 14
POST: 106 48 STOCKHOLM
TEL: 08-698 10 00
FAX: 08-20 29 25
E-POST: REGISTRATOR@NATURVARDSVERKET.SE
INTERNET: WWW.NATURVARDSVERKET.SE

Vid den slutliga handläggningen har i övrigt deltagit enhetscheferna Björne Olsson och Maggie Javelius samt handläggarna Jorid Hammersland och Göran Blom, den sistnämnda föredragande.

För Naturvårdsverket

Eva Thörnelöf

Göran Blom

TRANSLATION OF ORIGINAL DOCUMENT

Swedish Environmental Protection Agency

Göran Blom
Phone: 08-6988511
goran.blom
@naturvardsverket.se

OPINION
February 4, 2010 Serial no: 319-918-09 Nh

Blekinge County Administrative Board
To: Anders Thurén
Ronnebygatan 22
371 86 Karlskrona

Recommendation letter for the establishment of Biosphere Reserve Blekinge Archipelago

As per Blekinge County Administrative Board's request for a recommendation letter, the Swedish Environmental Protection Agency wishes to point out the following:

The Swedish Environmental Protection Agency has followed the work on establishing Blekinge Archipelago since the start and has also contributed financially to the project since 2008. The Swedish Environmental Protection Agency has also contributed financially to knowledge building within the area through support to the County Administrative Board and to the work on producing a management plan for the future Biosphere Reserve through the work "Marine collaboration plans for valuable coastal and sea areas."

Torhamn Archipelago which is part of Blekinge Archipelago, is reported to HELCOM as a Baltic Sea Protected Area (BSPA-area). According to HELCOM's action plan for the Baltic Sea, all BSPA-areas should have management plans by 2010. The Swedish Environmental Protection Agency together with the parties that are responsible for the work with Blekinge Archipelago deemed it more suitable to work with a management plan for the entire Biosphere Reserve. The work with the management plan started in 2008, and will in all likelihood be ready in time, and will adhere to UNESCO's demands for approval in their program Man and the Biosphere.

The Swedish Environmental Protection Agency believes that Blekinge Archipelago is a suitable candidate to become a new Biosphere Reserve and therefore supports this application. The Swedish Environmental Protection Agency believes that Blekinge Archipelago can play an important role as national role model in the work towards long-term sustainable management of coastal and archipelago areas around the Baltic Sea.

Decision has been made in this matter by Director Eva Thörnelöf

At the final deliberation the unit directors Björne Olsson and Maggie Javelius participated as well as the administrative officials Jorid Hammersland and Göran Blom. Blom was the rapporteur.

For the Swedish Environmental Protection Agency

Eva Thörnelöf

Göran Blom

SKOGSSTYRELSEN

YTTRANDE 1(1)

Datum
2010-01-15

Diarienr
2010/237

Blekinge distrikt
Ola Runfors
Box 241, Ställverksvägen 5, 372 21 Ronneby
ola.runfors@skogsstyrelsen.se
Tfn 0457-455184, fax 0457-17937

Länsstyrelsen i Blekinge län
Blekinge Arkipelag
371 86 Karlskrona

Biosfärområde Blekinge Arkipelag – ansökan till UNESCO

Skogsstyrelsen anser att Blekinges natur- och kulturvärden är underskattade i ett internationellt perspektiv och väl värda att lyfta fram och bevara. Genom bildandet av ett biosfärområde ökar förutsättningarna att på ett uthålligt sätt förvalta och förstärka vårt natur- och kulturarv samtidigt som den regionala utvecklingen stärks.

Skogsstyrelsen upplever initiativet att ansöka om Biosfärområde Blekinge Arkipelag som mycket positivt och ger de bästa rekommendationer.

På Skogsstyrelsen vägnar

Bengt Nilsson
Distriktschef

Ola Runfors
Skogskonsulent

Postadress
Huvudkontor
Skogsstyrelsen
551 83 Jönköping

Besöksadress
Vallgatan 8
Jönköping

Telefon
036-35 93 00
Fax
036-16 61 70

Organisationsnr
202100-5612
Momsreg.nr
SE202100561201

E-post
skogsstyrelsen@skogsstyrelsen.se
www.skogsstyrelsen.se

TRANSLATION OF ORIGINAL DOCUMENT

The Swedish Forest Agency OPINION

Date: Serial no:
January 15, 2010 2010/237

Blekinge District
Ola Runfors
P.O. Box 241, Ställverksvägen 5, 372 21 Ronneby
ola.runfors@skogsstyrelsen.se
Phone: 0457-455184, Fax: 0457-17937

Blekinge County Administrative Board
Blekinge Archipelago
371 86 Karlskrona

Biosphere Blekinge Archipelago—UNESCO application

The Swedish Forest Agency considers that Blekinge's natural and cultural values are underestimated from an international perspective, and worth to highlight and preserve. Through the establishment of a biosphere reserve the conditions for sustainable management and enhancement of our natural and cultural heritage are increased simultaneously as regional development is strengthened.

The Swedish Forest Agency finds the initiative of the Biosphere Blekinge Archipelago application to be very positive, and gives the best of recommendations.

On behalf of the Swedish Forest Agency

Bengt Nilsson
District Manager

Ola Runfors
Forest consultant

SWEDISH NATIONAL HERITAGE BOARD
RIKSANTIKVARIEÄMBETET

Länsstyrelsen
Blekinge län
Ink 2010 -02- 01
Dnr 100-2307-08

Länsstyrelsen Blekinge
Att: Anders Thurén
371 86 Karlskrona

Datum 2010-01-26
Dnr 335-257-2010

Avdelning Samhällsavdelningen

Rekommendationsbrev – Blekinge Arkipelag

Riksantikvarieämbetet (RAÄ) har med stort intresse följt det ambitiösa arbetet med underlagen inför ansökan om inrättande av Biosfärområdet Blekinge Arkipelag. RAÄ fördelade budgetåret 2008 särskilda medel under rubriken Hållbar landskapsutveckling, bl. a. till utveckling av metoder för arbete med kultur- och naturvärden i större landskapsavsnitt och för samarbete och dialog mellan offentliga aktörer och lokala intressenter. Länsstyrelsen i Blekinge län beviljades då medel för ett projekt med syfte att, inom ramen för MAB-arbetet, utveckla metoder för att balansera och integrera områdets kulturhistoriska, biologiska och sociala kvaliteter – bl. a. genom att lyfta fram prioriterade delar av det biologiska kulturarvet som centrala värden och som drivkraft för hållbar samhällsutveckling.

I det under 2009 remitterade förslaget till ansökan framfördes intentionen att i MAB-området arbeta med en föränderlig zonering, vilket möjliggör beaktande av utvecklade kunskaper om landskapets värden såväl som beredskap inför förändrade förutsättningar inom förvaltningen av dessa. En föränderlig zonering stödjer fortlöpande insatser som utgår från aktuella behov och bör därför ses som ett särskilt värde vid regeringens ställningstagande och Unesco:s beslut.

RAÄ anser att Blekinge Arkipelag väl uppfyller kriterierna för ett MAB-område och har goda förutsättningar att i detta sammanhang även fungera som förebild inom regionalt utvecklingsarbete med utgångspunkt i en helhetssyn på landskapets värden. RAÄ stödjer således ansökan och kommer fortsatt att följa arbetet och utvecklingen inom det blivande MAB-området.

Anita Bergenstråhle-Lind
Biträdande avdelningschef

Ulf Lindberg
Antikvarie

Riksantikvarieämbetet
Storgatan 41
Box 5404
114 84 Stockholm
Tel 08-5191 8000
E-post riksant@raa.se
Hemsida www.raa.se
Org.nr 202100-1090
Plusgiro 59994-4
Bankgiro 5052-3620

Kopia till: Naturvårdsverket

1 (1)

TRANSLATION OF ORIGINAL DOCUMENT

Swedish National Heritage Board

Blekinge County Administrative Board

To: Anders Thurén

371 86 Karlskrona

Date January 26, 2010
Serial no: 335-257-2010

Letter of Recommendation—Blekinge Archipelago

The Swedish National Heritage Board (RAÄ) has followed with great interest the ambitious work to form the application to establish the Biosphere Reserve Blekinge Archipelago. RAÄ allocated special funds in the fiscal year 2008 under the heading Sustainable Landscape Development, among other things for the development of methods for work with cultural and natural values in larger landscapes and to facilitate collaboration and dialogue with public authorities and local interested parties. Blekinge County Administrative Board was awarded funds for a project to develop, within the framework of MAB, to develop methods to balance and integrate the area's cultural, biological, and social qualities, among other things, by foregrounding priorities in the biological heritage as central values and as a driving force behind sustainable social development.

In the proposal that was referred to us for consideration in 2009, the intention to work with changeable zonation in the MAB-area was brought forth. This facilitates taking into consideration developing knowledge about the values of the landscape as well as prepares for changing conditions for the management of the same. Changeable zonation supports continuous efforts that proceed from current needs and should therefore be seen as of particular value as the government makes their decision as well as UNESCO.

RAÄ considers that Blekinge Archipelago more than meets the criteria for a MAB-area and that it also has great potential to function in this regard as model of regional development work that proceeds from a holistic view of the values of the landscape. RAÄ thus supports the application and will continue to follow the work and development in the future MAB-area.

Anita Bergenstråhle-Lind
Assistant Department Director

Ulf Lindberg
Curator

Copy to: The Swedish Environmental Protection Agency

Biosfärkandidatområde Blekinge Arkipelag- ansökan till Unesco

Länsstyrelsen i Blekinge har berett SYEF tillfälle att yttra sig inför ansökan om inrättandet av biosfärområde Blekinge Arkipelag.

NN ser positivt på ansökan och tror att Blekinge Arkipelag har goda förutsättningar att bli ett bra biosfärområde. SYEF har tidigare yttrat sig i ärendet (20090306), och under förutsättning att våra synpunkter beaktas, så har vi inga ytterligare synpunkter på ansökan till Unesco.

2010-02-23

May-Britt Landin
Ordf

Bengt Larsson
Sekr

TRANSLATION OF ORIGINAL DOCUMENT

Biosphere Blekinge Archipelago—UNESCO application

Blekinge County Administrative Board has given the Sweden Professional Fishermen's Economic Association the opportunity to respond to the application to establish the Biosphere Reserve Blekinge Archipelago.

The Sweden Professional Fishermen's Economic Association is in favor of the application and believes that Blekinge Archipelago has great potential to become a good biosphere reserve. The Sweden Professional Fishermen's Economic Association has offered its opinion in the matter before (March 6, 2009) and given that our opinions are taken into consideration, we have no additional opinion about the UNESCO application.

February 23, 2010

May-Britt Landin
Chairperson

Bengt Larsson
Secretary

Biosfärkandidatområde Blekinge Arkipelag – ansökan till Unesco

Länsstyrelsen i Blekinge har berett Naturskyddsföreningen i Blekinge tillfälle att yttra sig inför ansökan om inrättande av biosfärområde Blekinge Arkipelag.

Naturskyddsföreningen i Blekinge ser mycket positivt på ansökan och anser att Blekinge Arkipelag, genom stora naturvärden, levande kulturtraditioner och spännande utvecklingsmöjligheter samt ett brett engagemang,, hargoda förutsättningar att bli ett bra biosfärområde. Naturskyddsföreningen har tidigare yttrat sig i ärendet underhand och har inga ytterligare synpunkter på ansökan till Unesco.

Naturskyddsföreningen i Blekinge
Genom

Sam Skällberg

Sam Skällberg, ordf

TRANSLATION OF ORIGINAL DOCUMENT

Biosphere Reserve Blekinge Archipelago - UNESCO application

Blekinge County Administrative Board has given the Swedish Society for Nature Conservation, Blekinge branch the opportunity to respond to the application to establish the Biosphere Reserve Blekinge Archipelago.

The Swedish Society for Nature Conservation views the application very positively and believes that Blekinge Archipelago with its great natural values, living cultural traditions, and exciting development opportunities and broad commitment has good potential to become a good biosphere reserve.

The Swedish Society for Nature Conservation has already given its opinion in the matter and has no additional opinion about the UNESCO application.

The Swedish Society for Nature Conservation, Blekinge branch

Through

Sam Skällberg, chairman

Biosfärkandidatområde Blekinge Arkipelag- ansökan till Unesco

Länsstyrelsen i Blekinge har berett Länbygderådet i Blekinge tillfälle att yttra sig inför ansökan om inrättandet av biosfärområde Blekinge Arkipelag.

Länsbygderådet ser positivt på ansökan och tror att Blekinge Arkipelag har goda förutsättningar att bli ett bra biosfärområde. Länsbygderådet i Blekinge har tidigare yttrat sig i ärendet och har inga ytterligare synpunkter på ansökan till Unesco.

Signatur
Jämjö den 10 februari 2010
Ordförande Bengt Grönblad

TRANSLATION OF ORIGINAL DOCUMENT

Biosphere Reserve Blekinge Archipelago UNESCO application

Blekinge County Administrative Board has given the Village action groups in Blekinge the opportunity to respond to the application to establish the Biosphere Reserve Blekinge Archipelago.

The Village action groups in Blekinge are in favor of the application and believe that Blekinge Archipelago has great potential to become a good biosphere reserve. The Village action groups in Blekinge have offered their opinion in the matter before and have no additional opinion about the UNESCO application.

Signature
Jämjö February 10, 2010
Chairman Bengt Grönblad

Biosphere reserve Blekinge Archipelago

Biosphere reserves are representative landscape sections of ecosystems that may include both land and water environments and that are internationally recognized under UNESCO's Man and the Biosphere Programme (MAB). Biosphere reserves are characterized by the coexistence of several concerns that reinforce each other. Biosphere reserves should promote social and economical development with local support; serve as arenas for research and education and safeguard biodiversity.

The World Network of Biosphere Reserves consists (May 2009) of 553 reserves in 107 countries. The network encourages partnership within regions and is a unique tool for international cooperation through exchange of knowledge, experiences and practical solutions. Cooperation within scientific research, global monitoring and specialist education/training is also encouraged. Biosphere Reserves are nominated by national governments and must be supported on both local and regional level. Certain criteria and conditions must be fulfilled before MAB/UNESCO gives a nominated site status as a Biosphere Reserve in the World network.

Biosphere reserves are model sites for sustainable development which implies that there should be possibilities for trying new and innovative development methods with a minimal affect on the high natural and cultural values that exist within the site. Biosphere reserves should demonstrate various degrees of human impact, encourage biodiversity, strengthen the function of ecosystems and contribute to social and economical development. Biosphere reserves should encompass large and naturally limited landscape sections, including water environments, with a mosaic of different habitats and landscapes. Biosphere reserves should be created through initiatives on local and regional levels. Local support and participation of the local community are foundational principles.

Further information on MAB and the World Network of Biosphere Reserves:
Swedish MAB Committee, Swedish Research Council, 101 38 Stockholm
www.biosfaromrade.org

Further information on the proposed Biosphere Reserve Blekinge Archipelago:
Anders Thurén, Biosphere candidate office, Naturum-Ronneby Brunnspark, 372 36 Ronneby.
www.blekingearkipelag.se

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